

CERTIFIED COPY OF ORDER

STATE OF MISSOURI

} ea.

November Session of the October Adjourned

Term. 20 13

County of Boone

In the County Commission of said county, on the

26th

day of

November

20 13

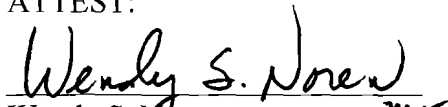
the following, among other proceedings, were had, viz:

Now on this day the County Commission of the County of Boone does hereby approve the following budget revision for Public Works to purchase a rubber tire loader.

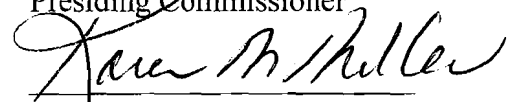
Department	Account	Department Name	Account Name	Decrease \$	Increase \$
2040	26420	Public Works – Main.	Culverts	114,500	
2040	92300	Public Works – Main.	Replacement Machinery & Equipment		114,500

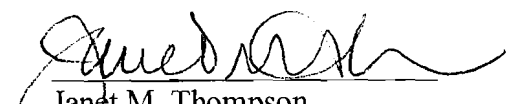
Done this 26th day of November, 2013.

ATTEST:


 Wendy S. Noren
 Clerk of the County Commission


 Daniel K. Atwill
 Presiding Commissioner


 Karen M. Miller
 District I Commissioner


 Janet M. Thompson
 District II Commissioner

STATE OF MISSOURI

County of Boone

} ss.

I,Clerk

of the County Commission, in and said County, hereby certify the above and foregoing to be a true copy of the proceedings of our said County Commission, on the day and year above written, as the same appears of record in my office.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said Commission, at office in

Columbia, Missouri, this the day of

20.....

Clerk County Commission

By D.C.

No.

Certified Copy of Order

of
BOONE COUNTY COMMISSION,
Made at

Term, 20

In the Matter of

Boone County Purchasing

Amy Robbins
Senior Buyer



613 E. Ash Street, Room 109
Columbia, MO 65201
Phone: (573) 886-4392
Fax: (573) 886-4390

MEMORANDUM

TO: Boone County Commission
FROM: Amy Robbins
DATE: November 19, 2013
RE: Purchase 3-120320RJ – John Deere 544K High Lift Wheel Loader /
Disposal 2007 Case 521D Rubber Tire Loader

Purchasing and Public Works request permission to utilize the Missouri Department of Transportation's cooperative contract number 3-120320RJ to purchase one (1) John Deere 544K High Lift Wheel Loader from Tri-State Construction Equipment Company of Ashland, MO and to trade-in one (1) 2007 Case 521D Rubber Tire Loader to the same vendor.

Total cost for the JD 544K Loader is \$143,000.00, less trade-in allowance for the 2007 Case Loader of \$28,500.00 for a grand total of \$114,500.00 and will be paid from department 2040 – Public Works Maintenance Operations, account 92300 - Replacement Machinery & Equipment. This agreement also includes a 3YR/1500 HR guaranteed buy-back option of \$102,000.00 that is available to the County.

Additionally, Public Works requests to dispose of the following:

<u>Description</u>	<u>Fixed Asset Tag</u>
2007 Case 521D Rubber Tire Loader SN: JEE0200050	15851

cc: Greg Edington, PW
Contract File

BOONE COUNTY, MISSOURI
REQUEST FOR BUDGET REVISION

11/18/13
EFFECTIVE DATE

NOV 18 2013

FOR AUDITORS USE

BOONE COUNTY AUDITOR

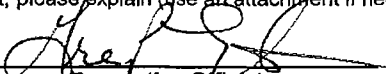
(Use whole \$ amounts)
 Transfer From Transfer To
 Decrease Increase

Dept	Account	Fund/Dept Name	Account Name	Transfer From Decrease	Transfer To Increase
2040	26420	PW-Maintenance	Culverts	114,500	
2040	92300	PW-Maintenance	Repl Machinery and Equipment		114,500
				<u>114,500</u>	<u>114,500</u>

Describe the circumstances requiring this Budget Revision. Please address any budgetary impact for the remainder of this year and subsequent years. (Use an attachment if necessary):

Move funding from anticipated cost savings in Class 2 into Class 9 Replacement Equipment fund to purchase a rubber tire loader. The existing equipment is extremely oxidized and may incur large repair expenses if the Dept does not replace the item.

Do you anticipate that this Budget Revision will provide sufficient funds to compete the year? YES or NO
 If not, please explain (use an attachment if necessary):



 Requesting Official

TO BE COMPLETED BY AUDITOR'S OFFICE

A schedule of previously processed Budget Revisions/Amendments is attached

Unencumbered funds are available for this budget revision.

Comments:



 PRESIDING COMMISSIONER

 DISTRICT I COMMISSIONER

 DISTRICT II COMMISSIONER



P.O. BOX 225
106 INDUSTRIAL DRIVE
ASHLAND, MO 65010
PHONE: 573-657-2154
FAX: 573-657-1012

10/31/2013
BOONE COUNTY PUBLIC WORKS
544K High Lift Wheel Loader
MODOT BID #3-12030RJ

Base	\$129,000.00
GP Bucket	\$1,080.00
Forks	\$95.00
3 YR/1500 HR Full Warranty	\$4,875.00
Martin Max Coverage	\$7,950.00
Total	\$143,000.00

2007 Case 521D Trade In	\$28,500.00
JEE0200050	
Total Including Trade	\$114,500.00

* Machine specs are from Martin Quote #5002912

Martin Equipment will offer a 3YR/1500HR Guarantee Buyback of \$102,000.00

* Machine has to be free of all damage, including tires, lights, sheet metal, glass, cutting edges, needs to be in operating condition.

Brian Rowe
Store Manager
Tri State Construction Equipment
106 Industrial Dr.
Ashland, Mo. 65010
573-657-2154 Office
5732-819-2219 Mobile



JOHN DEERE

Year	2013	Original Appropriation	<u>267,000.00</u>
Dept	2040 PW-MAINTENANCE OPERATIONS	Revisions	<u>11,800.00-</u>
Acct	26420 CULVERTS	Original, +, Revisions	<u>255,200.00</u>
Fund	204 ROAD & BRIDGE FUND	Expenditures	<u>86,047.76</u>
		Encumbrances	<u> </u>
Class/Account	A ACCOUNT	Actual To Date	<u>86,047.76</u>
Account Type	E EXPENSE	Remaining Balance	<u>169,152.24</u>
Normal Balance	D DEBIT	Shadow Balance	<u>169,152.24</u>

Expenditures by Period

January	<u> </u>	July	<u> </u>
February	<u> </u>	August	<u>22,857.70</u>
March	<u> </u>	September	<u>22,604.04</u>
April	<u> </u>	October	<u>19,583.12</u>
May	<u>21,002.90</u>	November	<u> </u>
June	<u> </u>	December	<u> </u>

F2=Key Scr F3=Exit F5=Ledger Transactions F7=Transactions F9=Budget

Year	<u>2013</u>	Original Appropriation	<u>650,660.00</u>
Dept	<u>2040 PW-MAINTENANCE OPERATIONS</u>	Revisions	<u>125,637.00</u>
Acct	<u>92300 REPLCMENT MACH & EQUIP</u>	Original + Revisions	<u>776,297.00</u>
Fund	<u>204 ROAD & BRIDGE FUND</u>	Expenditures	<u>774,396.12</u>
		Encumbrances	<u> </u>
Class/Account	<u>A ACCOUNT</u>	Actual To Date	<u>774,396.12</u>
Account Type	<u>E EXPENSE</u>	Remaining Balance	<u>1,900.88</u>
Normal Balance	<u>D DEBIT</u>	Shadow Balance	<u>1,900.84</u>

Expenditures by Period

January	<u> </u>	July	<u> </u>
February	<u> </u>	August	<u>2,200.00</u>
March	<u>363,445.00</u>	September	<u> </u>
April	<u>7,588.00</u>	October	<u>249,963.12</u>
May	<u> </u>	November	<u>151,200.00</u>
June	<u> </u>	December	<u> </u>

F2=Key Scr F3=Exit F5=Ledger Transactions F7=Transactions F9=Budget

CERTIFIED COPY OF ORDER

STATE OF MISSOURI

} ea.

November Session of the October Adjourned

Term. 20 13

County of Boone

In the County Commission of said county, on the

19th

day of

November

20 13

the following, among other proceedings, were had, viz:

Now on this day the County Commission of the County of Boone does hereby approve the following budget amendment to appropriate funds for the 609 E. Walnut Fire Restoration Capital Project.

Department	Account	Department Name	Account Name	Decrease \$	Increase \$
4070	3915	Law Office/IV D	OTI: From Capital Project Fund		129,510
4070	3945	Law Office/IV D	Insurance Recoveries Proceeds		433,210
4050	83919	General Capital Fund	OTO: To Capital Project Fund		126,510
4070	71201	Law Office/IV D	Construction		465,070
4070	71211	Law Office/IV D	Architect Fees		20,000
4070	71231	Law Office/IV D	Owner's Cost		49,500
4070	60100	Law Office/IV D	Building Repair Maintenance		2,100
4070	60125	Law Office/IV D	Custodial Services		26,000
4070	60200	Law Office/IV D	Equipment Repairs		50
					1,251,950

Done this 19th of November, 2013.

ATTEST:

Wendy S. Noren
 Wendy S. Noren
 Clerk of the County Commission

Daniel K. Atwill
 Daniel K. Atwill

Presiding Commissioner

Karen M. Miller

Karen M. Miller

District I Commissioner

Janet M. Thompson
 Janet M. Thompson

District II Commissioner

STATE OF MISSOURI

County of Boone

} ss.

I,Clerk

of the County Commission, in and said County, hereby certify the above and foregoing to be a true copy of the proceedings of our said County Commission, on the day and year above written, as the same appears of record in my office.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said Commission, at office in

Columbia, Missouri, this the day of

20.....

Clerk County Commission

By D.C.

No.

Certified Copy of Order

of
BOONE COUNTY COMMISSION,
Made at

Term, 20

In the Matter of

BOONE COUNTY, MISSOURI REQUEST FOR BUDGET AMENDMENT

EFFECTIVE DATE

FOR AUDITORS USE

(Use whole \$ amounts)

Transfer From Transfer To
Decrease Increase

Dept	Account	Fund/Dept Name	Account Name	Transfer From Decrease	Transfer To Increase
4070	3915	Law Office/IV D	OTI: From Capital Project Fund		129,510
4070	3945	Law Office/IV D	Insurance Recoveries Proceeds		433,210
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4070	71231	Law Office/IV D	Owner's Cost		49,500
4070	60100	Law Office/IV D	Building Repair Maintenance		2,100
4070	60125	Law Office/IV D	Custodial Services		26,000
4070	60200	Law Office/IV D	Equipment Repairs		50
				-	1,251,950

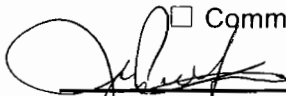
Describe the circumstances requiring this Budget Amendment. Please address any budgetary impact for the remainder of this year and subsequent years. (Use an attachment if necessary):

To appropriate funds for the 609 Walnut Fire Restoration Capital Project.

Requesting Official

TO BE COMPLETED BY AUDITOR'S OFFICE


- A schedule of previously processed Budget Revisions/Amendments is attached
- A fund-solvency schedule is attached.
- Comments:




 Auditor's Office



 PRESIDING COMMISSIONER



 DISTRICT I COMMISSIONER



 DISTRICT II COMMISSIONER

BUDGET AMENDMENT PROCEDURES

County Clerk schedules the Budget Amendment for a first reading on the commission agenda. A copy of the Budget Amendment and all attachments must be made available for public inspection and review for a period of at least 10 days commencing with the first reading of the Budget Amendment.

At the first reading, the Commission sets the Public Hearing date (at least 10 days hence) and instructs the County Clerk to provide at least 5 days public notice of the Public Hearing. **NOTE: The 10-day period may not be waived.**

The Budget Amendment may not be approved prior to the Public Hearing.

Budget/Financing on Law Office Fire Repair Fund 407 ; Dept 4070

Sources of Funds

	Budget - Amend #1 (CO)
<u>Project Revenues (3900)</u>	
Operating Transfers In	\$129,510.53
Insurance Proceeds	\$433,209.47
<u>Total Sources of Funds</u>	<u>\$562,720.00</u>

Uses of Funds

CONSTRUCTION (71201):

River City Construction - Base Bid	\$363,000.00
Asbestos Removal	\$3,400.00
C&C Group	\$15,870.00
Inside the Lines - Modular Walls	\$13,500.00
Steel Net - Cable Pulling	\$30,000.00
Alt 3 - Carpet cleaning, air testing	\$3,000.00
Construction Contingency	\$36,300.00
<u>Total Construction Cost</u>	<u>\$465,070.00</u>

Architect Fees (71211) :

Architect - John Simon & Associates	\$20,000.00
-Reimbursables	
<u>Total Architect/Engineering Fees</u>	<u>\$20,000.00</u>

Owner's Cost (71231):

Alt 1 - 2nd Floor	\$2,500.00
Alt 2 - Child Support/Community Services	\$21,500.00
Alt 4 - Overlay Parking Lot	\$12,500.00
City of Columbia - Fiber Connection	\$500.00
Moving Expense	\$5,000.00
CenturyLink - phone wiring	\$2,500.00
OC Contingency	\$5,000.00
<u>Total Owner's Cost</u>	<u>\$49,500.00</u>

** change since
1st reading*

Building Repair Maintenance (60100):

Schneider Electric -	\$1,598.00
Asbestos Removal Services	\$502.00
<u>Total Building Repair</u>	<u>\$2,100.00</u>

Custodial Janitorial Services (60125):

ServPro	\$26,000.00
<u>Total Custodial Services</u>	<u>\$26,000.00</u>

Equipment Repairs (60200):

Alarm Communications Center	\$50.00
<u>Total Custodial Services</u>	<u>\$50.00</u>

Total Project Budget

\$562,720.00

CERTIFIED COPY OF ORDER

STATE OF MISSOURI }
County of Boone } ea.

November Session of the October Adjourned

Term. 20 13

In the County Commission of said county, on the 26th day of November 20 13

the following, among other proceedings, were had, viz:

Now on this day the County Commission of the County of Boone does hereby award bid 37-15OCT13 – 609 E. Walnut Offices to River City Construction, LLC of Ashland, MO. The terms of the agreement are stipulated in the attached Purchase Agreement. It is further ordered the Presiding Commissioner is hereby authorized to sign said Purchase Agreement.

Done this 26th day of November, 2013.

ATTEST:

Wendy S. Noren
Wendy S. Noren
Clerk of the County Commission

Daniel K. Atwill
Daniel K. Atwill
Presiding Commissioner

Karen M. Miller
Karen M. Miller
District I Commissioner

Janet M. Thompson
Janet M. Thompson
District II Commissioner

STATE OF MISSOURI

County of Boone

} ss.

I,Clerk

of the County Commission, in and said County, hereby certify the above and foregoing to be a true copy of the proceedings of our said County Commission, on the day and year above written, as the same appears of record in my office.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said Commission, at office in

Columbia, Missouri, this the day of

20.....

Clerk County Commission

By D.C.

No.

Certified Copy of Order

of
BOONE COUNTY COMMISSION,
Made at

Term, 20

In the Matter of

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into by and between the County of Boone through the Boone County Commission (hereinafter referred to as the Owner), and **River City Construction, L.L.C.** (hereinafter referred to as the Contractor).

WITNESSETH: That for and in consideration of the acceptance of Contractor's bid and the award of this contract to said Contractor by the Owner and in further consideration of the agreements of the parties herein contained, to be well and truly observed and faithfully kept by them, and each of them, it is agreed between the parties as follows, to wit:

The Contractor at his own Expense hereby agrees to do or furnish all labor, materials, and equipment called for in the bid designated and marked:

**BID NUMBER 37-15OCT13
BOONE COUNTY WALNUT OFFICE
BOONE COUNTY, MISSOURI**

and agrees to perform all the work required by the contract as shown on the plans and specifications. The contract award is:

Base Bid	\$363,000.00
Renovations to existing 609 East Walnut Office building to remediate the fire damage and to adapt the building for new office use requirements. In addition to the fire renovation work the scope of the project will include construction of a separation wall on the second floor of the building located at 101 N. 7 th Street.	
Alternate Bid Number 1	\$2,500.00
All work associated with the second floor of 101 N. 7 th Street	
Alternate Bid Number 2	\$21,500.00
Addition of walls, wet bar, extension of existent walls and add electric strike to existing exterior doors at 605 Walnut.	
Alternate Bid Number 4	\$12,500.00
Overlay existing parking lot with asphalt to drain toward E. Walnut Street	
Total	\$399,500.00

Alternate Bid Number 3 to remove and replace all existing carpet and repaint all walls in 605 Walnut is not part of this contract at this time. Pricing of \$39,700.00 for Alternate #3 will remain firm for 90 days from contract date and contract may be amended to add Alternate 3 during that 90 day period.

The following contract documents and any applicable Addenda are made a part hereof as fully as if set out herein: Change orders issued subsequent to this contract shall be subject to the terms and conditions of the agreement unless otherwise specified in writing.

Notice to Bidders

Bid Response
Statement of Bidder's Qualifications
Instructions to Bidders
Bidding Guidelines
Bid Forms
Anti-Collusion Statement
Signature and Identity of Bidder
Bidder's Acknowledgment
Work Authorization Certification
Insurance Requirements
Contract Conditions
Contract Agreement
Debarment Certification
Performance Bond
Labor & Material Payment Bond
General Specifications
Technical Specifications
Special Project Conditions
Affidavit - OSHA Requirements
Affidavit - Prevailing Wage
Appendix A - State Wage Rates – Annual Wage Order #20
Appendix B - Boone County Standard Terms and Conditions
Appendix C - Asbestos Survey Report
Appendix D – Drawings
Addendum Numbers 1, 2

The Contractor agrees that he is fully informed regarding all of the conditions affecting the work to be done, and labor and materials to be furnished for the completion of this contract, and that his information was secured by personal investigation and research and not from any estimates of the Owner; and that he will make no claim against the Owner by reason of estimates, tests, or representation of any officer, agent, or employees of the Owner.

The said Contractor agrees further to begin work not later than the authorized date in the Notice to Proceed, and to complete the work within the time specified in the contract documents or such additional time as may be allowed by the Engineer under the contract.

The work shall be done to complete satisfaction of the Owner and, in the case the Federal Government or any agency thereof is participating in the payment of the cost of construction of the work, the work shall also be subject to inspection and approval at all times by the proper agent or officials of such government agency.

The parties hereto agree that this contract in all things shall be governed by the laws of the State of Missouri.

Contractor agrees it will pay not less than the prevailing hourly rate of wages to all workers performing work under the contract in accordance with the prevailing wage determination issued by the Division of Labor Standards of the Department of Labor and Industrial Relations for the State of Missouri and as maintained on file with the Boone County Resource Management Department.

The Contractor further agrees that it shall forfeit as a penalty to the County of Boone the sum of \$100.00 for each worker employed for each calendar day or portion thereof such worker is paid less than the stipulated rates set forth in the prevailing wage determination for the project for any work done under this contract by

the Contractor or by any Subcontractor employed by the Contractor pursuant to the provisions of Section 290.250 RSMo. The Contractor further agrees that it will abide by all provisions of the prevailing wage law as set forth in Chapter 290 RSMo. and rules and regulations issued thereunder and that any penalties assessed may be withheld from sums due to the Contractor by the Owner.

The contractor agrees that he will comply with all federal, state, and local laws and regulations and ordinances and that he/she will comply and cause each of his/her subcontractors, and directives pertaining to nondiscrimination against any person on the grounds of race, color, religion, creed, sex, age, ancestry, or national origin in connection with this contract, including procurement of materials and lease of equipment; therefore, in accordance with the special provisions on that subject attached hereto, incorporated in and made a part of the Contract.

The Contractor expressly warrants that he/she has employed no third person to solicit or obtain this contract in his behalf, or to cause or procure the same to be obtained upon compensation in any way contingent, in whole or in part, upon such procurement; and that he has not paid, or promised or agreed to pay to any third person, in consideration of such procurement, or in compensation for services in connection therewith, any brokerage, commission or percentage upon the amount receivable by him hereunder; and that he has not, in estimating the contract price demand by him, included any sum by reason of such brokerage, commission, or percentage; and that all moneys payable to him hereunder are free from obligation of any other person for services rendered, or supposed to have been rendered, in the procurement of this contract. He further agrees that any breach of this warranty shall constitute adequate cause for the annulment of this contract by the Owner, and that the Owner may retain to its own use from any sums due to or to become due hereunder an amount equal to any brokerage, commission, or percentage so paid, or agreed to be paid.

The Contractor is aware of the provisions of the Overhead Power Line Safety Act, 319.075 to 319.090 RSMo, and agrees to comply with the provisions thereof. Contractor understands that is their duty to notify any utility operating high voltage overhead lines and make appropriate arrangements with said utility if the performance of contract would cause any activity within ten feet of any high voltage overhead line. To the fullest extent permitted by law, Contractor shall indemnify, hold harmless and defend the County, its directors, officers, agents, and employees from and against all claims, damages, losses and expenses (including but not limited to attorney's fees) arising by reason of any act or failure to act, negligent or otherwise, of Contractor, of any subcontractor (meaning anyone, including but not limited to consultants having a contract with contractor or a subcontract for part of the services), of anyone directly or indirectly employed by contractor or by any subcontractor, or of anyone for whose acts the contractor or its subcontractor may be liable, in connection with any claims arising under the Overhead Power Line Safety Act. Contractor expressly waives any action for Contribution against the County on behalf of the Contractor, any subcontractor (meaning anyone, including but not limited to consultants having a contract with contractor or a subcontract for part of the services), anyone directly or indirectly employed by contractor or by any subcontractor, or of anyone for whose acts the contractor or its subcontractor may be liable, and agrees to provide a copy of this waiver to any party affected by this provision.

The Owner agrees to pay the Contractor in the amount:

Three Hundred Ninety Nine Thousand Five Hundred Dollars and Zero Cents (\$399,500.00)

as full compensation for the performance of work embraced in this contract, subject to the terms of payment as provided in the contract documents and subject to adjustment as provided for changes in quantities and approved change orders.

IN WITNESS WHEREOF, the parties hereto have signed and entered this agreement on 11-26-13
at Columbia, Missouri. (Date)

CONTRACTOR:
RIVER CITY CONSTRUCTION, L.L.C.

OWNER:
BOONE COUNTY, MISSOURI

By: [Signature]
Authorized Representative Signature

By: [Signature]
Daniel K. Atwill, Presiding Commissioner

By: John SUTHERLAND
Authorized Representative Printed Name
Title: VICE PRESIDENT



Approved as to Legal Form:
[Signature]
CJ Dykhouse
Boone County Counselor

ATTEST:
[Signature]
Wendy Noren
County Clerk

AUDITOR CERTIFICATION

In accordance with RSMo 50.660, I hereby certify that a sufficient unencumbered appropriation balance exists and is available to satisfy the obligation(s) arising from this contract. (Note: Certification of this contract is not required if the terms of the contract do not create a measurable county obligation at this time.)

[Signature] 11/26/2013 4070-71201 - ~~\$399,500.00~~ ^{363,000} - 436,500
Signature Date Appropriation Account

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS, that we,

River City Construction, LLC

6640 American Setter Drive, Ashland, MO 65010

as Principal, hereinafter called Contractor, and Continental Casualty Company

333 S Wabash Ave, Chicago, IL 60604

a Corporation, organized under the laws of the State of Illinois

and authorized to transact business in the State of Missouri, as Surety, hereinafter called Surety,

are held and firmly bound unto the County of Boone, Missouri, as Obligee, hereinafter called

Owner, in the amount of Three Hundred Ninety-Nine Thousand Five Hundred no/100 (\$399,500) Dollars,

for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents:

WHEREAS, Contractor has, by written agreement dated _____ entered into a Contract with Owner for:

**BID NUMBER 37-15OCT13
BOONE COUNTY WALNUT OFFICE
BOONE COUNTY, MISSOURI**

in accordance with the specifications and/or prepared by the County of Boone, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly and faithfully perform said Contract, and shall faithfully perform the prevailing hourly wages and comply with all prevailing wage requirements as provided by such Contract and applicable prevailing wage laws, rules, and rates specified by regulation thereunder, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be, in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- 1) Complete the Contract in accordance with its terms and conditions, or
- 2) Obtain a bid for submission to Owner for completing the Contract in accordance with its terms and conditions, and upon determination by Owner and Surety of the lowest responsible bidder, arrange for a Contract between such bidder and Owner, and make available as work progresses (even though there should be a default of a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient fund to pay the cost of completion less the balance of the Contract price, but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract price", as used in this paragraph, shall mean the total amount payable by

Owner to Contractor under the Contract and any amendments thereto, less the amount properly paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of owner.

IN TESTIMONY WHEREOF, the Contractor has hereunto set his hand and the Surety has caused these presents to be executed in its name, and its corporate seal to be affixed by its Attorney-In-Fact at Peoria, Illinois, on this _____ day of _____, 2013.



River City Construction, LLC
(Contractor)

[Handwritten Signature]

Continental Casualty Company
(Surety Company)

(SEAL)

BY: Nicholas G. Yates
Nicholas G. Yates (Attorney-In-Fact)

BY: Nicholas G. Yates
Nicholas G. Yates (Missouri Representative)

(Accompany this bond with Attorney-In-Fact's authority from the Surety Company certified to include the date of this bond.)

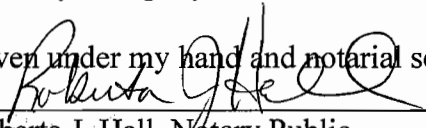
Surety Contact Name: Andrea Warning
Phone Number: 630-719-3100
Address: 801 Warrensville Rd, Suite 700
Lisle, IL 60532

STATE OF
COUNTY OF

Illinois
Peoria

I, Roberta J. Hall, Notary Public of Peoria County, in the State of Illinois, do hereby certify that Nicholas G. Yates, Attorney-in-Fact, of the Continental Casualty Company, who is personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that he signed, sealed and delivered said instrument, for and on behalf of the Continental Casualty Company, for the uses and purposes therein set forth.

Given under my hand and notarial seal in said County, this ____ day of November, 2013.


Roberta J. Hall, Notary Public
My Commission Expires June 6, 2014



POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company (herein called "the CNA Companies"), are duly organized and existing insurance companies having their principal offices in the City of Chicago, and State of Illinois, and that they do by virtue of the signatures and seals herein affixed hereby make, constitute and appoint

Nicholas G Yates, Peter T Coyle, Paula G Chaney, Susan E Mansfield, Roberta J Hall, Steven J Lohmeier, Individually

of Peoria, IL, their true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on their behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind them thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of their insurance companies and all the acts of said Attorney, pursuant to the authority hereby given is hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law and Resolutions, printed on the reverse hereof, duly adopted, as indicated, by the Boards of Directors of the insurance companies.

In Witness Whereof, the CNA Companies have caused these presents to be signed by their Vice President and their corporate seals to be hereto affixed on this 27th day of August, 2013.

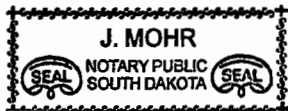


Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

Paul T. Bruflat
Vice President

State of South Dakota, County of Minnehaha, ss:

On this 27th day of August, 2013, before me personally came Paul T. Bruflat to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is a Vice President of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company described in and which executed the above instrument; that he knows the seals of said insurance companies; that the seals affixed to the said instrument are such corporate seals; that they were so affixed pursuant to authority given by the Boards of Directors of said insurance companies and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said insurance companies.



My Commission Expires June 23, 2015

J. Mohr
Notary Public

CERTIFICATE

I, D. Bult, Assistant Secretary of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company do hereby certify that the Power of Attorney herein above set forth is still in force, and further certify that the By-Law and Resolution of the Board of Directors of the insurance companies printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said insurance companies this November 2013 day of



Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

D. Bult
Assistant Secretary

Authorizing By-Laws and Resolutions

ADOPTED BY THE BOARD OF DIRECTORS OF CONTINENTAL CASUALTY COMPANY:

This Power of Attorney is made and executed pursuant to and by authority of the following resolution duly adopted by the Board of Directors of the Company at a meeting held on May 12, 1995:

“RESOLVED: That any Senior or Group Vice President may authorize an officer to sign specific documents, agreements and instruments on behalf of the Company provided that the name of such authorized officer and a description of the documents, agreements or instruments that such officer may sign will be provided in writing by the Senior or Group Vice President to the Secretary of the Company prior to such execution becoming effective.”

This Power of Attorney is signed by Paul T. Bruflat, Vice President, who has been authorized pursuant to the above resolution to execute power of attorneys on behalf of Continental Casualty Company.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company by unanimous written consent dated the 25th day of April, 2012:

“Whereas, the bylaws of the Company or specific resolution of the Board of Directors has authorized various officers (the “Authorized Officers”) to execute various policies, bonds, undertakings and other obligatory instruments of like nature; and

Whereas, from time to time, the signature of the Authorized Officers, in addition to being provided in original, hard copy format, may be provided via facsimile or otherwise in an electronic format (collectively, “Electronic Signatures”); Now therefore be it resolved: that the Electronic Signature of any Authorized Officer shall be valid and binding on the Company.”

ADOPTED BY THE BOARD OF DIRECTORS OF NATIONAL FIRE INSURANCE COMPANY OF HARTFORD:

This Power of Attorney is made and executed pursuant to and by authority of the following resolution duly adopted by the Board of Directors of the Company by unanimous written consent dated May 10, 1995:

“RESOLVED: That any Senior or Group Vice President may authorize an officer to sign specific documents, agreements and instruments on behalf of the Company provided that the name of such authorized officer and a description of the documents, agreements or instruments that such officer may sign will be provided in writing by the Senior or Group Vice President to the Secretary of the Company prior to such execution becoming effective.”

This Power of Attorney is signed by Paul T. Bruflat, Vice President, who has been authorized pursuant to the above resolution to execute power of attorneys on behalf of National fire Insurance Company of Hartford.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company by unanimous written consent dated the 25th day of April, 2012:

“Whereas, the bylaws of the Company or specific resolution of the Board of Directors has authorized various officers (the “Authorized Officers”) to execute various policies, bonds, undertakings and other obligatory instruments of like nature; and

Whereas, from time to time, the signature of the Authorized Officers, in addition to being provided in original, hard copy format, may be provided via facsimile or otherwise in an electronic format (collectively, “Electronic Signatures”); Now therefore be it resolved: that the Electronic Signature of any Authorized Officer shall be valid and binding on the Company.”

ADOPTED BY THE BOARD OF DIRECTORS OF AMERICAN CASUALTY COMPANY OF READING, PENNSYLVANIA:

This Power of Attorney is made and executed pursuant to and by authority of the following resolution duly adopted by the Board of Directors of the Company by unanimous written consent dated May 10, 1995:

“RESOLVED: That any Senior or Group Vice President may authorize an officer to sign specific documents, agreements and instruments on behalf of the Company provided that the name of such authorized officer and a description of the documents, agreements or instruments that such officer may sign will be provided in writing by the Senior or Group Vice President to the Secretary of the Company prior to such execution becoming effective.”

This Power of Attorney is signed by Paul T. Bruflat, Vice President, who has been authorized pursuant to the above resolution to execute power of attorneys on behalf of American Casualty Company of Reading, Pennsylvania.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company by unanimous written consent dated the 25th day of April, 2012:

“Whereas, the bylaws of the Company or specific resolution of the Board of Directors has authorized various officers (the “Authorized Officers”) to execute various policies, bonds, undertakings and other obligatory instruments of like nature; and

Whereas, from time to time, the signature of the Authorized Officers, in addition to being provided in original, hard copy format, may be provided via facsimile or otherwise in an electronic format (collectively, “Electronic Signatures”); Now therefore be it resolved: that the Electronic Signature of any Authorized Officer shall be valid and binding on the Company.”

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS, that we, River City Construction, LLC
6640 American Setter Drive, Ashland, MO 65010

as Principal, hereinafter called Contractor, and Continental Casualty Company
333 S Wabash Ave, Chicago, IL 60604

a corporation organized under the laws of the State of Illinois,

and authorized to transact business in the State of Missouri, as Surety, hereinafter called Surety,
are held and firmly bound unto the County of Boone, Missouri, as Obligee, hereinafter called
Owner, for the use and benefit of claimants as herein below defined, in the amount of

Three Hundred Ninety-Nine Thousand Five Hundred no/100 DOLLARS

(\$ 399,500.00), for the payment whereof Contractor and Surety bind themselves,
their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by
these presents:

WHEREAS, Contractor has by written agreement dated _____ entered
into a contract with Owner for

**BID NUMBER 37-15OCT13
BOONE COUNTY WALNUT OFFICE
BOONE COUNTY, MISSOURI**

in accordance with specifications and/or plans prepared by the County of Boone which contract
is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that the Contractor
shall promptly make payments to all claimants as hereinafter defined, for all labor and material
used or reasonably required for use in the performance of the Contract, then this obligation shall
be void; otherwise, it shall remain in full force and effect, subject, however, to the following
conditions.

- A. A claimant is defined as one having a direct contract with the Contractor or with a subcontractor of the Contractor for labor, material, or both, used or reasonably required for use in the performance of the Contract; labor and material being construed to include the part of water, gas, power, light, heat, oil, gasoline, telephone service, rental, or equipment directly applicable to the Contract.
- B. The above named Contractor and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The owner shall not be liable for the payment of any costs or expenses of any such suit.
- C. No suit or action shall be commenced hereunder by any claimant:

1. Unless claimant, other than one having a direct contact with the Contractor, shall have given written notice to any two of the following: the Contractor, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Contractor, Owner, or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

2. After the expiration of one (1) year following the date on which Contractor ceased work on said contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

3. Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the project, or any part thereof, is situated or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.

D. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of Mechanic's Liens which may be filed on record against said improvement, whether or not claim for the amount of such lien be presented under or against this bond.

IN TESTIMONY WHEREOF, the Contractor has hereunto set their hand and the Surety caused these present to be executed in its name and its corporate seal to be affixed by its Attorney-In-Fact at Peoria, Illinois on this _____ day of _____

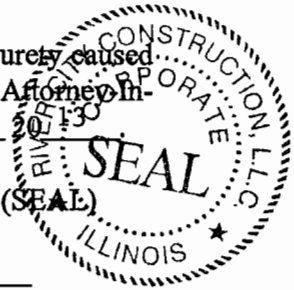
CONTRACTOR River City Construction, LLC (SEAL)

BY: [Signature]

SURETY COMPANY Continental Casualty Company

BY: Nicholas G. Yates
(Attorney-In-Fact) Nicholas G. Yates

BY: Nicholas G. Yates
(Missouri Representative) Nicholas G. Yates



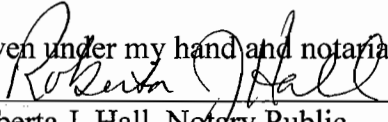
(Accompany this bond with Attorney-In-Fact's authority from the Surety Company certified to include the date of this bond. Include Surety's address and contact name with phone number).

STATE OF
COUNTY OF

Illinois
Peoria

I, Roberta J. Hall, Notary Public of Peoria County, in the State of Illinois, do hereby certify that Nicholas G. Yates, Attorney-in-Fact, of the Continental Casualty Company, who is personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that he signed, sealed and delivered said instrument, for and on behalf of the Continental Casualty Company, for the uses and purposes therein set forth.

Given under my hand and notarial seal in said County, this ____ day of November, 2013.



Roberta J. Hall, Notary Public
My Commission Expires June 6, 2014



POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company (herein called "the CNA Companies"), are duly organized and existing insurance companies having their principal offices in the City of Chicago, and State of Illinois, and that they do by virtue of the signatures and seals herein affixed hereby make, constitute and appoint

Nicholas G Yates, Peter T Coyle, Paula G Chaney, Susan E Mansfield, Roberta J Hall, Steven J Lohmeier, Individually

of Peoria, IL, their true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on their behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind them thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of their insurance companies and all the acts of said Attorney, pursuant to the authority hereby given is hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law and Resolutions, printed on the reverse hereof, duly adopted, as indicated, by the Boards of Directors of the insurance companies.

In Witness Whereof, the CNA Companies have caused these presents to be signed by their Vice President and their corporate seals to be hereto affixed on this 27th day of August, 2013.

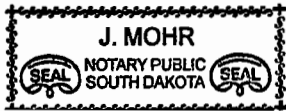


Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

Paul T. Bruflat
Vice President

State of South Dakota, County of Minnehaha, ss:

On this 27th day of August, 2013, before me personally came Paul T. Bruflat to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is a Vice President of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company described in and which executed the above instrument; that he knows the seals of said insurance companies; that the seals affixed to the said instrument are such corporate seals; that they were so affixed pursuant to authority given by the Boards of Directors of said insurance companies and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said insurance companies.



My Commission Expires June 23, 2015

J. Mohr
Notary Public

CERTIFICATE

I, D. Bult, Assistant Secretary of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company do hereby certify that the Power of Attorney herein above set forth is still in force, and further certify that the By-Law and Resolution of the Board of Directors of the insurance companies printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said insurance companies this November 2013 day of



Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

D. Bult
Assistant Secretary

Authorizing By-Laws and Resolutions

ADOPTED BY THE BOARD OF DIRECTORS OF CONTINENTAL CASUALTY COMPANY:

This Power of Attorney is made and executed pursuant to and by authority of the following resolution duly adopted by the Board of Directors of the Company at a meeting held on May 12, 1995:

“RESOLVED: That any Senior or Group Vice President may authorize an officer to sign specific documents, agreements and instruments on behalf of the Company provided that the name of such authorized officer and a description of the documents, agreements or instruments that such officer may sign will be provided in writing by the Senior or Group Vice President to the Secretary of the Company prior to such execution becoming effective.”

This Power of Attorney is signed by Paul T. Bruflat, Vice President, who has been authorized pursuant to the above resolution to execute power of attorneys on behalf of Continental Casualty Company.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company by unanimous written consent dated the 25th day of April, 2012:

“Whereas, the bylaws of the Company or specific resolution of the Board of Directors has authorized various officers (the “Authorized Officers”) to execute various policies, bonds, undertakings and other obligatory instruments of like nature; and

Whereas, from time to time, the signature of the Authorized Officers, in addition to being provided in original, hard copy format, may be provided via facsimile or otherwise in an electronic format (collectively, “Electronic Signatures”); Now therefore be it resolved: that the Electronic Signature of any Authorized Officer shall be valid and binding on the Company.”

ADOPTED BY THE BOARD OF DIRECTORS OF NATIONAL FIRE INSURANCE COMPANY OF HARTFORD:

This Power of Attorney is made and executed pursuant to and by authority of the following resolution duly adopted by the Board of Directors of the Company by unanimous written consent dated May 10, 1995:

“RESOLVED: That any Senior or Group Vice President may authorize an officer to sign specific documents, agreements and instruments on behalf of the Company provided that the name of such authorized officer and a description of the documents, agreements or instruments that such officer may sign will be provided in writing by the Senior or Group Vice President to the Secretary of the Company prior to such execution becoming effective.”

This Power of Attorney is signed by Paul T. Bruflat, Vice President, who has been authorized pursuant to the above resolution to execute power of attorneys on behalf of National fire Insurance Company of Hartford.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company by unanimous written consent dated the 25th day of April, 2012:

“Whereas, the bylaws of the Company or specific resolution of the Board of Directors has authorized various officers (the “Authorized Officers”) to execute various policies, bonds, undertakings and other obligatory instruments of like nature; and

Whereas, from time to time, the signature of the Authorized Officers, in addition to being provided in original, hard copy format, may be provided via facsimile or otherwise in an electronic format (collectively, “Electronic Signatures”); Now therefore be it resolved: that the Electronic Signature of any Authorized Officer shall be valid and binding on the Company.”

ADOPTED BY THE BOARD OF DIRECTORS OF AMERICAN CASUALTY COMPANY OF READING, PENNSYLVANIA:

This Power of Attorney is made and executed pursuant to and by authority of the following resolution duly adopted by the Board of Directors of the Company by unanimous written consent dated May 10, 1995:

“RESOLVED: That any Senior or Group Vice President may authorize an officer to sign specific documents, agreements and instruments on behalf of the Company provided that the name of such authorized officer and a description of the documents, agreements or instruments that such officer may sign will be provided in writing by the Senior or Group Vice President to the Secretary of the Company prior to such execution becoming effective.”

This Power of Attorney is signed by Paul T. Bruflat, Vice President, who has been authorized pursuant to the above resolution to execute power of attorneys on behalf of American Casualty Company of Reading, Pennsylvania.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company by unanimous written consent dated the 25th day of April, 2012:

“Whereas, the bylaws of the Company or specific resolution of the Board of Directors has authorized various officers (the “Authorized Officers”) to execute various policies, bonds, undertakings and other obligatory instruments of like nature; and

Whereas, from time to time, the signature of the Authorized Officers, in addition to being provided in original, hard copy format, may be provided via facsimile or otherwise in an electronic format (collectively, “Electronic Signatures”); Now therefore be it resolved: that the Electronic Signature of any Authorized Officer shall be valid and binding on the Company.”



RIVECIT-10

RJHALL

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

11/8/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Arthur J. Gallagher Risk Management Services, Inc. 4921 N. Glen Park Place Peoria, IL 61614	CONTACT NAME: Nicholas Yates PHONE (A/C, No, Ext): (309) 692-5522 E-MAIL ADDRESS: nick_yates@ajg.com	FAX (A/C, No): (309) 692-5099
	INSURER(S) AFFORDING COVERAGE	
INSURED River City Construction, LLC 6640 American Setter Dr Ashland, MO 65010	INSURER A: XL Insurance America, Inc. NAIC # 24454	
	INSURER B: XL Specialty Insurance Company 37885	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY	X		CGG7409182	12/31/2012	12/31/2013	EACH OCCURRENCE \$ 1,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 500,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						MED EXP (Any one person) \$ 10,000
							PERSONAL & ADV INJURY \$ 1,000,000
							GENERAL AGGREGATE \$ 2,000,000
GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC							PRODUCTS - COMPI/OP AGG \$ 2,000,000 \$
A	AUTOMOBILE LIABILITY	X		CAH7409183	12/31/2012	12/31/2013	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS						BODILY INJURY (Per person) \$
	<input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS						BODILY INJURY (Per accident) \$
							PROPERTY DAMAGE (PER ACCIDENT) \$
							\$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR	X		US00064578L112A	12/31/2012	12/31/2013	EACH OCCURRENCE \$ 25,000,000
	<input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE						AGGREGATE \$ 25,000,000
	<input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$						\$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	Y/N	N/A	CWG7409181	12/31/2012	12/31/2013	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)						E.L. EACH ACCIDENT \$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$ 1,000,000
							E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
 RE: #37-15OCT13 - Boone County Walnut Office

CERTIFICATE HOLDER**CANCELLATION**

County of Boone, Missouri
 Boone County Purchasing
 613 E. Ash, Rm. 110
 Columbia, MO 65201

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Nick Yates

© 1988-2010 ACORD CORPORATION. All rights reserved.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):	Location And Description Of Completed Operations
ANY PERSON OR ORGANIZATION THAT YOU ARE REQUIRED IN A WRITTEN CONTRACT OR WRITTEN AGREEMENT TO INCLUDE AS AN ADDITIONAL INSURED PROVIDED THE "BODILY INJURY" OR "PROPERTY DAMAGE" OCCURS SUBSEQUENT TO THE EXECUTION OF THE WRITTEN CONTRACT OR WRITTEN AGREEMENT.	VARIOUS AS REQUIRED PER WRITTEN CONTRACT.
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):	Location(s) Of Covered Operations
<p>ANY PERSON OR ORGANIZATION THAT YOU ARE REQUIRED IN A WRITTEN CONTRACT OR WRITTEN AGREEMENT TO INCLUDE AS AN ADDITIONAL INSURED PROVIDED THE "BODILY INJURY" OR "PROPERTY DAMAGE" OCCURS SUBSEQUENT TO THE EXECUTION OF THE WRITTEN CONTRACT OR WRITTEN AGREEMENT.</p>	<p>VARIOUS AS REQUIRED PER WRITTEN CONTRACT.</p>
<p>Information required to complete this Schedule, if not shown above, will be shown in the Declarations.</p>	

A. Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

B. With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

XL PLUS BUSINESS AUTO EXTENSION ENDORSEMENT

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

COVERAGE DESCRIPTION

- A. Temporary Substitute Auto Physical Damage**
- B. Who Is An Insured**
 - 1. Broad Form Insured**
 - 2. Employees As Insureds**
 - 3. Additional Insured By Contract, Agreement or Permit**
 - 4. Employee Hired Autos**
- C. Supplementary Payments**
- D. Amended Fellow Employee Exclusion**
- E. Physical Damage Coverage**
 - 1. Rental Reimbursement**
 - 2. Extra Expense – Broadened Coverage**
 - 3. Personal Effects Coverage**
 - 4. Lease Gap**
 - 5. Glass Repair – Waiver Of Deductible**
- F. Physical Damage Coverage Extensions**
 - 1. Additional Transportation Expense**
 - 2. Hired Auto Physical Damage**
- G. Business Auto Conditions**
 - 1. Notice Of Occurrence**
 - 2. Waiver Of Subrogation**
 - 3. Unintentional Failure To Disclose Hazards**
 - 4. Primary Insurance**
- H. Bodily Injury Redefined**
- I. Extended Cancellation Condition**

A. Temporary Substitute Auto Physical Damage

SECTION I – COVERED AUTOS, C. Certain Trallers, Mobile Equipment And Temporary Substitute Autos is changed by adding the following:

If Physical Damage coverage is provided by this Coverage Form, the following types of vehicles are also covered "autos" for Physical Damage coverage:

1. Any "auto" you do not own while used with the permission of its owner as a temporary substitute for a covered "auto" you own that is out of service because of its:
 - a. Breakdown;
 - b. Repair;
 - c. Servicing;
 - d. "Loss"; or
 - e. Destruction.

B. Who Is An Insured

SECTION II – LIABILITY COVERAGE, A. Coverage, 1. Who Is An Insured is changed by adding the following:

1. Broad Form Insured

For any covered "auto", any subsidiary, affiliate or organization, other than a partnership or joint venture, as may now exist or hereafter be constituted over which you assume active management or maintain ownership or majority interest, provided that you notify us within 90 days from the date that any such subsidiary or affiliate is acquired or formed and that there is no similar insurance available to that organization. However, coverage does not apply to "bodily injury" or "property damage" that occurred before you acquired or formed the organization.

2. Employees As Insureds

Any "employee" of yours is an "insured" while using a covered "auto" you don't own, hire or borrow, in your business or your personal affairs.

3. Additional Insured By Contract, Agreement Or Permit

Any person or organization with whom you have agreed in writing in a contract, agreement or permit, to provide insurance such as is provided under this policy, provided that the "bodily injury" or "property damage" occurs subsequent to the execution of the written contract, agreement or permit.

4. Employee Hired Autos

An "employee" of yours is an "insured" while operating an "auto" hired or rented under a contract or agreement in that "employee's" name, with your permission, while performing duties related to the conduct of your business.

SECTION IV – BUSINESS AUTO CONDITIONS, B. General Conditions, 5. Other Insurance, b. is replaced with the following:

b. For Hired Auto Physical Damage Coverage, the following are deemed to be covered "autos" you own:

- (1)** Any covered "auto" you lease, hire, rent or borrow; and
- (2)** Any covered "auto" hired or rented by your "employee" under a contract in that individual "employee's" name, with your permission, while performing duties related to the conduct of your business.

However, any "auto" that is leased, hired, rented or borrowed with a driver is not a covered "auto".

C. Supplementary Payments

SECTION II – LIABILITY COVERAGE, A. Coverage, 2. Coverage Extensions, a. Supplementary Payments is changed as follows:

Item **(2)** is deleted and replaced by the following:

- (2)** Up to \$3,500 for cost of bail bonds (including bonds for related traffic law violations) required because of an "accident" we cover. We do not have to furnish these bonds.

Item **(4)** is deleted and replaced by the following:

- (4)** All reasonable expenses incurred by the "insured" at our request, including actual loss of earnings up to \$500 a day because of time off from work.

D. Amended Fellow Employee Exclusion

SECTION II – LIABILITY COVERAGE, B. Exclusions, 5. Fellow Employee does not apply.

The insurance provided under this Provision **D.** is excess over any other collectible insurance.

E. Physical Damage Coverage

SECTION III – PHYSICAL DAMAGE COVERAGE, A. Coverage is changed by adding the following:

1. Rental Reimbursement

- a.** We will pay for rental reimbursement expenses incurred by you for the rental of an "auto" because of "loss" to a covered "auto". Payment applies in addition to the otherwise applicable amount of each coverage you have on a covered "auto." No deductibles apply to this coverage.
- b.** We will pay only for those expenses incurred during the policy period beginning 24 hours after the "loss" and ending, regardless of the policy's expiration, with the lesser of the following number of days:

(1) The number of days reasonably required to repair or replace the covered "auto". If "loss" is caused by theft, this number of days is added to the number of days it takes to locate the covered "auto" and return it to you.

(2) 30 days

c. Our payment is limited to the lesser of the following amounts:

(1) Necessary and actual expenses incurred.

(2) \$50 any one day per private passenger "auto";
\$100 any one day per truck;
\$1,500 any one period per private passenger "auto";
\$3,000 any one period per truck; or
Higher limits if shown elsewhere in this policy.

d. This coverage does not apply while there are spare or reserve "autos" available to you for your operations.

e. If "loss" results from the total theft of a covered "auto" of the private passenger type, we will pay under this coverage only that amount of your rental reimbursement expenses which is not already provided for under the Physical Damage Coverage Extension.

2. Extra Expense – Broadened Coverage

We will pay for the expense of returning a stolen covered "auto" to you.

3. Personal Effects Coverage

If you have purchased Comprehensive Coverage on this policy for an "auto" you own and that "auto" is stolen, we will pay, without application of a deductible, up to \$500 for "personal effects" stolen from the "auto".

As used in this endorsement, "personal effects" means tangible property that is worn or carried by an "insured". "Personal effects" does not include tools, jewelry, money or securities.

4. Lease Gap

In the event of a total "loss" to a covered "auto" shown in the Declarations, we will pay any unpaid amount due on the lease or loan for a covered "auto", less:

a. The amount paid under the Physical Damage Coverage Section of the policy; and

b. Any:

(1) Overdue lease/loan payments at the time of the "loss";

(2) Financial penalties imposed under a lease for excessive use, abnormal wear and tear or high mileage;

(3) Security deposits not returned by the lessor;

(4) Costs for extended warranties, Credit Life Insurance, Health, Accident or Disability Insurance purchases with the loan or lease; and

(5) Carry-over balances from previous loans or leases.

5. Glass Repair – Walver Of Deductible

No deductible applies to glass damage if the glass is repaired rather than replaced.

F. Physical Damage Coverage Extensions

SECTION III – PHYSICAL DAMAGE COVERAGE, A. Coverage, 4. Coverage Extensions is amended by the following:

1. Additional Transportation Expense

Sections a. and b. are amended to provide a limit of \$50 per day and a maximum limit of \$1,000.

2. Hired Auto Physical Damage

The following section is added:

Any "auto" you lease, hire, rent or borrow is deemed to be a covered "auto" for physical damage coverage. The most we will pay for each covered "auto" is the lesser of:

- (1) the actual cash value;
- (2) the cost for repair or replacement; or
- (3) \$50,000, or higher limit if shown on the Declarations for Hired Auto Physical Damage Coverage.

For each covered "auto" a deductible of \$100 for Comprehensive Coverage and \$1,000 for Collision Coverage will apply.

G. Business Auto Conditions

SECTION IV – BUSINESS AUTO CONDITIONS, A. Loss Conditions is changed by the following:

1. Notice Of Occurrence

Section 2. – Duties In The Event Of Accident, Claim, Suit Or, Loss, a. is changed by adding the following:

If you report an injury to an "employee" to your workers' compensation carrier and if it is subsequently determined that the injury is one to which this insurance may apply, any failure to comply with this condition will be waived if you provide us with the required notice as soon thereafter as practicable after you know or reasonably should have known that this insurance may apply.

2. Waiver Of Subrogation

Section 5. Transfer Of Rights Of Recovery Against Others To Us is changed by adding the following:

However, this Condition does not apply to any person(s) or organization(s) with whom you have a written contract, but only to the extent that subrogation is waived prior to the "accident" or the "loss" under such contract with that person or organization.

SECTION IV – BUSINESS AUTO CONDITIONS, B. General Conditions is changed by the following:

3. Unintentional Failure To Disclose Hazards

The following condition is added:

Your unintentional failure to disclose all hazards as of the inception date of the policy shall not prejudice any insured with respect to the coverage afforded by this policy.

4. Primary Insurance

Condition 5. Other Insurance is changed by adding the following:

For any covered "auto" this insurance shall apply as primary and not contribute with any other insurance where such requirement is agreed in a written contract executed prior to a loss.

H. Bodily Injury Redefined

SECTION V – DEFINITIONS, C. "Bodily injury" is replaced by the following:

"Bodily injury" means bodily injury, sickness or disease sustained by a person including mental anguish, mental injury, shock, fright or death resulting from any of these at any time.

I. Extended Cancellation Condition

COMMON POLICY CONDITIONS (Form IL 00 17), A. Cancellation, 2.b. is replaced by the following:

The greater of 60 days or the time required by any applicable state amendatory endorsement before the effective date of cancellation if we cancel for any other reason.

All other terms and conditions of this policy remain unchanged.



CERTIFICATE OF PROPERTY INSURANCE

RJHALL

DATE (MM/DD/YYYY)

11/8/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

If this certificate is being prepared for a party who has an insurable interest in the property, do not use this form. Use ACORD 27 or ACORD 28.

PRODUCER Arthur J. Gallagher Risk Management Services, Inc. 4921 N. Glen Park Place Peoria, IL 61614	CONTACT NAME: Nicholas Yates		
	PHONE (A/C, No, Ext): (309) 692-5522	FAX (A/C, No): (309) 692-5099	
	E-MAIL ADDRESS: nick_yates@ajg.com		
	PRODUCER CUSTOMER ID: RIVECIT-10		
INSURED River City Construction, LLC 6640 American Setter Dr Ashland, MO 65010	INSURER(S) AFFORDING COVERAGE		NAIC #
	INSURER A : Cincinnati Insurance Company		10677
	INSURER B :		
	INSURER C :		
	INSURER D :		
	INSURER E :		
	INSURER F :		

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

LOCATION OF PREMISES / DESCRIPTION OF PROPERTY (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

RE: #37-15OCT13 - Boone County Walnut Office

Coverage for this project is \$500,000

Coverage is effective 11/08/2013

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YYYY)	POLICY EXPIRATION DATE (MM/DD/YYYY)	COVERED PROPERTY	LIMITS
	PROPERTY				BUILDING	\$
	CAUSES OF LOSS				PERSONAL PROPERTY	\$
	BASIC				BUSINESS INCOME	\$
	BROAD				EXTRA EXPENSE	\$
	SPECIAL				RENTAL VALUE	\$
	EARTHQUAKE				BLANKET BUILDING	\$
	WIND				BLANKET PERS PROP	\$
	FLOOD				BLANKET BLDG & PP	\$
						\$
						\$
A	<input checked="" type="checkbox"/> INLAND MARINE	TYPE OF POLICY			<input checked="" type="checkbox"/> Builder Risk Up To	\$ 1,000,000
	CAUSES OF LOSS	Builders Risk	12/31/2012	12/31/2013	<input checked="" type="checkbox"/> At Temp Location	\$ 1,000,000
	NAMED PERILS	POLICY NUMBER			<input checked="" type="checkbox"/> In Transit	\$ 1,000,000
	<input checked="" type="checkbox"/> Special Form	CAP5829869				\$
	CRIME					\$
	TYPE OF POLICY					\$
						\$
	BOILER & MACHINERY / EQUIPMENT BREAKDOWN					\$
						\$
						\$

SPECIAL CONDITIONS / OTHER COVERAGES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

CANCELLATION

County of Boone, Missouri
Boone County Purchasing
613 E. Ash, Rm 110
Columbia, MO 65201

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

BID FORM
Boone County Walnut Office
Bid Number: 37-15OCT13

To: Boone County Purchasing Office
613 East Ash, Room 110
Columbia, Mo. 65201

For: Boone County Walnut Office
609 East Walnut
Columbia, Mo. 65202

Date: OCTOBER 15, 2013

From: RIVER CITY CONSTRUCTION, L.L.C. hereinafter called the Bidder.

The undersigned as Bidder, having examined the proposed Contract Document as titled:

Boone County Walnut Office and dated September 16, 2013, including this Bid Form, Specifications, Drawings and have visited the site of the proposed construction and examined the conditions affecting the Work, and having acknowledged receipt of Addenda

IN SUBMITTING THIS BID, THE BIDDER AGREES:

To hold open the Bid for forty five (45) days from the date shown above;

To accept and accomplish the Work in accordance with the Contract Documents, including the Specifications, Drawings and Addenda;

To enter into and execute an Agreement, if awarded, on the basis of this Bid and to furnish required Bonds and insurance certificates;

To commence the Work immediately after receipt of the Notice to Proceed and complete the work by March 3, 2014. The designated time to complete the work incorporates an allowance of five (5) inclement weather days.

To complete this Bid Form, in its entirety, accepting that failure to do so may result in the rejection of this bid;

To construct the Work for the Base Bid lump sum of:

THREE HUNDRED SIXTY THREE THOUSAND AND $\frac{00}{100}$ \$ 363,000.⁰⁰

The Bidder agrees to include, if acceptable by the Owner, work of the following Alternates as specified for the additional amount of:

Alternate Bid No. 1 – All work associated with the second floor of 101 N. 7th St.

TWENTY FIVE HUNDRED AND $\frac{00}{100}$ \$ 2,500.⁰⁰

Alternate Bid No. 2 – Addition of walls, wet bar, extension of existint walls and add electric strike to existing exterior doors at 605 Walnut.

TWENTY ONE THOUSAND FIVE HUNDRED AND $\frac{00}{100}$ \$ 21,500.⁰⁰

Alternate Bid No. 3 – Remove and replace all existing carpet and repaint all walls in 605 walnut.

THIRTY NINE THOUSAND SEVEN HUNDRED AND $\frac{00}{100}$ \$ 39,700.⁰⁰

Alternate Bid No. 4 – Overlay existing parking lot with asphalt to drain toward E. Walnut St.

TWELVE THOUSAND ONE HUNDRED FIFTY AND $\frac{00}{100}$ \$ 12,500.⁰⁰

BIDDER has examined copies of all the Bidding Documents and all which is hereby acknowledged):

<u>DATE</u>	<u>ADDENDUM NUMBER</u>
October 2, 2013	1
October 11, 2013	2

COMPANY NAME: RIVER CITY CONSTRUCTION, L.L.C.

ADDRESS: 6640 AMERICAN SETTER DRIVE

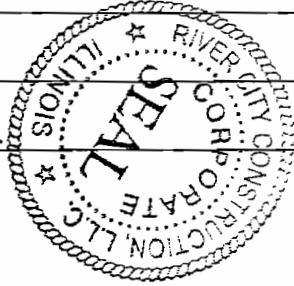
CITY, STATE, ZIP ASHLAND, MISSOURI 65010

PHONE NUMBER: 573-657-7380

AUTHORIZED REPRESENTATIVE: JOHN SUTHERLAND

TITLE: VICE PRESIDENT

SIGNATURE: 



List Project Manager and Field Superintendent to be assigned to the Project (name and brief experience summary) **SEE ATTACHED RESUMES.

List all work to be self performed by the Bidder on this project. **SEE ATTACHED SELF PERFORMED WORK.

List all Sub-Contractors to be utilized on this project. **SEE ATTACHED LISTING.

Cost Estimate Worksheet:

The contractor shall provide the following estimated construction costs for specific code or jurisdictional authority requirements for the renovation work at 609 East Walnut with the proposal. These estimates shall be incorporated in the base bid sum as well as broken out in the following worksheet. The purpose for the estimated cost worksheet is to facilitate the distribution of funding sources for the associated insurance claim. See worksheet on page 5.4.

CODY W. GERDES

PROJECT MANAGER

EXPERTISE

- * LEED AP
- * Project Management
- * Design/Build Construction
- * Preconstruction Services
- * Contract Administration
- * Safety - OSHA 30-Hour Certified
- * Scheduling
- * Partnering

EDUCATION

BRADLEY UNIVERSITY, B.S. in Construction, 2006

CERTIFICATIONS

LEED® AP Certified by US Green Building Council
American Institute of Constructors Associate Constructor - Certified in 2006

ORGANIZATIONS

Young Professionals Organization - Peoria Chamber of Commerce
Sigma Lambda Chi - International Honor Society for Leaders in Construction

NARRATIVE

Mr. Gerdes has eight years of experience as a project manager/project engineer on numerous projects. During his career at River City Construction, he has been involved in a variety of projects ranging from health care construction to commercial buildings to design/build projects.

Mr. Gerdes recently served as the project manager for the renovation of the Bradley University Westlake Hall Remodel and Addition in Peoria, Illinois. Westlake Hall underwent a major renovation of its existing space, along with a massive addition to the north and west. The addition is nearly 5 times larger than the original building, bringing the total square footage of the building to 85,000 square feet. The addition features 4 floors of academic classrooms and offices, as well as an attic for mechanical equipment. Additionally, there is a large lecture hall with auditorium seating extending from the basement up through the 1st floor. The existing building underwent a complete renovation and the clock tower was refurbished with new clock faces and a cupola. The exterior of the addition is clad with limestone to match the existing building which was built in 1897.

Cody also served as the project manager for the construction of the new Bradley University Hayden-Clark Alumni Center in Peoria, Illinois. The new Hayden-Clark Alumni Center was constructed on Bradley University's campus adjoining one of its most historic buildings, Bradley Hall. The Alumni Center is an approximately 35,000 SF building that shares much of the same exterior styling as Bradley Hall. Inside there are many banquet and conference style gathering areas. River City Construction worked with Bradley University and the architect to develop the design and provided cost estimates throughout the project.

Cody previously served as the project manager for the construction of the new Greater Peoria Specialty Hospital (\$14.2 Million) in Peoria, Illinois. Cody worked closely with the architects and the developers in the preconstruction phase of this project to evaluate constructability issues, perform value engineering surveys and project scheduling as well as budgeting. This early involvement allowed this 56,000 square foot medical building to be "fast-tracked" by beginning work on the foundations prior to the release of the final architectural plans. The project remains ahead of schedule with a completion date of May 2009.

Cody has served as project engineer on the State Emergency Operations Center (\$12.5 Million) in Springfield, Illinois. This project is home to a new, state of the art, 50,000 square feet State Incident Response Center. This facility houses mission-critical functions for the Illinois Emergency Management Agency, the State Police, the Illinois Terrorism Task Force and other state agencies. Included in the project are a Tier IV data center and telecommunications/ dispatch center. This project received the Directors Award from the State of Illinois Capital Development Board for its timely completion (eleven month time frame) and quality of construction.

Cody also served as project engineer for the Sewage Works Improvements at the Greater Peoria Sanitary District (\$12.0 Million) in Peoria, Illinois. This multi-phased project included secondary process modifications to the existing plant, a new Sludge Thickening Building, a new Sludge Dewatering Building along with the installation of new process equipment.

Cody has also served as project engineer on the Caterpillar AC Office Expansion (\$13.0 Million) in Mossville, Illinois. This project consisted of two concurrent phases. Phase 2 consisted of 130,000 square feet of new office space while Phase 3 consisted of 220,000 square feet of new office space, new executive offices, and new testing laboratories.

PERRY BAX

Project Superintendent

EXPERTISE

- * Coordination of all Trades, Subcontractors and Delivery of Materials
- * Construction Supervision
- * Healthcare/Laboratory Construction
- * Scheduling
- * Safety
- * Quality Control

EDUCATION

30-HOUR OSHA TRAINING CLASS
ASHE HEALTHCARE CONSTRUCTION CERTIFICATION

NARRATIVE

Mr. Bax has 14 years experience in the construction industry, 8 of those years with River City Construction, L.L.C. He has participated in a wide range of projects starting as a journeyman in the building trade and working his way into a superintendent position on many large and complex projects.

Perry currently serves as project superintendent for the Harry S. Truman Veterans Memorial Hospital - Surgical Suite Addition / Renovation in Columbia, Missouri. This project consists of the Addition and renovation to the Harry S. Truman Veterans Memorial Hospital. This multi-phased project included a new addition that houses an operating room suite with five operating rooms, two of which will be general purpose, two dedicated to heart surgery and one dedicated to special procedures. The old operating rooms were renovated and a new post anesthesia care unit and pre-operation room were added. Additional renovations included new patient room layouts, MEP upgrades, and renovated space for support functions that include PACU, pre-operative prep and holding rooms, and staff lockers.

Mr. Bax recently served as project superintendent for the State of Missouri Veterans Home St. James, Missouri. This project consisted of the complete removal and replacement of the fire protection system for the State of Missouri Veterans Home in St. James, Missouri. This project had very complex scheduling and coordination requirements. The scope of work included complete removal and replacement of both the wet and dry sprinkler systems in the 96,000 square foot structure. In addition to the sprinkler system replacement; the main building, as well as twelve surrounding structures received complete roof removal and replacement. The new roofs consist of architectural shingles with the exception of the maintenance building which received a new single ply roof. The three existing skylights were replaced with new aluminum framing and glazing. Interior finishes include new acoustical ceilings.

Previous to this project, Mr. Bax served as the project superintendent for River City Construction's on-going construction work at Boone Hospital in Columbia, Missouri. During the past five years, Perry has supervised 14 projects consisting of MRI installations, PET/CT Scanner installations and very complex renovations.

SELF PERFORMED WORK CATEGORIES
For RENOVATION OF THE
BOONE COUNTY WALNUT OFFICE in COLUMBIA, MISSOURI
Bid Number 37-15OCT13

River City Construction will self perform the following categories of work:

MISC DEMOLITION

CONCRETE PLACEMENT

CARPENTRY

ARCHITECTURAL WOODWORK

DOORS & HARDWARE

SPECIALTIES

STEEL

INSULATION

SUPERVISION

***The following trades will be on RCC's payroll: Laborers, Carpenters, Operators and Cement Masons.**

Bid Items - Concrete Construction

Cost Estimate Worksheet

1. Vestibule 100

Description: Non-compliant doors, hardware and clearances between doors.

Scope of work: Demolition, wall construction, new doors and hardware

Estimated Cost: \$ 6,700.00

2. Water Service

Description: The existing water service does not incorporate a backflow device with adjacent drain for testing

Scope of work: Slab-cut, demolition and repair for relocation, new service termination with backflow device at Janitor 107.

Estimated Cost: \$ 2,500.00

3. Accessible Restrooms

Description: The existing restroom configuration is not accessible

Scope of Work: Slab-cut, demolition and repair, plumbing rough-in, wall reconfiguration, finishes and fixtures, doors and hardware

Estimated Cost: \$ 51,500.00

4. Electrical Service

Description: The existing electrical service is non-compliant

Scope of work: demolition and new service entry

Estimated Cost: \$ 2,500.00

5. Drinking Fountain

Description: The existing occupancy does not include a drinking fountain

Scope of Work: provide and install the accessible drinking fountain

Estimated Cost: \$ 1,200.00

6. Window Replacement

Description: The existing wood stop windows do not provide required energy performance (Window Types A and C).

Scope of Work: Demo the existing windows and provide new windows

Estimated Cost: \$ 5,300.00

7. Thermal Performance

Description: The existing insulation values do not provide the required thermal performance

Scope of Work: Demo the existing insulation and provide the specified insulation values

Estimated Cost: \$ 3,900.00

BID RESPONSE

TO: COUNTY OF BOONE, MISSOURI

SUBJECT: Boone County Walnut Office

THE UNDERSIGNED BIDDER, having examined all specifications, and other proposed contract documents, and all addenda thereto; and being acquainted with and fully understanding (a) the extent and character of the work covered by this proposal; (b) the location, arrangement, and specified requirements of the proposed work; (c) local conditions relative to labor, transportation, hauling, and delivery facilities; and (d) all other factors and conditions affecting or which may be affected by the work.

HEREBY PROPOSES to furnish all required materials, supplies, equipment, tools, and plant; to perform all necessary labor and supervision; and to install, erect, equip, and complete all work stipulated in, required by, and in accordance with the proposed contract documents, specifications, and other documents referred to herein (as altered, amended, or modified by all addenda hereto) for and in consideration of the prices stated herein. All prices stated herein are firm and exclude Missouri Sales and Use Tax and all other taxes which might be lawfully assessed against or in connection with the work proposed herein.

SECTION I

THE UNDERSIGNED BIDDER UNDERSTANDS that the specifications, contract, and bond governing the construction of the work contemplated are those known and designated as the **Boone County Walnut Office and Dated September 16, 2013** together with the "General Specifications and Technical Specifications", attached to this proposal.

THE UNDERSIGNED BIDDER UNDERSTANDS that the quantities given in the following itemized proposal are not guaranteed by the Owner, but are used for the purpose of comparing bids and awarding the Contract, and may or may not represent the actual quantities encountered on the job; and that the sum of the products of the quantities listed in the following itemized proposal, multiplied by the unit price bid shall all constitute the gross sum bid.

THE UNDERSIGNED BIDDER submits the following itemized proposal and hereby authorizes the Engineer to correct any multiplication of "Unit Price" by "Quantity" as shown under "Extended Total".

SECTION II

The Bidder, hereby agrees to complete the work on the Boone County Walnut Office herein specified before the completion date and to allow a deduction of \$100.00 dollars per working day from the final payment as liquidated damages for each day that completion is delayed beyond the specified completion date. Time is of the essence of this contract.

SECTION III

Acknowledgment of receipt of any and all Addenda, if applicable, shall be included with the bid documents at the time of the submittal to Boone County for consideration.

SECTION IV

The undersigned agrees and understands that the County has the right to reject any and all bids, to waive informalities or other requirements for its benefit, and to accept such proposal as it deems to its best interest.

SECTION V

If this proposal is accepted, the undersigned hereby agrees that work will begin no later than the date specified in the Notice to Proceed and will be diligently prosecuted at such a rate and in such manner as is necessary for the completion of the work herein specified before the completion date.

The Contractor further agrees that, should he fail to complete work in the time specified or such additional time as may be allowed by the Owner under this Contract, the amount of liquidated damages to be recovered on this project shall be in accordance with Section II of the Bid Response.

Accompanying this proposal is a certified check, treasurer's check or cashier's check, or a bidder's bond payable to the Owner for five percent of AMOUNT OF THE BASE BID. If this proposal is accepted and the undersigned fails to execute the Contract and furnish a contract bond as required, then the proposal guaranty shall be forfeited to the Owner.

Firm Name: RIVER CITY CONSTRUCTION, L.L.C.

By:

 (Signature)

JOHN SUTHERLAND

(Print or Type Name)



Title: VICE PRESIDENT

Address: 6640 AMERICAN SETTER DRIVE

City, State, Zip: ASHLAND, MISSOURI 65010

Phone: 573-657-7380

Fax: 573-657-7381

Date: OCTOBER 15, 2013

STATEMENT OF BIDDER'S QUALIFICATIONS

Each bidder for the work included in the specifications and plans and the Contract Documents shall submit with their bid the data requested in the following schedule of information. This data must be included in and made a part of each bid document and be contained in the sealed envelope. Failure to comply with this instruction may be regarded as justification for rejecting the Contractor's proposal.

1. Name of Bidder: RIVER CITY CONSTRUCTION, L.L.C.
2. Business Address: 6640 AMERICAN SETTER DRIVE
ASHLAND, MISSOURI 65010
3. When Organized: OCTOBER 10, 1984
4. When Incorporated: OCTOBER 10, 1984
If not incorporated, state type of business and provide your federal tax identification
5. number: N/A
6. Number of years engaged in contracting business under present firm name:
29 YEARS
7. If you have done business under a different name, please give name and location:
N/A
8. Percent of work done by own staff: 20%
9. Have you ever failed to complete any work awarded to your company? If so, where and why?: NO
10. Have you ever defaulted on a contract? NO
11. List of contracts completed within the last four years, including value of each:
**SEE ATTACHED 'COMPLETED PROJECTS'.
12. List of projects currently in progress: _____
**SEE ATTACHED 'WORK IN PROGRESS'.

* Attach additional sheets as necessary *

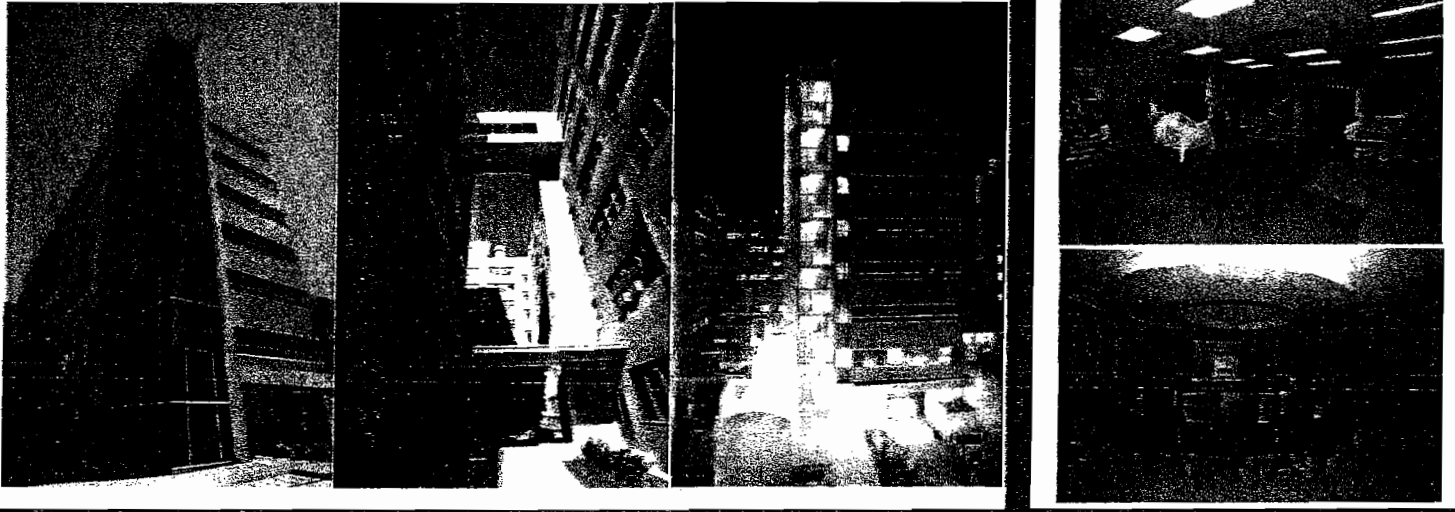
COMPLETED PROJECTS

A representative sampling of our completed projects within the last four years are in the following project profile sheets.

These projects include:

- *Water and Wastewater Treatment Plants
- *Parking Decks
- *Medical / Healthcare Construction
- *Universities and Schools
- *Commercial Buildings

PROJECT SHEET



Project: University Hospital and Clinics
Clinical Support and Education Building
University of Missouri - Columbia, Missouri

This project consisted of the construction of a seven story, 102,000 square foot facility, to serve the School of Medicine and UM Health Care. The building houses advanced teaching labs, clinical spaces and office for the School of Medicine.

Owner: University of Missouri, Columbia, Missouri
Mr. John Neal
(573) 882-1133

Architect: ACI Boland Inc.
Mr. Mark Tinsley
(314) 991-9993

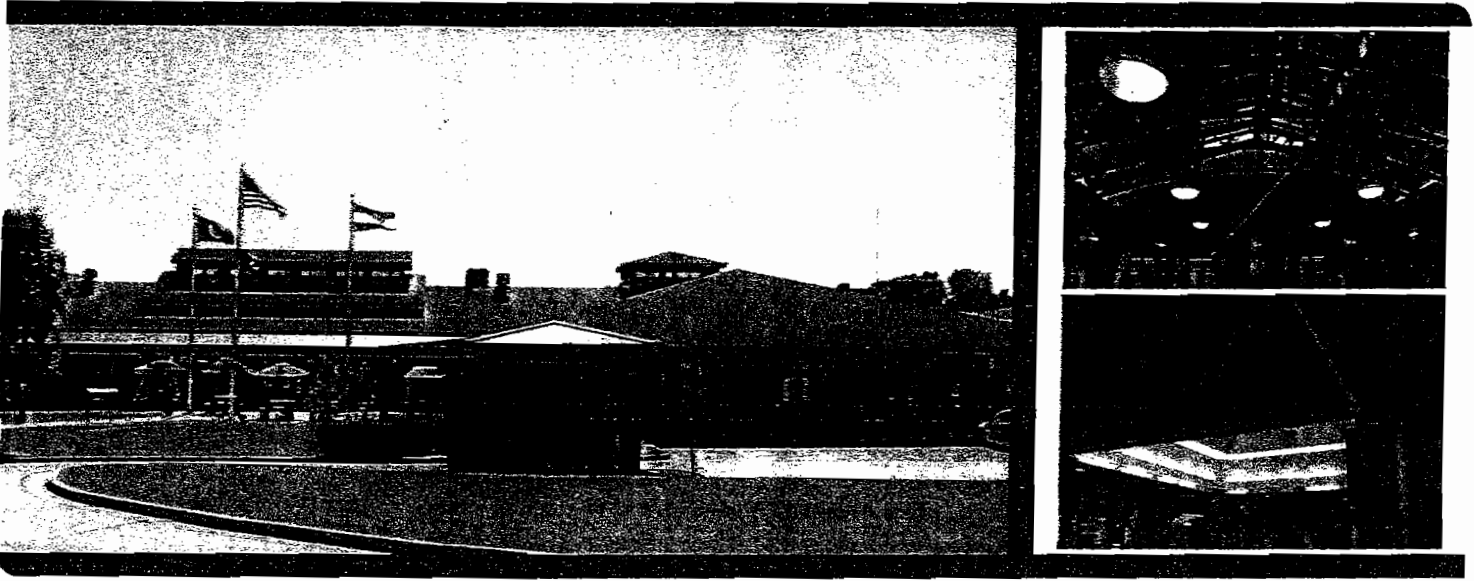
Cost: \$21,400,000

Completion: April 2008

Superintendent: Don Evans

Project Manager: Kevin Beal

PROJECT SHEET



Project: State of Missouri Veterans Home
St. James, Missouri

This project consisted of the complete removal and replacement of the fire protection system for the State of Missouri Veterans Home in St. James, Missouri. The scope of work included complete removal and replacement of both the wet and dry sprinkler systems in the 96,000 square foot structure. In addition to the sprinkler system replacement; the main building, as well as twelve surrounding structures are receiving complete roof removal and replacement. The new roofs consist of architectural shingles with the exception of the maintenance building which received a new single ply roof. The three existing skylights were replaced with new aluminum framing and glazing. Interior finishes include new acoustical ceilings.

Owner: State of Missouri
Jody Evans
(573) 751-2624

Engineer: Integrity Engineering
Jack Mentink
(573) 341-2100

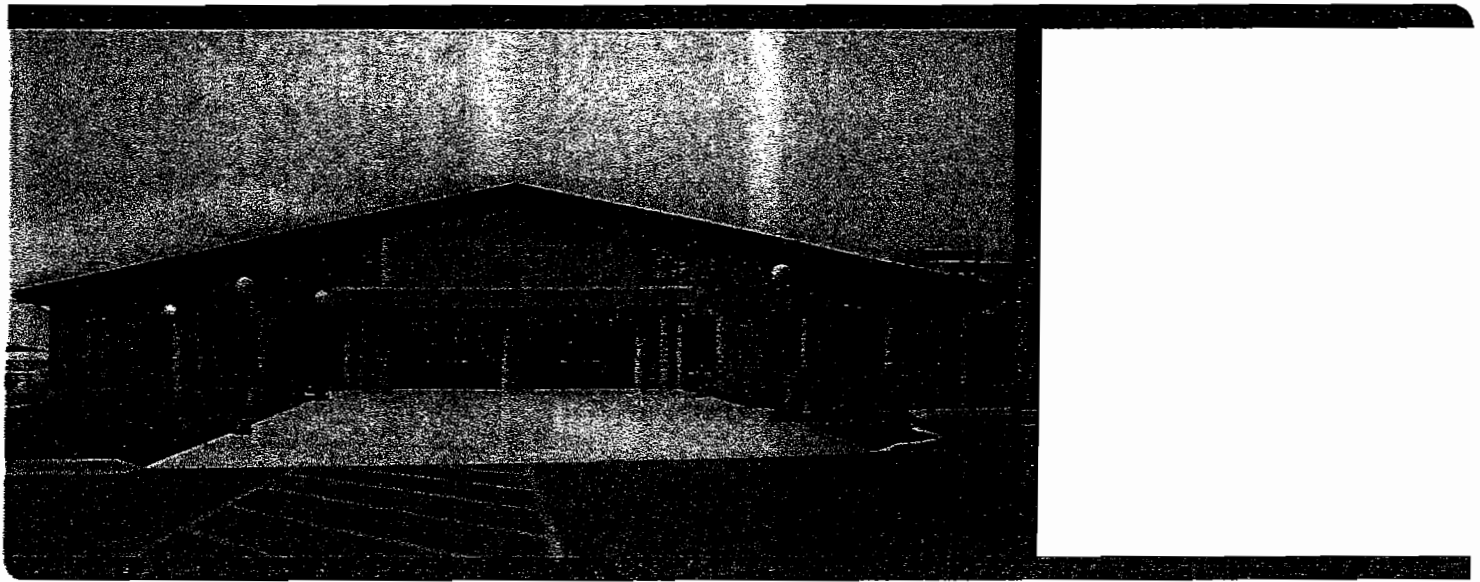
Cost: \$1,843,000

Completion: July 2011

Superintendent: Perry Bax

Project Manager: Kevin Beal

PROJECT SHEET



Project: Columbia Area Career Center
Columbia, Missouri

Construction of a new addition to the Columbia Area Career Center. This project consisted of classrooms, office space and support areas for the Columbia Public School District Career Center. It's an 18,000 square foot expansion consisting of drilled pier and concrete grade beam foundation, structural steel frame, metal roof panels and a brick veneer exterior.

Owner: Columbia Public Schools
Mr. Charles Oestreich
(573) 214-3774

Architect: Peckham & Wright Architects
Mr. Chris Davis
(573) 449-2683

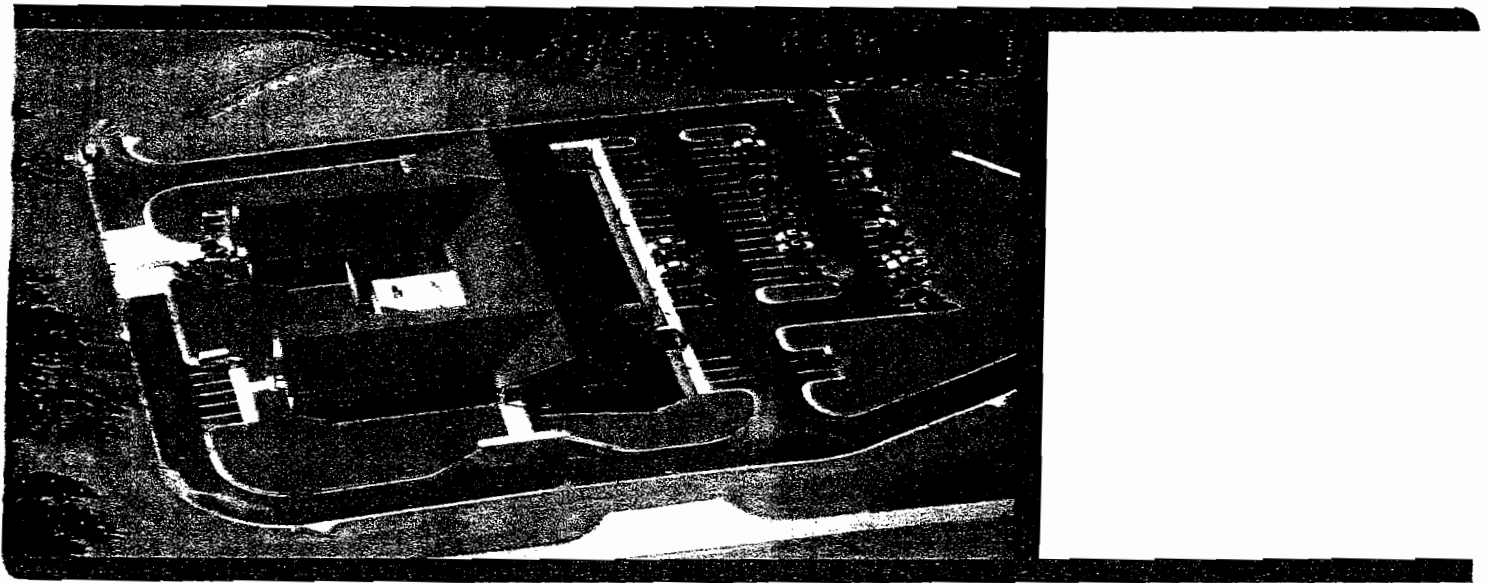
Cost: \$2,290,000

Completion: June 2010

Superintendent: Shane Verslues

Project Manager: Scott Schieber

PROJECT SHEET



Project: Fulton Community Supervision Center
Fulton, Missouri

Construction of a 1-story, masonry wall, slab on grade building with approximately 22,000 square feet of space. Facility includes dormitory, classroom, office and support areas for Probation and Parole functions for the State of Missouri in the Fulton area.

Owner: State of Missouri
Mr. Jonathan Coret
(573) 526-8444

Architect: LePique & Orme inc.
Mr. Mike Boalman
(636) 947-0099

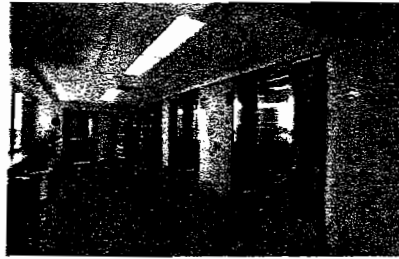
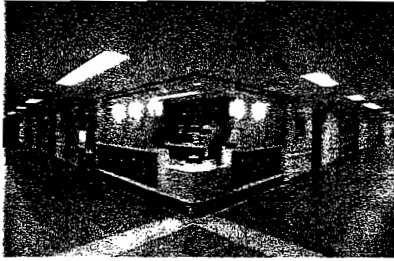
Cost: \$4,200,000

Completion: August 2008

Superintendent: Shane Versleus

Project Manager: Scott Schieber

PROJECT SHEET



Project: University Hospital 6th & 7th Floor Patient Room Renovations
University of Missouri
Columbia, Missouri

CM @ Risk responsibilities for the complete renovation of the 6th and 7th floors of University Hospital. Project included extensive pre-construction services including design/constructability reviews, project phasing and scheduling, estimating, etc. Construction included the complete retrofit of 35,000 square feet of floor space into state-of-the-art patient care areas, offices and supportive service areas. All work was performed without disruption to existing Hospital services.

Owner: University of Missouri - Columbia
Mr. Ken Albright
(573) 882-1444

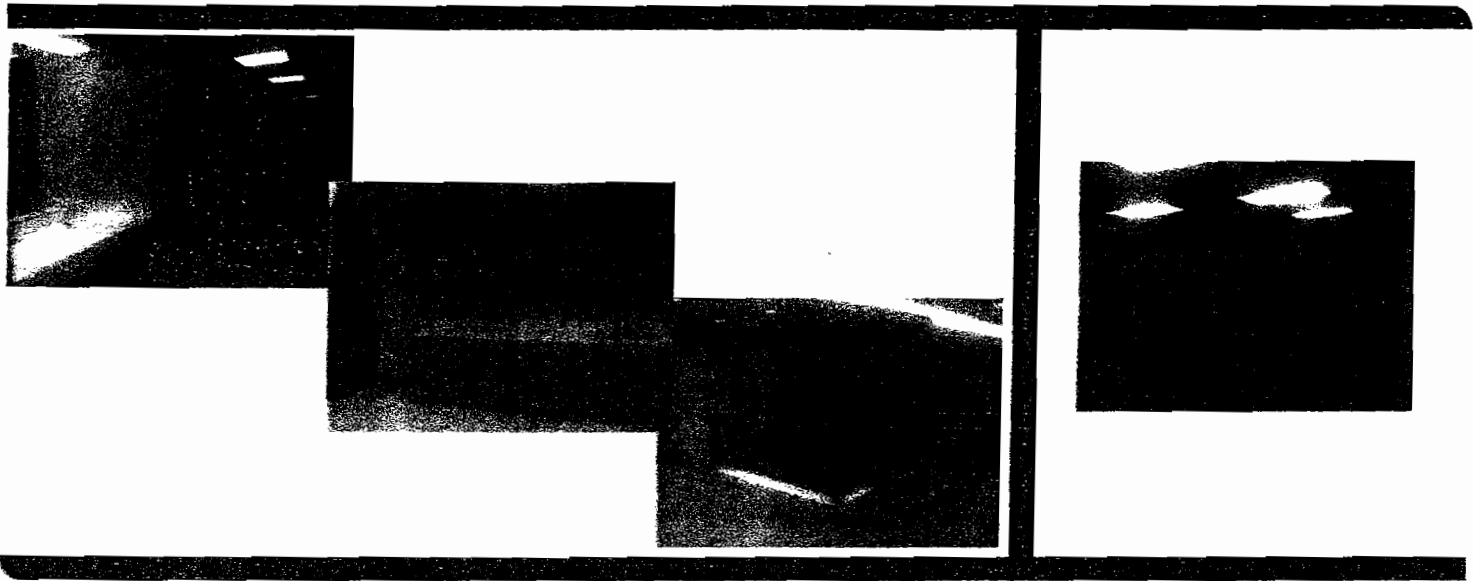
Architect: HMN Architects Inc.
Mr. Kurt Broeckleman
(913) 451-9075

Completion: July 2012

Superintendent: Dennis Berhorst

Project Manager: Mike Murray

P R O J E C T S H E E T



Project: University of Missouri - Women's & Children's Hospital South Pavilion Renovation
Columbia, Missouri

This 37,000 square foot project consisted of the complete interior renovation and re-roofing of the South Pavilion building. Included in the renovation were a new HVAC system and duct work, new plumbing systems and fixtures, new fire suppression system, and new electrical systems including receptacles, lighting, communications and fire alarm systems. The newly renovated space provides state of the art patient care areas for diabetes, endocrinology, gastroenterology, genetics, hematology/oncology, infectious disease, rheumatology, neonatology, nephrology, neurology and a PEDI/adolescent specialty clinic.

Owner: University of Missouri
Mr. Dennis Haynes
(573) 239-4451

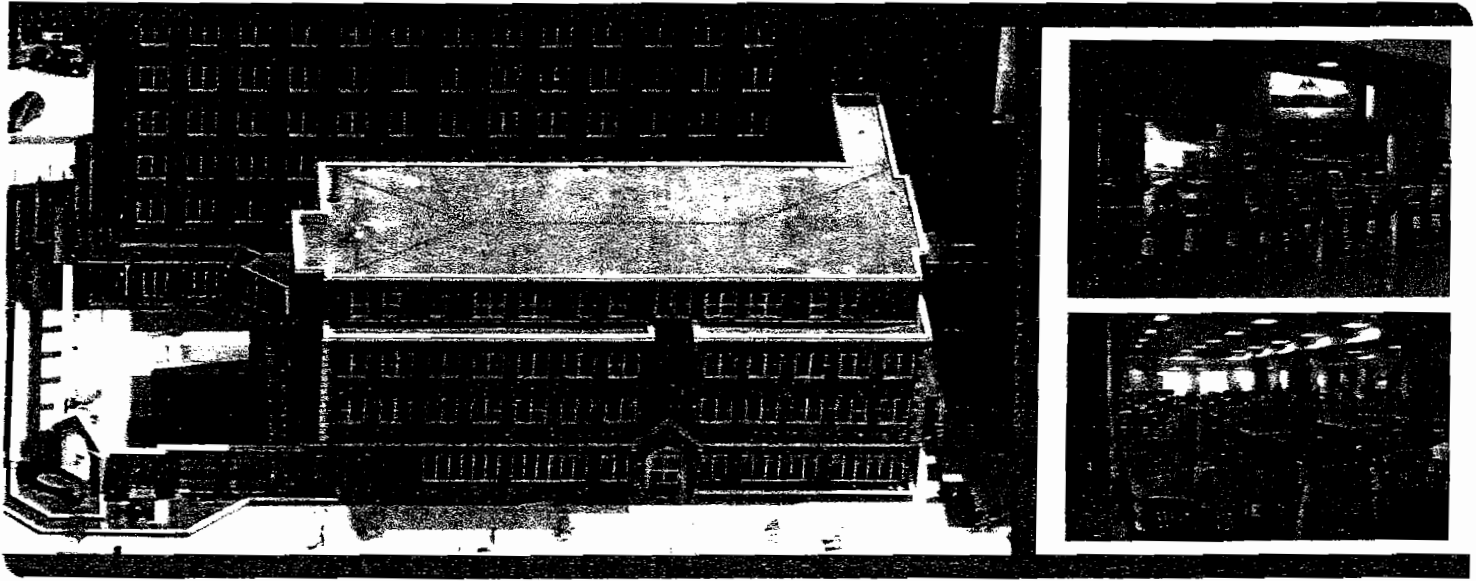
Architect: International Architects Atelier
Mr. Andy Short
(816) 471-6522

Completion: August 2012

Superintendent: Kevin Steck

Project Manager: Scott Schieber

PROJECT SHEET



Project: St. John's Catholic Newman Center North Dormitory Addition
Champaign, Illinois

The new addition of approximately 127,000 square feet consists of a 7-story dormitory wing, a 4-story dormitory wing, a 4-story connecting corridor, kitchen and dining facilities, meeting rooms, choir room, game room, and a convenience store. The addition houses approximately 300 students. The total construction time was 19 months.

Owner: Newman Foundation at the University of Illinois
Rick Sansone
(217) 344-1184

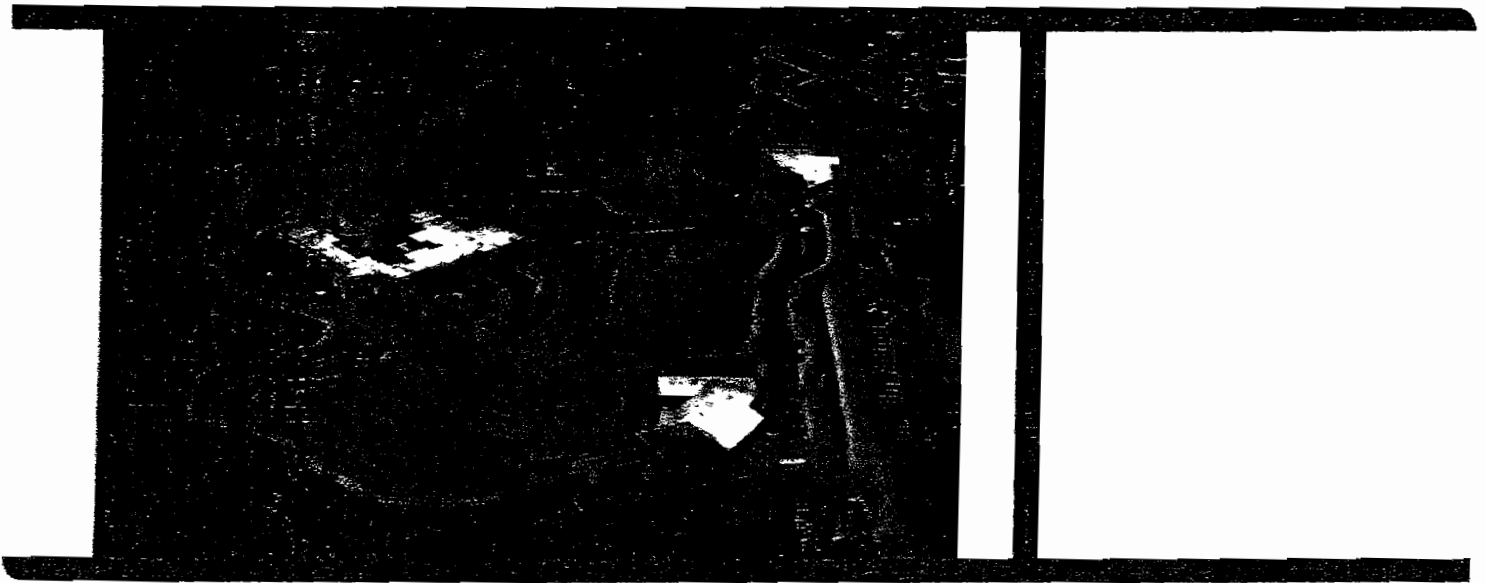
Architect: Moorhead-Gruber Architects
Robert Gruber
(217) 356-3414

Completion: August 2008

Superintendent: Dick Davis

Project Manager: Pat Klopfenstein / Warren Moody

PROJECT SHEET



Project: Peoria Zoo and Gardens Entry Complex and Africa Exhibit
Peoria, Illinois

Project consisted of the construction of the African exhibit, animal night houses, rock work, landscaping, paving, and other site improvements.

Owner: Pleasure Driveway and Park District of Peoria
Mrs. Becky Fredrickson
(309) 686-3386

Architect: Torre Design Consortium
Mr. Jeff Borchardt
(504) 899-2932

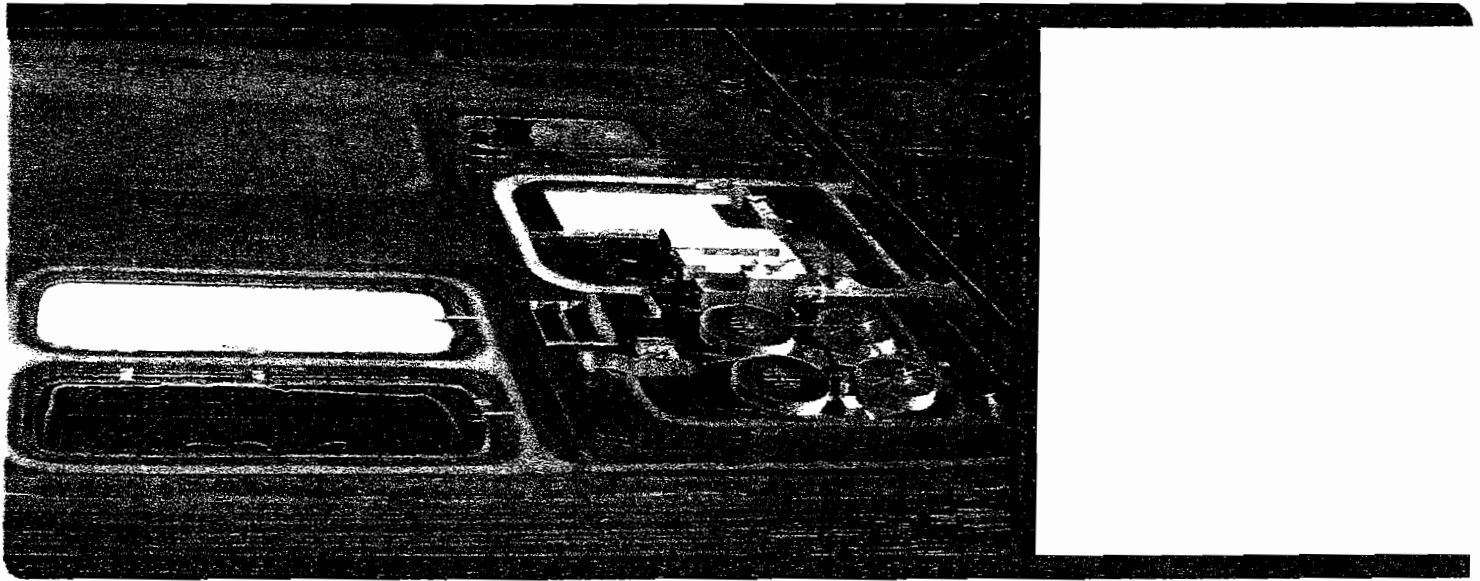
Cost: \$18,100,000

Completion: October 2008

Superintendent: Brett Yemm

Project Manager: Doug Masters

PROJECT SHEET



Project: Illinois American Water Champaign County Treatment Plant
Champaign, Illinois

Design/build project included the construction of a new 15-million gallon per day water treatment plant with two primary basins, two secondary basins, a 3-million gallon water reservoir, four gravity filters, three distributive pumping units, and all related appurtenances. The project also included the construction of a 15,000 square foot laboratory facility.

Owner: American Water Company
Mr. Ken Giannone
(856) 727-6144

Architect: Hazen & Sawyer
Mr. Mark Bishop
(919) 833-7152

Completion: April 2009

Superintendent: Tom Polczynski

Project Manager: Chet Nosalik

PROJECT SHEET



Project: Greater Peoria Specialty Hospital (LTACH)
Peoria, Illinois

The Greater Peoria Specialty Hospital is a long term acute care hospital (LTACH) facility. This project consisted of a 56,350 square foot, 3-story structure that will be used to treat and rehabilitate acute care patients. The exterior facade of the building was designed with a two-tone brick scheme and aluminum curtain wall. This was done to allow the structure to blend in with the surrounding buildings in the area. The LTACH facility is complete with x-ray, dialysis, and ventilator capabilities. The first floor houses the intensive Care Suite, along with a fully functional kitchen and dining area, therapy gym, and administrative offices. The upper two floors accommodate the majority of the patient rooms and an elaborate, central nurse's station. The project was completed nearly 5 months ahead of the construction deadline, which allowed the LTACH to begin treating in patients by August of 2009.

