

CERTIFIED COPY OF ORDER

STATE OF MISSOURI }
County of Boone } ea.

April Session of the April Adjourned

Term. 20 07

In the County Commission of said county, on the

19th day of April 20 07

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

Now on this day the County Commission of the County of Boone does hereby authorize the Presiding Commissioner to sign the attached Finding of Public Nuisance and Order for Abatement of a public nuisance located at 7300 Sunny Vale Drive in Columbia, Missouri.

Done this 19th day of April, 2007.

ATTEST:

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

Kenneth M. Pearson
Kenneth M. Pearson
Presiding Commissioner

Karen M. Miller
Karen M. Miller
District I Commissioner

Skip Elkin
Skip Elkin
District II Commissioner

**BEFORE THE COUNTY COMMISSION OF
BOONE COUNTY, MISSOURI**

In Re: Nuisance Abatement)	<u>April</u> Session
7300 Sunny Vale Drive)	<u>April</u> Adjourned
Columbia, MO 65201)	Term 2007
)	Commission Order No. <u>167-2007</u>

FINDING OF PUBLIC NUISANCE AND ORDER FOR ABATEMENT

NOW on this 19 day of April, 2007 the County Commission of Boone County, Missouri met in regular session and entered the following findings of fact, conclusions of law and order for abatement of nuisance:

Findings of Fact and Conclusions of Law

The County Commission finds as fact and concludes as a matter of law the following:

1. The Boone County Code of Health Regulations (the "Code") are officially noticed and are made a part of the record in this proceeding.
2. The City of Columbia/Boone County Health Department administrative record is made a part of the record in this proceeding and incorporated herein by reference. In addition, any live testimony of the official(s) of the department and other interested persons are made a part of the record in this proceeding.
3. A public nuisance exists described as follows: trash and a derelict/unlicensed blue four door car, and a junk filled derelict/unlicensed grey pickup truck
4. The location of the public nuisance is as follows: 7300 Sunny Vale Drive Columbia, MO 65201, section 12, township 48, range 12, a/k/a Lot 5 Sunrise Estates as shown by deed book 2939 page 0102 parcel number 17-315-12-01-005.00 01.
5. The specific violation of the Code is:
 - Motor vehicle nuisance in violation of section 6.9 of the Code
 - Solid waste/trash nuisance in violation of section 6.5 of the Code
5. The Health Director's designated Health Official made the above determination of the existence of the public nuisance at the above location. Notice of that determination and the

requirement for abatement was given in accordance with section 6.10.1 of the Code to the property owner, occupant, and any other applicable interested persons.

6. The above described public nuisance was not abated. As required by section 6.10.2 of the Code, the property owner, occupant, and any other applicable interested persons were given notice of the hearing conducted this date before the Boone County Commission for an order to abate the above nuisance at government expense with the cost and expense thereof to be charged against the above described property as a special tax bill and added to the real estate taxes for said property for the current year.

7. No credible evidence has been presented at the hearing to demonstrate that no public nuisance exists or that abatement has been performed or is unnecessary; accordingly, in accordance with section 6.10.2 of the Code and section 67.402, RSMo, the County Commission finds and determines from the credible evidence presented that a public nuisance exists at the above location which requires abatement and that the parties responsible for abating such nuisance have failed to do so.

Order For Abatement Chargeable As a Special Assessment To The Property

Based upon the foregoing, the County Commission hereby orders abatement of the above described public nuisance at public expense and the Health Director is hereby authorized and directed to carry out this order.

It is further ordered and directed that the Health Director submit a bill for the cost and expense of abatement to the County Clerk for attachment to this order and that the County Clerk submit a certified copy of this order and such bill to the County Collector for inclusion as a special assessment on the real property tax bill for the above described property for the current year in accordance with section 67.402, RSMo.

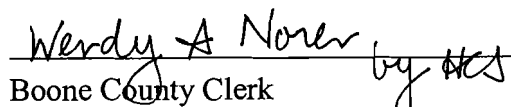
WITNESS the signature of the presiding commissioner on behalf Boone County Commission on the day and year first above written.