Owner: Cullinan Medical I, LLC
Mr. Mike Owens
(309) 999-1704

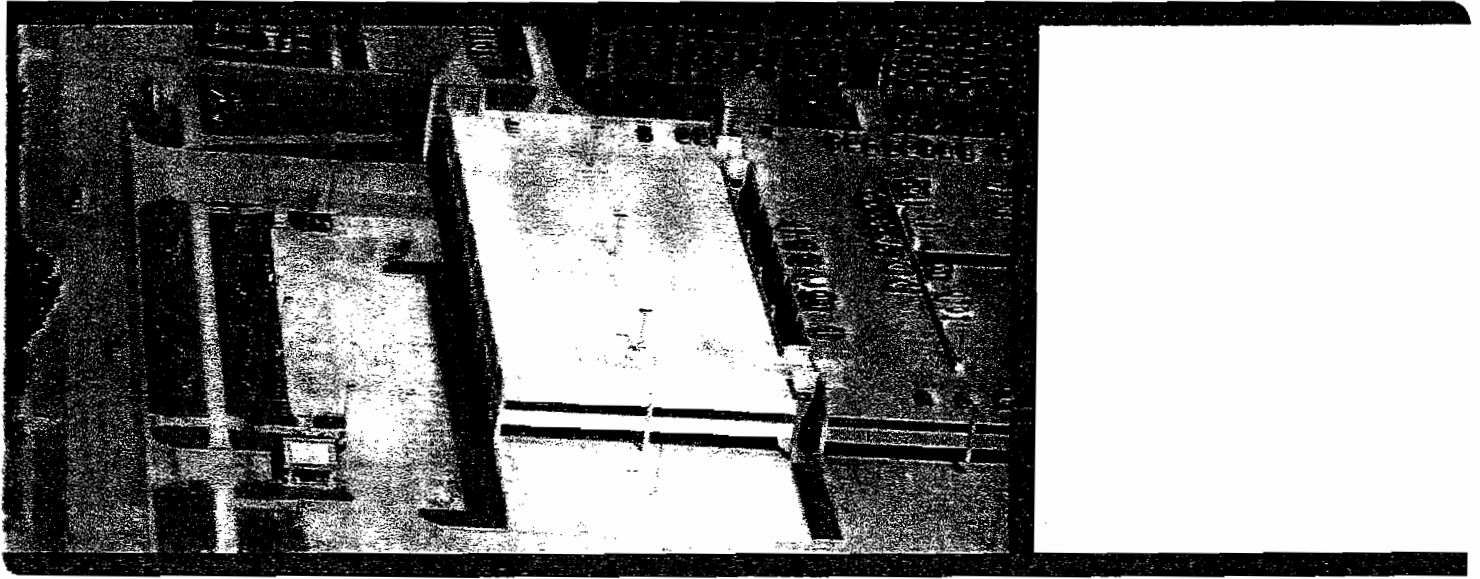
Architect: Davis-Stokes Collaborative, P.C.
Mr. Jerry Curtis
(615) 726-0010

Completion: June 2009

Superintendent: Kent Grigsby

Project Manager: Cody Gerdes

PROJECT SHEET



Project: Illinois State University South University Street Parking Garage Expansion
Normal, Illinois

This project consisted of the construction of a new three-story parking deck and associated site parking to create approximately 500 new spaces adjacent to the existing south University Street parking garage.

Owner: Illinois State University
Mr. Ailan Feltner
(309) 438-8050

Architect: Desman Associates
Mr. Jeff Henriksen, Romy Manabat
(312) 263-8400

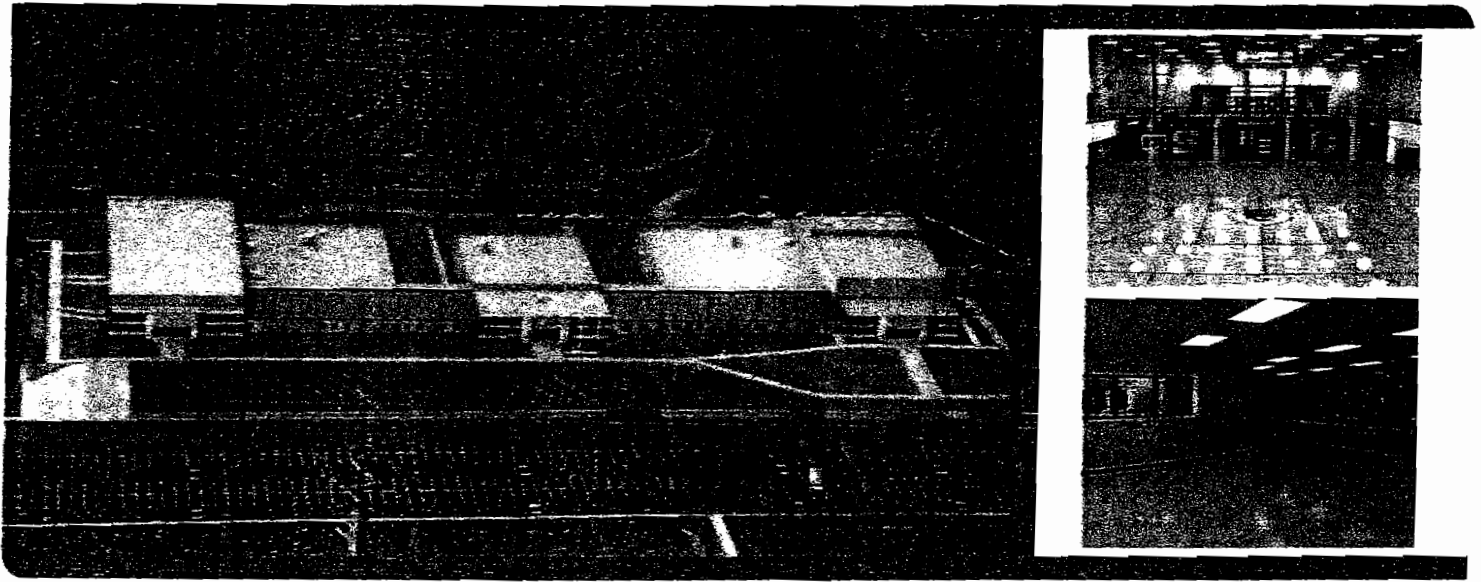
Cost: \$4,000,000

Completion: July 2009

Superintendent: Doug Baker

Project Manager: Mark Ward / Matt Maybanks

PROJECT SHEET



Project: New High School for Sedalia 200 School District
Pettis County, Sedalia, Missouri

This project consisted of the construction of a new high school facility for the Sedalia School District #200. The 202,300 square foot, 2 story building contains two gymnasiums, a cafeteria, classrooms, offices, a library, performing arts center, choir and band rooms. The building also contains 10,000 square feet of space for future use. The steel and block structure is enclosed by pre-cast panels, glass curtain walls, along with block, brick and limestone. Specialty finishes include wood gymnasium flooring, stained concrete, rubber flooring and synthetic flooring.

Owner: Sedalia School District #200
Ms. Harriet Wolfe
(660) 829-6450

Architect: Septagon Construction Co., Inc.
Mr. Curtis Garrison, Dennis Paul
(660) 827-2112

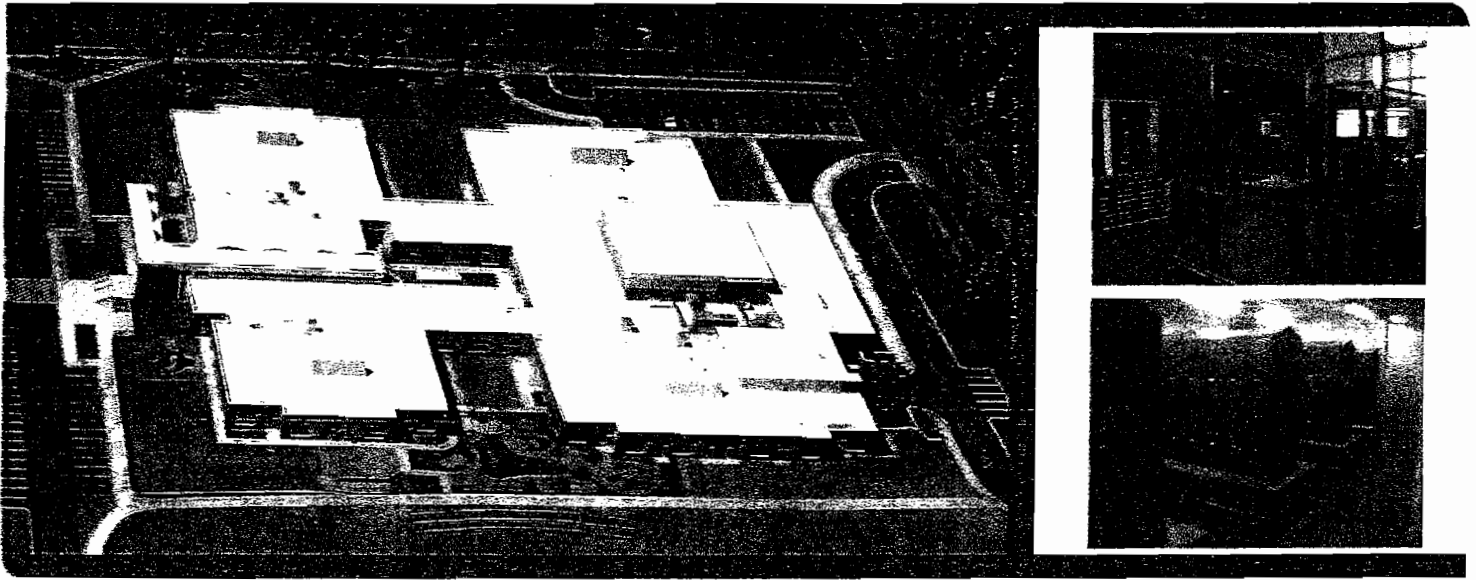
Completion: July 2009

Superintendent: Don Evans

Project Manager: Kevin Beal



PROJECT SHEET



Project: Harrison Birth through 8th Grade Community Learning Center
Peoria, Illinois

Project consisted of extensive site demolition to make way for a new 110,000 square foot Elementary School and Community Learning Center. The facility includes state of the art classrooms, gymnasium, fully functional kitchen, and areas open 24 hours a day to be used by the local community. The new school sits on a 20 acre site that includes an amphitheater as well as soccer and baseball fields.

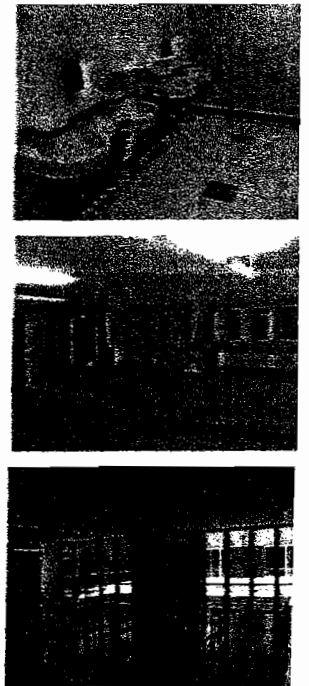
Owner: Public Building Commission of Peoria
Mr. Jim Thomson
(309) 673-8203

Architect: LZT Associates Inc.
Mr. David Henebry
(309) 673-3100

Completion: June 2010

Superintendent: Joel Carter

Project Manager: Warren Moody



PROJECT SHEET



Project: Rend Lake Conservancy District Water Treatment Plant Upgrade and Expansion
Benton, Illinois

Project consisted of demolition work and modifications to the existing raw water pump station, existing plant building, existing clarifier units, under drains and appurtenant items for Filters 3-8. Installation of a new intake screen, new filter media, and backwash water pump, and new 3.0 MG finished water reservoir. Demolition work and pipe modifications to the filter pipe gallery and to the high service pump room. Work included all necessary structural, architectural, process, mechanical, HVAC, plumbing, instrumentation/controls and electrical work, site work, yard piping, and all other services required.

Owner: Rend Lake Conservancy District
Mr. Dean Barber
(618) 439-4321

Architect: Camp Dresser & McKee Inc.
Ms. Valerie Holland
(312) 346-5000

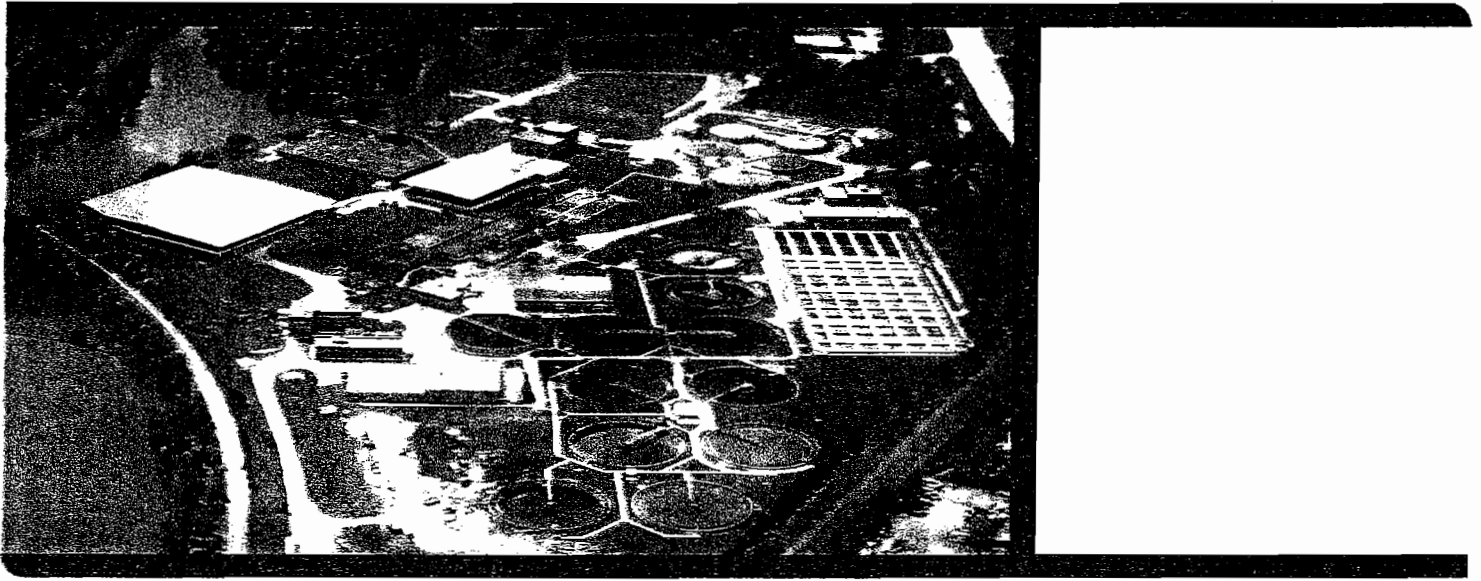
Cost: \$18,500,000

Completion: August 2010

Superintendent: Marc Hamm

Project Manager: Doug Masters

PROJECT SHEET



Project: Fox Metro Water Reclamation District Contract 1
Oswego, Illinois

Project consisted of a new excess flow pump station, including raw sewage pumps and associated structural, architectural, mechanical electrical and instrumentation and control work; a new chlorine contact tank, including sludge removal equipment and chlorine sampling equipment, and associated structural, architectural, mechanical, electrical and instrumentation and control work; junction boxes, and structural and mechanical modifications to the existing tertiary filtration building; civil and electrical site work, along with multiple 60" and 84" PCCP distribution lines.

Owner: Fox Metro Water Reclamation District
Mr. Robert Locke, President
(630) 892-4378

Engineer: Walter E. Deuchler Associates Inc.
Mr. Mark Halm, PE
(630) 897-4651

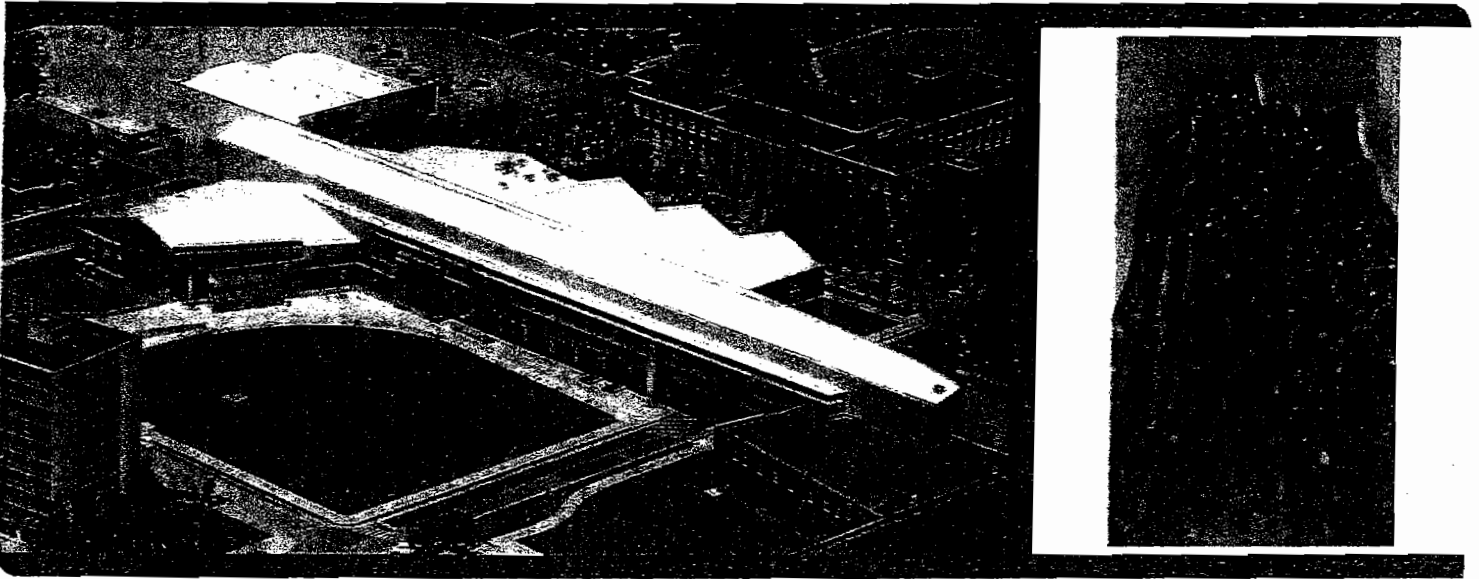
Cost: \$19,500,000

Completion: September 2010

Superintendent: Brett Yemm

Project Manager: Ed Counsil

PROJECT SHEET



Project:

Illinois State University Student Fitness & Kinesiology/Recreation Building
Normal, Illinois

This project consisted of the demolition of two existing residence halls along with selective demolition of McCormick Hall to create a new 170,000 square foot facility that bridges a major thoroughfare through the City of Normal. The facility consists of basketball courts, an indoor track, pools, aerobic spaces, and a climbing wall. The center includes classrooms, laboratories and office space for the School of Kinesiology and Recreation. \$31,600,000 general contract work included management of \$9,200,000 assigned contractors.

Owner:

Illinois State University
Mr. Allan Feltner (retired)

Architect:

PSA-Dewberry Inc.
Mr. Dan Homann
(309) 282-8000

Completion:

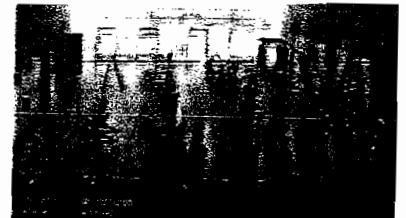
September 2010

Superintendent:

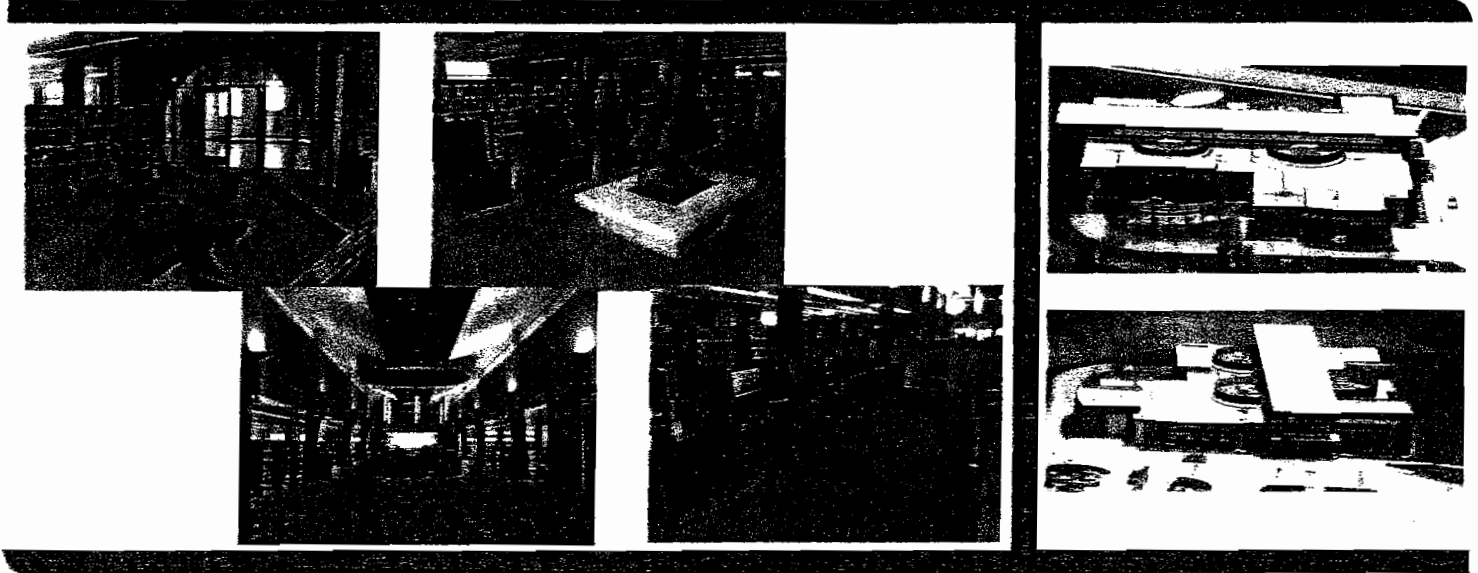
Doug Baker

Project Manager:

Mark Ward / Matt Maybanks



PROJECT SHEET



Project: Peoria Public Library - North Branch
Peoria, Illinois

The new Peoria Public Library – North Branch is a 30,000 square foot facility housing state of the art library services that will extend to the northern most areas of Peoria. The modern facility incorporates traditional library collections and meeting rooms with cozy reading areas including a large fire place area and a trellis covered outdoor patio. Exterior features of the building include a prairie savanna landscape, environmentally sensitive bioswales, and walking trails through the Illinois native plant landscape. River City Construction is working in conjunction with the Owner and the Design Team to facilitate a project that meets the budget, schedule, and goals of all parties involved.

Owner: Board of Trustees - Peoria Public Library
Mr. Brian Ruddell, President and Mr. Edward Syznaka, Director of Services
(309) 497-2000

Architect: Farnsworth Group
Mr. Dan Gavin and Mr. Rob Lamberson
(309) 689-9888

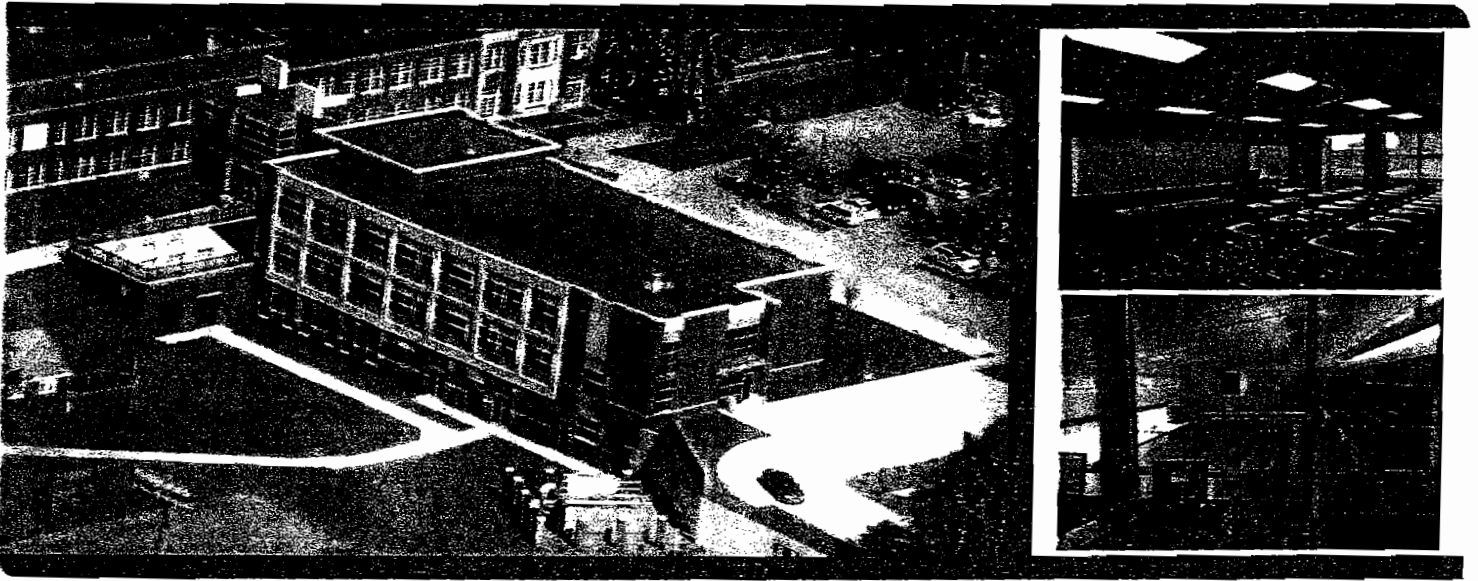
Cost: \$7,600,000

Completion: February 2011

Superintendent: Chuck Potter

Project Manager: David Demmin

PROJECT SHEET



Project: Truman State University
Pershing Hall Renovation and Addition
Kirksville, Missouri

The project entailed renovating 30,000 square feet of the existing Pershing Hall with a new mechanical room for the swimming pool. Also included building a new three-story, 35,000 square foot addition connected to the existing building by a tunnel and a sky bridge.

Owner: Truman State University
Mr. Mark Schultz
(660) 785-4120

Architect: Hastings & Chivetta
Mr. John Blanton
(314) 863-5717

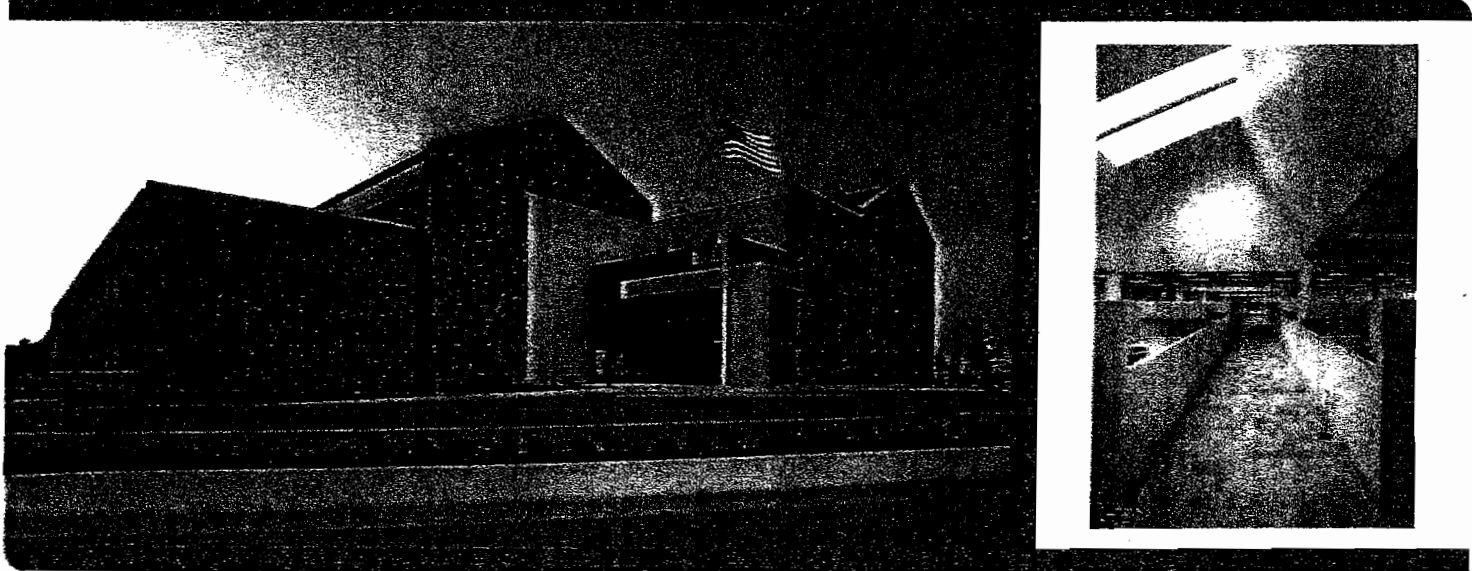
Completion: February 2011

Superintendent: Kip Loveall

Project Manager: Joey Gerbes



PROJECT SHEET



Project: ADAL USTRANSCOM Consolidation & USTRANSCOM Joint Intelligence Operations Center (JIOC)
Scott Air Force Base, Illinois

This project encompassed new construction of approximately 208,000 square feet for a large scale Air Force command center with a joint operations center, AV control centers, and various additional centralized / networked conference rooms and offices. This project also included renovation of 39,000 square feet of existing office space, an addition to building 1575 for housing electrical equipment, new parking, and new utilities. The new building will serve a number of mission control functions for USTRANSCOM including housing the permanent headquarters for its ground component, the U.S. Army's Military Surface Deployment and Distribution Command (SDDC). The joint operations center will include planning functions of the Air Force Tanker Airlift Control Center, SDDC, the U.S. Navy's Military Sealift Command and the USTRANSCOM Deployment Distribution Operations Center among others.

Owner: U.S. Army Corps of Engineers
Mr. Don Peterson
(618) 256-4733

Cost: \$101,000,000

Completion: September 2011

Superintendent: Steve Dorris

Project Manager: Kent Kampwerth / Phil Kingdon



PROJECT SHEET



Project: Bradley University Westlake Hall Remodel and Addition
Peoria, Illinois

Westlake Hall on Bradley Campus underwent a major renovation of its existing space, along with a massive addition to the north and west. The addition is nearly 5 times larger than the original building, bringing the total square footage of the building to 85,000 square feet. The addition features 4 floors of academic classrooms and offices, as well as an attic for mechanical equipment. Additionally, there is a large lecture hall with auditorium seating extending from the basement up through the 1st floor. The existing building underwent a complete renovation and the clock tower was refurbished with new clock faces and a cupola. The exterior of the addition is clad with limestone to match the existing building which was built in 1897.

Owner: Bradley University
Mr. Gary Anna
(309) 677-3150

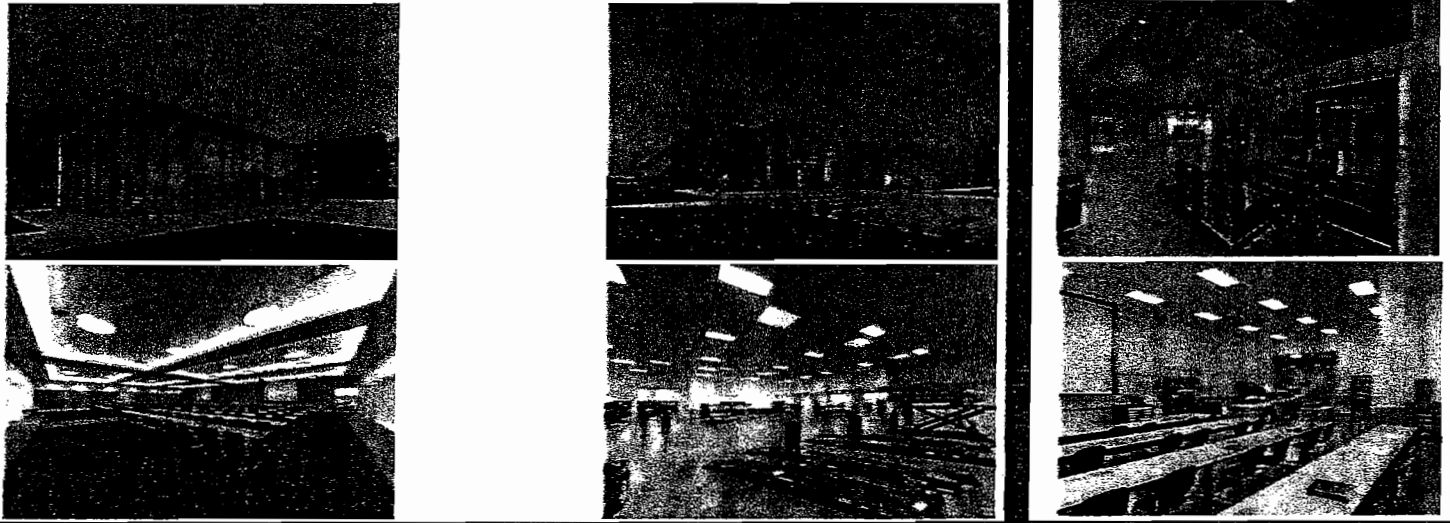
Architect: PSA Dewberry Inc.
Mr. Tom Seymour
(309) 282-8000

Completion: May 2012

Superintendent: Kent Grigsby

Project Manager: Cody Gerdes

PROJECT SHEET



Project: Southern Illinois University - Transportation Education Center
Carbondale, Illinois

The Education Building is a 185,910 square foot facility that received its LEED Silver Rating/ Certification. The building is split by a main corridor. To the east of the corridor is a two-story office and administrative wing for faculty and students. To the west is a single-story structure that houses the automotive labs, flight simulator room, and weather dispatch. At the end of the corridor, is a multi-purpose education area. This new facility houses the SIU-C Aviation and Automotive Departments. The Test Cell Building is a 10,910 square foot facility that contains four test cells that are used for instruction and research. The Test Cells include: 1) multi-purpose propeller test cell; 2) a thrust turbo fan and a turbine shaft test cell; 3, 4) and two reciprocating engine test cells with propeller. The Fleet Storage Building is a 31,870 square foot facility which will house the automotive special teams area and component storage for both automobiles and aircraft. This structure will be used to provide shelter and security for the automobiles used in the adjacent Education Building.

Owner: Capital Development Board
Ms. Marci Boudet
(618) 453-5235

Architect: FGM Architects Inc.
Mr. Kevin Myer
(618) 624-3364

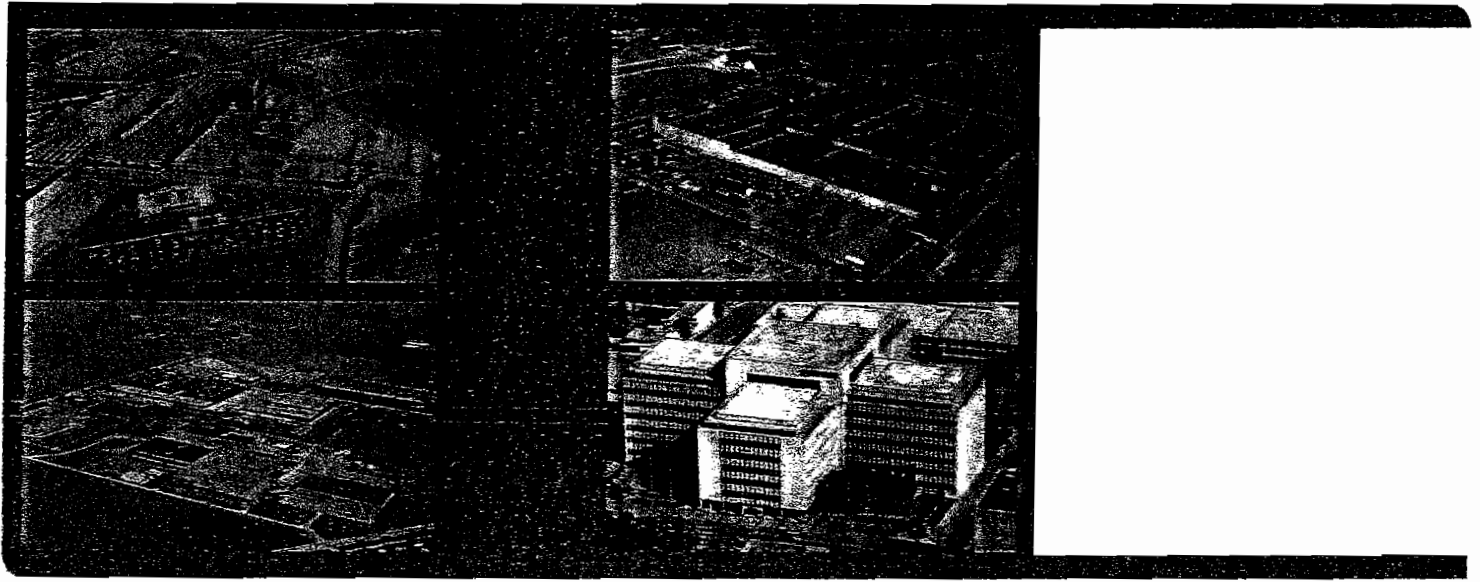
Cost: \$44,618,000

Completion: July 2012

Superintendent: Marc Hamm

Project Manager: Joe Seymour

WORK IN PROGRESS



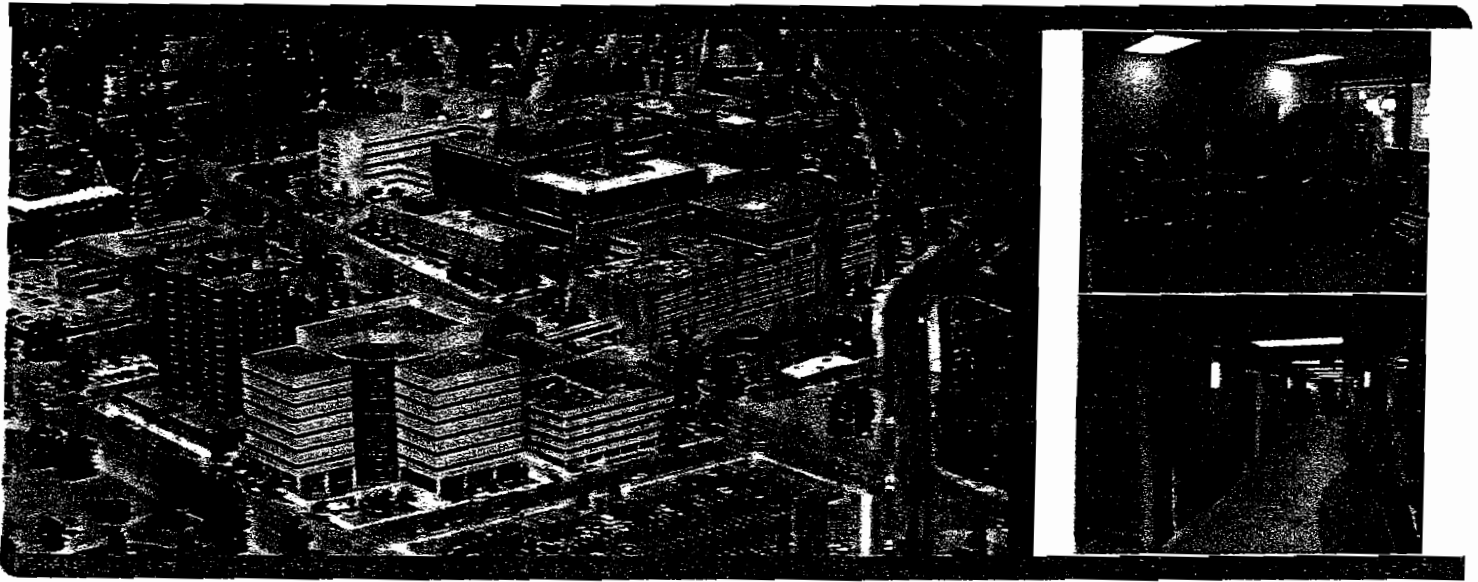
Project: Caterpillar Inc.
Peoria Area and Aurora Plants and Offices

Ongoing contracts for in-plant and corporate office renovations and upgrades including equipment installations and relocations.

Owner: Caterpillar Inc.
Aurora, Mr. Josh Koons, (630) 859-5936
East Peoria, Mr. Jemy Blunier, (309) 675-3805
Peoria, Mr. Don Mahannah, (309) 675-1633
Mapleton, Mr. John McPherson, (309) 633-8467
Mossville Technical Center, Mr. Dean Wilson (309) 578-4173

Superintendent: Bill Brown
Lance Becker
Dirk Haley

Project Manager: Bob Rhoades
David Demmin



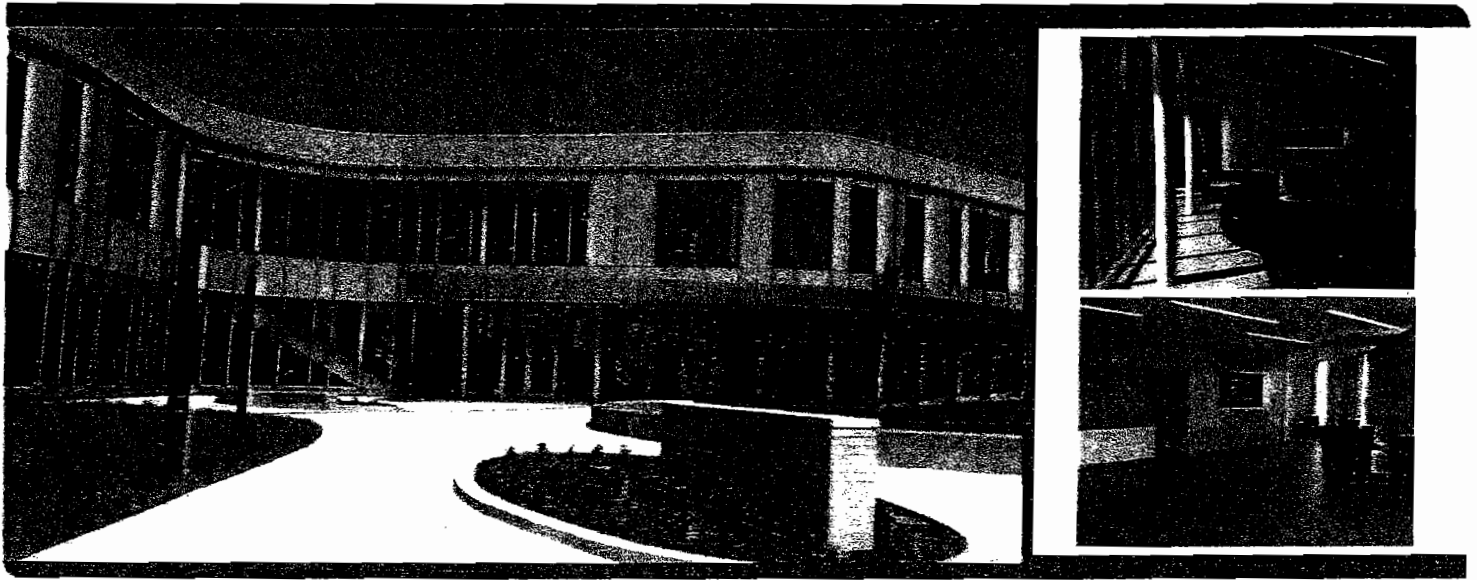
Project: Methodist Medical Center
Revisions Partnering Package
Peoria, Illinois

Ongoing project includes bringing the existing buildings up to Illinois Department of Public Health and local codes, overseeing the retrofitting and installation of new mechanical, electrical systems throughout, and the remodeling of office spaces, diagnostic areas and patient care areas.

Owner: Methodist Medical Center of Illinois
Mr. Vance Vinson
(309) 672-4990 / (309) 253-1900

Superintendent: Chuck Davis

Project Manager: Doug Haley



Project: A.T. Still University Interprofessional Education and Dental School
Kirksville, Missouri

A new medical building for AT Still University. This 62,000 square foot, 2-story, steel framed building will include simulation labs for interprofessional, osteopathic, and dental education as well as advanced teaching labs and faculty offices. The project also includes site improvements, new surface parking and site lighting.

Owner: A.T. Still University of Health Sciences
Dr. Michael McManis
(660) 626-2121

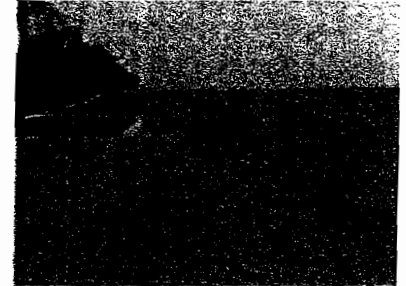
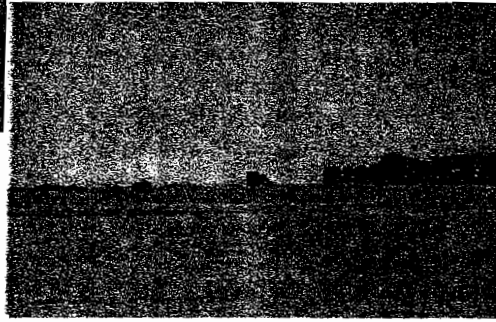
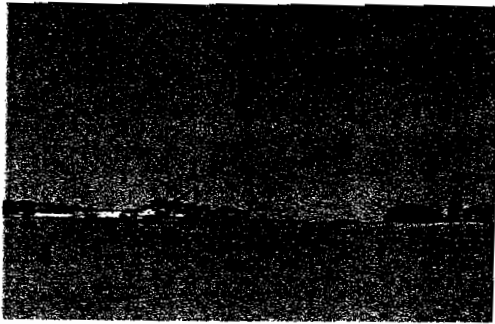
Architect: Cannon Design
Mr. Jim Walsh
(314) 241-6250

Status: Substantially Complete

Completion: July 2013

Superintendent: Don Evans

Project Manager: Kelly Hequembourg



Project: Peoria Notre Dame High School Outdoor Athletic Complex - Phase 1 Sitework
Peoria, Illinois

The project scope includes all work associated with site grading and infrastructure for the future development of two (2) baseball fields, two (2) softball fields, natural turf practice fields for football and soccer, artificial turf football/soccer field with an 8 lane, all-weather track surface surrounding the field, outdoor athletic field lighting, site lighting, and parking lot lighting. Structures include a brick masonry entry building that will include common restrooms, tickets, concessions, and storage, home team bleachers with a masonry locker room structure, visiting team bleachers, a masonry building centrally located in the baseball/softball complex to house restrooms, concessions, storage, and second-floor scorekeeping, announcing, and a 40'x 60' storage building located in a central location between venues.

Owner: Peoria Notre Dome High School
Monsignor Mark Merdian
(309) 691-9531

Architect: River City Design Group
Mr. Scot Fairfield
(309) 694-3120

Status: 98% Complete

Completion: October 2013

Superintendent: Chuck Potter

Project Manager: Doug Haley



Project: Southern Illinois University - Student Services Building
Carbondale, Illinois

The Student Services building will be a student-oriented state-of-the-art facility to serve SIUC's students, parents and alumni. The new facility will house the University's enrollment management functions, including Undergraduate Admissions, Bursar, Registrar's Office, Career Services, Enrollment Management, Enrollment Technology Services, Graduate School, Financial Aid, Learning Support Services, New Student Programs, Transfer Student Services, University College, and University Housing. The building will also house the Saluki First Year initiative – which is designed to make sure students reach their full potential and are active participants during their first year at the University. The three-story complex will feature a limestone facade and include a welcome center, with cross-trained staff to serve students.

Owner: Southern Illinois University - Carbondale
Mr. Scott Weber
(618) 453-6767

Architect: White & Borgognoni Architects, PC
Mr. Bill Borgognoni
(618) 529-2691

CM: McCarthy Building Companies
Mr. Josh Jordan
(314) 968-3300

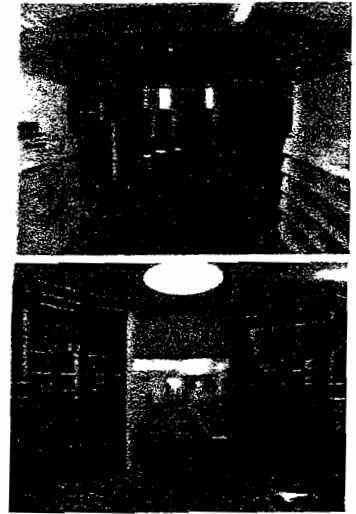
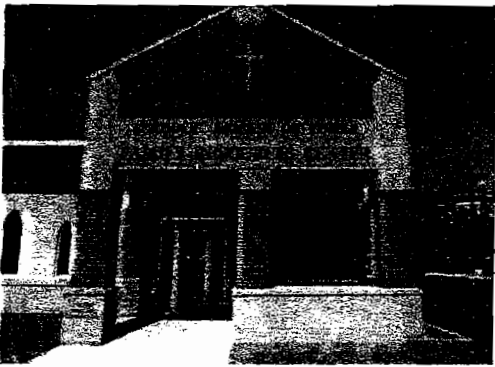
Cost: \$20,200,000

Status: 98% Complete

Completion: October 2013

Superintendent: Tom Polczynski

Project Manager: Chet Nosalik



Project: Catholic Diocese of Peoria - New Family Resources Center
Peoria, Illinois

The project consists of a design-build project for the Catholic Diocese of Peoria's new 8,000 square foot, single story Family Resources Center. The current Family Resources Center is housed within a block of commercial businesses on Peoria's busy Main Street. The new building is located in a quieter urban neighborhood and adjacent to the Diocese's Pastoral Center (a River City project completed in May 2009). To create continuity and a campus-like aesthetic, it features the same brick and stone exterior as the Pastoral Center.

The Center will provide staff, parishioners and clients with a library-like atmosphere including spacious collections area, children's room, devotional space, offices, conference room, and other amenities for the Center. A basement includes a meeting room, kitchen and restroom facilities, and new sewing room, work room for the Christ Child's Society.

Owner: Catholic Diocese of Peoria
Mr. Andrew Hagemann
(309) 671-1550

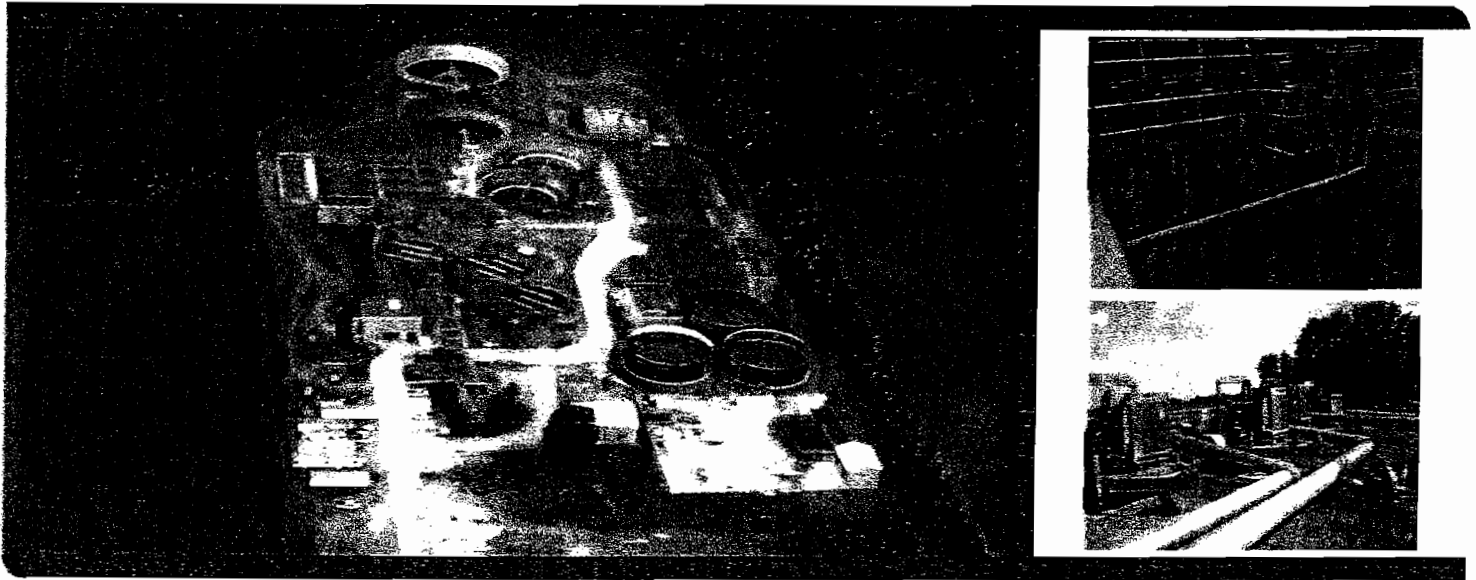
Architect: River City Design Group
Mr. Todd Light
(309) 694-3120

Status: Substantially Complete

Completion: August 2013

Superintendent: Chuck Potter

Project Manager: Doug Haley



Project: Mississippi River Wastewater Treatment Plant Upgrades
St. Charles, Missouri

General construction of wastewater treatment facility buildings and concrete basins including fine screen equipment, grit removal equipment, rotary lobe and centrifugal blowers, fine pore aeration equipment, secondary clarifier equipment, ultraviolet disinfection equipment, gravity belt thickeners, chemical storage tanks and feed systems, wastewater and sludge pumps, site work, yard piping, structural, architectural, process piping and equipment, plumbing, heating, ventilation, air conditioning, electrical and instrumentation and control.

Owner: City of St. Charles, Missouri
Mr. John Zimmerman
(636) 949-3237

Architect: Donohue & Associates, Inc.
Mr. Al Callier
(636) 536-7042

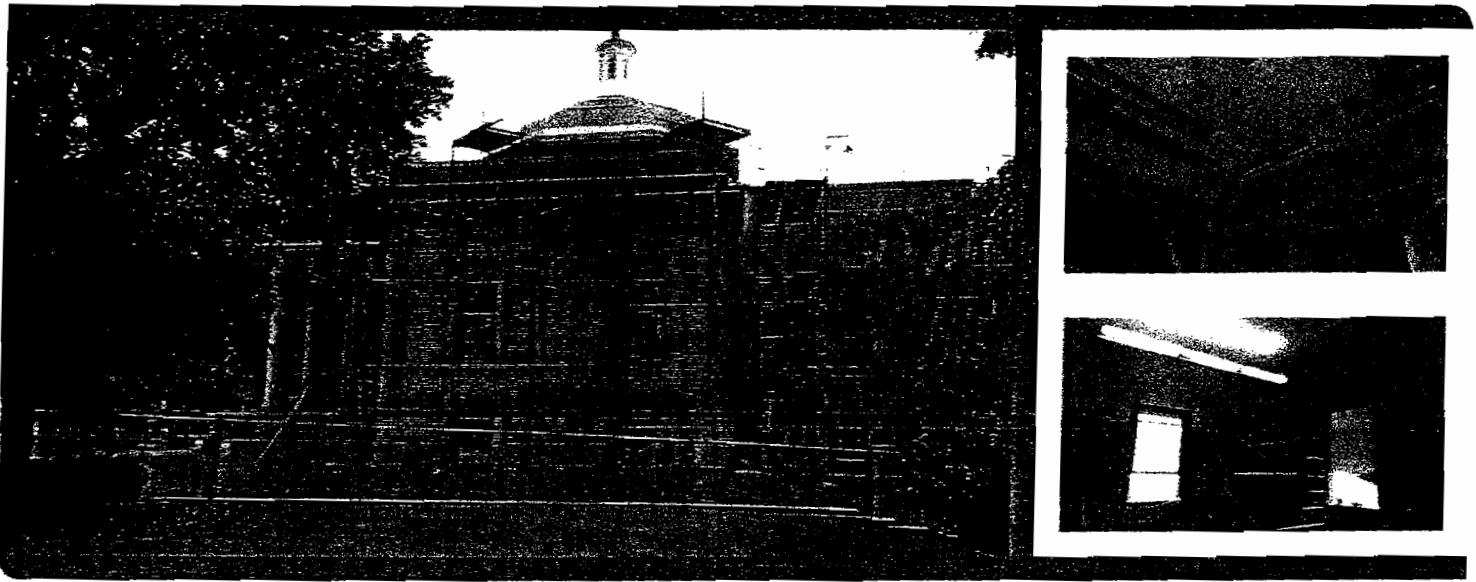
Cost: \$23,400,000

Status: Substantially Complete

Completion: October 2013

Superintendent: Matt Horstmann

Project Manager: Doug Masters



Project: Truman State University - Kirk Memorial Renovations
Kirksville, Missouri

Complete exterior renovation of Kirk Memorial, which includes repair of stone cornice work, installation of new Pella windows and doors, plaster patching of the rotunda, repair of the tile roof of the rotunda, and a new cupola.

Owner: Truman State University
Mr. Mark Schultz
(660) 785-4120

Architect: Wm. B. Ittner, Inc.
Mr. Todd Powers
(314) 421-3542

Cost: \$777,500.00

Status: Substantially Complete

Completion: September 2013

Superintendent: Gary Hinners

Project Manager: Mike Murray



Project: Illinois American Water Interurban District
Granite City Water Treatment Facility Clearwell Addition
Granite City, Illinois

Project includes construction of a new clearwell and distribution pumping station, filter gallery improvements, and chemical feed modifications.

Owner: Illinois American Water
Mr. Jim Hegger
(618) 239-3261

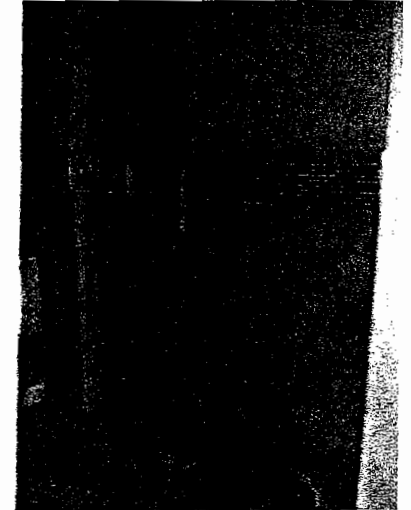
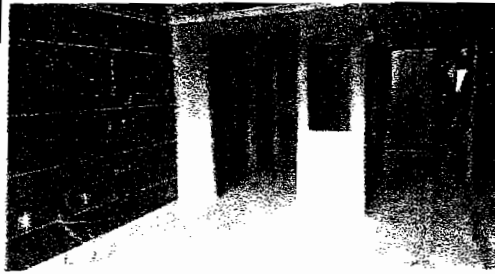
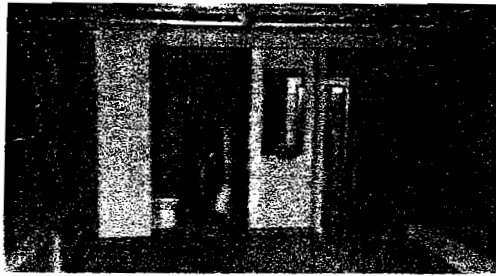
Architect: Hazen & Sawyer
Mr. David Laliberte
(919) 755-8639

Status: Substantially Complete

Completion: September 2013

Superintendent: Marc Hamm

Project Manager: Levi Wright



Project: BJC Boone Hospital Center
4th & 5th Floor Renovations and Infrastructure Upgrades
Columbia, Missouri

Renovations of the 4th and 5th floors of the central tower, including infrastructure upgrades, renovations to the roof and complete retrofit of 42,000 square feet of floor space into state-of-the-art patient care areas, offices and support service areas.

Owner: BJC Boone Hospital Center, Planning, Design & Construction Offices
Mr. David Pederson
(573) 815-6260

Architect: Lawrence Group Architects of St. Louis, Inc.
Ms. Julie Spengler
(314) 231-5700

Status: 85% Complete

Completion: November 2013

Superintendent: Kevin Steck

Project Manager: Scott Schieber



Project: City of Carbondale Park Street Water Storage Facility
Carbondale, Illinois

Construction of a 3,000,000 gallon all-welded steel water storage tank, tank foundation, earthwork, surface preparation, painting, piping, filling, disinfection, and miscellaneous site work to include water main installation, water main relocation, sewer relocation, fencing, and driveway construction.

Owner: City of Carbondale
Mr. Kevin Bailly
(618) 549-5302

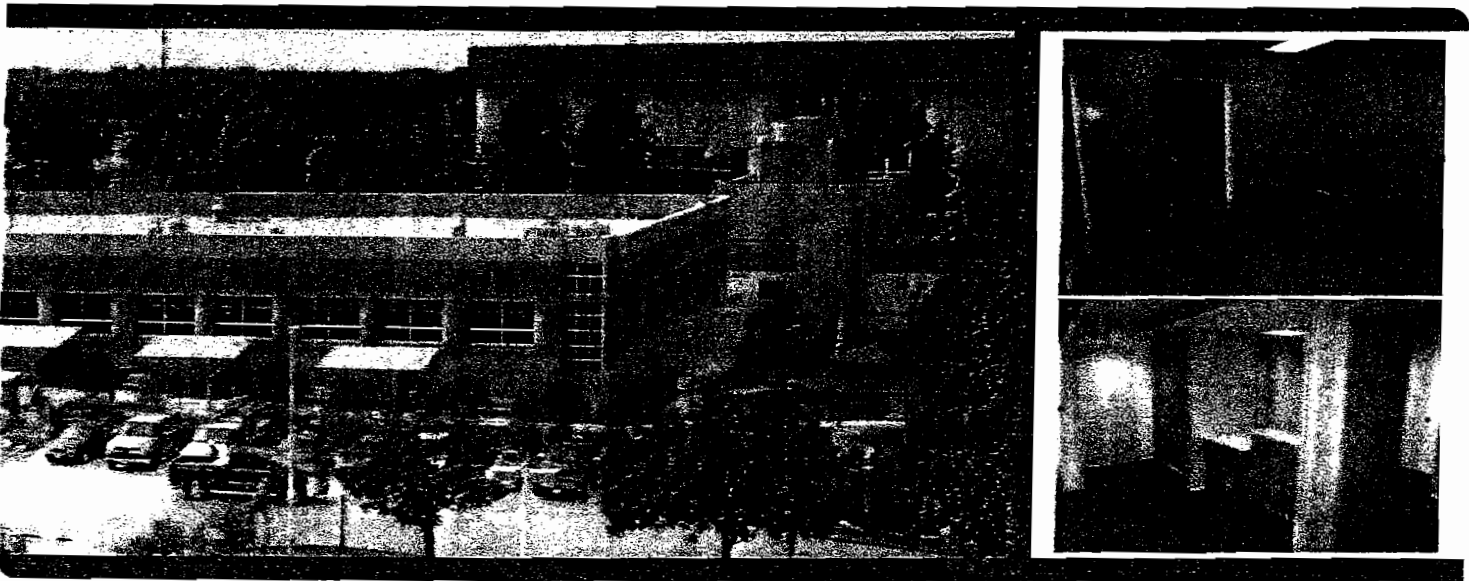
Architect: Crawford, Murphy & Tilly, Inc.
Mr. Ty Besalke
(217) 787-8050

Status: 85% Complete

Completion: March 2014

Superintendent: Tom Polczynski

Project Manager: Joe Seymour



Project: Harry S. Truman Veterans Memorial Hospital - Surgical Suite Addition / Renovation
Columbia, Missouri

Addition and renovation to the Harry S. Truman Veterans Memorial Hospital. This multi-phased project included a new addition that houses an operating room suite with five operating rooms, two of which will be general purpose, two dedicated to heart surgery and one dedicated to special procedures. The old operating rooms were renovated and a new post anesthesia care unit and pre-operation room were added. Additional renovations included new patient room layouts, MEP upgrades, and renovated space for support functions that include PACU, pre-operative prep and holding rooms, and staff lockers.

Owner: Department of Veteran Affairs
Alan Prismanas, Senior Resident Engineer
(573) 814-6285

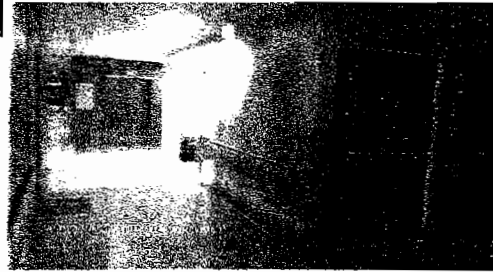
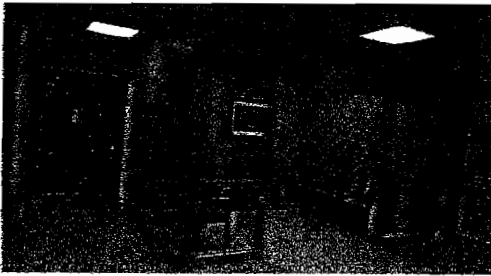
Architect: Ellerbe Becket
Mr. Chris Gale
(816) 561-4443

Status: Phase I - Complete Phase II - Complete Phase III - 90% Complete

Completion: Phase I - December 2011 Phase II - December 2012 Phase III - December 2013

Superintendent: Don Evans

Project Manager: Kelly Hequembourg



Project: BJC Boone Hospital Center - Cardiovascular Renovation
Columbia, Missouri

Project consists of demolition of existing nurse station, exam rooms, offices and restrooms. Construction of a new EKG, Echovascular, ED support areas and expands the existing ITC Suite. The project area is approximately 7,600 square feet.

Owner: BJC Boone Hospital Center, Planning, Design & Construction Offices
Ms. Katlyn Hays
(573) 815-3325

Architect: Feeler Scheer Architects, LLC
Ms. Lindsay Stephens
(636) 530-7363

Status: 60% Complete

Completion: December 2013

Superintendent: Jesse Steck

Project Manager: Scott Schieber



Project: OSF St. James - John W. Albrecht Medical Center - Lab Addition and MRI
Pontiac, Illinois

Project consists of a 2,530 square foot addition for new laboratory space and demolition of existing interior space that will also be renovated for the new laboratory space. The existing laboratory space will be renovated to a new MRI Suite.

Owner: OSF Healthcare System
Mr. Mark Talbott
(309) 661-5007

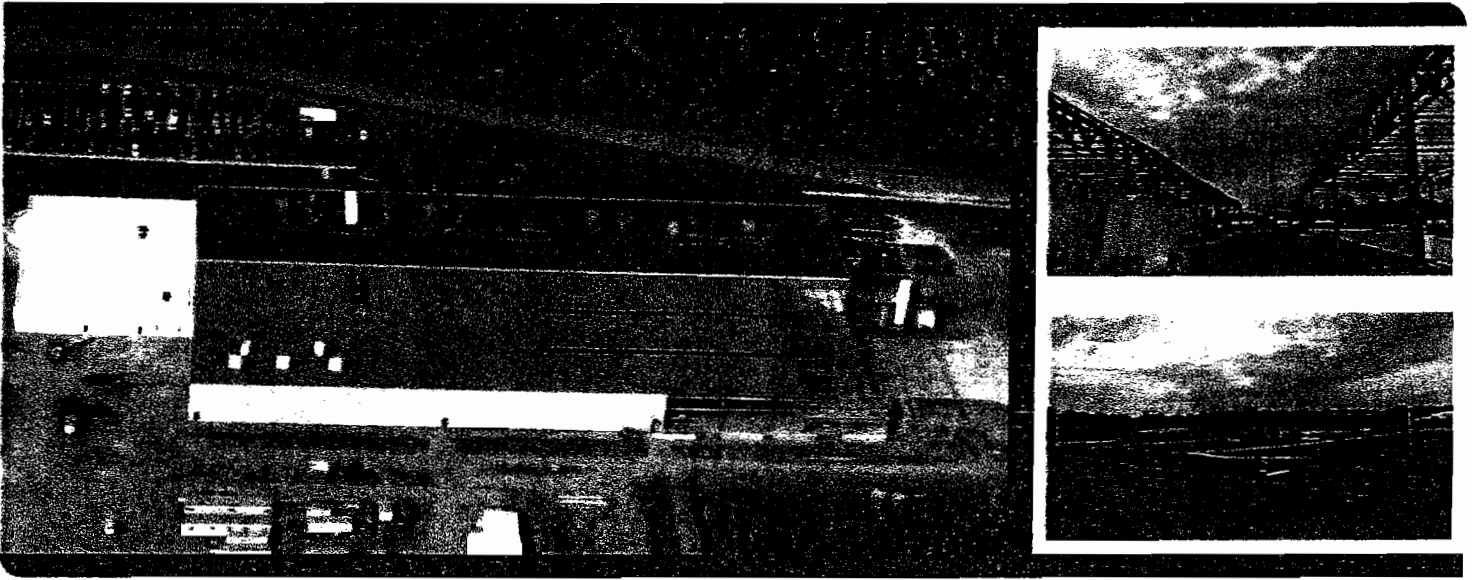
Architect: Proteus Group, LLC
Mr. Kelly Schreihöfer
(312) 337-7800

Status: 30% Complete

Completion: April 2014

Superintendent: Mike Jones

Project Manager: Lance Zaerr / Dave Staggs



Project: AISIN Electronics of Illinois, LLC Phase II
Marion, Illinois

Project encompasses 113,000 square feet of new facilities for AISIN Electronics of Illinois. Included in the project is 90,000 square feet of manufacturing space and 23,000 square feet of new office space. Also, included in the project is a renovation of office space within the existing Facility. The project also includes extensive site work that includes two new parking lots and a loading dock area.

Owner: Aisin Development of America Inc.
Mr. Masanori Yuasa
(812) 523-1969

Architect: Mussett, Nicholas & Associates Inc.
Mr. Tim Schwalm
(317) 631-9241

Status: 40% Complete

Completion: June 2014

Superintendent: Bryan Woolsey

Project Manager: Phil Kingdon



Project: Heartland Community College
Construct Readiness Center, Maneuver Enhancement Brigade Facility
Normal, McClean County, Illinois

Construction of a 58,406 square foot facility for the Illinois Army National Guard located at Heartland Community College in Normal, Illinois. The main facility is a 56,326 square foot building containing administration space, assembly areas, unit storage, a kitchen, and classrooms. A separate 2,080 square foot detached slab-on-grade building houses a maintenance work bay and storage space. All related site improvements, including military, and privately owned vehicle parking, fencing, sidewalks, outdoor lighting, utility extensions, access roads, and landscaping are included.

Owner: Capital Development Board
Mr. Steve Halm
(815) 433-7120

Architect: Burns & McDonnell
Ms. Debbie Sretenovic
(630) 724-3200

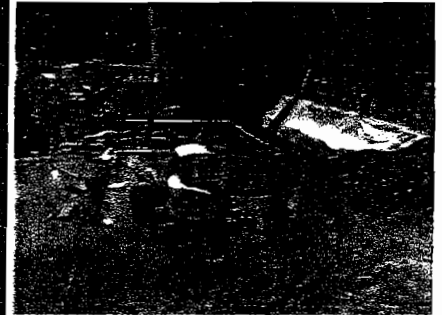
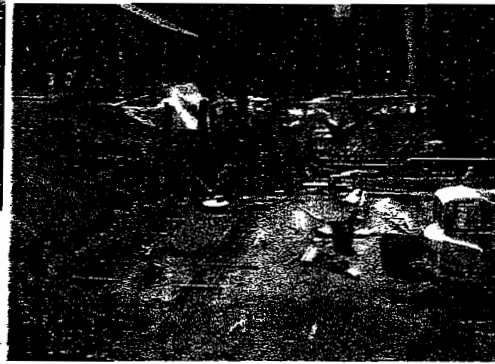
Cost: \$15,035,000

Status: 4% Complete

Completion: July 2014

Superintendent: Art Knapp

Project Manager: Matt Maybanks



Project: Parkland College - New Fine and Applied Arts Facility
Champaign, Illinois

Project consists of a full range of site, general, fire protection, plumbing, HVAC and electrical work to complete two new steel framed building additions totaling 27,000 square feet. The additions are on each side of the existing Parkland Theater (constructed by River City Construction in 1987). Both additions will share the same exterior styling as the surrounding buildings. The Performing Arts addition will include a black box theater that will serve as a multi-functional space for music performances, rehearsal space for Parkland and community productions, and as a space for presentations. The Visual Arts addition will include painting studio, drawing studio, ceramic studio, wood shop, metalwork/jewelry studio, MAC lab, offices and storage.

Owner: Parkland College
Mr. Jim Bustard
(217) 351-2211

Architect: IGW Architecture
Mr. Scot Wachter
(217) 328-1391

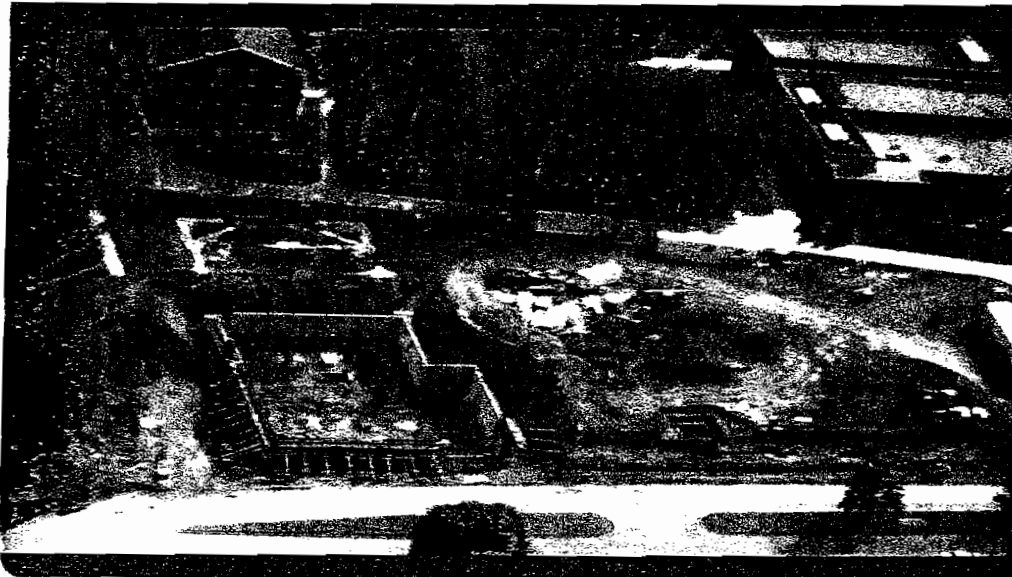
Cost: \$6,965,000

Status: 10% Complete

Completion: July 2014

Superintendent: Dan Taylor

Project Manager: Kevin Beal



Project: Southeast Missouri State University - River Campus Expansion
Cape Girardeau, Missouri

Project consists of the construction of a 93,754 square foot, three-story building to include both residential and academic space. The expansion at the River Campus will include practice rooms, sectionals, a choral rehearsal room, a dance studio and a directing/acting studio. The first floor also will include dining space with seating for approximately 120 people. An art classroom will be located on a mezzanine level, and 13 faculty offices will be housed on the second floor. The remaining space on the second floor will consist of student rooms, lounges, practice rooms and a fitness room. The third floor will house additional student rooms and lounges, for a total of 184 beds. The project will also include a 125 space parking lot.

Owner: Southeast Missouri State University
Mrs. Angela Meyer
(573) 651-2723

Architect: The Lawrence Group
Mr. Mike Flynn
(314) 231-5700

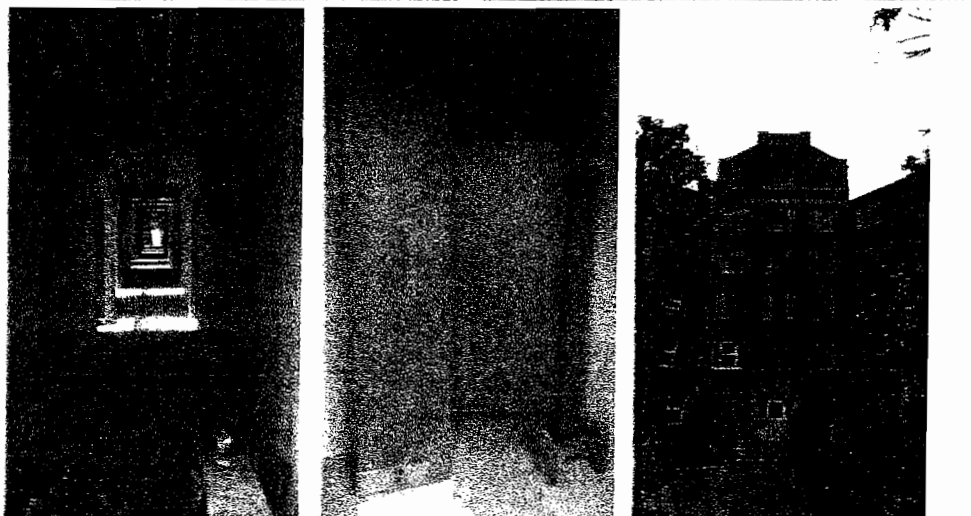
Cost: \$21,100,00

Status: 5% Complete

Completion: July 2014

Superintendent: Kip Loveall

Project Manager: Phil Kingdon



Project: Truman State University - Centennial Hall Renovation
Kirksville, Missouri

Complete renovation of a 159,000 square foot dormitory building, including restoration of the exterior brick facade, installation of a new roof and windows, installation of a chilled water line to the building, and complete renovation of the kitchen and dining hall services.

Owner: Truman State University
Mr. Mark Schultz
(660) 785-4120

Architect: International Architects Atelier Inc.
Mr. Doug Osborn
(816) 471-6522

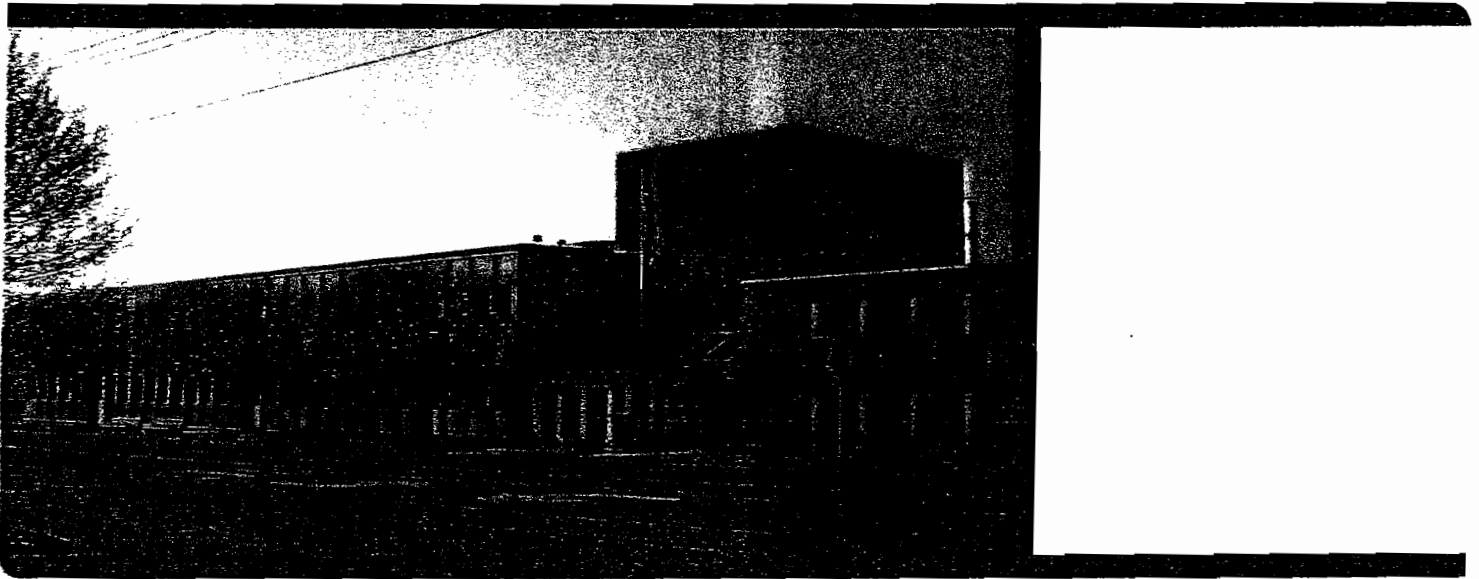
Cost: \$12,243,000

Status: 85% Complete

Completion: August 2014

Superintendent: Dennis Berhorst

Project Manager: Mike Murray



Project: Federal Building and U.S. Courthouse Capital Security and Fire Alarm Upgrades
Benton, Illinois

The existing U. S. Courthouse is a federally owned two-story building constructed in 1958. The intent of this project is to mitigate the general security deficiencies of the Courthouse. Scope of work includes site work, construction of a new Sallyport and prisoner elevator, parking and building entry renovations, and circulating zoning/control improvements. The main objectives for this project include resolving line of site issues from adjacent structures, and securing separate dedicated entry and circulation paths for judges, prisoners, and the public to improve the safety for all tenants in the building.

Owner: U.S. General Services Administration
Ms. Katie Musselman
(312) 983-1811

Architect: Interactive Design
Mr. Charles Young
(312) 482-8866

Status: Just Starting

Completion: August 2014

Superintendent: Carl Schultz

Project Manager: Chet Nosalik



Project: Rocky Fork Wastewater Treatment Facility
Boone County Regional Sewer District
Boone County, Missouri

The project consists of the construction of a new wastewater treatment facility. The treatment process will use Siemens Orbal® treatment equipment with two (2) Siemens Tow-Bro® secondary clarifiers that have been pre-procured by the District. Other major treatment equipment includes influent pumps, automatically cleaned bar screen, grit removal equipment, sludge pumps, aeration blowers and ultraviolet light disinfection equipment.

Owner: Boone County Regional Sewer District
Mr. Tom Ratemann
(573) 443-2774

Architect: Shafer, Kline & Warren Inc.
Mr. Dennis Stith
(573) 442-4537

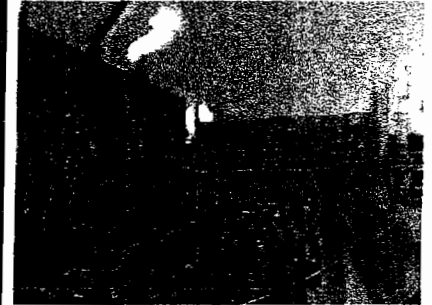
Cost: \$5,675,000

Status: 5% Complete

Completion: August 2014

Superintendent: Bill Matlock

Project Manager: Scott Schieber



Project: City Water Light Power - Water Works Improvements Projects
Contract 3 - Pump Stations
Springfield, Illinois

The project consists of civil, structural, mechanical and electrical work and includes the demolition and modifications to the intake structure and tunnel connection, construction of two (2) pump stations: a low service water intake station and a high service water distribution station; various underground site piping, sluice gate installation, as well as associated excavation, final grading, seeding and fertilizing, erosion control, surface and subsurface drainage, buried storm sewer and drainage piping, manhole installation and repairs, protection of and shoring for adjacent utilities as needed; fence removal, fence replacement and/or installation; site demolition, concrete and asphalt pavement, and topsoil removal.

Owner: City of Springfield - City Water Light & Power
Mr. Andrew Midden
(217) 757-8670

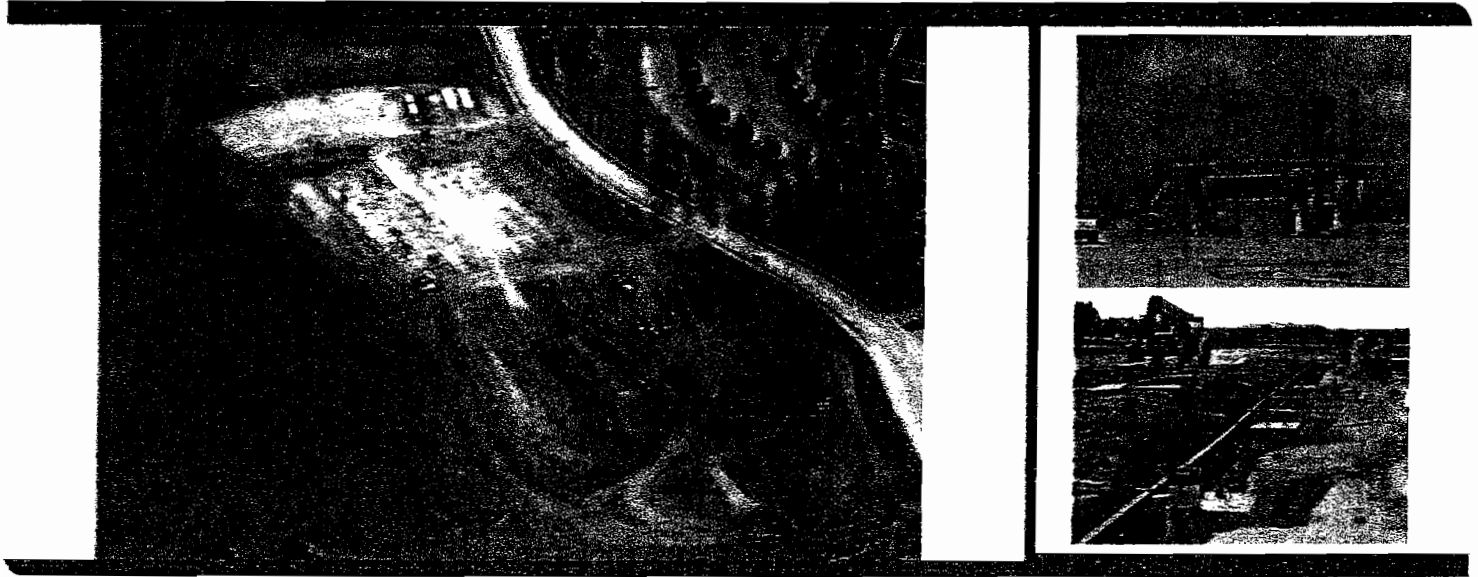
Architect: Crawford, Murphy & Tilly Inc.
Ms. Amanda Withers, PE
(217) 787-8050

Status: 42% Complete

Completion: October 2014

Superintendent: Kent Grigsby

Project Manager: Matt Brown



Project: UMHC - South Providence Medical Building
University of Missouri - Columbia, Missouri

Project consists of site development of approximately 15 acres and construction of a two-story, 85,549 square foot medical office building. To include medical offices and exam rooms for Family medicine, an imaging area consisting of X-ray, CT and MRI facilities and a retail pharmacy. The 2nd floor is made up of Children's Health and Pediatrics as well as additional office space. Site work will include a new pond to provide water for the irrigation system, natural vegetative restoration, and a chat walking trail around the site.

Owner: University of Missouri - Columbia
Mr. Matt Thomas
(573) 489-8614

Architect: Simon Oswald Architecture
Mr. Bill Oswald
(573) 443-1407

Cost: \$16,765,000

Status: 10% Complete

Completion: January 2015

Superintendent: Don Evans

Project Manager: Kelly Hequembourg

ANTI-COLLUSION STATEMENT

STATE OF MISSOURI

COUNTY OF BOONE

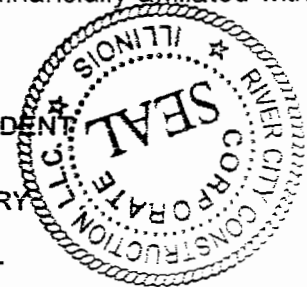
JOHN SUTHERLAND, being first duly sworn, deposes and says that he is VICE PRESIDENT
(Title of Person Signing)

of RIVER CITY CONSTRUCTION, L.L.C.
(Name of Bidder)

that all statements made and facts set out in the proposal for the above project are true and correct; and the bidder (person, firm, association, or corporation making said bid) has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with said bid or any contract which may result from its acceptance.

Affiant further certifies that bidder is not financially interested in, or financially affiliated with, any other bidder for the above project

By [Signature] JOHN SUTHERLAND, VICE PRESIDENT
By [Signature] JOHN C. HOELSCHER, SECRETARY
By [Signature] ERIC BURSOTT, VICE PRESIDENT



Sworn to before me this 15TH day of OCTOBER, 20 13

[Signature]
Notary Public CHELSEA R. WREN

My Commission Expires 8/07/2015

CHELSEA R. WREN
Notary Public - Notary Seal
STATE OF MISSOURI
Resides in Boone County
My Commission Expires Aug. 7, 2015
Commission #11223422

SIGNATURE AND IDENTITY OF BIDDER

The undersigned states that the correct LEGAL NAME and ADDRESS of (1) the individual Bidder, (2) each partner or joint venture (whether individuals or corporations, and whether doing business under fictitious name), or (3) the corporation (with the state in which it is incorporated) are shown below; that (if not signing with the intention of binding himself to become the responsible and sole Contractor) he is the agent of, and duly authorized in writing to sign for the Bidder or Bidders; and that he is signing and executing this (as indicated in the proper spaces below) as the proposal of a:

() sole individual () partnership () joint venture
(x) corporation, incorporated under laws of the state of ILLINOIS
*LICENSED TO DO BUSINESS IN MISSOURI

Dated OCTOBER 15TH, 2013
Name of individual, all partners, or joint venturers:

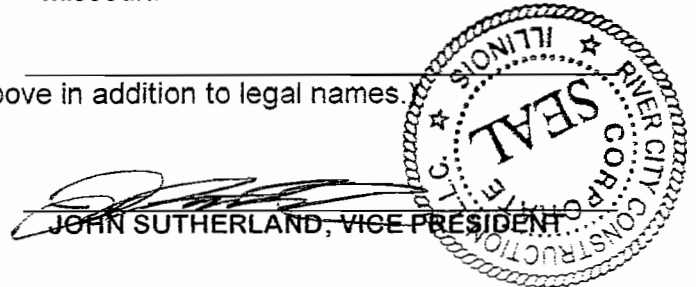
Address of each:

**RIVER CITY CONSTRUCTION, L.L.C. IS A CORPORATION. PLEASE SEE ATTACHED LICENSE FOR ILLINOIS AND MISSOURI AS WELL AS AUTHORIZED SIGNATORIES / OFFICERS.

doing business under the name of: Address of principal place of business in Missouri:

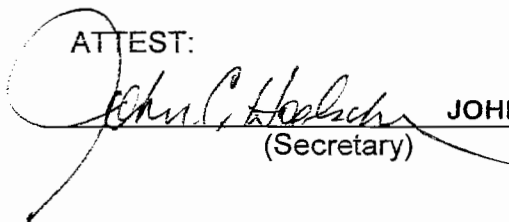
(If using a fictitious name, show this name above in addition to legal names.)

RIVER CITY CONSTRUCTION, L.L.C.
(If a corporation - show its name above)



JOHN SUTHERLAND, VICE PRESIDENT

ATTEST:


JOHN C. HOELSHER
(Secretary)

SECRETARY
(Title)

NOTE: If the Bidder is doing business under a FICTITIOUS NAME, the Proposal shall be executed in the legal name of the individual, partners, joint venturers, or corporation, with the legal address shown, and the REGISTRATION OF FICTITIOUS NAME filed with the Secretary of State, as required by Section 417.200 to 417.230, RS Mo. shall be attached. If the Bidder is a CORPORATION NOT ORGANIZED UNDER THE LAWS OF MISSOURI, it shall procure a CERTIFICATE OF AUTHORITY TO DO BUSINESS IN MISSOURI, as required by Section 351.570 and following, RS Mo. A CERTIFIED COPY of such Registration of Fictitious Name or Certificate of Authority to do Business in Missouri shall be filed with the Engineer.

BIDDER'S ACKNOWLEDGMENT

(Complete and fill out all parts applicable, and strike out all parts not applicable.)

State of MISSOURI

County of BOONE

On this 15TH day of OCTOBER, 20 13

before me appeared JOHN SUTHERLAND to me personally known, who, being by me first duly sworn, did say that he executed the foregoing Proposal with full knowledge and understanding of all its terms and provisions and of the plans and specifications; that the correct legal name and address of the Bidder (including those of all partners of joint ventures if fully and correctly set out above; that all statements made therein by or for the Bidder are true; and

(if a sole individual) acknowledged that he executed the same as his free act and deed.

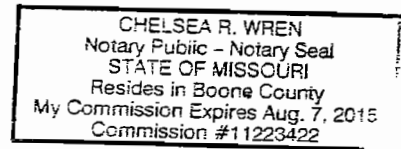
(if a partnership or joint venture) acknowledged that his executed same, with written authority from, and as the free act and deed of, all said partners or joint ventures.

(if a corporation) that he is the VICE PRESIDENT
President or other agent

of RIVER CITY CONSTRUCTION, L.L.C.; that the above Proposal was signed and sealed in behalf of said corporation by authority of its board of directors; and he acknowledged said proposal to be the free act and deed of said corporation.

Witness my hand and seal at 9:15, AM the day and year first above written.

(SEAL) *Chelsea R. Wren* Notary Public
CHELSEA R. WREN



My Commission expires AUGUST 7TH, 20 15

(Please complete and return with Bid)

**Certification Regarding
Debarment, Suspension, Ineligibility and Voluntary Exclusion
Lower Tier Covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 29 CFR Part 98 Section 98.510, Participants' responsibilities. The regulations were published as Part VII of the May 26, 1988, Federal Register (pages 19160-19211).

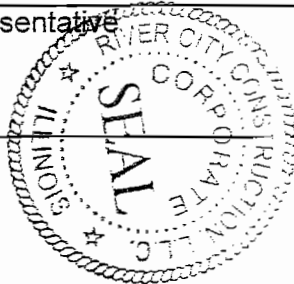
(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS FOR CERTIFICATION)

- (1) The prospective recipient of Federal assistance funds certifies, by submission of this proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective recipient of Federal assistance funds is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

JOHN SUTHERLAND, VICE PRESIDENT OF RIVER CITY CONSTRUCTION, L.L.C.

Name and Title of Authorized Representative

Signature



OCTOBER 15, 2013

Date

CNA SURETY

Bid Bond

Bond No. N/A

CONTRACTOR:

(Name, legal status and address)

River City Construction, LLC
6640 American Setter Dr.
Ashland, MO 65010

SURETY: Continental Casualty Company: Illinois Corporation

(Name, legal status and principal place of business)

333 S. Wabash Avenue
41st Floor
Chicago, IL 60604

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:

(Name, legal status and address)

County of Boone, Missouri
613 East Ash Street
Columbia, MO 65201

BOND AMOUNT: FIVE PERCENT (5%) OF THE AMOUNT OF THE BID

PROJECT:

(Name, location or address, and Project number, if any)

Boone County Walnut Office
Bid Number: 37-15OCT13

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 15th day of October, 2013.

[Signature]
(Witness)

[Signature]
(Witness)

River City Construction, LLC

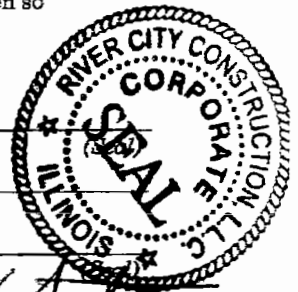
(Principal)

[Signature]
(Title) JOHN SUTHERLAND, VICE PRESIDENT

Continental Casualty Company

(Surety)

[Signature]
(Title) Nicholas G. Yates
Attorney-In-Fact

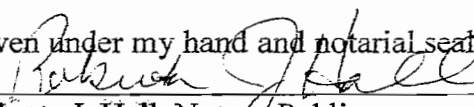


STATE OF
COUNTY OF

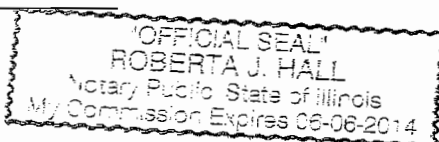
Illinois
~~Peoria~~

I, Roberta J. Hall, Notary Public of Peoria County, in the State of Illinois, do hereby certify that ~~Nicholas G. Yates~~, Attorney-in-Fact, of the Continental Casualty Company, who is personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that he signed, sealed and delivered said instrument, for and on behalf of the Continental Casualty Company, for the uses and purposes therein set forth.

Given under my hand and notarial seal in said County, this 15th day of October, 2013.



Roberta J. Hall, Notary Public
My Commission Expires June 6, 2014



Now all men by these presents, that Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company (herein called "the CNA Companies"), are duly organized and existing insurance companies having their principal offices in the City of Chicago, and State of Illinois, and that they do by virtue of the signatures and seals herein affixed hereby make, constitute and appoint

Nicholas G Yates, Peter T Coyle, Paula G Chaney, Susan E Mansfield, Roberta J Hall, Steven J Lohmeier, Individually

of Peoria, IL, their true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on their behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind them thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of their insurance companies and all the acts of said Attorney, pursuant to the authority hereby given is hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law and Resolutions, printed on the reverse hereof, duly adopted, as indicated, by the Boards of Directors of the insurance companies.

In Witness Whereof, the CNA Companies have caused these presents to be signed by their Vice President and their corporate seals to be hereto affixed on this 5th day of February, 2013.



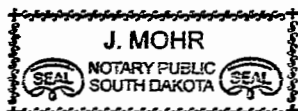
Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

Paul T. Bruflat

Paul T. Bruflat Vice President

State of South Dakota, County of Minnehaha, ss:

On this 5th day of February, 2013, before me personally came Paul T. Bruflat to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is a Vice President of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company described in and which executed the above instrument; that he knows the seals of said insurance companies; that the seals affixed to the said instrument are such corporate seals; that they were so affixed pursuant to authority given by the Boards of Directors of said insurance companies and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said insurance companies.



My Commission Expires June 23, 2015

J. Mohr

J. Mohr Notary Public

CERTIFICATE

I, D. Bult, Assistant Secretary of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company do hereby certify that the Power of Attorney herein above set forth is still in force, and further certify that the By-Law and Resolution of the Board of Directors of the insurance companies printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said insurance companies this 15th day of October, 2013.

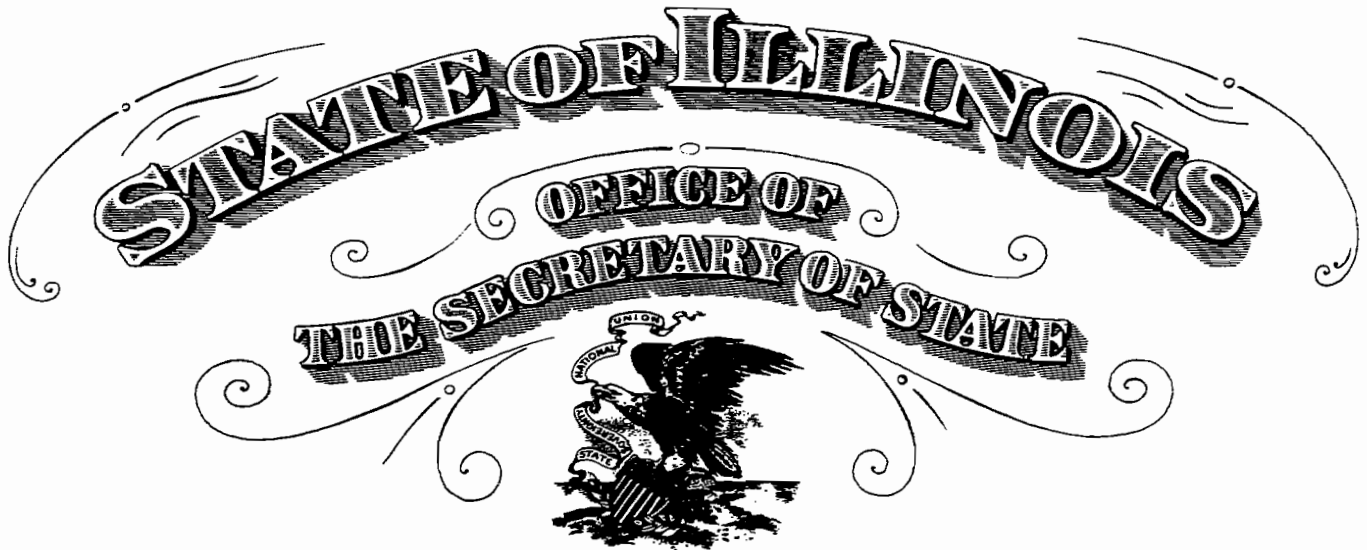


Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

D. Bult

D. Bult Assistant Secretary

LICENSE / AUTHORIZED SIGNATORIES / OFFICERS



To all to whom these Presents Shall Come, Greeting:

I, Jesse White, Secretary of State of the State of Illinois, do hereby certify that

RIVER CITY CONSTRUCTION, L.L.C., HAVING ORGANIZED IN THE STATE OF ILLINOIS ON DECEMBER 18, 1997, APPEARS TO HAVE COMPLIED WITH ALL PROVISIONS OF THE LIMITED LIABILITY COMPANY ACT OF THIS STATE, AND AS OF THIS DATE IS IN GOOD STANDING AS A DOMESTIC LIMITED LIABILITY COMPANY IN THE STATE OF ILLINOIS.



In Testimony Whereof, I hereto set my hand and cause to be affixed the Great Seal of the State of Illinois, this 11TH day of MAY A.D. 2012 .

Jesse White

Authentication #: 1213201240

Authenticate at: <http://www.cyberdriveillinois.com>

SECRETARY OF STATE

STATE OF MISSOURI



Rebecca McDowell Cook
Secretary of State

CERTIFICATE OF REGISTRATION FOREIGN LIMITED LIABILITY COMPANY

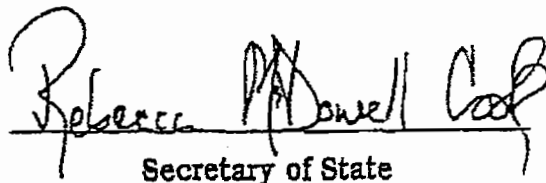
WHEREAS,
RIVER CITY CONSTRUCTION, L.L.C.

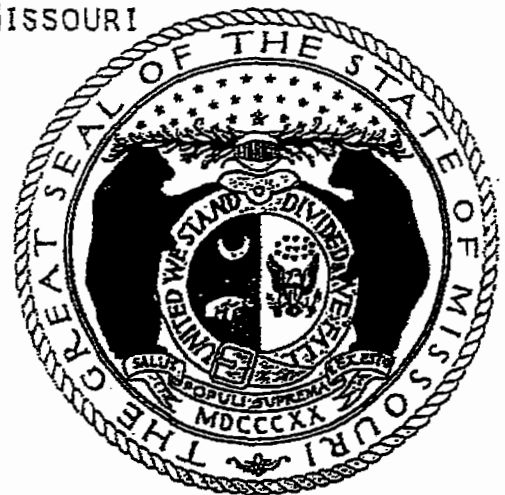
USING IN MISSOURI THE NAME
RIVER CITY CONSTRUCTION, L.L.C.

AND EXISTING UNDER THE LAWS OF THE STATE OF ILLINOIS
HAS FILED WITH THIS STATE ITS APPLICATION FOR REGISTRATION AND
WHEREAS THIS APPLICATION FOR REGISTRATION CONFORMS TO THE
MISSOURI LIMITED LIABILITY COMPANY ACT;

NOW, THEREFORE, I, REBECCA McDOWELL COOK, SECRETARY OF STATE,
STATE OF MISSOURI, BY VIRTUE OF AUTHORITY VESTED IN ME BY LAW,
DO CERTIFY AND DECLARE THAT ON THE 20TH DAY OF JULY, 1998,
THE ABOVE FOREIGN LIMITED LIABILITY COMPANY IS DULY AUTHORIZED
TO TRANSACT BUSINESS IN THE STATE OF MISSOURI
AND IS ENTITLED TO ANY RIGHTS GRANTED
LIMITED LIABILITY COMPANIES.

IN TESTIMONY WHEREOF, I HAVE SET MY
HAND AND IMPRINTED THE GREAT SEAL OF
THE STATE OF MISSOURI, ON THIS, THE
20TH DAY OF JULY, 1998.


Secretary of State



\$105.00

River City Construction, L.L.C. Authorized Signatories / Officers

Authorized Signatories

Name	Position
Bernie Koch	Manager/ Member/ President
Lu Ori	Member/ Vice President
Eric Bursott	Member/ Vice President
John C. Hoelscher	Member/ Vice President
Jeffrey Long	Member/ Vice President
John Sutherland	Member/ Vice President

E-VERIFY

**WORK AUTHORIZATION CERTIFICATION
PURSUANT TO 285.530 RSMo
(FOR ALL AGREEMENTS IN EXCESS OF \$5,000.00)**

County of BOONE)
)ss
State of MISSOURI)

My name is JOHN SUTHERLAND. I am an authorized agent of RIVER CITY CONSTRUCTION, L.L.C.(Bidder). This business is enrolled and participates in a federal work authorization program for all employees working in connection with services provided to the County. This business does not knowingly employ any person that is an unauthorized alien in connection with the services being provided. Documentation of participation in a federal work authorization program is attached hereto.


Furthermore, all subcontractors working on this contract shall affirmatively state in writing in their contracts that they are not in violation of Section 285.530.1, shall not thereafter be in violation and submit a sworn affidavit under penalty of perjury that all employees are lawfully present in the United States.

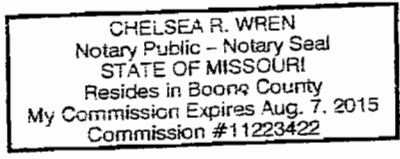
 10/15/2013
Affiant Date



JOHN SUTHERLAND, VICE PRESIDENT
Printed Name

Subscribed and sworn to before me this 15TH day of OCTOBER, 2013.

 CHELSEA R. WREN
Notary Public





- Home
- My Cases
- New Case
- View Cases
- My Profile
- Edit Profile
- Change Password
- Change Security Questions
- My Company
- Edit Company Profile
- Add New User
- View Existing Users
- Close Company Account
- My Reports
- View Reports
- My Resources
- View Essential Resources
- Take Tutorial
- View User Manual
- Contact Us

Company Information

Company Name: River City Construction LLC



Company ID Number: 221959

Doing Business As (DBA) Name:

DUNS Number:

Physical Location:

Address 1: 101 Hoffer Lane

Address 2:

City: East Peoria

State: IL

Zip Code: 61611

County: TAZEWELL

Mailing Address:

Address 1: PO Box 1389

Address 2:

City: Peoria

State: IL

Zip Code: 61654

Additional Information:

Employer Identification Number: 371366545

Total Number of Employees: 100 to 499

Parent Organization:

Administrator:

Organization Designation:

Employer Category: Federal Contractor with FAR E-Verify Clause

Federal Contractor Category: None of these categories apply

Employees being verified: All new hires and all existing employees assigned to a Federal contract

NAICS Code: 236 - CONSTRUCTION OF BUILDINGS



Total Hiring Sites: 3



Total Points of Contact: 3



THE E-VERIFY PROGRAM FOR EMPLOYMENT VERIFICATION MEMORANDUM OF UNDERSTANDING

ARTICLE I

PURPOSE AND AUTHORITY

This Memorandum of Understanding (MOU) sets forth the points of agreement between the Department of Homeland Security (DHS) and **River City Construction LLC** (Employer) regarding the Employer's participation in the Employment Eligibility Verification Program (E-Verify). This MOU explains certain features of the E-Verify program and enumerates specific responsibilities of DHS, the Social Security Administration (SSA), and the Employer. E-Verify is a program that electronically confirms an employee's eligibility to work in the United States after completion of the Employment Eligibility Verification Form (Form I-9). For covered government contractors, E-Verify is used to verify the employment eligibility of all newly hired employees and all existing employees assigned to Federal contracts.

Authority for the E-Verify program is found in Title IV, Subtitle A, of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA), Pub. L. 104-208, 110 Stat. 3009, as amended (8 U.S.C. § 1324a note). Authority for use of the E-Verify program by Federal contractors and subcontractors covered by the terms of Subpart 22.18, "Employment Eligibility Verification", of the Federal Acquisition Regulation (FAR) (hereinafter referred to in this MOU as a "Federal contractor") to verify the employment eligibility of certain employees working on Federal contracts is also found in Subpart 22.18 and in Executive Order 12989, as amended.

ARTICLE II

FUNCTIONS TO BE PERFORMED

A. RESPONSIBILITIES OF SSA

1. SSA agrees to provide the Employer with available information that allows the Employer to confirm the accuracy of Social Security Numbers provided by all employees verified under this MOU and the employment authorization of U.S. citizens.
2. SSA agrees to provide to the Employer appropriate assistance with operational problems that may arise during the Employer's participation in the E-Verify program. SSA agrees to provide the Employer with names, titles, addresses, and telephone numbers of SSA representatives to be contacted during the E-Verify process.
3. SSA agrees to safeguard the information provided by the Employer through the E-Verify program procedures, and to limit access to such information, as is appropriate by law, to individuals responsible for the verification of Social Security Numbers and for evaluation of the E-Verify program or such other persons or entities who may be authorized by SSA as governed by the Privacy Act (5 U.S.C. § 552a), the Social Security Act (42 U.S.C. 1306(a)), and SSA regulations (20 CFR Part 401).

4. SSA agrees to provide a means of automated verification that is designed (in conjunction with DHS's automated system if necessary) to provide confirmation or tentative nonconfirmation of U.S. citizens' employment eligibility within 3 Federal Government work days of the initial inquiry.

5. SSA agrees to provide a means of secondary verification (including updating SSA records as may be necessary) for employees who contest SSA tentative nonconfirmations that is designed to provide final confirmation or nonconfirmation of U.S. citizens' employment eligibility and accuracy of SSA records for both citizens and aliens within 10 Federal Government work days of the date of referral to SSA, unless SSA determines that more than 10 days may be necessary. In such cases, SSA will provide additional verification instructions.

B. RESPONSIBILITIES OF DHS

1. After SSA verifies the accuracy of SSA records for aliens through E-Verify, DHS agrees to provide the Employer access to selected data from DHS's database to enable the Employer to conduct, to the extent authorized by this MOU:

- Automated verification checks on alien employees by electronic means, and
- Photo verification checks (when available) on employees.

2. DHS agrees to provide to the Employer appropriate assistance with operational problems that may arise during the Employer's participation in the E-Verify program. DHS agrees to provide the Employer names, titles, addresses, and telephone numbers of DHS representatives to be contacted during the E-Verify process.

3. DHS agrees to provide to the Employer a manual (the E-Verify User Manual) containing instructions on E-Verify policies, procedures and requirements for both SSA and DHS, including restrictions on the use of E-Verify. DHS agrees to provide training materials on E-Verify.

4. DHS agrees to provide to the Employer a notice, which indicates the Employer's participation in the E-Verify program. DHS also agrees to provide to the Employer anti-discrimination notices issued by the Office of Special Counsel for Immigration-Related Unfair Employment Practices (OSC), Civil Rights Division, U.S. Department of Justice.

5. DHS agrees to issue the Employer a user identification number and password that permits the Employer to verify information provided by alien employees with DHS's database.

6. DHS agrees to safeguard the information provided to DHS by the Employer, and to limit access to such information to individuals responsible for the verification of alien employment eligibility and for evaluation of the E-Verify program, or to such other persons or entities as may be authorized by applicable law. Information will be used only to verify the accuracy of Social Security Numbers and employment eligibility, to enforce the Immigration and Nationality Act (INA) and Federal criminal laws, and to administer Federal contracting requirements.

7. DHS agrees to provide a means of automated verification that is designed (in conjunction with SSA verification procedures) to provide confirmation or tentative

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nonconfirmation of employees' employment eligibility within 3 Federal Government work days of the initial inquiry.

8. DHS agrees to provide a means of secondary verification (including updating DHS records as may be necessary) for employees who contest DHS tentative nonconfirmations and photo non-match tentative nonconfirmations that is designed to provide final confirmation or nonconfirmation of the employees' employment eligibility within 10 Federal Government work days of the date of referral to DHS, unless DHS determines that more than 10 days may be necessary. In such cases, DHS will provide additional verification instructions.

C. RESPONSIBILITIES OF THE EMPLOYER

1. The Employer agrees to display the notices supplied by DHS in a prominent place that is clearly visible to prospective employees and all employees who are to be verified through the system.
2. The Employer agrees to provide to the SSA and DHS the names, titles, addresses, and telephone numbers of the Employer representatives to be contacted regarding E-Verify.
3. The Employer agrees to become familiar with and comply with the most recent version of the E-Verify User Manual.
4. The Employer agrees that any Employer Representative who will perform employment verification queries will complete the E-Verify Tutorial before that individual initiates any queries.
 - A. The Employer agrees that all Employer representatives will take the refresher tutorials initiated by the E-Verify program as a condition of continued use of E-Verify, including any tutorials for Federal contractors if the Employer is a Federal contractor.
 - B. Failure to complete a refresher tutorial will prevent the Employer from continued use of the program.
5. The Employer agrees to comply with current Form I-9 procedures, with two exceptions:
 - If an employee presents a "List B" identity document, the Employer agrees to only accept "List B" documents that contain a photo. (List B documents identified in 8 C.F.R. § 274a.2(b)(1)(B)) can be presented during the Form I-9 process to establish identity.) If an employee objects to the photo requirement for religious reasons, the Employer should contact E-Verify at 888-464-4218.
 - If an employee presents a DHS Form I-551 (Permanent Resident Card) or Form I-766 (Employment Authorization Document) to complete the Form I-9, the Employer agrees to make a photocopy of the document and to retain the photocopy with the employee's Form I-9. The employer will use the photocopy to verify the photo and to assist DHS with its review of photo non matches that are contested by employees. Note that employees retain the right to present any List A, or List B and List C, documentation to complete the Form I-9. DHS may in the future designate other documents that activate the photo screening tool.



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6. The Employer understands that participation in E-Verify does not exempt the Employer from the responsibility to complete, retain, and make available for inspection Forms I-9 that relate to its employees, or from other requirements of applicable regulations or laws, including the obligation to comply with the antidiscrimination requirements of section 274B of the INA with respect to Form I-9 procedures, except for the following modified requirements applicable by reason of the Employer's participation in E-Verify: (1) identity documents must have photos, as described in paragraph 5 above; (2) a rebuttable presumption is established that the Employer has not violated section 274A(a)(1)(A) of the Immigration and Nationality Act (INA) with respect to the hiring of any individual if it obtains confirmation of the identity and employment eligibility of the individual in compliance with the terms and conditions of E-Verify; (3) the Employer must notify DHS if it continues to employ any employee after receiving a final nonconfirmation, and is subject to a civil money penalty between \$550 and \$1,100 for each failure to notify DHS of continued employment following a final nonconfirmation; (4) the Employer is subject to a rebuttable presumption that it has knowingly employed an unauthorized alien in violation of section 274A(a)(1)(A) if the Employer continues to employ an employee after receiving a final nonconfirmation; and (5) no person or entity participating in E-Verify is civilly or criminally liable under any law for any action taken in good faith based on information provided through the confirmation system. DHS reserves the right to conduct Form I-9 compliance inspections during the course of E-Verify, as well as to conduct any other enforcement activity authorized by law.

7. The Employer agrees to initiate E-Verify verification procedures for new employees within 3 Employer business days after each employee has been hired (but after both sections 1 and 2 of the Form I-9 have been completed), and to complete as many (but only as many) steps of the E-Verify process as are necessary according to the E-Verify User Manual. The Employer is prohibited from initiating verification procedures before the employee has been hired and the Form I-9 completed. If the automated system to be queried is temporarily unavailable, the 3-day time period is extended until it is again operational in order to accommodate the Employer's attempting, in good faith, to make inquiries during the period of unavailability. In all cases, the Employer must use the SSA verification procedures first, and use DHS verification procedures and photo screening tool only after the SSA verification response has been given. Employers may initiate verification by notating the Form I-9 in circumstances where the employee has applied for a Social Security Number (SSN) from the SSA and is waiting to receive the SSN, provided that the Employer performs an E-Verify employment verification query using the employee's SSN as soon as the SSN becomes available.

8. The Employer agrees not to use E-Verify procedures for pre-employment screening of job applicants, in support of any unlawful employment practice, or for any other use not authorized by this MOU. Employers must use E-Verify for all new employees, unless an Employer is a Federal contractor that qualifies for the exceptions described in Article II.D.1.c. Except as provided in Article II.D, the Employer will not verify selectively and will not verify employees hired before the effective date of this MOU. The Employer understands that if the Employer uses E-Verify procedures for any purpose other than as authorized by this MOU, the Employer may be subject to appropriate legal action and termination of its access to SSA and DHS information pursuant to this MOU.

9. The Employer agrees to follow appropriate procedures (see Article III. below) regarding tentative nonconfirmations, including notifying employees of the finding, providing written referral instructions to employees, allowing employees to contest the finding, and not taking

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adverse action against employees if they choose to contest the finding. Further, when employees contest a tentative nonconfirmation based upon a photo non-match, the Employer is required to take affirmative steps (see Article III.B. below) to contact DHS with information necessary to resolve the challenge.

10. The Employer agrees not to take any adverse action against an employee based upon the employee's perceived employment eligibility status while SSA or DHS is processing the verification request unless the Employer obtains knowledge (as defined in 8 C.F.R. § 274a.1(l)) that the employee is not work authorized. The Employer understands that an initial inability of the SSA or DHS automated verification system to verify work authorization, a tentative nonconfirmation, a case in continuance (indicating the need for additional time for the government to resolve a case), or the finding of a photo non-match, does not establish, and should not be interpreted as evidence, that the employee is not work authorized. In any of the cases listed above, the employee must be provided a full and fair opportunity to contest the finding, and if he or she does so, the employee may not be terminated or suffer any adverse employment consequences based upon the employee's perceived employment eligibility status (including denying, reducing, or extending work hours, delaying or preventing training, requiring an employee to work in poorer conditions, refusing to assign the employee to a Federal contract or other assignment, or otherwise subjecting an employee to any assumption that he or she is unauthorized to work) until and unless secondary verification by SSA or DHS has been completed and a final nonconfirmation has been issued. If the employee does not choose to contest a tentative nonconfirmation or a photo non-match or if a secondary verification is completed and a final nonconfirmation is issued, then the Employer can find the employee is not work authorized and terminate the employee's employment. Employers or employees with questions about a final nonconfirmation may call E-Verify at 1-888-464-4218 or OSC at 1-800-255-8155 or 1-800-237-2515 (TDD).

11. The Employer agrees to comply with Title VII of the Civil Rights Act of 1964 and section 274B of the INA by not discriminating unlawfully against any individual in hiring, firing, or recruitment or referral practices because of his or her national origin or, in the case of a protected individual as defined in section 274B(a)(3) of the INA, because of his or her citizenship status. The Employer understands that such illegal practices can include selective verification or use of E-Verify except as provided in part D below, or discharging or refusing to hire employees because they appear or sound "foreign" or have received tentative nonconfirmations. The Employer further understands that any violation of the unfair immigration-related employment practices provisions in section 274B of the INA could subject the Employer to civil penalties, back pay awards, and other sanctions, and violations of Title VII could subject the Employer to back pay awards, compensatory and punitive damages. Violations of either section 274B of the INA or Title VII may also lead to the termination of its participation in E-Verify. If the Employer has any questions relating to the anti-discrimination provision, it should contact OSC at 1-800-255-8155 or 1-800-237-2515 (TDD).

12. The Employer agrees to record the case verification number on the employee's Form I-9 or to print the screen containing the case verification number and attach it to the employee's Form I-9.

13. The Employer agrees that it will use the information it receives from SSA or DHS pursuant to E-Verify and this MOU only to confirm the employment eligibility of employees as

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authorized by this MOU. The Employer agrees that it will safeguard this information, and means of access to it (such as PINS and passwords) to ensure that it is not used for any other purpose and as necessary to protect its confidentiality, including ensuring that it is not disseminated to any person other than employees of the Employer who are authorized to perform the Employer's responsibilities under this MOU, except for such dissemination as may be authorized in advance by SSA or DHS for legitimate purposes.

14. The Employer acknowledges that the information which it receives from SSA is governed by the Privacy Act (5 U.S.C. § 552a(i)(1) and (3)) and the Social Security Act (42 U.S.C. 1306(a)), and that any person who obtains this information under false pretenses or uses it for any purpose other than as provided for in this MOU may be subject to criminal penalties.

15. The Employer agrees to cooperate with DHS and SSA in their compliance monitoring and evaluation of E-Verify, including by permitting DHS and SSA, upon reasonable notice, to review Forms I-9 and other employment records and to interview it and its employees regarding the Employer's use of E-Verify, and to respond in a timely and accurate manner to DHS requests for information relating to their participation in E-Verify.

D. RESPONSIBILITIES OF FEDERAL CONTRACTORS

1. The Employer understands that if it is a Federal contractor subject to the employment verification terms in Subpart 22.18 of the FAR it must verify the employment eligibility of any "employee assigned to the contract" (as defined in FAR 22.1801) in addition to verifying the employment eligibility of all other employees required to be verified under the FAR. Once an employee has been verified through E-Verify by the Employer, the Employer may not reverify the employee through E-Verify.

a. Federal contractors not enrolled at the time of contract award: An Employer that is not enrolled in E-Verify as a Federal contractor at the time of a contract award must enroll as a Federal contractor in the E-Verify program within 30 calendar days of contract award and, within 90 days of enrollment, begin to use E-Verify to initiate verification of employment eligibility of new hires of the Employer who are working in the United States, whether or not assigned to the contract. Once the Employer begins verifying new hires, such verification of new hires must be initiated within 3 business days after the date of hire. Once enrolled in E-Verify as a Federal contractor, the Employer must initiate verification of employees assigned to the contract within 90 calendar days after the date of enrollment or within 30 days of an employee's assignment to the contract, whichever date is later.

b. Federal contractors already enrolled at the time of a contract award: Employers enrolled in E-Verify as a Federal contractor for 90 days or more at the time of a contract award must use E-Verify to initiate verification of employment eligibility for new hires of the Employer who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire. If the Employer is enrolled in E-Verify as a Federal contractor for 90 calendar days or less at the time of contract award, the Employer must, within 90 days of enrollment, begin to use E-Verify to initiate verification of new hires of the contractor who are working in the United States, whether or not assigned to the contract. Such verification of new hires must be initiated within 3 business days after the date of hire. An Employer enrolled as a Federal contractor in E-Verify must initiate verification of each employee assigned to the

Company ID Number: 221959

contract within 90 calendar days after date of contract award or within 30 days after assignment to the contract, whichever is later.

c. Institutions of higher education, State, local and tribal governments and sureties: Federal contractors that are institutions of higher education (as defined at 20 U.S.C. 1001(a)), State or local governments, governments of Federally recognized Indian tribes, or sureties performing under a takeover agreement entered into with a Federal agency pursuant to a performance bond may choose to only verify new and existing employees assigned to the Federal contract. Such Federal contractors may, however, elect to verify all new hires, and/or all existing employees hired after November 6, 1986. The provisions of Article II.D, paragraphs 1.a and 1.b of this MOU providing timeframes for initiating employment verification of employees assigned to a contract apply to such institutions of higher education, State, local and tribal governments, and sureties.

d. Verification of all employees: Upon enrollment, Employers who are Federal contractors may elect to verify employment eligibility of all existing employees working in the United States who were hired after November 6, 1986, instead of verifying only those employees assigned to a covered Federal contract. After enrollment, Employers must elect to do so only in the manner designated by DHS and initiate E-Verify verification of all existing employees within 180 days after the election.

e. Form I-9 procedures for Federal contractors: The Employer may use a previously completed Form I-9 as the basis for initiating E-Verify verification of an employee assigned to a contract as long as that Form I-9 is complete (including the SSN), complies with Article II.C.5, the employee's work authorization has not expired, and the Employer has reviewed the information reflected in the Form I-9 either in person or in communications with the employee to ensure that the employee's stated basis in section 1 of the Form I-9 for work authorization has not changed (including, but not limited to, a lawful permanent resident alien having become a naturalized U.S. citizen). If the Employer is unable to determine that the Form I-9 complies with Article II.C.5, if the employee's basis for work authorization as attested in section 1 has expired or changed, or if the Form I-9 contains no SSN or is otherwise incomplete, the Employer shall complete a new I-9 consistent with Article II.C.5, or update the previous I-9 to provide the necessary information. If section 1 of the Form I-9 is otherwise valid and up-to-date and the form otherwise complies with Article II.C.5, but reflects documentation (such as a U.S. passport or Form I-551) that expired subsequent to completion of the Form I-9, the Employer shall not require the production of additional documentation, or use the photo screening tool described in Article II.C.5, subject to any additional or superseding instructions that may be provided on this subject in the E-Verify User Manual. Nothing in this section shall be construed to require a second verification using E-Verify of any assigned employee who has previously been verified as a newly hired employee under this MOU, or to authorize verification of any existing employee by any Employer that is not a Federal contractor.

2. The Employer understands that if it is a Federal contractor, its compliance with this MOU is a performance requirement under the terms of the Federal contract or subcontract, and the Employer consents to the release of information relating to compliance with its verification responsibilities under this MOU to contracting officers or other officials authorized to review the Employer's compliance with Federal contracting requirements.

ARTICLE III

REFERRAL OF INDIVIDUALS TO SSA AND DHS

A. REFERRAL TO SSA

1. If the Employer receives a tentative nonconfirmation issued by SSA, the Employer must print the tentative nonconfirmation notice as directed by the automated system and provide it to the employee so that the employee may determine whether he or she will contest the tentative nonconfirmation.
2. The Employer will refer employees to SSA field offices only as directed by the automated system based on a tentative nonconfirmation, and only after the Employer records the case verification number, reviews the input to detect any transaction errors, and determines that the employee contests the tentative nonconfirmation. The Employer will transmit the Social Security Number to SSA for verification again if this review indicates a need to do so. The Employer will determine whether the employee contests the tentative nonconfirmation as soon as possible after the Employer receives it.
3. If the employee contests an SSA tentative nonconfirmation, the Employer will provide the employee with a system-generated referral letter and instruct the employee to visit an SSA office within 8 Federal Government work days. SSA will electronically transmit the result of the referral to the Employer within 10 Federal Government work days of the referral unless it determines that more than 10 days is necessary. The Employer agrees to check the E-Verify system regularly for case updates.
4. The Employer agrees not to ask the employee to obtain a printout from the Social Security Number database (the Numident) or other written verification of the Social Security Number from the SSA.

B. REFERRAL TO DHS

1. If the Employer receives a tentative nonconfirmation issued by DHS, the Employer must print the tentative nonconfirmation notice as directed by the automated system and provide it to the employee so that the employee may determine whether he or she will contest the tentative nonconfirmation.
2. If the Employer finds a photo non-match for an employee who provides a document for which the automated system has transmitted a photo, the employer must print the photo non-match tentative nonconfirmation notice as directed by the automated system and provide it to the employee so that the employee may determine whether he or she will contest the finding.
3. The Employer agrees to refer individuals to DHS only when the employee chooses to contest a tentative nonconfirmation received from DHS automated verification process or when the Employer issues a tentative nonconfirmation based upon a photo non-match. The Employer will determine whether the employee contests the tentative nonconfirmation as soon as possible



Company ID Number: 221959

after the Employer receives it.

4. If the employee contests a tentative nonconfirmation issued by DHS, the Employer will provide the employee with a referral letter and instruct the employee to contact DHS through its toll-free hotline (as found on the referral letter) within 8 Federal Government work days.

5. If the employee contests a tentative nonconfirmation based upon a photo non-match, the Employer will provide the employee with a referral letter to DHS. DHS will electronically transmit the result of the referral to the Employer within 10 Federal Government work days of the referral unless it determines that more than 10 days is necessary. The Employer agrees to check the E-Verify system regularly for case updates.

6. The Employer agrees that if an employee contests a tentative nonconfirmation based upon a photo non-match, the Employer will send a copy of the employee's Form I-551 or Form I-766 to DHS for review by:

- Scanning and uploading the document, or
- Sending a photocopy of the document by an express mail account (furnished and paid for by DHS).

7. The Employer understands that if it cannot determine whether there is a photo match/non-match, the Employer is required to forward the employee's documentation to DHS by scanning and uploading, or by sending the document as described in the preceding paragraph, and resolving the case as specified by the Immigration Services Verifier at DHS who will determine the photo match or non-match.

ARTICLE IV

SERVICE PROVISIONS

SSA and DHS will not charge the Employer for verification services performed under this MOU. The Employer is responsible for providing equipment needed to make inquiries. To access the E-Verify System, an Employer will need a personal computer with Internet access.

ARTICLE V

PARTIES

A. This MOU is effective upon the signature of all parties, and shall continue in effect for as long as the SSA and DHS conduct the E-Verify program unless modified in writing by the mutual consent of all parties, or terminated by any party upon 30 days prior written notice to the others. Any and all system enhancements to the E-Verify program by DHS or SSA, including but not limited to the E-Verify checking against additional data sources and instituting new verification procedures, will be covered under this MOU and will not cause the need for a supplemental MOU that outlines these changes. DHS agrees to train employers on all changes made to E-Verify through the use of mandatory refresher tutorials and updates to the E-Verify User Manual. Even without changes to E-Verify, DHS reserves the right to require employers to take

Company ID Number: 221959

mandatory refresher tutorials. An Employer that is a Federal contractor may terminate this MOU when the Federal contract that requires its participation in E-Verify is terminated or completed. In such a circumstance, the Federal contractor must provide written notice to DHS. If an Employer that is a Federal contractor fails to provide such notice, that Employer will remain a participant in the E-Verify program, will remain bound by the terms of this MOU that apply to non-Federal contractor participants, and will be required to use the E-Verify procedures to verify the employment eligibility of all newly hired employees.

B. Notwithstanding Article V, part A of this MOU, DHS may terminate this MOU if deemed necessary because of the requirements of law or policy, or upon a determination by SSA or DHS that there has been a breach of system integrity or security by the Employer, or a failure on the part of the Employer to comply with established procedures or legal requirements. The Employer understands that if it is a Federal contractor, termination of this MOU by any party for any reason may negatively affect its performance of its contractual responsibilities.

C. Some or all SSA and DHS responsibilities under this MOU may be performed by contractor(s), and SSA and DHS may adjust verification responsibilities between each other as they may determine necessary. By separate agreement with DHS, SSA has agreed to perform its responsibilities as described in this MOU.

D. Nothing in this MOU is intended, or should be construed, to create any right or benefit, substantive or procedural, enforceable at law by any third party against the United States, its agencies, officers, or employees, or against the Employer, its agents, officers, or employees.

E. Each party shall be solely responsible for defending any claim or action against it arising out of or related to E-Verify or this MOU, whether civil or criminal, and for any liability wherefrom, including (but not limited to) any dispute between the Employer and any other person or entity regarding the applicability of Section 403(d) of IIRIRA to any action taken or allegedly taken by the Employer.

F. The Employer understands that the fact of its participation in E-Verify is not confidential information and may be disclosed as authorized or required by law and DHS or SSA policy, including but not limited to, Congressional oversight, E-Verify publicity and media inquiries, determinations of compliance with Federal contractual requirements, and responses to inquiries under the Freedom of Information Act (FOIA).

G. The foregoing constitutes the full agreement on this subject between DHS and the Employer.

H. The individuals whose signatures appear below represent that they are authorized to enter into this MOU on behalf of the Employer and DHS respectively.



Company ID Number: 221959

To be accepted as a participant in E-Verify, you should only sign the Employer's Section of the signature page. If you have any questions, contact E-Verify at 888-464-4218.

Employer River City Construction LLC

Lorrie C Siens

Signature of Employer
Name

Department of Homeland Security – Verification Division

USCIS Verification Division

Signature of USCIS Representative
Name



Company ID Number: 221959

Information Required for the E-Verify Program

Information relating to your Company:

Company Name: Meridian River City Construction, LLC

Company Federal Employer ID No: 15-1234567

Has a contract with the Federal Government? Yes

Company Website: www.meridianrivercity.com

Company Phone: 503-234-5678

Company Email: hr@meridianrivercity.com

Business Address: 1234 Main St, Portland, OR 97201

Employment Information:

Number of Employees: 7

Company Description:

Construction company specializing in commercial and residential projects.

Company Type:

Company Website: www.meridianrivercity.com

Number of States: 1

Are you verifying for more than 1 site? If yes, please provide the number of sites verified for in each State:

- MISSOURI 1 site(s)



Company ID Number: 221959

- ILLINOIS 2 site(s)

Information relating to the Program Administrator(s) for your Company on policy questions or operational problems:

Name:	Lorrie C Siens	Fax Number:	(309) 694 - 1332
Telephone Number:	(309) 694 - 3120		
E-mail Address:	lsiens@rccllc.com		

Name:	Colleen A Miller	Fax Number:	(309) 698 - 3262
Telephone Number:	(309) 694 - 3120		
E-mail Address:	cmiller@rccllc.com		

Name:	Lisa A LaGrow	Fax Number:	(309) 698 - 3262
Telephone Number:	(309) 694 - 3120		
E-mail Address:	llagrow@rccllc.com		

Addendum 2

37-15OCT13 - Boone County Walnut Office

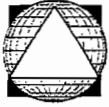
Columbia, MO

October 10, 2013 Addendum #2

The contract documents are amended as follows:

1. The General Contractor responsibilities shall include coordination with the owner's cost vendors (i.e. ARSI (Asbestos Removal), C&C Group (HVAC Controls), Inside the Lines (furniture), Steel-Nett LLC (cable pulling), ACC (security alarms), etc.)
2. All furniture shall be at owner cost
3. The modular walls shall be at owner cost. Owner's cost vendor shall install. Contractor shall coordinate installation with owner's cost vendor.
4. HVAC controls shall be at owner cost. Contractor shall coordinate installation with owner's cost vendor.
5. To clarify the extent of Alternate 3: Contractor shall remove and replace carpet and base and paint the entire 605 Walnut building.
 - a. The Contractor shall move files and furniture as needed to complete alternate 3.
6. There shall be tile on all sides of the wing wall in both restrooms to the same height as adjacent wall tile.
7. Tapered roof insulation is needed for cricket material and directing water to the drain, the general slope of the roof is created by the tapered trusses.
8. Roof insulation shall be Isocyanurate insulation as required by the roof membrane manufacturer warranty.
9. R-30 roof insulation is the minimum acceptable.
10. There shall be a 1 inch wrap insulation on the round duct.
11. Manko Window Systems is an acceptable storefront substitution
12. See attached revised sheet for the intent of sloping the existing parking lot.
13. See attached revised sheet E3.0 for revised panel schedule.

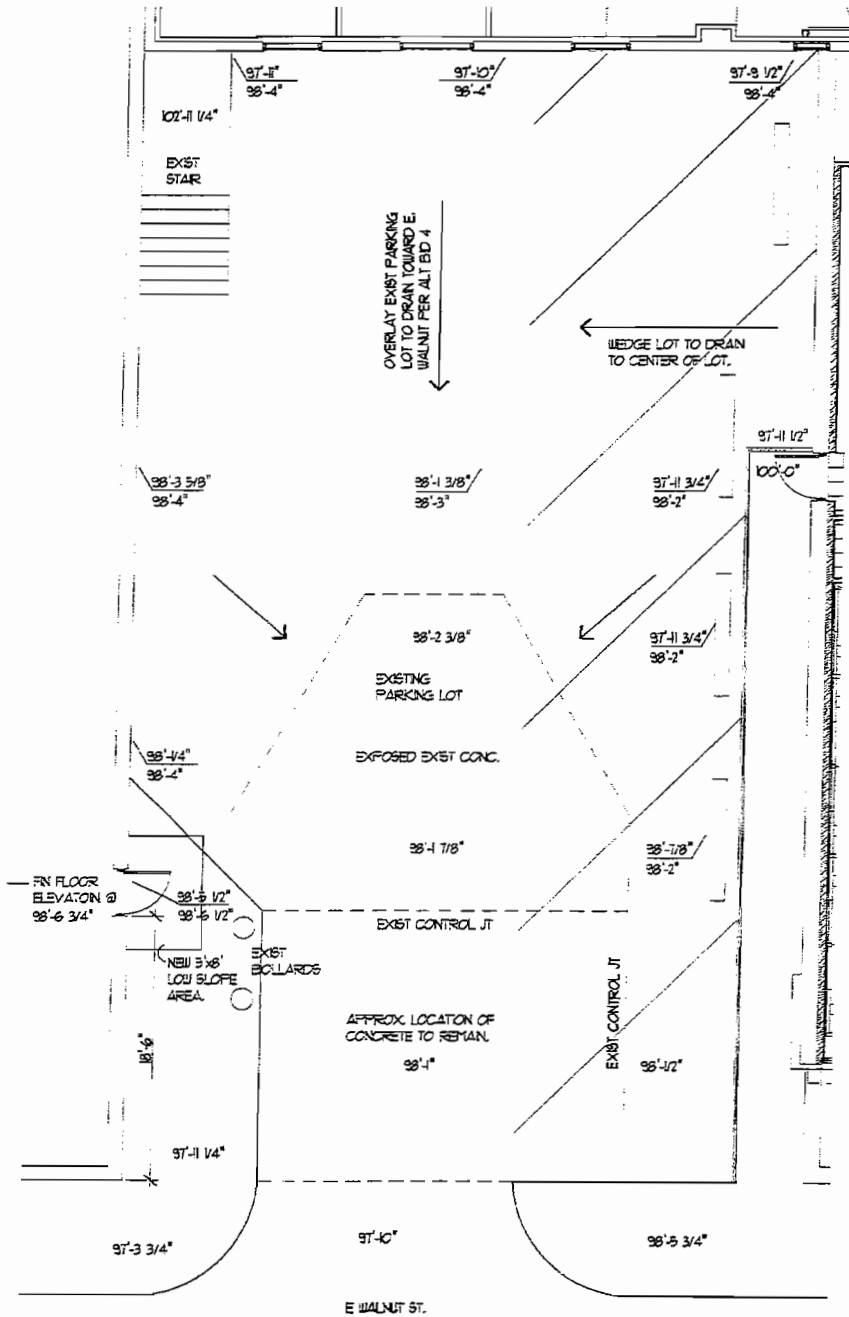
Prepared by:
Simon Associates Inc.



BOONE COUNTY WALNUT OFFICE

800 WALNUT ST.

COLUMBIA MISSOURI



① PARKING LOT DRAINAGE
 ADD2 SCALE: 1/8"=1'-0"



REVISIONS: **SIMON ASSOCIATES INC.**
 ARCHITECTURE
 13 South Fifth Street, Columbia, Missouri Phone: 572-674-1010 Fax: 572-498-8887

THIS DOCUMENT IS THE PROPERTY OF THE ARCHITECT AND MAY NOT BE REPRODUCED
 DATE ISSUED: 12 / 12 / 15

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 REVISIONS: DATE: 10-4-20
 REVISIONS: DATE: 10-4-20
 REVISIONS: DATE: 10-4-20

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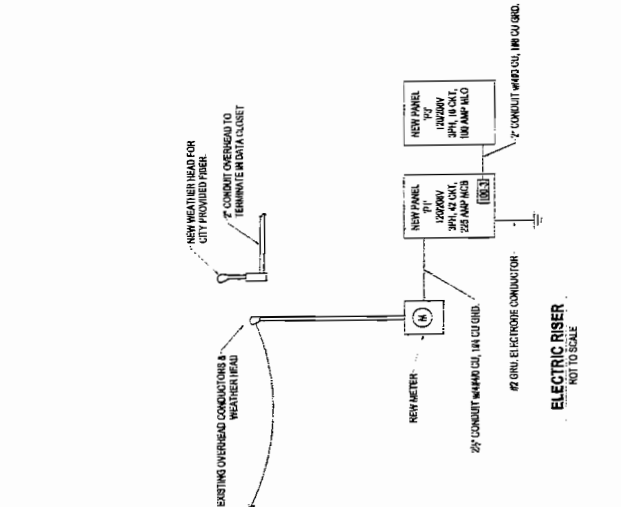
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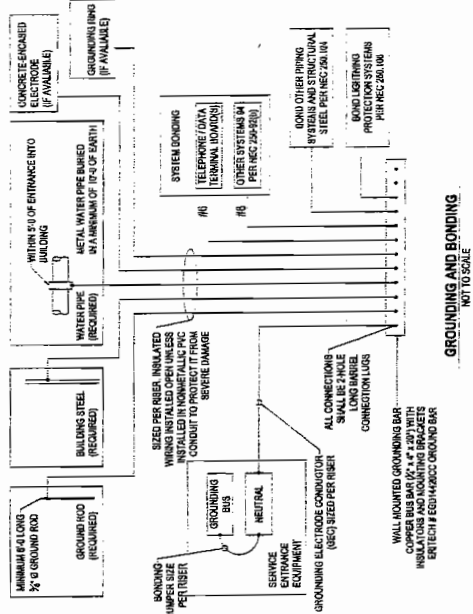
TIMBERLAKE ENGINEERING, P.C.
 100 EAST WAKE STREET
 COLUMBIANA, NC 27828
 (704) 281-1111
 FAX (704) 281-1112

POWER DETAILS & SCHEDULES

BOONE COUNTY WALNUT OFFICE
 DATE: 10/13/2023
 SHEET NO.: E3.0
 DRAWN BY: JPM
 CHECKED BY: JPM
 PROJECT NO.: 1218
 SCALE: 1/8" = 1'-0"



ELECTRIC RISER
 NOT TO SCALE



GROUNDING AND BONDING
 NOT TO SCALE

ELECTRICAL PANEL SCHEDULE

PANEL NO.	PANEL TYPE	VOLTAGE	CIRCUITS	CIRCUIT BREAKERS	BUS	TERMINALS	CONDUIT	WIRING	NOTES
P1	MAIN	240V	40	40A	100A	40	2"	100A	NEW METER USED FOR CITY PROVIDED FEEDS.
P2	MAIN	240V	40	40A	100A	40	2"	100A	NEW METER USED FOR CITY PROVIDED FEEDS.
P3	MAIN	240V	40	40A	100A	40	2"	100A	NEW METER USED FOR CITY PROVIDED FEEDS.

ELECTRICAL PANEL SCHEDULE

PANEL NO.	PANEL TYPE	VOLTAGE	CIRCUITS	CIRCUIT BREAKERS	BUS	TERMINALS	CONDUIT	WIRING	NOTES
P1	MAIN	240V	40	40A	100A	40	2"	100A	NEW METER USED FOR CITY PROVIDED FEEDS.
P2	MAIN	240V	40	40A	100A	40	2"	100A	NEW METER USED FOR CITY PROVIDED FEEDS.
P3	MAIN	240V	40	40A	100A	40	2"	100A	NEW METER USED FOR CITY PROVIDED FEEDS.

Addendum 1

37-15OCT13 - Boone County Walnut Office

Columbia, MO

September 30, 2013 Prebid Meeting / Addendum #1

Issued October 2, 2013

Attending	Company	Phone
Dan Peth Jody Miller	Simon Associates Inc.	573-874-1818
CJ Dykhouse Bob Davidson Karen Miller Melinda Bobbitt	Boone County	573-886-4414 573-886-4401 573-886-4391
Kristin Worthington	Grove Construction	573-777-9599
Gayle Morris	McAfee Construction	573-474-4397
Steve Buhr	Wavco	573-893-4880
Wayne Martin	Maverick Construction	636-462-1392
Christopher Perez Jim B.	Blu Sky Restoration	913-749-2525 913-475-5997
Steven Werder	Glov Con	573-642-6363
Dennis Baysinger	Schneider Electric	573-636-4101
Mark Schutte	Star Heating & A/C	573-449-3784
Emmanuel Ebong Boyd Lipe	Belfor Property Group	913-549-2369 816-918-5825
Tony Adams	Belfor Restoration	913-530-1542
Cody Gerdes	River City Const.	573-657-7380
Alan Smith	GBH Builders	573-893-3633
Mark Canine	Missouri Restoration	573-474-1788
Bill Patterson	Sircal Contracting	573-893-5977

Attending	Company	Phone
Brian Fischer	Weathercraft Inc	573-635-0141
Brett Dudenhoeffer	United HRB	573-635-9155

The following items were discussed in the prebid meeting. The contract documents are amended as follows:

1. This project is permitted through Boone County Resource Management. Permit fees DO APPLY for this project. All sidewalk and road closures are through the City of Columbia. On-street parking / permits will be coordinated by the Contractor with the City of Columbia.
2. If any contractors that attended the pre bid would like to regain entry to the building, please contact Bob Davidson at 573-886-4401.
3. The owner emphasized that no late bids will be accepted.
4. Please note on page 4.3 of the specification book under Bidding Guidelines that all questions shall be submitted in writing to Dan Peth (dpeth@simonassoc.net) by 4:00 pm on October 8, 2013.
5. Note the following changes to the Spec Book:
 - a. Carpet tile shall be Lees, Photofinish, 118 Silverstone, Quarterturn
 - b. Ceramic Tile shall be Crossville, Now, Sand, 18"x18"
 - c. Wall paint shall be Eggshell Latex, Match to Benjamin Moore, Baby Fawn, OC-15
 - d. Trim shall be Benjamin Moore, Blue Spruce, BM 1637
6. In the effort to completely remove the smoke smell from the building, once all existing material noted to be removed has been removed, the contractor shall scrub / clean the existing walls and slab with a degreaser detergent. Once cleaned, seal the existing masonry walls with Kilz or approved equal and seal the floor slab with SureSeal by Mohawk Group or approved equal. Install per manufacturer requirements.
7. The project shall be phased such that after demo and cleaning Corridor 111, Stair 113, and Foyer 114 shall be constructed to allow for the owner occupancy of 605 Walnut during the remainder of construction.
8. Note that the locations shown on the architectural sheets to have electric strikes are correct.
9. See revised MEP sheets attached noting revisions to IT Closet.
10. All appliances are by Owner.
11. Demo and replace all exterior soffit at canopies and above windows.
12. See attached architectural drawing revision pertaining to the relocation of the new wall in the hallway of 605 Walnut.

With no additional business the meeting adjourned.

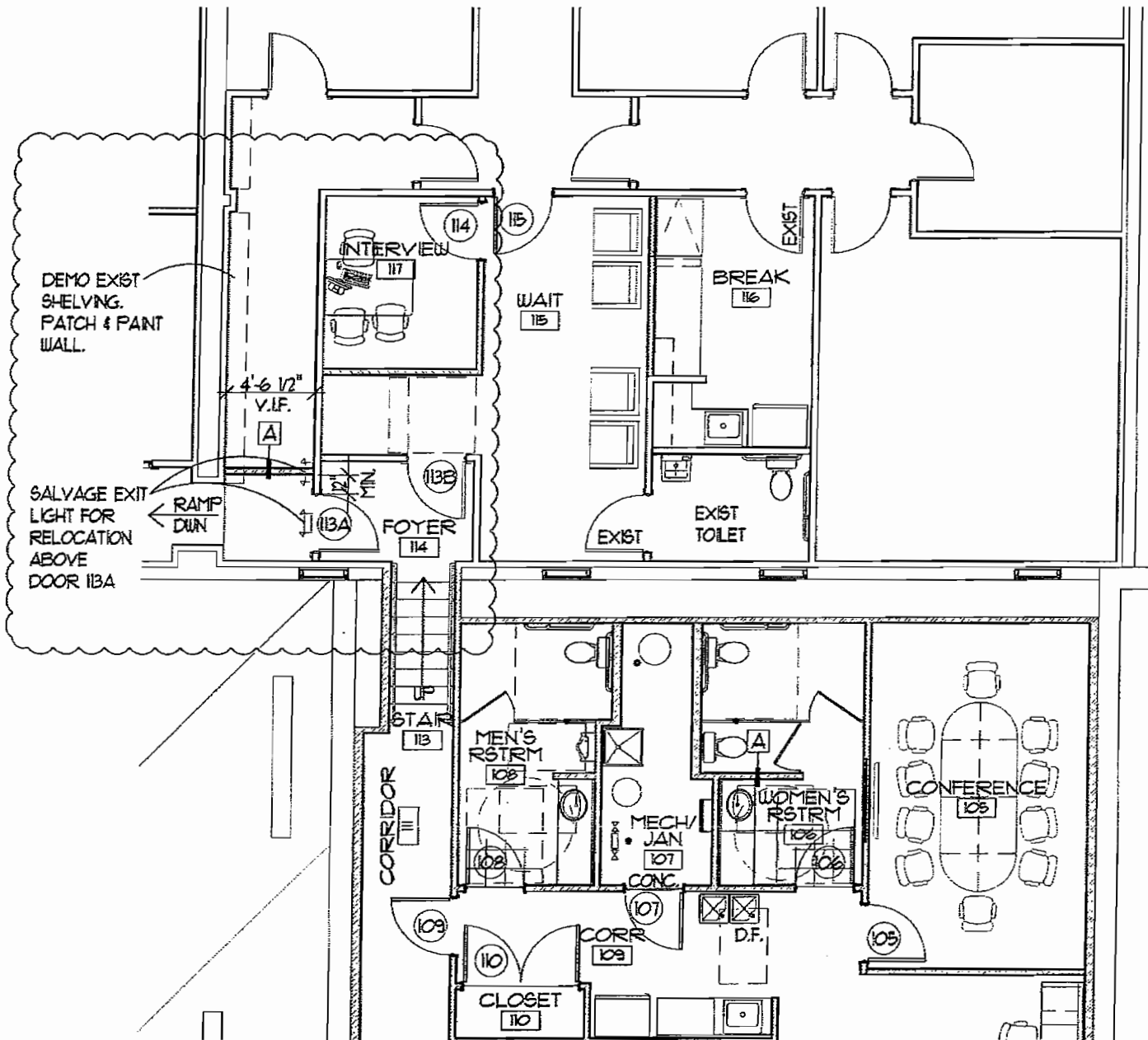
Prepared by:
Simon Associates Inc.



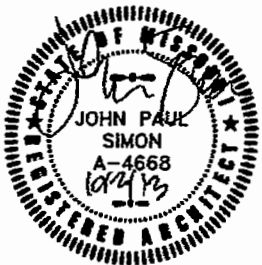
BOONE COUNTY WALNUT OFFICE

609 E. WALNUT

COLUMBIA, MISSOURI



① 605 WALNUT PLAN REVISION
 ADD SCALE: 1/8"=1'-0"



REVISIONS:

SIMON ASSOCIATES INC.

ARCHITECTURE

13 South Sixth Street Columbia, Missouri Phone: 573-874-1818 Fax: 573-499-0887

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DATE ISSUED:
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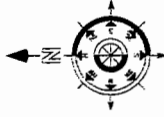
DATE: 8-27-03

PROJECT: 605 WALNUT

REVISIONS:

1. ASHED IT CLOSET VENTILATION

IF THIS ORIGINAL CONTRACTOR SEAL ON THIS DRAWING HAS BEEN REMOVED OR DESTROYED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESEALING THE SEAL. IN ANY OTHER CASE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESEALING THE SEAL. IN ANY OTHER CASE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESEALING THE SEAL. IN ANY OTHER CASE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESEALING THE SEAL.

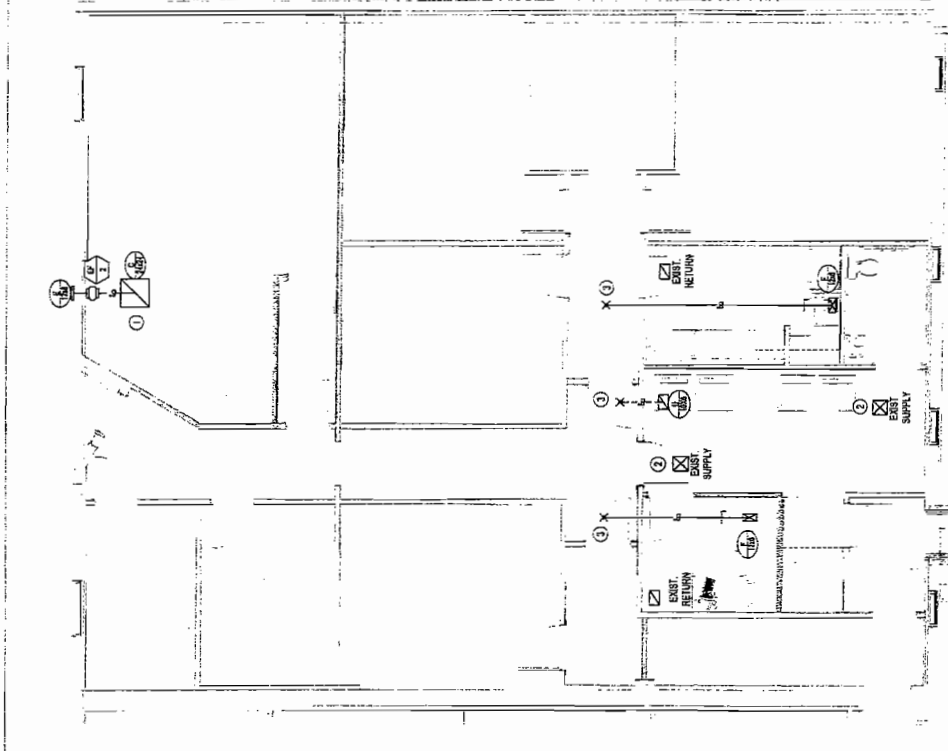
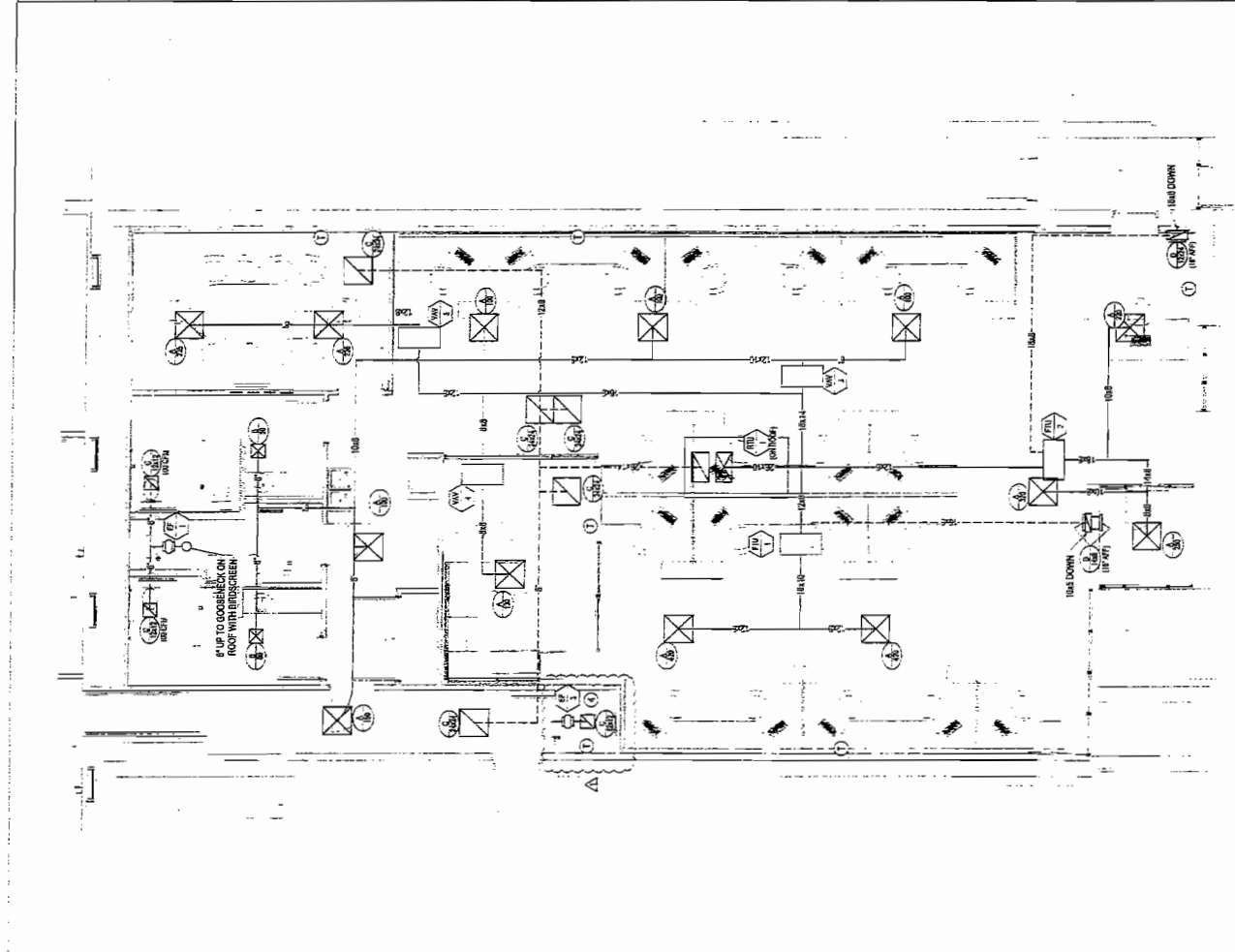


TIMBERLAKE ENGINEERING, P.C.
 100 BEECHMOUNT DRIVE
 COLUMBIA, NC 28026
 (704) 735-1111
 FAX: (704) 735-1112

BOONE COUNTY WALNUT OFFICE
 HVAC PLAN

DATE: 8-14-03 SHEET NO.:
 DRAWN BY: JWM
 CHECKED BY: JWM
 PROJECT NO.:
 SCALE: 1/4" = 1'-0"

605 WALNUT
 1/4" = 1'-0"



605 WALNUT
 1/4" = 1'-0"

GENERAL NOTES

- COORDINATE THERMOSTAT LOCATIONS WITH MODULAR FURNITURE.
- ALL WORK IN 605 WALNUT TO BE DONE AS ALTERNATE.

KEYED NOTES

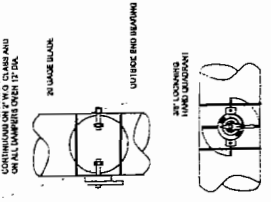
- REMOVE GRILLE AND CAP RETURN AIR DUCT BEHIND ROOM. REUSE RETURN AIR GRILL FOR EXHAUST FAN EXHAUST FAN.
- TAKE AIRFLOW READINGS AT THE TWO EXISTING SUPPLIES IN WRITING ROOM. RE-BALANCE TO PROVIDE A MINIMUM AIRFLOW IN NEW OFFICE AND IN NEW BREAK ROOM.
- LOCATE AND TAP EXISTING SUPPLY AND RETURN DUCTS.
- SEE IT CLOSET DETAIL ON INZU.

OWNERS ARE THE PROPRIETOR OF THESE PLANS. ALL RIGHTS ARE RESERVED AND NO PART OF THESE PLANS SHALL BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT.

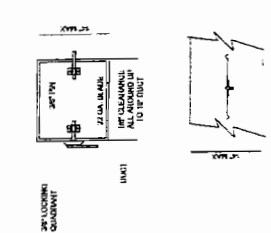
FOR SQUARE TAKE DRAWN ON ALL DAMPERS OVER 12 DIA.
FOR SQUARE TAKE DRAWN ON ALL DAMPERS OVER 12 DIA.

ADDED TO CLOSET VENTILATION
RETURN

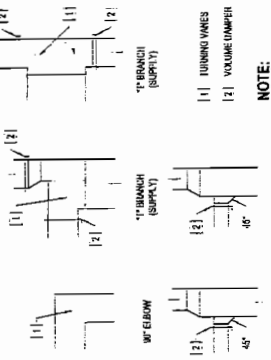
IF THE PROFESSIONAL ENGINEER HAS NOT BEEN APPOINTED BY THE BOARD OF PROFESSIONAL ENGINEERS, HE OR SHE SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THIS PROJECT. THE PROFESSIONAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THIS PROJECT. THE PROFESSIONAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THIS PROJECT.



RECTANGULAR & ROUND VOLUME DAMPERS
NOT TO SCALE

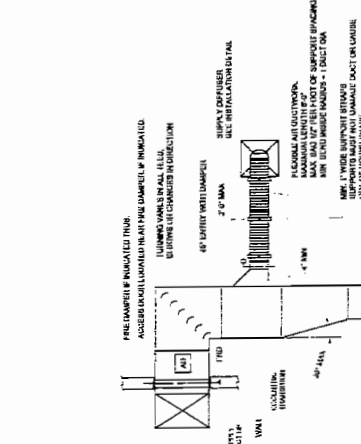


DUCTWORK FITTINGS DETAIL
NOT TO SCALE

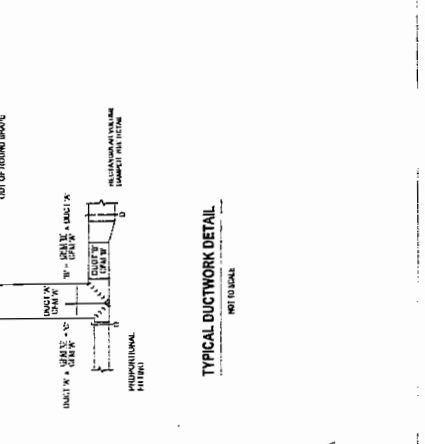


TIMBERLY ENGINEERING
1100 N. WALNUT ST. SUITE 100
BOONE, NC 28606
TEL: 828.288.1100
WWW.TIMBERLY-ENG.COM

BOONE COUNTY WALNUT
DATE: 10/18/2018
DRAWN BY: J. BRADY
CHECKED BY: J. BRADY
PROJECT NO.: 18181
SCALE: AS NOTED



45 DEGREE TAKE - OFF
NOT TO SCALE



SERVER ROOM FAN DETAIL
NOT TO SCALE

AIR DEVICES SCHEDULE

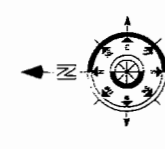
SYMBOL	SIZE	TYPE	MATERIAL	FINISH	INSTALLATION	NOTES
1	12	DIFFUSER	STEEL	PAINTED	SEE PLAN	
2	18	DIFFUSER	STEEL	PAINTED	SEE PLAN	
3	24	DIFFUSER	STEEL	PAINTED	SEE PLAN	
4	30	DIFFUSER	STEEL	PAINTED	SEE PLAN	
5	36	DIFFUSER	STEEL	PAINTED	SEE PLAN	
6	42	DIFFUSER	STEEL	PAINTED	SEE PLAN	
7	48	DIFFUSER	STEEL	PAINTED	SEE PLAN	
8	54	DIFFUSER	STEEL	PAINTED	SEE PLAN	
9	60	DIFFUSER	STEEL	PAINTED	SEE PLAN	
10	66	DIFFUSER	STEEL	PAINTED	SEE PLAN	
11	72	DIFFUSER	STEEL	PAINTED	SEE PLAN	
12	78	DIFFUSER	STEEL	PAINTED	SEE PLAN	
13	84	DIFFUSER	STEEL	PAINTED	SEE PLAN	
14	90	DIFFUSER	STEEL	PAINTED	SEE PLAN	
15	96	DIFFUSER	STEEL	PAINTED	SEE PLAN	
16	102	DIFFUSER	STEEL	PAINTED	SEE PLAN	
17	108	DIFFUSER	STEEL	PAINTED	SEE PLAN	
18	114	DIFFUSER	STEEL	PAINTED	SEE PLAN	
19	120	DIFFUSER	STEEL	PAINTED	SEE PLAN	
20	126	DIFFUSER	STEEL	PAINTED	SEE PLAN	
21	132	DIFFUSER	STEEL	PAINTED	SEE PLAN	
22	138	DIFFUSER	STEEL	PAINTED	SEE PLAN	
23	144	DIFFUSER	STEEL	PAINTED	SEE PLAN	
24	150	DIFFUSER	STEEL	PAINTED	SEE PLAN	
25	156	DIFFUSER	STEEL	PAINTED	SEE PLAN	
26	162	DIFFUSER	STEEL	PAINTED	SEE PLAN	
27	168	DIFFUSER	STEEL	PAINTED	SEE PLAN	
28	174	DIFFUSER	STEEL	PAINTED	SEE PLAN	
29	180	DIFFUSER	STEEL	PAINTED	SEE PLAN	
30	186	DIFFUSER	STEEL	PAINTED	SEE PLAN	
31	192	DIFFUSER	STEEL	PAINTED	SEE PLAN	
32	198	DIFFUSER	STEEL	PAINTED	SEE PLAN	
33	204	DIFFUSER	STEEL	PAINTED	SEE PLAN	
34	210	DIFFUSER	STEEL	PAINTED	SEE PLAN	
35	216	DIFFUSER	STEEL	PAINTED	SEE PLAN	
36	222	DIFFUSER	STEEL	PAINTED	SEE PLAN	
37	228	DIFFUSER	STEEL	PAINTED	SEE PLAN	
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39	240	DIFFUSER	STEEL	PAINTED	SEE PLAN	
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41	252	DIFFUSER	STEEL	PAINTED	SEE PLAN	
42	258	DIFFUSER	STEEL	PAINTED	SEE PLAN	
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47	288	DIFFUSER	STEEL	PAINTED	SEE PLAN	
48	294	DIFFUSER	STEEL	PAINTED	SEE PLAN	
49	300	DIFFUSER	STEEL	PAINTED	SEE PLAN	
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51	312	DIFFUSER	STEEL	PAINTED	SEE PLAN	
52	318	DIFFUSER	STEEL	PAINTED	SEE PLAN	
53	324	DIFFUSER	STEEL	PAINTED	SEE PLAN	
54	330	DIFFUSER	STEEL	PAINTED	SEE PLAN	
55	336	DIFFUSER	STEEL	PAINTED	SEE PLAN	
56	342	DIFFUSER	STEEL	PAINTED	SEE PLAN	
57	348	DIFFUSER	STEEL	PAINTED	SEE PLAN	
58	354	DIFFUSER	STEEL	PAINTED	SEE PLAN	
59	360	DIFFUSER	STEEL	PAINTED	SEE PLAN	
60	366	DIFFUSER	STEEL	PAINTED	SEE PLAN	
61	372	DIFFUSER	STEEL	PAINTED	SEE PLAN	
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68	414	DIFFUSER	STEEL	PAINTED	SEE PLAN	
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73	444	DIFFUSER	STEEL	PAINTED	SEE PLAN	
74	450	DIFFUSER	STEEL	PAINTED	SEE PLAN	
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150	906	DIFFUSER	STEEL	PAINTED	SEE PLAN	
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199	1200	DIFFUSER	STEEL	PAINTED	SEE PLAN	
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213	1284	DIFFUSER	STEEL	PAINTED	SEE PLAN	
214	1290	DIFFUSER	STEEL	PAINTED	SEE PLAN	
215	1296					

UNLESS OTHERWISE SPECIFIED, THE PROVISIONS OF THE NATIONAL ELECTRICAL CODE AND ALL CITY ORDINANCES SHALL APPLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.

DATE: 04/20/2011
 DRAWN BY: J. W. WALKER
 CHECKED BY: J. W. WALKER
 PROJECT NO.: 1101
 SCALE: 1/8" = 1'-0"

REVISIONS:
 1. ADDED EFC-A CONDUIT IN RELOCATED IT CLOSET

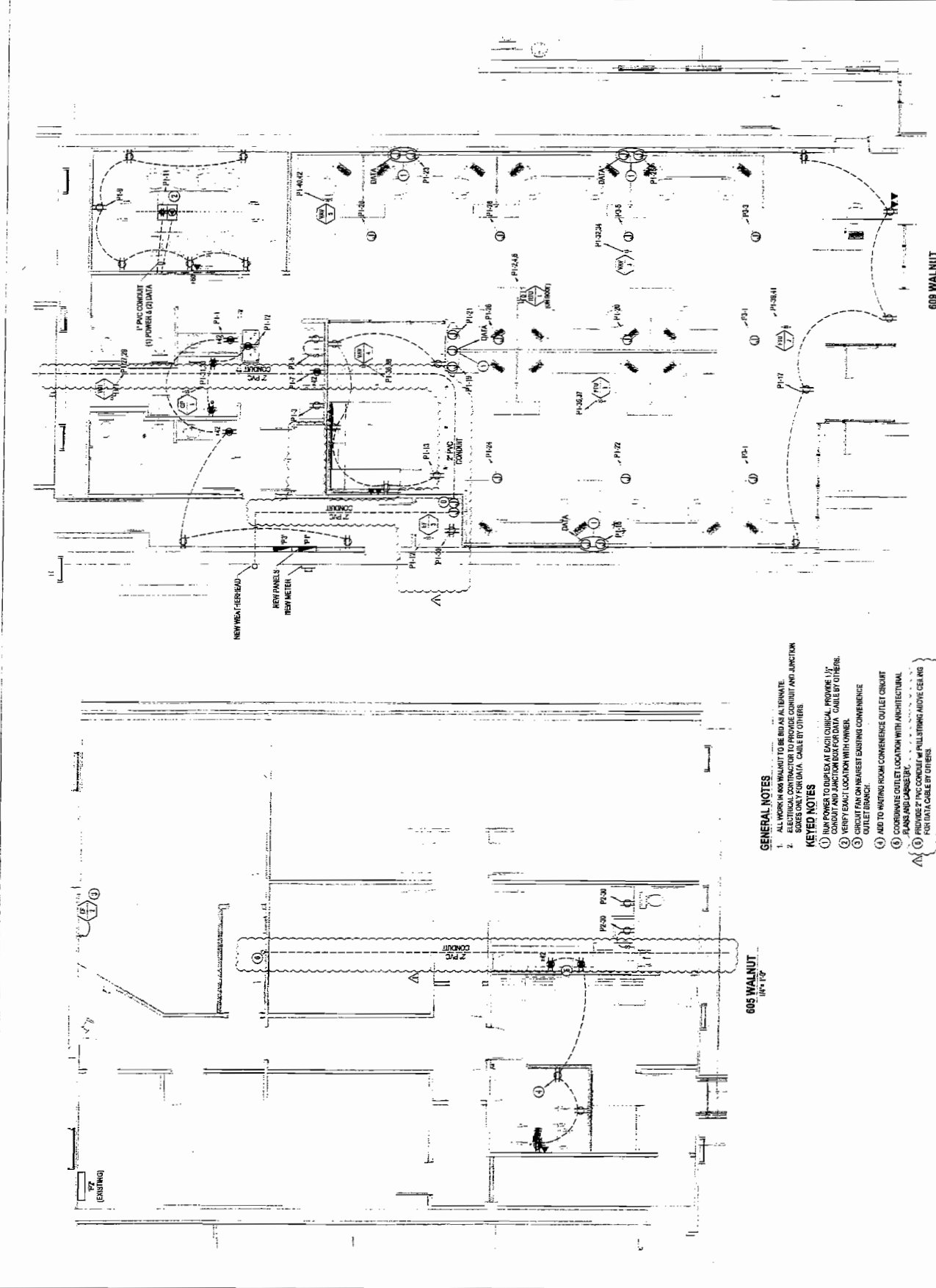
THE PROFESSIONAL ENGINEER HAS REVIEWED THIS DRAWING AND HAS FOUND IT TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND ALL CITY ORDINANCES. THE ENGINEER'S REVIEW IS LIMITED TO THE ELECTRICAL SYSTEMS SHOWN ON THIS DRAWING AND DOES NOT CONSTITUTE A GUARANTEE OF THE ACCURACY OF THE INFORMATION PROVIDED HEREON. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.



TIMBERLAKE ENGINEERING, P.C.
 100 EAST WALNUT
 COLUMBIA, MO 65201
 CONTRACTORS OF ELECTRICAL & MECHANICAL

BOONE COUNTY WALNUT OFFICE

DATE: 04/20/2011 SHEET NO: 01
 DRAWN BY: J. W. WALKER
 CHECKED BY: J. W. WALKER
 PROJECT NO.: 1101
 SCALE: 1/8" = 1'-0"



- GENERAL NOTES**
1. ALL WORK IN 609 WALNUT TO BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL CITY ORDINANCES.
 2. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT AND JUNCTION BOXES ONLY FOR DATA, CABLE BY OTHERS.
- KEYED NOTES**
1. RUN POWER TO DUPLEX AT EXISTING CORNER, PROVIDE 1/2\"/>
 2. PROVIDE 2\"/>
 3. VERIFY EXISTING LOCATION WITH OWNER.
 4. VERIFY FINISH DIMENSIONS EXISTING CONCRETE OUTLET BRACK.
 5. ADD TO HANGING ROOM CONCRETE OUTLET CIRCUIT.
 6. COORDINATE OUTLET LOCATION WITH ARCHITECTURAL PLANS AND LAMPSEPC.
 7. PROVIDE 2\"/>

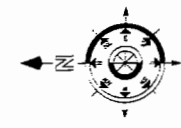
609 WALNUT
 1/8" = 1'-0"

DRAWINGS ARE THE PROPERTY OF TIMBERLAK ENGINEERING, INC. AND MUST BE LOANED OR USED BY WHOMEVER ON BEHALF OF THE CLIENT UNDER THE SUPERVISION OF TIMBERLAK ENGINEERING, INC. DO NOT SCALE THIS DRAWING. SOME DEVIATION FROM SCALE MAY OCCUR.

REVISIONS:
 1. ADDED TO CLOSET LIGHTS

DATE: 4/27/2

THE PROFESSIONAL ENGINEER'S SEAL OR REQUIREMENTS SHALL BE AFFIXED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BOARD OF PROFESSIONAL ENGINEERS OF THE STATE OF MISSOURI. THE ENGINEER'S SEAL AND NUMBER SHALL BE AFFIXED TO THE DRAWING IN THE MANNER AND PLACEMENT INDICATED BY THE BOARD OF PROFESSIONAL ENGINEERS OF THE STATE OF MISSOURI. THE ENGINEER SHALL BE RESPONSIBLE FOR THE ACCURACY OF ALL INFORMATION AND ALL INFORMATION PROVIDED TO THE CLIENT. THE ENGINEER SHALL BE RESPONSIBLE FOR THE PROJECT'S COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS.

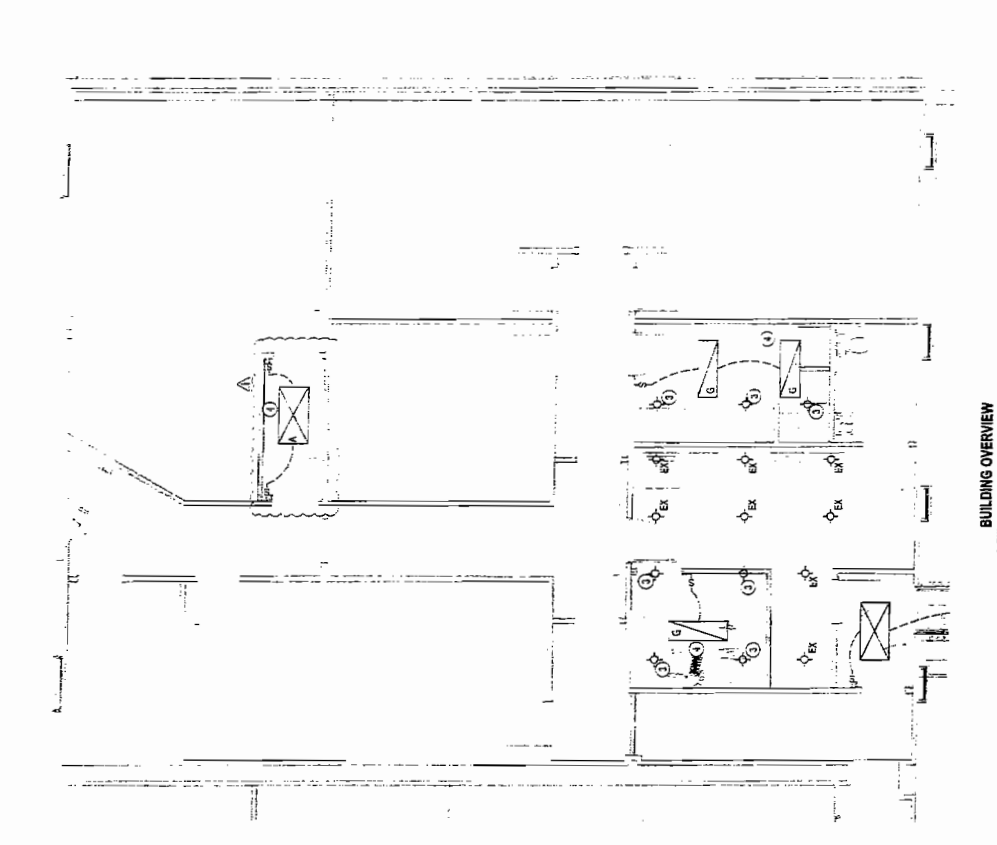
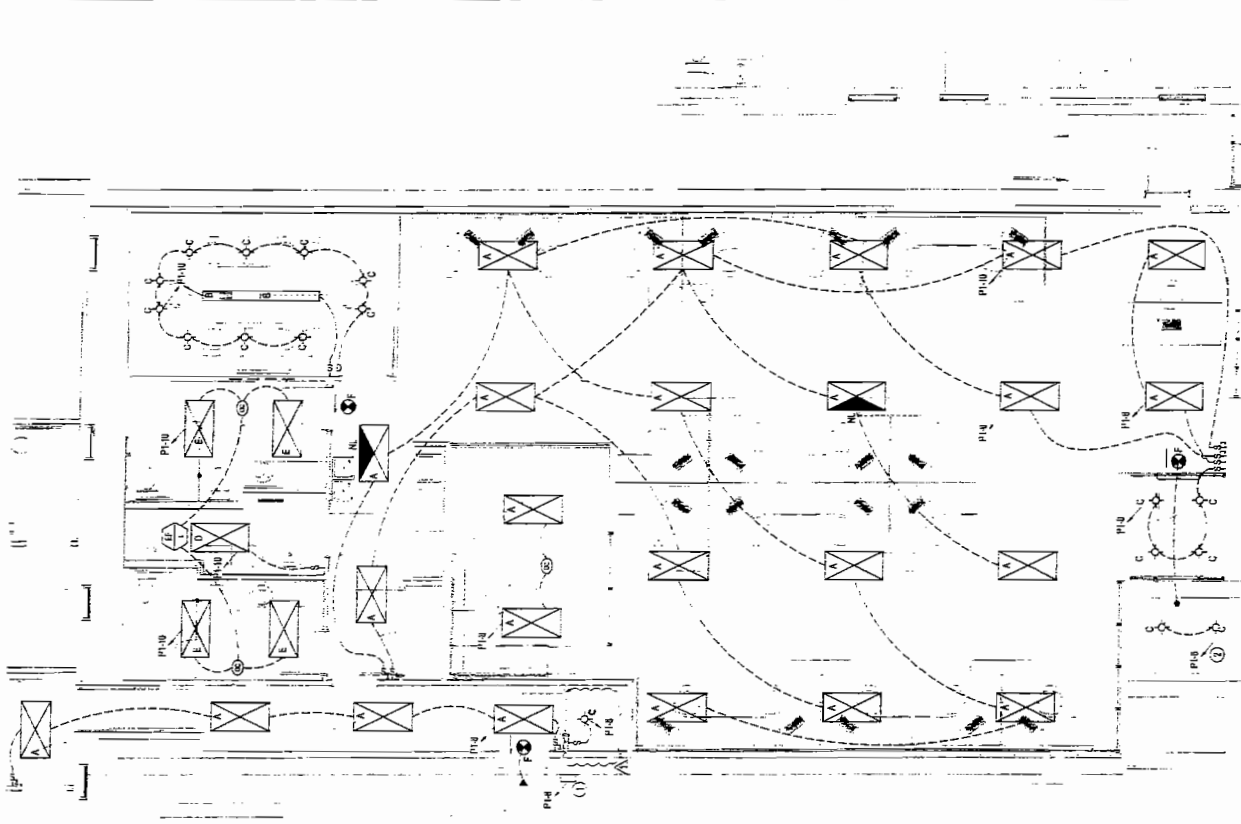


TIMBERLAK ENGINEERING, P.C.
 1001 N. TIMBERLAK PkE
 LINCOLN, MO 64511
 (417) 688-8881
 OFFICES OF ARCHITECTURE & INTERIOR DESIGN

BOONE COUNTY WALNUT OFF

DATE: 04/27/2012
 DRAWN BY: JMM
 CHECKED BY: JMM
 PROJECT NO.: 12011
 SCALE: 1/8" = 1'-0"

COLUMBIA, MO
 SHEET NO.: E2.0



BUILDING OVERVIEW
 SCALE: 1/4" = 1'-0"

GENERAL NOTES		
1. ALL WORK IN 006 WALNUT TO BE BID AS ALTERNATE.		
2. ALL WORK IN 006 WALNUT TO BE BID AS ALTERNATE.		
KEYED NOTES		
1. RELOCATE EXISTING LIGHTING TO NEW EXISTING PROFILES AND DIMMING.		
2. CIRCUIT THIS PROTOCOL (TOOK AT 100 OR EQUAL).		
3. REMOVE EXISTING CAN LIGHTS.		
4. CIRCLE NEW LIGHT FIXTURES OR EXISTING LIGHTING CIRCUITS.		
MATERIAL SCHEDULE		
NO.	TYPE	DESCRIPTION
1	2" DIA. WOODER	2" DIA. WOODER
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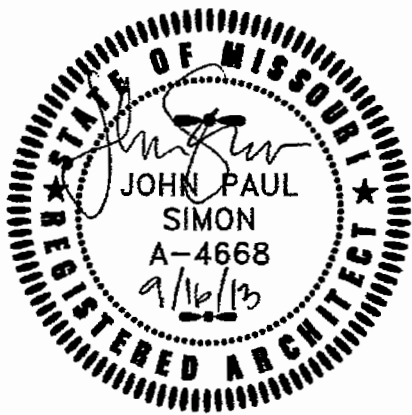
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 3. REMOVE EXISTING CAN LIGHTS.
 4. CIRCLE NEW LIGHT FIXTURES OR EXISTING LIGHTING CIRCUITS.

Proposal Guidelines and Technical Specifications:

**Boone County Walnut Office
Bid Number: 37-15OCT13**

**609 East Walnut
Columbia, Missouri**



September 16, 2013

**Simon Associates, Inc.
13 South 6th Street
Columbia, MO 65201
Phone: 573-874-1818
Fax: 573-499-0887**



Boone County Walnut Office

Bid Number: 37-15OCT13

CONSTRUCTION BID REQUEST

Contract Documents,
General Specifications and
Technical Specifications

BOONE COUNTY COMMISSION

Daniel K. Atwill, Presiding Commissioner
Karen M. Miller, District I Commissioner
Janet M. Thompson, District II Commissioner

OWNER'S REPRESENTATIVE

Karen M. Miller, District I Commissioner

PROJECT MANAGER

Bob Davidson, Facilities Manager

BOONE COUNTY PURCHASING

Melinda Bobbitt, Director of Purchasing
613 E. Ash Street, Room 110
Columbia, MO 65201
Phone: (573) 886-4391 Fax: (573) 886-4390
E-mail: mbobbitt@boonecountymo.org

A mandatory pre-bid conference has been scheduled for September 30, 2013 at 1:30 p.m. at the site of the work, 609 East Walnut, Columbia, Missouri. The purpose of the meeting will be to address any questions or concerns regarding the bid. Bids will be considered non-responsive from any Bidder that does not attend the mandatory pre-bid. Bidders MUST attend since information relating to this RFB will be discussed in detail. Bidders should bring a copy of the RFB since it will be used as the agenda for the pre-bid conference.

Questions specific to this project should be directed to the Architect and Project Manager. All questions pertaining to the project must be received by 4:00 p.m. on October 8, 2013.

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Bid Forms.....	5.1-5.4
Anti-Collusion Statement.....	6.1
Signature and Identity of Bidder.....	7.1
Bidder's Acknowledgment.....	8.1
Work Authorization.....	8.2
Insurance Requirements.....	9.1- 9.2
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Criminal Background Check.....	10.7
Debarment Certification.....	10.8
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Asbestos Survey Report.....	APPENDIX C
Index of Drawings.....	APPENDIX D

***For the successful Bidder, Performance Bond and Labor and Material Payment Bond must be submitted on forms provided herein at the time of contract execution.**

***For the successful Bidder, Performance Bond and Labor and Material Payment Bond must be submitted on forms provided herein at the time of contract execution.**

ADVERTISEMENT FOR BIDDERS

Sealed bids for:

Boone County Walnut Office
609 East Walnut Columbia, MO

will be received by Boone County Purchasing, Melinda Bobbitt, Director of Purchasing at the Boone County Annex, 613 E. Ash St, Columbia, MO. 65201, Tuesday, October 15, 2013 until 9:15 a.m. (CST) for the Bid Packages described herein. Bids will be opened publicly and read aloud at the Boone County Government Center, Commission Chambers shortly after 9:30 a.m. Bids must be received at the address above by 9:15 a.m. in conformance with the requirements of the contract documents.

Drawings, specifications, and other related contract information may be obtained at <http://goo.gl/L0cM2x>. Electronic bid sets are available at no cost. Questions should be directed to Simon Associates, Inc. (573) 874-1818.

A **MANDATORY** pre-bid has been scheduled for September 30, 2013 at 1:30 p.m. at the site of the work, 609 East Walnut, Columbia, Missouri. The purpose of the meeting will be to address any questions or concerns regarding the bid. Bids will be considered non-responsive from any Bidder that does not attend the pre-bid.

The County of Boone reserves the right to reject any and all Bids, to waive informalities therein to determine the lowest and best bid, and to approve the Bond. No Bid may be withdrawn for a period of (45) forty five days subsequent to the specified time for receipt of Bids.

A Bid Bond or Certified Check made payable to the Owner, in the amount of 5% of the Base Bid(s) shall accompany the following Bid Package as a guarantee that the bidder, if awarded the Contract, will furnish a satisfactory Performance and Payment Bond; execute the contract; and proceed with the work. Upon failure to do so, the Bidder shall forfeit the deposit or amount of the Bid Bond as liquidated damages, and no mistakes or errors on the part of the Bidder shall excuse the Bidder or entitle the Bidder to a return of the deposit or Bid Bond.

End of Advertisement to Bid

NOTICE TO BIDDERS

Boone County, Missouri is accepting sealed bids for Boone County Walnut Office.

Scope of Project Construction: Renovations to an existing office building to remediate fire damage and to adapt the building for new office use requirements. In addition to the fire renovation work the scope of the project will include construction of a separation wall on the second floor of the building located at 101 N. 7th St.

Sealed bids will be accepted until 9:15 a.m. on October 15, 2013 at the Boone County Purchasing Office, 613 E. Ash St., Columbia, Missouri, 65201. Bids received after the above specified time for acceptance will be returned to the sender unopened.

Bids will be publicly opened after 9:30 a.m. on October 15, 2013 in the Boone County Commission Chambers, Boone County Government Center, 801 E. Walnut, Columbia, MO 65201.

The County reserves the right to select and award the bid item or items which best suit its needs, whether the price is the lowest or not; and also reserves the right to reject any and all bids or waive informalities or irregularities.

Not less than the prevailing hourly rate of wages, as found by the Department of Labor and Industrial Relations of Missouri, shall be paid to all workers performing work under this Contract. The Contractor's bond shall include such provisions as will guarantee the faithful performance of the prevailing hourly wage rate as provided by the Contract.

Boone County notifies all Bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, religion, creed, sex, age, ancestry, or national origin in consideration for an award. The Bidder will insure that Disadvantage Business Enterprises will have the opportunity to participate in the performance of this contract or any subcontracts.

Proposals must be on forms provided and all alternates, unit price bids, extensions, and totals provided thereon shall be completed fully.

Construction Bid Request and Plans may be obtained at <http://goo.gl/L0cM2x>. Electronic bid sets are available at no cost and may be printed as desired by the plan holders. No paper copies will be issued. If paper copies are desired, it is the responsibility of the user to print the files or have them printed.

Boone County Walnut Office Bid Number: 37-15OCT13

A mandatory pre-bid conference has been scheduled for September 30, 2013 at 1:30 p.m. at the site of the work 609 East Walnut, Columbia, Missouri. The purpose of the meeting will be to address any questions or concerns regarding the bid. All bidders are required to attend.

All questions pertaining to the project must be received by 4:00 p.m. on October 8, 2013.

BID RESPONSE

TO: COUNTY OF BOONE, MISSOURI

SUBJECT: Boone County Walnut Office

THE UNDERSIGNED BIDDER, having examined all specifications, and other proposed contract documents, and all addenda thereto; and being acquainted with and fully understanding (a) the extent and character of the work covered by this proposal; (b) the location, arrangement, and specified requirements of the proposed work; (c) local conditions relative to labor, transportation, hauling, and delivery facilities; and (d) all other factors and conditions affecting or which may be affected by the work.

HEREBY PROPOSES to furnish all required materials, supplies, equipment, tools, and plant; to perform all necessary labor and supervision; and to install, erect, equip, and complete all work stipulated in, required by, and in accordance with the proposed contract documents, specifications, and other documents referred to herein (as altered, amended, or modified by all addenda hereto) for and in consideration of the prices stated herein. All prices stated herein are firm and exclude Missouri Sales and Use Tax and all other taxes which might be lawfully assessed against or in connection with the work proposed herein.

SECTION I

THE UNDERSIGNED BIDDER UNDERSTANDS that the specifications, contract, and bond governing the construction of the work contemplated are those known and designated as the **Boone County Walnut Office and Dated September 16, 2013** together with the "General Specifications and Technical Specifications", attached to this proposal.

THE UNDERSIGNED BIDDER UNDERSTANDS that the quantities given in the following itemized proposal are not guaranteed by the Owner, but are used for the purpose of comparing bids and awarding the Contract, and may or may not represent the actual quantities encountered on the job; and that the sum of the products of the quantities listed in the following itemized proposal, multiplied by the unit price bid shall all constitute the gross sum bid.

THE UNDERSIGNED BIDDER submits the following itemized proposal and hereby authorizes the Engineer to correct any multiplication of "Unit Price" by "Quantity" as shown under "Extended Total".

SECTION II

The Bidder, hereby agrees to complete the work on the Boone County Walnut Office herein specified before the completion date and to allow a deduction of \$100.00 dollars per working day from the final payment as liquidated damages for each day that completion is delayed beyond the specified completion date. Time is of the essence of this contract.

SECTION III

Acknowledgment of receipt of any and all Addenda, if applicable, shall be included with the bid documents at the time of the submittal to Boone County for consideration.

SECTION IV

The undersigned agrees and understands that the County has the right to reject any and all bids, to waive informalities or other requirements for its benefit, and to accept such proposal as it deems to its best interest.

SECTION V

If this proposal is accepted, the undersigned hereby agrees that work will begin no later than the date specified in the Notice to Proceed and will be diligently prosecuted at such a rate and in such manner as is necessary for the completion of the work herein specified before the completion date.

The Contractor further agrees that, should he fail to complete work in the time specified or such additional time as may be allowed by the Owner under this Contract, the amount of liquidated damages to be recovered on this project shall be in accordance with Section II of the Bid Response.

Accompanying this proposal is a certified check, treasurer's check or cashier's check, or a bidder's bond payable to the Owner for five percent of AMOUNT OF THE BASE BID. If this proposal is accepted and the undersigned fails to execute the Contract and furnish a contract bond as required, then the proposal guaranty shall be forfeited to the Owner.

Firm Name: _____

By: _____
(Signature)

(Print or Type Name)

Title: _____

Address: _____

City, State, Zip: _____

Phone: _____

Fax: _____

Date: _____

STATEMENT OF BIDDER'S QUALIFICATIONS

Each bidder for the work included in the specifications and plans and the Contract Documents shall submit with their bid the data requested in the following schedule of information. This data must be included in and made a part of each bid document and be contained in the sealed envelope. Failure to comply with this instruction may be regarded as justification for rejecting the Contractor's proposal.

1. Name of Bidder: _____
2. Business Address: _____

3. When Organized: _____
4. When Incorporated: _____
If not incorporated, state type of business and provide your federal tax identification
5. number: _____

6. Number of years engaged in contracting business under present firm name:

7. If you have done business under a different name, please give name and location:

8. Percent of work done by own staff: _____
9. Have you ever failed to complete any work awarded to your company? If so, where and why?: _____
10. Have you ever defaulted on a contract? _____
11. List of contracts completed within the last four years, including value of each: _____

12. List of projects currently in progress: _____

* Attach additional sheets as necessary *

INSTRUCTIONS TO BIDDERS

The purpose of the attached specifications is to give detailed information on the conditions under which the **Boone County Walnut Office** will be constructed, Scope of Contract, quality of material and equipment required, standards used in determining its acceptability, and similar data. Each Bidder shall carefully check all requirements herein set forth and shall offer material and construction which fully complies with these requirements.

All bids shall be submitted on the bid forms hereto attached. Copies of Addenda, if any, shall be signed and attached to the proposal submitted and considered a part of the contract. Bidders shall furnish all information requested herein by filling in the blanks in the submitted copy of these specifications.

Bidders shall visit the site of the work and become familiar with the condition under which the work is to be performed, concerning the site of the work, the nature of the equipment, the obstacles which may be encountered, the work to be performed, and if awarded the Contract, shall not be allowed any extra compensation by reason of any matter or thing concerning which such Bidder might have fully informed himself, because of their failure to have so informed themselves prior to the bidding. The successful Contractor must employ, so far as possible, such methods and means in the carrying out their work as will not cause any interruption or interference with any other contractors.

Bidders shall not include sales or use taxes in their bid for materials incorporated or used in the work or for rentals subject to sales tax.

The Contractor assumes responsibility for all loss or damage caused by fire, windstorm, cyclone, tornado, flood, or freezing to the materials and equipment with which the work of the contract is to be done. The Contractor has the privilege of insuring in full or in part against such loss or damage, responsibility for which is here assumed. The County will not carry insurance against such loss or damage until the acceptance of Project. The Contractor shall submit evidence of adequate security in conjunction with the project scope before starting any work.

Bidders shall visit the site of the work and completely inform themselves relative to construction hazards and procedure, the availability of lands, the character and quantity of surface and subsurface materials, and utilities to be encountered, the arrangement and condition of existing structures and facilities, the procedure necessary for maintenance of uninterrupted operation of existing facilities, the character of construction equipment and facilities needed for performance of the work, and facilities for transportation, handling, and storage of materials and equipment. All such factors shall be properly investigated and considered in the preparation of the bid.

Bids of an incomplete nature, or subject to multiple interpretation may at the option of the County, be rejected as irregular.

Bids will be evaluated by the County based on, but not limited to, the following criteria: cost, bidder's qualifications and experience, and time required for completion.

Upon award of the Contract, the successful Contractor shall furnish a Performance Bond and a Labor and Material Payment Bond, each in an amount equal to the full Contract price, guaranteeing faithful compliance with all requirements of the Contract Documents and complete fulfillment of the Contract, and payment of all labor, material, and other bills made in carrying out this Contract.

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract

Documents attached. Within fifteen days thereafter Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds. Within eight days thereafter Owner shall deliver one fully signed counterpart to Contractor.

On or about November 4, 2013, Owner will deliver to Contractor a Notice to Proceed. Contract Time shall commence upon delivery of Notice to Proceed. The project must be substantially complete for owner occupancy no later than March 3, 2014 for the Boone County Walnut Office project.

If any person submitting a bid for this Contract is in doubt as to the true meaning of any part of the plans, specifications, or any other proposed Contract documents, they may submit to the Architect a written request for an interpretation thereof eight days prior to the submittal of bid. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addendum duly issued or delivered to each person receiving a set of such documents. The County will not be responsible for any other explanation or interpretation of the proposed documents.

Each set of bids shall be plainly headed with the name of the Bidder, post office address and email address. In case the bid is made by a firm or corporation, the same shall be signed by a legally authorized agent of the firm or corporation. The envelope containing the bids shall be sealed and plainly marked as a bid for this particular Contract.

The Contractor should be sure to complete the following forms and attach the bid security. Omissions or irregularities may cause bid rejection.

1. Bid Response,
2. Statement of Bidder's Qualifications,
3. Bidding Forms,
4. Anti-Collusion Statement,
5. Signature and Identity of Bidder,
6. Bidder's Acknowledgment,
7. Work Authorization Certification
8. *Performance Bond, and
9. *Labor and Material Payment Bond.

***FOR THE SUCCESSFUL BIDDER, PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND MUST BE SUBMITTED ON FORMS PROVIDED HEREIN.**

Performance bond and labor and material payment bond to be provided at the time of contract execution.

Insurance certificates to be provided at the time of contract execution.

1. BIDDING GUIDELINES

The submission of a Bid shall be deemed the Bidders tacit acknowledgement and considered conclusive evidence that:

Each Bidder is responsible for reviewing and taking into consideration all Bid Documents, local regulations. And any other reasonably known items that may affect the cost to perform the work.

The Bidder has attended the Mandatory Pre-Bid Meeting

The Bidder has visited the site and is familiar with all conditions, including the nature, amount and location of the work, the general and local conditions, labor relations and all other matters which might in any way affect or have a bearing on the work or its cost.

The Bidder assumes ultimate responsibility for ensuring that they have obtained all bid documents and that all documents are complete.

Compensation will not be awarded to Bidders who have incurred cost for above referenced conditions.

If a prospective Bidder discovers discrepancies, errors or omissions in the Bid Documents or is in doubt as to the true meaning of any part of the Contract Documents, Specifications or Drawings, the Bidder should immediately contact the Architect & Project Manager for clarification.

Questions regarding the documents or bidding procedures or requests for interpretations, corrections or changes should be delivered to the Architect: Simon Associates, Inc. 13 South 6th Street, Columbia, MO 65201. phone (573)874-1818. email: dpeth@simonassoc.net.

All requests and questions will be received until eight (8) days before the opening of bids. After that time no requests for clarifications or questions will be accepted.

Each contractor shall comply fully with all laws, ordinances, rules, regulations and orders of any public authority having jurisdiction on the project.

Interpretations, corrections or changes to the Bid Documents made in any manner other than a written Addenda issued by the Architect, shall not be binding and Bidders shall not rely upon such interpretations, corrections or changes.

2. BIDDING INSTRUCTIONS

See Section 5.1 for Bid Form

Each bid must show the full legal name and business address of the Bidder, including its street address if it differs from the mailing address.

Each bid must be complete and free from ambiguity and signed by an individual authorized to bind the bidder and if submitted by a partnership or joint venture a list showing the full names and addresses of all partners or joint ventures must be provided.

The Bidder shall submit the Bid Proposal in an opaque, sealed envelope bearing the name of the Bidder and the Bid Number addressed to;

**County of Boone
613 E. Ash St., Room 110
Columbia, MO. 65201
(573) 886-4391**

Attn: Melinda Bobbitt, Director of Purchasing

If the Bidder elects to mail the bid it must be mailed to the address above

If the Bidder elects to hand deliver the bid it must be delivered to the address above

Any bid received after the due date stated in the Notice to Bidders will be rejected

All bids must be submitted in strict conformance with the documents contained in or referred to in the Bid Documents.

Bids shall be firm for acceptance within a minimum of (45) forty five days from the bid due date. Failure to provide the minimum quotation validity period may result in the Bidder's proposal being non-responsive and forfeiture of submitted Bid Bonds.

3. BIDDING INDEMNIFICATION

By submitting a Bid, each Bidder agrees to waive any claim it has or may have against the Owner, the Architect/Engineer and Project Manager and their respective employees, arising out of or in connection with the administration, evaluation or recommendation of any Bid.

4. BIDDING MODIFICATIONS / WITHDRAWAL OF BIDS

A Bidder may, without prejudice to itself, modify or withdraw its bid form consideration if such a request is made in writing and received by Boone County prior to the due date and time for submission of bids stated in the Notice to Bidders.

Other than delivered, bids will not be considered. Bids already submitted, however, may be modified by fax provided such modification is received by Boone County prior to the bid date due.

5. BID EXPENSE

Any expense or costs incurred by the Bidder in the preparation of and response to the Bid Documents will be at the sole cost and expense of the Bidder.

6. CONTRACT AWARD

In awarding the Contract Work, the Owner will evaluate the price, the completeness of the Bid, the Bidders skill, ability, responsibility, experience, capacity, financial standing, schedule, efficiency and any other factor deemed appropriate by the Owner.

The Owner maintains the following rights and considerations:

- a. To reject any or all bids and, in particular, a bid not accompanied by all the bid information required by the Bid Documents or a bid that is in any way incomplete or irregular.
- b. To waive any informality or irregularity in any Bid received.
- c. To award all or part of a bid as well as the right to let other contracts in connection with the work.
- d. To award a Contract, based on the bids received, without any further discussion of such bids,
- e. To award individual contracts for the Contract work on the basis of each separate Base Bid amount as itemized on the Bid Form(s) or award a single contract to one Bidder on the basis of the combined Bid for all the Contract work.

7. BID ALTERNATES

To accept alternates in any order or combination and to determine the low Bidder on the basis of the sum of the Base Bid or Base Bids and the Alternates accepted. Acceptance of Alternates is at the sole discretion of the Owner. Each Bid Alternate may be considered separately; the Bidder is not to rely on acceptance of any Alternate Bids.

8. UNIT PRICES

The Bidding Documents may include Unit Prices in the Bid Form applicable to a specific Bid Category(ies) which must be completed by the Bidder as a part of the Bid. If the Unit Prices are not completed, the Bid will not be considered responsive and may be rejected by the Owner.

It is the intent that all Unit Prices shall completely cover all costs, expenses, overhead and profit for such work.

9. OWNER'S TAX EXEMPTION STATUS

The Owner of this project, County of Boone, is a sales tax exempt entity. Because of this, construction materials purchased for and used on this project are eligible for exemption from Missouri sales tax. All bidders acknowledge and agree that its lump sum price to the County of Boone, excludes Missouri sales and use taxes and that the proposed contract sum does not include any Missouri sales taxes for which the County of Boone receives an exemption.

To enable the County of Boone to take advantage of its tax-exempt status, purchase of materials and equipment by the Contractor for its work on this project shall be made under and pursuant to the tax exempt purchase procedure authorized by Missouri Statutes. This procedure includes, among other requirements, the issuance of project exempt certificates to all Contractors who use those certificates to effect tax exempt purchases.

10. CRIMINAL BACKGROUND VERIFICATION

Boone County requires all employees of all Contractors be subjected to a Criminal Background Check. The Background Check for all Contractors' employees will be administered by Boone County. Each Contractor **MUST fill out Identification Application for each employee**. An identification badge will be issued to each Contractor employee authorized to access the site of the work.

11. COST ESTIMATE WORKSHEET

The disbursement of insurance funds associated with the claim from fire damage requires identification of cost for code of authority of jurisdiction requirements not specifically associated with fire damage.

BID FORM
Boone County Walnut Office
Bid Number: 37-15OCT13

To: Boone County Purchasing Office
613 East Ash, Room 110
Columbia, Mo. 65201

For: Boone County Walnut Office
609 East Walnut
Columbia, Mo. 65202

Date:

From: _____ **hereinafter called the Bidder.**

The undersigned as Bidder, having examined the proposed Contract Document as titled:

Boone County Walnut Office and dated September 16, 2013, including this Bid Form, Specifications, Drawings and have visited the site of the proposed construction and examined the conditions affecting the Work, and having acknowledged receipt of Addenda

IN SUBMITTING THIS BID, THE BIDDER AGREES:

To hold open the Bid for forty five (45) days from the date shown above;

To accept and accomplish the Work in accordance with the Contract Documents, including the Specifications, Drawings and Addenda;

To enter into and execute an Agreement, if awarded, on the basis of this Bid and to furnish required Bonds and insurance certificates;

To commence the Work immediately after receipt of the Notice to Proceed and complete the work by March 3, 2014. The designated time to complete the work incorporates an allowance of five (5) inclement weather days.