Boone County, Missouri
By Boone County Commission



Presiding Commissioner

ATTEST:



Boone County Clerk

CERTIFIED COPY OF ORDER

STATE OF MISSOURI

} ea.

April Session of the April Adjourned

Term. 20 07

County of Boone

In the County Commission of said county, on the

19th

day of

April

20 07

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

Now on this day the County Commission of the County of Boone does hereby authorize the Presiding Commissioner to sign the attached Missouri Highways and Transportation Commission Agreement for Signing Paid by Applicant for the Boone County Fairgrounds.

Done this 19th day of April, 2007.

ATTEST:

Wendy A Noren
Wendy S. Noren *by dcs*
Clerk of the County Commission

Kenneth M. Pearson
Kenneth M. Pearson
Presiding Commissioner

Karen M. Miller
Karen M. Miller
District I Commissioner

Skip Elkin
Skip Elkin
District II Commissioner

CCO Form: TR15
Approved: 02/95 (MLH)
Revised: 08/06 (BDG)
Modified:

100 2001

Date of Installation:	3/2005
Type of Installation:	
<input type="checkbox"/> New	<input type="checkbox"/> Revised

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION AGREEMENT FOR SIGNING PAID BY APPLICANT

THIS AGREEMENT is entered into by the Missouri Highways and Transportation Commission (hereinafter, "Commission"), whose address is P.O. Box 270, 105 W. Capitol, Jefferson City, Missouri 65102, and Boone County (hereinafter, "Applicant"), whose address is 801 E. Walnut, Room 245, Columbia, MO 65201.

WITNESSETH:

WHEREAS, Applicant requests that the Commission install and maintain certain signs further described below in Boone County, Missouri for Boone County Fairgrounds in the general vicinity of US 63 and Oakland Gravel Road; and

WHEREAS, the Commission is willing to approve the Applicant's request subject to the terms and conditions of this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants, promises and representations contained herein, the parties agree as follows:

(1) LOCATION AND DISPLAY: The Applicant hereby requests that the Commission construct, install and maintain sign(s) which will:

- guide motorists to a Qualified Post Secondary Educational Facility
- guide motorists to a Qualified Major/Minor Traffic Generator
- guide motorists to a State/Federal Public Use Area
- guide motorists to a Hospital with 24 Hour Emergency Care
- guide motorists to a Welcome Center Affiliate
- guide motorists to a Missouri Correctional Facility
- guide motorists on a designated route/trail
- display Custom City/County Limits Sign with Logo
- display City/County Accomplishment Plaque
- Other: Fairgrounds

which is located primarily in Boone County(ies).

The sign(s) will read as displayed in Exhibit A and the sign(s) will be erected as illustrated in Exhibit B.

Said signs will be displayed: Year round
 Seasonally
from _____ to _____

If the sign(s) is/are to be displayed seasonally, the Commission will cover the sign(s) or will show the facility is closed on the sign during periods of non-use.

(2) COSTS: If this request is approved, the Applicant agrees to pay a total sum of \$0.00 (Zero Dollars) prior to the installation of such signs. If the Applicant fails to make the

payment prior to installation, the Commission may cancel this Agreement. The payment is nonrefundable. The payment amount constitutes the entire cost of construction, installation, maintenance, and, if the sign is damaged beyond repair or stolen, replacement of the sign(s) for a period of ten (10) years from the date of installation of the signs indicated above. The Agreement will not be extended by the number of days that a sign is not erect and the Applicant will not be reimbursed for any time that the sign is not standing regardless of the reason. Payment for subsequent ten (10) year periods will be determined and made payable at the beginning of such periods. Payment not received within the time specified on the invoice will be reason for the Commission to remove the sign.

(3) COMMISSION'S RESPONSIBILITIES: The Commission may modify said sign(s) when necessary to comply with changed standards that might be promulgated or adopted. It is further understood that the Commission may permanently remove the sign(s) at any time, in its sole discretion, for any reason whatsoever, including for the convenience of the Commission or if the Commission determines removal is required for a highway or transportation project. In the event the Commission removes the sign pursuant to the terms of this Agreement, the Commission will not refund any portion of the original payment from the Applicant.