To complete this Bid Form, in its entirety, accepting that failure to do so may result in the rejection of this bid;

To construct the Work for the Base Bid lump sum of:

_____ \$ _____.

Boone County Walnut Office: Bid Number: 37-15OCT13

The Bidder agrees to include, if acceptable by the Owner, work of the following Alternates as specified for the additional amount of:

Alternate Bid No. 1 – All work associated with the second floor of 101 N. 7th St.

_____ \$ _____.

Alternate Bid No. 2 – Addition of walls, wet bar, extension of existint walls and add electric strike to existing exterior doors at 605 Walnut.

_____ \$ _____.

Alternate Bid No. 3 – Remove and replace all existing carpet and repaint all walls in 605 walnut.

_____ \$ _____.

Alternate Bid No. 4 – Overlay existing parking lot with asphalt to drain toward E. Walnut St.

_____ \$ _____.

BIDDER has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged):

<u>DATE</u>	<u>ADDENDUM NUMBER</u>

COMPANY NAME: _____

ADDRESS: _____

CITY, STATE, ZIP _____

PHONE NUMBER: _____

AUTHORIZED REPRESENTATIVE: _____

TITLE: _____

SIGNATURE: _____

List Project Manager and Field Superintendent to be assigned to the Project (name and brief experience summary)

List all work to be self performed by the Bidder on this project.

List all Sub-Contractors to be utilized on this project.

Cost Estimate Worksheet:

The contractor shall provide the following estimated construction costs for specific code or jurisdictional authority requirements for the renovation work at 609 East Walnut with the proposal. These estimates shall be incorporated in the base bid sum as well as broken out in the following worksheet. The purpose for the estimated cost worksheet is to facilitate the distribution of funding sources for the associated insurance claim. See worksheet on page 5.4.

Cost Estimate Worksheet

1. Vestibule 100

Description: Non-compliant doors, hardware and clearances between doors.

Scope of work: Demolition, wall construction, new doors and hardware

Estimated Cost:

2. Water Service

Description: The existing water service does not incorporate a backflow device with adjacent drain for testing

Scope of work: Slab-cut, demolition and repair for relocation, new service termination with backflow device at Janitor 107.

Estimated Cost:

3. Accessible Restrooms

Description: The existing restroom configuration is not accessible

Scope of Work: Slab-cut, demolition and repair, plumbing rough-in, wall reconfiguration, finishes and fixtures, doors and hardware

Estimated Cost:

4. Electrical Service

Description: The existing electrical service is non-compliant

Scope of work: demolition and new service entry

Estimated Cost:

5. Drinking Fountain

Description: The existing occupancy does not include a drinking fountain

Scope of Work: provide and install the accessible drinking fountain

Estimated Cost:

6. Window Replacement

Description: The existing wood stop windows do not provide required energy performance (Window Types A and C).

Scope of Work: Demo the existing windows and provide new windows

Estimated Cost:

7. Thermal Performance

Description: The existing insulation values do not provide the required thermal performance

Scope of Work: Demo the existing insulation and provide the specified insulation values

Estimated Cost:

ANTI-COLLUSION STATEMENT

STATE OF MISSOURI

COUNTY OF _____

_____, being first duly sworn, deposes and

says that he is _____
(Title of Person Signing)

of _____
(Name of Bidder)

that all statements made and facts set out in the proposal for the above project are true and correct; and the bidder (person, firm, association, or corporation making said bid) has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with said bid or any contract which may result from its acceptance.

Affiant further certifies that bidder is not financially interested in, or financially affiliated with, any other bidder for the above project

By _____

By _____

By _____

Sworn to before me this _____ day of _____, 20 _____

Notary Public

My Commission Expires _____

SIGNATURE AND IDENTITY OF BIDDER

The undersigned states that the correct LEGAL NAME and ADDRESS of (1) the individual Bidder, (2) each partner or joint venture (whether individuals or corporations, and whether doing business under fictitious name), or (3) the corporation (with the state in which it is incorporated) are shown below; that (if not signing with the intention of binding himself to become the responsible and sole Contractor) he is the agent of, and duly authorized in writing to sign for the Bidder or Bidders; and that he is signing and executing this (as indicated in the proper spaces below) as the proposal of a:

- sole individual partnership joint venture
- corporation, incorporated under laws of the state of _____

Dated _____, 20____
Name of individual, all partners, or joint
venturers:

Address of each:

doing business under the name of:

Address of principal place of business in
Missouri:

(If using a fictitious name, show this name above in addition to legal names.)

(If a corporation - show its name above)

ATTEST:

(Secretary)

(Title)

NOTE: If the Bidder is doing business under a FICTITIOUS NAME, the Proposal shall be executed in the legal name of the individual, partners, joint venturers, or corporation, with the legal address shown, and the REGISTRATION OF FICTITIOUS NAME filed with the Secretary of State, as required by Section 417.200 to 417.230, RS Mo. shall be attached. If the Bidder is a CORPORATION NOT ORGANIZED UNDER THE LAWS OF MISSOURI, it shall procure a CERTIFICATE OF AUTHORITY TO DO BUSINESS IN MISSOURI, as required by Section 351.570 and following, RS Mo. A CERTIFIED COPY of such Registration of Fictitious Name or Certificate of Authority to do Business in Missouri shall be filed with the Engineer.

BIDDER'S ACKNOWLEDGMENT

(Complete and fill out all parts applicable, and strike out all parts not applicable.)

State of _____

County of _____

On this _____ day of _____, 20 _____

before me appeared _____ to me personally known, who, being by me first duly sworn, did say that he executed the foregoing Proposal with full knowledge and understanding of all its terms and provisions and of the plans and specifications; that the correct legal name and address of the Bidder (including those of all partners of joint ventures if fully and correctly set out above; that all statements made therein by or for the Bidder are true; and

(if a sole individual) acknowledged that he executed the same as his free act and deed.

(if a partnership or joint venture) acknowledged that his executed same, with written authority from, and as the free act and deed of, all said partners or joint ventures.

(if a corporation) that he is the _____
President or other agent

of _____; that the above Proposal was signed and sealed in behalf of said corporation by authority of its board of directors; and he acknowledged said proposal to be the free act and deed of said corporation.

Witness my hand and seal at _____ the day and year first above written.

(SEAL) _____ Notary Public

My Commission expires _____, 20 _____.

INSURANCE REQUIREMENTS

Insurance Requirements: The Contractor shall not commence work under this contract until they have obtained all insurance required under this paragraph and such insurance has been approved by the County, nor shall the Contractor allow any subcontractor to commence work on their subcontract until all similar insurance required of subcontractor has been so obtained and approved. All policies shall be in amounts, form and companies satisfactory to the County which must carry an A-6 or better rating as listed in the A.M. Best or equivalent rating guide. Insurance limits indicated below may be lowered at the discretion of the County.

Compensation Insurance - The Contractor shall take out and maintain during the life of this contract, **Employee's Liability and Worker's Compensation Insurance** for all of their employees employed at the site of work, and in case any work is sublet, the Contractor shall require the subcontractor similarly to provide Worker's Compensation Insurance for all of the latter's employees unless such employees are covered by the protection afforded by the Contractor. Worker's Compensation coverage shall meet Missouri statutory limits. Employers' Liability limits shall be \$1,000,000.00 each employee, \$1,000,000.00 each accident, and \$1,000,000.00 policy limit. In case any class of employees engaged in hazardous work under this Contract at the site of the work is not protected under the Worker's Compensation Statute, the Contractor shall provide and shall cause each subcontractor to provide Employers' Liability Insurance for the protection of their employees not otherwise protected.

Comprehensive General Liability Insurance - The Contractor shall take out and maintain during the life of this contract, such comprehensive general liability insurance as shall protect them and any subcontractor performing work covered by this contract, from claims for damages for personal injury including accidental death, as well as from claims for property damages, which may arise from operations under this contract, whether such operations be by themselves or for any subcontractor or by anyone directly or indirectly employed by them. The amounts of insurance shall be not less than \$2,000,000.00 combined single limit for any one occurrence covering both bodily injury and property damage, including accidental death. If the Contract involves any underground/digging operations, the general liability certificate shall include X, C, and U (Explosion, Collapse, and Underground) coverage. If providing Comprehensive General Liability Insurance, then the Proof of Coverage of Insurance shall also be included.

The Contractor has the option to provide **Owner's Contingent or Protective Liability and Property Damage** instead of the **Comprehensive General Liability Insurance**- The Contractor shall provide the County with proof of Owner's Protective Liability and Property Damage Insurance with the County as named insured, which shall protect the County against any and all claims which might arise as a result of the operations of the Contractor in fulfilling the terms of this contract during the life of the Contract. The minimum amounts of such insurance will be \$2,000,000.00 per occurrence, combined single limits. Limits can be satisfied by using a combination of primary and excess coverages. Should any work be subcontracted, these limits will also apply.

COMMERCIAL Automobile Liability – The Contractor shall maintain during the life of this contract, automobile liability insurance in the amount of not less than \$2,000,000.00 combined single limit for any one occurrence, covering both bodily injury, including accidental death, and property damage, to protect themselves from any and all claims arising from the use of the Contractor's own automobiles, teams and trucks; hired automobiles, teams and trucks; and both on and off the site of work.

BUILDER'S RISK - The Contractor shall maintain during the life of this contract, builder's risk insurance coverage to cover damage to materials and equipment on the site, in the total amount of the contract or in an amount not less than \$500,000.00 whichever is greater.

Proof of Carriage of Insurance - The Contractor shall furnish the County with Certificate(s) of Insurance which name the County as additional insured in an amount as required in this contract, contain a description of the project or work to be performed, and requiring a thirty (30) day mandatory cancellation notice. In addition, such insurance shall be on occurrence basis and shall remain in effect until such time as the County has made final acceptance of the facility contracted.

INDEMNITY AGREEMENT: To the fullest extent permitted by law, Contractor shall indemnify, hold harmless and defend the County, its directors, officers, agents, and employees from and against all claims, damages, losses and expenses (including but not limited to attorney's fees) arising by reason of any act or failure to act, negligent or otherwise, of Contractor, of any subcontractor (meaning anyone, including but not limited to consultants having a contract with contractor or a subcontract for part of the services), of anyone directly or indirectly employed by contractor or by any subcontractor, or of anyone for whose acts the contractor or its subcontractor may be liable, in connection with providing these services. This provision does not, however, require contractor to indemnify, hold harmless, or defend the County of Boone from its own negligence.

CONTRACT CONDITIONS

GENERAL: The following provisions are agreed to by and between the Contractor and the County:

DEFINITIONS: "Party of the First Part" or "County" or "Owner" shall mean the County of Boone, Missouri, acting through its authorized County Officials, or appointed representatives.

"Contractor" or "Party of the Second Part" shall mean the party having entered into contract to perform the work herein specified.

"Engineer or Architect" shall mean the authorized representative of the Owner for whom the work is to be performed, as the context requires.

"Work" of the Contractor includes labor or material, or both.

"As directed", "as required", "as permitted", "acceptable to" and words of like import shall mean that the direction, requirement or permission of the Engineer is intended.

"Or equal" is not intended to impose limitations preventing the free exercise of the Contractor's skill or to exclude products which are satisfactory. Materials and workmanship shall be of the best of their respective kinds. Trade or manufacture's names where used in these specifications are intended to fix the standards of workmanship and materials. Any article or material equaling the standards fixed may be used in place of that mentioned by the specifications provided that the material or article proposed is submitted to and approved by the Engineer. No substitution shall be made unless this definite approval has been obtained in advance.

PAYMENTS: The successful Contractor will be allowed payment in accordance with the following schedule:

No later than 45 days after receipt of invoice from the Contractor, the County will make partial payment to the Contractor on the basis of a duly certified approved estimate of the cost of materials delivered to the site and work performed at the site during the preceding calendar month by the Contractor, but the County will retain 10 percent of the amount of each such estimate. No later than 45 days after final tests and acceptance final payment shall be due.

The Contractor shall, by affidavit, submit to the Engineer a sworn certification to the County that all bills and claims properly due and chargeable against the work have been satisfied and that the laws relating to the payment of prevailing wage rates have been complied with and shall release the County of Boone from all further claims, which certificate must bear the written endorsement of the Surety on the bond. The acceptance by the Contractor of the final payment shall constitute a release and waiver of any and all rights and privileges under the terms of the Contract; further, the acceptance by the Contractor of final payment shall relieve the County from any and all claims or liabilities on part of the County relating to or connected with the Contract.

The cost of all licenses and permits and other expenses and costs incidental to the fulfillment of this Contract will be paid by the Contractor, and the total amount of such costs will be included in the total cost of the work.

Assignments: No money due at the time or which may become due, and no claim of any character because of any performance or breach of the Contract shall be assigned or transferred to any other person so as to bind or affect the County without the written consent of the Surety and the County.

The Contractor shall pay for all materials, supplies, services, and equipment as follows:

1. For all transportation and utility service not later than the 20th day of the calendar month following that in which the services are rendered, and
2. For all materials, tools, and other expendable equipment to the extent of 90 percent of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools, and equipment are delivered at the site of the project, and the balance of the cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools, and equipment are incorporated or used.

EXTRA AND/OR ADDITIONAL WORK AND CHANGES: If any extra and/or additional work is to be done or any change in the plans and specifications is deemed necessary, the County may issue to the Contractor a written change order directing that such extra and/or additional work be done or that such change be made, and the Contract shall be modified accordingly. Compensation to the Contractor will be calculated as an addition to or deduction from the Contract price, based upon such written terms as may be established by the owner, either (a) by an acceptable lump sum proposal of the Contractor, (b) on a cost-plus limited basis not to exceed a specified limit, or (c) on basis of bid or mutually agreed upon unit prices. In the event that none of the foregoing methods are agreed upon with the Contractor, the County may perform the work with its own forces or under separate contract with another contractor.

COUNTY'S RIGHT TO WITHHOLD CERTAIN AMOUNTS AND MAKE APPLICATION THEREOF: The County shall have the right to withhold from payments due to the Contractor, in addition to the retained percentages herein elsewhere provided for, such amount or amounts as may be necessary to pay just claims against the Contractor for labor and services rendered and materials furnished in or about the work covered by this Contract, or for liquidated damages. The County is by this Contract appointed the agent of the Contractor to apply such retained amounts to the payment of any of the foregoing.

PATENTS: The Contractor shall protect the County against suits for patent infringement on material, equipment, and methods used.

DISCHARGE OF EMPLOYEES: Owner reserves the right to require the removal from the site of the Work any employee of the Contractor or any subcontractor if, in the judgment of the Owner, such removal is necessary to protect the interest of the Owner, upon written notice from the Owner.

ASSIGNMENT OF CONTRACT: No assignment by the Contractor of any principal construction contract or any part thereof or of the funds to be received thereunder by the Contractor, will be recognized unless such assignment has had the approval of the County and the Surety has been given due notice of such assignment in writing. In addition to the usual recitals in assignment contracts, the following language must be set forth:

"It is agreed that the funds to be paid to the assignee under this assignment are subject to a prior lien for services rendered or materials supplied for the performance of the work called for in said Contract in favor of all persons, firms, or corporations rendering such services or supplying such materials."

ACCIDENT PREVENTION: Precaution shall be exercised at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery, equipment, and all hazards shall be guarded or eliminated in accordance with the safety provisions of the Manual of Accident Prevention in Construction, 8th Edition, 1999, published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable laws. Current standards of the Occupational Safety and Health Act shall be applied.

LEGAL REQUIREMENTS: The Contractor shall do all work in such manner as to comply with all County ordinances, and laws of the County, State, and Nation as apply to the work herein outlined. The Contractor shall also obtain all necessary licenses and permits and keep necessary records as required.

EQUAL OPPORTUNITY: The County of Boone is an equal opportunity affirmative action employer, pursuant to federal and state law, and all respondents submitting bids shall be considered to be EEO/AA employers in compliance with federal and state laws, unless otherwise stipulated by the bidders herein.

DOMESTIC PURCHASING POLICY: Contractors are encouraged to select and use materials manufactured, assembled, or produced in the United States in the performance of this contract whenever the quality and price are comparable with other goods.

By submission of this bid, the vendor certifies that they are in compliance with section 34.353 and, if applicable, section 34.359 ("Missouri Domestic Products Procurement Act") of the Revised Statutes of Missouri, 1987.

SALES/USE TAX EXEMPTION

SALES TAX EXEMPTION PROCEDURE: County will provide the Contractor with a completed Missouri Project Exemption and Missouri Tax Exemption letter for Boone County, Missouri and the Contractor shall be responsible for furnishing the exemption certificate and tax exemption letter to all authorized sub-contractors and suppliers providing materials incorporated in the work. All invoices issued for purchases for such materials, supplies, and taxable rentals shall be in the name of Boone County and contain the project number assigned by Boone County for the contract awarded. It shall be the responsibility of the Contractor to insure that no sales or use taxes are included in the invoices and that the County pays no sales/use taxes from which it is exempt. The Contractor shall be responsible for obtaining revised exemption certificates and revised expiration dates if the work extends beyond the estimated the project completion date or a certificate expiration date. The Contractor shall also be responsible for retaining a copy of the project exemption certificate for a period of five years and for compliance with all other terms and conditions of section 144.062 RSMo. not otherwise herein specified. The Contractor agrees not to use or permit others to use the project exemption certificate for taxable purchases of materials or rentals and supplies not directly incorporated into or used in the work to which it applies and agrees to indemnify and hold the County harmless from all losses, expenses and costs including litigation expenses and attorney fees resulting from the unauthorized use of such project exemption certificates.

WARRANTY AND GUARANTEE

Contractor warrants and guarantees to Owner and Engineer that all work will be in accordance with the Contract Documents and will not be defective. All materials provided by Contractor shall be new material of high quality which shall give long life and reliable operation. The workmanship shall be of high quality in every detail. Prompt notice of all defects shall be given to Contractor. All defective work, whether or not in place, may be rejected, corrected, or accepted as follows:

Correction or Removal of Defective Work

If required by Engineer, Contractor shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or if the Work has been rejected by Engineer, remove it from the site and replace it with non-defective Work. Contractor shall bear all direct, indirect, and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals made necessary thereby).

One Year Correction Period

If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, either correct such defective Work, or if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work removed and replaced and all direct, indirect, and consequential costs of removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals) will be paid by the Contractor. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

SUBCONTRACTORS, SUPPLIERS AND OTHERS

Contractor shall not employ any Subcontractor, Supplier, or other person or organization (including those acceptable to Owner and Engineer as indicated below), whether initially or as a substitute, against whom Owner or Engineer may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other person or organization to furnish or perform any of the Work against whom the Contractor has a reasonable objection.

If the Owner requires identity of certain Subcontractor, Suppliers, or other persons or organizations (including those who are to furnish the principal items of material and equipment) to be submitted to Owner in advance of the specified date prior to the Effective Date of the Agreement for acceptance by Owner and Engineer and if Contractor has submitted a list thereof in accordance with the project Specifications, Owner's or Engineer's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier, or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case Contractor shall submit an acceptable substitute, the Contract Price will be increased by the difference in the cost occasioned by such substitution and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by Owner or Engineer of any such Subcontractor, Supplier, or other person or organization shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

Boone County requires all employees of all Contractors be subjected to a Criminal Background Check. The Background Check for all Contractors' employees will be administered by Boone County. Each contractor MUST fill out an identification Application. The intent of the Criminal Background check is to identify and exclude access to the site of the work, any individual with a conviction or pending charge of a felony, violent offence or burglary. No individual on probation or parole will be allowed to access the site of the work.

APPLICATION – CRIMINAL BACKGROUND CHECK

Boone County Walnut Office

Identification for 2013 Projects

(all information is required before identification will be issued.)

Last name: _____

First name: _____ Middle name: _____

Date of Birth: ____ / ____ / ____

Social Security #: ____ - ____ - ____

Sex: _____ Race: _____

Employer: _____

Supervisor's Name: _____

Supervisor's Phone Number: ____ - ____ - ____

Date of application: _____

Signature: _____

(Please complete and return with Bid)

**Certification Regarding
Debarment, Suspension, Ineligibility and Voluntary Exclusion
Lower Tier Covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 29 CFR Part 98 Section 98.510, Participants' responsibilities. The regulations were published as Part VII of the May 26, 1988, Federal Register (pages 19160-19211).

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS FOR CERTIFICATION)

- (1) The prospective recipient of Federal assistance funds certifies, by submission of this proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective recipient of Federal assistance funds is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Name and Title of Authorized Representative

Signature

Date

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into by and between Boone County, Missouri, by and through its County Commission (hereinafter referred to as Owner), and _____ (hereinafter referred to as Contractor).

WITNESSETH: That for and in consideration of the acceptance of Contractor's bid and the award of this Contract to said Contractor by the Owner and in further consideration of the agreements of the parties herein contained, to be well and truly observed and faithfully kept by them, and each of them, it is agreed between the parties as follows, to wit:

1. The Contractor at his own expense hereby agrees to do or furnish all labor, materials and equipment called for in the proposal designated and marked:

Boone County Walnut Office

Bid Number: 37-15OCT13

and agrees to perform all the work required by the Contract in strict accordance to the Plans and Specifications.

2. The following Contract documents and all addenda (if applicable) are made a part hereof as fully as if set out herein. Change orders issued subsequent to this Contract shall be subject to the terms and conditions of this Contract unless otherwise specified in writing.

Notice To Bidders.....	1.1
Bid Response.....	2.1-2.2
Statement of Bidder's Qualifications.....	3.1
Instructions to Bidders.....	4.1-4.2
Bidding Guidelines.....	4.3-4.6
Bid Forms.....	5.1-5.4
Anti-Collusion Statement.....	6.1
Signature and Identity of Bidder.....	7.1
Bidder's Acknowledgment.....	8.1
Work Authorization.....	8.2
Insurance Requirements.....	9.1- 9.2
Contract Conditions.....	10.1-10.6
Criminal Background Check.....	10.7
Debarment Certification.....	10.8
Contract Agreement.....	11.1-11.5
*Performance Bond.....	12.1-12.2
*Labor and Material Payment Bond.....	13.1-13.2
General Specifications.....	14.1-14.8
Technical Specifications.....	15.1
Special Project Conditions.....	16.1-16.6
Affidavit—OSHA Requirements.....	A-1
Affidavit—Prevailing Wage.....	A-2
State Wage Rates.....	A-3 – A-18
Boone County Standard Terms and Conditions.....	APPENDIX B
Asbestos Survey Report.....	APPENDIX C
Index of Drawings.....	APPENDIX D

It is understood and agreed that, except as may be otherwise provided in the General Specifications and the Technical Specifications, the work shall be done in accordance with the Contract Documents. Said Specifications are part and parcel of this Contract and are incorporated in this Contract as fully and effectively as if set forth in detail herein. If a conflict is identified in the Specifications and the Drawings, the more

stringent requirement will govern the work. If a conflict is identified between this Contract Agreement and any other incorporated item, the terms of this Contract Agreement shall prevail and control over the conflicting terms.

3. Contractor has made and shall be deemed to have made a careful examination of the site of the Project and of any plans and the scope of work for the project, and shall become informed as to the location and nature of the proposed construction, the transportation facilities, the kind and character of soil and terrain to be encountered, the kind of facilities required before and during the construction of the Project, general local conditions and all other matters that may affect the cost and the time of completion of the Project. Contractor has secured this information by personal investigation and research and not from any estimates of Owner. Contractor agrees to make no claim against the Owner by reason of estimates, tests or representation of any officer, agent or employee of Owner.

4. Time and Manner of Construction:

4.1. The Contractor agrees to commence construction not later than the authorized date in the Notice to Proceed, and to complete the work within the time specified in the proposal or such additional time as may be allowed by Owner under the Contract.

4.2. The time for Completion of Construction shall be extended for the period of any reasonable delay which is due exclusively to causes beyond the control and without the fault of Contractor, including acts of God, fires, floods, and acts or omissions of the Owner with respect to matters for which the Owner is solely responsible. Provided, however, that no extension of time for completion shall be granted the Contractor unless within ten (10) days after the happening of any event relied upon by the Contractor for such an extension of time the Contractor shall have made a request therefore in writing to the Owner, and provided further that no delay in such time of completion or in the progress of the work which results from any of the above causes shall result in any liability on the part of the Owner.

4.3. Owner may from time to time during the progress of the construction of the project make such changes, additions to or subtractions from the Plans, Specifications, Drawings and sequence of construction provided for in the Contract Documents as conditions may warrant. Provided, however, that if any change in the construction to be done shall require an extension of time, a reasonable extension will be granted if Contractor shall make a written request therefore to the Owner within ten (10) days after any such change is made. And provided further, that if the cost to Contractor of construction of the project shall be materially increased by any such change or addition, the Owner shall pay Contractor for the reasonable cost thereof in accordance with a construction contract amendment signed by the Owner and Contractor, but no claim for additional compensation for any such change or addition will be considered unless Contractor shall have made a written request therefore to the Owner prior to the commencement of work in connection with such change or addition.

4.4. Contractor will assist in providing documentation as reasonably requested by Owner to facilitate Owner's processing of Owner's insurance claim.

5. Construction not in proposal: Contractor also agrees that when it is necessary to construct units not shown in the Proposal it will construct such units for a price arrived at as follows:

- a. The cost of materials shall be determined by the invoices.
- b. The cost of labor shall be reasonable cost thereof, as agreed upon by the Owner and Contractor prior to the commencement of work.
- c. The cost of overhead and profit, when agreed to by Owner, shall not exceed 7% of the cost of the change order for each.
- d. Contractor shall provide adequate documentation to assist Owner is augmenting its insurance claim relating to the fire damage at 609 E. Walnut for all change orders reasonably related to said fire damage.

Contractor shall bear any increases in costs for required bonds due to approved change orders. Contractor further states that Contractor understands that standard deviations from drawings are not appropriate matters for change order consideration. Contractor shall use any forms provided by Owner for any requested or required Change Orders.

6. The work shall be done to complete satisfaction of the Owner, and in the case the Federal Government or any agency thereof is participating in the payment of the cost of construction of the work, the work shall also be subject to inspection and approval at all times by the proper agent or agents of such government agency. All site preparations and daily clean up, including any related costs such as rental of dumpsters or parking, shall be the responsibility of Contractor. Contractor shall participate in meetings with Owner and/or Architect as requested to coordinate the work and administer the project. Contractor shall employ stormwater management practices appropriate to the project as required by Owner.

7. The parties hereto agree that this Contract in all things shall be governed by the laws of the State of Missouri.

8. Contractor agrees it will pay not less than the prevailing hourly rate of wages to all workmen performing work under the Contract in accordance with the prevailing wage determination issued by the Division of Labor Standards of the Department of Labor and Industrial Relations for the State of Missouri and as maintained on file with the Boone County Purchasing Department. The Contractor further agrees that it shall forfeit as a penalty to the County of Boone the sum of \$100.00 for each workman employed for each calendar day or portion thereof such workman is paid less than the stipulated rates set forth in the prevailing wage determination for the project for any work done under this contract by the Contractor pursuant to the provisions of Section 290.250 RSMo. The Contractor further agrees that he will abide by all provisions of the prevailing wage law as set forth in Chapter 290 RSMo. and rules and regulations issued thereunder and that any penalties assessed may be withheld from sums due to the Contractor by the Owner.

9. The Contractor agrees that he will comply with all federal and state laws and regulations and local ordinances and that he will comply and cause each of his subcontractors, and directives pertaining to nondiscrimination against any person on the grounds of race, color, religion, creed, sex, age, ancestry, or national origin in connection with this Contract, including procurement of materials and lease of equipment; therefore, in accordance with the special provisions on that subject attached hereto, incorporated in and made a part of the Contract.

10. The Contractor expressly warrants that he has employed no third person to solicit or obtain this Contract in his behalf, or to cause or procure the same to be obtained upon compensation in any way contingent, in whole or in part, upon such procurement. Also, that he has not paid, or promised or agreed to pay to any third person, in consideration of such procurement, or in compensation for services in connection therewith, any brokerage, commission or percentage upon the amount receivable by he hereunder; and that he has not, in estimating the Contract price demand by he, included any sum by reason of any such brokerage, commission, or percentage; and that all moneys payable to he hereunder are free from obligation of any other person for services rendered, or supposed to have been rendered, in the procurement of this Contract. Contractor further agrees that any breach of this warranty shall constitute adequate cause for the annulment of this Contract by the Owner, and that the Owner may retain to its own use from any sums due to or to become due hereunder an amount equal to any brokerage, commission, or percentage so paid, or agreed to be paid.

11. **Records:** Contractor shall keep, and require subcontractors to keep, such books and records as shall be necessary to perform the services required by this Agreement and enable the Owner's representative to evaluate the performance of such services. The Owner's representative shall have full and free access to such books and records at all times during normal business hours of Owner, including the right to inspect, copy, audit and make records and transcripts from such records. Such records shall be maintained for a period of three (3) years following completion of the services hereunder, and the Owner shall have access to such records in the event any audit is required.

12. **Integration; Amendment:** It is understood that there are no oral agreements between the parties hereto affecting this Agreement and this Agreement supersedes and cancels any and all previous negotiations, arrangements, agreements and understandings, if any, between the parties, and none shall be used to interpret this Agreement. This Agreement may be amended at any time by the mutual consent of the parties by an instrument in writing.

13. **Severability:** In the event that any one or more of the phrases, sentences, clauses, paragraphs, or sections contained in this Agreement shall be declared invalid or unenforceable by a valid judgment or decree of a court of competent jurisdiction, such invalidity or unenforceability shall not affect any of the remaining phrases, sentences, clauses, paragraphs, or sections of this Agreement which are hereby declared as severable and shall be interpreted to carry out the intent of the parties hereunder unless the invalid provision is so material that its invalidity deprives either party of the basic benefit of their bargain or renders this Agreement meaningless.

14. The Owner agrees to pay the Contractor in the amount of

\$ _____

as full compensation for the performance of work embraced in this Contract, subject to adjustment as provided for changes in quantities and approved change orders. Payments shall be made as set out in these Contract Documents, and payment requests shall be made on forms approved by Owner.

IN WITNESS WHEREOF, the parties hereto have signed and entered this agreement on _____ at Columbia, Missouri.
(Date)

ATTEST:

OWNER:
BOONE COUNTY, MISSOURI

By: _____
Dan Atwill, Presiding Commissioner

Wendy S. Noren, County Clerk

CONTRACTOR:

By: _____
Authorized Representative (Signature)

ATTEST:

Authorized Representative (Print Name)

Title

Secretary

Project Budget Oversight:

Approved as to Legal Form:

Accountant, Auditor's Office

C.J. Dykhouse, Boone County Counselor

AUDITOR CERTIFICATION

In accordance with RSMo 50.660, I hereby certify that a sufficient unencumbered appropriation balance exists and is available to satisfy the obligation(s) arising from this contract.

Signature	Date	Appropriation Amount
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PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENT, that we,

as Principal, hereinafter called Contractor, and _____

a Corporation, organized under the laws of the State of _____
and authorized to transact business in the State of Missouri, as Surety, hereinafter called Surety, are held and firmly bound unto the County of Boone, Missouri, as Obligee, hereinafter called Owner, in the amount of _____ Dollars, for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents:

WHEREAS, Contractor has, by written agreement dated _____ entered into a Contract with Owner for:

**Boone County Walnut Office
Bid Number: 37-15OCT13**

in accordance with plans and specifications prepared by the County of Boone, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly and faithfully perform said Contract, and shall faithfully perform the prevailing hourly wages and comply with all prevailing wage requirements as provided by such Contract and applicable prevailing wage laws, rules, and rates specified by regulation thereunder, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be, in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- 1) Complete the Contract in accordance with its terms and conditions, or
- 2) Obtain a bid for submission to Owner for completing the Contract in accordance with its terms and conditions, and upon determination by Owner and Surety of the lowest responsible bidder, arrange for a Contract between such bidder and Owner, and make available as work progresses (even though there should be a default of a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient fund to pay the cost of completion less the balance of the Contract price, but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract price", as used in this paragraph, shall mean the total amount payable by Owner to Contractor under the Contract and any amendments thereto, less the amount properly paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of two years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators, or successors of Owner.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in Missouri.

IN TESTIMONY WHEREOF, the Contractor has hereunto set his hand and the Surety has caused these presents to be executed in its name, and its corporate seal to be affixed by its Attorney-In-Fact at _____ on this _____ day of _____, 20 _____.

(Contractor)

(SEAL)

BY: _____

(Surety Company)

(SEAL)

BY: _____

(Attorney-in-Fact)

BY: _____
(Missouri Representative)

(Accompany this bond with Attorney-in-Fact's authority from the Surety Company certified to include the date of this bond).

Surety Contact Name: _____
Phone Number: _____
Address: _____

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENT, that we,

as Principal, hereinafter called Contractor, and _____

a Corporation, organized under the laws of the State of _____
and authorized to transact business in the State of Missouri, as Surety, hereinafter called Surety, are held and firmly bound unto the County of Boone, Missouri, as Obligee, hereinafter called Owner, in the amount of _____ Dollars, (\$ _____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents:

WHEREAS, Contractor has, by written agreement dated _____ entered into a Contract with Owner for:

**Boone County Walnut Office
Bid Number: 37-15OCT13**

in accordance with drawing and specifications prepared by the County of Boone which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that the Contractor shall promptly make payments to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect, subject, however, to the following conditions.

A. A claimant is defined as one having a direct contract with the Contractor or with a subcontractor of the Contractor for labor, material, or both, used or reasonably required for use in the performance of the Contract; labor and material being construed to include the part of water, gas, power, light, heat, oil, gasoline, telephone service, rental, or equipment directly applicable to the Contract.

B. The above named Contractor and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of 90 days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The owner shall not be liable for the payment of any costs or expenses of any such suit.

C. No suit or action shall be commenced hereunder by any claimant:

1. Unless claimant, other than one having a direct Contact with the Contractor, shall have given written notice to any two of the following: The Contractor, the Owner, or the Surety above named, within 90 days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Contractor, Owner, or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

2. After the expiration of one year following the date on which Contractor ceased work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

3. Other than in a state court of competent jurisdiction in and for the County or other political subdivision of the state in which the project, or any part thereof, is situated or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.

D. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of Mechanic's Liens which may be filed on record against said improvement, whether or not claim for the amount of such lien be presented under or against this bond.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in Missouri.

IN TESTIMONY WHEREOF, the Contractor has hereunto set their hand and the Surety caused these
present to be executed in its name and its corporate seal to be affixed by its Attorney-in-Fact at

_____, on this _____ day of _____, 20 _____

CONTRACTOR: _____ (Seal)

BY: _____

SURETY COMPANY _____

BY: _____

(Attorney-in-Fact)

BY: _____

(Missouri Representative)

(Accompany this bond with Attorney-In-Fact's authority from the Surety Company certified to include the date of this bond).

GENERAL SPECIFICATIONS

GENERAL SPECIAL PROVISIONS: Except as may be otherwise provided for by the **General Specifications** and **Technical Specifications**, the work shall be done in accordance with the Contract Documents dated September 16, 2013. Said Drawings and Specifications are part and parcel of this Contract and are incorporated in this Contract as fully and effectively as if set forth in detail herein.

When an item is the subject of both the Drawings and Technical Specifications the more stringent requirement will govern the work.

SECTION 1. - DEFINITIONS

The following changes shall be made to Section 101. Definitions. and shall apply each time they occur in the "Missouri Standard Specifications for Highway Construction Dated 2004" hereinafter the MODOT Specifications.

- A. Owner:** Shall mean the County of Boone as contracting agency acting by and through any of its authorized representatives.
- B. Commission:** Shall mean the Boone County Commission.
- C. Engineer:** Shall mean the Owner's representative or the Architect, as the context requires.

SECTION 2. - PROPOSAL REQUIREMENTS AND CONDITIONS

2.1 Comprehensive Proposal. The Contractor agrees that he is fully informed regarding all of the conditions affecting the work to be completed, and labor and materials to be furnished for the completion of this Contract, and that his information was procured by personal investigation and research and not from any estimates of the Engineer; and that he will make no claims against the County by reason of estimates, test, or representation of any officer, agent, or employee of the County or the Engineer.

2.2 Proposal Guaranty. Each proposal shall be accompanied by a proposal guaranty. The character and the amount of the proposal guaranty to be furnished by Bidders shall be stated in the proposal for each project. The proposal guaranty shall be executed by some surety company authorized to do business in the State of Missouri, as a guarantee on the part of the Bidder that if his bid be accepted, he will within ten days after receipt of notice of such acceptance, enter into a contract and furnish a contract bond to do the work advertised; and, in case of default, forfeit such proposal guaranty.

2.3 Delivery of Proposals. Each proposal shall be submitted in a sealed envelope marked clearly to indicate its contents. All proposals shall be filed prior to the time and at the location specified in the Notice To Bidders. Proposals received after the time for opening of bids will be returned to the bidder unopened.

SECTION 3 - AWARD AND EXECUTION OF CONTRACT

3.1. Award of Contract. The Contract shall be awarded by the Boone County Commission and confirmed by a Commission Order to the lowest responsible Bidder within a reasonable length of time after opening of bids. The responsibility of the Bidder shall be determined by the Boone County Commission who will base its decision on, among other things, bidder's qualifications, previous work, and financial standing. The successful Bidder will be notified in writing, mailed to the address shown on the proposal, that his bid has been accepted and that he has been awarded the contract.

SECTION 4 - SCOPE OF WORK – This section has been left blank.

SECTION 5 - CONTROL OF WORK

5.1. Cooperation by Contractor. The Contractor will be supplied with four sets of approved plans and contract assemblies including special provisions. One set of approved plans and contract documents including special provisions shall be kept available on the job at all times.

5.2. Authority and Inspection. The Engineer has direct charge of the engineering details of each construction project. The Engineer has the authority to reject defective material and to suspend and reject any work that is being improperly performed.

5.3. Claims for Adjustment. If any conditions arise which in the Contractor's opinion will require him to make any claims or demands for extra or additional compensation above that fixed by the contract, or on which he contemplates bringing claims for such extra compensation, he shall promptly and before incurring any expenses, notify in writing the Engineer of the conditions and circumstances and that he proposes to make such claims. The Contractor agrees that any claims made without such advance notice, and not presented in such a way as to enable the Engineer to observe conditions as they occur and to verify expenses as they occur and to determine with certainty the correctness of such claims and of the expenses involved, are waived and shall be null and void. No extra compensation shall be awarded in any event without prior written approval of the County.

5.4. The Contractor shall be responsible to set and maintain initial field control consisting of bench marks and control monuments. The Contractor shall be responsible for the preservation of all bench marks and control monuments, and if any of these bench marks or control monuments are carelessly or willfully destroyed or disturbed, the cost of replacing them shall be the responsibility of the Contractor. These bench marks and control monuments will constitute the initial field control by and in accordance with which the Contractor shall establish other necessary controls and perform the work in the correct position to correspond to the information shown on the plans and given by the Engineer during the progress of the work. Elevations shown on the plans and referred to in the specifications are based on the bench marks shown. The Contractor shall employ competent personnel for making position, gradient, and alignment determinations and measurements.

SECTION 6 - CONTROL OF MATERIAL

6.1. Inspection and Certification. Unless otherwise specified, all materials shall be subject to visual inspection and job control test, as determined by the Engineer, and shall be certified by the Supplier that the material supplied conforms to the requirements of these specifications. All certifications shall make reference to the specific project and shall contain the Supplier's name and address.

6.2. Samples, Tests, and Cited Specifications. The Contractor shall submit certifications and substantiating test reports, furnished by the Supplier or Fabricator, certifying that material and manufacturing procedures conform to the specifications. All sampling and testing required by the specifications shall be performed by the Supplier in accordance with these specifications, and the results shall be signed, sealed and stamped according to laws related to professional engineers. There shall be no direct charge to the Owner for materials taken as samples, either for field tests or for laboratory tests. If a specification of a recognized national standard agency (ASTM, AASHTO, AWWA, AWS, etc.) is designated the material may, unless otherwise specified, meet either the designated specification or the latest revision thereof in effect at the time of letting of the contract.

SECTION 7 - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

Safety Provisions. Safety on the job is the Contractor's sole responsibility. The Contractor is responsible for proper barricades and/or fences to prevent injury to his or other personnel or the public, and shall leave such barricades and/or fences in place at any time he must be absent from the job site.

SECTION 8 - PROSECUTION AND PROGRESS

8.1. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the contract documents, all Work at the site shall be performed during regular working hours, and the Contractor will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without Owner's written consent given after prior written notice to the Engineer.

8.2. Contractor shall notify the Engineer a minimum of forty-eight hours in advance of intent to perform Work.

SECTION 9 - MEASUREMENT AND PAYMENT

9.1. The Engineer will make payment estimates on or about the 1st and the 15th of each month of the work performed and the value thereof at the contract unit prices as applicable. The proper percentage with relation to completion will be allowed for all incomplete items.

9.2. No payments will be made on account of materials not yet incorporated into the work.

9.3. From the total amount of work items of each estimate, there will be deducted ten percent. The retained percentage will be released as provided in Section 9.13. The net amount due on the estimate will be certified to the County for payment.

9.4. Payment may be withheld or nullified in whole or part to such extent as may be necessary to protect the County from loss on account of:

1. Failure to properly submit material certifications and substantiating test reports required under Section 6.1. and Section 6.2.
2. Failure to properly submit certified copies of labor payrolls required under Section 10.
3. Defective work not remedied.
4. Failure of the Contractor to properly make payment to suppliers or subcontractors for material and/or labor.
5. A reasonable doubt that the contract can be completed for the balance then unpaid.
6. Damage to another Contractor.

9.5. This section has been left blank

9.6. Borrow quantities will not be measured. If additional fill material is required for construction or for other proportions of the work, it shall be located, furnished, and hauled by the Contractor as necessary, and will be considered incidental to the portion of work. The Contractor shall be responsible for obtaining all necessary permits. No direct payment for locating, furnishing, hauling additional fill material or obtaining permits will be made.

9.7. No revision of contract quantities will be made if the actual ground elevations are considered to agree generally with the ground line shown on the plans.

9.8. This section has been left blank

9.9. This section has been left blank

9.10. This section has been left blank

9.11. This section has been left blank

9.12. This section has been left blank

9.13. Release of Retained Percentages:

9.13.1. Prior to any release of retained percentage the Contractor shall file with the County the following:

- a. An affidavit, to the effect that all payments have been made and all claims have been released for all materials, labor, and other items covered by the contract bond;
- b. Written consent of the surety to such payment;
- c. Lien Waivers signed by each supplier furnishing materials to the project releasing all claims to said materials; and
- d. Any other documents which may be required by the contract or the Engineer.

9.13.2. Each Contractor and Subcontractor shall file with the County, upon completion of the project and prior to final payment thereof, an affidavit stating that he has fully complied with the provisions and requirements of the Prevailing Wage Law.

9.13.3. When the work has been completed and certified by the County, a final estimate will be executed and submitted, which will provide payment to the Contractor for the entire sum due him as set forth in these Specifications, including the amount previously retained by the County. All prior partial estimates and payments shall be subject to correction by the County in this final estimate and payment.

SECTION 10 - MATERIAL AND WORKMANSHIP

All materials provided by Contractor shall be new material of high quality which shall give long life and reliable operation. The workmanship shall be of high quality in every detail.

SECTION 11 - STATE WAGE RATE REQUIREMENTS

11.1. The Contractor and all Subcontractors shall maintain books, accounts, ledgers, invoices, drafts, documents, pages and other business records pertaining to the performance of the Contract with such materials available at the Contractor's field or permanent business offices at all reasonable times during the performance of the Contract and for four years from the date of final payment under the contract, for inspection by authorized representatives of the County and the Industrial Commission of Missouri.

11.2. The Contractor and all Subcontractors shall be required to submit to the Engineer one certified copy of labor payrolls and a weekly statement of compliance (Form WH-347) for each week that work is in progress, within seven days of the payment date of the payroll. If work is temporarily suspended, the last payroll shall be marked appropriately to note that it will be the last payroll until work is resumed.

11.3. The Contractor shall be responsible for the submittal of payrolls and certifications for all subcontractors.

11.4. The County will check payrolls, with the following checks being made to insure proper labor compliance:

- a. The employee's full name as shown on his/her social security card, his address and social security number shall be entered on each payroll.
- b. Check the payroll for correct employee classification.
- c. Check the payroll for correct hourly wage and, if applicable, the correct overtime hourly rate.
- d. Check the daily and weekly hours worked in each classification including actual overtime hours worked (Not adjusted hours).
- e. All deductions are shown in the net wage shown. The Form WH-437 is to be used if fringe benefits are paid into established programs. However, if fringe benefits are paid in cash to the employee, the amount shall be indicated on the payroll.
- f. All checking by the County will be made in red pencil and initialed by the checker.
- g. Final payroll will be marked "Final" or "Last Payroll".

h. A record of all payrolls will be maintained by the County.

11.5. The contracts for construction projects require that certain information be displayed in a conspicuous place within the project limits for the duration of the contract. The following is a list of required information to be posted both on the project and in the Owner's office:

a. In the Owner's office:

1. Missouri Equal Employment Opportunity Notice.
2. PR-1022, Title 18, Section 1020, Notice on False Statements.

b. On the Project:

1. State Wage Rates Notice.
2. PR-1022, Title 18, Section 1020, Notice on False Statements.
3. Contractor's and Subcontractor's EEO Policy Statements and name, address and telephone number of designated EEO Officers.
4. Notice to Labor Unions of Contractors commitment to EEO (if applicable).
5. Notice requesting referral of minorities by present employees.

11.6. The Owner's personnel will generally conduct one wage rate interview on each project every two weeks. Labor interviews are not required on railroad and other utility adjustments. The interviewer will determine the employee's name, the employer's name, the classification of the employee, the actual wage paid, and the posted wage.

SECTION 12 - SPECIFICATIONS AND PLANS

The Contractor shall keep at the job-site a copy of the plans and specifications representing "as-built conditions" and shall at all times give the County and the Engineer access thereto. Anything mentioned in the specifications and not shown on the plans, or shown on the plans and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In any case of discrepancy between the plans and the specifications, the matter shall be promptly submitted to the Engineer, who shall promptly make a determination in writing. Any adjustment or interpretation by the Contractor without this determination shall be at the Contractor's own risk or expense. The Engineer shall furnish from time to time such detail plans and other information as may be considered necessary, unless otherwise provided.

SECTION 13 - PROTECTION OF WORK

The Contractor shall take all necessary steps to protect his own workers, the utility personnel, and the public from unnecessary danger or hazard during the prosecution of this work. Danger signs, warning signs, flares, lanterns, railings, barriers, sheeting, shoring, etc., shall be erected to prevent accidents from construction, falling objects, rotating machinery, electric lines and other conditions which might prevent unusual hazard.

SECTION 14 - OVERHEAD LINE PROTECTION

The Contractor shall ascertain the presence and location of utilities within the work area. The Contractor shall notify and coordinate the utility that may be affected by the work.

The Contractor is aware of the provisions of the Overhead Power Line Safety Act, 319.075 to 319.090 RSMo, and agrees to comply with the provisions thereof. Contractor understands that it is their duty to notify any utility operating high voltage overhead lines and make appropriate arrangements with said utility if the performance of contract would cause any activity within ten feet of any high voltage overhead line. To the fullest extent permitted by law, Contractor shall indemnify, hold harmless and defend the County, its directors, officers, agents, and employees from and against all claims, damages, losses and expenses (including but not limited to attorney's fees) arising by reason of any act or failure to act, negligent or otherwise, of Contractor, of any subcontractor (meaning anyone, including but not limited to consultants having a contract with contractor or a subcontract for part of the services), of anyone directly or indirectly employed by contractor or by any subcontractor, or of anyone for whose acts the contractor or its subcontractor may be liable, in connection with any claims arising under the Overhead Power Line Safety Act. Contractor expressly waives any action for Contribution against the County on behalf of the Contractor, any subcontractor (meaning anyone, including but not limited to consultants having a contract with contractor or a subcontract for part of the services), anyone directly or indirectly employed by contractor or by any subcontractor, or of anyone for whose acts the contractor or its subcontractor may be liable, and agrees to provide a copy of this waiver to any party affected by this provision.

SECTION 15 - OSHA Program Requirements

The Contractor is familiar with the requirements of 292.675 RSMo. The Contractor shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees, subcontractors or others acting on behalf of Contractor on-site which meets the requirements of 292.675 RSMo.

The Contractor and each subcontractor shall keep accurate records of those employees who are working on-site and a record of each such employee's completion of the OSHA program, and certify compliance by affidavit at the conclusion of the project.

The Contractor shall forfeit as a penalty to the County the sum of Two Thousand Five Hundred Dollars (\$2,500.00) plus One Hundred Dollars (\$100.00) for each employee employed by the Contractor or subcontractor, for each calendar day, or portion thereof, such employee is found to be employed in violation of 292.675 RSMo. Said amounts shall be withheld from all sums and amounts due under this provision when making payments to the Contractor.

SECTION 16 - REPAIRS AND/OR REPLACEMENT OF DEFECTIVE PORTION

The Contractor shall be responsible for a period of one year from and after the date of final acceptance by the County of the work covered by this Contract, for any repairs or replacements caused by defective materials, workmanship or equipment which, in the judgment of the Engineer, shall become necessary during such period. The Contractor shall undertake with due diligence to make the aforesaid repairs and/or replacements within ten days after receiving written notice that such repairs or replacements are necessary. If the Contractor should neglect to begin such repairs or replacements within this period or in case of emergency, where, in the judgment of the Engineer, delay would cause serious loss or damage, the repairs and/or replacements may be pursued by the County and charged to the Contractor.

SECTION 17 - INTERFERENCE

All work scheduled by the Contractor shall be planned with the consent of the Engineer and shall not in any way interfere with any utility, highway, railroad, or private property unless consent is given by an authorized representatives or the County.

SECTION 18 - METHOD OF PAYMENT

The method of payment shall be as stipulated in the section titled "Contract Conditions" and contained elsewhere in these contract documents.

TECHNICAL SPECIFICATIONS

SECTION 02741

ASPHALT PAVING

PART 1 GENERAL

1.1 SUMMARY

- A. Per Alt Bid 4: provide hot-mixed asphalt pavement patching as required at areas of asphalt removal to slope existing parking lot to drain to E. Walnut.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Construction Tolerances:
 - 1. Base Course Thickness: Within 1/2 inch.
 - 2. Surface Course Thickness: Within 1/4 inch.
 - 3. Base Course Surface Smoothness: Within 1/4 inch.
 - 4. Surface Course Surface Smoothness: Within 3/16 inch. No ponding acceptable.
 - 5. Crowned Surfaces: Within 1/4 inch from template.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Hot-Mixed Asphalt Paving:
 - 1. Application: parking areas
 - 2. Asphalt-Aggregate Mixture: Plant-mixed, hot-laid asphalt-aggregate mixture, ASTM D 3515, complying with local DOT and DPW regulations. (Type C mix)
 - 3. Prime Coat: Cut-back asphalt, ASTM D 2027.
 - 4. Tack Coat: Emulsified asphalt, ASTM D 977.
 - 5. Herbicide Treatment: EPA registered chemical for weed control.
 - 6. Marking Paint: Alkyd-resin type, lead and chromate free, white or yellow.

PART 3

PART 4 EXECUTION

4.1 INSTALLATION

- A. Asphalt/Aggregate Mixture: Comply with local DOT or DPW Standard Specifications for Highways and Bridges. Class as required by loading and use.

- B. Provide 4" lane and striping paint in uniform, straight lines. Protect work from traffic and damage.
- C. Test in-place asphalt work for thickness and smoothness. Remove and replace defective work and patch to eliminate evidence of patching

END OF SECTION

SECTION 05510
METAL STAIRS AND LADDERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Fixed Access Ladder.

1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications: Steel frame and supports.
- B. Section 06114 - Wood Blocking and Curbing: Rough wood framing and blocking for door opening.
- C. Section 07900 - Joint Sealers: Perimeter sealant and backup materials.
- D. Section 09900 - Paints and Coatings: Field painting.

1.3 REFERENCES

- A. ANSI A14.3: Ladders – Fixed – Safety Requirements.
- B. OSHA 1910.27 Fixed Ladders

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened labeled packaging until ready for installation.
- B. Protect materials from exposure to moisture until ready for installation

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Precision Ladders. LLC, which is located at: PO Box 2279; Morristown, TN 37816; Toll Free Tel: 800-225-7814; Tel: 423-586-2265
Email: [request info](mailto:requestinfo); Web: www.precisionladders.com, Nail & Company, Inc, located

at: 424 Harriet St. ; San Francisco, CA ; Phone: 415-865-9700 Web:
www.steelaccessladders.com, O'Keeffe's Inc.; 325 Newhall Street; San Francisco
CA 94124; Toll Free Tel: 888-653-3333; Web: www.okeeffes.com

- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 FIXED ACCESS LADDER

- A. Fixed Access Ladder and Components; Ladder, mounting brackets, handrails on both sides and roof hatch.
 - 1. Model: Fixed Access Ladder.
 - 2. Capacity: Unit shall support a 500 lb total load without failure
 - 3. Ladder stringer: 5 inch by 2 inch by 3/16 inch extruded 6005-T5 aluminum channel.
 - 4. Ladder tread: 5-3/16 inch
 - a. Standard Tread Material: Extruded 6005-T5 aluminum channel with deeply serrated top surface on top tread
 - b. Standard Tread Width: 26 inches
 - 5. Ladder Mounting Brackets:
 - a. Floor Bracket: 2inch by 3 inch by ¼ inch aluminum angle.
 - b. Top Bracket: 4-3/4 inch by 5 inch by ¼ inch aluminum angle.
 - 6. Handrails: 1-1/4 inch schedule 40, 6005-T5 aluminum pipe provided with internal aluminum fittings
 - 7. Finish: Mill finish

2.3 FABRICATION

- A. Completely fabricate ladder ready for installation before shipment to the site
- B. Completely fabricate handrail components ready for field assembly to ladder before shipment to site

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until openings have been properly prepared.
- B. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.
- C. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Anchor assembly to wall construction and building framing without distortion or stress.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, damaged coatings and finishes and repair minor damage before Substantial Completion.

END OF SECTION

SECTION 05520

METAL RAILINGS

PART 1 GENERAL

1.1 SUMMARY

- A. Provide pipe and tube handrails and railing systems.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Handrail and Railing Structural Performance: In accordance with applicable Building Code.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Metal Railings:
 - 1. Application: Interior metal railings.
 - 2. Steel Pipe and Tube Railing Systems:
 - a. Steel Pipe, Black Finish: ASTM A 53.
 - b. Steel Tubing: ASTM A 500 or A 501.
 - c. Steel Plates, Shapes and Bars: ASTM A 36.
 - 3. Auxiliary Materials:
 - a. Nonshrink Nonmetallic Grout: CE CRD-C621.
 - b. Interior Anchoring Cement: Hydraulic expansion cement.
 - c. Exterior/Interior Anchoring Cement: Erosion-resistant hydraulic expansion cement.
 - d. Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79, compatible with topcoats.
 - e. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible topcoat.
 - f. Galvanizing Repair Paint: SSPC-Paint 20.
 - g. Bituminous Paint: Asphalt mastic, SSPC-Paint12.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Take field measurements prior to fabrication, where possible. Form to required shapes and sizes with true, straight edges, lines and angles. Provide light-tight, hairline joints. Fill, grind smooth and prepare all surfaces prior to the application of primers.
- B. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Coordinate with work of other sections.
- C. Coordinate with work of other sections; provide inserts and templates as needed. Install work plumb and level with uniform appearance.
- D. Restore damaged finishes and protect work.

END OF SECTION

SECTION 06100

ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Provide rough carpentry.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Lumber Standards and Grade Stamps: DOC PS 20, American Softwood Lumber Standard and inspection agency grade stamps.
- C. Construction Panel Standards: DOC PS 1, U.S. Product Standard for Construction and Industrial Plywood; APA PRP-108.
- D. Wood Framing Standards: NFPA House Framing Manual.
 - 1. Exterior Wall Framing: 2 inch by 6-inch nominal (38 mm by 140 mm actual) studs, 16 inches (61 cm) on center.
 - 2. Interior Wall Framing: 2 inch by 6-inch nominal (38 mm by 140 mm actual) studs, 16 inches (40 cm) on center.
 - 3. Interior Wall Framing: 2 inch by 4-inch (38 mm by 89 mm actual) studs, 16 inches (40 cm) on center.
- E. Preservative Treatment: AWWPA C2 for lumber and AWWPA C9 for plywood; waterborne pressure treatment. Provide for wood in contact with soil, concrete, masonry, roofing, flashing, dampproofing and waterproofing..

PART 2 PRODUCTS

2.1 MATERIALS

- A. Rough Carpentry Applications:
 - 1. Application: Dimension Lumber:
 - a. Light Framing: Stud, No. 3 or Standard grade
 - b. Structural Framing: No. 1 grade or as indicated on Structural Drawings.
 - c. Species: any species of grade indicated meeting Fb and Modulus of Elasticity requirements on the Structural Drawings.
 - 2. Application: Wood grounds, nailers, and blocking, SPF utility grade.
 - 3. Plywood Sheathing: APA Rated 15/32 inch thickness minimum, square edge, exterior grade.
 - 4. Roof Sheathing: APA Rated 3/4 inch thickness minimum, square edge, exterior grade.
 - 5. Sill Sealer Gaskets:
 - a. Material: Glass fiber strip resilient insulation.

6. Framing Anchors and Fasteners:
 - a. Material: Non-corrosive, suitable for load and exposure. Drywall screws are not acceptable.
 - b. Roof sheathing clips: Simpson H clips or equal.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.
- B. Plywood: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial"
- C. Provide nailers, blocking and grounds where required. Set work plumb, level and accurately cut.
- D. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Coordinate with other work.
- E. Comply with manufacturer's requirements for cutting, handling, fastening and working treated materials.
- F. Restore damaged components. Protect work from damage.

END OF SECTION

SECTION 06175

SHOP-FABRICATED WOOD TRUSSES

PART 1 GENERAL

1.1 SUMMARY

- A. Provide prefabricated and pre-engineered wood trusses.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
 - 1. Shop drawings shall be prepared and stamped by a qualified engineer licensed in the jurisdiction of the project.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Standards: TPI 1, "National Design Standard for Metal Plate Connected Wood Truss Construction." and fabricate wood trusses within manufacturing tolerances in TPI 1
- C. Design Engineering: Engineer registered in the State of Missouri.
- D. Fire-Retardant Treatment: AWPA C20 for lumber; noncorrosive type.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Wood Trusses:
 - 1. Lumber Standard: PS 20 American Softwood Lumber Standard.
 - 2. Dressing: Dressed four sides.
 - 3. Species: Manufacturer's option.
 - 4. Connectors, Fasteners, and Metal Framing Anchors:
 - a. Nails, Wires, Brads and Staples: FS FF-N-105
 - b. Power Driven Fasteners: CABO NER-272
 - c. Wood Screws: ASME B18.2.6.1
 - d. Lag Bolts: ASME B18.2.1
 - e. Bolts: ASTM A307, Grade A; ASTM A563 for hex nuts and, where indicated, flat washers.
 - f. Metal Framing Anchors: Hot-dip galvanized sheet steel, ASTM A 653, G60
 - g. Truss Tie-Downs: Bent strap tie for fastening roof trusses to wall studs below; Galvanized Steel Sheet, ASTM A 666, Type 304.
 - h. Connectors: Hot-dip galvanized steel sheet, ASTM A 653, G60

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install and brace trusses according to TPI recommendations and within installation tolerances in TPI 1.
- B. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Coordinate with work of other sections.
- C. Install trusses plumb, square, and true to line and securely fasten to supporting construction.
- D. Restore damaged components. Clean and protect work from damage.
- E. Do not field modify trusses without specific authorization from truss manufacturer.

END OF SECTION

SECTION 06200

INTERIOR FINISH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Provide interior finish carpentry.

1.2 SUBMITTALS

- A. **Product Data:** Submit manufacturer's product data and installation instructions for each material and product used. Provide maintenance data and care instructions.
- B. **Shop Drawings:** Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction including field verified dimensions and conditions associated with fabrication and installation.
- C. **Samples:** Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. **Standards:** Architectural Woodwork Institute (AWI) 'Architectural Woodwork Quality Standards.'
- C. **Standards:** Woodwork Institute of California (WIC) 'Manual of Millwork.'
- D. **Preservative Treatment:** Nonpressure method, exterior type, AWPA N1
- E. **Wood Products:** Comply with the following:
 - 1. **Hardboard:** AHA A135.4.
 - 2. **Medium-Density Fiberboard:** ANSI A208.2, Grade MD-Exterior Glue.
 - 3. **Particleboard:** ANSI A208.1, Grade M-2-Exterior Glue.
 - 4. **Softwood Plywood:** DOC PS 1, Medium Density Overlay.
 - 5. **Hardwood Plywood and Face Veneers:** HPVA HP-1.
- F. **Mock-Ups:** Provide mock-up as required to demonstrate quality of workmanship of each type of finish carpentry.

PART 2 PRODUCTS

2.1 MATERIALS

- A. **Interior Plastic Laminate Clad Casework:**
 - 1. **Manufacturers:** WilsonArt, Formica, or Nevamar/Pionite. (standard color range)
 - 2. **Laminate:** High pressure decorative laminate, NEMA LD-3.
 - 3. **Grade:** Custom.
 - 4. **Core:** Particleboard.

5. Edge: Laminate or PVC T-mold.
 6. Face Style: Frameless, European style.
 7. Face Style: Flush.
 8. Hardware: Fully adjustable, concealed.
- B. Interior Plastic Laminate Clad Countertops:
1. Manufacturers: must be able to provide any laminate surface offered by WilsonArt, Formica, or Nevamar/Pionite.
 2. Laminate: High pressure decorative laminate, NEMA LD-3.
 3. Grade: Postformed.
 4. Core: Particleboard. (moisture resistant core)
 5. Edge: Radius Laminate.
 6. Supports: Manufactured bracket supports similar to A&M Hardware AH2429 Color as selected by architect.
- C. Interior Shelving and Closet Specialties:
1. Shelving: particle board with eased edge and melamine finish similar to Roseburg Forest Products or equal.
 2. Shelving hardware: adjustable, similar to Knape and Vogt 80 Series track and 12" - 180 series brackets, color white.
- G. Interior Trims:
1. Casing paint finish: MDO or Poplar 3" x 5/8" with ogee edge.
 2. Base paint finish: MDO or Poplar 6" x 5/8" with eased edge.
 3. Caps, skirt boards, misc: MDO or Poplar with eased exposed edges, sized as shown.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Provide work to sizes, shapes, and profiles indicated. Install work to comply with quality standards referenced. Back prime work and install plumb, level and straight with tight joints; scribe work to fit.
- B. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified for type of woodwork involved.
- C. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Use non-corrosive fasteners for exterior work. Coordinate with work of other sections.
- D. Comply with manufacturer's requirements for cutting, handling, fastening and working treated materials.
- E. Provide product in the largest pieces available.
- F. Reinforce field joints with solid surface strips extending 1 inch on either side of the seam with the strip being the same thickness as the top material.
- G. Repair minor damage, clean and protect.

END OF SECTION

SECTION 07210

BUILDING INSULATION

PART 1 GENERAL

1.1 SUMMARY

- A. Provide thermal insulation and vapor retarders.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Submit for approval test reports.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Blanket/Batt Insulation:
 - 1. Application: Thermal and sound insulation in studs in exterior and interior walls, preformed glass fiber batt.
 - 2. Application: Thermal insulation at roof.
 - 3. Accessories: Fasteners and tapes
- D. Board Insulation:
 - 1. Application: Thermal insulation at roofs. Tapered extruded polystyrene conforming with ASTM C 578.
 - 2. Warranty: Confirm that tapered insulation board conforms with the warranty requirements of the membrane roofing manufacturer for a complete system.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Coordinate with work of other sections. Provide full thickness in one layer over entire area, tightly fitting around penetrations.
- B. Protect installed insulation and vapor retarder.
- C. Install tapered rigid insulation to create crickets and direct roof water to scuppers and roof overflows. Typical slope ¼" per foot.
- D. Install vapor retarder over entire inside face of exterior walls, roof and elsewhere as indicated. Conceal all secondary structural members with vapor barrier. Seal all

seams and around perimeter and penetrations with approved tapes to form a continuous vapor barrier retarder free of holes. Stretch vapor barrier taught to limit wrinkles at the exposed face. Limit seams to the minimum possible locations.

END OF SECTION

SECTION 07530

ELASTOMERIC MEMBRANE ROOFING

PART 1 GENERAL

1.1 SUMMARY

- A. Provide elastomeric membrane roofing.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
- C. Warranty: Submit manufacturers standard warranty. Include labor and materials to repair or replace defective materials.
 - 1. Warranty Period: 10 years from roof membrane manufacturer.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Listing: UL Class A external fire exposure:
- C. Listing: FM Class I construction.

PART 2 PRODUCTS

2.1 MATERIALS

- A. EPDM Membrane Roofing:
 - 1. Type: Fully adhered.
 - 2. Membrane: EPDM, 60 mils, non-reinforced.
 - a. Standard: ASTM D 4637, Type I.
 - 3. Walkways: Walkway board. Provide three foot walkway beyond the perimeter of all roof top mounted equipment.
 - 4. Vapor Retarder: Polyethylene.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Inspect substrate and report unsatisfactory conditions in writing. Beginning work means acceptance of substrate.
- B. Comply with roof system manufacturer's instructions and recommendations; clean, prime and prepare substrate.
- C. Begin roof installation only in presence of manufacturer's representative. Minimize

seams and shingle overlaps to shed water. Terminate membrane below flashings with approved termination bars and trims.

- D. Install membrane roofing over tapered insulation system to provide positive drainage to roof edge or scuppers.
- E. Install walkway protection or pavers over an additional layer of membrane at locations indicated and where required to provide access to roof mounted equipment.
- F. Restore or replace damaged components. Protect work from damage.
- G. Provide all roofing membrane components from a single approved manufacturer for a complete and warranted installation.

END OF SECTION

SECTION 07600

FLASHING AND SHEET METAL

PART 1 GENERAL

1.1 SUMMARY

- A. Provide flashing and sheet metal.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Flashing and Sheet Metal:
 - 1. Application: Metal counterflashing and base flashing.
 - 2. Application: Coping at low pitch roof. Prefinished aluminum, Hickman Permasnap Coping. Color TBD by Architect from standard color submittals. Install per manufacturer recommendations.
 - 3. Application: Built-in overflow scupper and conductor head. Prefinished aluminum, 26 gauge with lapped joints, smooth finish.
 - 4. Application: downspout, prefinished aluminum, roll-formed, 29 gauge, smooth finish
 - 5. Application: Prefinished hidden vented metal soffit panels, prefinished .032" aluminum – Berridge Vee-Panel, Royal Buidling Products T3 or approved equal. Color to match existing soffit color.
 - 6. Application: Exposed metal trim and fascia units, 26 gauge, smooth finish.
 - 7. Flexible Sheet Membrane Flashing: Nonreinforced flexible black elastic sheet, 50 to 65 mils thick, synthetic rubber.
 - 8. Laminated Composition Sheet Flashing: 5 ounce copper sheet laminated between 2 layers of bituminous impregnated Kraft paper or saturated fabric.
 - 9. Elastic Expansion Joints: Factory-fabricated metal-flanged edges to fit curbs and curb substrate.
- B. Auxiliary Materials:
 - 1. Solder compatible with metal.
 - 2. Bituminous isolation coating.
 - 3. Mastic and elastomeric sealants.
 - 4. Epoxy seam sealer.
 - 5. Rosin-sized building paper slip sheet.

6. Polyethylene underlayment.
7. Reglets and metal accessories.
8. conductor head guards.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Follow recommendations of SMACNA Sheet Metal Manual. Allow for expansion. Isolate dissimilar materials.
- B. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections, verify that all work conforms with system warranty requirements.
- C. Restore damaged components and finishes. Clean and protect work from damage.

END OF SECTION

SECTION 07710

MANUFACTURED ROOF SPECIALTIES

PART 1 GENERAL

1.1 SUMMARY

- A. Provide manufactured roof specialties.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Vent Stack Flashing:
 - 1. Material: Aluminum.
- B. Roof Drain Bell:
 - 1. Material: Cast Iron

PART 3 EXECUTION

3.1 INSTALLATION

- A. Comply with accessory manufacturers' instructions and recommendations. Coordinate installation with roofing system to ensure weathertight performance. Anchor securely to structure to withstand inward and outward loads.
- B. Isolate dissimilar metals to prevent galvanic corrosion.

END OF SECTION

SECTION 07900

JOINT SEALERS

PART 1 GENERAL

1.1 SUMMARY

- A. Provide joint sealers and fillers.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
 - 1. Include manufacturers full range of color and finish options if additional selection is required.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Field-Constructed Mock-Ups: Each joint type.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Exterior Joints in Vertical Surfaces:
 - 1. Materials: One component urethane sealant, similar to Tremco Dymonic.
- B. Exterior Joints in Horizontal Surfaces:
 - 1. Materials: One component, self-leveling pourable urethane sealant, similar to Tremco Vulkem 45 SSL.
- C. Interior Joints, Limited Movement:
 - 1. Materials: One component, Acrylic-emulsion, similar to Tremco Mono 555.
- D. Interior Joints sanitary:
 - 1. Materials: One component mildew-resistant silicone sealant, Tremsil 200.
- F. Accessories:
 - 1. Primers, bond breakers, backing rods and fillers as recommended by the manufacturer for each product and application.

EXECUTION

2.2 INSTALLATION

- A. Examine substrate; report unsatisfactory conditions in writing. Beginning work means acceptance of substrates.
- B. Provide sealants in colors as selected from manufacturer's standards from submitted samples.
- C. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections. Clean and prime joints, and install bond breakers, backer rods and sealant as recommended by manufacturers.
- D. Depth shall equal width up to 1/2 inch wide; depth shall equal 1/2 width for joints over 1/2 inch wide.
- E. Cure and protect sealants as directed by manufacturers. Replace or restore damaged sealants. Clean adjacent surfaces to remove spillage.

END OF SECTION

SECTION 08110

STEEL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

- A. Provide steel doors and frames.
- B. Coordinate door and frame prep with the installation of security components. Identified doors and frames to be equipped with solenoid latches from the manufacturer. See associated hardware requirements.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Standards: ANSI/SDI-100, Recommended Specifications for Standard Steel Doors and Frames.
- C. Performance Standards:
 - 1. Fire-Rated Assemblies: NFPA 80, and acceptable testing agency listing.
 - 2. Thermal-Rated Assemblies at Exterior: ASTM C 236 or ASTM C 976.
 - 3. Sound-Rated Assemblies at Mechanical Rooms: ASTM E 1408, and ASTM E 413.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Interior Steel Doors:
 - 1. Material: Minimum 18 gauge steel sheet.
 - 2. Thickness: 1-3/4 inches.
 - 3. Finish: Factory finished.
 - 4. Accessories:
 - a. Silencers.
 - b. Prewired or prepared with raceway for field wiring
- B. Interior Steel Frames:
 - 1. Material: Minimum 18 gauge steel sheet.
 - 2. Corners: Mitered or coped.
 - 3. Type: Knockdown.
 - 4. Finish: Factory primed and field painted.
- C. Exterior Steel Doors:

1. Material: Minimum 16 gauge galvanized steel sheet.
 2. Door Thickness: 1-3/4 inches, thermally insulated.
 3. Finish: Factory primed and field painted.
 4. Accessories:
 - a. Silencers
- D. Exterior Steel Frames:
1. Material: Minimum 14 gauge galvanized steel sheet.
 2. Corners: Mitered or coped.
 3. Type: Welded.
 4. Finish: Factory primed and field painted.
 5. Accessories:
 - a. Silencers.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Fabricate work to be rigid, neat and free from seams, defects, dents, warp, buckle, and exposed fasteners. Install doors and frames in compliance with SDI-100, NFPA 80, and requirements of authorities having jurisdiction.
- B. Provide thermally improved doors with maximum U-value of 0.24 BTU/hr./sq. ft. degree F (ASTM C 236) for all exterior doors and elsewhere as noted.
- C. Provide acoustically improved doors with minimum STC of 33 (ASTM E 90 and ASTM E 413) where indicated.
- D. Hardware: Prepare doors and frames to receive hardware on final schedule. Provide for 3 silencers on single doorframes; 2 on double doorframes.
- E. Shop Finish: Clean, treat and prime paint all work with rust-inhibiting primer comparable with finish paint specified in Division 9 section. Provide asphalt emulsion sound deadening coating on concealed frame interiors.
- F. Touch-up damaged coatings ready to receive finish painting.

END OF SECTION

SECTION 08210

WOOD DOORS

PART 1 GENERAL

1.1 SUMMARY

- A. Provide wood doors.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
- C. Warranty: Submit manufacturers standard warranty. Include labor and materials to repair or replace defective materials.
 - 1. Solid-Core Interior Doors: Life of installation.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Quality Standards: AWI's 'Architectural Woodwork Quality Standards Illustrated.'
- C. Quality Standards: NWWDA I.S.1-A, 'Architectural Wood Flush Doors.'
- D. Fire Rated Wood Doors: Meet NFPA 80 requirements.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Interior Flush Wood Doors:
 - 1. Type: Solid core - particle.
 - 2. Thickness: 1-3/4 inches thick.
 - 3. Grade: Custom.
 - 4. Frames: Metal.
 - 5. Face: Birch veneer (Grade A).
 - 6. Finish: Transparent / Stain
 - 7. Finish Application: Site or Factory finished.
 - 8. Auxiliary Materials:
 - a. Louvered panels.
 - b. Glazed panels

PART 3 EXECUTION

3.1 INSTALLATION

- A. Comply with NWMA I.S. 1A and specified quality standard.

- B. Prefit doors to frames. Premachine doors for hardware listed on final schedules. Factory bevel doors.
- C. Install doors with not more than 1/8 inch clearance at top and sides, 1/4 inch at bottom. Comply with NFPA 80 for rated assemblies.
- D. Adjust, clean, and protect.

END OF SECTION

SECTION 08415

ENTRANCES AND STOREFRONTS

PART 1 GENERAL

1.1 SUMMARY

- A. Provide aluminum entrances and storefront.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
- C. Warranty: Submit manufacturer's standard warranty. Include labor and materials to repair or replace defective materials.
 - 1. Warranty Period: 5 years.
- D. Operation and Maintenance Data: Submit manufacturer's operation and maintenance data, including operating instructions, list of spare parts and maintenance schedule.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Aluminum Entrances and Storefront:
 - 1. Aluminum Members: ASTM B 209, ASTM B 221, ASTM B 429.
 - 2. Door Style: medium style and rail doors.
 - 3. Glass and Glazing: Insulating glazing, tempered or safety at designated locations.
 - 4. Glazing Color: Medium Bronze tint
 - 5. Door Hanging Devices: Ball bearing butts.
 - 6. Closers: Surface mounted.
 - 7. Storefront Style: Aluminum thermally broken frame.
 - 8. Aluminum Finish: Dark Bronze anodized.
 - 9. Auxiliary Materials:
 - a. Push/pulls, doorstops, overhead holders, and deadlocks.
 - b. Weatherstripping and thresholds.
 - c. Electric-strike release.
 - d. Electric prewire or electrical raceway for field wiring of electronic hardware.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Take field measurements before fabrication where possible; do not delay job progress.
- B. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- C. Anchor securely in place; install plumb, level and in true alignment. Isolate dissimilar materials to prevent corrosion.
- D. Coordinate with glass and glazing work; install hardware and adjust for smooth, proper operation.
- E. Adjust closers and hardware for accessibility compliance.
- F. Clean and protect completed system; repair damage.

END OF SECTION

SECTION 08710
DOOR HARDWARE

PART 1 GENERAL

1.1 SUMMARY

- A. Provide door hardware.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
- C. Submit for approval hardware schedule proposed for use based on Owner's requirements.
- D. Coordinate electronic strike requirements with Owner's security contractor.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Hardware for Fire-Rated Openings: NFPA 80, and local requirements.
- C. Materials and Application: ANSI A156 series standards.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Door Hardware:
 - 1. Manufacturers: Schlage AL Series with Neptune Style Lever or approved equal.
 - 2. Quality Level: Medium Duty Commercial.
 - 3. Locksets and Latchsets: Cylinder type.
 - 4. Flush Bolts: Concealed, top and bottom of doors with dust cups, Hager 282D or equal.
 - 5. Keying: Best M-keyway with master and grandmaster keying.
 - 6. Hinges and Butts: Full-mortise type at interior, with nonremovable pins at exterior doors. Ball bearing hinges at all doors with closers. Electrified hinges at doors with electric strikes.
 - 7. Closers, Door Control, and Exit Devices: High frequency.
 - 8. Pivots: Offset or center-hung type.
 - 9. Hardware Finishes: Satin stainless finish on exposed surfaces.
 - 10. Electronic Strikes: Von Duprin 5100 or equal. Power supply to be from provided and installed by Owner's security contractor.

11. **Auxiliary Materials:**
 - a. Door Trim Units: Kickplates, edge trim and related trim.
 - b. Wall or floor stops as required by application.
 - c. Hold-open devices
 - d. Soundstripping and weatherstripping, Pemko 290DS or equal
 - e. Thresholds: offset saddles as required for site conditions and accessibility at exterior doors.
 - f. Door bottoms (weatherstripping): similar to Pemko 234DPK
12. Knox box for fire emergency keys.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Follow guidelines of DHI 'Recommended Locations for Builder's Hardware and hardware manufacturers' instructions.
- B. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- C. All card readers and associated control and 24 volt power wiring to be provided and installed by Owners security contractor.
- D. Key all interior locks and exterior locks to the Owners requirements at project substantial completion.
- E. Adjust operation, clean and protect.

END OF SECTION

SECTION 08800

GLAZING

PART 1 GENERAL

1.1 SUMMARY

- A. Provide glass and glazing.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
- C. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
- D. Warranty: Submit manufacturer's standard warranty. Include labor and materials to repair or replace defective materials.
 - 1. Coated Glass: Manufacturer's 10-year warranty.
 - 2. Insulating Glass: Manufacturer's 10-year warranty.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201 and, for wired glass, ANSI Z97.1.
- C. Glazing Publications:
 - 1. GANA Publications: GANA's 'Glazing Manual.' and 'Laminated Glass Design Guide.'
 - 2. AAMA Publications: AAMA GDSG-1, 'Glass Design for Sloped Glazing,' and AAMA TIR-A7, 'Sloped Glazing Guidelines.'
 - 3. IGMA Publication for Sloped Glazing: IGMA TB-3001, 'Sloped Glazing Guidelines.'
 - 4. IGMA Publication for Insulating Glass: SIGMA TM-3000, 'Glazing Guidelines for Sealed Insulating Glass Units.'

PART 2 PRODUCTS

2.1 MATERIALS

- A. Glass and Glazing:
 - 1. Interior Type: Insulating clear glass units, tempered at locations as required by Code.
 - 2. Exterior Type: High-performance insulating medium bronze tint glass units with low-e coating, tempered at locations as required by code.
 - 3. Interior Type: clear, tempered at locations required by code.

4. Auxiliary Materials:
 - a. Compression gaskets.
 - b. Elastomeric glazing sealants.
 - c. Preformed glazing tapes.
 - d. Glazing gaskets.
 - e. Setting blocks, spacers, and compressible filler rods.
 - f. Sealants.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Inspect framing and report unsatisfactory conditions in writing.
- B. Comply with GANA "Glazing Manual" and manufacturer's instructions and recommendations. Use manufacturer's recommended spacers, blocks, primers, sealers, gaskets and accessories.
- C. Install glass with uniformity of pattern, draw, bow and roller marks.
- D. Install sealants to provide complete wetting and bond and to create a substantial wash away from glass.
- E. Remove and replace damaged glass and glazing. Wash, polish and protect all glass supplied under this section.

END OF SECTION

SECTION 09260

GYP SUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

- A. Provide gypsum board assemblies.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Tolerances: Not more than 1/16-inch difference in true plane at joints between adjacent boards before finishing. After finishing, joints shall be not be visible. Not more than 1/8 inch in 10 feet deviation from true plane, plumb, level and proper relation to adjacent surfaces in finished work.
- C. Fire Resistance for Fire-Rated Assemblies: ASTM E 119.
- D. Mock-Ups: Provide mock-up as required to demonstrate quality of workmanship and level of finish.
- E. Performance: Fire, structural, and seismic performance meeting requirements of building code and local authorities.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Gypsum Board:
 - 1. Application: Interior walls, partitions, and ceilings with tape and joint compound finish.
 - 2. Application: Cementitious backer units for application of tile.
 - 3. Material Standard: ASTM C1396.
 - 4. Type: Board for tape and joint compound finish.
 - a. Type: Regular, moisture-resistant and fire-rated types as required.
 - b. Typical Thickness: 5/8 inch.
 - 5. Type: Water-resistant gypsum backing board.
 - a. Type: Regular and fire-rated types as required:
 - b. Typical Thickness: 5/8 inch.
 - 6. Joint Treatment: ASTM C474 and ASTM C840, 3-coat system, paper or fiberglass tape.
 - 7. Auxiliary Materials:
 - a. Cornerbead, j trims, edge trim and control joints.
 - b. Gypsum board screws, ASTM C 1002.
 - c. Fastening adhesive.
 - d. Concealed acoustical sealant.

- e. Mineral fiber sound attenuation blankets.
- f. Glass fiber thermal insulation.

PART 3 EXECUTION

3.1 INSTALLATION

- A. **Wood Framing:** Install wood framing in compliance with Section 06100 – Rough Carpentry. Install with tolerances necessary to produce substrate for gypsum board assemblies with tolerances specified. Include blocking for items such as railings, grab bars, casework, toilet accessories, window treatment and similar items.
- B. **Tape and Joint Compound:** Install gypsum board for tape and 3-coat joint compound finish in compliance with ASTM C 840 and GA 216, Level 4 finish. Install gypsum board assemblies; true, plumb, level and in proper relation to adjacent surfaces.
- C. Provide continuous vapor retarder at exterior walls.
- D. Provide fire-rated systems where indicated and where required by authorities having jurisdiction.
- E. Install boards vertically. Do not allow butt-to-butt joints and joints that do not fall over framing members.
- F. Provide insulation full height and thickness in partitions at conference rooms, toilet rooms, offices, between different occupancies, and where required.
- G. Locate expansion joints where continuous wall section exceeds 25 feet in length. Locate expansion joints at door frame and window frame corners or as directed by the architect.
- H. Provide acoustical sealant at both faces at top and bottom plates, wall perimeters, openings, expansion and control joints.
- I. Install trim in strict compliance with manufacturer's instructions and recommendations.
- J. Repair surface defects. Inspect and repair surface defects after the application of primer. Leave ready for finish painting or wall treatment.

END OF SECTION

SECTION 09300

CERAMIC TILE

PART 1 GENERAL

1.1 SUMMARY

- A. Provide ceramic tile.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
 - 1. Include manufacturer's full range of color and finish options if additional selection is required.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Tile: ANSI A 137.1.
- C. Tile Setting Materials: ANSI A 118 series standard specifications.
- D. Tile Installation: ANSI 108 series standard specifications and Tile Council of America, Handbook for Ceramic Tile Installation.
- E. Mock-Ups: Provide mock-up as required to demonstrate quality of workmanship.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Tile: Crossville, Now, Sand. Size: 12 x 12
 - 1. Application: Interior floor tile over concrete slab, interior wall tile.
 - 2. Type: Porcelain stone tile.
- B. Tile: Crossville, Now, Sand, Bullnose. Size: 3 x 12
 - 1. Application: Interior tile base.
 - 2. Type: Porcelain stone tile.
- C. Accessories:
 - 1. Schluter edge termination trim: Schiene, satin anodized aluminum finish, height as required by the application.
 - 2. Crack isolation membrane over light weight concrete slab
 - 3. Mortar: Mapei Ultracontact RS or equal
 - 4. Grout: Mapei Keracolor S or equal.
 - 5. Mastic: Mapei Type 1 (wall and base tile)

PART 3 EXECUTION

3.1 INSTALLATION

- A. Comply with Tile Council of America and ANSI Standard Specifications for Installation for substrate and installation required. Comply with manufacturer's instructions and recommendations.
- B. Install crack isolation membrane in accordance with manufacturer's instructions and recommendations.
- C. Lay tile in grid pattern with alignment grids. Layout tile to provide uniform joint widths and to minimize cutting; do not use less than 1/2 tile units.
- D. Provide sealant joints where recommended by TCA and approved by Architect.
- E. Tile Contractor to confirm characteristics of substrate for conformance with tile manufacturer's warranty requirements for installation. Finish material installation shall confirm acceptance of substrate for warranty requirements.
- F. Tile Contractor to prep slab as required by manufacturers warranty requirements.
- G. Grout and cure, clean and protect.

END OF SECTION

SECTION 09510
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.1 SUMMARY

- A. Provide acoustical ceilings and suspension systems.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
- C. Extra Stock: Submit extra stock equal to 2 percent of amount installed.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Performance: Fire, structural, and seismic performance meeting requirements of building code and local authorities. Acoustical performance based on project requirements.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Mineral Fiber Acoustical Ceilings:
 - 1. Manufacturers: Armstrong Pattern: Dune
 - 2. Panel Size: 24 by 24 inches x 5/8 inch minimum
 - 3. Panel Edge: Square Lay-in, 1772
 - 4. Grid: 15/16 inch prefinished steel, white
 - 5. Suspension System: Intermediate duty.
 - 6. Auxiliary Materials:
 - a. Edge molding and trim.
 - b. Hold-down clips and impact clips.
 - c. Concealed acoustical sealant.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install materials and suspension systems in accordance with manufacturer's instructions and recommendations, and ASTM C 636. Coordinate installation with location of mechanical and electrical work to ensure proper locations and anchorage.
- B. Level ceiling to within 1/8 inch in 10 feet in both directions. Scribe and cut panels to

fit accurately. Measure and layout to avoid less than half panel units.

- C. Install hold down clips at all locations within 6 feet of any building entry door and at foyers, vestibules and at all residence room entries.
- D. Adjust, clean, and touch-up all system components.

END OF SECTION

SECTION 09653

RESILIENT BASE AND ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

- A. Provide resilient wall base and accessories.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used. Submit color charts for selection.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
- C. Submit extra stock equal to 2% of total used.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Performance: Fire performance meeting requirements of building code and local authorities.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Resilient Wall Base:
 - 1. Manufacturer: Johnsonite, 282 Vaporize
 - 2. Type: rubber
 - 3. Style: Cove.
 - 4. Height: 4 1/2 inches.
 - 5. Corners: utilize manufactured outside corners and miter cut inside corners.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Comply with manufacturer's instructions and recommendations. Install in proper relation to adjacent work.
- B. Install base and accessories to minimize joints. Install base with joints as far from corners as practical.
- C. Clean, polish, and protect.

END OF SECTION

SECTION 09684

TILE CARPETING

PART 1 GENERAL

1.1 SUMMARY

- A. Provide carpet tile and floor preparation.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
- C. Extra Stock: Submit extra stock equal to 2% of total used.
- D. Layout: Provide carpet tile layout representing pattern, repeat and tile layout.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Performance: Fire performance meeting requirements of building code and local authorities.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Carpet Tile:
 - 1. Manufacturers: Shaw Lees, Step in Style, 518 Blarney Stone
 - 2. Pattern: Ashlar
 - 3. Size: 24" x 24", Face Weight: 32 oz. Material: 100% nylon Backing: EcoFlex
 - 4. Installation Method: glue down
 - 5. Auxiliary Materials:
 - a. Edge guards.
 - b. Full spread adhesives CRI-104, cements and fasteners.
 - c. Leveling compound.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Comply with recommendations of Carpet and Rug Institute "Specifier's Handbook".
- B. Prepare surfaces and install materials in accordance with manufacturer's instructions and approved submittals. Clean, patch, and level substrate. Install materials in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- C. Install edge guards and reducer strips as required; clean and protect.
- D. Perform field testing to verify moisture content of existing slab conforms with manufacturer's warranty requirements.

END OF SECTION

SECTION 09910

PAINTS

PART 1 GENERAL

1.1 SUMMARY

- A. Provide painting and surface preparation.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
 - 1. Include manufacturer's full range of color and finish options if additional selection is required.
- C. Extra Stock: Submit 1 unopened gallon of each paint and color or finish used in the project.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Regulations: Compliance with VOC and environmental regulations. All paint shall be low or no VOC certified.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Painting:
 - 1. Manufacturers: Benjamin-Moore, Sherwin-Williams or approved equal.
 - 2. Application: Interior and exterior unfinished surfaces.
 - 3. Primary Coating Type: Latex based paints.
 - 4. Primary Paint Systems: Primer plus two finish coats. Primer coat may be spray applied. Finish coats to be roller applied.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Inspect surfaces, report unsatisfactory conditions in writing; beginning work means acceptance of substrate.
- B. Comply with manufacturer's instructions and recommendations for preparation, priming and coating work. Coordinate with work of other sections.

- C. Match approved mock-ups for color, texture, and pattern. Re-coat or remove and replace work which does not match or shows loss of adhesion. Clean up, touch up and protect work.

3.2 PAINT SCHEDULE

- A. Gypsum Drywall Walls:
 - 1. Gloss:
 - a. Eggshell
 - 2. Color:
 - a. Primary:
 - 1) Benjamin Moore, Sand Dunes, 1072
 - b. Accent:
 - 1) Benjamin Moore, Baby Fawn, OC-15
 - 2) Benjamin Moore, Bennington Gray, HC-82
 - 3. System:
 - a. 1 coat latex primer
 - b. 2 coats latex finish
- B. Gypsum Drywall Walls and Ceilings in Bathrooms, Kitchens and Wet Areas:
 - 1. Gloss:
 - a. Semi-gloss
 - 2. Texture:
 - a. Smooth
 - 3. System:
 - a. 1 coat latex primer
 - b. 2 coats latex finish
- C. Gypsum Drywall Ceilings:
 - 1. Gloss:
 - a. Flat Latex, White
 - 2. System:
 - a. 1 coat latex primer
 - b. 2 coats latex finish
- D. Ferrous Metals:
 - 1. Gloss:
 - a. Semi
 - 2. System:
 - a. 1 coat alkyd primer (bare metal)
 - b. 2 coats latex finish
- E. Metal for Paint Finish:
 - 1. Gloss:
 - a. Semi-gloss
 - 2. System:
 - a. 1 coat latex primer
 - b. 2 coats latex finish

END OF SECTION

SECTION 10150
TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. Provide toilet partitions and screens.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
- C. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Toilet Compartments:
 - 1. Compartments: Floor-anchored, overhead braced.
 - 2. Style: Standard privacy style with accessible hardware.
 - 3. Material: Metal with baked enamel finish.
 - a. ASTM A 591, electrolytically zinc-coated or ASTM A 653 hot-dip galvanized or galvanized, with powder coated or baked enamel finish.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- B. Limit openings between panels, doors and pilasters to less than 1/2".
- C. Adjust hardware, clean, and protect work.

END OF SECTION

SECTION 10660

Demountable Partitions – Relocatable Partitions

PART 1 – GENERAL

1.01 WORK INCLUDED

- a) Furnish and install relocatable partitions described in this specification and as shown on project drawings.
- b) Partition components include but are not limited to:
 1. Non-destructive wall framing structure
 2. Removable solid and glass fascia as indicated on drawings and specified in Part 2 – Products, 2.03 components
 3. Power and communications distribution channels as well as electrical boxes, attachment brackets, outlet cover plates, switches, in-feed and jumpers where indicated on drawings

1.03 QUALITY ASSURANCE

- a) Partition manufacturer to ensure quality system development and maintenance is based on ISO 9001 specification, and products are manufactured in facilities certified under ISO 14001

1.04 REFERENCES

ASTM B 221 – [1983]

Aluminum-Alloy Extruded Bars, Rods and Wires, Shapes and Tubes.

Aluminum Association Designation System for Aluminum finishes – [1980]

ASTM A446M – [1991]

Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical Quality)

ASTM A525M – [1991b]

Specification for General Requirements for Steel Sheet Zinc-Coated (Galvanized) by the Hot-Dip Process (Metric)

ASTM E 90 – [1990]

Test method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions

ASTM E413 – [1987]

Classification for Rating Sound Insulation

UL 723

ASTM E84 – [1990]

Test for Surface Burning Characteristics of Building Materials

UL 1286

ANSI/BIFMA X5.6 – [1993]

Standard for Office furnishings; Panel Systems, Tests

CSA STD C22.1

Canadian Electrical Code, Part I

CSA STD C22.2

Canadian Electrical Code, Part II No. 203 Modular Wiring Systems for Office Furniture

NFPA 70
National Electrical Code

1.05 DESIGN REQUIREMENTS

- a) Partition system is fully demountable and relocatable, with interchangeable standardized fascia units which can be rearranged in any desired combination within a given wall space. Partition system is capable of accommodating dissimilar fascia types (including finishes) and elevations on each on each separate side of a partition and partition (panel) section
- b) Partition system is non-progressive, allowing for removal and reinstallation of panels from either side of partition and at any given point on an individual panel in a given panel run without disturbing adjacent panels
- c) Partition system is nominally 4" thick and provide 2 1/2" of clear and accessible interior cavity
- d) Universal posts used to create all door and product elevations in glass, solid or combination panel finishes and to create 2, 3 and 4-way connections. Posts shall allow for reconfiguration of finishes, elevations and configuration on site
- e) All posts shall provide concealed integrated slotting to partition structure for furniture, mounted storage and accessory integration.
- f) Partition system shall provide non-visible methods of panel attachment and connection
- g) Partition system shall accommodate floor and ceiling height variances of up to 3 3/4", including 3 1/4" expansion and 1/2" compression. Frame must permit on-site height modifications for reconfiguration to location with alternate ceiling height in a nonseismic zone
- h) Partition system is erected and disassembled in a manner to minimize damage to finished surfaces, including floors, walls, ceilings, columns, windows mullions, bulkheads, and exterior curtain wall profiles including convection units
- i) Partition system is able to accommodate field-installed vertical and horizontal power and communications wiring in solid and fabric wrapped fascia without restriction to locations, without damage to walls, ceilings, or any other base building surface
- j) Partition system is able to accommodate field installation of power and communications junction boxes within panel faces on either one or both sides, without damage to walls or any other base building surface
- k) Partition system shall interface between the floor, ceiling and base building construction in a non-destructive way providing a tight fit
- l) Partition system shall provide a panel to panel connection that includes a continuous, full-height sound and light seal
- m) Ceiling channel is in minimum 10' 0" one-piece lengths, formed steel capable of accepting resilient light and sound seal recessed from panel face. Ceiling channel must be capable of attaching to multiple standard ceiling types in a non-damaging manner
- n) Floor attachment can be achieved without mechanical fastening (in non-seismic applications). Floor gripper strips are to be designed as an integral part of the floor channel, and automatically grip on carpet or hard-surface flooring, and are non-damaging
- o) All full-glazed panels are factory-assembled and be delivered to site complete and ready for installation

- p) Door units are interchangeable with like-sized panels using the same frame components as panels. Pivot doors are designed with non-handed, reconfigurable door leaf, reversible in the field without additional modifications or materials
- q) Solid doors are 1 3/4" thick, architectural quality, industry standard, solid particle board tube core. Solid pocket doors are 1 3/8" thick industry standard hollow core.
- r) Partition system has provisions for mounting components from interconnecting panel and supporting component furniture. The attachment method ensures that all components, when properly installed, shall hang level. The attachment method also ensures that the partition is not damaged
- s) Partition system is capable of dismantling into component parts for ease of distribution, installation, inventory and storage
- t) Performance requirements: Solid, full elevation panels shall provide a minimum STC rating of 40, in accordance with ASTM E 90, without the aid of acoustical batting
- u) Vertical load capacity: Complies with ANSI/BIFMA X5.6, maximum load capacity of 750 lbs per panel to a maximum of 1440 lbs per 16' 0" partition run length
- v) Flame spread rating: Able to achieve up to Class A rating when tested in accordance with ASTM E 84
- w) Partition system is GREENGUARD™ Indoor Air Quality certified.

1.06 SUBMITTALS

- a) Altos architectural wall system, as designed and manufactured by Teknion.
- b) Submitted detailed CAD drawings in accordance with Section 01 33 23 – Shop Drawings, Product Data and Samples. Including panel layout in both plan and elevation, partition modules, materials, components, finishes, door and glazed opening locations, special panels and/or components, conditions at adjacent construction, fastening to adjacent base building or construction structure(s), and assembly details.
- c) Upon request, certified test data, from an independent testing laboratory, stating that the partition system has met the quality and performance requirements stated in sections 1.03, 1.04 and 1.05.
- d) Upon request, published procedures and instructions for materials handling including receipt and distribution of product, product protection, and installation, including methods of addressing special site conditions and/or special products and/or product application(s).
- e) Failure to comply with submission instructions, requirements and compliances will result in rejection of submittal.

1.07 SAMPLES

- a) Upon request, samples in accordance with Section 01 33 23 – Shop Drawings, Product Data, Samples.
- b) Upon request, samples of panel colors, textures and finishes for color selection by architect/designer consultant.
- c) Upon request, submit sample of ceiling attachment method

1.08 TEST REPORTS

- a) Upon request, test reports in accordance with Section 01 33 23 – Shop Drawings, Product Data, Samples, from approved independent testing laboratory, certifying the partition system complies with requirements stated in sections 1.03, 1.04 and 1.05.

1.09 REGULATORY

- a) Requirement: Partition system and electrical and communications components are listed and labeled by UL and CSA
- b) Conform to ADA guidelines for mounting heights, location of components and access parameters

1.10 SITE CONDITIONS

- a) Field verification: Verify actual site measurements and conditions prior to product Fabrication, and provide a record on retained shop drawings. It is the responsibility of the partition system manufacturer (or its agent) to ensure all site verifications, measurements and site conditions are properly recorded, communicated, and adhered to in accordance to manufacturing and installation of product and product performance. Coordinate site verifications and production schedules with construction schedules, where applicable, to avoid site delays
- b) Complete protection from weather and/or environmental conditions comparable to those that will exist after occupation are required prior to installation. A minimum temperature of 16C (60F) is required
- c) Complete protection from general construction practices, construction materials and materials handling, waste and by-products is the responsibility of the partition system manufacturer (or its agent)
- d) Comply with building owners' requirements for delivery and storage of materials

1.11 DELIVERY

- a) Ensure all deliveries are complete, and of adequate and secure packing to avoid damage
- b) Verify delivery location conditions prior to fabrication and delivery to ensure adequate availability to and at site, including component distribution and packing and waste removal

1.12 warranty

- a) 10 year product warranty

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS AND PRODUCTS

- a) Teknion Limited; Altos architectural wall

2.02 MATERIALS

- a) Aluminum extrusions: Aluminum Association Alloy 6063-T5. [Clear anodized, 2 mills to ASTM B221] [colour wet-paint, 0.7 mils, to ASTM-D523, -D3363, -D3023, -D3359, -D1211, - D4060, -D2199, -D4138, - D2091, and Teknion standards] finish
- b) Galvanized steel sheet: Furniture grade to ASTM A446M with Z275 zinc coating
- c) Particle board: Particle board to maintain flatness of 1/8" (3mm) maximum deviation, 3/4" (19mm) thick and 5/8" (17mm) thick
- d) Glazing: Shall comply with Federal Safety Standards for Architectural Glazing Materials (16 CFR, part 1201)
- e) Micore fibreboard: 1/2" (13mm) thick
- f) Sound and light seal: Self-adhesive, closed cell, inorganic, permanently elastic, sponge-type stripping, black
- g) Acoustical insulation: 1 1/2" thick 1 1/2 lb density post-industrial recycled natural cotton fibers, unfaced

2.03 COMPONENTS

- a) General framing and retaining components: Steel, metal thickness and configuration to provide rigidity, safe support and fixing of partition system
- b) Vertical posts and horizontal rails: Steel, 28mm x 58mm face width, concealed type, pre-punched for vertical and horizontal wire management
- c) Floor channels: Modular steel channels, with integrated floor gripper. Can be removed without removing adjacent panels
- d) Ceiling channels: Minimum 10' 0" continuous steel channels, pre-punched to accept ceiling attachment method, and for ease of wire management distribution
- e) Partition, base and ceiling trim: Recessed, ABS/Santoprene available in three colours; Platinum, Ebony and White, approximately 3" (75mm) high, continuous, snapped onto flange of floor and/or ceiling track
- f) Solid fascia: Low-pressure laminate faced particleboard
 - a. Color: Gray
- g) Glazed fascia: Nominal 1/4" (6mm) thick stamped tempered or laminated glazing with clear aluminum extruded frame.
 - Glass types:
 1. Full Height Double Glass Clear
- h) External corners: wrapped MDF to match panels

- i) Door frames: Extruded aluminum prepared for hardware specified. Clear anodized finish. Include continuous resilient gasket to seal door against frame
- j) Doors:
 - Glazed door: Full height Glass Barn Door
 - 1. Glazing: All glazing shall comply with section 2.02, d)
 - 2. stamped tempered glazing with clear finish pre-bored to accept hardware
 - 3. Edges: beveled, flat polished
 - 4. Overall thickness: Nominally 3/8" (10mm)
- k) Door hardware: Is furnished by Teknion where specified including:
 - 1. Hinges: Hinges is full mortise, five knuckle, template ball bearing, butt style, 1/4" radius Minusko Hinge #8667-02 side hinge in brushed stainless steel for hinged glazed door
 - 2. Pivot hinge: Teknion standard pivot hinge
 - 3. Glazed sliding door and sliding door transom and frame package: Custom sliding hardware (incl. bearings), custom extruded sliding rail, stops and integrated gaskets. No substitutions
 - 4. Lever set: Schlage [Jupiter] [Saturn] [standard Teknion 301 stainless steel #4 polished finish vertical pull] [with integrated lock for glazed sliding door]
 - 5. Lock and latchsets: [Schlage S-Series] [Passage (no lock)] [Standard lock and cylinder] [Standard lock and (removable) interchangeable core cylinder] [Schlage L-Series] [Mortise lock and standard cylinder] [Mortise lock and (removable) interchangeable core cylinder] [with Flush bolt for pin-locked hinged double door] [with Adams Rite deadbolt #2331 c/w cylinders or removable core keyed on outside, thumbturn on inside for pocket door] [with custom integrated Teknion hardware incl Adams Rite #1870 flush bolt with interchangeable core cylinder, keyed on outside, thumbturn on inside for glazed sliding door]
 - 6. Strike plate: [Schlage ANSI Strike #10-025] [Schlage mortise lock strike plate] [standard Teknion strike plate]
 - 7. Keying: Door hardware keyed randomly with two (2) keys provided per door (one (1) universal control key is provided per order with interchangeable core option)
 - 8. Door stop: 4" nominal wall/floor stop
 - 9. Drop seal: KN Crowder Mfg Inc. automatic door bottom CT-50 with neoprene seal [with standard Teknion adjustable door seal for glazed sliding door application]
 - 10. Kickplate: 18Ga stainless steel x 10" high x nominal width of hinged glazed door

PART 3 – EXECUTION

3.01 INSTALLATION

- a) Partition system is installed without permanent fasteners over finished floor to complete flexibility of future changes without damage to flooring material
- b) Partition system is field scribed and neatly fitted to base building conditions in accordance with details provided in shop drawings and included with installation instructions
- c) Installation of partition system is under the manufacturers' qualified direct supervision to ensure product and installation performance compatibility with design and specification intent
- d) Manufacturer shall provide necessary touch-up materials for all scratches that may occur to the product during normal materials handling, distribution and installation

3.02 ADJUSTMENTS

- a) Manufacturer to replace damaged components with new to match
- b) Manufacturer to touch up minor scratches to match factory finish
- c) Manufacturer to adjust doors to operate smoothly
- d) Manufacturer to wipe down all product and ensure all surfaces are clean and free of any debris, dust, glue or site-condition markings
- e) Manufacturer to ensure all glazing is clean and streak-free. Any double-glazed components are to be free of any debris collection between panes

3.03 CLOSE-OUT DOCUMENTS

- a) Submit, for owner's acceptance;
 - 1. operations and maintenance data for installed partition system product in accordance with Part 2 – Products. Include methods of maintaining installed product, and precautions against cleaning materials and methods detrimental to product finish and/or function
 - 2. manufacturer's standard warranty document, as per Section 1.12, executed by authorized company official(s)

SECTION 10800

TOILET ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

- A. Provide toilet, and bath accessories.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Toilet and Bath Accessories:
 - 1. Manufacturers: Bradley Corporation, P.O. Box 309, Monomonee Falls, WI 53052 800-272-3539, Bobrick Washroom Accessories, 100 Bobrick Dr., Jackson, TN 38301 730-424-7000, or approved equal.
 - 2. Accessory: Toilet tissue dispensers, double roll.
 - 3. Accessory: Waste receptacles.
 - 4. Accessory: Channel-Frame Mirror.
 - 5. Accessory: Grab bars.
 - 6. Accessory: Undercounter lavatory pipe guards.
 - 7. Finish: stainless steel.
 - 8. Paper towel and soap dispensers provided by owner and installed by contractor.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- B. Restore damaged finishes and test for proper operation. Clean and protect work from damage.

END OF SECTION

SECTION 220500 - COMMON WORK RESULTS FOR PLUMBING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Piping materials and installation instructions common to most piping systems.
 - 2. Dielectric fittings.
 - 3. Mechanical sleeve seals.
 - 4. Sleeves.
 - 5. Escutcheons.
 - 6. Plumbing demolition.
 - 7. Equipment installation requirements common to equipment sections.
 - 8. Supports and anchorages.

1.2 DEFINITIONS

- A. Finished Spaces: Spaces other than plumbing and electrical equipment rooms, furred spaces, pipe chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspace, and tunnels.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and plumbing equipment rooms.
- C. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in chases.
- D. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

PART 2 - PRODUCTS

2.1 PIPE, TUBE, AND FITTINGS

- A. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.2 JOINING MATERIALS

- A. Pipe-Flange Gasket Materials: ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.
- B. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.
- C. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- D. Brazing Filler Metals: AWS A5.8, BCuP Series or BAg1, unless otherwise indicated.

- E. Welding Filler Metals: Comply with AWS D10.12.
- F. Solvent Cements for Joining Plastic Piping:
 - 1. ABS Piping: ASTM D 2235.
 - 2. CPVC Piping: ASTM F 493.
 - 3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
 - 4. PVC to ABS Piping Transition: ASTM D 3138.

2.3 DIELECTRIC FITTINGS

- A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.
- B. Insulating Material: Suitable for system fluid, pressure, and temperature.
- C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.
- D. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.
- E. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.

2.4 SLEEVES

- A. Galvanized-Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.
- B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.
- C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.
 - 1. Underdeck Clamp: Clamping ring with set screws.
- E. Molded PVC: Permanent, with nailing flange for attaching to wooden forms.
- F. PVC Pipe: ASTM D 1785, Schedule 40.

2.5 ESCUTCHEONS

- A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.
- B. One-Piece, Cast-Brass Type: With set screw.
 - 1. Finish: Polished chrome-plated.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. Install piping according to the following requirements
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved.
- C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- F. Install piping to permit valve servicing.
- G. Install piping at indicated slopes.
- H. Install piping free of sags and bends.
- I. Install fittings for changes in direction and branch connections.
- J. Install piping to allow application of insulation.
- K. Select system components with pressure rating equal to or greater than system operating pressure.
- L. Install escutcheons for penetrations of walls, ceilings, and floors, where located in finished areas.
- M. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.
- N. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
 - 1. Install steel pipe for sleeves smaller than 6 inches in diameter.
- O. Underground, Exterior-Wall Pipe Penetrations: Install cast-iron "wall pipes" for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
 - 1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

- P. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials
- Q. Verify final equipment locations for roughing-in.
- R. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.2 PIPING JOINT CONSTRUCTION

- A. Join pipe and fittings according to the following requirements
- B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.
- E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.
- F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- G. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.
- H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.
- I. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
 - 1. Comply with ASTM F 402, for safe-handling practice of cleaners, primers, and solvent cements.
 - 2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661 Appendixes.
 - 3. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
 - 4. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
 - 5. PVC Nonpressure Piping: Join according to ASTM D 2855.
 - 6. PVC to ABS Nonpressure Transition Fittings: Join according to ASTM D 3138 Appendix.

- J. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.
 - 1. Plain-End Pipe and Fittings: Use butt fusion.
 - 2. Plain-End Pipe and Socket Fittings: Use socket fusion.

3.3 PIPING CONNECTIONS

- A. Make connections according to the following, unless otherwise indicated:
 - 1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
 - 2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.
 - 3. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.4 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

- A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.
- B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.
- C. Install plumbing equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
- D. Install equipment to allow right of way for piping installed at required slope.

3.5 ERECTION OF WOOD SUPPORTS AND ANCHORAGES

- A. Cut, fit, and place wood grounds, nailers, blocking, and anchorages to support, and anchor plumbing materials and equipment.
- B. Select fastener sizes that will not penetrate members if opposite side will be exposed to view or will receive finish materials. Tighten connections between members. Install fasteners without splitting wood members.
- C. Attach to substrates as required to support applied loads.

END OF SECTION 220500

SECTION 220523 - GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Brass ball valves.
2. Bronze ball valves.

B. Related Sections:

1. Section 220553 "Identification for Plumbing Piping and Equipment" for valve tags and schedules.
2. Section 221116 "Domestic Water Piping" for valves applicable only to this piping.

1.2 SUBMITTALS

- A. Product Data: For each type of valve indicated.

1.3 QUALITY ASSURANCE

- A. ASME Compliance: ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
- B. NSF Compliance: NSF 61 for valve materials for potable-water service.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR VALVES

- A. Refer to valve schedule articles for applications of valves.
- B. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
- C. Valve Sizes: Same as upstream piping unless otherwise indicated.
- D. Valve Actuator Types:
1. Handlever: For quarter-turn valves NPS 6 and smaller.
- E. Valves in Insulated Piping: With 2-inch stem extensions and the following features:

1. Ball Valves: With extended operating handle of non-thermal-conductive material, and protective sleeve that allows operation of valve without breaking the vapor seal or disturbing insulation.

F. Valve-End Connections:

1. Flanged: With flanges according to ASME B16.1 for iron valves.
2. Solder Joint: With sockets according to ASME B16.18.
3. Threaded: With threads according to ASME B1.20.1.

2.2 BRASS BALL VALVES

A. Two-Piece, Full-Port, Brass Ball Valves with Brass Trim:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Crane Co.; Crane Valve Group; Crane Valves.
 - b. Milwaukee Valve Company.
 - c. NIBCO INC.
2. Description:
 - a. Standard: MSS SP-110.
 - b. SWP Rating: 150 psig.
 - c. CWP Rating: 600 psig.
 - d. Body Design: Two piece.
 - e. Body Material: Forged brass.
 - f. Ends: Threaded.
 - g. Seats: PTFE or TFE.
 - h. Stem: Brass.
 - i. Ball: Chrome-plated brass.
 - j. Port: Full.

2.3 BRONZE BALL VALVES

A. Two-Piece, Full-Port, Bronze Ball Valves with Bronze Trim:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Crane Co.; Crane Valve Group; Crane Valves.
 - b. Milwaukee Valve Company.
 - c. NIBCO INC.
2. Description:
 - a. Standard: MSS SP-110.

- b. SWP Rating: 150 psig.
- c. CWP Rating: 600 psig.
- d. Body Design: Two piece.
- e. Body Material: Bronze.
- f. Ends: Threaded.
- g. Seats: PTFE or TFE.
- h. Stem: Bronze.
- i. Ball: Chrome-plated brass.
- j. Port: Full.

PART 3 - EXECUTION

3.1 VALVE INSTALLATION

- A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.
- B. Locate valves for easy access and provide separate support where necessary.
- C. Install valves in horizontal piping with stem at or above center of pipe.
- D. Install valves in position to allow full stem movement.

3.2 ADJUSTING

- A. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

3.3 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

- A. If valve applications are not indicated, use the following:
 - 1. Shutoff Service: Ball valves.
- B. If valves with specified SWP classes or CWP ratings are not available, the same types of valves with higher SWP class or CWP ratings may be substituted.
- C. Select valves, except wafer types, with the following end connections:
 - 1. For Copper Tubing, NPS 2 and Smaller: Threaded ends except where solder-joint valve-end option is indicated in valve schedules below.
 - 2. For Copper Tubing, NPS 2-1/2 to NPS 4: Flanged ends except where threaded valve-end option is indicated in valve schedules below.
 - 3. For Copper Tubing, NPS 5 and Larger: Flanged ends.

3.4 DOMESTIC, HOT- AND COLD-WATER VALVE SCHEDULE

A. Pipe NPS 2 and Smaller:

1. Bronze and Brass Valves: May be provided with solder-joint ends instead of threaded ends.
2. Ball Valves: Two piece, full port, brass or bronze.

END OF SECTION 220523

SECTION 220529 - HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Steel pipe hangers and supports.
 - 2. Fastener systems.
 - 3. Equipment supports.

1.2 DEFINITIONS

- A. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

1.3 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple pipes capable of supporting combined weight of supported systems, system contents, and test water. Submittals Required for all materials this section.
- B. Submittals Required for all materials this section.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 STEEL PIPE HANGERS AND SUPPORTS

- A. Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.
- B. Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. B-Line Systems, Inc.; a division of Cooper Industries.
 - 2. Grinnell Corp.
 - 3. National Pipe Hanger Corporation.
- C. Galvanized, Metallic Coatings: Pregalvanized or hot dipped.
- D. Nonmetallic Coatings: Plastic coating, jacket, or liner.
- E. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

- A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.
- B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.
- C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.
- D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.
- E. Use padded hangers for piping that is subject to scratching.
- F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
 - 1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30.
 - 2. Yoke-Type Pipe Clamps (MSS Type 2): For suspension of 120 to 450 deg F pipes, NPS 4 to NPS 16, requiring up to 4 inches of insulation.
 - 3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes, NPS 3/4 to NPS 24, requiring clamp flexibility and up to 4 inches of insulation.
 - 4. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8.
 - 5. U-Bolts (MSS Type 24): For support of heavy pipes, NPS 1/2 to NPS 30.
 - 6. Pipe Saddle Supports (MSS Type 36): For support of pipes, NPS 4 to NPS 36, with steel pipe base stanchion support and cast-iron floor flange.
 - 7. Single Pipe Rolls (MSS Type 41): For suspension of pipes, NPS 1 to NPS 30, from 2 rods if longitudinal movement caused by expansion and contraction might occur.
 - 8. Complete Pipe Rolls (MSS Type 44): For support of pipes, NPS 2 to NPS 42, if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.
- G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
 - 1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20.
 - 2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20, if longer ends are required for riser clamps.
- H. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
 - 1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
 - 2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
- I. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joint construction to attach to top flange of structural shape.
 2. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
 3. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
 4. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
 5. C-Clamps (MSS Type 23): For structural shapes.
 6. Welded-Steel Brackets: For support of pipes from below, or for suspending from above by using clip and rod. Use one of the following for indicated loads:
 - a. Light (MSS Type 31): 750 lb.
 - b. Medium (MSS Type 32): 1500 lb.
 - c. Heavy (MSS Type 33): 3000 lb.
 7. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
 8. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.
- J. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
 2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
 3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.
- K. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
 2. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41 roll hanger with springs.
 3. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from base support.
- L. Comply with MFMA-102 for metal framing system selections and applications that are not specified in piping system Sections.
- M. Use mechanical-expansion anchors instead of building attachments where required in concrete construction.
- 3.2 HANGER AND SUPPORT INSTALLATION
- A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.
- B. Trapeze Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping and support together on field-fabricated trapeze pipe hangers.

1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified above for individual pipe hangers.
 2. Field fabricate from ASTM A 36/A 36M, steel shapes selected for loads being supported. Weld steel according to AWS D1.1.
- C. Metal Framing System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled metal framing systems.
- D. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.
- E. Fastener System Installation:
1. Install powder-actuated fasteners in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
 2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
- F. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.
- G. Equipment Support Installation: Fabricate from welded-structural-steel shapes.
- H. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
- I. Install lateral bracing with pipe hangers and supports to prevent swaying.
- J. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.
- K. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
- L. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME B31.9 (for building services piping) are not exceeded.
- M. Insulated Piping: Comply with the following:
1. Attach clamps and spacers to piping.
 - a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
 - b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
 - c. Do not exceed pipe stress limits according to ASME B31.9 for building services piping.
 2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.

3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
4. Shield Dimensions for Pipe: Not less than the following:
 - a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
 - b. NPS 4: 12 inches long and 0.06 inch thick.
 - c. NPS 5 and NPS 6: 18 inches long and 0.06 inch thick.
 - d. NPS 8 to NPS 14: 24 inches long and 0.075 inch thick.
 - e. NPS 16 to NPS 24: 24 inches long and 0.105 inch thick.
5. Pipes NPS 8 and Larger: Include wood inserts.
6. Insert Material: Length at least as long as protective shield.
7. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

3.3 EQUIPMENT SUPPORTS

- A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.
- B. Grouting: Place grout under supports for equipment and make smooth bearing surface.
- C. Provide lateral bracing, to prevent swaying, for equipment supports.

3.4 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

3.5 PAINTING

- A. Touch Up: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 250529

SECTION 220553 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Equipment labels.
2. Warning signs and labels.
3. Pipe labels.

1.2 ACTION SUBMITTAL

- A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 EQUIPMENT LABELS

A. Plastic Labels for Equipment:

1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.
2. Letter Color: Black.
3. Background Color: Yellow.
4. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
5. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
6. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
7. Fasteners: Stainless-steel rivets or self-tapping screws.
8. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

- B. Label Content: Include equipment's Drawing designation or unique equipment number, Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified.

- C. Equipment Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch bond paper. Tabulate equipment identification number and identify Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified. Equipment schedule shall be included in operation and maintenance data.

2.2 WARNING SIGNS AND LABELS

- A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.
- B. Letter Color: White.
- C. Background Color: Red.
- D. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
- E. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
- F. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
- G. Fasteners: Stainless-steel rivets or self-tapping screws.
- H. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- I. Label Content: Include caution and warning information, plus emergency notification instructions.

2.3 PIPE LABELS

- A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.
- B. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.
- C. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.
 - 1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
 - 2. Lettering Size: At least 1-1/2 inches high.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 EQUIPMENT LABEL INSTALLATION

- A. Install or permanently fasten labels on each major item of mechanical equipment.
- B. Locate equipment labels where accessible and visible.

3.3 PIPE LABEL INSTALLATION

- A. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
 - 1. Near each valve and control device.
 - 2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
 - 3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
 - 4. At access doors, manholes, and similar access points that permit view of concealed piping.
 - 5. Near major equipment items and other points of origination and termination.
 - 6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
 - 7. On piping above removable acoustical ceilings. Omit intermediately spaced labels.
 - 8. Domestic Water & Sanitary Waste and Vent Piping:
 - a. Background Color: Yellow.
 - b. Letter Color: Black.

END OF SECTION 220553

SECTION 220719 - PLUMBING PIPING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes insulating the following plumbing piping services:
 - 1. Domestic hot, hot-water recirculation and cold-water piping.
 - 2. Storm Drainage piping
 - 3. Supplies and drains for handicap-accessible lavatories and sinks.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
 - 2. Detail insulation application at elbows, fittings, flanges, valves, and specialties for each type of insulation.
 - 3. Detail removable insulation at piping specialties, equipment connections, and access panels.
 - 4. Detail application of field-applied jackets.
 - 5. Detail application at linkages of control devices.

1.3 QUALITY ASSURANCE

- A. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products according to ASTM E 84 by a testing agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing agency.
 - 1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
 - 2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.
- B. Comply with the following applicable standards and other requirements specified for miscellaneous components:
 - 1. Supply and Drain Protective Shielding Guards: ICC A117.1.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

- A. Comply with requirements in "Piping Insulation Schedule, General," "Indoor Piping Insulation Schedule," "Outdoor, Aboveground Piping Insulation Schedule," and "Outdoor, Underground Piping Insulation Schedule" articles for where insulating materials shall be applied.
- B. Products shall not contain asbestos, lead, mercury, or mercury compounds.
- C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.
- D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.
- E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.
- F. Flexible Elastomeric Insulation: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Aeroflex USA, Inc.; Aerocel.

- b. Armacell LLC; AP Armaflex.
- c. K-Flex USA; Insul-Lock, Insul-Tube, and K-FLEX LS.

2.2 ADHESIVES

- A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.
- B. Flexible Elastomeric and Polyolefin Adhesive: Comply with MIL-A-24179A, Type II, Class I.
 - 1. For indoor applications, adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 2. Adhesive shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.3 SEALANTS

- A. Joint Sealants:
 - 1. Materials shall be compatible with insulation materials, jackets, and substrates.
 - 2. Permanently flexible, elastomeric sealant.
 - 3. Service Temperature Range: Minus 100 to plus 300 deg F.
 - 4. Color: White or gray.
 - 5. For indoor applications, sealants shall have a VOC content of 420 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.4 PROTECTIVE SHIELDING GUARDS

- A. Protective Shielding Pipe Covers, :
 - 1. Description: Manufactured plastic wraps for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.
- B. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that apply to insulation.
- C. Mix insulating cements with clean potable water; if insulating cements are to be in contact with stainless-steel surfaces, use demineralized water.

3.2 GENERAL INSTALLATION REQUIREMENTS

- A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of piping including fittings, valves, and specialties.
- B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of pipe system as specified in insulation system schedules.
- C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.
- D. Install insulation with longitudinal seams at top and bottom of horizontal runs.
- E. Install multiple layers of insulation with longitudinal and end seams staggered.
- F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.
- G. Keep insulation materials dry during application and finishing.
- H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
- I. Install insulation with least number of joints practical.
- J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
 - 1. Install insulation continuously through hangers and around anchor attachments.

2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
 3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
 4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.
- K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.
- L. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.
- M. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
- N. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.
- O. For above-ambient services, do not install insulation to the following:
1. Vibration-control devices.
 2. Testing agency labels and stamps.
 3. Nameplates and data plates.
 4. Cleanouts.

3.3 PENETRATIONS

- A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.
1. Seal penetrations with flashing sealant.
 2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
 3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.
 4. Seal jacket to roof flashing with flashing sealant.
- B. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.
1. Seal penetrations with flashing sealant.
 2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
 3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.
 4. Seal jacket to wall flashing with flashing sealant.
- C. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.
- D. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.
1. Comply with requirements in Section 078413 "Penetration Firestopping" for firestopping and fire-resistive joint sealers.
- E. Insulation Installation at Floor Penetrations:
1. Pipe: Install insulation continuously through floor penetrations.

2. Seal penetrations through fire-rated assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."
- 3.4 GENERAL PIPE INSULATION INSTALLATION
- A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.
 - B. Insulation Installation on Fittings, Valves, Strainers, Flanges, and Unions:
 1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity unless otherwise indicated.
 2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
 3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
 4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with insulating cement.
 5. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Fill joints, seams, and irregular surfaces with insulating cement. Insulate strainers so strainer basket flange or plug can be easily removed and replaced without damaging the insulation and jacket. Provide a removable reusable insulation cover. For below-ambient services, provide a design that maintains vapor barrier.
 6. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.
 7. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below-ambient services and a breather mastic for above-ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.
 8. Stencil or label the outside insulation jacket of each union with the word "union." Match size and color of pipe labels.
 - C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.
 - D. Install removable insulation covers at locations indicated. Installation shall conform to the following:
 1. Make removable flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe insulation.
 2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union long at least two times the insulation thickness over adjacent pipe

insulation on each side of flange or union. Secure flange cover in place with stainless-steel or aluminum bands. Select band material compatible with insulation and jacket.

3. Construct removable valve insulation covers in same manner as for flanges, except divide the two-part section on the vertical center line of valve body.
4. When covers are made from block insulation, make two halves, each consisting of mitered blocks wired to stainless-steel fabric. Secure this wire frame, with its attached insulation, to flanges with tie wire. Extend insulation at least 2 inches over adjacent pipe insulation on each side of valve. Fill space between flange or union cover and pipe insulation with insulating cement. Finish cover assembly with insulating cement applied in two coats. After first coat is dry, apply and trowel second coat to a smooth finish.
5. Unless a PVC jacket is indicated in field-applied jacket schedules, finish exposed surfaces with a metal jacket.

3.5 INSTALLATION OF FLEXIBLE ELASTOMERIC INSULATION

- A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- B. Insulation Installation on Pipe Flanges:
 1. Install pipe insulation to outer diameter of pipe flange.
 2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
 3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
 4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- C. Insulation Installation on Pipe Fittings and Elbows:
 1. Install mitered sections of pipe insulation.
 2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- D. Insulation Installation on Valves and Pipe Specialties:
 1. Install preformed valve covers manufactured of same material as pipe insulation when available.
 2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
 3. Install insulation to flanges as specified for flange insulation application.
 4. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.6 FIELD QUALITY CONTROL

- A. Perform tests and inspections.

3.7 PIPING INSULATION SCHEDULE, GENERAL

- A. Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.
- B. Items Not Insulated: Unless otherwise indicated, do not install insulation on the following:
 1. Drainage piping located in crawl spaces.
 2. Underground piping.
 3. Chrome-plated pipes and fittings unless there is a potential for personnel injury.

3.8 INDOOR PIPING INSULATION SCHEDULE

- A. Domestic Cold, Hot and Recirculated Hot Water, and Storm Drainage: Insulation shall be the following:

1. Flexible Elastomeric: 3/4 inch thick.
 - B. HVAC Condensate Drainage: Insulation for the first 10'-0" of piping downstream of equipment connection shall be the following:
 1. Flexible Elastomeric: 3/4 inch thick.
 - C. Exposed Sanitary Drains and Stops for Plumbing Fixtures for People with Disabilities: Insulation shall be the following:
 1. Flexible Elastomeric: 3/4 inch thick.
- 3.9 INDOOR, FIELD-APPLIED JACKET SCHEDULE
- A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.
 - B. If more than one material is listed, selection from materials listed is Contractor's option.
 - C. Piping, Concealed:
 1. None.
 - D. Piping, Exposed:
 1. PVC, white color.
 - E. Fittings, Exposed:
 1. PVC Pre-formed fitting covers, white color.

END OF SECTION 220719

SECTION 221116 - DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes under-building-slab and aboveground domestic water pipes, tubes, and fittings inside buildings.
- B. Related Requirements:
 - 1. Section 221113 "Facility Water Distribution Piping" for water-service piping and water meters outside the building from source to the point where water-service piping enters the building.

1.2 SUBMITTALS

- A. Product Data: For transition fittings and dielectric fittings.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

- A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.
- B. Potable-water piping and components shall comply with NSF 14 and NSF 61. Plastic piping components shall be marked with "NSF-pw."

2.2 COPPER TUBE AND FITTINGS

- A. Hard Copper Tube: ASTM B 88, Type L water tube, drawn temper.
- B. Soft Copper Tube: ASTM B 88, Type K water tube, annealed temper.
- C. Cast-Copper, Solder-Joint Fittings: ASME B16.18, pressure fittings.
- D. Wrought-Copper, Solder-Joint Fittings: ASME B16.22, wrought-copper pressure fittings.
- E. Bronze Flanges: ASME B16.24, Class 150, with solder-joint ends.
- F. Copper Unions:
 - 1. MSS SP-123.
 - 2. Cast-copper-alloy, hexagonal-stock body.

3. Ball-and-socket, metal-to-metal seating surfaces.
4. Solder-joint or threaded ends.

2.3 PEX TUBE AND FITTINGS

- A. PEX Distribution System: ASTM F 877, SDR 9 tubing.
- B. Fittings for PEX Tube: ASTM F 1807, metal-insert type with copper or stainless-steel crimp rings and matching PEX tube dimensions.
- C. Manifold: Multiple-outlet, plastic or corrosion-resistant-metal assembly complying with ASTM F 877; with plastic or corrosion-resistant-metal valve for each outlet.

2.4 PIPING JOINING MATERIALS

- A. Pipe-Flange Gasket Materials:
 1. AWWA C110/A21.10, rubber, flat face, 1/8 inch thick or ASME B16.21, nonmetallic and asbestos free unless otherwise indicated.
 2. Full-face or ring type unless otherwise indicated.
- B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.
- C. Solder Filler Metals: ASTM B 32, lead-free alloys.
- D. Flux: ASTM B 813, water flushable.
- E. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.
- F. Plastic, Pipe-Flange Gaskets, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

2.5 TRANSITION FITTINGS

- A. General Requirements:
 1. Same size as pipes to be joined.
 2. Pressure rating at least equal to pipes to be joined.
 3. End connections compatible with pipes to be joined.
- B. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.
- C. Plastic-to-Metal Transition Fittings:
 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Charlotte Pipe and Foundry Company.
- b. Harvel Plastics, Inc.
- c. Spears Manufacturing Company.

2. Description:

- a. PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions.
- b. One end with threaded brass insert and one solvent-cement-socket end.

2.6 DIELECTRIC FITTINGS

A. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.

B. Dielectric Unions:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. McDonald, A. Y. Mfg. Co.
 - b. Watts; a division of Watts Water Technologies, Inc.
 - c. Wilkins; a Zurn company.
2. Standard: ASSE 1079.
3. Pressure Rating: 125 psig minimum at 180 deg F.
4. End Connections: Solder-joint copper alloy and threaded ferrous.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Comply with requirements in Section 312000 "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.
- B. Install copper tubing under building slab according to CDA's "Copper Tube Handbook."
- C. Install ductile-iron piping under building slab with restrained joints according to AWWA C600 and AWWA M41.
- D. Install shutoff valve, hose-end drain valve, strainer, pressure gage, and test tee with valve inside the building at each domestic water-service entrance. Comply with requirements for pressure

gages in Section 220519 "Meters and Gages for Plumbing Piping" and with requirements for drain valves and strainers in Section 221119 "Domestic Water Piping Specialties."

- E. Install shutoff valve immediately upstream of each dielectric fitting.
- F. Install water-pressure-reducing valves downstream from shutoff valves. Comply with requirements for pressure-reducing valves in Section 221119 "Domestic Water Piping Specialties."
- G. Install domestic water piping level without pitch and plumb.
- H. Rough-in domestic water piping for water-meter installation according to utility company's requirements.
- I. Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.
- J. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- K. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal, and coordinate with other services occupying that space.
- L. Install piping to permit valve servicing.
- M. Install nipples, unions, special fittings, and valves with pressure ratings the same as or higher than the system pressure rating used in applications below unless otherwise indicated.
- N. Install piping free of sags and bends.
- O. Install fittings for changes in direction and branch connections.
- P. Install PEX piping with loop at each change of direction of more than 90 degrees.
- Q. Install unions in copper tubing at final connection to each piece of equipment, machine, and specialty.
- R. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 220500 "Common Work Results for Plumbing."
- S. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Section 220500 "Common Work Results for Plumbing."
- T. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 220500 "Common Work Results for Plumbing."

3.3 JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.
- C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.
- D. Brazed Joints for Copper Tubing: Comply with CDA's "Copper Tube Handbook," "Braze Joints" chapter.
- E. Soldered Joints for Copper Tubing: Apply ASTM B 813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828 or CDA's "Copper Tube Handbook."
- F. Joints for PEX Piping: Join according to ASTM F 1807.
- G. Joints for Dissimilar-Material Piping: Make joints using adapters compatible with materials of both piping systems.

3.4 TRANSITION FITTING INSTALLATION

- A. Install transition couplings at joints of dissimilar piping.
- B. Transition Fittings in Underground Domestic Water Piping:
 - 1. Fittings for NPS 1-1/2 and Smaller: Fitting-type coupling.
 - 2. Fittings for NPS 2 and Larger: Sleeve-type coupling.
- C. Transition Fittings in Aboveground Domestic Water Piping NPS 2 and Smaller: Plastic-to-metal transition fittings.

3.5 DIELECTRIC FITTING INSTALLATION

- A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.
- B. Dielectric Fittings for NPS 2 and Smaller: Use dielectric unions.

3.6 HANGER AND SUPPORT INSTALLATION

- A. Comply with requirements for pipe hanger, support products, and installation in Section 220529 "Hangers and Supports for Plumbing Piping and Equipment."

1. Vertical Piping: MSS Type 8 or 42, clamps.
 2. Individual, Straight, Horizontal Piping Runs:
 - a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
 - b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
 3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
 4. Base of Vertical Piping: MSS Type 52, spring hangers.
- B. Support vertical piping and tubing at base and at each floor.
- C. Rod diameter may be reduced one size for double-rod hangers, to a minimum of 3/8 inch.
- D. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
1. NPS 3/4 and Smaller: 60 inches with 3/8-inch rod.
 2. NPS 1 and NPS 1-1/4: 72 inches with 3/8-inch rod.
 3. NPS 1-1/2 and NPS 2: 96 inches with 3/8-inch rod.
- E. Install supports for vertical copper tubing every 10 feet.
- F. Install vinyl-coated hangers for PEX piping with the following maximum horizontal spacing and minimum rod diameters:
1. NPS 1 and Smaller: 32 inches with 3/8-inch rod.
- G. Install hangers for vertical PEX piping every 48 inches.
- H. Support piping and tubing not listed in this article according to MSS SP-69 and manufacturer's written instructions.

3.7 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. When installing piping adjacent to equipment and machines, allow space for service and maintenance.
- C. Connect domestic water piping to exterior water-service piping. Use transition fitting to join dissimilar piping materials.
- D. Connect domestic water piping to water-service piping with shutoff valve; extend and connect to the following:
 1. Water Heaters: Cold-water inlet and hot-water outlet piping in sizes indicated, but not smaller than sizes of water heater connections.
 2. Plumbing Fixtures: Cold- and hot-water-supply piping in sizes indicated, but not smaller than that required by plumbing code.

3.8 IDENTIFICATION

- A. Identify system components. Comply with requirements for identification materials and installation in Section 220553 "Identification for Plumbing Piping and Equipment."
- B. Label pressure piping with system operating pressure.

3.9 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:

- 1. Piping Inspections:

- a. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
- b. During installation, notify authorities having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
 - 1) Roughing-in Inspection: Arrange for inspection of piping before concealing or closing in after roughing in and before setting fixtures.
 - 2) Final Inspection: Arrange for authorities having jurisdiction to observe tests specified in "Piping Tests" Subparagraph below and to ensure compliance with requirements.
- c. Reinspection: If authorities having jurisdiction find that piping will not pass tests or inspections, make required corrections and arrange for reinspection.
- d. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

- 2. Piping Tests:

- a. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
- b. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.
- c. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.
- d. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow it to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
- e. Repair leaks and defects with new materials, and retest piping or portion thereof until satisfactory results are obtained.
- f. Prepare reports for tests and for corrective action required.

- B. Domestic water piping will be considered defective if it does not pass tests and inspections.

- C. Prepare test and inspection reports.

3.10 ADJUSTING

- A. Perform the following adjustments before operation:
 - 1. Close drain valves, hydrants, and hose bibbs.
 - 2. Open shutoff valves to fully open position.
 - 3. Open throttling valves to proper setting.
 - 4. Remove plugs used during testing of piping and for temporary sealing of piping during installation.
 - 5. Remove and clean strainer screens. Close drain valves and replace drain plugs.
 - 6. Remove filter cartridges from housings and verify that cartridges are as specified for application where used and are clean and ready for use.
 - 7. Check plumbing specialties and verify proper settings, adjustments, and operation.

3.11 CLEANING

- A. Clean and disinfect potable domestic water piping as follows:
 - 1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
 - 2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:
 - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
 - b. Fill and isolate system according to either of the following:
 - 1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
 - 2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
 - c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
 - d. Repeat procedures if biological examination shows contamination.
 - e. Submit water samples in sterile bottles to authorities having jurisdiction.
- B. Prepare and submit reports of purging and disinfecting activities. Include copies of water-sample approvals from authorities having jurisdiction.
- C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

3.12 PIPING SCHEDULE

- A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

- B. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.
- C. Fitting Option: Extruded-tee connections and brazed joints may be used on aboveground copper tubing.
- D. Under-building-slab, domestic water, building-service piping, NPS 3 and smaller, shall be one of the following:
 - 1. Soft copper tube, ASTM B 88, Type K; wrought-copper, solder-joint fittings; and brazed joints.
 - 2. PEX tube; no underground joints permitted.
- E. Aboveground domestic water piping, NPS 2 and smaller, in air distribution plenums shall be the following:
 - a. Hard copper tube, ASTM B 88, Type L; cast- or wrought-copper, solder-joint fittings; and brazed joints.
- F. Aboveground domestic water piping, NPS 2 and smaller, not in air distribution plenums shall be one of the following:
 - 1. Hard copper tube, ASTM B 88, Type L; cast- or wrought-copper, solder-joint fittings; and brazed joints.
 - 2. PEX tube, NPS 1 and smaller; fittings for PEX tube; and crimped joints.
 - a. Where used, PEX tube must be one nominal pipe size larger than shown on Plans.

END OF SECTION 221116

SECTION 221119 - DOMESTIC WATER PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Backflow preventers.
 - 2. Balancing valves.
 - 3. Hose bibbs.
 - 4. Wall hydrants.
 - 5. Drain valves.
 - 6. Water-hammer arresters.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig unless otherwise indicated.

2.2 BACKFLOW PREVENTERS

- A. Reduced-Pressure-Principle Backflow Preventers "BFP":
 - 1. Accessories:
 - a. Valves NPS 2 and Smaller: Ball type with threaded ends on inlet and outlet.
 - b. Valves NPS 2-1/2 and Larger: Outside-screw and yoke-gate type with flanged ends on inlet and outlet.

2.3 BALANCING VALVES

- A. Memory-Stop Balancing Valves (Hot Water Recirculation Service):
 - 1. Standard: MSS SP-110 for two-piece, copper-alloy ball valves.
 - 2. Pressure Rating: 400-psig minimum CWP.
 - 3. Size: NPS 2 or smaller.
 - 4. Body: Copper alloy.
 - 5. Port: Standard or full port.
 - 6. Ball: Chrome-plated brass.
 - 7. Seats and Seals: Replaceable.
 - 8. End Connections: Solder joint or threaded.
 - 9. Handle: Vinyl-covered steel with memory-setting device.

2.4 HOSE BIBBS

- A. Hose Bibbs "HB":
 - 1. Standard: ASME A112.18.1 for sediment faucets.
 - 2. Body Material: Bronze.
 - 3. Seat: Bronze, replaceable.
 - 4. Supply Connections: NPS 1/2 or NPS 3/4 threaded or solder-joint inlet.
 - 5. Outlet Connection: Garden-hose thread complying with ASME B1.20.7.
 - 6. Pressure Rating: 125 psig.
 - 7. Vacuum Breaker: Integral nonremovable, drainable, hose-connection vacuum breaker complying with ASSE 1011.
 - 8. Finish for Finished Rooms: Chrome or nickel plated.

9. Operation for Finished Rooms: Operating key.
10. Housing: Recessed with locking vandal proof cover
11. Include operating key with each operating-key hose bibb.
12. Include integral wall flange with each chrome- or nickel-plated hose bibb.

2.5 WALL HYDRANTS

A. Nonfreeze Wall Hydrants "FPHB":

1. Standard: ASME A112.21.3M for concealed-outlet, self-draining wall hydrants.
2. Pressure Rating: 125 psig.
3. Operation: Loose key.
4. Casing and Operating Rod: Of length required to match wall thickness. Include wall clamp.
5. Inlet: NPS 3/4 or NPS 1.
6. Outlet: Concealed, with integral vacuum breaker and garden-hose thread complying with ASME B1.20.7.
7. Box: Deep, flush mounted with cover.
8. Box and Cover Finish: Polished nickel bronze.
9. Outlet: Exposed, with integral vacuum breaker and garden-hose thread complying with ASME B1.20.7.
10. Nozzle and Wall-Plate Finish: Polished nickel bronze.
11. Operating Keys(s): Two with each wall hydrant.

2.6 DRAIN VALVES

A. Ball-Valve-Type, Hose-End Drain Valves:

1. Standard: MSS SP-110 for standard-port, two-piece ball valves.
2. Pressure Rating: 400-psig minimum CWP.
3. Size: NPS 3/4.
4. Body: Copper alloy.
5. Ball: Chrome-plated brass.
6. Seats and Seals: Replaceable.
7. Handle: Vinyl-covered steel.
8. Inlet: Threaded or solder joint.
9. Outlet: Threaded, short nipple with garden-hose thread complying with ASME B1.20.7 and cap with brass chain.

2.7 WATER-HAMMER ARRESTERS

A. Water-Hammer Arresters:

1. Standard: ASSE 1010 or PDI-WH 201.
2. Type: Metal bellows or Copper tube with piston.
3. Size: ASSE 1010, Sizes AA and A through F, or PDI-WH 201, Sizes A through F.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install backflow preventers in each water supply to mechanical equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with authorities having jurisdiction.
 1. Locate backflow preventers in same room as connected equipment or system.
 2. Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe-to-floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are unacceptable for this application.
 3. Do not install bypass piping around backflow preventers.
- B. Install balancing valves in locations where they can easily be adjusted.
- C. Install water-hammer arresters in water piping according to PDI-WH 201.

3.2 CONNECTIONS

- A. Comply with requirements for ground equipment in Section 260526 "Grounding and Bonding for Electrical Systems."
- B. Fire-retardant-treated-wood blocking is specified in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for electrical connections.

3.3 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Test each reduced-pressure-principle backflow preventer and double-check, detector-assembly backflow preventer according to authorities having jurisdiction and the device's reference standard.
- B. Domestic water piping specialties will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

3.4 ADJUSTING

- A. Set field-adjustable pressure set points of water pressure-reducing valves.
- B. Set field-adjustable flow set points of balancing valves.
- C. Set field-adjustable temperature set points of temperature-actuated, water mixing valves.

END OF SECTION 221119

SECTION 221316 - SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe, tube, and fittings.
2. Specialty pipe fittings.

B. Related Section:

1. Section 221313 "Facility Sanitary Sewers" for sanitary sewerage piping and structures outside the building.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.3 INFORMATIONAL SUBMITTALS

1.4 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- B. Comply with NSF/ANSI 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components. Include marking with "NSF-dwv" for plastic drain, waste, and vent piping and "NSF-sewer" for plastic sewer piping.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

- A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.2 HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS

- A. Pipe and Fittings: ASTM A 888 or CISPI 301.
- B. CISPI, Hubless-Piping Couplings:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Dallas Specialty & Mfg. Co.
 - b. Fernco Inc.
 - c. Mission Rubber Company; a division of MCP Industries, Inc.
2. Standards: ASTM C 1277 and CISPI 310.
3. Description: Stainless-steel corrugated shield with stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop.

2.3 PVC PIPE AND FITTINGS

- A. Solid-Wall PVC Pipe: ASTM D 2665, drain, waste, and vent.
- B. Cellular-Core PVC Pipe: ASTM F 891, Schedule 40.
- C. PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns and to fit Schedule 40 pipe.
- D. Adhesive Primer: ASTM F 656.
 1. Adhesive primer shall have a VOC content of 550 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 2. Adhesive primer shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- E. Solvent Cement: ASTM D 2564.
 1. PVC solvent cement shall have a VOC content of 510 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 2. Solvent cement shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.4 SPECIALTY PIPE FITTINGS

- A. Transition Couplings:
 1. General Requirements: Fitting or device for joining piping with small differences in OD's or of different materials. Include end connections same size as and compatible with pipes to be joined.
 2. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.
 3. Unshielded, Nonpressure Transition Couplings:

- a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Dallas Specialty & Mfg. Co.
 - 2) Fernco Inc.
 - 3) Mission Rubber Company; a division of MCP Industries, Inc.
 - b. Standard: ASTM C 1173.
 - c. Description: Elastomeric, sleeve-type, reducing or transition pattern. Include shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.
 - d. Sleeve Materials:
 - 1) For Cast-Iron Soil Pipes: ASTM C 564, rubber.
 - 2) For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
 - 3) For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.
4. Shielded, Nonpressure Transition Couplings:
- a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Cascade Waterworks Mfg. Co.
 - 2) Mission Rubber Company; a division of MCP Industries, Inc.
 - b. Standard: ASTM C 1460.
 - c. Description: Elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

PART 3 - EXECUTION

3.1 EARTH MOVING

- A. Comply with requirements for excavating, trenching, and backfilling specified in Section 312000 "Earth Moving."

3.2 PIPING INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.
- B. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.

- C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- E. Install piping at indicated slopes.
- F. Install piping free of sags and bends.
- G. Install fittings for changes in direction and branch connections.
- H. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8-bend fittings if two fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.
- I. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.
- J. Install soil and waste drainage and vent piping at the following minimum slopes unless otherwise indicated:
 - 1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.
 - 2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.
 - 3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.
- K. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
- L. Install aboveground PVC piping according to ASTM D 2665.
- M. Install underground PVC piping according to ASTM D 2321.
- N. Plumbing Specialties:
 - 1. Install backwater valves in sanitary waste gravity-flow piping. Comply with requirements for backwater valves specified in Section 221319 "Sanitary Waste Piping Specialties."
 - 2. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers in sanitary drainage gravity-flow piping. Comply with requirements for cleanouts specified in Section 221319 "Sanitary Waste Piping Specialties."

3. Install drains in sanitary drainage gravity-flow piping. Comply with requirements for drains specified in Section 221319 "Sanitary Waste Piping Specialties."
- O. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.
- P. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."
- Q. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."
- R. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 220518 "Escutcheons for Plumbing Piping."

3.3 JOINT CONSTRUCTION

- A. Join hubless, cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-piping coupling joints.
- B. Flanged Joints: Align bolt holes. Select appropriate gasket material, size, type, and thickness. Install gasket concentrically positioned. Use suitable lubricants on bolt threads. Torque bolts in cross pattern.
- C. Plastic, Nonpressure-Piping, Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
 1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
 2. PVC Piping: Join according to ASTM D 2855 and ASTM D 2665 Appendixes.

3.4 SPECIALTY PIPE FITTING INSTALLATION

- A. Transition Couplings:
 1. Install transition couplings at joints of piping with small differences in OD's.
 2. In Drainage Piping: Shielded, nonpressure transition couplings.

3.5 HANGER AND SUPPORT INSTALLATION

- A. Comply with requirements for seismic-restraint devices specified in Section 220548 "Vibration and Seismic Controls for Plumbing Piping and Equipment."
- B. Comply with requirements for pipe hanger and support devices and installation specified in Section 220529 "Hangers and Supports for Plumbing Piping and Equipment."
 1. Install carbon-steel pipe hangers for horizontal piping in noncorrosive environments.
 2. Install stainless-steel pipe hangers for horizontal piping in corrosive environments.

3. Install carbon-steel pipe support clamps for vertical piping in noncorrosive environments.
 4. Install stainless-steel pipe support clamps for vertical piping in corrosive environments.
 5. Vertical Piping: MSS Type 8 or Type 42, clamps.
 6. Install individual, straight, horizontal piping runs:
 - a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
 - b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
 - c. Longer Than 100 Feet if Indicated: MSS Type 49, spring cushion rolls.
 7. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
 8. Base of Vertical Piping: MSS Type 52, spring hangers.
- C. Support horizontal piping and tubing within 12 inches of each fitting, valve, and coupling.
- D. Support vertical piping and tubing at base and at each floor.
- E. Rod diameter may be reduced one size for double-rod hangers, with 3/8-inch minimum rods.
- F. Install hangers for PVC piping with the following maximum horizontal spacing and minimum rod diameters:
1. NPS 1-1/2 and NPS 2: 48 inches with 3/8-inch rod.
 2. NPS 3: 48 inches with 1/2-inch rod.
 3. NPS 4 and NPS 5: 48 inches with 5/8-inch rod.
 4. NPS 6 and NPS 8: 48 inches with 3/4-inch rod.
- G. Install supports for vertical PVC piping every 48 inches.
- H. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:
1. NPS 1-1/2 and NPS 2: 60 inches with 3/8-inch rod.
 2. NPS 3: 60 inches with 1/2-inch rod.
 3. NPS 4 and NPS 5: 60 inches with 5/8-inch rod.
 4. NPS 6 and NPS 8: 60 inches with 3/4-inch rod.
 5. Spacing for 10-foot lengths may be increased to 10 feet. Spacing for fittings is limited to 60 inches.
- I. Install supports for vertical cast-iron soil piping every 15 feet.
- J. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.6 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.

- C. Connect drainage and vent piping to the following:
 - 1. Plumbing Fixtures: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code.
 - 2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.
 - 3. Plumbing Specialties: Connect drainage and vent piping in sizes indicated, but not smaller than required by plumbing code.
 - 4. Install test tees (wall cleanouts) in conductors near floor and floor cleanouts with cover flush with floor.
 - 5. Equipment: Connect drainage piping as indicated. Provide shutoff valve if indicated and union for each connection. Use flanges instead of unions for connections NPS 2-1/2 and larger.
- D. Where installing piping adjacent to equipment, allow space for service and maintenance of equipment.
- E. Make connections according to the following unless otherwise indicated:
 - 1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
 - 2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.

3.7 IDENTIFICATION

- A. Identify exposed sanitary waste and vent piping. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing Piping and Equipment."

3.8 FIELD QUALITY CONTROL

- A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.
 - 1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
 - 2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
- B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
- C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
- D. Test sanitary drainage and vent piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:

1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
2. Leave uncovered and unconcealed new, altered, extended, or replaced drainage and vent piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
3. Roughing-in Plumbing Test Procedure: Test drainage and vent piping except outside leaders on completion of roughing-in. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water. From 15 minutes before inspection starts to completion of inspection, water level must not drop. Inspect joints for leaks.
4. Finished Plumbing Test Procedure: After plumbing fixtures have been set and traps filled with water, test connections and prove they are gastight and watertight. Plug vent-stack openings on roof and building drains where they leave building. Introduce air into piping system equal to pressure of 1-inch wg. Use U-tube or manometer inserted in trap of water closet to measure this pressure. Air pressure must remain constant without introducing additional air throughout period of inspection. Inspect plumbing fixture connections for gas and water leaks.
5. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
6. Prepare reports for tests and required corrective action.

3.9 CLEANING AND PROTECTION

- A. Clean interior of piping. Remove dirt and debris as work progresses.
- B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.
- C. Place plugs in ends of uncompleted piping at end of day and when work stops.
- D. Exposed PVC Piping: Protect plumbing vents exposed to sunlight with two coats of water-based latex paint.

3.10 PIPING SCHEDULE

- A. Flanges and unions may be used on aboveground pressure piping unless otherwise indicated.
- B. Aboveground, soil and waste piping NPS 4 and smaller in air distribution plenums shall be the following:
 1. Hubless, cast-iron soil pipe and fittings; CISPI hubless-piping couplings; and coupled joints.
 2. Dissimilar Pipe-Material Couplings: Unshielded, nonpressure transition couplings.
- C. Aboveground, soil and waste piping NPS 4 and smaller not in air distribution plenums shall be one of the following:
 1. Hubless, cast-iron soil pipe and fittings; CISPI hubless-piping couplings; and coupled joints.
 2. Solid-wall or cellular-core PVC pipe, PVC socket fittings, and solvent-cemented joints.

3. Dissimilar Pipe-Material Couplings: Unshielded, nonpressure transition couplings.
- D. Aboveground, vent piping NPS 4 and smaller in air distribution plenums shall be the following:
1. Hubless, cast-iron soil pipe and fittings; CISPI hubless-piping couplings; and coupled joints.
 2. Dissimilar Pipe-Material Couplings: Unshielded, nonpressure transition couplings.
- E. Aboveground, vent piping NPS 4 and smaller not in air distribution plenums shall be one of the following:
1. Hubless, cast-iron soil pipe and fittings; CISPI hubless-piping couplings; and coupled joints.
 2. Solid-wall or cellular-core PVC pipe, PVC socket fittings, and solvent-cemented joints.
 3. Dissimilar Pipe-Material Couplings: Unshielded, nonpressure transition couplings.
- F. Underground, soil, waste, and vent piping NPS 4 and smaller shall be one of the following:
1. Hubless, cast-iron soil pipe and fittings; CISPI hubless-piping couplings; and coupled joints.
 2. Solid-wall PVC pipe, PVC socket fittings, and solvent-cemented joints.
 3. Dissimilar Pipe-Material Couplings: Unshielded, nonpressure transition couplings.

END OF SECTION 221316

SECTION 221319 - SANITARY WASTE PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Cleanouts.
 2. Floor drains.
 3. Roof flashing assemblies.
 4. Flashing materials.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and accessories for grease interceptors.

1.3 QUALITY ASSURANCE

- A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

PART 2 - PRODUCTS

2.1 CLEANOUTS

- A. Exposed Cast-Iron Cleanouts :
1. Standard: ASME A112.36.2M for cast iron for cleanout test tee.
 2. Size: Same as connected drainage piping
 3. Body Material: Hubless, cast-iron soil pipe test tee as required to match connected piping.
 4. Closure: Countersunk, plastic plug.
 5. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
- B. Cast-Iron Floor Cleanouts :
1. Standard: ASME A112.36.2M for cast-iron soil pipe with cast-iron ferrule cleanout.
 2. Size: Same as connected branch.
 3. Body or Ferrule: Cast iron.
 4. Clamping Device: Not required.
 5. Outlet Connection: Spigot.
 6. Closure: Brass plug with straight threads and gasket.
 7. Adjustable Housing Material: Cast iron with threads set-screws or other device.
 8. Frame and Cover Material and Finish: Nickel-bronze, copper alloy.
 9. Frame and Cover Shape: Round.
 10. Top Loading Classification: Heavy Duty.
 11. Riser: ASTM A 74, Service class, cast-iron drainage pipe fitting and riser to cleanout.
- C. Cast-Iron Wall Cleanouts:
1. Standard: ASME A112.36.2M. Include wall access.
 2. Size: Same as connected drainage piping.
 3. Body: Hubless, cast-iron soil pipe test tee as required to match connected piping.
 4. Closure: Countersunk, brass plug.
 5. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
 6. Wall Access: Round, flat, chrome-plated brass or stainless-steel cover plate with screw.

2.2 FLOOR DRAINS

A. Cast-Iron Floor Drains:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Josam Company; Josam Div.
 - b. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
 - c. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.6.3.
3. Pattern: Floor drain.
4. Body Material: to match connected piping.
5. Outlet: Bottom.
6. Top or Strainer Material: Nickel bronze.
7. Top of Body and Strainer Finish: Nickel bronze.
8. Top Shape: Round.

2.3 ROOF FLASHING ASSEMBLIES

A. Roof Flashing Assemblies:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Acorn Engineering Company; Elmdor/Stoneman Div.
 - b. Thaler Metal Industries Ltd.
2. Description: Manufactured assembly made of lead flashing collar and skirt extending at roofing manufacturer's recommended distance from pipe, with galvanized-steel boot reinforcement and counterflashing fitting.
 - a. Open-Top Vent Cap: Without cap.

2.4 FLASHING MATERIALS

- A. Lead Sheet: ASTM B 749, Type L51121, copper bearing, with the following minimum weights and thicknesses, unless otherwise indicated:
 1. General Use: 4.0-lb/sq. ft., 0.0625-inch thickness.
 2. Vent Pipe Flashing: 3.0-lb/sq. ft., 0.0469-inch thickness.
 3. Burning: 6-lb/sq. ft., 0.0938-inch thickness.
- B. Fasteners: Metal compatible with material and substrate being fastened.
- C. Metal Accessories: Sheet metal strips, clamps, anchoring devices, and similar accessory units required for installation; matching or compatible with material being installed.

- D. Solder: ASTM B 32, lead-free alloy.
- E. Bituminous Coating: SSPC-Paint 12, solvent-type, bituminous mastic.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:
 - 1. Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is indicated.
 - 2. Locate at each change in direction of piping greater than 45 degrees.
 - 3. Locate at minimum intervals of 50 feet for piping NPS 4 and smaller and 100 feet for larger piping.
 - 4. Locate at base of each vertical soil and waste stack.
- B. For floor cleanouts for piping below floors, install cleanout deck plates with top flush with finished floor.
- C. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.
- D. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise indicated.
 - 1. Position floor drains for easy access and maintenance.
 - 2. Set floor drains below elevation of surrounding finished floor to allow floor drainage. Set with grates depressed according to the following drainage area radii:
 - a. Radius, 30 Inches or Less: Equivalent to 1 percent slope, but not less than 1/4-inch total depression.
 - b. Radius, 30 to 60 Inches: Equivalent to 1 percent slope.
 - c. Radius, 60 Inches or Larger: Equivalent to 1 percent slope, but not greater than 1-inch total depression.
 - 3. Install floor-drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.
 - 4. Install individual traps for floor drains connected to sanitary building drain, unless otherwise indicated.
- E. Install roof flashing assemblies on sanitary stack vents and vent stacks that extend through roof.
- F. Install flashing fittings on sanitary stack vents and vent stacks that extend through roof.
- G. Install air-gap fittings on draining-type backflow preventers and on indirect-waste piping discharge into sanitary drainage system.
- H. Install sleeve flashing device with each riser and stack passing through floors with waterproof membrane.
- I. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.

3.2 CONNECTIONS

- A. Comply with requirements in Section 221316 "Sanitary Waste and Vent Piping" for piping installation requirements. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to equipment to allow service and maintenance.

3.3 FLASHING INSTALLATION

- A. Fabricate flashing from single piece unless large pans, sumps, or other drainage shapes are required. Join flashing according to the following if required:

1. Lead Sheets: Burn joints of lead sheets 6.0-lb/sq. ft., 0.0938-inch thickness or thicker. Solder joints of lead sheets 4.0-lb/sq. ft., 0.0625-inch thickness or thinner.
 - B. Install sheet flashing on pipes, sleeves, and specialties passing through or embedded in floors and roofs with waterproof membrane.
 1. Pipe Flashing: Sleeve type, matching pipe size, with minimum length of 10 inches, and skirt or flange extending at least 8 inches around pipe.
 2. Sleeve Flashing: Flat sheet, with skirt or flange extending at least 8 inches around sleeve.
 3. Embedded Specialty Flashing: Flat sheet, with skirt or flange extending at least 8 inches around specialty.
 - C. Set flashing on floors and roofs in solid coating of bituminous cement.
 - D. Secure flashing into sleeve and specialty clamping ring or device.
 - E. Install flashing for piping passing through roofs with counterflashing or commercially made flashing fittings, according to Section 076200 "Sheet Metal Flashing and Trim."
 - F. Extend flashing up vent pipe passing through roofs and turn down into pipe, or secure flashing into cast-iron sleeve having calking recess.
- 3.4 LABELING AND IDENTIFYING
- A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplate or sign on or near each grease interceptor.
 - B. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Section 220553 "Identification for Plumbing Piping and Equipment."
- 3.5 PROTECTION
- A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.
 - B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 221319

SECTION 221329 - SANITARY SEWERAGE PUMPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Submersible sewage pumps.
 - 2. Wet-pit-volute sewage pumps.
 - 3. Sewage-pump basins and basin covers.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Wiring Diagrams: For power, signal, and control wiring.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. UL Compliance: Comply with UL 778 for motor-operated water pumps.

PART 2 - PRODUCTS

2.1 SUBMERSIBLE SEWAGE PUMPS

- A. Submersible, Quick-Disconnect, Double-Seal Sewage Pumps:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. PACO Pumps; Grundfos Pumps Corporation, U.S.A.
 - b. Weil Pump Company, Inc.
 - c. Zoeller Company.
 - 2. Description: Factory-assembled and -tested sewage-pump unit with guide-rail supports.

3. Pump type: Submersible, end-suction, single-stage, close-coupled, overhung-impeller, centrifugal sewage pump as defined in HI 1.1-1.2 and HI 1.3.
4. Pump Casing: Cast iron, with open inlet, and discharge fittings for connection to guide-rail support.
5. Impeller: Statically and dynamically balanced, ASTM B 584, cast bronze, nonclog, open, or semiopen design for solids handling, and keyed and secured to shaft.
6. Pump and Motor Shaft: Stainless steel, with factory-sealed, grease-lubricated ball bearings.
7. Seals: Mechanical.
8. Moisture-Sensing Probe: Internal moisture sensor and moisture alarm.
9. Motor: Hermetically sealed, capacitor-start type; with built-in overload protection; lifting eye or lug; and three-conductor, waterproof power cable of length required and with grounding plug and cable-sealing assembly for connection at pump.
 - a. Motor Housing Fluid: Oil.
10. Controls:
 - a. Enclosure: NEMA 250, Type 4X.
 - b. Switch Type: Pedestal-mounted float switch with float rods and rod buttons.
 - c. Automatic Alternator: Start pumps on successive cycles and start multiple pumps if one cannot handle load.
 - d. Float Guides: Pipe or other restraint for floats and rods in basins of depth greater than 60 inches.
 - e. High-Water Alarm: Cover-mounted, compression-probe alarm, with electric bell; 120-V ac, with transformer and contacts for remote alarm bell.
11. Controls:
 - a. Enclosure: NEMA 250, Type 4X; wall-mounted.
 - b. Switch Type: Mechanical-float type, in NEMA 250, Type 6 enclosures with mounting rod and electric cables.
 - c. Automatic Alternator: Start pumps on successive cycles and start multiple pumps if one cannot handle load.
 - d. High-Water Alarm: Rod-mounted, NEMA 250, Type 6 enclosure with mechanical-float switch matching control and electric bell; 120-V ac, with transformer and contacts for remote alarm bell.
12. Control-Interface Features:
 - a. Remote Alarm Contacts: For remote alarm interface.
 - b. Building Automation System Interface: Auxiliary contacts in pump controls for interface to building automation system and capable of providing the following:
 - 1) On-off status of pump.
 - 2) Alarm status.
13. Guide-Rail Supports:
 - a. Standard: SWPA's "Submersible Sewage Pumping Systems (SWPA) Handbook."

- b. Guide Rails: Vertical pipes or structural members, made of galvanized steel or other corrosion-resistant metal, attached to baseplate and basin sidewall or cover.
- c. Baseplate: Corrosion-resistant metal plate, attached to basin floor, supporting guide rails and stationary elbow.
- d. Pump Yoke: Motor-mounted or casing-mounted yokes or other attachments for aligning pump during connection of flanges.
- e. Movable Elbow: Pump discharge-elbow fitting with flange, seal, and positioning device.
- f. Stationary Elbow: Fixed discharge-elbow fitting with flange that mates to movable-elbow flange and support attached to baseplate.
- g. Lifting Cable: Stainless steel; attached to pump and cover at manhole.

B. Capacities and Characteristics:

- 1. Unit Capacity: 60 gpm.
- 2. Number of Pumps: One.
- 3. Each Pump:
 - a. Capacity: 60 gpm.
 - b. Solids Handling Capability: Not applicable.
 - c. Total Dynamic Head: 105 feet.
 - d. Speed: 3450 rpm.
 - e. Discharge Pipe Size: 1-1/4 NPS.
 - f. Motor Horsepower: 2.
 - g. Electrical Characteristics:
 - 1) Volts: 208.
 - 2) Phases: Single.
 - 3) Hertz: 60.
- 4. Unit Electrical Characteristics:
 - a. Full-Load Amperes: 15.5.
 - b. Minimum Circuit Ampacity: 20.
 - c. Maximum Overcurrent Protection: 20 A.

2.2 SEWAGE-PUMP BASINS AND BASIN COVERS

- A. Basins: Factory-fabricated, watertight, cylindrical, basin sump with top flange and sidewall openings for pipe connections.
 - 1. Material: Fiberglass.
 - 2. Reinforcement: Mounting plates for pumps, fittings, guide-rail supports if used, and accessories.
 - 3. Anchor Flange: Same material as or compatible with basin sump, cast in or attached to sump, in location and of size required to anchor basin in concrete slab.
- B. Basin Covers: Fabricate metal cover with openings having gaskets, seals, and bushings; for access to pumps, pump shafts, control rods, discharge piping, vent connections, and power cables.

1. Reinforcement: Steel or cast iron, capable of supporting foot traffic for basins installed in foot-traffic areas.
- C. Capacities and Characteristics:
 1. Diameter: 24 inches.
 2. Depth: 60 inches.
 3. Inlet No. 1:
 - a. Drainage Pipe Size: 4 NPS.
 - b. Bottom of Sump to Centerline: 30 inches.
 - c. Type: Flanged outside.
 4. Sidewall Outlet:
 - a. Discharge Pipe Size: 1-1/4 NPS.
 - b. Bottom of Sump to Centerline: 30 inches.
 5. Cover Material: Fiberglass.
 6. Cover Diameter: 24 inches, but not less than outside diameter of basin top flange.
 7. Manhole Required in Cover: No.

2.3 MOTORS

- A. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 220513 "Common Motor Requirements for Plumbing Equipment."
 1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
- B. Motors for submersible pumps shall be hermetically sealed.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Excavation and filling are specified in Section 312000 "Earth Moving."

3.2 INSTALLATION

- A. Pump Installation Standard: Comply with HI 1.4 for installation of centrifugal pumps.

END OF SECTION 221329

SECTION 223300 - ELECTRIC, DOMESTIC-WATER HEATERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Commercial, electric, domestic-water heaters.
 - 2. Domestic-water heater accessories.

1.2 PERFORMANCE REQUIREMENTS

1.3 ACTION SUBMITTALS

- A. Product Data: For each type and size of domestic-water heater indicated.

1.4 INFORMATIONAL SUBMITTALS

- A. Domestic-Water Heater Labeling: Certified and labeled by testing agency acceptable to authorities having jurisdiction.
- B. Source quality-control reports.
- C. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of electric, domestic-water heaters that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Periods: From date of Substantial Completion.

- a. Commercial, Electric, Storage, Domestic-Water Heaters:
 - 1) Storage Tank: Three years.
 - 2) Controls and Other Components: Three years.
- b. Compression Tanks: Five years.

PART 2 - PRODUCTS

2.1 COMMERCIAL, ELECTRIC, DOMESTIC-WATER HEATERS

A. Commercial, Electric, Storage, Domestic-Water Heaters:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bradford White Corporation.
 - b. Rheem Manufacturing Company.
 - c. Smith, A. O. Water Products Co.; a division of A. O. Smith Corporation.
2. Standard: UL 1453.
3. Storage-Tank Construction: Non-ASME-code, steel vertical arrangement.
 - a. Tappings: Factory fabricated of materials compatible with tank and piping connections. Attach tappings to tank before testing.
 - 1) NPS 2 and Smaller: Threaded ends according to ASME B1 20.1.
 - 2) NPS 2-1/2 and Larger: Flanged ends according to ASME B16.5 for steel and stainless-steel flanges, and according to ASME B16.24 for copper and copper-alloy flanges.
 - b. Pressure Rating: 150 psig.
 - c. Interior Finish: Comply with NSF 61 barrier materials for potable-water tank linings, including extending lining material into tappings.
4. Factory-Installed Storage-Tank Appurtenances:
 - a. Anode Rod: Replaceable magnesium.
 - b. Drain Valve: Corrosion-resistant metal complying with ASSE 1005.
 - c. Insulation: Comply with ASHRAE/IESNA 90.1.
 - d. Jacket: Steel with enameled finish.
 - e. Heating Elements: Electric, screw-in or bolt-on immersion type arranged in multiples of three.
 - f. Temperature Control: Adjustable thermostat.
 - g. Safety Controls: High-temperature-limit and low-water cutoff devices or systems.
 - h. Relief Valves: ASME rated and stamped for combination temperature-and-pressure relief valves. Include one or more relief valves with total relieving capacity at least as great as heat input, and include pressure setting less than domestic-water heater working-pressure rating. Select one relief valve with sensing element that extends into storage tank.

2.2 Domestic-WATER HEATER ACCESSORIES

A. Domestic-Water Compression Tanks:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. AMTROL Inc.
 - b. Pentair Pump Group (The); Myers.
 - c. Smith, A. O. Water Products Co.; a division of A. O. Smith Corporation.
2. Description: Steel pressure-rated tank constructed with welded joints and factory-installed butyl-rubber diaphragm. Include air precharge to minimum system-operating pressure at tank.
3. Construction:
 - a. Tappings: Factory-fabricated steel, welded to tank before testing and labeling. Include ASME B1.20.1 pipe thread.
 - b. Interior Finish: Comply with NSF 61 barrier materials for potable-water tank linings, including extending finish into and through tank fittings and outlets.
 - c. Air-Charging Valve: Factory installed.
4. Capacity and Characteristics:
 - a. Working-Pressure Rating: 100 psig.
 - b. Capacity Acceptable: 2 gal. minimum.

B. Drain Pans: Corrosion-resistant metal with raised edge. Comply with ANSI/CSA LC 3. Include dimensions not less than base of domestic-water heater, and include drain outlet not less than NPS 3/4 with ASME B1.20.1 pipe threads or with ASME B1.20.7 garden-hose threads.

C. Piping-Type Heat Traps: Field-fabricated piping arrangement according to ASHRAE/IESNA 90.1.

D. Heat-Trap Fittings: ASHRAE 90.2.

E. Pressure-Reducing Valves: ASSE 1003 for water. Set at 25-psig-maximum outlet pressure unless otherwise indicated.

F. Combination Temperature-and-Pressure Relief Valves: ASME rated and stamped. Include relieving capacity at least as great as heat input, and include pressure setting less than domestic-water heater working-pressure rating. Select relief valves with sensing element that extends into storage tank.

G. Pressure Relief Valves: ASME rated and stamped. Include pressure setting less than domestic-water heater working-pressure rating.

H. Vacuum Relief Valves: ANSI Z21.22/CSA 4.4.

I. Shock Absorbers: ASSE 1010 or PDI-WH 201, Size A water hammer arrester.

2.3 SOURCE QUALITY CONTROL

- A. Factory Tests: Test and inspect domestic-water heaters specified to be ASME-code construction, according to ASME Boiler and Pressure Vessel Code.
- B. Hydrostatically test commercial domestic-water heaters to minimum of one and one-half times pressure rating before shipment.
- C. Electric, domestic-water heaters will be considered defective if they do not pass tests and inspections. Comply with requirements in Section 014000 "Quality Requirements" for retesting and reinspecting requirements and Section 017300 "Execution" for requirements for correcting the Work.
- D. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 DOMESTIC-WATER HEATER INSTALLATION

- A. Commercial, Electric, Domestic-Water Heater Mounting: Install commercial, electric, domestic-water heaters on concrete base. Comply with requirements for concrete bases specified in Section 033000 "Cast-in-Place Concrete." and Section 033053 "Miscellaneous Cast-in-Place Concrete."
 - 1. Exception: Omit concrete bases for commercial, electric, domestic-water heaters if installation on stand, bracket, suspended platform, or directly on floor is indicated.
 - 2. Maintain manufacturer's recommended clearances.
 - 3. Arrange units so controls and devices that require servicing are accessible.
 - 4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
 - 5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
 - 6. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 7. Install anchor bolts to elevations required for proper attachment to supported equipment.
 - 8. Anchor domestic-water heaters to substrate.
- B. Install electric, domestic-water heaters level and plumb, according to layout drawings, original design, and referenced standards. Maintain manufacturer's recommended clearances. Arrange units so controls and devices needing service are accessible.
 - 1. Install shutoff valves on domestic-water-supply piping to domestic-water heaters and on domestic-hot-water outlet piping. Comply with requirements for shutoff valves specified in Section 220523 "General-Duty Valves for Plumbing Piping."
- C. Install combination temperature-and-pressure relief valves in top portion of storage tanks. Use relief valves with sensing elements that extend into tanks. Extend commercial-water-heater relief-valve outlet, with drain piping same as domestic-water piping in continuous downward pitch, and discharge by positive air gap onto closest floor drain.

- D. Install water-heater drain piping as indirect waste to spill by positive air gap into open drains or over floor drains. Install hose-end drain valves at low points in water piping for electric, domestic-water heaters that do not have tank drains. Comply with requirements for hose-end drain valves specified in Section 221119 "Domestic Water Piping Specialties."
- E. Install piping-type heat traps on inlet and outlet piping of electric, domestic-water heater storage tanks without integral or fitting-type heat traps.
- F. Fill electric, domestic-water heaters with water.
- G. Charge domestic-water compression tanks with air.

3.2 CONNECTIONS

- A. Comply with requirements for piping specified in Section 221116 "Domestic Water Piping." Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Where installing piping adjacent to electric, domestic-water heaters, allow space for service and maintenance of water heaters. Arrange piping for easy removal of domestic-water heaters.

3.3 IDENTIFICATION

- A. Identify system components. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing Piping and Equipment."

3.4 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
 - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 - 2. Operational Test: After electrical circuitry has been energized, start units to confirm proper operation.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Electric, domestic-water heaters will be considered defective if they do not pass tests and inspections. Comply with requirements in Section 014000 "Quality Requirements" for retesting and reinspecting requirements and Section 017300 "Execution" for requirements for correcting the Work.
- C. Prepare test and inspection reports.

END OF SECTION 223300

SECTION 224213.13 - COMMERCIAL WATER CLOSETS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Water closets.
 2. Flushometer valves.
 3. Toilet seats.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
B. Shop Drawings: Include diagrams for power, signal, and control wiring.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For flushometer valves to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 WATER CLOSETS

- A. Water Closets WC1, WC2: Floor mounted, floor outlet, close coupled (gravity tank), vitreous china.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Standard America.
 - b. Kohler Co.
 - c. TOTO USA, INC.
 2. Bowl:
 - a. Standards: ASME A112.19.2/CSA B45.1, ASME A112.19.5, and ASSE 1037.
 - b. Bowl Type : Siphon jet.
 - c. Height
 - 1) WC1: Handicapped/elderly.
 - 2) WC2: Standard.
 - d. Rim Contour: Elongated.
 - e. Water Consumption: Low.
 - f. Color: White.
 3. Supply Fittings:
 - a. Standard: ASME A112.18.1/CSA B125.1.
 - b. Supply Piping: Chrome-plated-brass pipe or chrome-plated-copper tube matching water-supply piping size. Include chrome-plated wall flange.
 - c. Stop: Chrome-plated-brass, one-quarter-turn, ball-type or compression stop with inlet connection matching water-supply piping type and size.

1) Operation: Wheel handle.

d. Riser:

1) Size: NPS 1/2.

2) Material: ASME A112.18.6, braided- or corrugated-stainless-steel flexible hose riser.

2.2 TOILET SEATS

A. Toilet Seats:

1. Standard: IAPMO/ANSI Z124.5.
2. Material: Plastic.
3. Type: Commercial (Heavy duty).
4. Shape: Elongated rim, open front.
5. Hinge: Check.
6. Hinge Material: Noncorroding metal.
7. Seat Cover: Not required.
8. Color: White.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Water-Closet Installation:

1. Install level and plumb according to roughing-in drawings.
2. Install floor-mounted water closets on bowl-to-drain connecting fitting attachments to piping or building substrate.
3. Install accessible, wall-mounted water closets at mounting height for handicapped/elderly, according to ICC/ANSI A117.1.

B. Support Installation:

1. Install supports, affixed to building substrate, for floor-mounted, back-outlet water closets.

C. Install toilet seats on water closets.

D. Wall Flange and Escutcheon Installation:

1. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations and within cabinets and millwork.
2. Install deep-pattern escutcheons if required to conceal protruding fittings.

E. Joint Sealing:

1. Seal joints between water closets and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.
2. Match sealant color to water-closet color.
3. Comply with sealant requirements specified in Section 079200 "Joint Sealants."

3.2 CONNECTIONS

- A. Connect water closets with water supplies and soil, waste, and vent piping. Use size fittings required to match water closets.
- B. Comply with water piping requirements specified in Section 221116 "Domestic Water Piping."
- C. Comply with soil and waste piping requirements specified in Section 221316 "Sanitary Waste and Vent Piping."
- D. Where installing piping adjacent to water closets, allow space for service and maintenance.

3.3 ADJUSTING

- A. Operate and adjust water closets and controls. Replace damaged and malfunctioning water closets, fittings, and controls.

- B. Adjust water pressure to produce proper flow.
- 3.4 CLEANING AND PROTECTION
- A. Clean water closets and fittings with manufacturers' recommended cleaning methods and materials.
 - B. Install protective covering for installed water closets and fittings.
 - C. Do not allow use of water closets for temporary facilities unless approved in writing by Owner.

END OF SECTION 224213.13

SECTION 224213.16 - COMMERCIAL URINALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Urinals.
2. Flushometer valves.

1.2 SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 WALL-HUNG URINALS

- A. Urinals UR: Wall hung, back outlet, siphon jet, accessible.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Standard America.
 - b. Gerber Plumbing Fixtures LLC.
 - c. Kohler Co.
2. Fixture:
 - a. Standards: ASME A112.19.2/CSA B45.1 and ASME A112.19.5.
 - b. Material: Vitreous china.
 - c. Type: Siphon jet.
 - d. Strainer or Trapway: Manufacturer's standard strainer with integral trap.
 - e. Water Consumption: Low.
 - f. Spud Size and Location: NPS 3/4; top.
 - g. Outlet Size and Location: NPS 2; back.
 - h. Color: White.
3. Flushometer Valve: UR.
4. Waste Fitting:
 - a. Standard: ASME A112.18.2/CSA B125.2 for coupling.
 - b. Size: NPS 2.

5. Support: ASME A112.6.1M, Type I, urinal carrier with fixture support plates and coupling with seal and fixture bolts and hardware matching fixture.

2.2 URINAL FLUSHOMETER VALVES

A. Battery-Powered, Solenoid-Actuator, Piston Flushometer Valves UR:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Gerber Plumbing Fixtures LLC.
 - b. Sloan Valve Company.
 - c. Zurn Industries, LLC; Commercial Brass and Fixtures.
2. Standard: ASSE 1037.
3. Minimum Pressure Rating: 125 psig.
4. Features: Include integral check stop and backflow-prevention device.
5. Material: Brass body with corrosion-resistant components.
6. Exposed Flushometer-Valve Finish: Chrome plated.
7. Style: Exposed.
8. Actuator: Solenoid complying with UL 1951; listed and labeled as defined in NFPA 70, by a qualified testing agency; and marked for intended location and application.
9. Trip Mechanism: Battery-powered electronic sensor complying with UL 1951; listed and labeled as defined in NFPA 70, by a qualified testing agency; and marked for intended location and application.
10. Consumption: 1.0 gal. per flush.
11. Minimum Inlet: NPS 3/4.
12. Minimum Outlet: NPS 3/4.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before urinal installation.
- B. Examine walls and floors for suitable conditions where urinals will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Urinal Installation:

1. Install urinals level and plumb according to roughing-in drawings.
2. Install wall-hung, back-outlet urinals onto waste fitting seals and attached to supports.
3. Install accessible, wall-mounted urinals at mounting height for the handicapped/elderly, according to ICC/ANSI A117.1.

B. Support Installation:

1. Install supports, affixed to building substrate, for wall-hung urinals.
2. Use off-floor carriers with waste fitting and seal for back-outlet urinals.
3. Use carriers without waste fitting for urinals with tubular waste piping.
4. Use chair-type carrier supports with rectangular steel uprights for accessible urinals.

C. Flushometer-Valve Installation:

1. Install flushometer-valve water-supply fitting on each supply to each urinal.
2. Attach supply piping to supports or substrate within pipe spaces behind fixtures.
3. Install lever-handle flushometer valves for accessible urinals with handle mounted on open side of compartment.
4. Install fresh batteries in battery-powered, electronic-sensor mechanisms.

D. Wall Flange and Escutcheon Installation:

1. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations.
2. Install deep-pattern escutcheons if required to conceal protruding fittings.
3. Comply with escutcheon requirements specified in Section 220518 "Escutcheons for Plumbing Piping."

E. Joint Sealing:

1. Seal joints between urinals and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.
2. Match sealant color to urinal color.
3. Comply with sealant requirements specified in Section 079200 "Joint Sealants."

3.3 CONNECTIONS

- A. Connect urinals with water supplies and soil, waste, and vent piping. Use size fittings required to match urinals.
- B. Comply with water piping requirements specified in Section 221116 "Domestic Water Piping."
- C. Comply with soil and waste piping requirements specified in Section 221316 "Sanitary Waste and Vent Piping."
- D. Where installing piping adjacent to urinals, allow space for service and maintenance.

3.4 ADJUSTING

- A. Operate and adjust urinals and controls. Replace damaged and malfunctioning urinals, fittings, and controls.
- B. Adjust water pressure at flushometer valves to produce proper flow.
- C. Install fresh batteries in battery-powered, electronic-sensor mechanisms.

3.5 CLEANING AND PROTECTION

- A. Clean urinals and fittings with manufacturers' recommended cleaning methods and materials.
- B. Install protective covering for installed urinals and fittings.
- C. Do not allow use of urinals for temporary facilities unless approved in writing by Owner.

END OF SECTION 224213.16

SECTION 224216.13 - COMMERCIAL LAVATORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Lavatories.
2. Faucets.

1.2 SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 VITREOUS-CHINA, COUNTER-MOUNTED LAVATORIES

A. Lavatory LAV: Oval, self rimming, vitreous china, counter mounted.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Standard America.
 - b. Kohler Co.
 - c. TOTO USA, INC.
2. Fixture:
 - a. Standard: ASME A112.19.2/CSA B45.1.
 - b. Type: Self-rimming for above-counter mounting.
 - c. Nominal Size: Oval, 20 by 17 inches.
 - d. Faucet-Hole Punching: Three holes, 4-inch centers.
 - e. Faucet-Hole Location: Top.
 - f. Color: White.
 - g. Mounting Material: Sealant.
3. Faucet: per Solid-brass, Manually Operated Faucets section of this specifications.

2.2 SOLID-BRASS, MANUALLY OPERATED FAUCETS

- A. NSF Standard: Comply with NSF/ANSI 61, "Drinking Water System Components - Health Effects," for faucet materials that will be in contact with potable water.

- B. Lavatory Faucets: Manual-type, two-handle mixing, commercial, solid-brass valve.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Standard America.
 - b. Kohler Co.
 - c. Zurn Industries, LLC; Commercial Brass and Fixtures.
 2. Standard: ASME A112.18.1/CSA B125.1.
 3. General: Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture hole punchings; coordinate outlet with spout and fixture receptor.
 4. Body Type: Centerset.
 5. Body Material: Commercial, solid brass.
 6. Finish: Polished chrome plate.
 7. Maximum Flow Rate: 0.5 gpm.
 8. Mounting Type: Deck, exposed.
 9. Valve Handle(s): Wrist blade, 4 inches.
 10. Spout: Rigid type.
 11. Spout Outlet: Aerator.
 12. Operation: Compression, manual.

2.3 SUPPLY FITTINGS

- A. NSF Standard: Comply with NSF/ANSI 61, "Drinking Water System Components - Health Effects," for supply-fitting materials that will be in contact with potable water.
- B. Standard: ASME A112.18.1/CSA B125.1.
- C. Supply Piping: Chrome-plated-brass pipe or chrome-plated copper tube matching water-supply piping size. Include chrome-plated-brass or stainless-steel wall flange.
- D. Supply Stops: Chrome-plated-brass, one-quarter-turn, ball-type or compression valve with inlet connection matching supply piping.
- E. Operation: Wheel handle.
- F. Risers:
 1. NPS 1/2.
 2. ASME A112.18.6, braided- or corrugated-stainless-steel, flexible hose riser.

2.4 WASTE FITTINGS

- A. Standard: ASME A112.18.2/CSA B125.2.
- B. Drain: Grid type with NPS 1-1/4 offset and straight tailpiece.
- C. Trap:

1. Size: NPS 1-1/2 by NPS 1-1/4.
2. Material: Chrome-plated, two-piece, cast-brass trap and swivel elbow with 0.032-inch-thick brass tube to wall; and chrome-plated, brass or steel wall flange.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before lavatory installation.
- B. Examine counters and walls for suitable conditions where lavatories will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install lavatories level and plumb according to roughing-in drawings.
- B. Install supports, affixed to building substrate, for wall-mounted lavatories.
- C. Install accessible wall-mounted lavatories at handicapped/elderly mounting height for people with disabilities or the elderly, according to ICC/ANSI A117.1.
- D. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings. Comply with escutcheon requirements specified in Section 220518 "Escutcheons for Plumbing Piping."
- E. Seal joints between lavatories and counters and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 079200 "Joint Sealants."
- F. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible lavatories. Comply with requirements in Section 220719 "Plumbing Piping Insulation."

3.3 CONNECTIONS

- A. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
- B. Comply with water piping requirements specified in Section 221116 "Domestic Water Piping."
- C. Comply with soil and waste piping requirements specified in Section 221316 "Sanitary Waste and Vent Piping."

3.4 ADJUSTING

- A. Operate and adjust lavatories and controls. Replace damaged and malfunctioning lavatories, fittings, and controls.
- B. Adjust water pressure at faucets to produce proper flow.
- C. Install fresh batteries in battery-powered, electronic-sensor mechanisms.

3.5 CLEANING AND PROTECTION

- A. After completing installation of lavatories, inspect and repair damaged finishes.
- B. Clean lavatories, faucets, and other fittings with manufacturers' recommended cleaning methods and materials.
- C. Provide protective covering for installed lavatories and fittings.
- D. Do not allow use of lavatories for temporary facilities unless approved in writing by Owner.

END OF SECTION 224216.13

SECTION 224216.16 – SERVICE BASINS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Service basins.
2. Sink faucets.
3. Supply fittings.
4. Waste fittings.

1.2 SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 SERVICE BASINS

A. Service Basins MS: Plastic, floor mounted.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Crane Plumbing, L.L.C.
 - b. Mustee, E. L., & Sons, Inc.
 - c. Swan Corporation (The).
2. Fixture:
 - a. Standard: IAPMO/ANSI Z124.6.
 - b. Material: Cast polymer.
 - c. Nominal Size: 24 by 24 by 10 inches.
 - d. Tiling Flange: On two sides.
 - e. Rim Guard: On all top surfaces.
 - f. Drain: Grid with NPS 3 outlet.
3. Mounting: On floor and flush to wall.
4. Faucet: MS.

2.2 SINK FAUCETS

- A. NSF Standard: Comply with NSF/ANSI 61, "Drinking Water System Components - Health Effects," for faucet-spout materials that will be in contact with potable water.
- B. Sink Faucets MS: Manual type, two-lever-handle mixing valve.
 - 1. Commercial, Solid-Brass Faucets:
 - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Bradley Corporation.
 - 2) Chicago Faucets.
 - 3) Just Manufacturing.
 - 2. Standard: ASME A112.18.1/CSA B125.1.
 - 3. General: Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture hole punchings; coordinate outlet with spout and sink receptor.
 - 4. Body Type: Widespread.
 - 5. Body Material: Commercial, solid brass.
 - 6. Finish: Chrome plated.
 - 7. Maximum Flow Rate: 4.0 gpm.
 - 8. Handle(s): Lever.
 - 9. Mounting Type: Back/wall, exposed.
 - 10. Spout Type: Rigid, solid brass with wall brace.
 - 11. Vacuum Breaker: Required for hose outlet.
 - 12. Spout Outlet: Hose thread according to ASME B1.20.7.

2.3 SUPPLY FITTINGS

- A. NSF Standard: Comply with NSF/ANSI 61, "Drinking Water System Components - Health Effects," for supply-fitting materials that will be in contact with potable water.
- B. Standard: ASME A112.18.1/CSA B125.1.
- C. Supply Piping: Chrome-plated brass pipe or chrome-plated copper tube matching water-supply piping size. Include chrome-plated brass or stainless-steel wall flange.
- D. Supply Stops: Chrome-plated brass, one-quarter-turn, ball-type or compression valve with inlet connection matching supply piping.
- E. Operation: Wheel handle.
- F. Risers:
 - 1. NPS 1/2

2.4 WASTE FITTINGS

- A. Standard: ASME A112.18.2/CSA B125.2.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before sink installation.
- B. Examine walls, floors, and counters for suitable conditions where sinks will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install sinks level and plumb according to roughing-in drawings.
- B. Install supports, affixed to building substrate, for wall-hung sinks.
- C. Set floor-mounted sinks in leveling bed of cement grout.
- D. Install water-supply piping with stop on each supply to each sink faucet.
 - 1. Exception: Use ball, gate, or globe valves if supply stops are not specified with sink. Comply with valve requirements specified in Section 220523 "General-Duty Valves for Plumbing Piping."
 - 2. Install stops in locations where they can be easily reached for operation.
- E. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings. Comply with escutcheon requirements specified in Section 220518 "Escutcheons for Plumbing Piping."
- F. Seal joints between sinks and counters, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 079200 "Joint Sealants."
- G. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible sinks. Comply with requirements in Section 220719 "Plumbing Piping Insulation."

3.3 CONNECTIONS

- A. Connect sinks with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
- B. Comply with water piping requirements specified in Section 221116 "Domestic Water Piping."

- C. Comply with soil and waste piping requirements specified in Section 221316 "Sanitary Waste and Vent Piping."

3.4 ADJUSTING

- A. Operate and adjust sinks and controls. Replace damaged and malfunctioning sinks, fittings, and controls.
- B. Adjust water pressure at faucets to produce proper flow.

3.5 CLEANING AND PROTECTION

- A. After completing installation of sinks, inspect and repair damaged finishes.
- B. Clean sinks, faucets, and other fittings with manufacturers' recommended cleaning methods and materials.
- C. Provide protective covering for installed sinks and fittings.
- D. Do not allow use of sinks for temporary facilities unless approved in writing by Owner.

END OF SECTION 224216.16

SECTION 230553 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Equipment labels.
 2. Warning signs and labels.
 3. Pipe labels.
 4. Duct labels.

1.2 ACTION SUBMITTAL

- A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 EQUIPMENT LABELS

- A. Plastic Labels for Equipment:
1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.
 2. Letter Color: Black.
 3. Background Color: Yellow.
 4. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
 5. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
 6. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
 7. Fasteners: Stainless-steel rivets or self-tapping screws.
 8. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- B. Label Content: Include equipment's Drawing designation or unique equipment number.
- C. Equipment Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch bond paper. Tabulate equipment identification number and identify Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified. Equipment schedule shall be included in operation and maintenance data.

2.2 WARNING SIGNS AND LABELS

- A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.
- B. Letter Color: White.
- C. Background Color: Red.
- D. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
- E. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
- F. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
- G. Fasteners: Stainless-steel rivets or self-tapping screws.
- H. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- I. Label Content: Include caution and warning information, plus emergency notification instructions.

2.3 PIPE LABELS

- A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.
- B. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.
- C. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.
 - 1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
 - 2. Lettering Size: At least 1-1/2 inches high.

2.4 DUCT LABELS

- A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.
- B. Letter Color: Black.
- C. Background Color: Yellow.
- D. Maximum Temperature: Able to withstand temperatures up to 160 deg F.

- E. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
- F. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
- G. Fasteners: Stainless-steel rivets or self-tapping screws.
- H. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- I. Duct Label Contents: Include identification of duct service using same designations or abbreviations as used on Drawings, duct size, and an arrow indicating flow direction.
 - 1. Flow-Direction Arrows: Integral with duct system service lettering to accommodate both directions, or as separate unit on each duct label to indicate flow direction.
 - 2. Lettering Size: At least 1-1/2 inches high.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 EQUIPMENT LABEL INSTALLATION

- A. Install or permanently fasten labels on each major item of mechanical equipment.
- B. Locate equipment labels where accessible and visible.

3.3 PIPE LABEL INSTALLATION

- A. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
 - 1. Near each valve and control device.
 - 2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
 - 3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
 - 4. At access doors, manholes, and similar access points that permit view of concealed piping.
 - 5. Near major equipment items and other points of origination and termination.
 - 6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.

7. On piping above removable acoustical ceilings. Omit intermediately spaced labels.

B. Pipe Label Color Schedule:

1. Refrigerant Piping:

- a. Background Color: Green.
- b. Letter Color: White.

3.4 DUCT LABEL INSTALLATION

A. Install self-adhesive duct labels with permanent adhesive on air ducts in the following color codes:

1. Yellow: For air supply ducts.
2. Green: For exhaust-, outside-, relief-, return-, and mixed-air ducts.

B. Locate labels near points where ducts enter into concealed spaces and at maximum intervals of 50 feet in each space where ducts are exposed or concealed by removable ceiling system.

END OF SECTION 230553

SECTION 233113 - METAL DUCTS WITH LINER

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Rectangular ducts and fittings.
 - 2. Round ducts and fittings.
 - 3. Sheet metal materials.
 - 4. Duct liner.
 - 5. Sealants and gaskets.
 - 6. Hangers and supports.

1.2 PERFORMANCE REQUIREMENTS

- A. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1-2004.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

- 1.4 Retain paragraph below if retaining procedures for welder certification in "Quality Assurance" Article.

1.5 QUALITY ASSURANCE

- A. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1-2004, Section 5 - "Systems and Equipment" and Section 7 - "Construction and System Start-Up."
- B. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6.4.4 - "HVAC System Construction and Insulation."

PART 2 - PRODUCTS

2.1 RECTANGULAR DUCTS AND FITTINGS

- A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.
- B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 1-4, "Transverse (Girth) Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
- C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 1-5, "Longitudinal Seams - Rectangular Ducts," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
- D. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

Flexible," Chapter 2, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.2 ROUND DUCTS AND FITTINGS

- A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 3, "Round, Oval, and Flexible Duct," based on indicated static-pressure class unless otherwise indicated.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Lindab Inc.
 - b. McGill AirFlow LLC.
 - c. SEMCO Incorporated.
- B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-2, "Transverse Joints - Round Duct," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
 - 1. Transverse Joints in Ducts Larger Than 60 Inches in Diameter: Flanged.
- C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-1, "Seams - Round Duct and Fittings," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
 - 1. Fabricate round ducts larger Than 90 inches in diameter with butt-welded longitudinal seams.
- D. Tees and Laterals: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "90 Degree Tees and Laterals," and Figure 3-5, "Conical Tees," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.3 SHEET METAL MATERIALS

- A. General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
- B. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.
 - 1. Galvanized Coating Designation: G60.
 - 2. Finishes for Surfaces Exposed to View: Mill phosphatized.
- C. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.4 DUCT LINER

- A. Fibrous-Glass Duct Liner: Comply with ASTM C 1071, NFPA 90A, or NFPA 90B; and with NAIMA AH124, "Fibrous Glass Duct Liner Standard."
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. CertainTeed Corporation; Insulation Group.
- b. Johns Manville.
- c. Knauf Insulation.
2. Maximum Thermal Conductivity:
 - a. Type I, Flexible: 0.27 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.
3. Antimicrobial Erosion-Resistant Coating: Either integral to the makeup of the facing compound or applied to the surface of the liner, that will form the interior surface of the duct to act as a moisture repellent and erosion-resistant coating. Antimicrobial compound shall be tested for efficacy by an NRTL and registered by the EPA for use in HVAC systems.
4. Solvent-Based Liner Adhesive: Comply with NFPA 90A or NFPA 90B and with ASTM C 916.
- B. Insulation Pins and Washers:
 1. Cupped-Head, Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch- diameter shank, length to suit depth of insulation indicated with integral 1-1/2-inch galvanized carbon-steel washer.
 2. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch- thick galvanized steel; with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.
- C. Shop Application of Duct Liner: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-19, "Flexible Duct Liner Installation."
 1. Adhere a single layer of indicated thickness of duct liner with at least 90 percent adhesive coverage at liner contact surface area. Attaining indicated thickness with multiple layers of duct liner is prohibited.
 2. Apply adhesive to transverse edges of liner facing upstream that do not receive metal nosing.
 3. Butt transverse joints without gaps, and coat joint with adhesive.
 4. Fold and compress liner in corners of rectangular ducts or cut and fit to ensure butted-edge overlapping.
 5. Do not apply liner in rectangular ducts with longitudinal joints, except at corners of ducts, unless duct size and dimensions of standard liner make longitudinal joints necessary.
 6. Secure liner with mechanical fasteners 4 inches from corners and at intervals not exceeding 12 inches transversely; at 3 inches from transverse joints and at intervals not exceeding 18 inches longitudinally.
 7. Terminate inner ducts with buildouts attached to fire-damper sleeves, dampers, turning vane assemblies, or other devices. Fabricated buildouts (metal hat sections) or other buildout means are optional; when used, secure buildouts to duct walls with bolts, screws, rivets, or welds.

2.5 SEALANT AND GASKETS

- A. General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.
- B. Water-Based Joint and Seam Sealant:
 1. Application Method: Brush on.
 2. Solids Content: Minimum 65 percent.
 3. Shore A Hardness: Minimum 20.
 4. Water resistant.
 5. Mold and mildew resistant.
 6. VOC: Maximum 75 g/L (less water).

7. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
 8. Service: Indoor or outdoor.
 9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.
- C. Flanged Joint Sealant: Comply with ASTM C 920.
1. General: Single-component, acid-curing, silicone, elastomeric.
 2. Type: S.
 3. Grade: NS.
 4. Class: 25.
 5. Use: O.
- D. Round Duct Joint O-Ring Seals:
1. Seal shall provide maximum leakage class of 3 cfm/100 sq. ft. at 1-inch wg and shall be rated for 10-inch wg static-pressure class, positive or negative.

2.6 HANGERS AND SUPPORTS

- A. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.
- B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.
- C. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 4-1, "Rectangular Duct Hangers Minimum Size," and Table 4-2, "Minimum Hanger Sizes for Round Duct."
- D. Steel Cables for Galvanized-Steel Ducts: Galvanized steel complying with ASTM A 603.
- E. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.
- F. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.
- G. Trapeze and Riser Supports:
 1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
 2. Supports for Stainless-Steel Ducts: Stainless-steel shapes and plates.
 3. Supports for Aluminum Ducts: Aluminum or galvanized steel coated with zinc chromate.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.
- B. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.
- C. Install round ducts in maximum practical lengths.
- D. Install ducts with fewest possible joints.
- E. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.
- F. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.

- G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
- H. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.
- I. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures.
- J. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.
- K. Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers. Comply with requirements in Division 23 Section "Duct Accessories" for fire and smoke dampers.
- L. Protect duct interiors from moisture, construction debris and dust, and other foreign materials. Comply with SMACNA's "Duct Cleanliness for New Construction Guidelines."

3.2 INSTALLATION OF EXPOSED DUCTWORK

- A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.
- B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.
- C. Grind welds to provide smooth surface free of burrs, sharp edges, and weld splatter. When welding stainless steel with a No. 3 or 4 finish, grind the welds flush, polish the exposed welds, and treat the welds to remove discoloration caused by welding.
- D. Maintain consistency, symmetry, and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.
- E. Repair or replace damaged sections and finished work that does not comply with these requirements.

3.3 DUCT SEALING

- A. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" Article according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
- B. Seal ducts to the following seal classes according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible":
 - 1. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
 - 2. Outdoor, Supply-Air Ducts: Seal Class A.
 - 3. Outdoor, Exhaust Ducts: Seal Class C.
 - 4. Outdoor, Return-Air Ducts: Seal Class C.
 - 5. Unconditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg and Lower: Seal Class B.
 - 6. Unconditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg: Seal Class A.
 - 7. Unconditioned Space, Exhaust Ducts: Seal Class C.
 - 8. Unconditioned Space, Return-Air Ducts: Seal Class B.
 - 9. Conditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg and Lower: Seal Class C.
 - 10. Conditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg: Seal Class B.
 - 11. Conditioned Space, Exhaust Ducts: Seal Class B.
 - 12. Conditioned Space, Return-Air Ducts: Seal Class C.

3.4 HANGER AND SUPPORT INSTALLATION

- A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Hangers and Supports."
- B. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.
 - 1. Where practical, install concrete inserts before placing concrete.
 - 2. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
 - 3. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches thick.
 - 4. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.
- C. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 4-1, "Rectangular Duct Hangers Minimum Size," and Table 4-2, "Minimum Hanger Sizes for Round Duct," for maximum hanger spacing; install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.
- D. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at a maximum intervals of 16 feet.
- E. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.5 CONNECTIONS

- A. Make connections to equipment with flexible connectors complying with Division 15 Section "Duct Accessories."
- B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.6 START UP

- A. Air Balance: Comply with requirements in Division 15 Section "Testing, Adjusting, and Balancing."

3.7 DUCT SCHEDULE

- A. Supply Ducts:
 - 1. Ducts Connected to Fan Coil Units, Furnaces, Heat Pumps, and Terminal Units:
 - a. Pressure Class: Positive 2-inch wg.
 - b. Minimum SMACNA Seal Class: B.
 - 2. Ducts Connected to Constant-Volume Air-Handling Units:
 - a. Pressure Class: Positive 2-inch wg.
 - b. Minimum SMACNA Seal Class: B.
 - 3. Ducts Connected to Variable-Air-Volume Air-Handling Units:
 - a. Pressure Class: Positive 3-inch wg.
 - b. Minimum SMACNA Seal Class: B.
- B. Return Ducts:
 - 1. Ducts Connected to Fan Coil Units, Furnaces, Heat Pumps, and Terminal Units:
 - a. Pressure Class: Positive or negative 1-inch wg.
 - b. Minimum SMACNA Seal Class: C.
 - 2. Ducts Connected to Air-Handling Units:
 - a. Pressure Class: Positive or negative 2-inch wg.
 - b. Minimum SMACNA Seal Class: B.
- C. Liner:

1. Supply Air Ducts: Fibrous glass, Type I, 1 inch thick.
 2. Return Air Ducts: Fibrous glass, Type I, 1 inch thick.
 3. Exhaust Air Ducts: None.
 4. Outside Air Ducts: Fibrous glass, Type I, 2 inches thick.
- D. Elbow Configuration:
1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Elbows."
 - a. Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
 - b. Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
 - c. Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-3, "Vanes and Vane Runners," and Figure 2-4, "Vane Support in Elbows."
 2. Round Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-3, "Round Duct Elbows."
 - a. Minimum Radius-to-Diameter Ratio and Elbow Segments: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 3-1, "Mitered Elbows." Elbows with less than 90-degree change of direction have proportionately fewer segments.
 - 1) Radius-to Diameter Ratio: 1.5.
 - b. Round Elbows, 12 Inches and Smaller in Diameter: Stamped or pleated.
 - c. Round Elbows, 14 Inches and Larger in Diameter: Standing seam.
- E. Branch Configuration:
1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-6, "Branch Connections."
 - a. Rectangular Main to Rectangular Branch: 45-degree entry.
 - b. Rectangular Main to Round Branch: 45-degree entry.
 2. Round: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "90 Degree Tees and Laterals," and Figure 3-5, "Conical Tees." Saddle taps are permitted in existing duct.
 - a. Velocity 1000 fpm or Lower: 90-degree tap.
 - b. Velocity 1000 to 1500 fpm: Conical tap.
 - c. Velocity 1500 fpm or Higher: 45-degree lateral.

END OF SECTION 233113

SECTION 233300 DUCT ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Duct Access Doors
- B. Flexible duct connections.
- C. Louvers

1.02 SUBMITTALS

- A. See General and Special Conditions for submittal requirements and procedures.
- B. Product data for duct access doors and flexible duct connections.