(4) APPLICANT'S REPRESENTATIVE: The Applicant's Presiding Commissioner is designated as the Applicant's representative for the purpose of administering the provisions of this Agreement. The Applicant's representative may designate by written notice other persons having the authority to act on behalf of the Applicant in furtherance of the performance of this Agreement. All Notices or other communication required or permitted to be given hereunder shall be in writing and shall be deemed given three (3) days after delivery by United States mail, regular mail postage prepaid, or upon receipt by personal or facsimile delivery, addressed as follows:

Kenneth M. Pearson
Presiding Commissioner
Boone County Commission
801 E. Walnut
Room 245
Columbia, MO 65201
Phone: (573) 886-4305
Fax: (573) 886-4311

(5) VENUE: It is agreed by the parties that any action at law, suit in equity, or other judicial proceeding to enforce or construe this Agreement, or regarding its alleged breach, shall be instituted only in the Circuit Court of Cole County, Missouri.

(6) NO INTEREST: Upon erection, the signs shall be the property of the Commission. By paying for the cost of these signs and their placement on Commission right of way, the Applicant gains no property interest in the signs or in the Commission's right of way. The Commission shall not be obligated to keep the sign(s) in place if the Commission, in its sole discretion, determines removal or modification of the sign(s) is in the best interests of the state highway system or the Commission.

(7) SOLE BENEFICIARY: This Agreement is made for the sole benefit of the parties hereto and nothing in this Agreement shall be construed to give any rights or benefits to anyone other than the Commission and the Applicant.

(8) AUTHORITY TO EXECUTE: The signers of this Agreement warrant that they are acting officially and properly on behalf of their respective institutions and have been duly authorized, directed and empowered to execute this Agreement.

(9) ENTIRE AGREEMENT: This Agreement represents the entire understanding between the parties regarding this subject and supersedes all prior written or oral communications between the parties regarding this subject.

(10) ATTACHMENTS: The following Exhibits and other documents are attached to and made a part of this Agreement:

- (A) Exhibit A: Sign Display Detail.
- (B) Exhibit B: Sign Location Layout

IN WITNESS WHEREOF, the parties have entered into this Agreement on the date last written below:

Executed by the Applicant the 19th day of April, 2007.

Executed by the Commission the 10th day of May, 2007.

MISSOURI HIGHWAYS AND
TRANSPORTATION COMMISSION

APPLICANT

By *Kevin Harts*
Title Chief Engineer

By *[Signature]*
Title Presiding Commissioner

ATTEST:

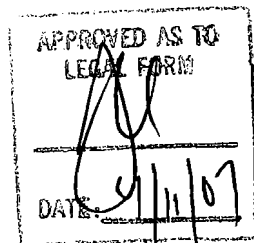
Mari Ann Winters
Secretary to the Commission

ATTEST:

By *Wendy A. Nover by dcs*
Title Clerk of the County Commission,
Boone County, Missouri

Approved as to Form:

Byrle Gault
Commission Counsel



Copies: Applicant
District Engineer
Traffic Division
Controller's Division

CERTIFICATION:

I certify that this contract is within the purpose of the appropriation to which it is to be charged and there is an unencumbered balance of such appropriation sufficient to pay the costs arising from this contract.
No encumbrance removal 4/12/07
Auditor by cjo Date

REQUEST FOR PROPOSAL--ENGINEERING SERVICES

Project Name: River Road Drainage Improvements

The Boone County Public Works Department (BCPW) desires to select an engineering consultant for the purposes of developing construction plans and specifications for the above stated project. The BCPW invites Harrington and Cortelyou, Inc. to submit a proposal to provide design services for the future drainage improvements in this location. If interested a site visit may be scheduled with BCPW prior to submission of a proposal.

The primary scope of professional engineering services is to develop construction plans and specifications for the improvement of a drainage structure along River Road. River Road is located in southwestern Boone County and the drainage structure in question is northwest of Hartsburg, Missouri near the intersection with Route M. The existing drainage structure consists of 3 – 96 inch corrugated metal pipes. Design services should include all study and design necessary to improve the roadway drainage in this area. Geotechnical information has been completed by Terracon Consultants, Inc. and a copy of their report is included with this request for proposal.