PART 2 PRODUCTS

2.01 DUCT ACCESS DOORS

- A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated. See schedule on Drawing.
- B. Fabrication: Rigid and close-fitting of galvanized steel with sealing gaskets and quick fastening locking devices. For insulated ducts, install minimum 1 inch thick insulation with sheet metal cover.
- C. Access doors with sheet metal screw fasteners are not acceptable.

2.02 FLEXIBLE DUCT CONNECTIONS

- A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated.
- B. Flexible Duct Connections: Fabric crimped into metal edging strip.
 - 1. Fabric: UL listed fire-retardant neoprene coated woven glass fiber fabric to NFPA 90A, minimum density 30 oz per sq yd.
 - a. Net Fabric Width: Approximately 2 inches wide.
 - 2. Metal: 3 inches wide, 24 gage thick galvanized steel.

2.03 LOUVERS

- A. Furnish and install louvers as sized on the drawings, coordinate opening framing with other trades as required for proper opening size and installation.
- B. Louvers shall be high performance low pressure drop, low water penetration and drainable.
- C. Louvers performance shall be AMCA Certified and shall meet or exceed the following specifications:
 - Static pressure drop: 0.07" or less at 750 FPM through free area.
 - Water penetration: Beginning point at .01 oz/ft²- 1000 FPM minimum
 - Free Area: 50% minimum
- D. Louver frame and blades shall be fabricated from 0.80" thick extruded aluminum alloy 6063-T5. Blades and jambs shall have integral gutters for drainage of water. Blades shall be at a 37.5' angle on centers not exceeding 6". Each louver shall be designed to withstand a wind load or other load of 20 pounds per square foot. Birdscreen shall be framed, rear mounted, and removable of 3/4" x 0.051" expanded flattened aluminum.
- E. Where louvers must be made up by multiple sections, the manufacturer shall submit with the shop drawings, all joint locations, methods of bracing/assembly. When the louvers are assembled per the shop drawings they shall meet the above specified structural loading.

- F Louvers shall have a Kynar 500 finish with a dry film thickness of 1.2 mils. Color to be chosen by the Architect/Engineer from the manufacturer's standard colors at time of shop drawing submittals.
- G Louvers shall be Pottorff EFD445 or approved equivalent by Ruskin, Arrow, NCA, or Greenheck.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA HVAC Duct Construction Standards - Metal and Flexible. Refer to Section 15810 for duct Static Pressure Construction Class and Seal Class.
- B. Provide duct access doors for inspection of duct smoke detectors.
- C. Provide and install flexible duct connections at air handling unit.

END OF SECTION 233300

SECTION 233423 - HVAC POWER VENTILATORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. In-line centrifugal fans.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 2. Wiring Diagrams: For power, signal, and control wiring.
 - 3. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. AMCA Compliance: Fans shall have AMCA-Certified performance ratings and shall bear the AMCA-Certified Ratings Seal.

PART 2 - PRODUCTS

2.1 IN-LINE CENTRIFUGAL FANS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Carnes Company.
 - 2. Greenheck Fan Corporation.
 - 3. Loren Cook Company.

- B. Housing: Split, spun aluminum with aluminum straightening vanes, inlet and outlet flanges, and support bracket adaptable to floor, side wall, or ceiling mounting.
- C. Direct-Drive Units: Motor mounted in airstream, factory wired to disconnect switch located on outside of fan housing.
- D. Fan Wheels: Aluminum, airfoil blades welded to aluminum hub.
- E. Accessories:
 - 1. Variable-Speed Controller: Solid-state control to reduce speed from 100 to less than 50 percent.
 - 2. Volume-Control Damper: Manually operated with quadrant lock, located in fan outlet.
 - 3. Companion Flanges: For inlet and outlet duct connections.
 - 4. Fan Guards: 1/2- by 1-inch mesh of galvanized steel in removable frame. Provide guard for inlet or outlet for units not connected to ductwork.
 - 5. Motor and Drive Cover (Belt Guard): Epoxy-coated steel.
- F. Capacities and Characteristics EF-1:
 - 1. Airflow: 200 cfm.
 - 2. External Static Pressure: 3/4 inches wg.
 - 3. Wheel Type: Backward inclined.
 - 4. Electrical Characteristics:
 - a. Volts: 120.
 - b. Phase: Single.
 - c. Hertz: 60.
 - 5. Vibration Isolators:
 - a. Type: Elastomeric hangers.
 - b. Static Deflection: 1 inch.

2.2 MOTORS

- A. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 230513 "Common Motor Requirements for HVAC Equipment."
 - 1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
- B. Enclosure Type: Totally enclosed, fan cooled.

2.3 SOURCE QUALITY CONTROL

- A. Certify sound-power level ratings according to AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data." Factory test fans according to AMCA 300,

"Reverberant Room Method for Sound Testing of Fans." Label fans with the AMCA-Certified Ratings Seal.

- B. Certify fan performance ratings, including flow rate, pressure, power, air density, speed of rotation, and efficiency by factory tests according to AMCA 210, "Laboratory Methods of Testing Fans for Aerodynamic Performance Rating." Label fans with the AMCA-Certified Ratings Seal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Secure roof-mounted fans to roof curbs with cadmium-plated hardware. See Section 077200 "Roof Accessories" for installation of roof curbs.
- B. Ceiling Units: Suspend units from structure; use steel wire or metal straps.
- C. Support suspended units from structure using threaded steel rods and elastomeric hangers having a static deflection of 1 inch. Vibration-control devices are specified in Section 230548 "Vibration and Seismic Controls for HVAC Piping and Equipment."
- D. Install units with clearances for service and maintenance.
- E. Label units according to requirements specified in Section 230553 "Identification for HVAC Piping and Equipment."

3.2 CONNECTIONS

- A. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connectors. Flexible connectors are specified in Section 233300 "Air Duct Accessories."
- B. Install ducts adjacent to power ventilators to allow service and maintenance.
- C. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
- D. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Tests and Inspections:

1. Verify that shipping, blocking, and bracing are removed.
2. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
3. Verify that cleaning and adjusting are complete.
4. Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.
5. Adjust belt tension.
6. Adjust damper linkages for proper damper operation.
7. Verify lubrication for bearings and other moving parts.
8. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.
9. Disable automatic temperature-control operators, energize motor and adjust fan to indicated rpm, and measure and record motor voltage and amperage.
10. Shut unit down and reconnect automatic temperature-control operators.
11. Remove and replace malfunctioning units and retest as specified above.

C. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Prepare test and inspection reports.

3.4 ADJUSTING

- A. Adjust damper linkages for proper damper operation.
- B. Adjust belt tension.
- C. Comply with requirements in Section 230593 "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing procedures.
- D. Replace fan and motor pulleys as required to achieve design airflow.
- E. Lubricate bearings.

END OF SECTION 233423

SECTION 233600 - AIR TERMINAL UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fan-powered air terminal units.
2. Shutoff, single-duct air terminal units.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For air terminal units. Include plans, elevations, sections, details, and attachments to other work.

C. Delegated-Design Submittal:

1. Materials, fabrication, assembly, and spacing of hangers and supports.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and System Start-Up."

PART 2 - PRODUCTS

2.1 PARALLEL FAN-POWERED AIR TERMINAL UNITS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Carnes.
 - 2. Price Industries.
 - 3. Titus.
- B. Configuration: Volume-damper assembly and fan in parallel arrangement inside unit casing with control components inside a protective metal shroud.
- C. Casing: 0.034-inch steel, single wall.
 - 1. Casing Lining: Adhesive attached, 3/4-inch-thick, coated, fibrous-glass duct liner complying with ASTM C 1071, and having a maximum flame-spread index of 25 and a maximum smoke-developed index of 50, for both insulation and adhesive, when tested according to ASTM E 84.
 - a. Cover liner with nonporous foil.
 - 2. Air Inlets: Round stub connections or S-slip and drive connections for duct attachment.
 - 3. Air Outlet: S-slip and drive connections.
 - 4. Access: Removable panels for access to parts requiring service, adjustment, or maintenance; with airtight gasket and quarter-turn latches.
 - 5. Fan: Forward-curved centrifugal, located at plenum air inlet.
 - 6. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.
- D. Volume Damper: Galvanized steel with flow-sensing ring and peripheral gasket and self-lubricating bearings.
 - 1. Maximum Damper Leakage: ARI 880 rated, 3 percent of nominal airflow at 3-inch wg inlet static pressure.
 - 2. Damper Position: Normally open.
- E. Velocity Sensors: Multipoint array with velocity sensors in cold- and hot-deck air inlets and air outlets.
- F. Motor:
 - 1. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 230513 "Common Motor Requirements for HVAC Equipment."
 - 2. Type: Permanent-split capacitor with SCR for speed adjustment.
 - 3. Fan-Motor Assembly Isolation: Rubber isolators.
 - 4. Enclosure: Open dripproof.
 - 5. Efficiency: Premium efficient.
 - 6. NEMA Design: 1.

7. Service Factor: 1.
8. Motor Speed: Single speed.
 - a. Speed Control: Infinitely adjustable with electronic controls.
9. Electrical Characteristics FTU-1:
 - a. Horsepower: 1/8.
 - b. Volts: 208.
 - c. Phase: Single.
 - d. Hz: 60.
 - e. Full-Load Amperes: 0.9.
 - f. Minimum Circuit Ampacity: 15.
 - g. Maximum Overcurrent Protection: 15 A.
- G. Filters: Minimum arrestance according to ASHRAE 52.1 and a minimum efficiency reporting value (MERV) according to ASHRAE 52.2.
 1. Material: Polyurethane foam having 70 percent arrestance and 3 MERV.
 2. Material: Glass fiber treated with adhesive; having 80 percent arrestance and 5 MERV.
 3. Material: Pleated cotton-polyester media having 90 percent arrestance and 7 MERV.
 4. Thickness: 1 inch.
- H. Electric-Resistance Heating Coils: Nickel-chromium heating wire, free of expansion noise and hum, mounted in ceramic inserts in a galvanized-steel housing; with primary automatic, and secondary manual, reset thermal cutouts. Terminate elements in stainless-steel, machine-staked terminals secured with stainless-steel hardware.
 1. Location: Plenum air inlet.
 2. Stage(s): 1.
 3. Access door interlocked disconnect switch.
 4. Downstream air temperature sensor with local connection to override discharge-air temperature to not exceed a maximum temperature set point (adjustable.)
- I. Factory-Mounted and -Wired Controls: Electrical components mounted in control box with removable cover. Incorporate single-point electrical connection to power source.
 1. Control Transformer: Factory mounted for control voltage on electric and electronic control units with terminal strip in control box for field wiring of thermostat and power source.
 2. Wiring Terminations: Fan and controls to terminal strip. Terminal lugs to match quantities, sizes, and materials of branch-circuit conductors. Enclose terminal lugs in terminal box that is sized according to NFPA 70.
 3. Disconnect Switch: Factory-mounted, fuse type.
- J. Control Panel Enclosure: NEMA 250, Type 1, with access panel sealed from airflow and mounted on side of unit.
- K. Electronic Controls: Bidirectional damper operator and microprocessor-based controller with integral airflow transducer and room sensor. Control devices shall be compatible with

temperature controls specified in Section 230900 "Instrumentation and Control for HVAC" and shall have the following features:

1. Occupied and unoccupied operating mode.
2. Remote reset of airflow or temperature set points.
3. Adjusting and monitoring with portable terminal.
4. Communication with temperature-control system specified in Section 230900 "Instrumentation and Control for HVAC."

2.2 SHUTOFF, SINGLE-DUCT AIR TERMINAL UNITS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Carnes.
 2. Price Industries.
 3. Titus.
- B. Configuration: Volume-damper assembly inside unit casing with control components inside a protective metal shroud.
- C. Casing: 0.034-inch steel, single wall.
 1. Casing Lining: Adhesive attached, 1/2-inch-thick, coated, fibrous-glass duct liner complying with ASTM C 1071, and having a maximum flame-spread index of 25 and a maximum smoke-developed index of 50, for both insulation and adhesive, when tested according to ASTM E 84.
 - a. Cover liner with nonporous foil.
 - b. Cover liner with nonporous foil and perforated metal.
 2. Air Inlet: Round stub connection or S-slip and drive connections for duct attachment.
 3. Air Outlet: S-slip and drive connections.
 4. Access: Removable panels for access to parts requiring service, adjustment, or maintenance; with airtight gasket.
 5. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.
- D. Volume Damper: Galvanized steel with peripheral gasket and self-lubricating bearings.
 1. Maximum Damper Leakage: ARI 880 rated, 3 percent of nominal airflow at 3-inch wg inlet static pressure.
 2. Damper Position: Normally open.
- E. Electric-Resistance Heating Coils: Nickel-chromium heating wire, free of expansion noise and hum, mounted in ceramic inserts in a galvanized-steel housing; with primary automatic, and secondary manual, reset thermal cutouts. Terminate elements in stainless-steel, machine-staked terminals secured with stainless-steel hardware.
 1. Access door interlocked disconnect switch.
 2. Downstream air temperature sensor with local connection to override discharge-air temperature to not exceed a maximum temperature set point (adjustable.)

- F. Direct Digital Controls: Bidirectional damper operators and microprocessor-based controller and room sensor. Control devices shall be compatible with temperature controls specified in Section 230900 "Instrumentation and Control for HVAC" and shall have the following features:
1. Damper Actuator: 24 V, powered closed, spring return open.
 2. Terminal Unit Controller: Pressure-independent, variable-air-volume controller with electronic airflow transducer with multipoint velocity sensor at air inlet, factory calibrated to minimum and maximum air volumes, and having the following features:
 - a. Occupied and unoccupied operating mode.
 - b. Remote reset of airflow or temperature set points.
 - c. Adjusting and monitoring with portable terminal.
 - d. Communication with temperature-control system specified in Section 230900 "Instrumentation and Control for HVAC."
 3. Room Sensor: Wall mounted, with temperature set-point adjustment and access for connection of portable operator terminal.

2.3 HANGERS AND SUPPORTS

- A. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.
- B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.
- C. Steel Cables: Galvanized steel complying with ASTM A 603.
- D. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.
- E. Air Terminal Unit Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.
- F. Trapeze and Riser Supports: Steel shapes and plates for units with steel casings; aluminum for units with aluminum casings.

2.4 SOURCE QUALITY CONTROL

- A. Factory Tests: Test assembled air terminal units according to ARI 880.
 1. Label each air terminal unit with plan number, nominal airflow, maximum and minimum factory-set airflows, coil type, and ARI certification seal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install air terminal units according to NFPA 90A, "Standard for the Installation of Air Conditioning and Ventilating Systems."
- B. Install air terminal units level and plumb. Maintain sufficient clearance for normal service and maintenance.
- C. Install wall-mounted thermostats.

3.2 HANGER AND SUPPORT INSTALLATION

- A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."
- B. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.
 - 1. Where practical, install concrete inserts before placing concrete.
 - 2. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
 - 3. Use powder-actuated concrete fasteners for standard-weight aggregate concretes and for slabs more than 4 inches thick.
 - 4. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes and for slabs less than 4 inches thick.
- C. Hangers Exposed to View: Threaded rod and angle or channel supports.
- D. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.3 CONNECTIONS

- A. Install piping adjacent to air terminal unit to allow service and maintenance.
- B. Connect ducts to air terminal units according to Section 233113 "Metal Ducts."
- C. Make connections to air terminal units with flexible connectors complying with requirements in Section 233300 "Air Duct Accessories."

3.4 IDENTIFICATION

- A. Label each air terminal unit with plan number, nominal airflow, and maximum and minimum factory-set airflows. Comply with requirements in Section 230553 "Identification for HVAC Piping and Equipment" for equipment labels and warning signs and labels.

3.5 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
 - 1. **Manufacturer's Field Service:** Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- B. Tests and Inspections:
 - 1. After installing air terminal units and after electrical circuitry has been energized, test for compliance with requirements.
 - 2. **Operational Test:** After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Air terminal unit will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

3.6 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.
 - 2. Verify that inlet duct connections are as recommended by air terminal unit manufacturer to achieve proper performance.
 - 3. Verify that controls and control enclosure are accessible.
 - 4. Verify that control connections are complete.
 - 5. Verify that nameplate and identification tag are visible.
 - 6. Verify that controls respond to inputs as specified.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain air terminal units.

END OF SECTION 233600

SECTION 233713 - DIFFUSERS, REGISTERS, AND GRILLES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Rectangular and square ceiling diffusers.
 - 2. Louver face diffusers.
 - 3. Fixed face registers and grilles.

- B. Related Sections:
 - 1. Division 08 Section "Louvers and Vents" for fixed and adjustable louvers and wall vents, whether or not they are connected to ducts.
 - 2. Division 23 Section "Duct Accessories" for fire and smoke dampers and volume-control dampers not integral to diffusers, registers, and grilles.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated, include the following:
 - 1. Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.
 - 2. Diffuser, Register, and Grille Schedule: Indicate drawing designation, room location, quantity, model number, size, and accessories furnished.

PART 2 - PRODUCTS

2.1 CEILING DIFFUSERS

- A. Rectangular and Square Ceiling Diffusers
 - 1. Manufacturers: Subject to compliance with requirements available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Hart & Cooley Inc.
 - b. Price Industries.
 - c. Titus.
 - 2. Dampers: Butterfly
 - 3. Accessories:
 - a. Operating rod extension.

- B. Louver Face Diffuser

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. A-J Manufacturing Co., Inc.
 - b. Price Industries.
 - c. Titus.
2. Dampers: Combination damper and grid.
3. Accessories:
 - a. Square to round neck adaptor.
 - b. Adjustable pattern vanes.
 - c. Operating rod extension.

2.2 REGISTERS AND GRILLES

A. Fixed Face Register :

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. A-J Manufacturing Co., Inc.
 - b. Price Industries.
 - c. Titus.
2. Mounting: Countersunk screw.
3. Damper Type: Adjustable opposed blade

B. Fixed Face Grille :

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Hart & Cooley Inc.
 - b. Price Industries.
 - c. Titus.
2. Mounting: Countersunk screw

2.3 SOURCE QUALITY CONTROL

- A. Verification of Performance: Rate diffusers, registers, and grilles according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install diffusers, registers, and grilles level and plumb.

- B. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practical. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.
- C. Install diffusers, registers, and grilles with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

3.2 ADJUSTING

- A. After installation, adjust diffusers, registers, and grilles to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION 233713

SECTION 237413 MODULAR PACKAGED AIR HANDLING UNITS

PART 1 – GENERAL

RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.1 SUMMARY

- A. This Section includes packaged roof top air-handling units with heat exchangers, refrigeration components, unit operating controls, roof curb, and electrical power connections as further described herein.
- B. Related Sections include the following:
 - 1. Division 23 Section "Motors"
 - 2. Division 23 Section "Duct Accessories" for dampers used as an integral part of factory-packaged air-handling units specified in this Section.
 - 3. Division 23 Section "HVAC Instrumentation and Controls" for temperature controls, wiring, devices components, and actuators for dampers furnished under this Section.
 - 4. Division 26 Section "Variable Frequency Drives" for motor controllers utilized to vary speed of the fan motors in response to a temperature control signal.

1.2 REFERENCES

- 1. NFPA 90 A & B - Installation of Air Conditioning and Ventilation Systems and Installation of Warm Air Heating and Air Conditioning Systems.
- 2. ANSI/ASHRAE 15 - Safety Code for Mechanical Refrigeration.
- 3. ANSI/ASHRAE 37 - Testing Unitary Air Conditioning and Heat Pump Equipment.
- 4. ANSI/ASHRAE/IESNA 90.1-1999 - Energy Standard for New Buildings Except Low-Rise Residential Buildings.
- 5. ANSI Z21.47/UL1995 - Unitary Air Conditioning Standard for safety requirements.
- 6. AHRI 210/240 - Unitary Air-Conditioning Equipment and Air-Source Heat Pump Equipment.
- 7. AHRI 270 - Sound Rating of Outdoor Unitary Equipment.
- 8. ANSI/NFPA 70-1995 - National Electric Code.
- 1. SMACNA—HVAC Duct Construction Standards—Metal and Flexible.
- 2. UL 900—Test Performance of Air Filter Units.

1.3 SUBMITTALS

- B. General: Submit each item in this Article according to the conditions of the contract and Division 1 Specification Sections.
- C. Product Data: For each type of modular packaged air-handling unit indicated. Include the following:
 - 1. Unit performance data including capacity, nominal and operating performance.
 - 2. Mechanical specifications for unit and accessories describing construction, components and options.
 - 3. Shop drawings indicating overall dimensions as well as installation, operation and services clearances. Indicate lift points and recommendations and center of gravity. Indicate unit shipping, installation and operating weights including dimensions.
 - 4. Data on electrical requirements and connection points. Include recommended wire and fuse sizes or MCA, sequence of operation, safety and start-up instructions.
 - 5. Manufacturer's Installation Instructions
- D. Shop drawings submitted for approval shall be accompanied by a copy of the purchase agreement between the Contractor and an authorized service representative of the manufacturer for check, test and start up and first year service.

- E. Wiring Diagrams: Power, signal, and control wiring. Differentiate between manufacturer-installed and field-installed wiring.
- E. Field Quality-Control Test Reports: From manufacturer.

1.4 OPERATION AND MAINTENANCE DATA

- A. Maintenance Data: Provide instructions for installation, maintenance, and service.

1.4 QUALITY ASSURANCE

- B. Source Limitations: Obtain modular packaged air-handling units through one source from a single manufacturer.
- C. Product Options: Drawings indicate size, profiles, and dimensional requirements of factory packaged air-handling units and are based on the specific system and model indicated. Refer to Division 23 Section "Basic Mechanical Requirements" for guidelines concerning the use of other systems or models.
- D. NFPA Compliance: Factory packaged air-handling units and components shall be designed, fabricated, and installed in compliance with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems".
- E. ARI Certification: Factory packaged air-handling units and their components shall be factory tested according to the applicable portions of ARI 430 and shall be listed and bear the label of the Air-Conditioning and Refrigeration Institute (ARI).
- F. Fan Performance Ratings: Rate according to AMCA 210, "Laboratory Methods of Testing Fans for Rating". In addition, all airfoil fans shall comply with AMCA standard 99-2408-69 and 99-2401-82 and shall bear the AMCA Seal.
- G. Sound Power Level Ratings: Rate according to AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data" and AMCA 300, "Reverberant Room Method for Sound Testing of Fans". Fans shall bear AMCA certified sound ratings seal.
- H. Air Coils: Certify capacities, pressure drops and selection procedures in accordance with ARI 410.
- I. UL and NEMA compliance: Provide motors required as part of air-handling units that are listed and labeled by UL and comply with applicable NEMA standards.
- J. Comply with NFPA 70 for components and installation.
- K. Listing and Labeling: Provide electrically operated components specified in this Section that are listed and labeled.
 - 1. The Terms "Listed" and "Labeled": as defined in the National Electrical Code, Article
- K. Coordination: Coordinate layout and installation of factory-packaged air-handling units with piping and ductwork and with other installations.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience, who issues complete catalog data on total product.
- B. Startup must be done by trained personnel experienced with rooftop equipment.
- C. Do not operate units for any purpose, temporary or permanent, until ductwork is clean, filters and remote controls are in place, bearings lubricated, and manufacturers' installation instructions have been followed.

1.6 DELIVERY, STORAGE, AND HANDLING

- D. Deliver air-handling unit as a factory-assembled module with shipping splits only as necessary and with protective crating and covering.
- E. Lift and support units with manufacturer's designated lifting or supporting points.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match product installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: Furnish one (1) additional complete set of filters for each modular packaged air-handling unit.
2. Fan Belts: Furnish one (1) additional complete set for each modular packaged air-handling unit fan.
3. Gaskets: Furnish one (1) additional complete set for each access door.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Trane Company (The); Worldwide Applied System Group
 2. Carrier, Div of United Technologies Corp
 3. McQuay International

2.2 GENERAL DESCRIPTION

- A. Furnish as shown on plans, single zone Heating and Cooling Unit(s). Unit performance and electrical characteristics shall be per the job schedule.
- B. Efficiency: IEER must be equal to or better than that of basis-of-design modular packaged air-handling units on plans.
- C. Configuration: Fabricate as detailed on prints and drawings:
1. Return plenum / economizer section
 2. Filter section
 3. Cooling coil section
 4. Supply fan section
 5. Gas heating section.
 6. Condensing unit section
- D. The complete unit shall be cETLus listed.
- E. Each unit shall be specifically designed for outdoor rooftop application and include a weather-proof cabinet. Each unit shall be completely factory assembled and shipped in one piece. Packaged units shall be shipped fully charged with R-410 Refrigerant and oil.
- F. The unit shall undergo a complete factory run test prior to shipment. The factory test shall include a refrigeration circuit run test, a unit control system operations checkout, a unit refrigerant leak test and a final unit inspection.
- G. All units shall have decals and tags to indicate caution areas and aid unit service. Unit nameplates shall be fixed to the main control panel door. Electrical wiring diagrams shall be attached to the control panels. Installation, operating and maintenance bulletins and start-up forms shall be supplied with each unit.
- H. Performance: All scheduled EER, IEER, capacities and face areas are minimum accepted values. All scheduled amps, kW, and HP are maximum accepted values that allow scheduled capacity to be met.
- I. Warranty: The manufacturer shall provide parts only warranty (excluding refrigerant) for 12 months from start-up or 18 months from shipment, whichever occurs first. The manufacturer shall provide a five-year extended warranty for compressors. The manufacturer shall provide a five-year limited warranty for heat exchanger(s). Defective parts shall be repaired or replaced during the warranty period at no charge.

2.3 UNIT CASING

- A. Cabinet: Galvanized steel, phosphatized, and finished with an air-dry paint coating with removable access panels. Structural members shall be 18 gauge with access doors and removable panels of minimum 20 gauge.
- B. Units cabinet surface shall be tested 1000 hours in salt spray test in compliance with ASTM B117.
- C. Cabinet construction shall allow for all service/ maintenance from one side of the unit.
- D. Cabinet top cover shall be one piece construction or where seams exist, it shall be double-hemmed and gasket-sealed.
- E. Hinged Access Panels: Water- and air-tight panels with handles shall provide access to filters, heating section, return air fan section, supply air fan section, evaporator coil section, and unit control section.
- F. Units base pan shall have a raised 1 1/8 inch high lip around the supply and return openings for water integrity.
- G. Insulation: Provide 1/2 inch thick fiberglass insulation with foil face on all exterior panels in contact with the return and conditioned air stream. All edges must be captured so that there is no insulation exposed in the air stream.
- H. Provide openings either on side of unit or through the base for power, control, condensate, and gas connections.
- I. The base of the unit shall have 3 sides for forklift provisions. The base of the units shall have rigging/lifting holes for crane maneuvering.

2.4 AIR FILTERS

- A. Air Filters: Factory installed filters shall mount integral within the unit and shall be accessible through access panels. One-inch thick glass fiber disposable media filters shall be provided with the provisions within the unit for 2 inch thick filters to be field- provided and installed.

2.5 FANS AND MOTORS

- A. Provide evaporator fan section with forward curved, double width, double inlet, centrifugal type fan.
- B. Provide self-aligning, grease lubricated, ball or sleeve bearings with permanent lubrication fittings.
- C. Provide units 6 tons and above with direct drive plenum fan design. Fan is backward incline design.
- D. Outdoor and Indoor Fan Motors shall be permanently lubricated and have internal thermal overload protection.
- E. Outdoor fans shall be direct drive, statically and dynamically balanced, draw through in the vertical discharge position.
- F. Provide shafts constructed of solid hot rolled steel, ground and polished, with key-way, and protectively coated with lubricating oil.

2.6 ELECTRIC HEATING SECTION

- A. Provide heavy duty nickel chromium heating elements internally wired. Heater shall have pilot duty or automatic reset line voltage limit controls and any circuit carrying more than 48 amps shall have fuse protection in compliance with N.E.C.
- B. Heater shall be internal to unit cabinet.
- C. Heater shall be UL and CSA listed and approved and provide single point power connection.

2.7 EVAPORATOR COIL

- A. Provide configured aluminum fin surface mechanically bonded to copper tubing coil.
- B. Provide an independent expansion device for each refrigeration circuit. Factory pressure tested at 450 psig and leak tested at 200 psig.
- C. Provide a removable, reversible, cleanable double sloped drain pan for base of evaporator coil constructed of PVC.

2.8 CONDENSER SECTION

- A. Provide vertical discharge, direct drive fans with aluminum blades. Fans shall be statically balanced. Motors shall be permanently lubricated, with integral thermal overload protection in a weather tight casing.
- B. Provide condenser coil, hail guards.

2.9 REFRIGERATION SYSTEM

- A. Compressor(s): Provide scroll compressor with direct drive operating at 3600 rpm. Integral centrifugal oil pump. Provide suction gas cooled motor with winding temperature limits and compressor overloads.
- B. Units shall have cooling capabilities down to 0 degree F as standard. For field-installed low ambient accessory, the manufacturer shall provide a factory-authorized service technician that will assure proper installation and operation.
- C. Provide each unit with 2 refrigerant circuit(s) factory-supplied completely piped with liquid line filter-drier, suction and liquid line pressure ports.

2.10 OUTDOOR AIR SECTION

- A. Provide economizer with Comparative enthalpy control and barometric relief damper.
- B. Provide adjustable minimum position control located in the economizer section of the unit.
- C. Provide spring return motor for outside air damper closure during unit shutdown or power interruption.
- D. Provide Demand Control Ventilation with the use of a field installed wall or duct mounted CO2 sensor.

2.11 OPERATING CONTROLS

- A. Provide microprocessor unit-mounted DDC control which when used with an electronic zone sensor provides proportional integral room control. This UCM shall perform all unit functions by making all heating, cooling, and ventilating decisions through resident software logic.
- B. Provide factory-installed indoor evaporator defrost control to prevent compressor slugging by interrupting compressor operation.
- C. Provide an anti-cycle timing and minimum on/off between stages timing in the microprocessor.
- D. Economizer Preferred Cooling - Compressor operation is integrated with economizer cycle to allow mechanical cooling when economizer is not adequate to satisfy zone requirements. Compressors are enabled if space temperature is recovering to cooling setpoint at a rate of less than 0.2 degrees per minute. E. Compressor low ambient lockout overrides this function.
- F. Unit to be provided with VAV supply air temperature control with standard motor.
- G. Unit to be provided with factory mounted smoke detector in supply air stream.

2.12 STAGING CONTROLS

- A. Zone sensor display shall be capable of:
- B. Actual room temperature.
- C. Programmed temperature.
- D. Timed override.
- E. System mode indication: heating, cooling, low battery, and fan on.
- F. Provide mixed air sensor in supply air to close outside air damper.

2.13 BUILDING MANAGEMENT SYSTEM

- A. Interface control module to Energy Management System to be furnished and mounted by rooftop unit manufacturer. Through this interface module, all Energy Management functions (specified in Energy Management Section) shall be performed. See Building Automation and Automatic Temperature Control System Specifications. The interface module with necessary controls and sensors shall all be factory mounted (not field mounted). If not furnished by rooftop unit manufacturer, this shall be furnished by Energy Management System Contractor for factory mounting by rooftop unit manufacturer in rooftop unit and rated for service up to 140 F. The only field connection to Energy Management System shall be a single communication link.

- B. Control Functions: Include unit scheduling, occupied/unoccupied mode, start-up and coast-down modes, nighttime free-cool purge mode, demand limiting, night setback, discharge air set point adjustment, timed override and alarm shutdown
 - C. Diagnostic Functions: Include supply fan status, clogged filter, and condensate overflow switch. Provide BACnet communications interface card.
- 2.14 ROOF CURB
- A. Contractor shall provide factory supplied roof curb, 16 gauge perimeter made of zinc coated steel with supply and return air gasketing and wood nailer strips. Ship knocked down and provided with instructions for easy assembly.
 - B. Curb shall be manufactured in accordance with the National Roofing Contractors Association guidelines.
- 2.15 OPTIONS
- A. Factory Mounted, Non-fused Disconnect Switch
 - B. Factory Mounted, Unpowered GFI Convenience Outlet

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in of piping systems and electrical services to verify actual locations of connections before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install factory-packaged air-handling units level and plumb, according to manufacturer's written instructions.
- B. Mount units on factory built roof mounting frame providing watertight enclosure to protect ductwork and utility services. Install roof mounting curb level.
- C. Arrange installation of units to provide access space around air-handling units for service and maintenance.
- D. Adjust damper linkages for proper damper operation.

3.3 CONNECTIONS

- A. Piping installation requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to machine to allow service and maintenance.
 - 1. Coil piping shall not block access doors.
 - 2. Coil piping shall offset beyond the limits of the coil pull access space in as short a distance as practical, to minimize the amount of pipe disassembly required to accomplish coil removal. All coil service valves, control valves, balance valves, strainers, and other appurtenances shall be installed outside the limits of the coil pull access space.
- C. Connect condensate drain pans using NPS 1-1/4, Type L copper tubing. Extend to nearest equipment or roof drain. Construct deep trap at connection to drain pan and install cleanouts at changes in direction.
- D. Duct installation and connection requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connections.
- E. Electrical: Comply with applicable requirements in Division 26 Sections for power wiring, switches, and motor controls.
 - 1. Ground equipment according to Division 26 Section "Grounding".

2. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
3. Temperature control wiring and interlock wiring is specified in division 23 Section "HVAC Instrumentation and Controls".

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including piping and electrical connections. Report results in writing.
- B. Leak Test: After installation, fill water coils with water and test coils and connections for leaks. Repair leaks and retest until not leaks exist.
- C. Fan Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation. Remove malfunctioning units, replace with new units, and retest.
- D. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.5 STARTUP SERVICE

- A. Final checks before startup: Perform the following:
 1. Verify that shipping, blocking, and bracing are removed.
 2. Verify that unit is secure on mountings and supporting devices and that connections to piping, ducts, and electrical systems are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
 3. Perform cleaning and adjusting specified in this Section.
 4. Disconnect fan drive from motor, verify proper motor rotation direction and verify free fan wheel rotation and smooth veering operations. Reconnect fan drive system, align belts, and install belt guards.
 5. Lubricate bearings, pulleys, belts, and other moving parts with factory recommended lubricants.
 6. Set outside – and return-air mixing dampers to minimum outside-air setting.
 7. Comb coil fins for parallel orientation.
 8. Install clean filters.
 9. Verify that manual and automatic volume control and fire and smoke dampers in connected duct systems are in fully open position.
- B. Starting procedures for modular packaged air-handling units include the following:
 1. Energize motor; verify proper operation of motor, drive system, and fan wheel.
 2. Measure and record motor electrical values for voltage and amperage.
 3. Manually operate dampers from fully closed to fully open position and record fan performance.
- C. Testing, Adjusting and Balancing is the work of Section 230593, which shall include adjustment of fan to indicated rpm. After initial testing and balancing, the work of this Section shall include motor and fan pulley/sheave replacement to meet operating conditions indicated. Remove, size, select, and install the proper pulley/sheave sizes, to match specified performance.
 1. Exception: Pulley/sheave replacement is not required for fans whose speed is controlled by a variable frequency drive, provided that specified performance can be met with speed controller at or below 100% output.
 2. Exception: Pulley/sheave replacement is not required where pulley/sheave is adjustable in pitch.

3.6 CLEANING

- A. After completing installation, inspect exposed finish. Remove burrs, dirt, and construction debris, and repair damaged finishes including chips, scratches, and abrasions.
- B. Clean modular packaged air-handling units internally, on completion of installation, according to manufacturer's written instructions. Clean fan interiors to remove foreign material and construction dirt and dust. Vacuum clean fan wheels, cabinets, and coils entering air face.
- C. After completing system installation and testing, adjusting and balancing modular packaged air-handling and air-distribution systems, clean filter housings and install new filters.

3.7 DEMONSTRATION

- A. Engage the service of a factory-authorized service representative to train Owner's maintenance personnel on procedures and schedules related to startup and shutdown, troubleshooting, servicing, and preventive maintenance.
 - 1. Review data in the operation and maintenance manuals. Refer to Division 1 for requirements.
 - 2. Schedule training with Owner, through Architect, with at least 7 days' advance notice.

END OF SECTION 237413

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Sleeves for raceways and cables.
 - 2. Sleeve seals.
 - 3. Grout.
 - 4. Common electrical installation requirements.

1.2 SUBMITTALS

- A. Product Data: For sleeve seals.

PART 2 - PRODUCTS

2.1 SLEEVES FOR RACEWAYS AND CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, zinc coated, with plain ends.
- B. Cast-Iron Pipe Sleeves: Cast or fabricated of cast or ductile iron and equivalent to ductile-iron pressure pipe, with plain ends and integral water stop unless otherwise indicated.
- C. Sleeves for Rectangular Openings: Galvanized sheet steel.
 - 1. Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches and no side more than 16 inches, thickness shall be 0.052 inch.
 - b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches and 1 or more sides equal to, or more than, 16 inches, thickness shall be 0.138 inch.

2.2 SLEEVE SEALS

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Advance Products & Systems, Inc.
 - b. Calpico, Inc.
 - c. Metraflex Co.
2. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
 3. Pressure Plates: Carbon steel. Include two for each sealing element.
 4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.3 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

- A. Comply with NECA 1.
- B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.
- D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- E. Right of Way: Give to piping systems installed at a required slope.

3.2 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
- B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
- C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

- D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- E. Cut sleeves to length for mounting flush with both surfaces of walls.
- F. Extend sleeves installed in floors 2 inches above finished floor level.
- G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.
- H. Seal space outside of sleeves with grout for penetrations of concrete and masonry
 - 1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.
- I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 7 Section "Joint Sealants."
- J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 7 Section "Through-Penetration Firestop Systems."
- K. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.
- L. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
- M. Underground, Exterior-Wall Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.

3.3 SLEEVE-SEAL INSTALLATION

- A. Install to seal exterior wall penetrations.
- B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.4 FIRESTOPPING

- A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and

installation requirements are specified in Division 7 Section "Through-Penetration Firestop Systems."

END OF SECTION 16051

SECTION 260519 - CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Building wires and cables rated 600 V and less.
 - 2. Connectors, splices, and terminations rated 600 V and less.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Copper Conductors: Comply with NEMA WC 70.
- B. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN, XHHW, and SO.
- C. Multiconductor Cable: Comply with NEMA WC 70 for metal-clad cable, Type MC nonmetallic-sheathed cable, Type SO with ground wire.

2.2 CONNECTORS AND SPLICES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Hubbell Power Systems, Inc.
 - 3. 3M; Electrical Products Division.

- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type THHN-THWN, single conductors in raceway
- B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN-THWN, single conductors in raceway, Metal-clad cable, Type MC.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Underground feeder cable, Type UF.
- E. Exposed Branch Circuits, Including in Crawlspace: Type THHN-THWN, single conductors in raceway.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway, Metal-clad cable, Type MC.
- G. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.
- H. Class 1 Control Circuits: Type THHN-THWN, in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

- D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- E. Support cables according to Division 16 Section "Electrical Supports and Seismic Restraints."
- F. Identify and color-code conductors and cables according to Division 16 Section "Electrical Identification."
- G. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- H. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- I. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.4 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Division 16 Section "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.5 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Division 7 Section "Through-Penetration Firestop Systems."
- B. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Grounding systems and equipment.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control reports.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Tinned Conductors: ASTM B 33.
 - 4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
 - 5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - 6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
 - 7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.2 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, pressure type with at least two bolts.
 - 1. Pipe Connectors: Clamp type, sized for pipe.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 5/8 by 96 inches in diameter.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum. Bury at least 24 inches below grade.
- C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.
- D. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
 - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 - 4. Connections to Structural Steel: Welded connectors.

3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
 - 1. Feeders and branch circuits.
 - 2. Lighting circuits.

3. Receptacle circuits.
 4. Single-phase motor and appliance branch circuits.
 5. Three-phase motor and appliance branch circuits.
 6. Flexible raceway runs.
 7. Armored and metal-clad cable runs.
 8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
 9. Computer and Rack-Mounted Electronic Equipment Circuits: Install insulated equipment grounding conductor in branch-circuit runs from equipment-area power panels and power-distribution units.
 10. X-Ray Equipment Circuits: Install insulated equipment grounding conductor in circuits supplying x-ray equipment.
- B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.
- C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
- D. Signal and Communication Equipment: In addition to grounding and bonding required by NFPA 70, provide a separate grounding system complying with requirements in TIA/ATIS J-STD-607-A.
1. For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
 2. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-4-by-12-inch grounding bus.
 3. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.
- E. Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.
- C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

D. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

- E. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install [tinned] bonding jumper to bond across flexible duct connections to achieve continuity.

3.4 FIELD QUALITY CONTROL

A. Perform the following tests and inspections and prepare test reports:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Make tests at ground rods before any conductors are connected.

B. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.
2. Power Distribution Units or Panelboards Serving Electronic Equipment: 1 ohm(s).
3. .

- C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.2 SUBMITTALS

- A. Product Data: For steel slotted support systems.

1.3 QUALITY ASSURANCE

- A. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. ERICO International Corporation.
 2. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
 3. Channel Dimensions: Selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or

cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

- E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Hilti Inc.
 - 2) MKT Fastening, LLC.
 - 3) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.
 - 2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti Inc.
 - 3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
 - 4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
 - 5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
 - 6. Toggle Bolts: All-steel springhead type.
 - 7. Hanger Rods: Threaded steel.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

- B. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 - 1. Secure raceways and cables to these supports single-bolt conduit clamps using spring friction action for retention in support channel.
- C. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69].
 - 6. To Light Steel: Sheet metal screws.
 - 7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Division 5 Section "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.2 SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

- A. Rigid Steel Conduit: ANSI C80.1.
- B. EMT: ANSI C80.3.
- C. FMC: Zinc-coated steel.
- D. LFMC: Flexible steel conduit with PVC jacket.
- E. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
 - 1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.
 - 2. Fittings for EMT: Steel or die-cast, set-screw or compression type.

2.2 NONMETALLIC CONDUIT AND TUBING

- A. ENT: NEMA TC 13.

- B. RNC: NEMA TC 2, Type EPC-40-PVC, unless otherwise indicated.
- C. LFNC: UL 1660.
- D. Fittings for ENT and RNC: NEMA TC 3; match to conduit or tubing type and material.
- E. Fittings for LFNC: UL 514B.

2.3 BOXES, ENCLOSURES, AND CABINETS

- A. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- B. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- C. Nonmetallic Outlet and Device Boxes: NEMA OS 2.
- D. Nonmetallic Floor Boxes: Nonadjustable, round.
- E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- F. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, [cast aluminum] [galvanized, cast iron] with gasketed cover.
- G. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Nonmetallic Enclosures: Plastic
- H. Cabinets:
 - 1. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
 - 2. Hinged door in front cover with flush latch and concealed hinge.
 - 3. Key latch to match panelboards.
 - 4. Metal barriers to separate wiring of different systems and voltage.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
 - 1. Exposed Conduit: Rigid steel conduit, RNC, Type EPC-40-PVC.
 - 2. Concealed Conduit, Aboveground: EMT, RNC, Type EPC-40-PVC.
 - 3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried.
 - 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.

5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Comply with the following indoor applications, unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT or RNC.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: Rigid steel conduit. Includes raceways in the following locations:
 - a. Loading dock below 48" AFF.
 - b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT or RNC, Type EPC-40-PVC.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
6. Damp or Wet Locations: IMC.
7. Raceways for Optical Fiber or Communications Cable: EMT or Type EPC-40-PVC.
8. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, nonmetallic in damp or wet locations.

C. Minimum Raceway Size: 1/2-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

3.2 INSTALLATION

- A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Support raceways as specified in Division 16 Section "Electrical Supports and Seismic Restraints."
- E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.
- F. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.
- G. Raceways Embedded in Slabs:

1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
 2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
 3. Change from ENT to RNC, Type EPC-40-PVC, rigid steel conduit, or IMC before rising above the floor.
- H. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.
- I. Aboveground Raceways for Optical Fiber and Communications Cable: Install as follows:
1. 3/4-Inch Trade Size and Smaller: Install raceways in maximum lengths of 50 feet.
 2. 1-Inch Trade Size and Larger: Install raceways in maximum lengths of 75 feet.
 3. Install with a maximum of two 90-degree bends or equivalent for each length of raceway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.
- J. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:
1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 2. Where otherwise required by NFPA 70.
- K. Flexible Conduit Connections: Use maximum of 72 inches of flexible conduit for recessed and semirecessed lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
1. Use LFMC in damp or wet locations subject to severe physical damage.
 2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.
- L. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall.
- M. Set metal floor boxes level and flush with finished floor surface.
- N. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 31 Section "Earthwork" for pipe less than 6 inches in nominal diameter.

2. Install backfill as specified in Division 2 Section "Earthwork."
3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 2 Section "Earthwork."
4. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.
 - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
 - b. For stub-ups at equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.
5. Warning Planks: Bury warning planks approximately 12 inches above direct-buried conduits, placing them 24 inches o.c. Align planks along the width and along the centerline of conduit.

3.4 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Through-Penetration Firestop Systems."

END OF SECTION 260533

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Underground-line warning tape.
5. Warning labels and signs.
6. Instruction signs.
7. Equipment identification labels.
8. Miscellaneous identification products.

1.2 ACTION SUBMITTALS

- A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

- A. Comply with ANSI A13.1.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 2 - PRODUCTS

2.1 POWER RACEWAY IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.
- B. Colors for Raceways Carrying Circuits at 600 V or Less:
1. Black letters on an yellow field.
 2. Legend: Indicate voltage.

- C. Self-Adhesive Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

2.2 ARMORED AND METAL-CLAD CABLE IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Colors for Raceways Carrying Circuits at 600 V and Less:
 - 1. Black letters on a yellow field.
 - 2. Legend: Indicate voltage.
- C. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- D. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches wide; compounded for outdoor use.

2.3 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

2.4 CONDUCTOR IDENTIFICATION MATERIALS

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.
- B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- C. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

2.5 FLOOR MARKING TAPE

- A. 2-inch-wide, 5-mil pressure-sensitive vinyl tape, with black and white stripes and clear vinyl overlay.

2.6 WARNING LABELS AND SIGNS

- A. Comply with NFPA 70 and 29 CFR 1910.145.
- B. Baked-Enamel Warning Signs:
 - 1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
 - 2. 1/4-inch grommets in corners for mounting.
 - 3. Nominal size, 7 by 10 inches.
- C. Warning label and sign shall include, but are not limited to, the following legends:
 - 1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
 - 2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.7 INSTRUCTION SIGNS

- A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.
 - 1. Engraved legend with black letters on white face.
 - 2. Punched or drilled for mechanical fasteners.
 - 3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.
- B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.8 EQUIPMENT IDENTIFICATION LABELS

- A. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.
- B. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

2.9 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Apply identification devices to surfaces that require finish after completing finish work.
- C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
- E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
- F. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.
- G. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

- A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30 A, and 120 V to ground: Install labels at 10-foot maximum intervals.
- B. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:
 - 1. Emergency Power.
 - 2. Power.
 - 3. UPS.
- C. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.
 - 1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded feeder and branch-circuit conductors.
 - a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.

- b. Colors for 203/110-V Circuits:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
- c. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.
- D. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.
- E. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source.
- F. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
 - 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
 - 2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
 - 3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.
- G. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.
 - 1. Limit use of underground-line warning tape to direct-buried cables.
 - 2. Install underground-line warning tape for both direct-buried cables and cables in raceway.
- H. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.
- I. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.
 - 1. Comply with 29 CFR 1910.145.
 - 2. Identify system voltage with black letters on an orange background.
 - 3. Apply to exterior of door, cover, or other access.
 - 4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:
 - a. Power transfer switches.
 - b. Controls with external control power connections.

- J. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.
- K. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
 - 1. Labeling Instructions:
 - a. Indoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
 - b. Outdoor Equipment: Engraved, laminated acrylic or melamine label 4 inches high.
 - c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
 - d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

END OF SECTION 260553

SECTION 260923 - LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Time switches.
2. Photoelectric switches.
3. Indoor occupancy and switchbox-mounted occupancy sensors.

B. Related Requirements:

1. Section 262726 "Wiring Devices" for wall-box dimmers, wall-switch occupancy sensors, and manual light switches.

1.2 ACTION SUBMITTALS

- ##### A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

- ##### A. Operation and maintenance data

PART 2 - PRODUCTS

2.1 TIME SWITCHES

- ##### A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Cooper Industries, Inc.
2. Intermatic, Inc.
3. NSi Industries LLC; TORK Products.

- ##### B. Electromechanical-Dial Time Switches: Comply with UL 917.

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. Contact Rating: 30-A inductive or resistive, 240-V ac
3. Circuitry: Allows connection of a photoelectric relay as a substitute for the on-off function of a program.
4. Astronomic time dial.
5. Eight-Day Program: Uniquely programmable for each weekday and holidays.

6. Skip-a-day mode.
7. Wound-spring reserve carryover mechanism to keep time during power failures, minimum of 16 hours.

2.2 OUTDOOR PHOTOELECTRIC SWITCHES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Cooper Industries, Inc.
 2. Intermatic, Inc.
 3. NSi Industries LLC; TORK Products.
- B. Description: Solid state, with dry contacts rated for 1800 VA, to operate connected load, complying with UL 773.
 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. Light-Level Monitoring Range: 1.5 to 10 fc with an adjustment for turn-on and turn-off levels within that range.
 3. Time Delay: Thirty-second minimum, to prevent false operation.
 4. Lightning Arrester: Air-gap type.
 5. Mounting: Twist lock complying with NEMA C136.10, with base.

2.3 INDOOR OCCUPANCY SENSORS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Cooper Industries, Inc.
 2. Hubbell Building Automation, Inc.
 3. Lithonia Lighting; Acuity Brands Lighting, Inc.
- B. General Requirements for Sensors: Wall- or ceiling-mounted, solid-state indoor occupancy sensors with a separate power pack.
 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. Operation: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn them off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
 3. Sensor Output: Contacts rated to operate the connected relay, complying with UL 773A. Sensor is powered from the power pack.
 4. Power Pack: Dry contacts rated for 20-A ballast load at 120- and 277-V ac, for 13-A tungsten at 120-V ac, and for 1 hp at 120-V ac. Sensor has 24-V dc, 150-mA, Class 2 power source, as defined by NFPA 70.
 5. Mounting:
 - a. Sensor: Suitable for mounting in any position on a standard outlet box.

- b. Relay: Externally mounted through a 1/2 knockout in a standard electrical enclosure.
 - c. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.
- 6. Indicator: Digital display, to show when motion is detected during testing and normal operation of sensor.
 - 7. Bypass Switch: Override the "on" function in case of sensor failure.
 - 8. Automatic Light-Level Sensor: Adjustable from 2 to 200 fc turn lights off when selected lighting level is present.
- C. Dual-Technology Type: Ceiling mounted; detect occupants in coverage area using PIR and ultrasonic detection methods. The particular technology or combination of technologies that control on-off functions is selectable in the field by operating controls on unit.
- 1. Sensitivity Adjustment: Separate for each sensing technology.
 - 2. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in. and detect a person of average size and weight moving not less than 12 inches in either a horizontal or a vertical manner at an approximate speed of 12 inches/s
 - 3. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. when mounted on a 96-inch- high ceiling.

2.4 SWITCHBOX-MOUNTED OCCUPANCY SENSORS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Cooper Industries, Inc.
 - 2. Hubbell Building Automation, Inc.
 - 3. Lithonia Lighting; Acuity Brands Lighting, Inc.
- B. General Requirements for Sensors: Automatic-wall-switch occupancy sensor, suitable for mounting in a single gang switchbox.
 - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application
 - 2. Operating Ambient Conditions: Dry interior conditions, 32 to 120 deg F
 - 3. Switch Rating: Not less than 800-VA fluorescent at 120 V, 1200-VA fluorescent at 277 V, and 800-W incandescent.

2.5 CONDUCTORS AND CABLES

- A. Power Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 12 AWG. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install and aim sensors in locations to achieve not less than 90 percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's written instructions.
- B. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting sensors to suit actual occupied conditions.
 - 1. For occupancy and motion sensors, verify operation at outer limits of detector range. Set time delay to suit Owner's operations.
- C. Mount electrically held lighting contactors with elastomeric isolator pads to eliminate structure-borne vibration, unless contactors are installed in an enclosure with factory-installed vibration isolators.
- D. Wiring Method: Comply with Section 260519 "Low-Voltage Electrical Power Conductors and Cables." Minimum conduit size is 1/2 inch

3.2 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
 - 1. Operational Test: After installing time switches and sensors, and after electrical circuitry has been energized, start units to confirm proper unit operation.
 - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Lighting control devices will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION 260923

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NEMA PB 1.
- C. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

- A. Enclosures: Surface-mounted cabinets.
 - 1. Rated for environmental conditions at installed location.
 - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
 - b. Outdoor Locations: NEMA 250, Type 3R.
 - 2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box. Front to have integral hinged door, with lock. Provide two keys with each panel.
 - 3. Directory Card: Inside panelboard door, mounted in transparent card holder.
- B. Incoming Mains Location: Top.
- C. Phase, Neutral, and Ground Buses: Hard-drawn copper, 98 percent conductivity.
- D. Conductor Connectors: Suitable for use with conductor material and sizes.
 - 1. Material: Hard-drawn copper, 98 percent conductivity.
 - 2. Main and Neutral Lugs: Mechanical type.
 - 3. Ground Lugs and Bus Configured Terminators: Mechanical type.
 - 4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
 - 5. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
- E. Service Equipment Label: NRTL labeled for use as service equipment for panelboards with one or more main service disconnecting and overcurrent protective devices.
- F. Panelboard Short-Circuit Current Rating: Rated for 10,000 AIC unless noted on plans, non-series rated.

2.2 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric.
- B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
- C. Mains: Circuit breaker.

- D. Branch Overcurrent Protective Devices: Plug-in circuit breakers, replaceable without disturbing adjacent units.
- E. Contactors in Main Bus (If indicated on plans): NEMA ICS 2, Class A, mechanically held, general-purpose controller, with same short-circuit interrupting rating as panelboard.
 - 1. External Control-Power Source: 120-V branch circuit.
- F. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike, supply 2 keys each panel.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Receive, inspect, handle, store and install panelboards and accessories according to NEMA PB 1.1.
- B. Comply with mounting and anchoring requirements specified in Division 16 Section "Vibration and Seismic Controls for Electrical Systems."
- C. Mount top of trim 72 inches (2286 mm) above finished floor unless otherwise indicated.
- D. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.
- E. Install overcurrent protective devices and controllers not already factory installed.
- F. Install filler plates in unused spaces.
- G. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future
- H. Arrange conductors in gutters into groups and bundle and wrap with wire ties.
- I. Comply with NECA 1.

3.2 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Division 16 Section "Electrical Identification."
- B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Division 26 Section "Electrical Identification."

3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Acceptance Testing Preparation:
 - 1. Test continuity of each circuit.
- C. Tests and Inspections:
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- D. Panelboards will be considered defective if they do not pass tests and inspections.

END OF SECTION 262416

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Weather-resistant receptacles.
3. Snap switches and wall-box dimmers.
4. Communications outlets.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. Cooper Wiring Devices; Division of Cooper Industries, Inc. (Cooper).
2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
3. Leviton Mfg. Company Inc. (Leviton).

B. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

- C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

- 1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
- 2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

- A. Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

- 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cooper; 5361 (single), 5362 (duplex).
 - b. Hubbell; HBL5351 (single), HBL5352 (duplex).
 - c. Leviton; 5891 (single), 5352 (duplex).

2.4 GFCI RECEPTACLES

- A. General Description:

- 1. Straight blade, feed-through type.
- 2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
- 3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

- B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

- 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cooper; VGF20.
 - b. Hubbell; GFR5352L.
 - c. Leviton; 7590.

2.5 TOGGLE SWITCHES

- A. Comply with NEMA WD 1, UL 20, and FS W-S-896.

- B. Switches, 120/277 V, 20 A:

- 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Single Pole:
 - 2) Cooper; AH1221.
 - 3) Hubbell; HBL1221.

- 4) Leviton; 1221-2.
- 5) Two Pole:
- 6) Cooper; AH1222.
- 7) Hubbell; HBL1222.
- 8) Leviton; 1222-2.
- 9) Three Way:
- 10) Cooper; AH1223.
- 11) Hubbell; HBL1223.
- 12) Leviton; 1223-2.
- 13) Four Way:
- 14) Cooper; AH1224.
- 15) Hubbell; HBL1224.
- 16) Leviton; 1224-2.

2.6 WALL-BOX DIMMERS

- A. Dimmer Switches: Modular, full-wave, solid-state units with integral, quiet on-off switches, with audible frequency and EMI/RFI suppression filters.
- B. Control: Continuously adjustable toggle switch; with single-pole or three-way switching. Comply with UL 1472.
- C. Incandescent Lamp Dimmers: 120 V; control shall follow square-law dimming curve. On-off switch positions shall bypass dimmer module.
 1. 600 W; dimmers shall require no derating when ganged with other devices.
- D. Fluorescent and LED Lamp Dimmer Switches: Modular; compatible with dimmer ballasts; trim potentiometer to adjust low-end dimming; dimmer-ballast combination capable of consistent dimming with low end not greater than 20 percent of full brightness.

2.7 WALL PLATES

- A. Single and combination types shall match corresponding wiring devices.
 1. Plate-Securing Screws: Metal with head color to match plate finish.
 2. Material for Finished Spaces: Smooth, high-impact thermoplastic.
 3. Material for Unfinished Spaces: Smooth, high-impact thermoplastic.
 4. Material for Damp Locations: Thermoplastic with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.
- B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant thermoplastic with lockable cover.

2.8 FINISHES

A. Device Color:

1. Wiring Devices Connected to Normal Power System: White unless otherwise indicated or required by NFPA 70 or device listing.
2. Wiring Devices Connected to UPS Power System: Red.
3. TVSS Devices: Blue.

B. Wall Plate Color: For plastic covers, match device color.

2.9 COMMUNICATIONS OUTLETS

- A. Communications outlets, wall plates, and associated wiring shall be provided and installed by the owner's communications consultant as part of a separate contract.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
4. Existing Conductors:
 - a. Cut back and pigtail, or replace all damaged conductors.
 - b. Straighten conductors that remain and remove corrosion and foreign matter.
 - c. Pigtailling existing conductors is permitted, provided the outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

F. Dimmers:

1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

H. Adjust locations of service poles to suit arrangement of partitions and furnishings.

3.2 GFCI RECEPTACLES

A. Install non-feed-through-type GFCI receptacles where protection of downstream receptacles is not required.

3.3 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
 2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
 3. Ground Impedance: Values of up to 2 ohms are acceptable.
 4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
 5. Using the test plug, verify that the device and its outlet box are securely mounted.
 6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.
- C. Wiring device will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

END OF SECTION 262726

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fusible switches.
2. Nonfusible switches.
3. Receptacle switches.
4. Shunt trip switches.
5. Molded-case circuit breakers (MCCBs).
6. Enclosures.

1.2 DEFINITIONS

- A. NC: Normally closed.
- B. NO: Normally open.
- C. SPDT: Single pole, double throw.

1.3 SUBMITTALS

- A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated.
- B. Operation and maintenance data.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 NONFUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 3. Square D; a brand of Schneider Electric.
- B. Type GD, General Duty, Single Throw, 600 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.
- C. Accessories:
1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
 2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
 3. Lugs: Suitable for number, size, and conductor material.

2.2 MOLDED-CASE CIRCUIT BREAKERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 3. Square D; a brand of Schneider Electric.
- B. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.
- C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
- D. Electronic Trip Circuit Breakers: Field-replaceable rating plug, rms sensing, with the following field-adjustable settings:
1. Instantaneous trip.
 2. Long- and short-time pickup levels.
 3. Long- and short-time time adjustments.
 4. Ground-fault pickup level, time delay, and I^2t response.
- E. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller, and let-through ratings less than NEMA FU 1, RK-5.
- F. Features and Accessories:
1. Standard frame sizes, trip ratings, and number of poles.
 2. Lugs: Suitable for number, size, trip ratings, and conductor material.
 3. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge lighting circuits.

4. Ground-Fault Protection: Comply with UL 1053; integrally mounted, self-powered type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.
5. Shunt Trip: Trip coil energized from separate circuit, with coil-clearing contact.
6. Auxiliary Contacts: One SPDT switch with "a" and "b" contacts; "a" contacts mimic circuit-breaker contacts, "b" contacts operate in reverse of circuit-breaker contacts.
7. Alarm Switch: One NO contact that operates only when circuit breaker has tripped.

2.3 ENCLOSURES

- A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.
 1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
 2. Outdoor Locations: NEMA 250, Type 3R.
 3. Other Wet or Damp, Indoor Locations: NEMA 250, Type 3R.
 4. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA 250, Type 12.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.
- B. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- C. Install fuses in fusible devices.
- D. Comply with NECA 1.

3.2 IDENTIFICATION

- A. Comply with requirements in Section 260553 "Identification for Electrical Systems."
 1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
 2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
 2. Test continuity of each circuit.
- C. Tests and Inspections:
1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262816

SECTION 265100 - INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior lighting fixtures, lamps, and ballasts.
2. Emergency lighting units.
3. Exit signs.
4. Lighting fixture supports.

B. Related Sections:

1. Division 26 Section "Wiring Devices" for manual wall-box dimmers for incandescent lamps.
2. Division 26 Section "Lighting Control Devices" for automatic control of lighting, including time switches, photoelectric relays, occupancy sensors, and multipole lighting relays and contactors.

1.2 SUBMITTALS

- ##### A. Product Data:
- For each type of lighting fixture, arranged in order of fixture designation. Include data on features, accessories, and finishes.

1.3 QUALITY ASSURANCE

- ##### A. Electrical Components, Devices, and Accessories:
- Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- ##### B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- ##### A. Products:
- Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, product(s) indicated on Drawings.

2.2 GENERAL REQUIREMENTS FOR LIGHTING FIXTURES AND COMPONENTS

- ##### A. Recessed Fixtures:
- Comply with NEMA LE 4 for ceiling compatibility for recessed fixtures.

- B. Incandescent Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5A.
- C. Fluorescent Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5 and NEMA LE 5A as applicable.
- D. HID Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5B.
- E. Metal Parts: Free of burrs and sharp corners and edges.
- F. Sheet Metal Components: Steel unless otherwise indicated. Form and support to prevent warping and sagging.
- G. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.
- H. Diffusers and Globes:
 - 1. Acrylic Lighting Diffusers: 100 percent virgin acrylic plastic. High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
 - a. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.
 - b. UV stabilized.
 - 2. Glass: Annealed crystal glass unless otherwise indicated.

2.3 BALLASTS FOR LINEAR FLUORESCENT LAMPS

- A. General Requirements for Electronic Ballasts:
 - 1. Comply with UL 935 and with ANSI C82.11.
 - 2. Designed for type and quantity of lamps served.
 - 3. Ballasts shall be designed for full light output unless another BF, dimmer, or bi-level control is indicated.
 - 4. Sound Rating: Class A.
 - 5. Total Harmonic Distortion Rating: Less than 10 percent.
 - 6. Transient Voltage Protection: IEEE C62.41.1 and IEEE C62.41.2, Category A or better.
 - 7. Operating Frequency: 42 kHz or higher.
 - 8. Lamp Current Crest Factor: 1.7 or less.
 - 9. BF: 0.88 or higher.
 - 10. Power Factor: 0.95 or higher.
- B. Luminaires controlled by occupancy sensors shall have programmed-start ballasts.
- C. Ballasts for Low-Temperature Environments: Electronic type rated for 0 deg F starting and operating temperature with indicated lamp types.

2.4 BALLASTS FOR COMPACT FLUORESCENT LAMPS

- A. Description: Electronic-programmed rapid-start type, complying with UL 935 and with ANSI C 82.11, designed for type and quantity of lamps indicated. Ballast shall be designed for full light output unless dimmer or bi-level control is indicated:
1. Lamp end-of-life detection and shutdown circuit.
 2. Automatic lamp starting after lamp replacement.
 3. Sound Rating: Class A.
 4. Total Harmonic Distortion Rating: Less than 20 percent.
 5. Transient Voltage Protection: IEEE C62.41.1 and IEEE C62.41.2, Category A or better.
 6. Operating Frequency: 20 kHz or higher.
 7. Lamp Current Crest Factor: 1.7 or less.
 8. BF: 0.95 or higher unless otherwise indicated.
 9. Power Factor: 0.95 or higher.
 10. Interference: Comply with 47 CFR 18, Ch. 1, Subpart C, for limitations on electromagnetic and radio-frequency interference for nonconsumer equipment.

2.5 EMERGENCY FLUORESCENT POWER UNIT

- A. Internal Type: Self-contained, modular, battery-inverter unit, factory mounted within lighting fixture body and compatible with ballast. Comply with UL 924.
1. Emergency Connection: Operate one fluorescent lamp(s) continuously at an output of 1100 lumens each. Connect unswitched circuit to battery-inverter unit and switched circuit to fixture ballast.
 2. Nightlight Connection: Operate one fluorescent lamp continuously.
 3. Test Push Button and Indicator Light: Visible and accessible without opening fixture or entering ceiling space.
 - a. Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
 - b. Indicator Light: LED indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
 4. Battery: Sealed, maintenance-free, nickel-cadmium type.
 5. Charger: Fully automatic, solid-state, constant-current type with sealed power transfer relay.
 6. Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and a flashing red LED.

2.6 BALLASTS FOR HID LAMPS

- A. Electromagnetic Ballast for Metal-Halide Lamps: Comply with ANSI C82.4 and UL 1029. Include the following features unless otherwise indicated:
1. Ballast Circuit: Constant-wattage autotransformer or regulating high-power-factor type.
 2. Minimum Starting Temperature: Minus 22 deg F for single-lamp ballasts.

3. Rated Ambient Operating Temperature: 104 deg F.
 4. Open-circuit operation that will not reduce average life.
 5. Low-Noise Ballasts: Manufacturers' standard epoxy-encapsulated models designed to minimize audible fixture noise.
- B. Electronic Ballast for Metal-Halide Lamps: Include the following features unless otherwise indicated:
1. Minimum Starting Temperature: Minus 20 deg F for single-lamp ballasts.
 2. Rated Ambient Operating Temperature: 130 deg F.
 3. Lamp end-of-life detection and shutdown circuit.
 4. Sound Rating: Class A.
 5. Total Harmonic Distortion Rating: Less than 20 percent.
 6. Transient Voltage Protection: IEEE C62.41.1 and IEEE C62.41.2, Category A or better.
 7. Lamp Current Crest Factor: 1.5 or less.
 8. Power Factor: 0.90 or higher.
 9. Interference: Comply with 47 CFR 18, Ch. 1, Subpart C, for limitations on electromagnetic and radio-frequency interference for nonconsumer equipment.
 10. Protection: Class P thermal cutout.

2.7 EXIT SIGNS

- A. General Requirements for Exit Signs: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.
- B. Internally Lighted Signs:
1. Lamps for AC Operation: LEDs, 50,000 hours minimum rated lamp life.
 2. Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.
 - a. Battery: Sealed, maintenance-free, nickel-cadmium type.
 - b. Charger: Fully automatic, solid-state type with sealed transfer relay.
 - c. Operation: Relay automatically energizes lamp from battery when circuit voltage drops to 80 percent of nominal voltage or below. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
 - d. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
 - e. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.

2.8 EMERGENCY LIGHTING UNITS

- A. General Requirements for Emergency Lighting Units: Self-contained units complying with UL 924.
1. Battery: Sealed, maintenance-free, lead-acid type.
 2. Charger: Fully automatic, solid-state type with sealed transfer relay.

3. Operation: Relay automatically turns lamp on when power-supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
4. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
5. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
6. Wire Guard: Heavy-chrome-plated wire guard protects lamp heads or fixtures.
7. Integral Time-Delay Relay: Holds unit on for fixed interval of 15 minutes when power is restored after an outage.

2.9 FLUORESCENT LAMPS

- A. T8 rapid-start lamps, rated 32 W maximum, nominal length of 48 inches, 2800 initial lumens (minimum), CRI 75 (minimum), color temperature 3500 K, and average rated life 20,000 hours unless otherwise indicated.
- B. Compact Fluorescent Lamps: 4-Pin, CRI 80 (minimum), color temperature 3500 K, average rated life of 10,000 hours at three hours operation per start unless otherwise indicated.
 1. 13 W: T4, double or triple tube, rated 900 initial lumens (minimum).
 2. 18 W: T4, double or triple tube, rated 1200 initial lumens (minimum).
 3. 26 W: T4, double or triple tube, rated 1800 initial lumens (minimum).
 4. 32 W: T4, triple tube, rated 2400 initial lumens (minimum).
 5. 42 W: T4, triple tube, rated 3200 initial lumens (minimum).
 6. 57 W: T4, triple tube, rated 4300 initial lumens (minimum).
 7. 70 W: T4, triple tube, rated 5200 initial lumens (minimum).

2.10 HID LAMPS

- A. Metal-Halide Lamps: ANSI C78.43, with minimum CRI 65, and color temperature 4000 K.
- B. Pulse-Start, Metal-Halide Lamps: Minimum CRI 65, and color temperature 4000 K.

2.11 LED LAMPS

- A. LED lamps, integral to fixtures, CRI 80 (minimum), color temperature 3500 K unless indicated otherwise indicated, average rated life 50,000 hours at 70% lumen output unless otherwise indicated.

2.12 LIGHTING FIXTURE SUPPORT COMPONENTS

- A. Comply with Division 26 Section "Hangers and Supports for Electrical Systems" for channel- and angle-iron supports and nonmetallic channel and angle supports.

- B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as fixture.
- C. Twin-Stem Hangers: Two, 1/2-inch steel tubes with single canopy designed to mount a single fixture. Finish same as fixture.
- D. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gage
- E. Wires for Humid Spaces: ASTM A 580/A 580M, Composition 302 or 304, annealed stainless steel, 12 gage.
- F. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.
- G. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Lighting fixtures: Set level, plumb, and square with ceilings and walls. Install lamps in each fixture.
- B. Comply with NFPA 70 for minimum fixture supports.
- C. Suspended Lighting Fixture Support:
 - 1. Pendants and Rods: Where longer than 48 inches, brace to limit swinging.
 - 2. Stem-Mounted, Single-Unit Fixtures: Suspend with twin-stem hangers.
 - 3. Continuous Rows: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of fixture chassis, including one at each end.
- D. Connect wiring according to Division 26 Section "Conductors and Cables."

3.2 FIELD QUALITY CONTROL

- A. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery and retransfer to normal.

END OF SECTION 265100

SPECIAL PROJECT CONDITIONS

SECTION 1 – PROJECT NAME AND LOCATION:

**Boone County Walnut Office
609 East Walnut
Columbia, MO.**

SECTION 2 - GENERAL

The Scope of Work in the bid package includes the following items in addition to all work shown or described in the documents:

- a. All work to be governed by and controlled by local, state and federal requirements for air pollution and disturbance of surrounding areas.
- b. If a contradiction in the contract documents occurs then the more restrictive interpretation shall prevail and be included in that respective contractor's bid.
- c. The responsibilities of each contractor are intended to coincide to provide a complete and total project. It is the responsibility of each Bidder to become familiar with the Construction Documents for the Project and identify any discrepancies or misunderstanding that may exist.
- d. Each Contractor shall become familiar with the Environmental Testing Report, see Appendix C, as well as any other information provided for the preparation of this bid.
- e. All work on the site is to be performed safely in accordance with all Occupational Safety and Health Administration (OSHA) standards and safety programs. It is the responsibility of the Contractor to inform and educate all personnel working on the site of the safety requirements and insure that these policies are enforced each day.
- f. Consumption of alcohol or drugs on the site will not be permitted. The Owner reserves the right to remove anyone from the site for consumption of alcohol or drugs. Smoking is not allowed within the building.
- g. The Architect / Owner and his representatives shall at all times have access to the work whenever it is in preparation or progress and the Contractor shall provide proper and safe facilities for such access and inspection.
- h. The Contractor shall be represented at the site by a competent full-time superintendent / foreman from the beginning of the work until acceptance.
- i. The Contractor and subcontractors are required to attend job progress meetings as required by the Owners representative.
- j. Work hours are 7:00 am until 4:30 pm – Monday through Friday, unless special arrangements are made with the Owners representative.

GENERAL CONDITIONS

1. **General Conditions:** AIA A201, General Conditions of the Contract for Construction shall be incorporated in the Contract Documents by reference.
2. **General Conditions Forms:** General Conditions are available from the American Institute of Architects, Washington, D.C. , 202-626-7300.

SUPPLEMENTARY CONDITIONS

The following supplements modify, change, delete from, or add to the "General Conditions of the Contract for Construction," AIA Document A201, 2007 edition. Where any Article of the General Conditions is modified, or any Paragraph, Subparagraph, or clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph, or Clause shall remain in effect.

The General Conditions also may be supplemented elsewhere in the Contract Documents by provisions located in, but not necessarily limited to, Division 1 or the Specifications. In the event of a conflict between any provision contained in the other Contract Documents and the provisions of AIA Document A201, the AIA Document A201 provisions will yield to and be overridden by the other contract provisions addressing the same subject matter.

ARTICLE 1 – GENERAL PROVISIONS

- A. The following subparagraphs are modified or clarified as follows:
 - 1.1.1 Deleted.
 - 1.1.2 Deleted.
 - 1.1.4 The project is titled:
Boone County Walnut Office
609 East Walnut
Columbia, MO.
 - 1.1.8 Deleted.
 - 1.5 The Drawings are those documents accompanying these Specifications titled "Boone County Walnut Office" and bearing the name of Simon Associates, Inc. and dated September 16, 2013. All other provisions of 1.5, 1.5.1 and 1.5.2 are deleted.

ARTICLE 2 – OWNER

- A. The following subparagraphs are modified or clarified as follows:
 - 2.1.1 When the term Owner is used in this agreement, it shall mean the government of Boone County, Missouri or the Boone County Commission, as the context requires. Authorization by the Owner shall mean authorization obtained by recorded majority vote of the Boone County Commission. It is further understood and agreed that no person or party is authorized to bind the Owner to any proposed agreement for services under the auspices of this agreement without having obtained the prior approval of the Boone County Commission by recorded majority vote for such authorization. In this regard, it is understood and agreed that the Consultant shall not be entitled to rely upon verbal or written representations by any agent or employee of the Owner in deviation to the terms and conditions of this agreement, or as authorization for compensation for services except as may be approved by recorded vote of the Boone County Commission. When the term Owner's representative is used, it shall mean Karen M. Miller, District I Commissioner. It shall be presumed that such representative shall have all necessary decision making authority with respect to services provided under this agreement and Owner approved proposals for services except such representative shall have no authority to make decisions concerning changes to the compensation or reimbursement, or with respect to services to be performed under this agreement or Owner approved proposal for

services which involve or affect cost, expense or budgetary allowances, except to the extent that such authority has been granted, up to a dollar amount certain, by the Boone County Commission.

- 2.1.2 Deleted.
- 2.2.1 Deleted.
- 2.2.2 Deleted.
- 2.2.3 Deleted.
- 2.2.5 The Owner will furnish the Contractor with a minimum of 4 complete sets of Drawings and Specifications at no cost for the execution of the Work. The Contractor may obtain additional sets of Drawings and Specifications at <http://goo.gl/L0cM2x> at no cost and may be printed as desired. No paper copies will be issued. If paper copies are desired, it is the responsibility of the user to print the files or have them printed.

ARTICLE 3 – CONTRACTOR

A. Clarify or modify the following subparagraphs:

- 3.2.2 Delete reference to 2.2.3.
- 3.2.4 Deleted.
- 3.4.2 Contractor may make substitutions only with the written approval of the Architect and the Owner.
- 3.7.1 The Contractor shall secure and pay for all permits, fees, licenses and inspections necessary for proper execution and completion of the Work
- 3.7.4 Deleted.
- 3.7.5 Deleted.
- 3.8.2.3 Deleted.
- 3.9.2 Delete 14-day time limitation.

B. Add the following subparagraphs:

- 3.13.2 Limits of the Work
 - a. The limits of work shall include the site designated on the Drawings and access to and from the site. All construction workers and activities shall be confined to the site.
- 3.13.5 Temporary Construction Headquarters and Parking
 - a. The Project Superintendent will be required to have a mobile phone. If a job site trailer is provided for the work it will be located as directed by the Owner's Representative. The Contractors employees and Subcontractors shall park at the locations stipulated by the Owner on the site of the work. The owner will make the existing parking lot, west of the primary construction site available to the contractor for 100 days to facilitate the work.
- 3.13.6 Temporary Utilities
 - a. The Owner shall pay all costs for temporary electric and water services required for construction. All required temporary extensions would be provided and removed by the Contractor.
 - b. The Contractor shall furnish all temporary ventilation or heating systems (including fuel costs) required for construction at his expense. The Contractor shall use the building HVAC system only with approval from the Owners Representative, and shall

restore the HVAC system to new condition prior to Owner occupancy. All HVAC system filters shall be replaced at the substantial completion of the project.

- c. The Contractor shall include in his proposal the costs of portable toilet facilities for the use of the workmen for the duration of the project.

ARTICLE 4 – ARCHITECT

- 4.2.8 Delete reference to 3.7.4.

ARTICLE 5 – SUBCONTRACTORS

- 5.2.1 Delete 14-day time deadline.
- 5.4 Deleted, including all subparts.

ARTICLE 6 – CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS

- 6.1.4 Deleted.

ARTICLE 7 – CHANGES IN THE WORK

- 7.3.7.4 Deleted.
- 7.3.7.5 Deleted.

ARTICLE 8 – TIME

- 8.3 Deleted, including all subparts.
- A. Add the following subparagraph:
 - 8.3.4 Inclement Weather
5 inclement weather days will be considered in conjunction with the work. The Contractor must incorporate bad weather days in the base bid or proposal form for the work or schedule the work to prevent delays associated with weather conditions.

ARTICLE 9 – PAYMENTS AND COMPLETION

- 9.7 Deleted.
- 9.10.4 Deleted.

ARTICLE 10 – PROTECTION OF PERSONS AND PROPERTY

- 10.2.8 Deleted.
- 10.3 Deleted, including all subparts.

ARTICLE 11 – INSURANCE AND BONDS – Deleted in its entirety (provided for elsewhere).

ARTICLE 12 – UNCOVERING AND CORRECTION OF WORK

- 12.2.2.1 Delete beginning with “The Owner shall give such notice ...” through the end of the section.

ARTICLE 13 – TESTS AND INSPECTIONS

- 13.6 Deleted.
- 13.7 Deleted.

ARTICLE 14 – TERMINATION OR SUSPENSION OF THE CONTRACT – Deleted in its entirety (provided for elsewhere).

ARTICLE 15 – CLAIMS AND DISPUTES

Delete entire section and all subparts in its entirety. Replace with the following:

- 15.1 The laws of the State of Missouri shall control in the interpretation and enforcement of this Contract.
- 15.2 Venue for all actions arising under this Contract shall be in Boone County, Missouri.
- 15.3 Prior to the commencement of any action under this Contract, the parties may mutually agree to submit their dispute to mediation.

AFFIDAVIT COMPLIANCE WITH THE PREVAILING WAGE LAW

Before me, the undersigned Notary Public, in and for the County of _____

State of _____, personally came and appeared (name and title)

_____ of the (name of company)

_____ (a corporation) (a partnership) (a proprietorship)

and after being duly sworn did depose and say that all provisions and requirements set out in Chapter 290 Sections 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works projects have been fully satisfied and there has been no exception to the full and complete compliance with said provisions and requirements and with Wage Determination NO. _____ issued by the Division of Labor Standards on the _____ day of _____, 20____, in carrying out the Contract and work in connection with

(name of project) _____ located at

(name of institution) _____ in _____ County,

Missouri and completed on the _____ day of _____, 20_____.

Signature

Subscribed and sworn to me this _____ day of _____, 20_____.

My commission expires _____, 20_____.

Notary Public

APPENDIX A

STATE WAGE RATES

GENERAL: This Contract shall be based upon payment by the Contractor of wage rates not less than the prevailing hourly wage rate for each craft or classification of workers engaged on the work as determined by the Industrial Commission of Missouri on behalf of the Department of Labor and Industrial Relations.

The Contractor shall comply with all requirements of the prevailing wage law of Missouri, Revised Statutes of Missouri, Sections 290.210 to 290.340, including the latest amendments thereto.

The prevailing wage law does not prohibit payment of more than the prevailing rate of wages nor does it limit the hours of work which may be performed by any worker in any particular period of time.

RECORDS: The Contractor shall keep an accurate record showing the names, occupations, and crafts of all workers employed, together with the number of hours worked by each worker and the actual wages paid to each worker. At all reasonable hours, such records shall be open to inspection by the representatives of Industrial Commission of Missouri and the County. The payroll records shall not be destroyed or removed from the State for at least one year after completion of the work.

NOTICES: Throughout the life of this Contract, a copy of the wage determination and the rules promulgated by the Industrial Commission of Missouri shall be displayed in at least one conspicuous place on the project under a heading of NOTICE with the heading in letters at least one inch high.

PENALTY: Pursuant to Section 290.250 RSMo the Contractor shall forfeit to the County as penalty, one hundred dollars for each worker employed, for each calendar day, or portion thereof, such worker is paid less than the stipulated rates for any work done under the Contract, by them.

AFFIDAVIT OF COMPLIANCE: After completion of the work and before final payment can be made under this Contract, the Contractor must file with the County an affidavit stating that they have fully complied with the provisions and requirements of the prevailing wage law of Missouri, sections 290.210 to 290.340 RSMo.

WAGE DETERMINATION: During the life of this Contract, the prevailing hourly rate of wages is subject to change by the Department of Labor and Industrial Relations or by court decision as provided by law. Any such change shall not be the basis of any claim by the Contractor against the County, nor will deductions be made by the County against sums due the Contractor by reason of any such change.

The prevailing wage rate determination made by the Industrial Commission of Missouri is reproduced verbatim and is applicable to this Contract.

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



JEREMIAH W. (JAY) NIXON, Governor

Annual Wage Order No. 20

Section 010

BOONE COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by

Robert A. Bedell, Acting Director
Division of Labor Standards

This Is A True And Accurate Copy Which Was Filed With The Secretary of State: **March 8, 2013**

Last Date Objections May Be Filed: **April 8, 2013**

Prepared by Missouri Department of Labor and Industrial Relations

Building Construction Rates for
BOONE County

REPLACEMENT PAGE

Section 010

OCCUPATIONAL TITLE	** Date of Increase	*	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits
Asbestos Worker (H & F) Insulator			\$31.26	55	60	\$19.51
Boilermaker			\$32.72	57	7	\$26.89
Bricklayer and Stone Mason			\$28.20	59	7	\$14.83
Carpenter			\$24.09	60	15	\$13.65
Cement Mason			\$26.08	9	3	\$11.00
Electrician (Inside Wireman)			\$30.78	28	7	\$12.32 + 13%
Electrician (Outside-Line Construction)\Lineman)			\$38.91	43	45	\$5.00 + 37.5%
Lineman Operator			\$33.59	43	45	\$5.00 + 37.5%
Groundman			\$25.97	43	45	\$5.00 + 37.5%
Communication Technician			\$30.78	28	7	\$12.32 + 13%
Elevator Constructor		a	\$43.345	26	54	\$25.095
Operating Engineer						
Group I			\$26.16	86	66	\$22.60
Group II			\$26.16	86	66	\$22.60
Group III			\$24.91	86	66	\$22.60
Group III-A			\$26.16	86	66	\$22.60
Group IV			\$23.93	86	66	\$22.60
Group V			\$26.86	86	66	\$22.60
Pipe Fitter		b	\$34.25	91	69	\$25.03
Glazier		c	\$28.15	122	76	\$14.22 + 5.2%
Laborer (Building):						
General			\$20.81	42	44	\$12.09
First Semi-Skilled			\$22.81	42	44	\$12.09
Second Semi-Skilled			\$21.81	42	44	\$12.09
Lather			USE CARPENTER RATE			
Linoleum Layer and Cutter			USE CARPENTER RATE			
Marble Mason			\$20.62	124	74	\$12.68
Millwright			\$25.09	60	15	\$13.65
Ironworker			\$27.81	11	8	\$21.04
Painter			\$20.95	18	7	\$11.42
Plasterer			\$24.84	94	5	\$11.05
Plumber		b	\$34.25	91	69	\$25.03
Pile Driver			\$25.09	60	15	\$13.65
Roofer \ Waterproofor			\$28.05	12	4	\$13.59
Sheet Metal Worker			\$29.35	40	23	\$14.64
Sprinkler Fitter - Fire Protection			\$30.52	33	19	\$18.40
Terrazzo Worker			\$27.48	124	74	\$14.32
Tile Setter			\$20.62	124	74	\$12.68
Truck Driver-Teamster						
Group I			\$24.50	101	5	\$9.30
Group II			\$25.15	101	5	\$9.30
Group III			\$24.65	101	5	\$9.30
Group IV			\$25.15	101	5	\$9.30
Traffic Control Service Driver			\$26.415	22	55	\$9.045

Fringe Benefit Percentage is of the Basic Hourly Rate

Attention Workers: If you are not being paid the appropriate wage rate and fringe benefits contact the Division of Labor Standards at (573) 751-3403.

**BOONE COUNTY
OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

FED: Minimum requirement per Fair Labor Standards Act means time and one-half (1 ½) shall be paid for all work in excess of forty (40) hours per work week.

NO. 9: Means the regular workday starting time of 8:00 a.m. (and resulting quitting time of 4:30 p.m.) may be moved forward to 6:00 a.m. or delayed one hour to 9:00 a.m. All work performed in excess of the regular work day and on Saturday shall be compensated at one and one-half (1½) times the regular pay. In the event time is lost during the work week due to weather conditions, the Employer may schedule work on the following Saturday at straight time. All work accomplished on Sunday and holidays shall be compensated for at double the regular rate of wages. The work week shall be Monday through Friday, except for midweek holidays.

NO. 11: Means eight (8) hours shall constitute a day's work, with the starting time to be established between 6:00 a.m. and 8:00 a.m. from Monday to Friday. Time and one-half (1½) shall be paid for first two (2) hours of overtime Monday through Friday and the first eight (8) hours on Saturday. All other overtime hours Monday through Saturday shall be paid at double (2) time rate. Double (2) time shall be paid for all time on Sunday and recognized holidays or the days observed in lieu of these holidays.

NO. 12: Means the work week shall commence on Monday at 12:01 a.m. and shall continue through the following Friday, inclusive of each week. All work performed by employees anywhere in excess of forty (40) hours in one (1) work week, shall be paid for at the rate of one and one-half (1½) times the regular hourly wage scale. All work performed within the regular working hours which shall consist of a ten (10) hour work day except in emergency situations. Overtime work and Saturday work shall be paid at one and one-half (1½) times the regular hourly rate. Work on recognized holidays and Sundays shall be paid at two (2) times the regular hourly rate.

NO. 18: Means the regular work day shall be eight (8) hours. Working hours are from six (6) hours before Noon (12:00) to six (6) hours after Noon (12:00). The regular work week shall be forty (40) hours, beginning between 6:00 a.m. and 12:00 Noon on Monday and ending between 1:00 p.m. and 6:00 p.m. on Friday. Saturday will be paid at time and one-half (1½). Sunday and Holidays shall be paid at double (2) time. Saturday can be a make-up day if the weather has forced a day off, but only in the week of the day being lost. Any time before six (6) hours before Noon or six (6) hours after Noon will be paid at time and one-half (1½).

NO. 22: Means a regular work week of forty (40) hours will start on Monday and end on Friday. The regular work day shall be either eight (8) or ten (10) hours. If a crew is prevented from working forty (40) hours Monday through Friday, or any part thereof by reason of inclement weather, Saturday or any part thereof may be worked as a make-up day at the straight time rate. Employees who are part of a regular crew on a make-up day, notwithstanding the fact that they may not have been employed the entire week, shall work Saturday at the straight time rate. A workday is to begin between 6:00 a.m. and 9:00 a.m. However, the project starting time may be advanced or delayed if mutually agreed to by the interest parties. For all time worked on recognized holidays, or days observed as such, double (2) time shall be paid.

NO. 26: Means that the regular working day shall consist of eight (8) hours worked between 6:00 a.m., and 5:00 p.m., five (5) days per week, Monday to Friday, inclusive. Hours of work at each jobsite shall be those established by the general contractor and worked by the majority of trades. (The above working hours may be changed by mutual agreement). Work performed on Construction Work on Saturdays, Sundays and before and after the regular working day on Monday to Friday, inclusive, shall be classified as overtime, and paid for at double (2) the rate of single time. The employer may establish hours worked on a jobsite for a four (4) ten (10) hour day work week at straight time pay for construction work; the regular working day shall consist of ten (10) hours worked consecutively, between 6:00 a.m. and 6:00 p.m., four (4) days per week, Monday to Thursday, inclusive. Any work performed on Friday, Saturday, Sunday and holidays, and before and after the regular working day on Monday to Thursday where a four (4) ten (10) hour day workweek has been established, will be paid at two times (2) the single time rate of pay. The rate of pay for all work performed on holidays shall be at two times (2) the single time rate of pay.

**BOONE COUNTY
OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

NO. 28: Means a regular workday shall consist of eight (8) hours between 7:00 a.m. and 5:30 p.m., with at least a thirty (30) minute period to be taken for lunch. Five (5) days a week, Monday through Friday inclusive, shall constitute a work week. The Employer has the option for a workday/workweek of four (4) ten (10) hour days (4-10's) provided:

- The project must be for a minimum of four (4) consecutive days.
- Starting time may be within one (1) hour either side of 8:00 a.m.
- Work week must begin on either a Monday or Tuesday: If a holiday falls within that week it shall be a consecutive work day. (Alternate: If a holiday falls in the middle of a week, then the regular eight (8) hour schedule may be implemented).
- Any time worked in excess of any ten (10) hour work day (in a 4-10 hour work week) shall be at the appropriate overtime rate.

All work outside of the regular working hours as provided, Monday through Saturday, shall be paid at one & one-half (1½) times the employee's regular rate of pay. All work performed from 12:00 a.m. Sunday through 8:00 a.m. Monday and recognized holidays shall be paid at double (2) the straight time hourly rate of pay. Should employees work in excess of twelve (12) consecutive hours they shall be paid double time (2X) for all time after twelve (12) hours. Shift work performed between the hours of 4:30 p.m. and 12:30 a.m. (second shift) shall receive eight (8) hours pay at the regular hourly rate of pay plus ten (10%) percent for seven and one-half (7½) hours work. Shift work performed between the hours of 12:30 a.m. and 8:00 a.m. (third shift) shall receive eight (8) hours pay at the regular hourly rate of pay plus fifteen (15%) percent for seven (7) hours work. A lunch period of thirty (30) minutes shall be allowed on each shift. All overtime work required after the completion of a regular shift shall be paid at one and one-half (1½) times the shift hourly rate.

NO. 33: Means the standard work day and week shall be eight (8) consecutive hours of work between the hours of 6:00 a.m. and 6:00 p.m., excluding the lunch period Monday through Friday, or shall conform to the practice on the job site. Four (4) days at ten (10) hours a day may be worked at straight time, Monday through Friday and need not be consecutive. All overtime, except for Sundays and holidays shall be at the rate of time and one-half (1½). Overtime worked on Sundays and holidays shall be at double (2) time.

NO. 40: Means the regular working week shall consist of five (5) consecutive (8) hour days' labor on the job beginning with Monday and ending with Friday of each week. Four (4) 10-hour days may constitute the regular work week. The regular working day shall consist of eight (8) hours labor on the job beginning as early as 6:00 a.m. and ending as late as 5:30 p.m. All full or part time labor performed during such hours shall be recognized as regular working hours and paid for at the regular hourly rate. All hours worked on Saturday and all hours worked in excess of eight (8) hours but not more than twelve (12) hours during the regular working week shall be paid for at time and one-half (1½) the regular hourly rate. All hours worked on Sundays and holidays and all hours worked in excess of twelve (12) hours during the regular working day shall be paid at two (2) times the regular hourly rate. In the event of rain, snow, cold or excessively windy weather on a regular working day. Saturday may be designated as a "make-up" day. Saturday may also be designated as a "make-up" day, for an employee who has missed a day of work for personal or other reasons. Pay for "make-up" days shall be at regular rates.

**BOONE COUNTY
OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

NO. 42: Means eight (8) hours between the hours of 8:00 a.m. and 4:30 p.m. shall constitute a work day. The starting time may be advanced one (1) or two (2) hours. Employees shall have a lunch period of thirty (30) minutes. The Employer may provide a lunch period of one (1) hour, and in that event, the workday shall commence at 8:00 a.m. and end at 5:00 p.m. The workweek shall commence at 8:00 a.m. on Monday and shall end at 4:30 p.m. on Friday (or 5:00 p.m. on Friday if the Employer grants a lunch period of one (1) hour), or as adjusted by starting time change as stated above. All work performed before 8:00 a.m. and after 4:30 p.m. (or 5:00 p.m. where one (1) hour lunch is granted for lunch) or as adjusted by starting time change as stated above or on Saturday, except as herein provided, shall be compensated at one and one-half (1½) times the regular hourly rate of pay for the work performed. All work performed on Sunday and on recognized holidays shall be compensated at double (2) the regular hourly rate of pay for the work performed. When working a five 8-hour day schedule and an Employer is prevented from working forty (40) hours, Monday through Friday, or any part thereof by reason of inclement weather (rain or mud), Saturday or any part thereof may be worked as a make-up day at the straight time rate. The Employer shall have the option of working five eight (8) hour days or four ten (10) hour days Monday through Friday. If an Employer elects to work five (5) eight (8) hour days during any work week, hours worked more than eight (8) per day or forty (40) hours per week shall be paid at time and one-half (1½) the hourly rate Monday through Friday. If an Employer elects to work four (4) ten (10) hour days in any week, work performed more than ten (10) hours per day or forty (40) hours per week shall be paid at time and one-half (1½) the hourly rate Monday through Friday. If an Employer is working ten (10) hour days and loses a day due to inclement weather, they may work ten (10) hours Friday at straight time. All hours worked over the forty (40) hours Monday through Friday will be paid at time and one-half (1½) overtime rate. Overtime shall be computed at half-hour intervals. Shift Work: Two (2) or three (3) shifts shall be permitted, provided such shifts are scheduled for a minimum of three (3) consecutive days. The second shift shall begin at 4:30 p.m. and end at 12:30 a.m. with one-half (1/2) hour for lunch between 7:30 p.m. and 9:00 p.m. and shall received eighty (8) hours' pay. The third shift shall begin at 12:30 a.m. and end at 8:00 a.m. with one-half (1/2) hour for lunch between 3:30 a.m. and 5:00 a.m. and shall received (8) hour's; pay. There shall be at least one (1) foreman on each shift on jobs where more than one shift is employed, provided that there are two (2) or more employees on second and on the third shifts. All shifts shall arrange to interchange working hours at the end of each week. When three shifts are used, the applicable rate must be paid from Saturday at 8:00 a.m. until the following Monday at 8:00 a.m. When three shifts are employed, the second and third shifts shall contain at least one-half (1/2) as many employees as the first shift.

NO. 43: Eight (8) hours shall constitute a work day between the hours of 7:00 a.m. and 4:30 p.m. Forty (40) hours within five (5) days, Monday through Friday inclusive, shall constitute the work week. Work performed in the 9th and 10th hour, Monday through Friday, shall be paid at time and one-half (1½) the regular straight time rate of pay. Contractor has the option to pay two (2) hours per day at the time and one-half (1½) the regular straight time rate of pay between the hours of 6:00 a.m. and 5:30 p.m., Monday through Friday. Work performed outside the regularly scheduled working hours and on Saturdays, Sundays and recognized legal holidays, or days celebrated as such, shall be paid for at the rate of double (2) time.

NO. 55: Means the regular work day shall be eight (8) hours between 6:00 a.m. and 4:30 p.m. The first two (2) hours of work performed in excess of the eight (8) hour work day, Monday through Friday, and the first ten (10) hours of work on Saturday, shall be paid at one & one-half (1½) times the straight time rate. All work performed on Sunday, observed holidays and in excess of ten (10) hours a day, Monday through Saturday, shall be paid at double (2) the straight time rate.

NO. 57: Means eight (8) hours per day shall constitute a day's work and forty (40) hours per week, Monday through Friday, shall constitute a week's work. The regular starting time shall be 8:00 a.m. If a second or third shift is used, the regular starting time of the second shift shall be 4:30 p.m. and the regular starting period for the third shift shall be 12:30 a.m. These times may be adjusted by the employer. The day shift shall work a regular eight (8) hours shift as outlined above. Employees working a second shift shall receive an additional \$0.25 above the regular hourly rate and perform seven and one-half (7½) hours work for eight (8) hours pay. Third shift employees shall be paid an additional \$0.50 above the regular hourly rate and work seven (7) hours for eight (8) hours pay. When circumstances warrant, the Employer may change the regular workweek to four (4) ten-hour days at the regular time rate of pay. All time worked before and after the established workday of eight (8) hours, Monday through Friday, and all time worked on Saturday shall be paid at the rate of time and one-half (1½) except in cases where work is part of an employee's regular Friday shift. All time worked on Sunday and recognized holidays shall be paid at the double (2) time rate of pay except in cases where work is part of an employee's previous day's shift. For all overtime hours worked \$25.65 of the fringe benefits portion of the prevailing wage shall be paid at the same overtime rate at which the cash portion of the prevailing wage is to be paid. The remaining \$1.24 of the fringe benefit portion of the prevailing wage may be paid at straight time.

**BOONE COUNTY
OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

NO. 59: Means that except as herein provided, eight (8) hours a day shall constitute a standard work day, and forty (40) hours per week shall constitute a week's work. All time worked outside of the standard eight (8) hour work day and on Saturday shall be classified as overtime and paid the rate of time and one-half (1½). All time worked on Sunday and holidays shall be classified as overtime and paid at the rate of double (2) time. The Employer has the option of working either five (5) eight hour days or four (4) ten hour days to constitute a normal forty (40) hour work week. When the four (4) ten-hour work week is in effect, the standard work day shall be consecutive ten (10) hour periods between the hours of 6:30 a.m. and 6:30 p.m. Forty (40) hours per week shall constitute a week's work, Monday through Thursday, inclusive. In the event the job is down for any reason beyond the Employer's control, then Friday and/or Saturday may, at the option of the Employer, be worked as a make-up day; straight time not to exceed ten (10) hours or forty (40) hours per week. When the five day eight (8) hour work week is in effect, forty (40) hours per week shall constitute a week's work, Monday through Friday, inclusive. In the event the job is down for any reason beyond the Employer's control, then Saturday may, at the option of the Employer, be worked as a make-up day; straight time not to exceed eight (8) hours or forty (40) hours per week. The regular starting time (and resulting quitting time) may be moved to 6:00 a.m. or delayed to 9:00 a.m. Make-up days shall not be utilized for days lost due to holidays.

NO. 60: Means the Employer shall have the option of working five 8-hour days or four 10-hour days Monday through Friday. If an Employer elects to work five 8-hour days during any work week, hours worked more than eight (8) per day or forty (40) per week shall be paid at time and one-half (1½) the hourly wage rate plus fringe benefits Monday through Friday. **SATURDAY MAKE-UP DAY:** If an Employer is prevented from working forty (40) hours, Monday through Friday, or any part thereof by reason of inclement weather (rain or mud), Saturday or any part thereof may be worked as a make-up day at the straight time rate. It is agreed by the parties that the make-up day is not to be used to make up time lost due to recognized holidays. If an Employer elects to work four 10-hour days, between the hours of 6:30 a.m. and 6:30 p.m. in any week, work performed more than ten (10) hours per day or forty (40) hours per week shall be paid at time and one half (1½) the hourly wage rate plus fringe benefits Monday through Friday. If an Employer is working 10-hour days and loses a day due to inclement weather, the Employer may work ten (10) hours on Friday at straight time. All hours worked over the forty (40) hours Monday through Friday will be paid at time and one-half (1½) the hourly wage rate plus fringe benefits. All Millwright work performed in excess of the regular work day and on Saturday shall be compensated for at time and one-half (1½) the regular Millwright hourly wage rate plus fringe benefits. The regular work day starting at 8:00 a.m. (and resulting quitting time of 4:30 p.m.) may be moved forward to 6:00 a.m. or delayed one (1) hour to 9:00 a.m. All work accomplished on Sundays and recognized holidays, or days observed as recognized holidays, shall be compensated for at double (2) the regular hourly rate of wages plus fringe benefits. **NOTE:** All overtime is computed on the hourly wage rate plus an amount equal to the fringe benefits.

NO. 86: Means the regular work week shall consist of five (5) days, Monday through Friday, beginning at 8:00 a.m. and ending at 4:30 p.m. The regular work day beginning time may be advanced one or two hours or delayed by one hour. However, the Employer may have the option to schedule his work week from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be at the applicable overtime rate. If the Employer elects to work from Monday through Thursday and is stopped due to circumstances beyond his control, inclement weather or holiday, he shall have the option to work Friday at the straight time rate of pay to complete his forty (40) hours. If an employee declines to work Friday as a make-up day, he shall not be penalized. All overtime work performed on Monday through Saturday shall be paid at time and one-half (1½) of the hourly rate plus an amount equal to one-half (½) of the hourly Total Indicated Fringe Benefits. All work performed on Sundays and recognized holidays shall be paid at double (2) the hourly rate plus an amount equal to the hourly Total Indicated Fringe Benefits.

**BOONE COUNTY
OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

NO. 91: Means eight (8) hours shall constitute a day's work commencing at 7:00 a.m. and ending at 3:30 p.m., allowing one-half (½) hour for lunch. The option exists for the Employer to use a flexible starting time between the hours of 6:00 a.m. and 9:00 a.m. The regular workweek shall consist of forty (40) hours of five (5) workdays, Monday through Friday. The workweek may consist of four (4) ten (10) hour days from Monday through Thursday, with Friday as a make-up day. If the make-up day is a holiday, the employee shall be paid at the double (2) time rate. The employees shall be paid time and one-half (1½) for work performed on Saturdays, before the regular starting time or after the regular quitting time or over eight (8) hours per work day (unless working a 10-hour work day, then time and one-half (1½) is paid for work performed over ten (10) hours a day) or over forty (40) hours per work week. Work performed on Sundays and recognized holidays shall be paid at the double (2) time rate of pay. **SHIFT WORK:** When it is necessary for the project to operate in shifts, there will be three (3) eight (8) hour shifts commencing at 8:00 a.m. Shift work must continue for a period of not less than three (3) consecutive work days, two (2) days which must be regular work days (Monday through Friday). In the event the second or third shift of any regular work day shall fall into a Saturday or a holiday, such extension into a Saturday or holiday shall be considered as part of the previous workday and employees shall be paid at the regular shift rate. The first day shift shall work a regular eight (8) hour day at regular rates. The second shift shall be eight (8) hours regular time pay plus \$2.50 per hour premium for eight (8) hours work. Third shift will be for eight (8) hours regular time pay plus \$3.00 per hour premium for eight (8) hours work.

NO. 94: Means eight (8) hours shall constitute a day's work between the hours of 8:00 a.m. and 5:00 p.m. The regular workday starting time of 8:00 a.m. (and resulting quitting time of 4:30 p.m.) may be moved forward to 6:00 a.m. or delayed one (1) hour to 9:00 a.m. All work performed in excess of the regular work day and on Saturday shall be compensated at one and one-half (1½) times the regular pay. In the event time is lost during the work week due to weather conditions, the Employer may schedule work on the following Saturday at straight time. All work accomplished on Sunday and holidays shall be compensated at double the regular rate of wages.

NO. 101: Means that except as provided below, eight (8) hours a day shall constitute a standard work day, and forty (40) hours per week shall constitute a week's work, which shall begin on Monday and end on Friday. All time worked outside of the standard work day and on Saturday shall be classified as overtime and paid the rate of time and one-half (1½) (except as herein provided). All time worked on Sunday and recognized holidays shall be classified as overtime and paid at the rate of double (2) time. The regular starting time of 8:00 a.m. (and resulting quitting time of 4:30 p.m.) may be moved forward to 6:00 a.m. or delayed one (1) hour to 9:00 a.m. The Employer has the option of working either five (5) eight-hour days or four (4) ten-hour days to constitute a normal forty (40) hour work week. When a four (4) ten-hour day work week is in effect, the standard work day shall be consecutive ten (10) hour periods between the hours of 6:30 a.m. and 6:30 p.m. Forty (40) hours per week shall constitute a week's work Monday through Thursday, inclusive. In the event the job is down for any reason beyond the Employer's control, then Friday and/or Saturday may, at the option of the Employer, be worked as a make-up day; straight time not to exceed ten (10) hours per day or forty (40) hours per week. Starting time will be designated by the employer. When the five (5) day eight (8) hour work week is in effect, forty (40) hours per week shall constitute a week's work, Monday through Friday, inclusive. In the event the job is down for any reason beyond the Employer's control, then Saturday may, at the option of the Employer, be worked as a make-up day; straight time not to exceed eight (8) hours per day or forty (40) hours per week. Make-up days shall not be utilized for days lost due to holidays.

NO. 104: Means eight (8) hours per day shall constitute a standard work day between the hours of 6:00 a.m. and 8:00 p.m. The standard work week shall be forty (40) hours between 6:00 a.m. on Monday and ending 8:00 p.m. on Friday. An overtime rate of time and one-half (1½) the base hourly rate shall be paid on all hours in excess of eight (8) hours in a day Monday through Friday. Saturdays shall be considered overtime and work done on Saturday shall be paid at time and one-half (1½) the prevailing scale. Sundays and holidays shall be considered overtime and work done on these days shall be paid at double (2) the prevailing scale.

NO. 122: Means forty (40) hours between Monday and Friday shall constitute the normal work week. Work shall be scheduled between the hours of 6:00 a.m. and 6:30 p.m., with one-half hour for lunch. Work in excess of eight (8) hours per day and forty (40) hours per week, and on Saturdays, shall be paid at the rate of one and one-half times the normal rate. Due to inclement weather during the week, Saturday shall be a voluntary make up day.

**BOONE COUNTY
OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

NO. 124: Means eight (8) hours shall constitute a day's work on all classes of work between the hours of 6:00 a.m. and 5:30 p.m., Monday through Friday. The pay for time worked during these hours shall be at the regular wage rate. The regular workweek shall be Monday through Friday. Employment from 4:30 p.m. to 12:00 midnight, Monday through Friday, shall be paid for at one and one-half (1½) times the regular hourly rate. From 12:00 midnight until 8:00 a.m. on any day shall be paid for at twice the regular hourly rate. All time worked on Sundays and the recognized holidays shall be paid at the rate of double (2) time. It is understood that forty (40) hours shall constitute a regular workweek, (5-8's) Sunday Midnight through Friday Midnight, understanding anything over eight (8) hours is one and one-half (1½) times the hourly wage rate.

NO. 126: Means eight (8) hours per day shall constitute a day's work and forty (40) hours per week, Monday through Friday, shall constitute a week's work. The regular starting time shall be 8:00 a.m. If a second or third shift is used, the regular starting time of the second shift shall be 4:30 p.m. and the regular starting period for the third shift shall be 12:30 a.m. These times may be adjusted by the employer. The day shift shall work a regular eight (8) hours shift as outlined above. Employees working a second shift shall receive an additional \$0.25 above the regular hourly rate and perform seven and one-half (7½) hours work for eight (8) hours pay. Third shift employees shall be paid an additional \$0.50 above the regular hourly rate and work seven (7) hours for eight (8) hours pay. When circumstances warrant, the Employer may change the regular workweek to four (4) ten-hour days at the regular time rate of pay. All time worked before and after the established workday of eight (8) hours, Monday through Friday, and all time worked on Saturday shall be paid at the rate of time and one-half (1½) except in cases where work is part of an employee's regular Friday shift. All time worked on Sunday and recognized holidays shall be paid at the double (2) time rate of pay except in cases where work is part of an employee's previous day's shift. For all overtime hours worked \$25.77 of the fringe benefits portion of the prevailing wage shall be paid at the same overtime rate at which the cash portion of the prevailing wage is to be paid. The remaining \$1.24 of the fringe benefit portion of the prevailing wage may be paid at straight time.

**BOONE COUNTY
HOLIDAY SCHEDULE – BUILDING CONSTRUCTION**

NO. 3: All work done on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day (November 11), Thanksgiving Day, and Christmas Day shall be compensated at the double (2) time rate of pay. When any of these holidays fall on a Sunday, the following Monday shall be observed. No work shall be performed on the days set forth except in cases of emergencies to protect life or property.

NO. 4: All work done on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving and Christmas Day shall be paid at the double time rate of pay. If any of the above holidays fall on Sunday, Monday will be observed as the recognized holiday. If any of the above holidays fall on Saturday, Friday will be observed as the recognized holiday.

NO. 5: All work that shall be done on New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day shall be paid at the double (2) time rate of pay.

NO. 7: The following days are assigned days and are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. If a holiday falls on a Saturday, it shall be observed on the preceding Friday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This is applied to protect Labor Day. When a holiday falls during the normal workweek, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week. However, no reimbursement for these eight (8) hours is to be paid to the workman unless worked. If workman are required to work the above enumerated holidays or days observed as such, or on Sunday, they shall receive double (2) the regular rate of pay for such work.

NO. 8: All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day, or the days observed in lieu of these holidays, shall be paid at the double time rate of pay.

NO. 15: All work accomplished on the recognized holidays of New Year's Day, Decoration Day (Memorial Day), Independence Day (Fourth of July), Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day, or days observed as these named holidays, shall be compensated for at double (2) the regular hourly rate of wages plus fringe benefits. If a holiday falls on Saturday, it shall be observed on the preceding Friday. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day, Christmas Day, Decoration Day or Independence Day except to preserve life or property.

NO. 19: All work done on New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day shall be paid at the double time rate of pay. The employee may take off Friday following Thanksgiving Day. However, the employee shall notify his or her Foreman, General Foreman or Superintendent on the Wednesday preceding Thanksgiving Day. When one of the above holidays falls on Sunday, the following Monday shall be considered a holiday and all work performed on either day shall be at the double (2) time rate. When one of the holidays falls on Saturday, the preceding Friday shall be considered a holiday and all work performed on either day shall be at the double (2) time rate.

NO. 21: All work performed on New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day shall be paid for at double (2) the straight-time rate of pay. Any of the above listed holidays falling on Sunday, shall be observed on the following Monday and paid for at double (2) the straight-time rate of pay. Any of the above listed holidays falling on Saturday shall be observed on the previous Friday, and paid for at double (2) the straight-time rate of pay. If any of the above listed holidays fall on Friday, Saturday, Sunday, or Monday, creating a three-day weekend, then the entire three (3) days (either Friday, Saturday, and Sunday – if the holiday falls on Friday or Saturday; or Saturday, Sunday, and Monday – if the holiday falls on Sunday or Monday) shall be paid for at double (2) the straight-time rate of pay.

NO. 23: All work done on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, Christmas Day and Sundays shall be recognized holidays and shall be paid at the double time rate of pay. When a holiday falls on Sunday, the following Monday shall be considered a holiday. When a holiday falls on Saturday, Friday is recognized as a holiday.

**BOONE COUNTY
HOLIDAY SCHEDULE – BUILDING CONSTRUCTION**

NO. 44: All work done on New Year's Day, Memorial Day, Independence Day, Veteran's Day, Thanksgiving Day, and Christmas Day shall be paid at the double time rate of pay. If a holiday falls on a Sunday, it shall be observed on the Monday following. If a holiday falls on a Saturday, it shall be observed on the proceeding Friday. No work shall be performed on these days except in emergency to protect life or property. All work performed on these holidays shall be compensated at double the regular hourly rate for the work performed. Overtime shall be computed at half-hour intervals.

NO. 45: All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the day after Thanksgiving, the day before Christmas, and Christmas Day, shall be paid at the double time rate of pay.

NO. 54: All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day shall be paid at the double (2) time rate of pay. When a holiday falls on Saturday, it shall be observed on Friday. When a holiday falls on Sunday, it shall be observed on Monday.

NO. 55: The following days are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workmen unless worked. An Employer working a four (4) day, ten (10) hour schedule may use Friday as a make up day when an observed holiday occurs during the work week. Employees have the option to work that make up day. If workmen are required to work the above enumerated holidays, or days observed as such, they shall receive double (2) the regular rate of pay for such work.

NO. 60: All work performed on New Year's Day, Armistice Day (Veteran's Day), Decoration Day (Memorial Day), Independence Day (Fourth of July), Thanksgiving Day and Christmas Day shall be paid at the double time rate of pay. No work shall be performed on Labor Day except when triple (3) time is paid. When a holiday falls on Saturday, Friday will be observed as the holiday. When a holiday falls on Sunday, the following Monday shall be observed as the holiday.

NO. 66: All work performed on Sundays and the following recognized holidays, or the days observed as such, of New Year's Day, Decoration Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day, shall be paid at double (2) the hourly rate plus an amount equal to the hourly Total Indicated Fringe Benefits. Whenever any such holidays fall on a Sunday, the following Monday shall be observed as a holiday.

NO. 69: All work performed on New Year's Day, Memorial Day, July Fourth, Labor Day, Veteran's Day, Thanksgiving Day or Christmas Day shall be compensated at double (2) their straight-time hourly rate of pay. Friday after Thanksgiving and the day before Christmas are also holidays, however, if the employer chooses to work the normal work hours on these days, the employee will be paid at straight-time rate of pay. If a holiday falls on a Saturday, the holiday will be observed on Saturday; if a holiday falls on a Sunday, the holiday will be observed on the following Monday.

NO. 74: All work performed on New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day, shall be paid at double (2) time of the hourly rate of pay. In the event one of the above holiday's falls on Saturday, the holiday shall be celebrated on Saturday. If the holiday falls on Sunday, the holiday will be celebrated on Monday.

NO. 76: Work performed on Holidays shall be paid at the rate of two times the normal rate. Holidays are: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Day after Thanksgiving, Christmas Day. If a holiday falls on a Sunday, it shall be celebrated on the following Monday, if it falls on Saturday, it shall be celebrated on the preceding Friday.

Heavy Construction Rates for
BOONE County

Section 010

OCCUPATIONAL TITLE	* Date of Increase	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits
Carpenter		\$29.52	7	16	\$13.50
Millwright		\$29.52	7	16	\$13.50
Pile Driver		\$29.52	7	16	\$13.50
Electrician (Outside-Line Construction\Lineman)		\$38.91	9	12	\$5.00 + 37.5%
Lineman Operator		\$33.59	9	12	\$5.00 + 37.5%
Lineman - Tree Trimmer		\$23.19	32	31	\$5.00 + 23%
Groundman		\$25.97	9	12	\$5.00 + 37.5%
Groundman - Tree Trimmer		\$17.10	32	31	\$5.00 + 23%
Operating Engineer					
Group I		\$25.24	21	5	\$22.50
Group II		\$24.89	21	5	\$22.50
Group III		\$24.69	21	5	\$22.50
Group IV		\$21.04	21	5	\$22.50
Oiler-Driver		\$21.04	21	5	\$22.50
Laborer					
General Laborer		\$25.81	2	4	\$11.52
Skilled Laborer		\$26.41	2	4	\$11.52
Truck Driver-Teamster					
Group I		\$27.52	22	19	\$10.90
Group II		\$27.68	22	19	\$10.90
Group III		\$27.67	22	19	\$10.90
Group IV		\$27.79	22	19	\$10.90
Traffic Control Service Driver		\$26.415	28	27	\$9.045

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate sheet.

**BOONE COUNTY
OVERTIME SCHEDULE – HEAVY CONSTRUCTION**

FED: Minimum requirement per Fair Labor Standards Act means time and one-half (1 ½) shall be paid for all work in excess of forty (40) hours per work week.

NO. 2: Means a regular workweek shall be forty (40) hours and will start on Monday and end on Friday. The Employer shall have the option of working five 8-hour days or four 10-hour days Monday through Friday. If an Employer elects to work five 8-hour days during any workweek, hours worked more than eight (8) per day or 40 per week shall be paid at time and one-half the hourly rate Monday through Friday. If an Employer elects to work four 10-hour days in a week, work performed more than ten (10) hours per day or 40 hours per week shall be paid at time and one-half the hourly rate Monday through Friday. When working a five 8-hour day schedule and an Employer is prevented from working forty (40) hours Monday through Friday, or any part thereof, by reason of inclement weather, Saturday or any part thereof may be worked as a make-up day at the straight time rate. If an Employer is working a four 10-hour day schedule and loses a day due to inclement weather, he may work 10 hours Friday at straight time. All hours worked over the 40 hours Monday through Friday will be paid at 1 ½ overtime rate. A workday shift is to begin at the option of the Employer, between 6:00 a.m. and not later than 9:00 a.m. However, the project starting time may be advanced or delayed if required. If workmen are required to work the enumerated holidays or days observed as such or Sundays, they shall receive double (2) the regular rate of pay for such work. Overtime shall be computed at one-half (1/2) hour intervals. Shift: The Contractor may elect to work one, two or three shifts on any work. When operating on more than one shift, the shifts shall be known as the day shift, swing shift, and graveyard shift as such terms are recognized in the industry. When two shifts are worked on any operation, the shifts will consist of eight (8) or ten (10) hours exclusive of lunchtime. When three shifts are worked the first day or day shift will consist of eight (8) hours exclusive of lunchtime. The second or swing shift shall consist of seven and one-half (7 1/2) hours work for eight hours pay, exclusive of lunchtime, and the third or the graveyard shift shall consist of seven (7) hours work for eight (8) hours pay, exclusive of the lunchtime. All time in excess of normal shifts shall be considered overtime. Multiple shift (the two or three shift) operation will not be construed on the entire project if at any time it is deemed advisable and necessary for the Employer to multiple shift a specific operation. However, no shift shall be started between midnight and six a.m. except the graveyard shift on a three-shift operation, or except in an unusual or emergency situation. If an Employer starts a shift between midnight and 6 a.m. except the graveyard shift on a three-shift operation, he shall reimburse all employees for the entire shift at the double time rate. Completion of the second shift on a two-shift operation or completion of the graveyard shift on a three-shift operation that carries over into Saturday morning, shall be at the straight time rate. Overtime shall be computed at ½ hour intervals.

NO. 7: Means the regular work week shall start on Monday and end on Friday, except where the Employer elects to work Monday through Thursday, ten (10) hours per day. All work over ten (10) hours in a day or forty (40) hours in a week shall be at the overtime rate of one and one-half (1½) times the regular hourly rate. The regular work day shall be either eight (8) or ten (10) hours. If a job can't work forty (40) hours Monday through Friday because of inclement weather or other conditions beyond the control of the Employer, Friday or Saturday may be worked as a make-up day at straight time (if working 4-10's). Saturday may be worked as a make-up day at straight time (if working 5-8's). Make-up days shall not be utilized for days lost due to holidays. A workday is to begin at the option of the Employer but not later than 11:00 a.m. except when inclement weather, requirements of the owner or other conditions beyond the reasonable control of the Employer prevent work. Except as worked as a make-up day, time on Saturday shall be worked at one and one-half (1½) times the regular rate. Work performed on Sunday shall be paid at two (2) times the regular rate. Work performed on recognized holidays or days observed as such, shall also be paid at the double (2) time rate of pay.

NO. 9: Eight (8) hours shall constitute a work day between the hours of 7:00 a.m. and 4:30 p.m. Forty (40) hours within five (5) days, Monday through Friday inclusive, shall constitute the work week. Work performed in the 9th and 10th hour, Monday through Friday, shall be paid at time and one-half (1½) the regular straight time rate of pay. Contractor has the option to pay two (2) hours per day at the time and one-half (1½) the regular straight time rate of pay between the hours of 6:00 a.m. and 5:30 p.m., Monday through Friday. Work performed in the first eight (8) hours on Saturday shall be paid at the rate of one and eight tenths (1.8) the regular straight time rate. Work performed outside these hours and on Sundays and recognized legal holidays, or days celebrated as such, shall be paid for at the rate of double (2) time.

**BOONE COUNTY
OVERTIME SCHEDULE – HEAVY CONSTRUCTION**

NO. 21: Means the regular workday for which employees shall be compensated at straight time hourly rate of pay shall, unless otherwise provided for, begin at 8:00 a.m. and end at 4:30 p.m. However, the project starting time may be advanced or delayed at the discretion of the Employer. At the discretion of the Employer, when working a five (5) day eight (8) hour schedule, Saturday may be used for a make-up day. If an Employer is prohibited from working on a holiday, that employer may work the following Saturday at the straight time rate. However, the Employer may have the option to schedule his work from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be paid at the applicable overtime rate. If the Employer elects to work from Monday through Thursday and is stopped due to circumstances beyond his control, he shall have the option to work Friday or Saturday at the straight time rate of pay to complete his forty (40) hours. If an Employer is prohibited from working on a holiday, that Employer may work the following Friday or Saturday at the straight time rate. Overtime will be at one and one-half (1½) times the regular rate. If workmen are required to work the enumerated holidays or days observed as such, or Sundays, they shall receive double (2) the regular rate of pay for such work.

NO. 22: Means a regular work week of forty (40) hours will start on Monday and end on Friday. The regular work day shall be either eight (8) or ten (10) hours. If a crew is prevented from working forty (40) hours Monday through Friday, or any part thereof by reason of inclement weather, Saturday or any part thereof may be worked as a make-up day at the straight time rate. Employees who are part of a regular crew on a make-up day, notwithstanding the fact that they may not have been employed the entire week, shall work Saturday at the straight time rate. A workday is to begin between 6:00 a.m. and 9:00 a.m. However, the project starting time may be advanced or delayed if mutually agreed to by the interested parties. For all time worked on recognized holidays, or days observed as such, double (2) time shall be paid.

NO. 28: Means a regular work week of forty (40) hours will start on Monday and end on Friday. The regular work day shall be either eight (8) or ten (10) hours. If a crew is prevented from working forty (40) hours Monday through Friday, or any part thereof by reason of inclement weather, Saturday or any part thereof may be worked as a make-up day at the straight time rate. Employees who are part of a regular crew on a make-up day, notwithstanding the fact that they may not have been employed the entire week, shall work Saturday at the straight time rate. A workday is to begin between 6:00 a.m. and 9:00 a.m. However, the project starting time may be advanced or delayed if mutually agreed to by the interest parties. For all time worked on recognized holidays, or days observed as such, double (2) time shall be paid.

NO. 32: Means the overtime rate shall be time and one-half the regular rate for work over forty (40) hours per week. Sundays and Holidays shall be paid at double the straight time rate.

**BOONE COUNTY
HOLIDAY SCHEDULE – HEAVY CONSTRUCTION**

NO. 4: All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, or observed as such, shall be paid at the double time rate of pay. When a Holiday falls on a Sunday, Monday shall be observed. No work shall be performed on Labor Day, except in case of jeopardy to life or property. This is applied to protect Labor Day.

NO. 5: The following days are recognized as holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. If a holiday falls on a Saturday, it shall be observed on the preceding Friday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward a forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workman unless worked. If workmen are required to work the above recognized holidays or days observed as such, or Sundays, they shall receive double (2) the regular rate of pay for such work. The above shall apply to the four 10's Monday through Friday work week. The ten (10) hours shall be applied to the forty (40) hour work week.

NO. 12: All work performed on New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, Christmas Day, or days celebrated as such, shall be paid at the double time rate of pay. When one of the foregoing holidays falls on Sunday, it shall be celebrated on the following Monday. When one of the foregoing holidays falls on Saturday, it shall be celebrated on the Friday before the holiday.

NO. 16: The following days are recognized as holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on Sunday, it shall be observed on the following Monday. If a holiday falls on Saturday, it shall be observed on the preceding Friday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid to the worker unless worked. If workers are required to work the above recognized holidays or days observed as such, they shall receive double (2) the regular rate of pay for such work.

NO. 19: The following days are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workmen unless worked. An Employer working a four (4) day, ten (10) hour schedule may use Friday as a make up day when an observed holiday occurs during the work week. Employees have the option to work that make up day. If workmen are required to work the above enumerated holidays, or days observed as such, they shall receive double (2) the regular rate of pay for such work.

NO. 27: The following days are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workmen unless worked. An Employer working a four (4) day, ten (10) hour schedule may use Friday as a make up day when an observed holiday occurs during the work week. Employees have the option to work that make up day. If workmen are required to work the above enumerated holidays, or days observed as such, they shall receive double (2) the regular rate of pay for such work.

NO. 31: All work performed on New Year's Day, Presidents' Day, Veterans' Day, Good Friday, Decoration Day, Fourth of July, Labor Day, Christmas Eve Day, Christmas Day, Thanksgiving Day and Day after Thanksgiving or days celebrated for the same.

APPENDIX B

Boone County Purchasing
610 E Ash St., Room 10
Columbia, MO 65201

Standard Terms and Conditions

Melinda Bobbitt, Director
573/886-4391 - FAX 573/886-4390

1. Responses shall include all charges for packing, delivery, installation, etc., (unless otherwise specified) to the Boone County Department identified in the Request for Quotation and/or Proposal.
2. The Boone County Commission has the right to accept or reject any part or parts of all bids, to waive technicalities, and to accept the offer the County Commission considers the most advantageous to the County. Boone County reserves the right to award this bid on an item by item basis, or an "all or none" basis, whichever is in the best interest of the County.
3. Bidders must use the bid forms provided for the purpose of submitting bids, must return the quotation and bid sheets comprised in this bid, give the unit price, extended totals, and sign the bid.
4. When products or materials of any particular producer or manufacturer are mentioned in our specifications, such products or materials are intended to be descriptive of type or quality and not restricted to those mentioned.
5. Do not include Federal Excise Tax or Sales and Use Taxes in bid process, as the County is exempted from them by law.
6. The delivery date shall be stated in definite terms, as it will be taken into consideration in awarding the bid.
7. The County Commission reserves the right to cancel all or any part of orders if delivery is not made or work is not started as guaranteed. In case of delay, the Contractor must notify the Purchasing Department.
8. In case of default by the Contractor, the County of Boone will procure the articles or services from other sources and hold the Bidder responsible for any excess cost occasioned thereby.
9. Failure to deliver as guaranteed shall disqualify Bidder from future bidding.
10. Prices must be as stated in units of quantity specified and must be firm. Bids qualified by escalator clauses may not be considered unless specified in the bid specifications.
11. No bid transmitted by fax machine will be accepted.
12. The County of Boone, Missouri expressly denies responsibility for, or ownership of, any item purchased until same is delivered to the County and is accepted by the County.



5/16/2013

ASBESTOS REMOVAL SERVICES, INC.
ENVIRONMENTAL & DEMOLITION
CONTRACTORS SINCE 1985

Bob Davidson
Boone County Facility Management
613 East Ash Street
Columbia, Missouri 65201

RE: Pre-Demolition /Renovation Asbestos Inspection,609 East Walnut, Columbia, MO.

Bob:

At your request, on 4/25/2013 ARSI conducted a pre-demolition survey of, 609 East Walnut, Columbia, MO, which is scheduled for renovation due to fire damage. This inspection was performed in order to comply with the EPA and MDNR NESHAP regulations, which require a "thorough" asbestos inspection prior to renovation or demolition, conducted by accredited inspector. Paul Beamer (MDNR Asbestos Inspector # 7118101912MOIR1862) performed the inspection.

The building has a brick exterior wall with wood rafters and a built-up roofing system. The interior has bare concrete floors covered with carpet in all offices and corridors. The west entry has twelve inch vinyl flooring. Bathrooms have been renovated with ceramic flooring. Wall and ceiling systems are sheet rock.

Eighteen (18) bulk samples (which were separated into twenty (20) distinct components) of suspected ACM were collected. All of the samples were sent to SanAir Technologies Laboratory, Powhatan, Virginia, an independent NVLAP-accredited laboratory, for analysis by polarized light microscopy. All positive samples were requested to be reanalyzed utilizing the EPA PLM Point Count Method.

One(1) sample tested positive for asbestos, namely:

	Sample	Description	Category	Quantities
1	25435	Roof Tar / Perimeter and Base Equipment / Roof	Category I Non- Friable	220 ft ²

All of the other samples tested either negative for asbestos, or less than 1% asbestos, which is below the EPA/DNR regulatory threshold/definition of an asbestos-containing material.

CLARIFICATIONS & LIMITATION OF INSPECTION

This inspection covered only those areas in the building that were exposed and /or physically accessible to the inspectors. Although reasonable effort was made to survey accessible suspect materials, additional suspect but not-sampled materials could be located in walls, in voids, or other concealed areas. This was a non-destructive inspection.

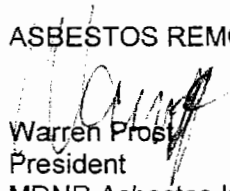
Below is a list of items not tested by this inspection:

- Electrical wiring insulation
- Lead-Based Paint
- Fluorescent Light Bulbs
- PCB Ballast
- Any other hazardous materials

Enclosed with this document are copies of the laboratory analysis report, chain of custody letter, site work sheets, photographs of portions of the asbestos-containing materials identified by the inspection, and MDNR certification of inspectors performing the inspection. Additional information regarding DNR and EPA asbestos regulations can be found at the following website: www.dnr.mo.gov/pubs/pub2157.pdf. Thank you for the opportunity of serving you in this capacity. Don't hesitate to call if you have any questions.

Sincerely,

ASBESTOS REMOVAL SERVICES



Warren Probst
President

MDNR Asbestos Inspector #7119092612MOIR2582

SanAir Technologies Laboratory

Analysis Report

prepared for

Asbestos Removal Services Inc

Report Date: 5/2/2013
Project Name: 609 E. Walnut / Boone
County
Project #: 1337
SanAir ID#: 13009218



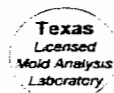
NVLAP LAB CODE 200870-0



LAB # 52952



Certification # 352931



License # LAB0166



804.897.1177

www.sanair.com



Boone County Walnut Office
Columbia, MO

SanAir Technologies Laboratory, Inc.

1551 Oakbridge Drive, Suite B, Powhatan, VA 23139
804.897.1177 Toll Free: 888.895.1177 Fax: 804.897.0070
Web: <http://www.sanair.com> E-mail: iaq@sanair.com

Simon Associates, Inc.
9/16/2013

Asbestos Removal Services Inc
P O Box 105287
Jefferson City, MO 65110

May 2, 2013

SanAir ID # 13009218
Project Name: 609 E. Walnut / Boone County
Project Number: 1337

Dear Paul Beamer,

We at SanAir would like to thank you for the work you recently submitted. The 7 sample(s) were received on Wednesday, May 01, 2013 via Fax or Email request. The final report(s) is enclosed for the following sample(s): 25423, 25424, 25425, 25426, 25427, 25428, 25429.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Sandra Sobrino
Asbestos & Materials Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:

- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

sample conditions:

7 sample(s) in Good condition



Columbia, MO

SanAir Technologies Laboratory, Inc.

1551 Oakbridge Drive, Suite B, Powhatan, VA 23139
 804.897.1177 Toll Free: 888.895.1177 Fax: 804.897.0070
 Web: http://www.sanair.com E-mail: iaq@sanair.com

SanAir ID Number

13009218

FINAL REPORT

Name: Asbestos Removal Services Inc
 Address: P O Box 105287
 Jefferson City, MO 65110

Project Number: 1337
 P.O. Number: 117
 Project Name: 609 E. Walnut / Boone County

Collected Date: 4/25/2013
 Received Date: 5/1/2013 10:00:00 AM
 Report Date: 5/2/2013 2:49:56 PM
 Analyst: Pisula, Nicholas

Asbestos Bulk EPA PLM 400 Point Count

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25423 / 13009218-001 Texture Ceiling Spray / West Entry Corridor	White Non-Fibrous Homogeneous		99.25%	Other	0.75% Chrysotile

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25424 / 13009218-002 Texture Ceiling Spray / Southwest Office	White Non-Fibrous Homogeneous		99.5%	Other	0.5% Chrysotile

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25425 / 13009218-003 Texture Ceiling Spray / East Hallway Corridor	White Non-Fibrous Homogeneous		99.25%	Other	0.75% Chrysotile


SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25426 / 13009218-004 Sheetrock With Texture In Joint / West Entry Corridor Ceilin	White Non-Fibrous Homogeneous		99.25%	Other	0.75% Chrysotile

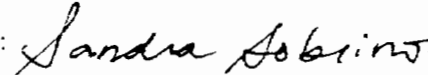
SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25427 / 13009218-005 Sheetrock With Texture In Joint / Southwest Office Ceiling	White Non-Fibrous Homogeneous		99.75%	Other	0.25% Chrysotile

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25428 / 13009218-006 Sheetrock With Texture In Joint / East Hallway Ceiling	White Non-Fibrous Homogeneous		99.5%	Other	0.5% Chrysotile

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25429 / 13009218-007 Sheetrock In Joint / Interior Office Wall	White Non-Fibrous Homogeneous		99.75%	Other	0.25% Chrysotile

Certification

Signature: 
 Date: 5/2/2013

Reviewed: 
 Date: 5/2/2013

13009218



1551 Oakbridge Drive Suite B
Powhatan, VA 23139
804-897-1177 / 888-895-1177
Fax 804-897-0070
www.sanair.com

Asbestos
Chain of Custody

SanAir ID Number
13008970

Company: Asbestos Removal Services, Inc	Project #: 1337	Collected by: P. Beamer
Address: P O Box 105287	Project Name: 609 E. Walnut / Boone County	Phone #: 573-896-0222
City, St, Zip: Jefferson City, MO 65110	Date Collected: 4/25/2013	Fax #: 573-896-9389
State of Collection: MO Account#: 2137	P.O. Number: 117	Email:

Bulk			Air			Soil/Vermiculite		
ABB	PLM EPA 800/R-93/118	<input checked="" type="checkbox"/>	ABA	PCM NIOSH 7400	<input type="checkbox"/>	ABSE	PLM EPA 800/R-93/118 (Qual.)	<input type="checkbox"/>
	Positive Stop	<input type="checkbox"/>	ABA-2	OSHA w/ TWA*	<input type="checkbox"/>	ABSP	PLM CARB 435 (LOD <1%)	<input type="checkbox"/>
ABEPA	PLM EPA 400 Point Count	<input type="checkbox"/>	ABTEM	TEM AHERA	<input type="checkbox"/>	ABSP1	PLM CARB 435 (LOD 0.25%)	<input type="checkbox"/>
ABB1K	PLM EPA 1000 Point Count	<input type="checkbox"/>	ABATN	TEM NIOSH 7402	<input type="checkbox"/>	ABSP2	PLM CARB 435 (LOD 0.1%)	<input type="checkbox"/>
ABBEN	PLM EPA NOB	<input type="checkbox"/>	ABT2	TEM Level II	<input type="checkbox"/>			
ABBCH	TEM Chatfield	<input type="checkbox"/>						
ABBTM	TEM EPA NOB	<input type="checkbox"/>						
Water			New York ELAP			Dust		
ABHE	EPA 100.2	<input type="checkbox"/>	PLM NY	PLM EPA 600/M4-82-020	<input type="checkbox"/>	ABWA	TEM Wipe ASTM D-6480	<input type="checkbox"/>
			ABEPA2	NY ELAP 198.1	<input type="checkbox"/>	ABDMV	TEM Microvac ASTM D-5755	<input type="checkbox"/>
			ABENY	NY ELAP 198.6 PLM NOB	<input type="checkbox"/>	Matrix	Other	<input type="checkbox"/>
			ABBNY	NY ELAP 198.4 TEM NOB	<input type="checkbox"/>			<input type="checkbox"/>

Turn Around Times	3 HR (4 HR TEM) <input type="checkbox"/>	6 HR (8HR TEM) <input type="checkbox"/>	12 HR <input type="checkbox"/>	24 HR <input checked="" type="checkbox"/>
	2 Days <input type="checkbox"/>	3 Days <input type="checkbox"/>	4 Days <input type="checkbox"/>	5 Days <input type="checkbox"/>

Special Instructions

Sample #	Sample Identification/Location	Volume or Area	Sample Type	Flow Rate*	Time* Start - Stop
25418	Pipe Insulation / Domestic Water Attic West				
25419	Exterior Wall Insulation / West Wall				
25420	Brown 4" Vinyl Base / West Entry Corridor				
25421	Brown Fiber Sound Board / Behind Sheet Rock Interior Offices				
25422	Brown 12" Floor Tile / West Entry Corridor				
25423	Texture Ceiling Spray / West Entry Corridor				
25424	Texture Ceiling Spray / Southwest Office				
25425	Texture Ceiling Spray / East Hallway Corridor				
25426	Sheet Rock With Texture In Joint / West Entry Corridor Ceiling				
25427	Sheet Rock With Texture In Joint / Southwest Office Ceiling				
25428	Sheet Rock With Texture In Joint / East Hallway Corridor Ceiling				
25429	Sheet Rock In Joint / Interior Office Wall				

Relinquished by	Date	Time	Received by	Date	Time
Paul Beamer	4/25/2013	15:30	RMD	4/25/2013	15:30

Unless scheduled, the turn around time for all samples received after 3 pm EST Friday will begin at 8 am Monday morning. Weekend or Holiday work must be scheduled ahead of time and is charged for rush turn around time. Work with standard turn around time sent Priority Overnight and Billed to Recipient will be charged a \$10 shipping fee. Page 1 of 2

MAY 01 2013

OP 10d

13009218

Amber Powers

From: Sandra C. Sobrino
Sent: Wednesday, May 01, 2013 9:52 AM
To: Kat Scott; IAQ Forward
Cc: Warren Prost; Paul Beamer
Subject: RE: ABEPA - Asbestos Bulk - EPA PLM 400 Point Count.....
Follow Up Flag: Follow up
Flag Status: Completed
Good Morning Kat,

Last sample 25435 is a roof tar. We can perform PLM NOB with 400 point count (test code ABBEN) since it is a non-friable material. Please confirm analysis and tat for the last sample. Thank you

Sandra Sobrino
Laboratory Director
Asbestos and Material Science Division
SanAir Technologies Laboratory
1551 Oakbridge Drive, Suite B
Powhatan, VA 23139

ssobrino@sanair.com
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804.897.0070 Fax
804.467.3477 cell

www.SanAir.com



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Asbestos, Environmental Microbiology, Legionella, Materials Testing

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From: Kat Scott [mailto:katsmith@arsi-mo.com]
Sent: Wednesday, May 01, 2013 9:49 AM
To: IAQ Forward
Cc: Warren Prost; Paul Beamer
Subject: ABEPA - Asbestos Bulk - EPA PLM 400 Point Count.....

Good morning, I hope you are having a nice one.

On the attached Report No. 13008970, 609 E. Walnut/Boone County, we would like to request a ABEPA - Asbestos Bulk - EPA PLM 400 Point Count on

ALL THE SAMPLES THAT TESTED POSITIVE (listed Below)

5/1/2013

AMO MAY 01 2013

1024

- 25423
- 25424
- 25425
- 25426
- 25427
- 25428
- 25429
- 25435

13009218

We would like a 24 hour turn around time on the point count please.

Thank you and have a great afternoon.

Sincerely,

Kathleen (Kat) Scott
Administrative Assistant



Asbestos Removal Services, Inc.

Toll Free: 800-769-5798

Fax: 573-896-9389

katsmith@arsi-mo.com

This email and any attachments may contain confidential or privileged information. If you are not the intended recipient, please let us know by return e-mail and delete this e-mail and any copies or links to this e-mail completely and immediately without forwarding to others.

5/1/2013

MAY 01 2013

cap

1004

Disclaimer

The final report cannot be reproduced, except in full, without written authorization from SanAir. Fibers smaller than 5 microns cannot be seen with this method due to scope limitations. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample and information provided by the client. This report may not be used by the client to claim product endorsement by NVLAP, AIHA or any other agency of the U.S. government; *and may not be certified by every local, state and federal regulatory agencies.*

SanAir Technologies Laboratory

Analysis Report

prepared for

Asbestos Removal Services Inc

Report Date: 5/2/2013
Project Name: 609 E. Walnut / Boone
County
Project #: 1337
SanAir ID#: 13009221



NVLAP LAB CODE 200870-0



Certification # 552931



License # LAB0166



804.897.1177

www.sanair.com



Boone County Walnut Office
Columbia, MO

SanAir Technologies Laboratory, Inc.

1551 Oakbridge Drive, Suite B, Powhatan, VA 23139
804.897.1177 Toll Free: 888.895.1177 Fax: 804.897.0070
Web: <http://www.sanair.com> E-mail: iaq@sanair.com

Simon Associates, Inc.
9/16/2013

Asbestos Removal Services Inc
P O Box 105287
Jefferson City, MO 65110

May 2, 2013

SanAir ID # 13009221
Project Name: 609 E. Walnut / Boone County
Project Number: 1337

Dear Paul Beamer,

We at SanAir would like to thank you for the work you recently submitted. The 1 sample(s) were received on Wednesday, May 01, 2013 via Fax or Email request. The final report(s) is enclosed for the following sample(s): 25435.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Sandra Sobrino
Asbestos & Materials Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:

- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

sample conditions:

1 sample(s) in Good condition

Name: Asbestos Removal Services Inc
Address: P O Box 105287
 Jefferson City, MO 65110

Project Number: 1337
P.O. Number: 117
Project Name: 609 E. Walnut / Boone County

Collected Date: 4/25/2013
Received Date: 5/1/2013 10:00:00 AM
Report Date: 5/2/2013 11:16:39 AM
Analyst: Sobrino, Sandra

Asbestos Bulk EPA PLM NOB

Sanair ID / Description	Appearance	% Fibrous	% Non Fibrous	Asbestos Types	% Total Asbestos
13009221-001 / 25435 Roof Tar / On Perimeter And Equipment Rod	Black Non-Fibrous Homogeneous		89.6 %	Chrysotile	13.4 %

Certification

Signature: *Sandra Sobrino*
 Date: 5/2/2013

Reviewed: *[Signature]*
 Date: 5/2/2013



1551 Oakbridge Drive Suite B
Powhatan, VA 23139
804-897-1177 / 888-895-1177
Fax 804-897-0070
www.sanair.com

Asbestos
Chain of Custody

SanAir ID Number
13008970

13009221

Company: Asbestos Removal Services, Inc	Project #: 1337	Collected by: P. Beamer
Address: P O Box 105287	Project Name: 809 E. Walnut / Boone County	Phone #: 573-896-0222
City, St., Zip: Jefferson City, MO 65110	Date Collect: 4/25/2013	Fax #: 573-896-9389
State of Collection: MO	Account#: 2137	P.O. Number: 117
		Email:

Bulk		Air		Soil/Vermiculite	
ABB	PLM EPA 800/R-83/118 <input checked="" type="checkbox"/>	ABA	PCM NIOSH 7400 <input type="checkbox"/>	ABSE	PLM EPA 800/R-93/116 (Qual.) <input type="checkbox"/>
	Positive Stop <input type="checkbox"/>	ABA-2	OSHA w TWA* <input type="checkbox"/>	ABSP	PLM CARB 435 (LOD <1%) <input type="checkbox"/>
ABEPA	PLM EPA 400 Point Count <input type="checkbox"/>	ABTEM	TEM AHERA <input type="checkbox"/>	ABSP1	PLM CARB 435 (LOD 0.25%) <input type="checkbox"/>
ABB1K	PLM EPA 1000 Point Count <input type="checkbox"/>	ABATN	TEM NIOSH 7402 <input type="checkbox"/>	ABSP2	PLM CARB 435 (LOD 0.1%) <input type="checkbox"/>
ABBEA	PLM EPA NOB <input type="checkbox"/>	ABT2	TEM Level II <input type="checkbox"/>		
ABBCH	TEM Chatfield <input type="checkbox"/>			Dust	
ABBTM	TEM EPA NOB <input type="checkbox"/>			ABWA	TEM Wipe ASTM D-6480 <input type="checkbox"/>
		New York ELAP		ABDMV	TEM Microvac ASTM D-5755 <input type="checkbox"/>
		PLM NY	PLM EPA 600/M4-82-020 <input type="checkbox"/>		
		ABEPA2	NY ELAP 198.1 <input type="checkbox"/>		
		ABENY	NY ELAP 198.6 PLM NOB <input type="checkbox"/>		
		ABBNY	NY ELAP 198.4 TEM NOB <input type="checkbox"/>		
Water				Matrix	Other
ABHE	EPA 100.2 <input type="checkbox"/>				

Turn Around Times	3 HR (4 HR TEM) <input type="checkbox"/>	6 HR (8HR TEM) <input type="checkbox"/>	12 HR <input type="checkbox"/>	24 HR <input checked="" type="checkbox"/>
	2 Days <input type="checkbox"/>	3 Days <input type="checkbox"/>	4 Days <input type="checkbox"/>	5 Days <input type="checkbox"/>

Special Instructions

Sample #	Sample Identification/Location	Volume or Area	Sample Type	Flow Rate*	Time* Start - Stop
25418	Pipe Insulation / Domestic Water Attic West				
25419	Exterior Wall Insulation / West Wall				
25420	Brown 4" Vinyl Base / West Entry Corridor				
25421	Brown Fiber Sound Board / Behind Sheet Rock Interior Offices				
25422	Brown 12" Floor Tile / West Entry Corridor				
25423	Texture Ceiling Spray / West Entry Corridor				
25424	Texture Ceiling Spray / Southwest Office				
25425	Texture Ceiling Spray / East Hallway Corridor				
25426	Sheet Rock With Texture In Joint / West Entry Corridor Ceiling				
25427	Sheet Rock With Texture In Joint / Southwest Office Ceiling				
25428	Sheet Rock With Texture In Joint / East Hallway Corridor Ceiling				
25429	Sheet Rock In Joint / Interior Office Wall				

Relinquished by	Date	Time	Received by	Date	Time
Paul Beamer	4/28/2013	15:30	[Signature]	4/28/2013	[Signature]

Unless scheduled, the turn around time for all samples received after 3 pm EST Friday will begin at 8 am Monday morning. Weekend or Holiday work must be scheduled ahead of time and is charged for rush turn around time. Work with standard turn around time sent Priority Overnight and Billed to Recipient will be charged a \$10 shipping fee.

5 IP

MAY 01 2013

104

13009221

Amber Powers

From: Kat Scott [katsmith@arsi-mo.com]
Sent: Wednesday, May 01, 2013 10:15 AM
To: Sandra C. Sobrino
Cc: IAQ Forward; Warren Prost; Paul Beamer
Subject: Re: ABEPA - Asbestos Bulk - EPA PLM 400 Point Count.....
Follow Up Flag: Follow up
Flag Status: Completed
Yes, proceed with that test. 24 TAT.

Thank you,
Kathleen (Kat) Scott
Administrative Assistant



Asbestos Removal Services, Inc.
Toll Free: 800-769-5798
Fax: 573-896-9389
katsmith@arsi-mo.com

This email and any attachments may contain confidential or privileged information. If you are not the intended recipient, please let us know by return e-mail and delete this e-mail and any copies or links to this e-mail completely and immediately without forwarding to others.

On Wed, May 1, 2013 at 8:52 A.M, Sandra C. Sobrino <ssobrino@sanair.com> wrote:

Good Morning Kat,

Last sample 25435 is a roof tar. We can perform PLM NOB with 400 point count (test code ABBEN) since it is a non-friable material. Please confirm analysis and tat for the last sample. Thank you

Sandra Sobrino

Laboratory Director

Asbestos and Material Science Division

SanAir Technologies Laboratory

1551 Oakbridge Drive, Suite B

Powhatan, VA 23139

5/1/2013

Handwritten signature/initials

MAY 01 2013

Handwritten initials

13009221

ssobrino@sanair.com

804.897.1177 Office

804.897.0070 Fax

804.467.3477 cell

www.SanAir.com



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Asbestos. Environmental Microbiology. Legionella. Materials Testing

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From: Kat Scott [mailto:katsmith@arsi-mo.com]
Sent: Wednesday, May 01, 2013 9:49 AM
To: IAQ Forward
Cc: Warren Prost; Paul Beamer
Subject: ABEPA - Asbestos Bulk - EPA PLM 400 Point Count.....

Good morning, I hope you are having a nice one.

On the attached Report No. 13008970, 609 E. Walnut/Boone County, we would like to request a ABEPA - Asbestos Bulk - EPA PLM 400 Point Count on

5/1/2013

WP

01 2013

1004

15009221

ALL THE SAMPLES THAT TESTED POSITIVE (listed Below)

- 25423
- 25424
- 25425
- 25426
- 25427
- 25428
- 25429
- 25435

We would like a 24 hour turn around time on the point count please.

Thank you and have a great afternoon.

Sincerely,

Kathleen (Kat) Scott

Administrative Assistant



Asbestos Removal Services, Inc.

Toll Free: 800-769-5798

Fax: 573-896-9389

katsmith@arsi-mo.com

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5/1/2013

ESP

MAY 01 2013

104

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SanAir Technologies Laboratory

Analysis Report

prepared for

Asbestos Removal Services Inc

Report Date: 4/30/2013
Project Name: 609 E. Walnut/Boone
County
Project #: 1337
SanAir ID#: 13008970



804.897.1177

www.sanair.com



SanAir Technologies Laboratory, Inc.

1551 Oakbridge Drive, Suite B, Powhatan, VA 23139
804.897.1177 Toll Free: 888.895.1177 Fax: 804.897.0070
Web: <http://www.sanair.com> E-mail: iaq@sanair.com

Asbestos Removal Services Inc
P O Box 105287
Jefferson City, MO 65110

April 30, 2013

SanAir ID # 13008970
Project Name: 609 E. Walnut/Boone County
Project Number: 1337

Dear Paul Beamer,

We at SanAir would like to thank you for the work you recently submitted. The 18 sample(s) were received on Monday, April 29, 2013 via FedEx. The final report(s) is enclosed for the following sample(s): 25418, 25419, 25420, 25421, 25422, 25423, 25424, 25425, 25426, 25427, 25428, 25429, 25430, 25431, 25432, 25433, 25434, 25435.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

A handwritten signature in cursive script that reads "Sandra Sobrino".

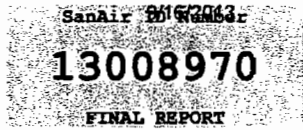
Sandra Sobrino
Asbestos & Materials Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:

- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

sample conditions:

18 sample(s) in Good condition



Name: Asbestos Removal Services Inc
Address: P O Box 105287
 Jefferson City, MO 65110

Project Number: 1337
P.O. Number: 117
Project Name: 609 E. Walnut/Boone County

Collected Date: 4/25/2013
Received Date: 4/29/2013 8:45:00 AM
Report Date: 4/30/2013 2:44:53 PM
Analyst: Pisula, Nicholas

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
25418 / 13008970-001 Pipe Insulation/Domestic Water Attic West	Black Fibrous Homogeneous	95% Glass	5% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
25419 / 13008970-002 Exterior Wall Insulation/West Wall	Grey Fibrous Homogeneous	95% Glass	5% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
25420 / 13008970-003 4" Vinyl Base/West Entry Corridor, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
25420 / 13008970-003 4" Vinyl Base/West Entry Corridor, Mastic	Brown Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
25421 / 13008970-004 Fiber Sound Board/Behind Sheet Rock Interior Offices	Brown Fibrous Homogeneous	95% Cellulose	5% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
25422 / 13008970-005 12" Floor Tile/West Entry Corridor, Floor Tile	Brown Non-Fibrous Homogeneous		100% Other	None Detected
25422 / 13008970-005 12" Floor Tile/West Entry Corridor, Mastic	Gray Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
25423 / 13008970-006 Texture Ceiling Spray/West Entry Corridor	White Non-Fibrous Homogeneous		98% Other	2% Chrysotile

Certification

Signature: *[Signature]*
 Date: 4/30/2013

Reviewed: *[Signature]*
 Date: 4/30/2013

Name: Asbestos Removal Services Inc
Address: P O Box 105287
 Jefferson City, MO 65110

Project Number: 1337
P.O. Number: 117
Project Name: 609 E. Walnut/Boone County

Collected Date: 4/25/2013
Received Date: 4/29/2013 8:45:00 AM
Report Date: 4/30/2013 2:44:53 PM
Analyst: Pisula, Nicholas

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25424 / 13008970-007 Texture Ceiling Spray/Southwest Office	White Non-Fibrous Homogeneous		98%	Other	2% Chrysotile

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25425 / 13008970-008 Texture Ceiling Spray/East Hallway Corridor	White Non-Fibrous Homogeneous		98%	Other	2% Chrysotile

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25426 / 13008970-009 Sheet Rock With Texture In Joint/West Entry Corridor Ceiling	White Non-Fibrous Heterogeneous	5%	Cellulose	95%	< 1% Chrysotile


SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25427 / 13008970-010 Sheet Rock With Texture In Joint/Southwest Office Ceiling	White Non-Fibrous Heterogeneous	5%	Cellulose	95%	< 1% Chrysotile

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25428 / 13008970-011 Sheet Rock W/ Texture In Joint/East Hallway Corridor Ceiling	White Non-Fibrous Heterogeneous	5%	Cellulose	95%	< 1% Chrysotile

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25429 / 13008970-012 Sheet Rock In Joint/Interior Office Wall	White Non-Fibrous Homogeneous	5%	Cellulose	95%	< 1% Chrysotile

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
25430 / 13008970-013 Built-Up Roofing/Top Layer Center Roof	Black Non-Fibrous Homogeneous		100%	Other	None Detected

Certification

Signature: 
 Date: 4/30/2013

Reviewed: 
 Date: 4/30/2013



SanAir Technologies Laboratory, Inc.

1551 Oakbridge Drive, Suite B, Powhatan, VA 23139
804.897.1177 Toll Free: 888.895.1177 Fax: 804.897.0070
Web: <http://www.sanair.com> E-mail: iaq@sanair.com



Name: Asbestos Removal Services Inc
Address: P O Box 105287
Jefferson City, MO 65110

Project Number: 1337
P.O. Number: 117
Project Name: 609 E. Walnut/Boone County

Collected Date: 4/25/2013
Received Date: 4/29/2013 8:45:00 AM
Report Date: 4/30/2013 2:44:53 PM
Analyst: Pisula, Nicholas

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
25431 / 13008970-014 Insulation Board/2nd Layer Center Roof	Brown Fibrous Homogeneous	95% Cellulose	5% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
25432 / 13008970-015 Built-Up Roofing With Gravel/3rd Layer Center Roof	Black Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
25433 / 13008970-016 Perimeter Flashing/Top Layer With Coating Parapet Wall West	Black Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
25434 / 13008970-017 Perimeter Flashing/2nd Layer Parapet Wall West	Black Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
25435 / 13008970-018 Roof Tar/On Perimeter And Equipment Roof	Black Non-Fibrous Homogeneous		97% Other	3% Chrysotile

Certification

Signature: *[Handwritten Signature]*
Date: 4/30/2013

Reviewed: *[Handwritten Signature]*
Date: 4/30/2013



1551 Oakbridge Drive Suite B
Powhatan, VA 23139
804-897-1177 / 888-895-1177
Fax 804-897-0070
www.sanair.com

**Asbestos
Chain of Custody**

SanAir ID Number
13008970

Company: Asbestos Removal Services, Inc	Project #: 1337	Collected by: P. Beamer
Address: P O Box 105287	Project Name: 609 E. Walnut / Boone County	Phone #: 573-896-0222
City, St., Zip: Jefferson City, MO 65110	Date Collected: 4/25/2013	Fax #: 573-896-9389
State of Collection: MO Account#: 2137	P.O. Number: 117	Email:

Bulk			Air			Soil/Vermiculite		
ABB	PLM EPA 600/R-93/116	<input checked="" type="checkbox"/>	ABA	PCM NIOSH 7400	<input type="checkbox"/>	ABSE	PLM EPA 600/R-93/116 (Qual.)	<input type="checkbox"/>
	Positive Stop	<input type="checkbox"/>	ABA-2	OSHA w/ TWA*	<input type="checkbox"/>	ABSP	PLM CARB 435 (LOD <1%)	<input type="checkbox"/>
ABEPA	PLM EPA 400 Point Count	<input type="checkbox"/>	ABTEM	TEM AHERA	<input type="checkbox"/>	ABSP1	PLM CARB 435 (LOD 0.25%)	<input type="checkbox"/>
ABB1K	PLM EPA 1000 Point Count	<input type="checkbox"/>	ABATN	TEM NIOSH 7402	<input type="checkbox"/>	ABSP2	PLM CARB 435 (LOD 0.1%)	<input type="checkbox"/>
ABBEN	PLM EPA NOB	<input type="checkbox"/>	ABT2	TEM Level II	<input type="checkbox"/>			
ABBCH	TEM Chatfield	<input type="checkbox"/>						
ABBTM	TEM EPA NOB	<input type="checkbox"/>						
Water			New York ELAP			Dust		
ABHE	EPA 100.2	<input type="checkbox"/>	PLM NY	PLM EPA 600/M4-82-020	<input type="checkbox"/>	ABWA	TEM Wipe ASTM D-6480	<input type="checkbox"/>
			ABEPA2	NY ELAP 198.1	<input type="checkbox"/>	ABDMV	TEM Microvac ASTM D-5755	<input type="checkbox"/>
			ABENY	NY ELAP 198.6 PLM NOB	<input type="checkbox"/>	Matrix	Other	<input type="checkbox"/>
			ABBNY	NY ELAP 198.4 TEM NOB	<input type="checkbox"/>			<input type="checkbox"/>

Turn Around Times	3 HR (4 HR TEM) <input type="checkbox"/>	6 HR (8HR TEM) <input type="checkbox"/>	12 HR <input type="checkbox"/>	24 HR <input checked="" type="checkbox"/>
	2 Days <input type="checkbox"/>	3 Days <input type="checkbox"/>	4 Days <input type="checkbox"/>	5 Days <input type="checkbox"/>

Special Instructions

Sample #	Sample Identification/Location	Volume or Area	Sample Type	Flow Rate*	Time* Start - Stop
25418	Pipe Insulation / Domestic Water Attic West				
25419	Exterior Wall Insulation / West Wall				
25420	Brown 4" Vinyl Base / West Entry Corridor				
25421	Brown Fiber Sound Board / Behind Sheet Rock Interior Offices				
25422	Brown 12" Floor Tile / West Entry Corridor				
25423	Texture Ceiling Spray / West Entry Corridor				
25424	Texture Ceiling Spray / Southwest Office				
25425	Texture Ceiling Spray / East Hallway Corridor				
25426	Sheet Rock With Texture In Joint / West Entry Corridor Ceiling				
25427	Sheet Rock With Texture In Joint / Southwest Office Ceiling				
25428	Sheet Rock With Texture In Joint / East Hallway Corridor Ceiling				
25429	Sheet Rock In Joint / Interior Office Wall				

Relinquished by	Date	Time	Received by	Date	Time
Paul Beamer <i>LB</i>	4/26/2013	15:30	<i>RMP</i>	APR 26 2013	<i>8:45A</i>

Unless scheduled, the turn around time for all samples received after 3 pm EST Friday will begin at 8 am Monday morning. Weekend or Holiday work must be scheduled ahead of time and is charged for rush turn around time.

Work with standard turn around time sent Priority Overnight and Billed to Recipient will be charged a \$10 shipping fee.

Disclaimer

The final report cannot be reproduced, except in full, without written authorization from SanAir. Fibers smaller than 5 microns cannot be seen with this method due to scope limitations. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample and information provided by the client. This report may not be used by the client to claim product endorsement by NVLAP, AIHA or any other agency of the U.S. government; *and may not be certified by every local, state and federal regulatory agencies.*

Expiration Date **10/25/2013** Certificate Number **7118101912MOIR1864**

Training Date **10/19/2012**

Missouri State Certificate for Asbestos Related Occupations

issued by Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102
Phone (573) 751-4817

Paul Russell Beamer

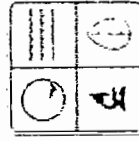
has successfully completed the requirements for certification as a INSPECTOR. This Missouri State Certification is subject to review and the director may deny, suspend or revoke the certification per RSMo chapter 643.230.

10/26/2012

Date

Paul Russell Beamer

Director of Air Pollution Control Program



Appendix D

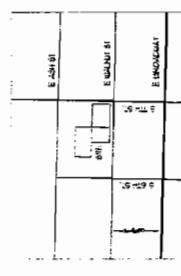
Boone County Walnut Office List of Drawings:

A1.0 / Location Plan / Code Review
A2.0 / 1st Floor Demo / 2nd Floor Demo
A2.1 / Slab Cut & Foundation Plan
A3.0 / 1st Floor Plan / 2nd Floor Plan
A3.1 / Roof Framing Plan / Wall Section / Framing Detail
A3.2 / Restroom Plan Detail / Restroom Elev / Wet Bar Elev
A3.3 / Roof Plan / Reflected Ceiling Plan
A4.0 / Building Section / Details
A5.0 / Door Types / Window Types / Door Schedule / Room Finish Schedule

MEP1 / General Specifications
M1 / Hvac Plan
M2 / Hvac Details
E1 / Power Plan
E2 / Lighting Plan
E3 / Power Details & Schedules
P1 / Sanitary Sewer & Vent Plan
P2 / Water & Gas Piping Plan

LEGAL DESCRIPTION
 PART OF SECTION 10, TOWNSHIP 10N, RANGE 10W, COUNTY OF BOONE, MISSOURI

PROJECT DESCRIPTION
 ARCHITECTURAL AND ENGINEERING SERVICES FOR THE CONSTRUCTION OF A 100,000 SQ. FT. COMMERCIAL BUILDING, INCLUDING ALL NECESSARY PERMITS AND REGULATORY WORK.



LOCATION PLAN

CLIENT INFORMATION
 PROJECT: BOONE COUNTY WALNUT OFFICE
 CLIENT: BOONE COUNTY

BUILDING LIMITATIONS
 BUILDING HEIGHT: 20 FT. CLEAR
 BUILDING AREA: 100,000 SQ. FT.

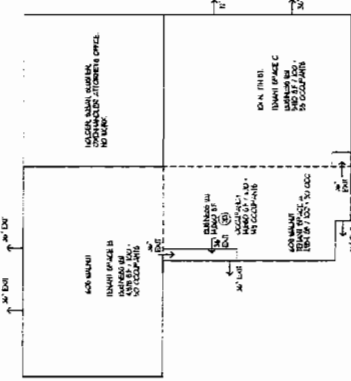
PERMITS AND REGULATIONS
 BOONE COUNTY PERMITS REQUIRED: BOONE COUNTY PERMITS
 BOONE COUNTY ORDINANCES: BOONE COUNTY ORDINANCES

PLANNING REQUIREMENTS
 BOONE COUNTY PERMITS REQUIRED: BOONE COUNTY PERMITS
 BOONE COUNTY ORDINANCES: BOONE COUNTY ORDINANCES

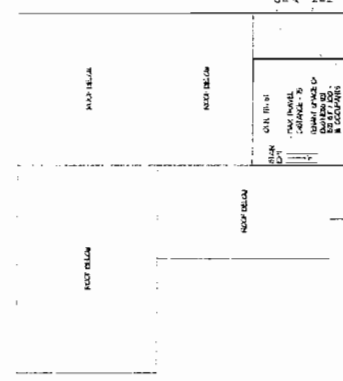
PERMITS AND REGULATIONS
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 BOONE COUNTY ORDINANCES: BOONE COUNTY ORDINANCES

PLANNING REQUIREMENTS
 BOONE COUNTY PERMITS REQUIRED: BOONE COUNTY PERMITS
 BOONE COUNTY ORDINANCES: BOONE COUNTY ORDINANCES

PERMITS AND REGULATIONS
 BOONE COUNTY PERMITS REQUIRED: BOONE COUNTY PERMITS
 BOONE COUNTY ORDINANCES: BOONE COUNTY ORDINANCES



1ST FLOOR KEY PLAN



2ND FLOOR KEY PLAN

REGISTERED DESIGN PROFESSIONAL
 ARCHITECT: SIMON ASSOCIATES, INC.

PROJECT DESCRIPTION
 ARCHITECTURAL AND ENGINEERING SERVICES FOR THE CONSTRUCTION OF A 100,000 SQ. FT. COMMERCIAL BUILDING, INCLUDING ALL NECESSARY PERMITS AND REGULATORY WORK.

CLIENT INFORMATION
 PROJECT: BOONE COUNTY WALNUT OFFICE
 CLIENT: BOONE COUNTY

BUILDING LIMITATIONS
 BUILDING HEIGHT: 20 FT. CLEAR
 BUILDING AREA: 100,000 SQ. FT.

PERMITS AND REGULATIONS
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 BOONE COUNTY ORDINANCES: BOONE COUNTY ORDINANCES

PLANNING REQUIREMENTS
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PERMITS AND REGULATIONS
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PLANNING REQUIREMENTS
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PERMITS AND REGULATIONS
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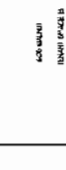
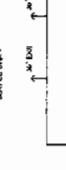
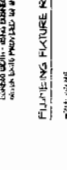
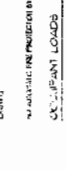
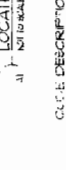
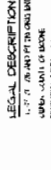
BOONE COUNTY WALNUT OFFICE

609 E. WALNUT / 609 E. WALNUT & 101 N. SEVENTH ST. BID NO. 37-150CT13 COLUMBIA, MISSOURI

ARCHITECT: SIMON ASSOCIATES, INC. PH: (673) 974-1818 FAX: (673) 948-0887
 MEP ENGINEER: TIMBERLAKE ENGINEERING PH: (673) 875-4986 FAX: (673) 442-9446
 STRUCTURAL ENGINEER: CROCKETT ENGINEERING PH: (673) 947-0262 FAX: (673) 447-3801

DATE ISSUED: 9 / 16 / 13

- A1.0 / LOCATION PLAN / CODE REVIEW
- A2.0 / 1ST FLOOR DEMO / 2ND FLOOR DEMO
- A2.1 / SLAB CUT & FOUNDATION PLAN
- A3.0 / 1ST FLOOR PLAN / 2ND FLOOR PLAN
- A3.1 / ROOF FRAMING PLAN / WALL SECTION / FRAMING DETAIL
- A3.2 / RESTROOM PLAN DETAIL / RESTROOM ELEV. / WET BAR ELEV.
- A3.3 / ROOF PLAN / REFLEC. CEILING PLAN
- A4.0 / BUILDING SECTION / DTLS.
- A5.0 / DOOR TYPES / WINDOW TYPES / DOOR SCHEDULE / ROOM FINISH SCHEDULE
- MEP1 / GENERAL SPECIFICATIONS
- M1.0 / HVAC PLAN
- M2.0 / HVAC DETAILS
- M3.0 / HVAC CONTROLS SEQUENCE
- M3.1 / HVAC CONTROLS SCHEMATICS
- E1.0 / POWER PLAN
- E2.0 / LIGHTING PLAN
- E3.0 / POWER DETAILS & SCHEDULES
- P1.0 / SANITARY SEWER & VENT PLAN
- P2.0 / WATER PIPING PLAN





THE EXERCISE OF
THE PROFESSION OF
ARCHITECTURE
IS UNLAWFUL
WITHOUT A LICENSE

SIMON ASSOCIATES INC.
ARCHITECTURE
1315 East 20th Street, Columbus, Indiana Phone: 317-241-1171 Fax: 317-241-1172



BOONE COUNTY WALNUT OFFICE
COLUMBUS, IN
REVISED: 11/16/10

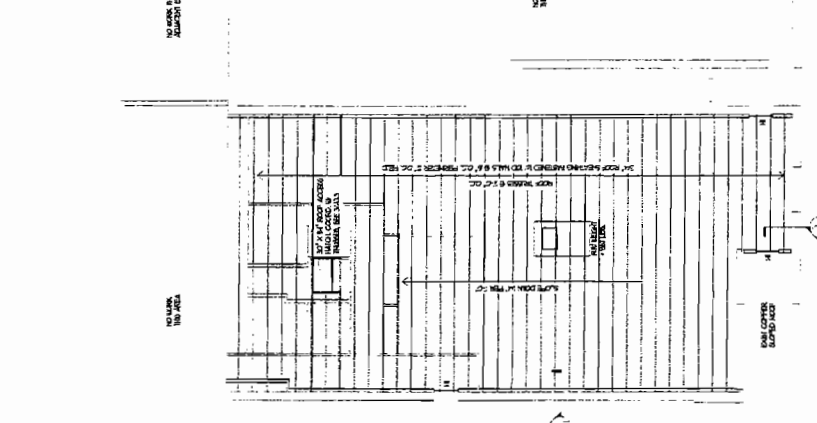
REVISED: 11/16/10



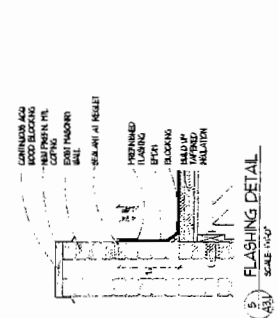
DATE: 11/16/10

- CONSTRUCTION NOTES:**
1. FURNISH TO FIELD WITH ALL PERMITS FOR THIS JURISDICTION.
 2. FURNISH TO FIELD WITH ALL PERMITS FOR THIS JURISDICTION. CONTRACTOR TO VERIFY ALL PERMITS REPRESENTING CHARACTERISTICS OF EACH TRADE. FURNISH TO FIELD WITH ALL PERMITS FOR THIS JURISDICTION.
 3. VERIFY ALL TRADES TO COMPLETE ALL MANUFACTURING REQUIREMENTS. AVOID DAMAGE TO TRADES FROM ANY OTHER TRADES.
 4. VERIFY ALL TRADES TO COMPLETE ALL MANUFACTURING REQUIREMENTS. AVOID DAMAGE TO TRADES FROM ANY OTHER TRADES.
 5. VERIFY ALL TRADES TO COMPLETE ALL MANUFACTURING REQUIREMENTS. AVOID DAMAGE TO TRADES FROM ANY OTHER TRADES.

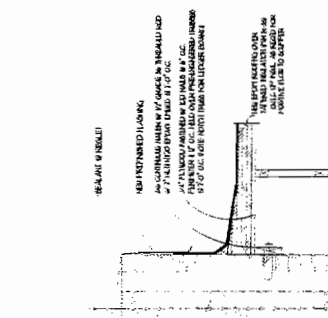
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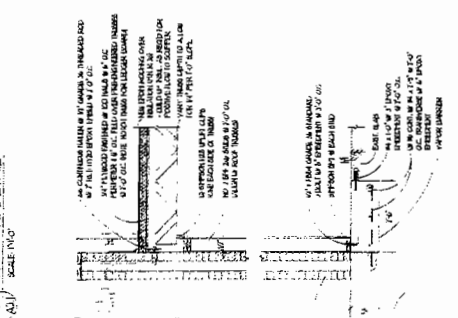
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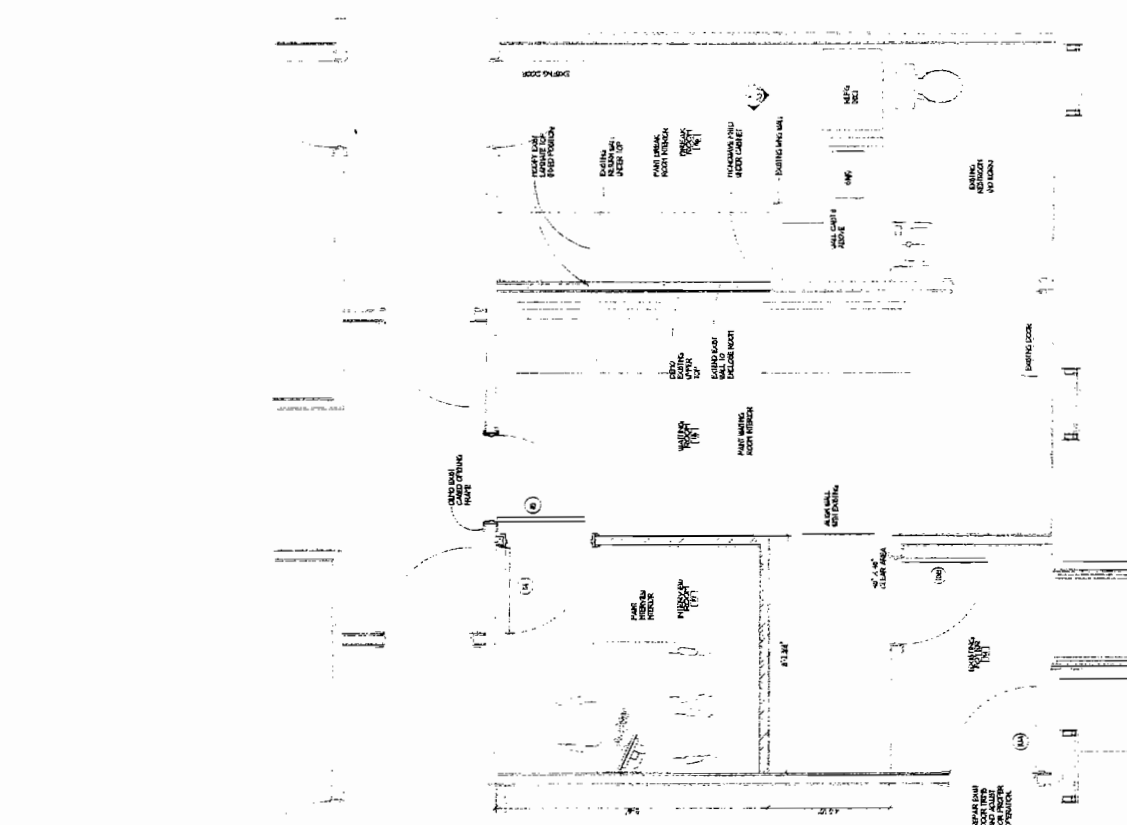
2) FLASHING DETAIL
SCALE: 1/4" = 1'-0"



3) FRAMING DETAIL
SCALE: 1/4" = 1'-0"



4) WALL SECTION
SCALE: 1/4" = 1'-0"



5) DETAIL PLAN
SCALE: 1/4" = 1'-0"



BOONE COUNTY WALNUT OFFICE
 SCALE 1/8" = 1'-0"

BOONE COUNTY WALNUT OFFICE
 SCALE 1/8" = 1'-0"

BOONE COUNTY WALNUT OFFICE
 SCALE 1/8" = 1'-0"



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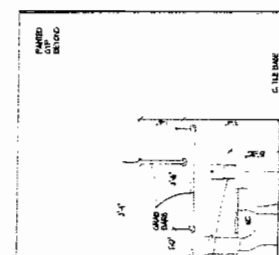
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BOONE COUNTY WALNUT OFFICE
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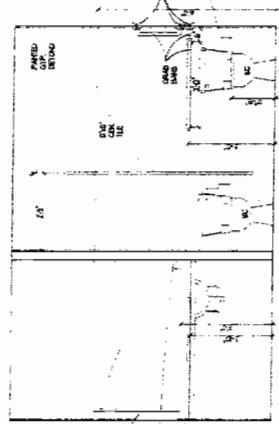
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BOONE COUNTY WALNUT OFFICE
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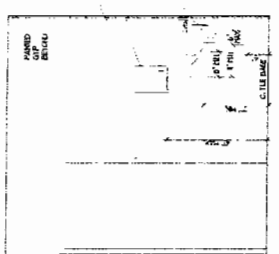
BOONE COUNTY WALNUT OFFICE
 SCALE 1/8" = 1'-0"



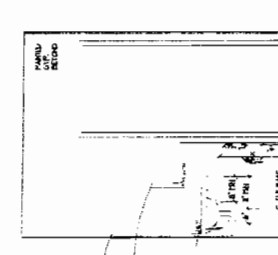
1 WOMEN'S RESTROOM ELEV.
 SCALE 1/8" = 1'-0"



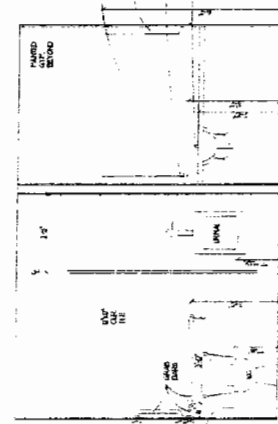
2 MEN'S RESTROOM ELEV.
 SCALE 1/8" = 1'-0"



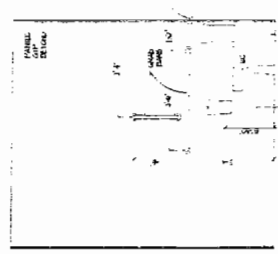
3 WET BAR ELEVATION (ALT 1)
 SCALE 1/8" = 1'-0"



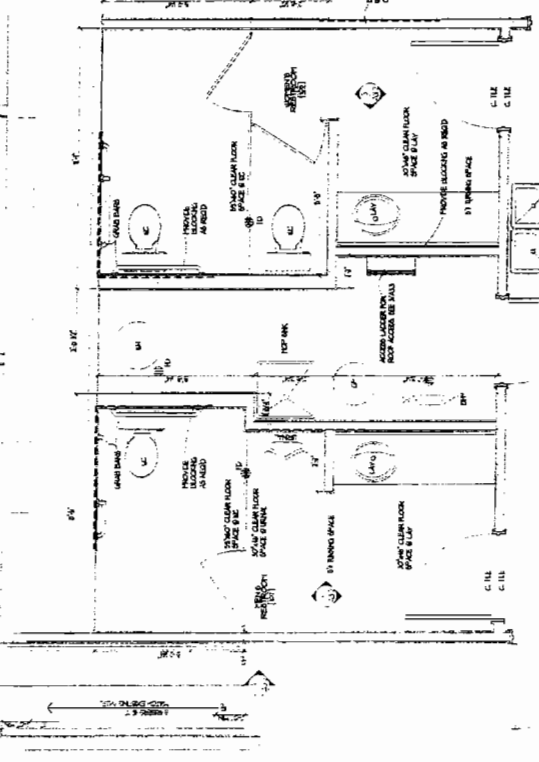
4 RESTROOM DETAIL
 SCALE 1/8" = 1'-0"



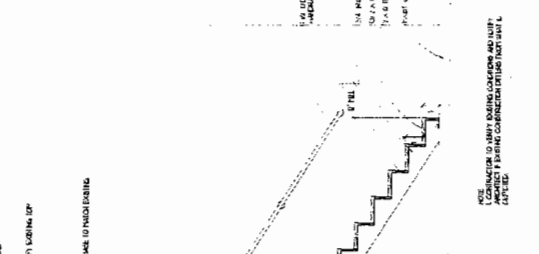
5 STAIR DETAIL
 SCALE 1/8" = 1'-0"



6 WET BAR ELEVATION (ALT 2)
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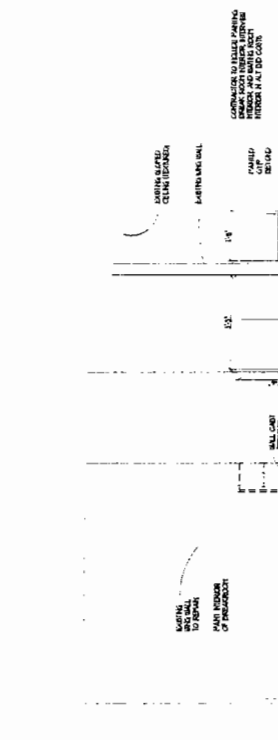
7 RESTROOM
 SCALE 1/8" = 1'-0"



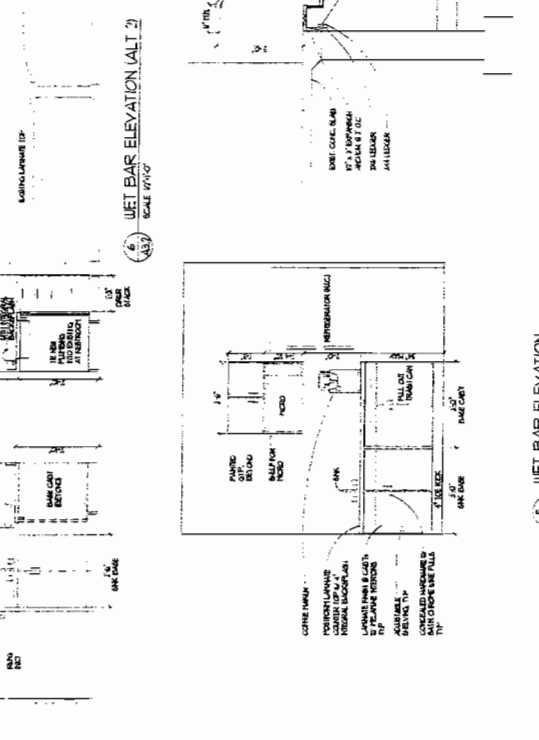
8 WET BAR ELEVATION
 SCALE 1/8" = 1'-0"



1 WOMEN'S RESTROOM ELEV.
 SCALE 1/8" = 1'-0"



2 MEN'S RESTROOM ELEV.
 SCALE 1/8" = 1'-0"



7 RESTROOM
 SCALE 1/8" = 1'-0"



8 WET BAR ELEVATION
 SCALE 1/8" = 1'-0"



THE BOARD OF THE ARCHITECTS OF THE STATE OF MISSISSIPPI HAS APPROVED THE SIGNATURE OF THE ARCHITECT AS SHOWN ON THESE PLANS.

SIMON ASSOCIATES INC.
ARCHITECTS
1200 WEST 10TH AVENUE, SUITE 200
TULSA, OKLAHOMA 74106-3000
PHONE: (918) 438-1234
FAX: (918) 438-1235
WWW.SIMONASSOCIATES.COM



BOONE COUNTY WALNUT OFFICE

REVISIONS



ROOM FINISH SCHEDULE

R#1	NO.	ROOM NAME	FLOORS			WALLS			CEILING			REMARKS
			FINISH	CLASS	BASE	NORTH	SOUTH	EAST	WEST	CLASS	FINISH	
100	100	VESTIBULE	C. TILE	II	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
101	101	RECEPTION	CARPET	III	RUBBER	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
102	102	CORRIDOR	CARPET	III	RUBBER	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
103	103	OFFICE	CARPET	III	RUBBER	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
104	104	CONFERENCE	CARPET	III	RUBBER	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
105	105	WOMEN'S RESTROOM	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
106	106	MECH / JANITOR	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
107	107	MEN'S RESTROOM	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
108	108	CLERK	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
109	109	CLERK	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
110	110	CORRIDOR	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
111	111	CLERK	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
112	112	CLERK	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
113	113	STAIR	CARPET	III	RUBBER	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
114	114	EXHIB Foyer	CARPET	III	RUBBER	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
115	115	WAITING ROOM	CARPET	III	RUBBER	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
116	116	BREAK ROOM	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
117	117	INTERVIEW ROOM	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
118	118	INTERVIEW ROOM	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
119	119	INTERVIEW ROOM	C. TILE	III	C. TILE	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	
120	120	IT VESTIBULE	CARPET	III	RUBBER	01P / PAINT	01P / PAINT	C	01P / PAINT	C	9'-0"	

DOOR SCHEDULE

NO.	U	H	W	TIL	TYPE	DOOR		FRAME		ACTION	FIN.	REMARKS
						MAT.	FIN.	MAT.	FIN.			
100	7'-0"	7'-0"	1'-0"	134°	C	ALUM.	ALUM.	ALUM.	ALUM.	CLR	CLR	
101	7'-0"	7'-0"	1'-0"	134°	C	ALUM.	ALUM.	ALUM.	ALUM.	CLR	CLR	
102A	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
103	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
104	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
105	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
106	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
107	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
108	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
109	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
110	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
111	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
112	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
113	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
114	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
115	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
116	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
117	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
118	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
119	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	
120	7'-0"	7'-0"	1'-0"	134°	A	WOOD	WOOD	WOOD	WOOD	CLR	CLR	

HARDWARE GROUPS

1. ALL LOCKS TO BE ACCESSIBLE PER ADA
 2. ALL LOCKS TO BE LIGHT OPERATED
 3. ALL HARDWARE TO BE LIGHT OPERATED
 4. SET ALL HARDWARE TO OWNER'S PREFERED FINISH
 5. OWNER'S SECURITY CONTRACTOR TO PROVIDE ALL HARDWARE
 6. OWNER'S SECURITY CONTRACTOR TO PROVIDE ALL HARDWARE

GROUP 1
 1. HANDLE SET
 2. LOCK SET
 3. LOCK SET
 4. LOCK SET
 5. LOCK SET
 6. LOCK SET
 7. LOCK SET
 8. LOCK SET
 9. LOCK SET
 10. LOCK SET

GROUP 2
 1. LOCK SET
 2. LOCK SET
 3. LOCK SET
 4. LOCK SET
 5. LOCK SET
 6. LOCK SET
 7. LOCK SET
 8. LOCK SET
 9. LOCK SET
 10. LOCK SET

GROUP 3
 1. LOCK SET
 2. LOCK SET
 3. LOCK SET
 4. LOCK SET
 5. LOCK SET
 6. LOCK SET
 7. LOCK SET
 8. LOCK SET
 9. LOCK SET
 10. LOCK SET

GROUP 4
 1. LOCK SET
 2. LOCK SET
 3. LOCK SET
 4. LOCK SET
 5. LOCK SET
 6. LOCK SET
 7. LOCK SET
 8. LOCK SET
 9. LOCK SET
 10. LOCK SET

GROUP 5
 1. LOCK SET
 2. LOCK SET
 3. LOCK SET
 4. LOCK SET
 5. LOCK SET
 6. LOCK SET
 7. LOCK SET
 8. LOCK SET
 9. LOCK SET
 10. LOCK SET

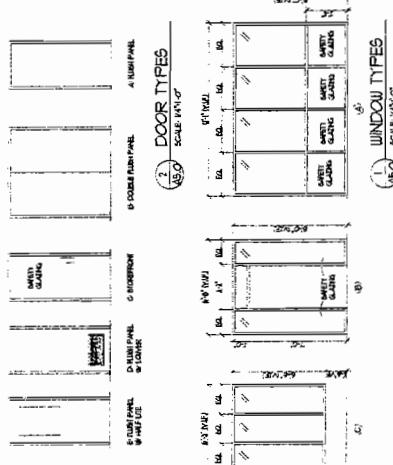
GROUP 6
 1. LOCK SET
 2. LOCK SET
 3. LOCK SET
 4. LOCK SET
 5. LOCK SET
 6. LOCK SET
 7. LOCK SET
 8. LOCK SET
 9. LOCK SET
 10. LOCK SET

GROUP 7
 1. LOCK SET
 2. LOCK SET
 3. LOCK SET
 4. LOCK SET
 5. LOCK SET
 6. LOCK SET
 7. LOCK SET
 8. LOCK SET
 9. LOCK SET
 10. LOCK SET

GROUP 8
 1. LOCK SET
 2. LOCK SET
 3. LOCK SET
 4. LOCK SET
 5. LOCK SET
 6. LOCK SET
 7. LOCK SET
 8. LOCK SET
 9. LOCK SET
 10. LOCK SET

GROUP 9
 1. LOCK SET
 2. LOCK SET
 3. LOCK SET
 4. LOCK SET
 5. LOCK SET
 6. LOCK SET
 7. LOCK SET
 8. LOCK SET
 9. LOCK SET
 10. LOCK SET

GROUP 10
 1. LOCK SET
 2. LOCK SET
 3. LOCK SET
 4. LOCK SET
 5. LOCK SET
 6. LOCK SET
 7. LOCK SET
 8. LOCK SET
 9. LOCK SET
 10. LOCK SET



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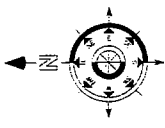
DO NOT SCALE THE DRAWING.

SOME DEVIATION FROM SCALE MAY OCCUR.

REVISIONS:

NO.	DATE	DESCRIPTION

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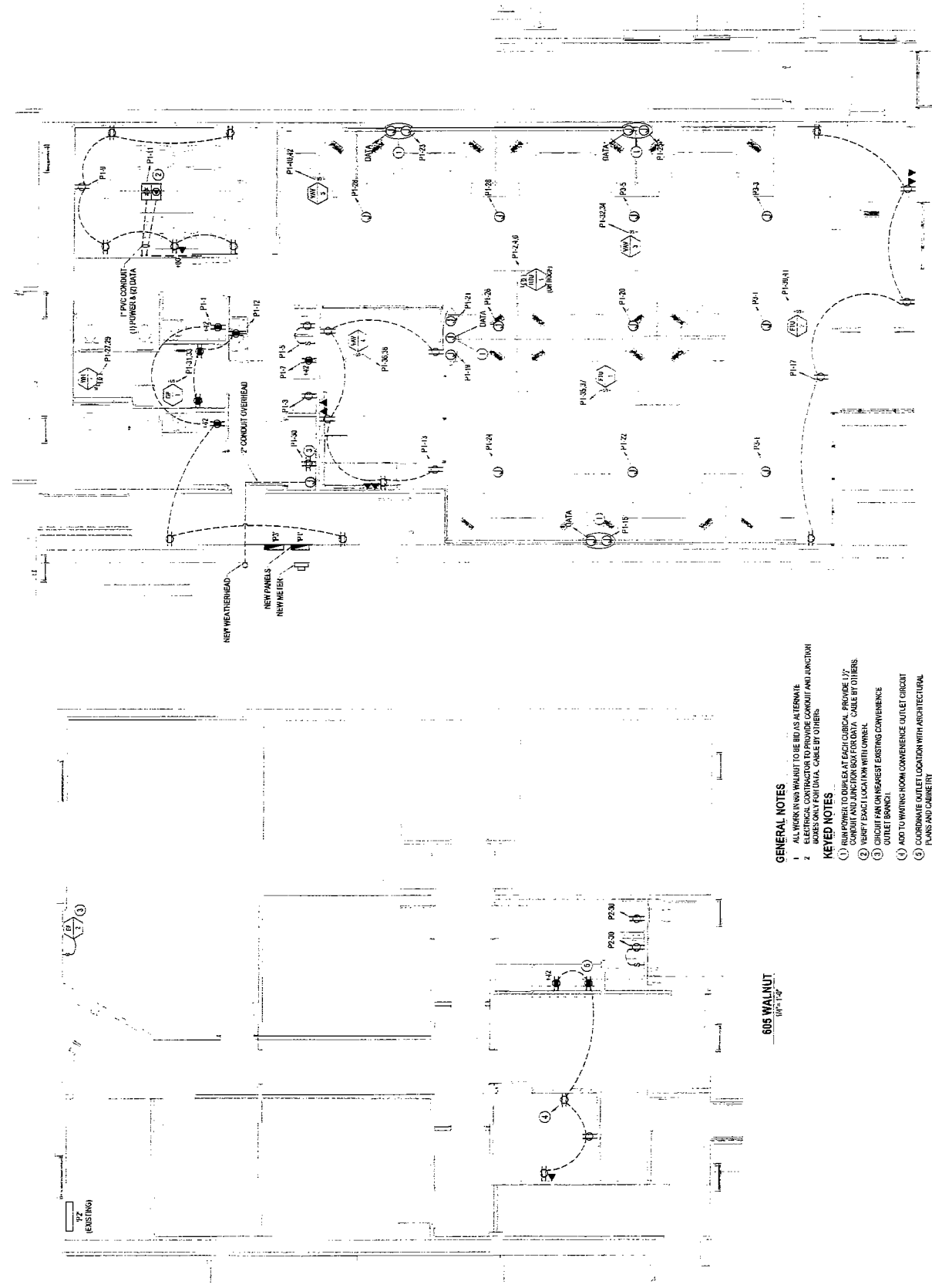


TIMBERLAKE ENGINEERING, P.C.
 1000 East Walnut
 Suite 100
 Boonville, Oregon 97008
 503-837-3400
 FAX 503-837-3401
 www.timberlake-engineering.com

POWER PLAN

BOONE COUNTY WALNUT OFFICE

DATE: 08/14/2013
 SHEET NO: E1.0
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 PROJECT NO: [Number]
 SCALE: 1/8" = 1'-0"



- GENERAL NOTES**
1. ALL WORK IN 609 WALNUT TO BE BID AS ALTERNATE
 2. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT AND JUNCTION BOXES ONLY FOR DATA, CABLE BY OTHERS
- KEYED NOTES**
1. RUN POWER TO DUPLEX AT EACH CIRCULAR. PROVIDE 1/2\"/>
 - 2. VERIFY EXACT LOCATION WITH OWNER.
 - 3. CIRCUIT PAN ON NEAREST EXISTING CONVENIENCE OUTLET BRANCH.
 - 4. ADD TO WAITING ROOM CONVENIENCE OUTLET CIRCUIT
 - 5. COORDINATE OUTLET LOCATION WITH ARCHITECTURAL PLANS AND CABINERY

609 WALNUT
 1/8" = 1'-0"

609 WALNUT
 1/8" = 1'-0"

RIVER CITY CONSTRUCTION, L.L.C.
DUNS: 117479402 CAGE Code: 0GW35
Status: Active

101 HOFFER LN
EAST PEORIA, IL, 61611-9334 ,
UNITED STATES

Entity Overview

Entity Information

Name: RIVER CITY CONSTRUCTION, L.L.C.
Business Type: Business or Organization
POC Name: None Specified
Registration Status: Active
Expiration Date: 02/27/2014

Exclusions

Active Exclusion Records? No

SAM | System for Award Management 1.0

IBM v1.1278.20131018-1401

WWW8

Note to all Users: This is a Federal Government computer system. Use of this system constitutes consent to monitoring at all times.



CERTIFIED COPY OF ORDER

STATE OF MISSOURI

} ea.

November Session of the October Adjourned

Term. 20 13

County of Boone

In the County Commission of said county, on the

26th

day of

November

20 13


the following, among other proceedings, were had, viz:

Now on this day the County Commission of the County of Boone does hereby award bid 44-01NOV13 – Club Car Carryall 242 Gas-Powered Carts to M&M Golf Cars, LLC of Mexico, MO. The terms of the agreement are stipulated in the attached Purchase Agreement. It is further ordered the Presiding Commissioner is hereby authorized to sign said Purchase Agreement.

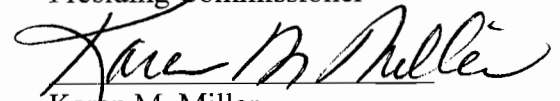
Done this 26th day of November, 2013.

ATTEST:

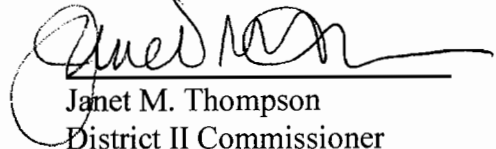
Wendy S. Noren
Wendy S. Noren
Clerk of the County Commission



Daniel K. Atwill
Presiding Commissioner



Karen M. Miller
District I Commissioner



Janet M. Thompson
District II Commissioner

STATE OF MISSOURI

County of Boone

} ss.

I,Clerk

of the County Commission, in and said County, hereby certify the above and foregoing to be a true copy of the proceedings of our said County Commission, on the day and year above written, as the same appears of record in my office.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said Commission, at office in

Columbia, Missouri, this the day of

20.....

Clerk County Commission

By D.C.

No.

Certified Copy of Order

of
BOONE COUNTY COMMISSION,
Made at

Term, 20

In the Matter of

Boone County Purchasing

Amy Robbins
Senior Buyer



613 E. Ash Street, Room 109
Columbia, MO 65201
Phone: (573) 886-4392
Fax: (573) 886-4390

MEMORANDUM

TO: Boone County Commission
FROM: Amy Robbins, Senior Buyer
DATE: November 21, 2013
RE: 44-01NOV13 – Golf Carts

44-01NOV13 – Golf Carts opened on November 1, 2013. One bid was received and the Sheriff Department recommends award by low bid to M&M Golf Cars, LLC of Mexico, MO.

Invoices will be paid from department 2540 Sheriff Civil Charges, account 92300 – Replacement Machines and Equipment.

Attached is the Bid Tabulation for your review.

ATT: Bid Tabulation

cc: Leasa Quick, Sheriff Dept.
Chad Martin, Sheriff Dept.
Bid File

Bid Tabulation
44-01NOV13 - Golf
Carts

M&M Golf Cars, LLC				
PRICING	Manuf / Model	Unit Price	Qty	Extended Price
4.B. New 2013 or 2013 Club Car Carryall 242 (or equal) Gas-Powered Golf Cart	2013-14 Club Car Carryall 242 Gas-Powered Golf Cart	\$6,848.50	\$2.00	\$13,697.00
4.8.1. Tire Tread on cart proposed:	All-Trail II 20x1000-8, 4-ply			
Upgrade Tread Type			\$0.00	
Upgrade Tread Type			\$0.00	
	Full detailed warranty attached to bid; Limited 2 year on engine, transaxle, starter, motor, fram, bed, cab assembly & doors; Limited 1 year on solenoid, MCOR, limit switches, voltage regulators, F&R switches, brakes, wiring, electrical, canopy, seats, body; 4 years on onboard computer, controller & battery charger			
4.9. Warranty Details				
4.10. Additional Options				
Option	Chrome SS Style Hub Cap (Wheel covers)	1 set	\$0.00	No Charge
Option			\$0.00	
Option			\$0.00	
Option			\$0.00	
Option			\$0.00	

No Bid:

**PURCHASE AGREEMENT
FOR
Golf Carts**

THIS AGREEMENT dated the 26th day of November 2013 is made between Boone County, Missouri, a political subdivision of the State of Missouri through the Boone County Commission, herein "County" and **M&M Golf Cars, LLC**, herein "Vendor."

IN CONSIDERATION of the parties performance of the respective obligations contained herein, the parties agree as follows:

1. **Contract Documents** - This agreement shall consist of this Purchase Agreement for **two new 2013/14 Club Car Carryall 242 Gas-Powered Golf Cart**, bid number **44-01NOV13**, any applicable addenda, and the Contractor's bid response. All such documents shall constitute the contract documents which are incorporated herein by reference. Service or product data, specification and literature submitted with bid response may be permanently maintained in the County Purchasing Office bid file for this bid if not attached. In the event of conflict between any of the foregoing documents this Purchase Agreement, the Request for Bid and any applicable addenda shall prevail and control over the Contractor's bid response.

2. **Purchase** - The County agrees to purchase from the Vendor and the Vendor agrees to supply the County with two (2) 2013/14 Club Car Carryall 242 Gas-Powered Golf Carts as follows:

	<u>Unit Price</u>	<u>Qty</u>	<u>Extended Price</u>
Club Car Carryall 242 Gas-Powered:	\$6,848.50	2	\$13,697.00
<ul style="list-style-type: none"> • Black with Sun Canopy • Cragar SS Style Chrome Wheel Covers • 4-ply All-Trail II 20x1000-8 tires • Installed 3-in-1 Carrier • Manufacturer's 2 year/2000 hour Warranty on engine assembly, transaxle assembly, starter/generator, motor, frame, bed, cab, doors and enclosure • Manufacturer's 1 year/1000 hour Warranty on solenoid, MCOR, limit switches, voltage regulators, F&R switches, brakes, wiring harness, electrical switches, canopy systems, seats, pedal assembly, and all original equipment options and accessories and all remaining components of the vehicle not specified otherwise • Manufacturer's 4 year/16,000 hour Warranty on onboard computer • Manufacturer's 4 year/16,000 hour Warranty on controller • Manufacturer's 4 year Warranty on battery charger 			

3. **Delivery** - Vendor agrees to deliver equipment as set forth in the bid documents with Bill of Sale and Manufacturer's Statement of Origin. Delivery shall be FOB-Destination to the Boone County Sheriff Department, 2121 County Drive, Columbia, MO 65202.

4. **Billing and Payment** - All billing shall be invoiced to the Boone County Sheriff Department and billings may only include the prices listed in the vendor's bid response. No additional fees for paper work processing, labor, or taxes shall be included as additional charges in excess of the charges in the Vendor's bid response to the specifications. The County agrees to pay all invoices within thirty days of receipt. In the event of a billing dispute, the County reserves the right to withhold payment on the disputed amount; in the event the billing dispute is resolved in favor of the Vendor, the County agrees to pay interest at a rate of 9% per annum on disputed amounts withheld commencing from the last date that payment was due.

5. **Binding Effect** - This agreement shall be binding upon the parties hereto and their successors and assigns for so long as this agreement remains in full force and effect.

6. **Entire Agreement** - This agreement constitutes the entire agreement between the parties and supersedes any prior negotiations, written or verbal, and any other bid or bid specification or contractual agreement. This agreement may only be amended by a signed writing executed with the same formality as this agreement.

7. **Termination** - This agreement may be terminated by the County upon thirty days advance written notice for any of the following reasons or under any of the following circumstances:

- a. County may terminate this agreement due to material breach of any term or condition of this agreement, or
- b. County may terminate this agreement if in the opinion of the Boone County Commission if delivery of products are delayed or products delivered are not in conformity with bidding specifications or variances authorized by County, or
- c. If appropriations are not made available and budgeted for any calendar year.

IN WITNESS WHEREOF the parties through their duly authorized representatives have executed this agreement on the day and year first above written.

M&M GOLF CARS, LLC

by Mike M&A
title Partner

BOONE COUNTY, MISSOURI

by: Boone County Commission
Daniel K. Atwill
Daniel K. Atwill, Presiding Commissioner

APPROVED AS TO FORM:

C.J. Dykhouse
C.J. Dykhouse, County Counselor

ATTEST:

Wendy S. Noren
Wendy S. Noren, County Clerk

In accordance with RSMo 50.660, I hereby certify that a sufficient unencumbered appropriation balance exists and is available to satisfy the obligation(s) arising from this contract. (Note: Certification of this contract is not required if the terms of this contract do not create a measurable county obligation at this time.)

Jane Pitchford by jz 11/19/2013
Signature Date

2540/92300 - \$13,697.00
Appropriation Account

STANDARD TERMS AND CONDITIONS - BOONE COUNTY, MISSOURI

1. Responses shall include all charges for packing, delivery, installation, etc., (unless otherwise specified) to the Boone County Department identified in the Request for Bid and/or Proposal.
2. The Boone County Commission has the right to accept or reject any part or parts of all bids, to waive technicalities, and to accept the offer the County Commission considers the most advantageous to the County. Boone County reserves the right to award this bid on an item-by-item basis, or an "all or none" basis, whichever is in the best interest of the County.
3. Bidders must use the bid forms provided for the purpose of submitting bids, must return the bid and bid sheets comprised in this bid, give the unit price, extended totals, and sign the bid.
4. When products or materials of any particular producer or manufacturer are mentioned in our specifications, such products or materials are intended to be descriptive of type or quality and not restricted to those mentioned.
5. Do not include Federal Excise Tax or Sales and Use Taxes in bid process, as law exempts the County from them.
6. The delivery date shall be stated in definite terms, as it will be taken into consideration in awarding the bid.
7. The County Commission reserves the right to cancel all or any part of orders if delivery is not made or work is not started as guaranteed. In case of delay, the Contractor must notify the Purchasing Department.
8. In case of default by the Contractor, the County of Boone will procure the articles or services from other sources and hold the Bidder responsible for any excess cost occasioned thereby.
9. Failure to deliver as guaranteed may disqualify Bidder from future bidding.
10. Prices must be as stated in units of quantity specified, and must be firm. Bids qualified by escalator clauses may not be considered unless specified in the bid specifications.
11. No bid transmitted by fax machine or **e-mail** will be accepted. **U.S. mail only.**
12. The County of Boone, Missouri expressly denies responsibility for, or ownership of any item purchased until same is delivered to the County and is accepted by the County.
13. The County reserves the right to award to one or multiple respondents. The County also reserves the right to not award any item or group of items if the services can be obtained from a state or other governmental entities contract under more favorable terms.
14. The County, from time to time, uses federal grant funds for the procurement of goods and services. Accordingly, the provider of goods and/or services shall comply with federal laws, rules and regulations applicable to the funds used by the County for said procurement, and contract clauses required by the federal government in such circumstances are incorporated herein by reference. These clauses can generally be found in the Federal Transit Administration's Best Practices Procurement Manual – Appendix A. Any questions regarding the applicability of federal clauses to a particular bid should be directed to the Purchasing Department prior to bid opening.
15. In the event of a discrepancy between a unit price and an extended line item price, the unit price

shall govern.