CONSTRUCTION PLANS - SCOPE OF WORK

The consultant shall provide the necessary services, including but not limited to:

1. Provide all necessary field survey of topography and land ownership information.
2. Obtain all required permits and approvals from the state and federal agencies.
3. Provide final construction plans and technical specifications necessary to bid and construct the project including project quantities. The plans shall conform to all existing County utility agreements and the requirements set forth in the Boone County Roadway Regulations.
4. A design schedule showing all pertinent dates in the design process, including the estimated date to Purchasing, prior to the start of design work. This schedule will be updated and submitted to the County for review at the following intervals: 50%, 75%, and 95% complete plans.
5. Schedule and participate in a utility meeting with the County and all utility companies within the project limits. Consultant shall submit a 50% complete set of plans to all utility companies and the County at the utility meeting for review and comment. Consultant shall incorporate all necessary utility/County comments into the plan set.
6. Participate in an onsite field check and submit a 75% complete set of plans to the County for review and comment. This set should show and be accompanied by all

legal descriptions and exhibits necessary to start the easement/right of way acquisition process. Consultant shall incorporate all comments into the plan set as necessary.

7. Schedule and participate in a public meeting involving all adjacent property owners. This public meeting should include a presentation by the consultant, all necessary exhibits to convey the intention of the project, and adequate staff to answer questions as necessary. This requirement may be waived at the discretion of the Public Works Director if deemed unnecessary.
8. Submit a 95% complete set of plans to the County for review and participate in a review meeting, following submission, scheduled by the County. All comments discussed at this meeting will be incorporated into the plan set and the consultant will provide final plans for County review a minimum of two weeks prior to the scheduled date to Purchasing.
9. Provide an engineer's estimate of probable construction costs with the submission of 50%, 75%, and 100% complete plans.
10. Participate in the pre-bid meeting, respond to contractor questions, and develop any necessary addendums. During construction the consultant shall respond to contractor questions, as necessary, and help resolve any plan discrepancies. Design work associated with change orders, not related to plan discrepancies, shall be billed to the County as per the Consultants previously approved billing rates.

Questions regarding the contents of this Request for Proposal should be directed to:

Shane S. Creech, P.E.
Manager of Design and Construction
Boone County Public Works
(573) 449-8515
screch@boonecountymo.org

APPROVAL OF PROPOSAL FOR CONSULTANT SERVICES

Effective the 19th day of April, 2007, Boone County, Missouri, a political subdivision of the state of Missouri through its County Commission (herein "Owner") hereby approves and authorizes professional services by the Consultant referred to below for the services specified below.

Consultant Name: HARRINGTON AND CORTELYOU, INC

Project/Work Description: MARSHALL LANE DRAINAGE IMPROVEMENTS

Proposal Description: See attached Request for Proposal dated April 12, 2007, issued by Shane Creech and Scope of Work and Fee Schedule issued by Harrington and Cortelyou, Inc.

Modifications to Proposal: Fees and expenses shall not exceed \$29,500 without prior written approval of Owner.

This form agreement and any attachments to it shall be considered the approved proposal; signature by all parties below constitutes a contract for services in accordance with the above described proposal and any approved modifications to the proposal, both of which shall be in accordance with the terms and conditions of the General Consultant Services Agreement signed by the Consultant and Owner for the current calendar year on file with the Boone County Public Works Department, which is hereby incorporated by reference. Performance of Consultant's services and compensation for services shall in accordance with the approved proposal and any approved modifications to it and shall be subject to and consistent with the General Consultant Services Agreement for the current calendar year. In the event of any conflict in interpretation between the proposal approved herein and the general Consultant Services Agreement, the terms and conditions of the general agreement shall control unless the proposal approved herein specifically identifies a term or condition of the general Consultant Services Agreement that shall not be applicable.

HARRINGTON & CORTELYOU, INC

By Mark A. Heck
Title Vice President

Dated: 5-3-07

APPROVED AS TO FORM:

[Signature]
County Attorney

APPROVED:

[Signature]
Director, Boone County Public Works

BOONE COUNTY, MISSOURI

By [Signature]
Presiding Commissioner

Dated: April 19, 2007

ATTEST:

Wendy A. Noren by [Signature]
County Clerk

CERTIFICATION:

I certify that this contract is within the purpose of the appropriation to which it is to be charged and there is an unencumbered balance of such appropriation sufficient to pay the costs arising from this contract.