16. Should an audit of Contractor's invoices during the term of the Agreement, and any renewals thereof, indicate that the County has remitted payment on invoices that constitute an over-charging to the County above the pricing terms agreed to herein, the Contractor shall issue a refund check to the County for any over-charges within 30-days of being notified of the same.

Department

4. Response Form

- 4.1. Company Name: M+M Golf Cars LLC
- 4.2. Address: 19873 Hwy. 22 west
- 4.3. City/Zip: Mexico / 65265
- 4.4. Phone Number: 573-581-8188
- 4.5. E-mail: Ryanm@mmgolfcars.com
- 4.6. Fax Number: 573-581-7267
- 4.7. Federal Tax ID: 431699397
- 4.7.1. () Corporation
- 4.7.1. (X) Partnership - Name M+M Golf Cars LLC
- 4.7.1. () Individual/Proprietorship - Individual Name _____
- 4.7.1. () Other (Specify) _____

4.8. Pricing

Description	Quantity	Unit Price	Extended Price
New 2013 or 2014 Club Car Carryall 242 (or equal) Gas-Powered Golf Cart as specified in Section 2: <i>Primary Specifications</i> of this bid document.			
Specify Comparable Model if not as listed above:	2	\$ 6,848.50	\$ 13,697

4.8.1. Tires – Please specify tread-type and any options for upgrades and pricing:

Tread Type: All-Trail II 20x1000-8 4-Ply

Upgrade Tread Type: _____ Price per tire: \$ _____

Upgrade Tread Type: _____ Price per tire: \$ _____

4.9. Warranty

Please provide details of warranty coverage for cart offered:

See Attached

4.10. Additional Options: Please list any additional available options and associated pricing:

Option: Chrome SS Style HubCap see Attached Price per unit: \$ N/C

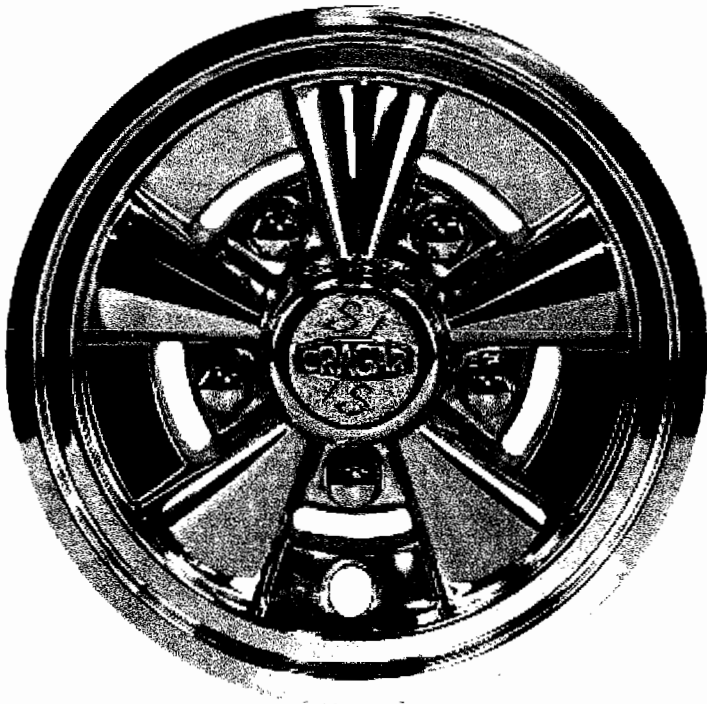
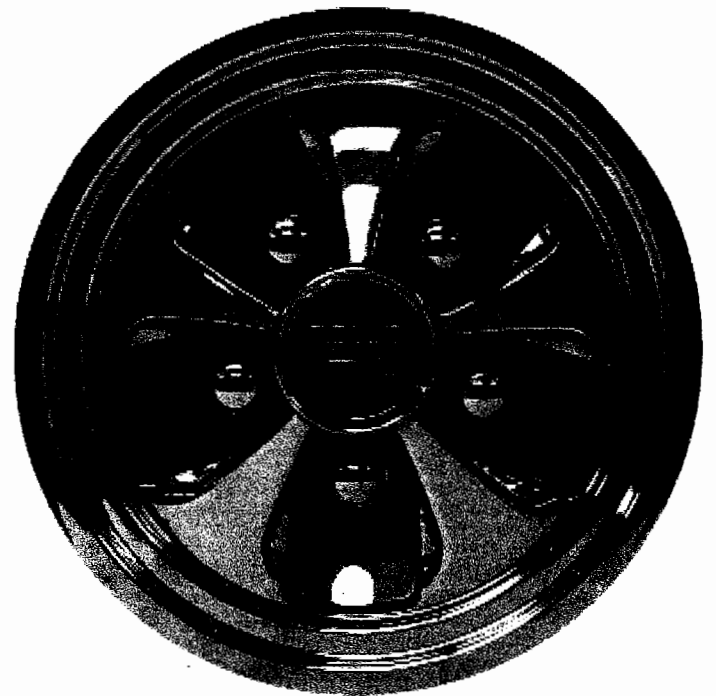
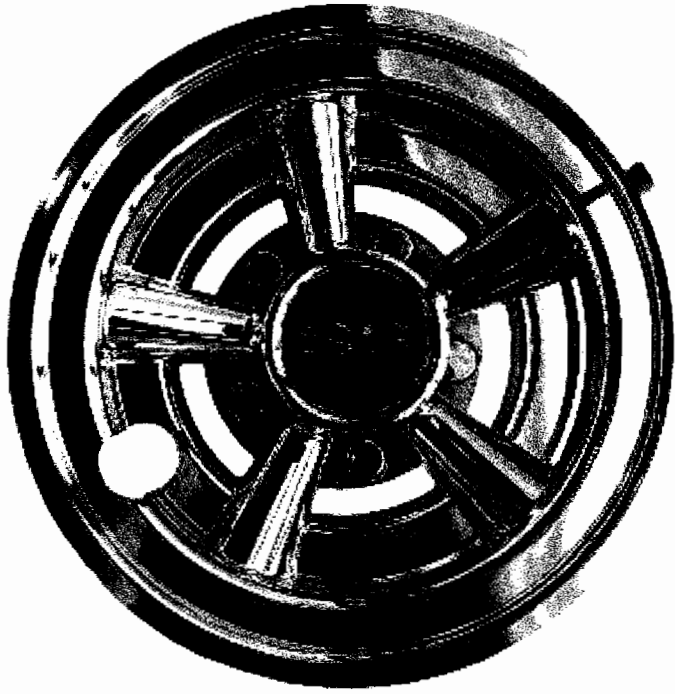
Option: _____ Price per unit: \$ _____

Option: _____ Price per unit: \$ _____

Option: _____ Price per unit: \$ _____

Option: _____ Price per unit: \$ _____

These chrome wheel covers can be added at no additional charge. Please choose one set per vehicle.





BOONE COUNTY, MISSOURI
Request for Bid #: 44-01NOV13 – Golf Carts

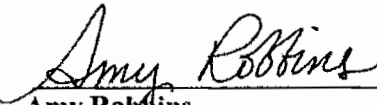
ADDENDUM #1 - Issued October 21, 2013

This addendum is issued in accordance with the Request for Bid and is hereby incorporated into and made a part of the Request for Bid Documents. Offerors are reminded that receipt of this addendum should be acknowledged and submitted with Offeror's Bid Response.

Scope of Work for the above noted Request for Bid and the work covered thereby are herein modified as follows, and except as set forth herein, otherwise remain unchanged and in full force and effect:

- I. The County is amending the bid specifications as follows:
 1. Section 2.2.14 Wheels – Polished aluminum wheels will be acceptable.
 2. Change wording of Section 2.2.16 Sun Canopy as follows: Carts to come with overhead sun canopy. (Water drain system and inboard grab handles are desired but not required.)

By:


Amy Robbins
Senior Buyer

OFFEROR has examined copy of Addendum #1 to Request for Proposal 44-01NOV13 – Golf Carts receipt of which is hereby acknowledged:

Company Name: M4M Golf Cars LLC

Address: 19873 Hwy. 22 West, Mexico.

Phone Number: 573-581-8188 Fax Number: 573-581-7267

E-mail: Ryan M @ mmgolfcars.com

Authorized Representative Signature:  Date: 10-22-13

Authorized Representative Printed Name: Ryan McHatton

(Please complete and return with Bid)

**Certification Regarding
Debarment, Suspension, Ineligibility and Voluntary Exclusion
Lower Tier Covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 29 CFR Part 98 Section 98.510, Participants' responsibilities. The regulations were published as Part VII of the May 26, 1988, Federal Register (pages 19160-19211).

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS FOR CERTIFICATION)

- (1) The prospective recipient of Federal assistance funds certifies, by submission of this proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective recipient of Federal assistance funds is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Mark Miller Partner

Name and Title of Authorized Representative

Mark Miller

Signature

10/22/13

Date

WARRANTIES

CLUB CAR® LIMITED WARRANTY FOR TRANSPORTATION AND UTILITY VEHICLES

WARRANTY

CLUB CAR, LLC ("CLUB CAR") hereby warrants to the Original Purchaser or Lessee, as those terms are defined herein, and subject to the provisions, limitations and exclusions in this limited warranty, that its new vehicle or new component purchased from CLUB CAR or an Authorized Dealer or Distributor shall be free from defects in material and workmanship under normal use and service for the periods stated below, subject to the provisions, limitations and exclusions in this limited warranty.

This limited warranty covers material, workmanship and repair labor cost as to those items specifically listed below for the periods specified. Such repair labor shall be performed only by CLUB CAR, its Authorized Dealers or Distributors, or a service agency approved by CLUB CAR. For repairs made by qualified technicians other than CLUB CAR's factory technicians or an Authorized Dealer or Distributor, CLUB CAR will provide only the replacement parts or components.

IF THE WARRANTY REGISTRATION FORM IS NOT COMPLETED AND RETURNED TO CLUB CAR AT THE TIME OF THE ORIGINAL RETAIL SALE, PURCHASER MUST PROVIDE PROOF OF DATE OF PURCHASE WITH ANY WARRANTY CLAIM.

TO THE ORIGINAL OWNER ONLY (NON-TRANSFERABLE)	TERMS COVERED	HOURS/ ENERGY UNITS COVERED
LIMITED TWO YEAR: Engine assembly, unitized transaxle assembly (gasoline vehicle), starter/generator (gasoline vehicle), motor, transaxle assembly (electric vehicle), main frame assembly, bed box hydraulic dump kit, cab assembly and doors, and Driving Range Protective Enclosure.	2 YEARS	2000
LIMITED ONE YEAR: Solenoid, MCOR, limit switches, voltage regulators, F&R switches, brake components, wiring harness, electrical switches, canopy systems, seats, pedal group assembly, body, portable refreshment center and all original equipment options and accessories supplied by CLUB CAR and all remaining components of the vehicle not specified otherwise.	1 YEAR	1000
6-VOLT BATTERY (STANDARD DUTY)	4 YEARS	18000
6-VOLT BATTERY (HEAVY DUTY)	4 YEARS	20000
8-VOLT BATTERY (STANDARD/HEAVY DUTY)	4 YEARS	16000
ONBOARD COMPUTER	4 YEARS	16000
CONTROLLER	4 YEARS	16000
BATTERY CHARGER	4 YEARS	

EXCLUSIONS

Excluded from any CLUB CAR warranty is damage to a vehicle or component resulting from a cause other than a defect including poor maintenance, neglect, abuse, accident and collision, maintenance adjustments, unreasonable or unintended strain or use, improper installation of accessories, installation of parts or accessories that are not original equipment including Club Car approved or non-approved GPS systems, non-approved alteration and acts of God. Also excluded from any CLUB CAR warranty are all fuses, filters, decals (except safety decals), lubricants, routine wear items such as the charger plug and receptacle, engine mounts, mats, pads, spark plugs, light bulbs, brake shoes, belts, brushes, bushings, drive buttons, cosmetic deterioration, and items that deteriorate, fade or fail due to exposure or ordinary wear and tear.

The provisions of this limited warranty shall not apply to failure due to:

1. Abuse such as overcharging, undercharging, improper fluid levels, use of contaminated water in batteries (See "Water Quality" in owner's manual), loose wiring and fasteners, or rusted or corroded hardware.

2. Lack of proper maintenance such as preventive maintenance checks, proper rotation of vehicles in a fleet application, maintaining proper tire pressure and alignment and tightening loose wire connections as outlined in the owner's manual.
3. Damages caused by improper installation of the component.
4. Neglect, breakage, freezing, fire, explosion, wreckage, melted terminal posts, the addition of any chemical, or the operation of the battery in an uncharged condition (below half charge 1.200 specific gravity); the installation of the batteries in reverse or recharging in reverse, breakage of containers, covers, or terminal post, or batteries used in applications for which they were not designed.
5. A battery damaged by a defective charger or batteries in vehicles that do not receive proper charging.
6. Every vehicle must have an operational charger on its own circuit. (Number of operational chargers must equal the number of operational vehicles.)
7. Vehicles charged by systems other than the CLUB CAR Charger.
8. Semiconductor parts such diodes and fuses that are vulnerable to electrical overloads (including lightning) beyond the control of CLUB CAR.
9. Charger DC cord set with plug, which is a wear item and subject to user abuse.
10. Use of gasoline containing more than 10% ethanol.

Without limiting the generality of the foregoing in any way, and as part of its limited warranty exclusion, CLUB CAR does not warrant that its vehicle or components such as batteries, computer, controller or electrical device are suitable for use in any application other than in its products. As in the use of any vehicle, batteries, computer, controller or electrical device, a prudent owner will read and study the owner's manual, the operator instructions and the warning labels; and will exercise due care in working on or around vehicles, batteries or electrical devices.

Transportation expenses for warranty services are also excluded from this warranty.

VOIDING OF WARRANTY

THIS AND ANY OTHER WARRANTY SHALL BE VOID IF THE VEHICLE OR COMPONENT IS ABUSED OR USED IN AN UNINTENDED MANNER OR SHOWS INDICATIONS THAT IT HAS BEEN ALTERED IN ANY WAY, INCLUDING, BUT NOT LIMITED TO, MODIFICATION OF THE SPEED GOVERNOR, BRAKING SYSTEM, STEERING, TRANSAXLE, OR OTHER OPERATING SYSTEMS OF THE CAR TO CAUSE IT TO PERFORM OUTSIDE CLUB CAR SPECIFICATIONS. THE WARRANTY IS LIKEWISE VOID IF THE VEHICLE SHOWS INDICATIONS THAT REASONABLE OR NECESSARY MAINTENANCE AS OUTLINED IN THE OWNER'S MANUAL AND MAINTENANCE AND SERVICE MANUAL WAS NOT PERFORMED AT THE TIME AND IN THE MANNER SPECIFIED IN SUCH MANUALS.

SOLE REMEDY

CLUB CAR's liability under this limited warranty or in any action whether based upon warranty, contract, negligence, strict product liability or otherwise, shall be the repair or replacement, at CLUB CAR's option, of the vehicle or component thereof that CLUB CAR deems to be defective. Replacement shall mean furnishing, during the applicable limited warranty period, a new vehicle or factory-reconditioned vehicle or component thereof that is identical or reasonably equivalent to the warranted product or component at no cost to the purchaser. Repair shall mean remedying a defect in the vehicle or component thereof at no cost to the purchaser during the applicable limited warranty period. CLUB CAR reserves the right to test and recharge any component returned for adjustment. If CLUB CAR elects to repair the vehicle or component, it may provide factory-reconditioned parts or components. All parts and components replaced under warranty shall become the property of CLUB CAR.

DISCLAIMER

THIS LIMITED WARRANTY IS EXCLUSIVE. CLUB CAR MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED. ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY CLUB CAR AND EXCLUDED FROM THIS WARRANTY. THE PURCHASER AND CLUB CAR EXPRESSLY AGREE THAT THE SOLE REMEDY OF THE REPLACEMENT OR REPAIR OF THE DEFECTIVE VEHICLE OR COMPONENT THEREOF IS THE SOLE REMEDY OF THE PURCHASER. CLUB CAR MAKES NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND, AND NO REPRESENTATIVE, EMPLOYEE, DISTRIBUTOR OR DEALER OF CLUB CAR HAS THE AUTHORITY TO MAKE OR IMPLY ANY REPRESENTATION, PROMISE OR AGREEMENT, WHICH IN ANY WAY VARIES THE TERMS OF THIS WARRANTY.

In the event that another pre-printed warranty document, certificate or both offered by or through Club Car at the time of sale of this vehicle (each an "Additional Warranty Document") is deemed to conflict with the limitations or exclusions

contained herein, the limitations and exclusions contained herein shall continue to apply to both this limited warranty statement and, to the maximum extent permitted by law, to each Additional Warranty Document.

NO CONSEQUENTIAL DAMAGES

IN NO EVENT SHALL CLUB CAR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS RELATED TO PROPERTY OTHER THAN THE VEHICLE, LOSS OF USE, LOSS OF TIME, INCONVENIENCE, OR ANY OTHER ECONOMIC LOSS.

Some states allow neither limitation on the duration of an implied warranty nor exclusions or limitation of incidental or consequential damages. Therefore, the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

HOW TO MAKE A WARRANTY CLAIM

To make a warranty claim under this limited warranty, you must present the vehicle or defective component with evidence of proof of purchase date and number of energy units (if applicable) to an authorized CLUB CAR dealer.

For warranty-related communication, contact Warranty Services, Club Car, 4125 Washington Rd., Evans, GA 30809, USA, 706.863.3000.

WARNING

Any modification or change to the vehicle that affects the electrical system, stability or handling of the vehicle, or increases maximum vehicle speed beyond factory specifications, could result in severe personal injury or death.

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS:

The California Air Resources Board ("CARB") and Club Car, LLC ("CLUB CAR") are pleased to explain the emission control system warranty on your 2009 and newer vehicle engine (the "emission warranty"). In California, new small off-road engines ("SORE") must be designed, built and equipped to meet the State's stringent anti-smog standards. CLUB CAR shall warrant the emission control system on the vehicle engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your small off-road engine.

Your emission control system may include parts such as the carburetor or fuel-injection system, the ignition system, the catalytic converter and related hoses, belts, connectors and other emission assemblies or components.

Where a warrantable condition exists, as defined herein, CLUB CAR will repair your vehicle engine at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE:

This emission control system is warranted for two years from the vehicles' date of purchase. If any emission-related part on your CLUB CAR SORE is defective, the part will be repaired or replaced by CLUB CAR.

OWNER'S WARRANTY RESPONSIBILITIES:

- As the vehicle engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. CLUB CAR recommends that you retain all receipts covering maintenance on your vehicle engine, but CLUB CAR cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the vehicle engine owner, you should however be aware that CLUB CAR may deny you warranty coverage if vehicle engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.
- You are responsible for presenting vehicle engine to a CLUB CAR distribution center as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days. If you have any questions regarding your warranty rights and responsibilities, you should contact WARRANTY SERVICES, CLUB CAR, LLC, P.O. Box 204658, Augusta, Georgia 30917-4658, U.S.A., 1-706-863-3000.

CLUB CAR EXPLANATION OF EMISSION CONTROL WARRANTY:

1. WARRANTY:

CLUB CAR warrants to the ultimate purchaser and each subsequent purchaser that the SORE and related emissions equipment is designed, built and equipped so as to conform with all applicable California environmental emission regulations; and free from defects in materials and workmanship that cause the failure of a warranted part to be identical in all material respects to that part as described in CLUB CAR's application for certification with CARB. The

warranty period begins on the date the engine or equipment is delivered to an ultimate purchaser or first placed into service. The warranty period is two years from the date of purchase.

2. COVERAGE:

Subject to certain conditions and exclusions as stated below, the warranty on emission-related parts is as follows:

- (1) Any warranted part that is not scheduled for replacement as required maintenance in the written instructions supplied, is warranted for the warranty period stated above. If the part fails during the period of warranty coverage, the part will be repaired or replaced by CLUB CAR according to subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the original warranty period.
- (2) Any warranted part that is scheduled only for regular inspection in the written instructions supplied is warranted for the warranty period stated above. Any such part repaired or replaced under warranty will be warranted for the remaining original warranty period.
- (3) Any warranted part that is scheduled for replacement as required maintenance in the written instructions supplied is warranted for the period of time before the first scheduled replacement date for that part. If the part fails before the first scheduled replacement, the part will be repaired or replaced by CLUB CAR according to subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the period prior to the first scheduled replacement point for the part.
- (4) Repair or replacement of any warranted part under the warranty provisions herein must be performed at a warranty station* at no charge to the owner.
- (5) Notwithstanding the provisions herein, warranty services or repairs will be provided at all of our distribution centers that are franchised to service the subject engines or equipment.
- (6) The engine or equipment owner will not be charged for diagnostic labor that is directly associated with diagnosis of a defective, emission-related warranted part, provided that such diagnostic work is performed at a warranty station*.
- (7) CLUB CAR is liable for damages to other engine or equipment components proximately caused by a covered failure under warranty of any warranted part.
- (8) Throughout the engine or equipment warranty period stated above, CLUB CAR will maintain a supply of warranted parts sufficient to meet the expected demand for such parts.
- (9) Any replacement part may be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use will not reduce the warranty obligations of CLUB CAR.
- (10) Add-on or modified parts that are not exempted by the Air Resources Board may not be used. The use of any non-exempted add-on or modified parts by the ultimate purchaser will be grounds for disallowing a warranty claims. CLUB CAR will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

*CLUB CAR, its authorized dealers, or a service agency approved by CLUB CAR.

ITEMS COVERED BY THIS WARRANTY:

The repair or replacement of any warranted part otherwise eligible for warranty coverage may be excluded from such warranty coverage if CLUB CAR demonstrates that the engine or equipment has been abused, neglected, or improperly maintained, and that such abuse, neglect, or improper maintenance was the direct cause of the need for repair or replacement of the part. That notwithstanding, any adjustment of a component that has a factory installed, and properly operating, adjustment limiting device is still eligible for warranty coverage. The following emission warranty parts list are covered:

SYSTEMS COVERED PARTS DESCRIPTION

Fuel Metering Carburetor assembly, fuel injection pump, fuel injection nozzle, fuel regulator Exhaust Catalytic Converter, Exhaust Manifold Air Induction Air filter housing, air filter*, crankcase breather tube Ignition Flywheel magneto, ignition pulse generator, ignition coil assembly, ignition control module, spark plug cap, spark plug* Positive Crankcase Ventilation (PCV) System PCV valve, oil filler cap Evaporative System Fuel Tank, Fuel Cap, Fuel Lines, Fuel Line Fittings, Clamps, Pressure Relief Valves, Purge Valves, Vapor Hoses, Carbon Canister, Canister Mounting Brackets, Carbon Canister Purge Port Connector Misc. Parts Belts, hosing, tubing, fittings, seals, gaskets, clamps, and switches associated with the above systems.

Emission-related parts will vary between vehicles; therefore, certain vehicles may not include all of the listed parts or may include equivalent parts.

3. VOIDING OF WARRANTY:

THIS AND ANY OTHER WARRANTY SHALL BE VOID IF THE VEHICLE IS ABUSED OR USED IN AN UNINTENDED MANNER OR SHOWS INDICATIONS THAT IT HAS BEEN ALTERED IN ANY WAY, INCLUDING, BUT NOT LIMITED

TO, MODIFICATION OF THE SPEED GOVERNOR, BRAKING SYSTEM, STEERING, TRANSAXLE, OR OTHER OPERATING SYSTEMS OF THE VEHICLE TO CAUSE IT TO PERFORM OUTSIDE CLUB CAR SPECIFICATIONS.

4. HOW TO MAKE A WARRANTY CLAIM:

To make a warranty claim under this limited warranty, you must present the vehicle or defective component to an authorized CLUB CAR dealer or send the defective component, freight prepaid, to WARRANTY SERVICES, CLUB CAR, LLC, 4125 Washington Road, Evans, Georgia 30809, U.S.A., 706-863-3000.



Boone County Purchasing
613 E. Ash Street, Room 109
Columbia, MO 65201

Request for Bid (RFB)

Amy Robbins, Senior Buyer
(573) 886-4391 – Fax: (573) 886-4390
Email: arobbins@boonecountymo.org

Bid Data

Bid Number: **44-01NOV13**

Commodity Title: **Golf Carts**

DIRECT BID FORMAT OR SUBMISSION QUESTIONS TO THE PURCHASING DEPARTMENT

Bid Submission Address and Deadline

Day / Date: **Friday, November 1, 2013**
Time: **10:30 A.M. (Bids received after this time will be returned unopened)**
Location / Mail Address: **Boone County Purchasing Department
Boone County Annex
613 E. Ash, Room 109
Columbia, MO 65201**
Directions: The Purchasing office is located on the Northwest corner of 7th Street and Ash Street. Enter the building from the South side. Wheel chair accessible entrance is available.

Bid Opening

Day / Date: **Friday, November 1, 2013**
Time: **10:30 A.M. Central Time**
Location / Address: **Boone County Annex / Purchasing Department
613 E. Ash Street, Room 109
Columbia, MO 65201**

Bid Contents

- 1.0: **Introduction and General Conditions of Bidding**
- 2.0: **Primary Specifications**
- 3.0: **Response Presentation and Review**
- 4.0: **Response Form
Debarment Form
Standard Terms and Conditions
Attachment 1: 3-in1 Carrier Pictures (for Reference Only)
"No Bid" Response Form**

1. Introduction and General Conditions of Bidding

- 1.1. **INVITATION** - The County of Boone, through its Purchasing Department, invites responses, which offer to provide the goods and/or services identified on the title page, and described in greater detail in Section 2.
- 1.2. **DEFINITIONS**
- 1.2.1. **County** - This term refers to the County of Boone, a duly organized public entity. It may also be used as a pronoun for various subsets of the County organization, including, as the context will indicate:
Purchasing - The Purchasing Department, including its Purchasing Director and staff.
Department/s or Office/s - The County Department/s or Office/s for which this Bid is prepared, and which will be the end user/s of the goods and/or services sought.
Designee - The County employee/s assigned as your primary contact/s for interaction regarding Contract performance.
- 1.2.2. **Bidder / Contractor / Supplier** - These terms refer generally to businesses having some sort of relationship to or with us. The term may apply differently to different classes of entities, as the context will indicate.
Bidder - Any business entity submitting a response to this Bid. Suppliers, which may be invited to respond, or which express interest in this bid, but which do not submit a response, have no obligations with respect to the bid requirements.
Contractor - The Bidder whose response to this bid is found by Purchasing to meet the best interests of the County. The Contractor will be selected for award, and will enter into a Contract for provision of the goods and/or services described in the Bid.
Supplier - All business/s entities which may provide the subject goods and/or services.
- 1.2.3. **Bid** - This entire document, including attachments. A Bid may be used to solicit various kinds of information. The kind of information this Bid seeks is indicated by the title appearing at the top of the first page. An "Invitation For Bid" is used when the need is well defined. An "Invitation For Proposal" is used when the County will consider solutions, which may vary significantly from each other or from the County's initial expectations.
- 1.2.4. **Response** - The written, sealed document submitted according to the Bid instructions.
- 1.3. **BID CLARIFICATION** - Questions regarding this Bid should be directed in writing to the Purchasing Department. Answers, citing the question asked but not identifying the questioner, will be distributed simultaneously to all known prospective Bidders. Note: written requirements in the Bid or its Amendments are binding, but any oral communications between County and Bidder are not.
- 1.3.1. **Bidder Responsibility** - The Bidder is expected to be thoroughly familiar with all specifications and requirements of this Bid. Bidder's failure or omission to examine any relevant form, article, site or document will not relieve them from any obligation regarding this Bid. By submitting a Response, Bidder is presumed to concur with all terms, conditions and specifications of this Bid.
- 1.3.2. **Bid Amendment** - If it becomes evident that this Bid must be amended, the Purchasing Department will issue a formal written Amendment to all known prospective Bidders. If necessary, a new due date will be established.
- 1.4. **AWARD** - Award will be made to the Bidder/s whose offer/s provide the greatest value to the County from the standpoint of suitability to purpose, quality, service, previous experience, price, lifecycle cost, ability to deliver, or for any other reason deemed by Purchasing to be in the best interest of the County. Thus, the result will not be determined by price alone. The County will be seeking the least costly outcome that meets the County needs as interpreted by the County.
- 1.5. **CONTRACT EXECUTION** - This Bid and the Contractor's Response will be made part of any resultant Contract and will be incorporated in the Contract as set forth, verbatim.
- 1.5.1. **Precedence** - In the event of contradictions or conflicts between the provisions of the documents comprising this Contract, they will be resolved by giving precedence in the following order:
 1) the provisions of the Contract (as it may be amended);
 2) the provisions of the Bid;

- 3) the provisions of the Bidder's Response.
- 1.6. **COMPLIANCE WITH STANDARD TERMS AND CONDITIONS** - Bidder agrees to be bound by the County's standard "boilerplate" terms and conditions for Contracts, a sample of which is attached to this Bid.

2. Primary Specifications

- 2.1. **ITEMS TO BE PROVIDED** - Two (2) New 2013 or 2014 Club Car Carryall 242 Model (or equivalent) Gas-Powered Golf Carts.
- 2.2. **MINIMUM TECHNICAL SPECIFICATIONS**
- 2.2.1. The body design shall be capable of carrying two (2) people in the front with a 3-in-1 type carrier installed on the back to accommodate an additional two (2) people and/or cargo.
- 2.2.2. Body material to be of sufficient strength, whether steel, fiberglass, or composite material, to provide structural integrity. Contractor should describe the body material of proposed cart.
- 2.2.3. Chassis design to be standard four (4) wheel style.
- 2.2.4. **Load Capacity** to be capable of carrying up to 800 pounds.
- 2.2.5. **Engine Type:** 4 stroke, OHV twin or single cylinder with a minimum of 9 horse power or comparable.
- 2.2.6. **Battery:** 12 volt, minimum 350 cold cranking amp, 5 year rated.
- 2.2.7. **Color:** Carts to be black with UV protection or comparable.
- 2.2.8. **Warranty:** The vehicle must have warranty coverage for all components of the cart. Contractor should provide details of warranty coverage for cart offered.
- 2.2.9. **Drive System:** Automatic variable speed for hilly terrain and rough use or comparable.
- 2.2.10. **Brakes:** Carts to come with self-adjusting disc brakes or comparable.
- 2.2.11. **Park Brakes:** Carts to come with foot operated multi-lock brakes or comparable.
- 2.2.12. **Steering:** Carts to come with self-adjusting rack and pinion steering or comparable.
- 2.2.13. **Tires:** Shall be standard size all terrain tires with 4-ply rating.
- 2.2.14. **Wheels:** Wheels shall be chrome.
- 2.2.15. **Hinged Windshield:** Carts to come with hinged windshields installed.
- 2.2.16. **Sun Canopy:** Carts to come with overhead sun canopy with water drain system and inboard grab handles installed.
- 2.2.17. **3 in 1 Carrier:** Carts to come installed with a rear seat flip kit that when in the “up” position allows for 2 passenger seating with foot support and grab handle and when in the “down” position converts to a flat bed cargo area with optional use tailgate to convert cargo area into a box. The minimum material specifications should be: 1” x 1” aluminum tubing and .100 aluminum, (chrome) diamond plating with the following inside dimensions: 38” front to back, 45” side to side and 6 1/2” side panels. Refer to *Attachment 1* for pictures depicting the 3 different carrier position options (pictures are for reference only.)
- 2.2.18. **Basics:** Carts to come installed with a fuel gauge, hour meter, headlights, horn and rear view mirror.
- 2.2.19. **Cupholders:** Carts to come equipped with at least 2 cup holders.
- 2.3. **Designee** – Boone County Sheriff Department
- 2.4. **Contact** – Amy Robbins, Boone County Purchasing Department, 613 E. Ash, Room 109, Columbia, MO 65201. Telephone: 573-886-4392 Facsimile: 573-886-4390
Email: arobbins@boonecountymmo.org.
- 2.5. **Delivery:** Units shall be delivered with Bill of Sale and Manufacturer’s Statement of Origin.
- 2.5.1. **Delivery Terms:** FOB- Destination. Boone County Sheriff Department, 2121 County Drive, Columbia, MO 65202.

3. Response Presentation and Review

- 3.1. **RESPONSE CONTENT** - In order to enable direct comparison of competing Responses, Bidder must submit Response in strict conformity to the requirements stated herein. Failure to adhere to all requirements may result in Bidder's Response being disqualified as non-responsive. All Responses must be submitted using the provided Response Sheet. Every question must be answered and if not applicable, the section must contain "N/A." Manufacturer's published specifications for the items requested shall be included with the response.
- 3.2. **SUBMITTAL OF RESPONSES** - Responses MUST be received by the date and time noted on the title page under "Bid Submission Information and Deadline". NO EXCEPTIONS. The County is not responsible for late or incorrect deliveries from the US Postal Service or any other mail carrier.
 - 3.2.1. **Advice of Award** - Bid results may be viewed on our web page www.showmeboone.com.
- 3.3. **BID OPENING** - On the date and time and at the location specified on the title page, all Responses will be opened in public. Brief summary information from each will be read aloud, and any person present will be allowed, under supervision, to scan any Response.
 - 3.3.1. **Removal from Vendor Database** - If any prospective Bidder currently in our Vendor Database to whom the Bid was sent elects not to submit a Response and fails to reply in writing stating reasons for not bidding, that Bidder's name may be removed from our database. Other reasons for removal include unwillingness or inability to show financial responsibility, reported poor performance, unsatisfactory service, or repeated inability to meet delivery requirements.
- 3.4. **RESPONSE CLARIFICATION** – The County reserves the right to request additional written or oral information from Bidders in order to obtain clarification of their Responses.
 - 3.4.1. **Rejection or Correction of Responses** – The County reserves the right to reject any or all Responses. Minor irregularities or informalities in any Response which are immaterial or inconsequential in nature, and are neither affected by law nor at substantial variance with Bid conditions, may be waived at our discretion whenever it is determined to be in the County's best interest.
- 3.5. **EVALUATION PROCESS** – The County's sole purpose in the evaluation process is to determine from among the Responses received which one is best suited to meet the County's needs at the lowest possible cost. Any final analysis or weighted point score does not imply that one Bidder is superior to another, but simply that in our judgment the Contractor selected appears to offer the best overall solution for our current and anticipated needs at the lowest possible cost.
 - 3.5.1. **Method of Evaluation** – The County will evaluate submitted Responses in relation to all aspects of this Bid.
 - 3.5.2. **Acceptability** – The County reserves the sole right to determine whether goods and/or services offered are acceptable for County use.
 - 3.5.3. **Endurance of Pricing** – Bidder's pricing must be held until contract execution or 60 days, whichever comes first.

SAM Search Results
List of records matching your search for :

Search Term : ""M&M Golf Cars LLC*
Record Status: Active

No Search Results



Please return all documentation to Auditor's Office.

PURCHASE REQUISITION BOONE COUNTY, MISSOURI

11/5/13

REQUEST
DATE

VENDOR NO. **M&M Golf Cars, LLC**
VENDOR NAME
19873 Hwy. 22 West
ADDRESS

Mexico
CITY

573-581-7267
PHONE #
MO 65265
STATE ZIP

BID DOCUMENTATION

This field **MUST** be completed to demonstrate compliance with statutory bidding requirements.
Refer to RSMo 50.660, 50.753-50.790, and the Purchasing Manual—Section 3

- Bid /RFP (enter # below)
- Sole Source (enter # below)
- Emergency Procurement (enter # below)
- Written Quotes (3) Attached (>\$2500 to \$4,499)
- Purchase is ≤\$2500 and is NOT covered by an existing bid or sole source

Not Subject To Bidding (select appropriate response below):

- Utility
- Employee Travel/Meal Reimb
- Training (registration/conf fees)
- Dues
- Pub/Subscription/Transcript Copies
- Refund of Fees Previously Paid to County
- Professional Services (see Purchasing Policy Section 3-103); enter RFP if applicable
- Intergovernmental Agreement
- Not Susceptible to Bidding for Other Reasons (Explain):
- Mandatory Payment to Other Govt
- Court Case Travel/Meal Reimb
- Tool and Uniform Reimb
- Inmate Housing
- Remit Payroll Withheld
- Agency Fund Dist (dept #s TXXX)

#44-01NOV13

(Enter Applicable Bid / Sole Source / Emergency Number)

Ship to: Boone County Sheriff Department

Bill to Department # 2045 Sheriff Civil Charges

Department	Account	Item Description	Qty	Unit Price	Amount
2 5 4 0	9 2 3 0 0	2013/14 Club Car Carryall 242 Gas-Powered <ul style="list-style-type: none"> Black with Sun Canopy Cragar SS Style Chrome Wheel Covers 4-ply All-Trail II 20x1000-8 tires Installed 3-in-1 Carrier Manufacturer's 2 year/2000 hour Warranty on engine assembly, transaxle assembly, starter/generator, motor, frame, bed, cab, doors and enclosure Manufacturer's 1 year/1000 hour Warranty on solenoid, MCOR, limit switches, voltage regulators, F&R switches, brakes, wiring harness, electrical switches, canopy systems, seats, pedal assembly, and all original equipment options and accessories and all remaining components of the vehicle not specified otherwise Manufacturer's 4 year/16,000 hour Warranty on onboard computer Manufacturer's 4 year/16,000 hour Warranty on controller Manufacturer's 4 year Warranty on battery charger 	2	\$6848.50	\$13697.00

I certify that the goods, services or charges specified above are necessary for the use of this department, are solely for the benefit of the county, and have been procured in accordance with statutory bidding requirements.

Amy Robbins

Prepared By

Requesting Official

Auditor Approval

CERTIFIED COPY OF ORDER

STATE OF MISSOURI }
County of Boone } ea.

November Session of the October Adjourned

Term. 20 13

In the County Commission of said county, on the 26th day of November 20 13

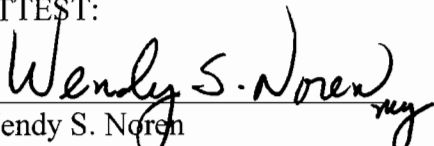
the following, among other proceedings, were had, viz:

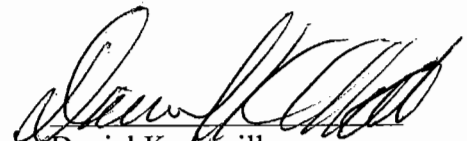
Now on this day the County Commission of the County of Boone does hereby approve the utilization of the Missouri Department of Transportation's Cooperative Contract 3-120320RJ to purchase one (1) John Deere 544K High Lift Wheel Loader from Tri-State Construction Equipment Company of Ashland, MO and trade in one (1) 2007 Case 521D Rubber Tire Loader to the same vendor.

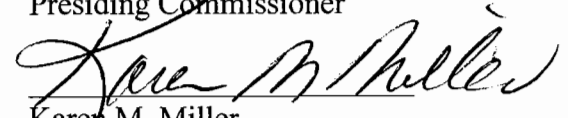
The terms of this Cooperative Contract are stipulated in the attached Purchase Agreement. It is further ordered the Presiding Commissioner is hereby authorized to sign said Purchase Agreement and Request for Disposal Form.

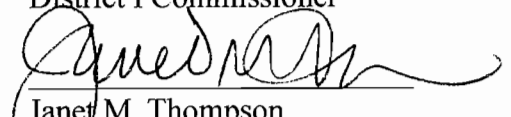
Done this 26th day of November, 2013.

ATTEST:


Wendy S. Noren
Clerk of the County Commission


Daniel K. Atwill
Presiding Commissioner


Karen M. Miller
District I Commissioner


Janet M. Thompson
District II Commissioner

STATE OF MISSOURI

County of Boone



ss.

I,Clerk

of the County Commission, in and said County, hereby certify the above and foregoing to be a true copy of the proceedings of our said County Commission, on the day and year above written, as the same appears of record in my office.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said Commission, at office in

Columbia, Missouri, this the day of

20.....

Clerk County Commission

By D.C.

No.

Certified Copy of Order

of
BOONE COUNTY COMMISSION,
Made at

Term, 20

In the Matter of

**PURCHASE AGREEMENT
FOR
WHEEL LOADER**

THIS AGREEMENT dated the 26th day of November 2013 is made between Boone County, Missouri, a political subdivision of the State of Missouri through the Boone County Commission, herein "County" and **Tri-State Construction Equipment Co.**, herein "Vendor."

IN CONSIDERATION of the parties performance of the respective obligations contained herein, the parties agree as follows:

1. **Contract Documents** - This agreement shall consist of this Purchase Agreement for one (1) **John Deere 544K High Lift Wheel Loader**, Tri-State Construction Equipment Co. quotation number 5002912, the Missouri Department of Transportation Contract **3-120320RJ** with any addendums and Boone County Standard Terms and Conditions. All such documents shall constitute the contract documents which are incorporated herein by reference. Service or product data, specification and literature submitted with bid response may be permanently maintained in the County Purchasing Office bid file for this bid if not attached. In the event of conflict between any of the foregoing documents, this Purchase Agreement, the Missouri Department of Transportation Contract 3-110721RJ and Boone County Standard Terms and Conditions shall prevail and control over the vendor's bid response.

2. **Purchase** - The County agrees to purchase from the Vendor and the Vendor agrees to supply the County with one (1) John Deere 544K High Lift Wheel Loader as follows:

	<u>Unit Price</u>
John Deere 544 K Loader	\$129,000.00
<ul style="list-style-type: none"> • Air Intake System with Centrifugal Precleaner Engine • Engine Exhaust With Chrome Curved Stack • 100 Amp Alternator • 544K Standard Gathering Group • Z-BAR with Standard Greased Pin Joints • Greased Steering Cylinder Joints • 3 Function – Joystick with FNR & 3rd Function Auxiliary Control Lever • ROPS Quiet Cab with AC • 4-Speed Transmission • Front Hydraulically Locking Differential & Rear Conventional Differential Axles • Manual Axle Differential Lock • 20.5R25 L2 Single Star VUT Bridgestone Radial Tires w/3 pc. Rims • Full Front & Rear Fenders • Hologen Work & Drive Lights • Z-BAR Hydraulic Attachment Coupler • Engine Block Heater • 24 Volt to 12 Volt – 8 Amp Converter 	
General Purpose Bucket (3 Cu. Yd.) in lieu of 2.5 yd bucket	\$ 1,080.00
60"x60" quick coupler pallet forks	\$ 95.00
3YR/1500 HR Full Warranty	\$ 4,875.00
MartinMax Maintenance Agreement – 3 year/1500 hours	\$ 7,950.00
Total	\$143,000.00
 Less Trade-In: 2007 Case 521D (JEE0200050) Asset Tag # 15851 -	 \$ 28,500.00
Total Including Trade	\$114,500.00

This agreement also includes a 3YR/1500HR Guaranteed Buyback of \$102,000.00. Machine has to be free of all damage, including tires, lights, sheet metal, glass, cutting edges and needs to be in operating condition.

3. **Delivery** - Vendor agrees to deliver equipment as set forth in the bid documents and within 60 - 90 days after receipt of order. Delivery shall be to Boone County Public Works, Attn: Greg Edington, 5551 Tom Bass Rd., Columbia, MO 65201.

4. **Billing and Payment** - All billing shall be invoiced to the Boone County Public Works Department and billings may only include the prices listed in the vendor's bid response. No additional fees for paper work processing, labor, or taxes shall be included as additional charges in excess of the charges in the Vendor's bid response to the specifications. The County agrees to pay all invoices within thirty days of receipt of an accurate statement. In the event of a billing dispute, the County reserves the right to withhold payment on the disputed amount; in the event the billing dispute is resolved in favor of the Vendor, the County agrees to pay interest at a rate of 9% per annum on disputed amounts withheld commencing from the last date that payment was due.

5. **Binding Effect** - This agreement shall be binding upon the parties hereto and their successors and assigns for so long as this agreement remains in full force and effect.

6. **Termination** - This agreement may be terminated by the County upon thirty days advance written notice for any of the following reasons or under any of the following circumstances:

- a. County may terminate this agreement due to material breach of any term or condition of this agreement, or
- b. County may terminate this agreement if in the opinion of the Boone County Commission if delivery of products are delayed or products delivered are not in conformity with bidding specifications or variances authorized by County, or
- c. If appropriations are not made available and budgeted for any calendar year.

IN WITNESS WHEREOF the parties through their duly authorized representatives have executed this agreement on the day and year first above written.

**TRI-STATE CONSTRUCTION
EQUIPMENT CO.**

by Brian Rove
title Store Manager

BOONE COUNTY, MISSOURI

by: Boone County Commission
Daniel K. Atwill
Daniel K. Atwill, Presiding Commissioner

APPROVED AS TO FORM:

[Signature]
County Counselor

ATTEST:

Wendy S. Noren
Wendy S. Noren, County Clerk

In accordance with RSMo 50.660, I hereby certify that a sufficient unencumbered appropriation balance exists and is available to satisfy the obligation(s) arising from this contract. (Note: Certification of this contract is not required if the terms of this contract do not create a measurable county obligation at this time.)

James E. Pitchford
Signature

11/26/13
Date

2040-92300 - \$114,500.00
Appropriation Account

STANDARD TERMS AND CONDITIONS - BOONE COUNTY, MISSOURI

1. Responses shall include all charges for packing, delivery, installation, etc., (unless otherwise specified) to the Boone County Department identified in the Request for Bid and/or Proposal.
2. The Boone County Commission has the right to accept or reject any part or parts of all bids, to waive technicalities, and to accept the offer the County Commission considers the most advantageous to the County. Boone County reserves the right to award this bid on an item-by-item basis, or an "all or none" basis, whichever is in the best interest of the County.
3. Bidders must use the bid forms provided for the purpose of submitting bids, must return the bid and bid sheets comprised in this bid, give the unit price, extended totals, and sign the bid.
4. When products or materials of any particular producer or manufacturer are mentioned in our specifications, such products or materials are intended to be descriptive of type or quality and not restricted to those mentioned.
5. Do not include Federal Excise Tax or Sales and Use Taxes in bid process, as law exempts the County from them.
6. The delivery date shall be stated in definite terms, as it will be taken into consideration in awarding the bid.
7. The County Commission reserves the right to cancel all or any part of orders if delivery is not made or work is not started as guaranteed. In case of delay, the Contractor must notify the Purchasing Department.
8. In case of default by the Contractor, the County of Boone will procure the articles or services from other sources and hold the Bidder responsible for any excess cost occasioned thereby.
9. Failure to deliver as guaranteed may disqualify Bidder from future bidding.
10. Prices must be as stated in units of quantity specified, and must be firm. Bids qualified by escalator clauses may not be considered unless specified in the bid specifications.
11. No bid transmitted by fax machine or **e-mail** will be accepted. **U.S. mail only.**
12. The County of Boone, Missouri expressly denies responsibility for, or ownership of any item purchased until same is delivered to the County and is accepted by the County.
13. The County reserves the right to award to one or multiple respondents. The County also reserves the right to not award any item or group of items if the services can be obtained from a state or other governmental entities contract under more favorable terms.
14. The County, from time to time, uses federal grant funds for the procurement of goods and services. Accordingly, the provider of goods and/or services shall comply with federal laws, rules and regulations applicable to the funds used by the County for said procurement, and contract clauses required by the federal government in such circumstances are incorporated herein by reference. These clauses can generally be found in the Federal Transit Administration's Best Practices Procurement Manual – Appendix A. Any questions regarding the applicability of federal clauses to a particular bid should be directed to the Purchasing Department prior to bid opening.
15. In the event of a discrepancy between a unit price and an extended line item price, the unit price

shall govern.

16. Should an audit of Contractor's invoices during the term of the Agreement, and any renewals thereof, indicate that the County has remitted payment on invoices that constitute an over-charging to the County above the pricing terms agreed to herein, the Contractor shall issue a refund check to the County for any over-charges within 30-days of being notified of the same.

(Please complete and return with Bid)

Certification Regarding
Debarment, Suspension, Ineligibility and Voluntary Exclusion
Lower Tier Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 29 CFR Part 98 Section 98.510, Participants' responsibilities. The regulations were published as Part VII of the May 26, 1988, Federal Register (pages 19160-19211).

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS FOR
CERTIFICATION)

- (1) The prospective recipient of Federal assistance funds certifies, by submission of this proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective recipient of Federal assistance funds is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Brian Rowe Store Manager

Name and Title of Authorized Representative

B Rowe

Signature

11/19/13

Date



P.O. BOX 225
106 INDUSTRIAL DRIVE
ASHLAND, MO 65010
PHONE: 573-657-2154
FAX: 573-657-1012

10/31/2013
BOONE COUNTY PUBLIC WORKS
544K High Lift Wheel Loader
MODOT BID #3-12030RJ

Base	\$129,000.00
GP Bucket	\$1,080.00
Forks	\$95.00
3 YR/1500 HR Full Warranty	\$4,875.00
Martin Max Coverage	\$7,950.00
Total	\$143,000.00

2007 Case 521D Trade In	\$28,500.00
JEE0200050	
Total Including Trade	\$114,500.00

* Machine specs are from Martin Quote #5002912

Martin Equipment will offer a 3YR/1500HR Guarantee Buyback of \$102,000.00

* Machine has to be free of all damage, including tires, lights, sheet metal, glass, cutting edges, needs to be in operating condition.

Brian Rowe
Store Manager
Tri State Construction Equipment
106 Industrial Dr.
Ashland, Mo. 65010
573-657-2154 Office
5732-819-2219 Mobile





Martin Equipment
 106 Industrial Dr.
 Ashland, MO 65010
 (573) 657-2154

Quote Issued To : BOONE COUNTY HIGHWAY DEPT DEBBIE IN ACCTS PAY. COLUMBJA , MO , 65201 573-449-8515	QUOTATION Quote # : 5002912 Issue Date : 10/23/2013 Expire Date : 9/27/2013 Est Delivery : 11/26/2013 FOB :
Quote Issued By : Rowe, Brian	

ITEMS LISTED FOR SALE

Item #	Year	Make	Model	Serial #	Hours	Sale Price
	2013	JD	544KXDW	(TBD)	0	143,000.00
544K LOADER JDLink Ultimate Cellular for the Americas, excluding Costa Rica John Deere PowerTech PVX 6.8L meets EPA IT4 and EU Stage IIIB Emissions (163 Net Peak hp) Reversing Fan Drive Air Intake System with Centrifugal Precleaner Engine Engine Exhaust with Chrome Curved Stack 100 amp Alternator 544K Standard Gathering Group 544K Loader Z-BAR with Standard Greased Pin Joints Greased Steering Cylinder Joints 3 Function -- Joystick with FNR and 3rd Function Auxiliary Control Lever Steering Wheel Only ROPS Quiet Cab with Air Conditioning Cab with Air A/C Charge Standard Fabric, Back Rest Extension, Air Suspension Seat Ride Control Standard Fuel Filter & Water Separator 4-Speed Transmission Front Hydraulically Locking Differential and Rear Conventional Differential Axles Manual Axle Differential Lock 20.5R25 L2 Single Star VUT Bridgestone Radial Tires w/ 3 pc. Rims Full Front and Rear Fenders For Muddy Applications Halogen Work and Drive Lights Standard Outside Mirrors Rear Cast Bumper/Counterweight with Rear Hitch and Locking Pin English Labels and Decals Z-BAR Hydraulic Attachment Coupler 60 in.(1524mm) Coupler Fork Frame Carriage w/60 in.(1524mm) Tines 3.0 Cu. Yd. (2.3 Cu. M.) 106 in. Wide Coupler Bucket with Bolt-on Cutting Edge Engine Block Heater Environmental Drains and Sampling Ports 24 Volt to 12 Volt - 8 Amp Converter AM/FM/WB Radio						

Single Beacon Bracket
5.0 lbs. multi purpose (ABC) Dry Chemical Fire Extinguisher

Total: 143,000.00

Notes

PRICE INCLUDES A 3 YEAR/1500 MARTIN MAX CONTRACT, ALL MAINTENANCE IS INCLUDES, EXCLUDES WEAR
IEMS, DAMAGE FROM CUSTOMER.
3YR/1500 HR GUARANTEE BUYBACK OF \$102,000.00

QUOTE SUMMARY

Total Sale Price :	143,000.00
Less Trade Allowance :	0.00
Additional Taxable Items :	0.00
Subtotal:	143,000.00
Sales Tax :	0.00
Additional Nontaxable Items :	0.00
Total :	143,000.00

Acceptance Signature: _____ **Date:** _____

All quotations contingent upon strikes, delays, and conditions beyond our control. Prices subject to change with or without notice.
All prices are subject to expiration of any current sales programs and incentives.



Missouri Department of Transportation
 Bid Tabulation of Request 3-120320RJ Backhoes and Loaders
 Multiple Award

Item 11 - Backhoe

Vendor	Make/Model	Base Price	HP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	ARO	MSRP%	Districts
Eric Equipment Company**	John Deere 410K	\$86,300.00	108	-\$1,450.00	-\$480.00	\$3,310.00	\$810.00	\$625.00	\$1,075.00	\$1,440.00	\$1,685.00	Included	\$3,265.00	\$1,800.00	\$1,665.00	\$8,620.00	STD	\$1,550.00	NA	\$1,985.00	\$7,700.00	\$2,775.00	50 days	0.00%	SL, SE
Luliy Equipment Services**	Case 580 SN	\$79,000.00	95	-\$1,300.00	-\$190.00	\$3,300.00	\$960.00	\$1,010.00	\$1,150.00	\$1,500.00	\$1,650.00	STD	\$2,000.00	\$1,200.00	\$3,700.00	\$8,550.00	STD	\$1,180.00	\$400.00	\$2,350.00	\$4,800.00	\$2,750.00	30-90 days	44.00%	NE, SL, SE
	Case 580 SN WT	\$79,000.00	95	-\$1,300.00	-\$190.00	\$3,300.00	\$960.00	\$1,010.00	\$1,150.00	\$1,500.00	\$1,650.00	STD	\$2,000.00	\$1,200.00	\$3,700.00	\$8,550.00	STD	\$1,180.00	\$400.00	\$2,350.00	\$4,800.00	\$2,750.00	30-90 days	44.00%	NE, SL, SE
	Case 580 Super N	\$86,050.00	108	-\$1,350.00	-\$190.00	\$3,300.00	\$950.00	\$1,010.00	\$1,150.00	\$1,500.00	\$1,650.00	STD	\$2,050.00	\$1,200.00	\$3,700.00	\$8,550.00	STD	\$1,180.00	\$400.00	\$2,350.00	\$4,800.00	\$2,750.00	30-90 days	44.00%	NE, SL, SE
Crown Power & Equipment	Case 580 SN	\$87,200.00	108	-\$1,778.00	-\$170.00	\$3,300.00	\$728.00	\$793.00	\$948.00	\$1,388.00	\$1,595.00	\$1,970.00	\$4,140.00	\$1,320.00	\$3,238.00	NA	\$522.00	\$1,390.00	\$385.00	\$1,740.00	\$5,450.00	\$2,598.00	120 days	0.00%	NW, NE, CD
Fadick Car	Car 420P ST	\$88,125.00	108	NA	-\$345.00	\$5,050.00	\$1,085.00	\$1,260.00	\$1,550.00	NA	\$2,005.00	\$2,885.00	\$5,280.00	\$3,510.00	\$2,795.00	NA	\$230.00	\$2,000.00	\$410.00	\$2,375.00	\$6,810.00	\$3,220.00	120-180 days	27.00%	NE, CD, SL, SW, SE
Peter Equipment Co.	Case 580 Super N T 4	\$85,100.00	108	-\$1,304.00	-\$171.00	\$3,890.00	\$860.00	\$800.00	\$1,075.00	\$1,635.00	\$1,688.00	Included	\$4,371.00	\$940.00	\$2,875.00	\$8,880.00	\$580.00	\$1,015.00	\$355.00	\$1,940.00	\$5,720.00	\$2,652.00	90 days	0.00%	SW, SE
	Case 580 Super N T 4 - Wide Track	\$78,850.00	95	-\$1,304.00	-\$171.00	\$3,860.00	\$860.00	\$800.00	\$1,075.00	\$1,635.00	\$1,688.00	Included	\$3,880.00	\$940.00	\$2,875.00	\$8,880.00	\$590.00	\$870.00	NA	\$1,980.00	\$5,670.00	\$2,507.00	90 days	0.00%	SW, SE
Murphy Tractor & Equipment Co.	John Deere 410K	\$86,000.00	107	-\$1,280.00	STD	\$1,715.00	\$630.00	\$845.00	\$1,145.00	\$1,325.00	\$1,500.00	\$1,770.00	\$2,610.00	\$1,405.00	\$1,700.00	\$5,980.00	STD	\$1,500.00	\$1,230.00	\$2,155.00	\$6,620.00	\$2,500.00	60-90 days	As Requested	NW, KC, SW
Pat Kelly Equipment Co.	New Holland B95C	\$82,051.00	95	-\$1,710.00	-\$850.00	\$4,029.00	\$644.00	\$861.00	\$1,160.00	\$1,124.00	\$1,375.00	STD	\$3,347.00	\$1,099.00	\$2,880.00	\$7,372.00	STD	\$2797.00	NA	\$1,090.00	\$6,397.00	\$1,584.00	30-240 days	0.00%	NE, CD, SL, SE
Tha Vicor L Phillips Company	Case 580 SN	\$79,130.00	95	-\$1,455.00	-\$140.00	\$3,236.00	\$793.00	\$801.00	\$1,087.00	\$1,238.00	\$1,476.00	Included	\$3,949.00	\$1,597.00	\$3,870.00	\$8,111.00	\$515.00	\$1,133.00	\$402.00	\$2,055.00	\$5,342.00	\$2,385.00	120 days	0.00%	NW, KC, SW
	Case 580 SN WT	\$80,975.00	95	-\$1,455.00	-\$140.00	\$3,236.00	\$793.00	\$801.00	\$1,087.00	\$1,238.00	\$1,476.00	Included	\$4,053.00	\$1,597.00	\$3,870.00	\$7,865.00	\$515.00	\$1,133.00	\$402.00	\$2,055.00	\$5,342.00	\$2,385.00	120 days	0.00%	NW, KC, SW
	Case 580 SN	\$86,990.00	108	-\$1,455.00	-\$140.00	\$3,236.00	\$793.00	\$801.00	\$1,087.00	\$1,238.00	\$1,476.00	Included	\$4,053.00	\$1,597.00	\$3,870.00	\$8,111.00	\$515.00	\$1,133.00	\$402.00	\$2,055.00	\$5,342.00	\$2,385.00	120 days	0.00%	NW, KC, SW
Tri-State Construction Equipment Co.	John Deere 410K	\$85,500.00	107	-\$1,281.00	STD	\$1,715.00	\$630.00	\$840.00	\$1,130.00	\$1,325.00	\$1,480.00	\$1,770.00	\$2,615.00	\$1,400.00	\$1,700.00	\$5,980.00	STD	\$765.00	\$1,230.00	\$2,155.00	\$6,420.00	\$2,500.00	60-90 days	As Requested	NE, CD
Atloric, Inc.	Caterpillar 430F ST	\$88,125.00	108	NA	-\$345.00	\$5,050.00	\$1,085.00	\$1,260.00	\$1,460.00	NA	\$2,005.00	\$2,885.00	\$5,280.00	\$3,510.00	\$2,795.00	NA	\$230.00	\$2,000.00	\$410.00	\$2,375.00	\$6,810.00	\$3,220.00	120-180 days	27.00%	NE
S&H Farm Supply, Inc.	New Holland B95C	\$83,750.00	95	-\$1,800.00	-\$100.00	\$4,500.00	\$950.00	\$1,075.00	\$1,325.00	\$1,375.00	\$1,675.00	\$3,200.00	\$5,000.00	\$1,700.00	\$3,900.00	\$8,800.00	\$895.00	\$1,200.00	NA	\$2,000.00	\$6,800.00	\$2,500.00	90-120 days	0.00%	SW
G.W. Van Keppel Co.	Volvo BL70B	\$75,840.00	101	-\$1,775.00	-\$440.00	\$3,371.00	\$817.00	\$803.00	\$1,087.00	\$1,180.00	\$1,483.00	\$2,316.00	\$2,835.00	\$1,654.00	\$3,119.00	\$3,004.00	\$520.00	\$1,272.00	\$852.00	\$1,882.00	\$6,527.00	\$2,494.00	90-170 days	12.00%	NW, KC, CD, SW

As Vendor Additional Options



Missouri Department of Transportation
Bid Tabulation of Request 3-120320RJ Backhoes and Loaders
Multiple Award

VENDOR INFORMATION AND ADDITIONAL OPTIONS

Name: Erb Equipment Company, Inc.
Contact name: Tim Smith
Address Line: 200 Erb Industrial Drive
Address Line: Fenton, MO 63026
Telephone #: 636-349-0200
E-mail: tmsmith@erbequipment.com
Cooperative: Yes
MSRP 0%

Name: Luby Equipment Services
Contact name: Jerry Jansen
Address Line: 2300 Cassens Drive
Address Line: Fenton, MO 63026
Telephone #: 217-222-5454
E-mail: jjansen@lubyequipment.com
Cooperative: Yes
MSRP 44%

Name: Crown Power & Equipment
Contact name: Harold Chapman
Address Line: 1881 Prathersville Rd.
Address Line: Columbia, MO 65202
Telephone #: 573-443-4541
E-mail: hchapman@crown-power.com
Cooperative: Yes
MSRP 0%

Name: Fabick Cat
Contact name: Chris Burns
Address Line: #1 Fabick Drive
Address Line: Fenton, MO 63026
Telephone #: 636-343-5900 Xt. 1309
E-mail: chris.burns@fabickcat.com
Cooperative: Yes
MSRP 27%



Missouri Department of Transportation
Bid Tabulation of Request 3-120320RJ Backhoes and Loaders
Multiple Award

VENDOR INFORMATION AND ADDITIONAL OPTIONS

Name: Potter Equipment Co. Inc.
Contact name: Roger Potter
Address Line: 1155 S. Kansas Expressway
Address Line: Springfield, MO 65807
Telephone #: 417-862-9275
E-mail: roger@potterequip.com
Cooperative: Yes
MSRP: 0%

Name: Murphy Tractor & Equipment Co.
Contact name: James Levy
Address Line: 8600 N.E. Parvin Rd.
Address Line: Kansas City, MO 64161
Telephone #: 816-483-5000
Email: jlevy@murphytractor.com
Cooperative: Yes
MSRP: As requested



Missouri Department of Transportation
Bid Tabulation of Request 3-120320RJ Backhoes and Loaders
Multiple Award

VENDOR INFORMATION AND ADDITIONAL OPTIONS

Name: Pat Kelly Equipment Co.
Contact name: Robert Harter
Address Line: 5920 N. Lindbergh Blvd.
Address Line: Hazelwood, MO 63042
Telephone #: 314-895-9500
Email: bob@patkelly.com
Cooperative: Yes
MSRP: 0%

Name: The Victor L. Phillips Company
Contact name: Dan Rude
Address Line: 4100 Gardner Avenue
Address Line: Kansas City, MO 64120
Telephone #: 816-241-9290
Email: drude@vlpco.com
Cooperative: Yes
MSRP: 0%

Name: Tri-State Construction Equipment Co.
Contact name: Kevin Smyser
Address Line: 6787 County Road 312
Address Line: Palmyra, MO 63461
Telephone #: (573) 769-2274
Email: kevinsmyser@meoi.com
Cooperative: Yes
MSRP: Available Upon Request

Name: Altorfer, Inc.
Contact name: Chris Akright
Address Line: 3520 Moberly
Address Line: Hannibal, MO 63401
Telephone #: 573-221-8600
Email: cakright@altorfer.com
Cooperative: Yes
MSRP Discount: 27%

Name: S&H Farm Supply, Inc.
Contact name: Chris LaGrange
Address Line: 6959 E. US Hwy 60
Address Line: Rogersville, MO 65742
Telephone #: 866-815-5252
Email: chris.lacrange@shfarmssupply.com
Cooperative: Yes
MSRP Discount: 0%

Name: G.W. Van Keppel Co.
Contact name: Steve Phillips
Address Line: 1801 N. 9th Street
Address Line: Kansas City, KS 66101
Telephone #: 913-281-4800
Email: sphillips@vankeppel.com
Cooperative: Yes
MSRP Discount: 12%



Missouri Department of Transportation
Bid Tabulation of Request 3-120320RJ Backhoes and Loaders
 Multiple Award

Item #2 - Wheel Loader, minimum 110 net HP

Vendor	HP	Make/Model	Base Price	OPTIONS										MSRP%	Districts
				1	2	3	4	5	6	7	8	9	ARO		
Erb Equipment Company**	128	John Deere 444K	\$114,400.00	-\$3,250.00	-\$300.00	\$615.00	\$10,700.00	\$255.00	In Base	\$1,835.00	\$2,170.00	\$2,420.00	75 days	0.00%	SL, SE
Luby Equipment Services	123	Case 521E replaced w/below Case 521F	\$111,775.00	-\$3,000.00	-\$425.00	\$2,550.00	\$11,750.00	\$400.00	STD	\$760.00	\$1,350.00	\$2,110.00	30-90 days	40.00%	NE, SL, SE
Crown Power & Equipment	131	Case 521E replaced w/below Case 521F	\$112,750.00	-\$3,000.00	-\$425.00	\$2,550.00	\$11,750.00	\$400.00	STD	\$550.00	\$1,350.00	\$2,110.00	30-90 days	40.00%	NE, SL, SE
Fabick Cat	141	Cat 924K	\$108,132.00	-\$3,294.00	-\$420.00	\$950.00	\$10,211.00	\$4,267.00	\$456.00	\$538.00	\$1,435.00	\$2,015.00	120 days	0.00%	NW, NE, CD
Potter Equipment Co.	118	Case 521E replaced w/below Case 521 F T4	\$111,800.00	-\$3,294.00	-\$420.00	\$950.00	\$10,211.00	\$4,267.00	\$456.00	\$538.00	\$1,435.00	\$2,015.00	120 days	0.00%	NW, NE, CD
Murphy Tractor & Equipment Co.	128	John Deere 444K	\$126,300.00	N/A	-\$345.00	STD	\$16,165.00	\$350.00	NA	\$1,460.00	\$4,320.00	\$3,756.00	120-180 days	27.00%	NE, CD, SL, SW, SE
Pat Kelly Equipment Co.	118	Case 521E replaced w/below Case 521 F T4	\$109,314.00	-\$2,780.00	-\$360.00	\$3,897.00	\$13,306.00	\$530.00	\$507.00	\$737.00	\$1,308.00	\$3,651.00	90 days	0.00%	SW, SE
The Victor L. Phillips Company	135	Case 521E replaced w/below Case 521F	\$109,550.00	-\$2,765.00	-\$360.00	\$480.00	\$11,950.00	\$350.00	\$630.00	\$740.00	\$1,440.00	\$2,213.00	90 days	0.00%	SW, SE
Tr-State Construction Equipment Co.*	128	John Deere 444K	\$114,600.00	-\$2,900.00	-\$218.00	\$690.00	\$9,500.00	\$115.00	N/A	\$1,840.00	\$2,175.00	\$2,180.00	60-90 days	As Requested	NW, KC, SW
Altorfer, Inc.	141	Caterpillar 924K	\$108,725.00	-\$3,220.00	-\$460.00	\$6,020.00	\$11,025.00	\$150.00	Included	\$725.00	\$1,270.00	\$2,215.00	90 days	0.00%	NW, KC, SW
Bobcat of St. Louis	143	Doosan DL200 Tier 3	\$109,775.00	-\$3,220.00	-\$460.00	\$6,201.00	\$11,356.00	\$155.00	Included	\$747.00	\$1,308.00	\$2,281.00	90 days	0.00%	NW, KC, SW
GW Van Keppel	161	Volvo L60G	\$113,000.00	-\$2,696.00	-\$219.00	\$690.00	\$9,510.00	\$115.00	N/A	\$1,840.00	\$2,175.00	\$2,180.00	60-90 days	As Requested	NE, CD
	141	Caterpillar 924K	\$126,300.00	NA	-\$345.00	STD	\$16,165.00	\$350.00	NA	\$1,460.00	\$4,320.00	\$3,756.00	120-180 days	27.00%	NE
	143	Doosan DL200 Tier 3	\$110,767.51	STD	STD	STD	\$16,895.55	\$563.51	\$1,107.66	\$2,243.71	\$5,395.53	\$4,658.21	90 - 120 days	0.00%	All
	143	Doosan DL200 Tier 4	\$117,837.78	STD	STD	STD	\$16,895.55	\$563.57	\$1,107.66	\$2,243.71	\$5,395.53	\$4,658.21	90 - 120 days	0.00%	All
	161	Volvo L60G	\$126,448.00	-\$3,262.00	-\$507.00	\$478.00	\$7,904.00	\$593.00	\$574.00	\$432.00	\$1,969.00	\$2,645.00	90-120 days	12.00%	NW, KC, CD, SW



Missouri Department of Transportation
Bid Tabulation of Request 3-120320RJ Backhoes and Loaders
 Multiple Award

Item #3 - Wheel Loader, minimum 135 net HP

Vendor	Make/Model	HP	Base Price	1	2	3	4	5	6	7	8	9	ARO	MSRP%	Districts
Erb Equipment Company**	John Deere 524K John Deere 544K	146 167	\$119,975.00 \$132,775.00	-\$3,080.00 -\$3,030.00	-\$310.00 -\$260.00	\$460.00 \$1,080.00	\$10,060.00 \$10,960.00	\$106.00 \$125.00	In Base In Base	In Base In Base	\$2,080.00 \$2,140.00	\$2,480.00 \$2,540.00	75 days 75 days	0.00%	SL, SE SL, SE
Luby Equipment Services	Case 621F	138	\$134,200.00	-\$2,650.00	-\$380.00	\$3,550.00	\$13,100.00	\$400.00	STD	\$675.00	\$4,000.00	\$2,750.00	30-90 days	40.00%	NE, SL, SE
Crown Power & Equipment	Case 621F	151	\$135,000.00	-\$3,294.00	-\$420.00	\$950.00	\$12,500.00	\$4,267.00	\$456.00	\$538.00	\$4,330.00	\$2,605.00	120 days	0.00%	NW, NE, CD
Fabick Cat	Cat 930K	154	\$149,330.00	N/A	-\$345.00	\$6,080.00	\$16,565.00	\$350.00	N/A	\$1,460.00	\$4,320.00	\$4,652.00	130 days	27.00%	NE, CD, SL, SW, SE
Potter Equipment Co.	Case 621F	151	\$129,330.00	-\$2,400.00	-\$320.00	\$4,400.00	\$13,890.00	\$350.00	\$447.00	\$649.00	\$3,935.00	\$2,863.00	90 days	0.00%	SW, SE
Murphy Tractor & Equipment Co.	John Deere 524K John Deere 544K	146 167	\$117,800.00 \$130,800.00	-\$2,750.00 -\$2,705.00	-\$218.00 -\$220.00	\$460.00 \$1,080.00	\$11,025.00 \$11,020.00	\$105.00 \$95.00	N/A N/A	\$1,750.00 \$1,720.00	\$2,085.00 \$2,075.00	\$2,250.00 \$2,290.00	60-90 days 60-90 days	As Requested	NW, KC, SW NW, KC, SW
Pat Kelly Equipment Co.	NO BID													0.00%	
The Victor L. Phillips Company	Case 621F	172	\$132,325.00	-\$2,835.00	-\$405.00	\$7,081.00	\$12,581.00	\$155.00	Included	\$633.00	\$3,966.00	\$2,730.00	90 days	0.00%	NW, KC, SW
Tri-State Construction Equipment Co.*	John Deere 524K John Deere 544K	146 167	\$116,000.00 \$129,000.00	-\$2,750.00 -\$2,705.00	-\$219.00 -\$219.00	\$460.00 \$1,080.00	\$11,020.00 \$11,020.00	\$106.00 \$95.00	N/A N/A	\$1,750.00 \$1,720.00	\$2,085.00 \$2,075.00	\$2,250.00 \$2,290.00	60-90 days 60-90 days	As Requested	NE, CD NE, CD
Altorfer, Inc.	Caterpillar 930K	154	\$149,330.00	NA	-\$345.00	\$6,080.00	\$16,565.00	\$350.00	NA	\$1,460.00	\$4,320.00	\$4,652.00	120-180 days	27.00%	NE
Bobcat of St. Louis	Doosan DL200 Tier 3 Doosan DL200 Tier 4	143 143	\$110,767.51 \$117,837.78	STD STD	STD STD	\$291.49 \$291.49	\$16,895.55 \$16,895.55	\$563.51 \$563.51	\$1,107.66 \$1,107.66	\$2,243.71 \$2,243.71	\$5,395.53 \$5,395.53	\$4,658.21 \$4,658.21	90 - 120 days 90 - 120 days	0.00%	All All
GW Van Keppel	Volvo L70G	169	\$143,285.00	-\$2,810.00	-\$422.00	\$743.00	NA	\$593.00	\$563.00	\$1,420.00	\$4,193.00	\$3,092.00	90-120 days	12.00%	NW, KC, CD, SW

**See Vendor Additional Options Page



Missouri Department of Transportation
Bid Tabulation of Request 3-120320RJ Backhoes and Loaders
Multiple Award

Name: ERB Equipment Company
Contact name: Tim Smith
Address Line: 200 ERB Industrial Drive
Address Line: Fenton, MO 63026
Telephone #: 636-349-0200
E-mail: tmsmith@erbequipment.com
Cooperative: Yes
MSRP 0%

Name: Luby Equipment Services
Contact name: Jerry Jansen
Address Line: 2300 Cassens Drive
Address Line: Fenton, MO 63026
Telephone #: 217-222-5454
E-mail: jjansen@lubyequipment.com
Cooperative: Yes
MSRP 40%

Name: Crown Power & Equipment
Contact name: Harold Chapman
Address Line: 1881 Prathersville Road
Address Line: Columbia, MO 65202
Telephone #: 573-443-4541
E-mail: hchapman@crown-power.com
Cooperative: Yes
MSRP 0%

Name: Fabick Cat
Contact name: Chris Burns
Address Line: One Fabick Drive
Address Line: Fenton, MO 63026
Telephone #: 636-343-5900 Xt. 1309
E-mail: chris.burns@fabickcat.com
Cooperative: Yes
MSRP 27%

Name: Potter Equipment Co. Inc.
Contact name: Roger Potter
Address Line: 1155 S. Kansas Expressway
Address Line: Springfield, MO 65807
Telephone #: 417-862-9275
E-mail: roger@potterequip.com
Cooperative: Yes
MSRP 0%

Name: Murphy Tractor & Equipment Co.
Contact name: James Levy
Address Line: 1601 N. Corrington
Address Line: Kansas City, MO 64120
Telephone #: 816-483-5000
Email: jlevy@murphytractor.com
Cooperative: Yes
MSRP As Requested

Name: Pat Kelly Equipment Co.
Contact name: Robert Harter
Address Line: 5920 N. Lindbergh Blvd.
Address Line: Hazelwood, MO 63042
Telephone #: 314-895-9500
Email: bob@patkelly.com
Cooperative: Yes
MSRP 0%

Name: The Victor L. Phillips Company
Contact name: Dan Rude
Address Line: 4100 Gardner Avenue
Address Line: Kansas City, MO 64120
Telephone #: 816-241-9290
Email: drude@vlpco.com
Cooperative: Yes
MSRP 0%

Name: Tri-State Construction Equipment Co.
Contact name: Kevin Smyser
Address Line: 6787 County Road 312
Address Line: Palmyra, MO 63461
Telephone #: (573) 769-2274
Email: kevinsmyser@meoi.com
Cooperative: Yes
MSRP Available Upon Request

Name: Altorfer, Inc.
Contact name: Chris Akright
Address Line: 3520 Moberly
Address Line: Hannibal, MO 63401
Telephone #: 573-221-8600
Email: cakright@altorfer.com
Cooperative: Yes
MSRP 27%

Name: Bobcat of St. Louis
Contact name: Rob Bristow
Address Line: 1103 N. Lenway Drive
Address Line: Columbia, MO 65202
Telephone #: 573-886-9435
Email: rbristow@bobcatofstl.com
Cooperative: Yes
MSRP 0%

Name: GW Van Keppel Co.
Contact name: Steve Phillips
Address Line: 1801 N. 9th Street
Address Line: Kansas City, KS 66101
Telephone #: 913-281-4800
Email: sphillips@vankeppel.com
Cooperative: Yes
MSRP 12%



Missouri Department of Transportation
Bid Tabulation of Request 3-120320RJ

Backhoe Options

<u>Option</u>	<u>Description</u>
1	Delete factory-installed air conditioning
2	Delete AM/FM radio
3	Hydraulic actuated loader bucket quick coupler
4	18" heavy duty toothed bucket w/ lift loop with pin
5	24" heavy duty toothed bucket w/ lift loop with pin
6	36" heavy duty toothed bucket w/ lift loop with pin
7	36" smooth ditch bucket with pin, with bolt on cutting edge
8	48" smooth ditch cleaning bucket with pin, with bolt on cutting edge
9	Heavy duty loader bucket w/ auxiliary cutting edge and shoes (min 1.25 cu. yd)
10	Multi-purpose 4x1 loader bucket (min 1.25 cu. yd)
11	Pallet fork used with existing loader bucket
12	Quick coupler pallet fork
13	Wrist-o-twist for end of boom
14	Stabilizer reversible flip pads (dirt/pavement)
15	1 spare front wheel and 1 spare rear wheel
16	Poly front fenders
17	Hydraulic tool circuit for backhoe boom
18	Plate style compactor
19	2500 hours, 60 month ext. warranty (power train and hydraulics)

Wheel Loader Options (Item #2)

<u>Option</u>	<u>Description</u>
1	Delete factory-installed air conditioning
2	Delete AM/FM radio
3	General purpose bucket (min 2 cu. yd) in lieu of 2.0 yd bucket
4	Multi-purpose 4x1 loader bucket
5	Pallet forks 60"x60" with quick connect brackets in lieu of 60"x48"
6	Extra counter weights
7	Full rear wheel fenders
8	High lift extended reach loader package
9	2500 hours, 60 month ext. warranty (power train and hydraulics)

Wheel Loader Options (Item #3)

<u>Option</u>	<u>Description</u>
1	Delete factory-installed air conditioning
2	Delete AM/FM radio
3	General purpose bucket (min 3 cu. yd) in lieu of 2.5 yd bucket
4	Multi-purpose 4x1 loader bucket
5	60"x60" quick coupler pallet forks
6	Extra counter weights
7	Full rear wheel fenders
8	High lift extended reach loader package
9	2500 hours, 60 month ext. warranty (power train and hydraulics)



Missouri Department of Transportation
Bid Tabulation of Request 3-120320RJ

Item #4 - Training

Item #5 - Optional Training - 12 hour basic operation and diagnostics

Price Per Student

Erb Equipment Company	\$350.00
Luby Equipment Services	\$150.00
Crown Power & Equipment	\$1,140.00
Fabick Cat	\$750.00
Potter Equipment Co.	\$200.00
Murphy Tractor & Equipment Co.	\$350.00
Pat Kelly Equipment Co.	\$150.00
The Victor L. Phillips Company	\$1,500.00
Tri-State Construction Equipment Co.	\$350.00
Altorfer, Inc	\$750.00
S&H Farm Supply, Inc.	No Bid
Bobcat of St. Louis	\$300.00
GW Van Keppel	\$475.00

Item #6 - Optional Maintenance - Price for vendor to perform the first scheduled on-site maintenance:

Price per unit

Erb Equipment Company	\$1,200.00
Luby Equipment Services	\$400.00
Crown Power & Equipment	\$500.00
Fabick Cat	\$800.00
Potter Equipment Co.	\$300.00
Murphy Tractor & Equipment Co.	STD
Pat Kelly Equipment Co.	\$650.00
The Victor L. Phillips Company	\$500.00
Tri-State Construction Equipment Co.	STD
Altorfer, Inc.	\$800.00
S&H Farm Supply, Inc.	No Bid
Bobcat of St. Louis	\$600.00
GW Van Keppel	\$830.00

Item #7 - Optional Software - Diagnostic software, cables, and interface

Price per set

Erb Equipment Company	\$1,200.00
Luby Equipment Services	N/A
Crown Power & Equipment	N/A
Fabick Cat	\$2,250.00
Potter Equipment	N/A
Murphy Tractor & Equipment Co.	\$1,200.00
Pat Kelly Equipment Co.	NA
The Victor L. Phillips Company	N/A
Tri-State Construction Equipment Co.	\$1,200.00
Altorfer, Inc.	\$2,250.00
S&H Farm Supply, Inc.	No Bid
Bobcat of St. Louis	NA
GW Van Keppel	NA

Erb Equipment Co., Inc.
200 Erb Industrial Drive
Fenton, MO 63026

Additional Vendor Options – Item #1

John Deere 410K Backhoe Loader

Total Cost

DESCRIPTION	PRICE
Wain Roy 18" Bucket	\$830
Wain Roy 24" Bucket	\$940
Wain Roy 36" Bucket	\$1,155
Wain Roy 36" Ditching Bucket With bolt on edge	\$1,115
Wain Roy 48" Ditching Bucket With bolt on edge	\$1,375
Pilot Control with Pattern Selector	\$1,295
2 External Rear View Mirrors	In Base
Wain Roy Head for Plate Compactor	\$900
Coupler Adapter for 4-in-1 bucket In lieu of standard bucket connector	Same as standard
Chrome Exhaust	\$86
Auto shift – Automatic transmission	\$1,815
Diagnostic oil sampling port	\$250
Wain Roy Rigid Coupler	\$900

Erb Equipment Co., Inc.
 200 Erb Industrial Drive
 Fenton, MO 63026

Additional Vendor Options – Item #2

John Deere 444K Wheel Loader

Total Cost

2 Function joystick w/integral FNR	No charge
2 Lever finger tip control	\$90
Transmission with rear axle disconnect (For roading and braking)	\$1,880
High traction front & rear hydraulically locking differential axles	\$1,050
Automatic differential lock (Provides continual diff lock with bottom guards)	\$1,490
Ether starting aid	N/A
Chrome exhaust	\$185
Environmental drain / sampling port	\$170
Wheel spin control (1 st gear)	\$405
Automatic reversing fan drive with centrifugal engine air precleaner	\$1,160
Axle coolers for long roading or heavy braking	\$1,550
Level 1 corrosion prevention package for electrical system	\$1,130
Transmission side frame guards	\$245
Bottom guards	\$732
100 Amp alternator	\$250

Erb Equipment Co., Inc.
200 Erb Industrial Drive
Fenton, MO 63026

Additional Vendor Options – Item #3

John Deere 524K Wheel Loader

Total Cost

Reverse fan drive with centrifugal precleaner	\$1,100
Chrome Exhaust	\$173
2 Function 2 Lever finger tip control	\$80
Joystick steering only With steering wheel	\$2,470
4 Speed transmission w/rear axle disconnect	\$1,740
High traction front & rear hydraulically locking differential axles	\$995
Automatic differential lock w/bottom guards	\$1,415
Heated outside mirrors	\$315
Wheel spin control (1 st gear)	\$380
Environmental drain ports	\$210
Axle coolers with filtration	\$1,470
Level 1 electrical corrosion prevention package	\$1,070
Bottom guards	\$695
Transmission side frame guards	\$230

Erb Equipment Co., Inc.
200 Erb Industrial Drive
Fenton, MO 63026

Additional Vendor Options – Item #3

John Deere 544K Wheel Loader

Total Cost

Z-Bar with never grease pin joints	\$2,465
High lift Z-Bar with never grease pin joints	\$4,600
2 Function joystick with integral FNR	N/C
2 Function 2 Lever finger tip control	\$85
Joystick steering only With steering wheel	\$2,430
4 Speed transmission w/rear axle disconnect for roading	\$1,815
High traction front & rear hydraulically locking differential axles	\$980
Automatic differential lock w/bottom guards for continual differential use	\$1,398
Chrome exhaust	\$175
Automatic ether starting aid	N/A
Automatic reversing fan drive with centrifugal engine air pre-cleaner	\$1,085
Wheel spin control (1 st gear)	\$375
Environmental drain / sampling port	\$205
Axle coolers (bottom guards included)	\$1,450
Level 1 electrical corrosion prevention package	\$1,055
Bottom guards	\$685
Transmission side frame guards	\$230



EQUIPMENT SERVICES

2300 Cassens Dr.
Fenton, MO 63026

April 9, 2013

Contract 3-120320RJ – Backhoes/Loaders

“Additional Vendor Options”

Additional vender options for Item #1 backhoes

Item #1

Backhoe

Pavement breaker attachment

- Indeco HP1000 ABF hydraulic breaker; 1000 ft. lb. – price: \$12,350.00

We would like to thank you for your business in the past year and look forward to continuing to work with you during this contract extension. If you have any questions, please do not hesitate to call at 800-830-9970.

Sincerely;

A handwritten signature in black ink, appearing to read "Jerry Jansen".

Jerry Jansen
Sales

Tri-State Construction Equipment Company Additional Vendor Options for:

Item #1: Outright purchase of one (1) new Backhoe with minimum 95 net horsepower, four-wheel drive with cab/heater and 21L x 24 rear tires. Backhoe extendable dipper stick will crane a min. of 2,500 lbs from ground level. All Backhoes are priced without a backhoe bucket.

Please indicate make and model John Deere 410K

<u>Additional Options</u>	<u>Price (Each)</u>
Option 20. 60" x 60" QC Pallet Forks	<u>\$1,780.00</u>
Option 21. Air Ride Fabric Seat	<u>\$Standard</u>
Option 22. Hydraulic Pilot Backhoe Controls	<u>\$1,295.00</u>
Option 23. 3 Function Loader Control Valve and Quick Coupler used w/ Quick Coupler Buckets (Includes Ride Control)	<u>\$3,880.00 – Requires Option 10</u>
Option 24. 3 Function Loader Control Valve used w/ Pin on Buckets	<u>\$2,460.00</u>
Option 25. 1.32 Cu. Yd. 4 in 1 Bucket Pin on	<u>\$1,350.00 – Requires Option 24</u>
Option 26. Backhoe Boom Protection Plate	<u>\$715.00</u>
Option 27. Beacon Light & Guard Installed	<u>\$775.00</u>
Option 28. MartinMax Maintenance Agreement - 3 year/1500 hours	<u>\$7,425.00</u>
Option 29. MartinMax Maintenance Agreement - 5 year/3000 hours	<u>\$16,200.00</u>
Option 30. Auto shift Transmission	<u>\$1,820.00</u>
Option 31. Hydraulic 4-tine thumb used with 24" bucket	<u>\$3,199.00 – Requires Option 17 or 18</u>
Option 32. 12" x 40" Manual Thumb Installed	<u>\$1,840.00</u>
Option 33. Multi-brand Mechanical Backhoe Quick Coupler	<u>\$725.00</u>

Tri-State Construction Equipment Company Additional Vendor Options for:

Item #2: Outright purchase of one (1) new Wheel Loader with minimum 110 net horsepower, four-wheel drive, with cab/heater and 17.5 x 25 rear tires. All loaders are priced with a 2.0 yd bucket.

Indicate make and model John Deere 444K

<u>Additional Options</u>	<u>Price (Each)</u>
Option 10. 3 Function Hydraulic Controls w/Lines to the Front for Attachments	<u>\$1,560.00</u>
Option 11. L2 12-Ply Bias in Lieu of Radials	<u>\$(148.00)</u> (DEDUCT)
Option 12. Axle Coolers	<u>\$820.00</u>
Option 13. Heated Outside Mirrors	<u>\$340.00</u>
Option 14. Rear View Camera	<u>\$2,445.00</u>
Option 15. Cab Mounted Fire Extinguisher	<u>\$75.00</u>
Option 16. Electrical Corrosion Package	<u>\$1,130.00</u>
Option 17. Beacon Light & Guard Installed	<u>\$835.00</u>
Option 18. Rear Axle Disconnect	<u>\$1,880.00</u>
Option 19. MartinMax Maintenance Agreement - 3 year/1500 hours	<u>\$7,875.00</u>
Option 20. MartinMax Maintenance Agreement - 5 year/3000 hours	<u>\$18,300.00</u>

Tri-State Construction Equipment Company Additional Vendor Options for:

Item #3: Outright purchase of one (1) new Wheel Loader with minimum 135 net horsepower, four-wheel drive, with cab/heater and 20.5 x 25 rear tires. All loaders are priced with a 2.5 yd bucket.

Indicate make and model John Deere 524K

<u>Additional Options</u>	<u>Price (Each)</u>
Option 10. 3 Function Hydraulic Joy Stick Controls w/Auxiliary Line to the Front for Attachments	<u>\$1,475.00</u>
Option 11. L2 12-Ply Bias Tires	<u>\$(925.00)</u> (DEDUCT)
Option 12. L3 16-Ply Bias Tires	<u>\$No Cost-Same as Base</u>
Option 13. Axle Coolers	<u>\$780.00</u>
Option 14. Heated Outside Mirrors	<u>\$315.00</u>
Option 15. Rear View Camera	<u>\$2,315.00</u>
Option 16. Cab Mounted Fire Extinguisher	<u>\$75.00</u>
Option 17. Electrical Corrosion Package	<u>\$1,075.00</u>
Option 18. Beacon Light & Guard Installed	<u>\$835.00</u>
Option 19. MartinMax Maintenance Agreement - 3 year/1500 hours	<u>\$7,950.00</u>
Option 20. MartinMax Maintenance Agreement - 5 year/5000 hours	<u>\$18,300.00</u>
Option 21. Hydraulic Reversing Fan and Pre-cleaner	<u>\$1,050.00</u>

Tri-State Construction Equipment Company Additional Vendor Options for:

Item #3: Outright purchase of one (1) new Wheel Loader with minimum 135 net horsepower, four-wheel drive, with cab/heater and 20.5 x 25 rear tires. All loaders are priced with a 2.5 yd bucket.

Indicate make and model John Deere 544K

<u>Additional Options</u>	<u>Price (Each)</u>
Option 10. 3 Function Hydraulic Joy Stick Controls w/Auxiliary Line to the Front for Attachments	<u>\$1,460.00</u>
Option 11. L2 12-Ply Bias Tires	<u>\$(1,295.00)</u> (DEDUCT)
Option 12. L3 16-Ply Bias Tires	<u>\$(1,886.00)</u> (DEDUCT)
Option 13. Axle Coolers	<u>\$770.00</u>
Option 14. Heated Outside Mirrors	<u>\$320.00</u>
Option 15. Rear View Camera	<u>\$2,280.00</u>
Option 16. Cab Mounted Fire Extinguisher	<u>\$75.00</u>
Option 17. Electrical Corrosion Package	<u>\$1,055.00</u>
Option 18. Beacon Light & Guard Installed	<u>\$835.00</u>
Option 19. MartinMax Maintenance Agreement - 3 year/1500 hours	<u>\$7,950.00</u>
Option 20. MartinMax Maintenance Agreement - 5 year/5000 hours	<u>\$18,300.00</u>
Option 21. Hydraulic Reversing Fan	<u>\$310.00</u>

MURPHY

TRACTOR & EQUIPMENT CO.

Item #1 (continued):

<u>Additional Options</u>	(410K)	<u>Price (Each)</u>
Option 20.	60" x 60" QC Pallet Forks	<u>\$1,780.00</u>
Option 21.	Air Ride Fabric Seat	<u>\$Standard</u>
Option 22.	Hydraulic Pilot Backhoe Controls	<u>\$1,295.00</u>
Option 23.	3 Function Loader Control Valve and Quick Coupler used w/ Quick Coupler Buckets (Includes Ride Control)	<u>\$3,880.00 – Requires Option 10</u>
Option 24.	3 Function Loader Control Valve used w/ Pin on Buckets	<u>\$2,460.00</u>
Option 25.	1.32 Cu. Yd. 4 in 1 Bucket Pin on	<u>\$1,350.00 – Requires Option 24</u>
Option 26.	Backhoe Boom Protection Plate	<u>\$725.00</u>
Option 27.	Beacon Light & Guard Installed	<u>\$780.00</u>
Option 28.	EquipGard (Enhanced) Maintenance Agreement - 3 year/1500 hours	<u>\$6,800.00</u>
Option 29.	EquipGard (Enhanced) Maintenance Agreement - 5 year/3000 hours	<u>\$16,200.00</u>
Option 30.	Auto shift Transmission	<u>\$1,820.00</u>
Option 31.	Hydraulic 4-tine thumb used with 24" bucket	<u>\$3,200.00 – Requires Option 17 or 18</u>
Option 32.	12" x 40" Manual Thumb Installed	<u>\$1,840.00</u>
Option 33.	FRD 55 Breaker	<u>\$12,000.00- requires option 17 or 18</u>

MURPHY

TRACTOR & EQUIPMENT CO.

Item #2 (continued):

<u>Additional Options</u> (444K)	<u>Price (Each)</u>
Option 10. 3 Function Hydraulic Controls w/Lines to the Front for Attachments	<u>\$1,560.00</u>
Option 11. L2 12-Ply Bias in Lieu of Radials	<u>\$(150.00)</u> (DEDUCT)
Option 12. Axle Coolers	<u>\$820.00</u>
Option 13. Heated Outside Mirrors	<u>\$340.00</u>
Option 14. Rear View Camera	<u>\$2,450.00</u>
Option 15. Cab Mounted Fire Extinguisher	<u>\$75.00</u>
Option 16. Electrical Corrosion Package	<u>\$1,130.00</u>
Option 17. Beacon Light & Guard Installed	<u>\$835.00</u>
Option 18. Rear Axle Disconnet	<u>\$1,8800.00</u>
Option 19. EquipGard (Enhanced) Maintenance Agreement - 3 year/1500 hours	<u>\$6,700.00</u>
Option 20. EquipGard (Enhanced) Maintenance Agreement - 5 year/3000 hours	<u>\$15,400.00</u>

MURPHY

TRACTOR & EQUIPMENT CO.

Item #3 (continue

<u>Additional Options</u> (524K)	<u>Price (Each)</u>
Option 10. 3 Function Hydraulic Joy Stick Controls w/Auxiliary Line to the Front for Attachments	<u>\$1,500.00</u>
Option 11. L2 12-Ply Bias Tires	<u>\$(925.00)</u> (DEDUCT)
Option 12. L3 16-Ply Bias Tires	<u>\$No Cost-Same as Base</u>
Option 13. Axle Coolers	<u>\$780.00</u>
Option 14. Heated Outside Mirrors	<u>\$320.00</u>
Option 15. Rear View Camera	<u>\$2,320.00</u>
Option 16. Cab Mounted Fire Extinguisher	<u>\$75.00</u>
Option 17. Electrical Corrosion Package	<u>\$1,075.00</u>
Option 18. Beacon Light & Guard Installed	<u>\$835.00</u>
Option 19. EquipGard (Enhanced) Maintenance Agreement - 3 year/1500 hours	<u>\$6,500.00</u>
Option 20. Equipgard (Enhanced) Maintenance Agreement - 5 year/5000 hours	<u>\$15,000.00</u>
Option 21. Hydraulic Reversing Fan and Pre-cleaner	<u>\$1,050.00</u>

MURPHY

TRACTOR & EQUIPMENT CO.

Item #3 (continued):

<u>Additional Options</u>	(544K)	<u>Price (Each)</u>
Option 10. 3 Function Hydraulic Joy Stick Controls w/Auxiliary Line to the Front for Attachments		<u>\$1,4800.00</u>
Option 11. L2 12-Ply Bias Tires		<u>\$(1,300.00)</u> (DEDUCT)
Option 12. L3 16-Ply Bias Tires		<u>\$(1,890.00)</u> (DEDUCT)
Option 13. Axle Coolers		<u>\$770.00</u>
Option 14. Heated Outside Mirrors		<u>\$320.00</u>
Option 15. Rear View Camera		<u>\$2,280.00</u>
Option 16. Cab Mounted Fire Extinguisher		<u>\$75.00</u>
Option 17. Electrical Corrosion Package		<u>\$1,055.00</u>
Option 18. Beacon Light & Guard Installed		<u>\$835.00</u>
Option 19. EquipGard (Enhanced) Maintenance Agreement - 3 year/1500 hours		<u>\$6,750.00</u>
Option 20. EquipGard (Enhanced) Maintenance Agreement - 5 year/5000 hours		<u>\$15,400.00</u>
Option 21. Hydraulic Reversing Fan		<u>\$310.00</u>

Search Results

Current Search Terms: Tri-State construction* equipment* company*

Notice: This printed document represents only the first page of your SAM search results. More results may be available. To print your complete search results, you can download the PDF and print it.

No records found for current search.

SAM | System for Award Management 1.0

IBM v1.1278.20131018-1401



Note to all Users: This is a Federal Government computer system. Use of this system constitutes consent to monitoring at all times.

BOONE COUNTY

REQUEST FOR DISPOSAL/TRANSFER OF COUNTY PROPERTY

DATE : November 8, 2013

FIXED ASSET TAG NUMBER: 15851

DESCRIPTION: 2007 Case 521D Rubber Tire Loader

TRADE-IN

REQUESTED MEANS OF DISPOSAL: Sell or Trade depending on trade pricing

OTHER INFORMATION: Serial Number: JEE0200050

CONDITION OF ASSET: Fair.

REASON FOR DISPOSITION: Equipment life has been greatly reduced by oxidation from working in chemicals. The Department wishes to replace unit while it still has value and shorten the lifecycle of future purchases to minimize cost of ownership.

COUNTY / COURT IT DEPT. (circle one) DOES /DOES NOT (circle one) WISH TO TRANSFER THIS ITEM FOR ITS OWN USE (this item is applicable to computer equipment only)

DESIRED DATE FOR ASSET REMOVAL TO STORAGE: None

WAS ASSET PURCHASED WITH GRANT FUNDING? YES NO
IF YES, ATTACH DOCUMENTATION SHOWING FUNDING AGENCY'S PERMISSION TO DISPOSE OF ASSET.

DEPARTMENT: 2040

SIGNATURE



AUDITOR

ORIGINAL PURCHASE DATE 12/22/2006 RECEIPT INTO 2040-3835 AM

ORIGINAL COST \$184,177.00

GRANT FUNDED (Y/N) _____

ORIGINAL FUNDING SOURCE 2741

GRANT NAME _____

% FUNDING _____

AGENCY _____

ASSET GROUP 1605

DOCUMENTATION ATTACHED (Y/N) _____

TRANSFER CONFIRMED _____

COUNTY COMMISSION / COUNTY CLERK

APPROVED DISPOSAL METHOD:

____ TRANSFER DEPARTMENT NAME _____ NUMBER _____

LOCATION WITHIN DEPARTMENT _____

INDIVIDUAL _____

____ TRADE _____ AUCTION _____ SEALED BIDS

____ OTHER EXPLAIN _____

COMMISSION ORDER NUMBER 533-2013

DATE APPROVED 11-26-13

SIGNATURE 

CERTIFIED COPY OF ORDER

STATE OF MISSOURI }
 County of Boone } ea.

November Session of the October Adjourned

Term. 2013

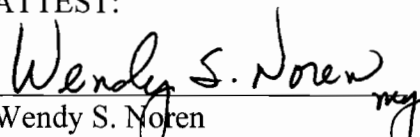
In the County Commission of said county, on the 26th day of November 20 13

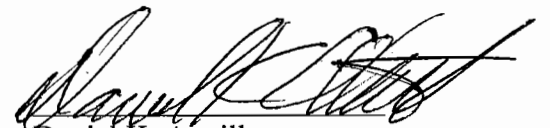
the following, among other proceedings, were had, viz:

Now on this day the County Commission of the County of Boone does hereby authorize a closed meeting on Tuesday, November 26, 2013, at 1:30 p.m. The meeting will be held in Room 338 of the Roger B. Wilson Boone County Government Center at 801 E. Walnut, Columbia, Missouri, as authorized by RSMo 610.021(1), to discuss legal actions, causes of action or litigation involving a public governmental body and any confidential or privileged communications between a public governmental body or its representatives and its attorneys.

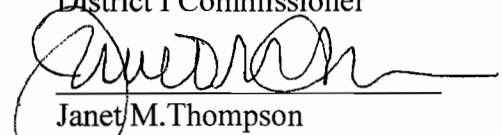
Done this 26th of November, 2013.

ATTEST:


 Wendy S. Noren
 Clerk of the County Commission


 Daniel K. Atwill
 Presiding Commissioner


 Karen M. Miller
 District I Commissioner


 Janet M. Thompson
 District II Commissioner

STATE OF MISSOURI

County of Boone



ss.

I,Clerk

of the County Commission, in and said County, hereby certify the above and foregoing to be a true copy of the proceedings of our said County Commission, on the day and year above written, as the same appears of record in my office.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said Commission, at office in

Columbia, Missouri, this the day of

20.....

Clerk County Commission

By D.C.

No.

Certified Copy of Order

of
BOONE COUNTY COMMISSION,
Made at

Term, 20

In the Matter of