June E. Pitchford 4/17/07
Auditor by [Signature] Date 2045-71102



HARRINGTON & CORTELYOU, INC.
Consulting Engineers

April 10, 2007

Re: Consulting Engineering Services
Marshall Lane Drainage Improvements
HCI No. : 959-16

Mr. Shane Creech, P.E.
Manager
Boone County Public Works
5551 Highway 63 South
Columbia, Missouri 65201-9711

Dear Mr. Creech:

Per our discussions this letter is our proposal to provide engineering services for the scope and fee listed below.

Scope of Services:

The scope of services shall be as stated in the Boone County Public Works RFP dated 1-5-07 and attached to this proposal except as modified herewith:

1. The initial scope of services dated 1-5-07 shall be modified as stated in the Boone County Public Works letter dated 3-26-07 and attached to this proposal.

A public meeting and one review meeting have been dropped from the initial RFP and the number of trips reduced from 6 to 4.

2. In addition to the scope of services attached we have included in our manhour estimate additional time, approximately 40 hours to assess the two stream conditions at the site and their effect on a new structure. We feel that two streams converging at the site and one of them being parallel to the road may require some channel realignment and/or abutments with flared wingwalls.

Both conditions require additional time beyond a typical single span structure over one stream, having no skew and straight out wingwalls.

It is anticipated that final plans can be ready for bid within three months after the notice to proceed on design work is given.

Mr. Shane Creech, P.E.
Page 2
April 10, 2007

Man-hour, Fee Proposal and Compensation:

We request compensation on the basis of 2007 billing rates on file with the County and direct reimbursement of travel and out-of-pocket expenses for a not to exceed amount of \$29,500.00 without prior approval by the County.

M. Huck	47 hours @ \$132.36/hr.	=	\$ 6,220.92
J. Stevenson	34 hours @ \$102.26/hr.	=	3,476.84
Junior Engineer	122 hours @ \$ 75.41/hr.	=	9,200.02
Technician	106 hours @ \$ 50.91/hr.	=	5,396.46
Expenses			
Legal and field survey		=	4,700.00
Mileage and meals (4 trips)		=	<u>505.76</u>
	Maximum Amount Payable	=	\$29,500.00

We appreciate this opportunity to be of further service to Boone County and look forward to working with you on these projects. Please call should you have any questions.

Sincerely,

HARRINGTON & CORTELYOU, INC.



Mark S. Huck, P.E.

MSH:prc

Attachment



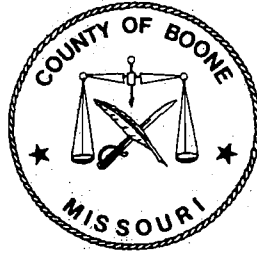
MANHOOR ESTIMATE

Structure type: Single span slab beam
Alignment: straight
Skew: 0 degrees

	<u>P</u>	<u>SE</u>	<u>E</u>	<u>T</u>	
Meetings, Conferences and Supervision	8				
Kickoff meeting with surveyor	4				
Engineering Surveys			8	8	
Soil Borings and Foundation Design					checking req'd
Hydraulic Studies			16		
Preliminary Plans					
Title Sheet			2	2	checking req'd
General Plan & Profile			24	24	checking req'd
Substructure Layout, Notes and Borings			16	16	checking req'd
Miscellaneous Details / Traffic Control			8	8	checking req'd
Preliminary Design Report & Cost Estimat	4				chk cost estimate
State & Federal Agency Permits (5)		4			
Right-of-Way Descriptions		4	8		
Right-of-Way Negotiations with owners					
Public meeting and Presentations					
Review mtg w/ utilities & at 50%	5				
Review mtg / field ck at 75% or 95%	5				
Final Design and Plans					
Elevations		4	4		checking req'd
End Bent Details		4	4	8	checking req'd
Bent Details					checking req'd
Prestressed Girder Details					checking req'd
Plate Gdr & Camber Details (2 sheets)					checking req'd
Slab Beam Details		2	2	2	checking req'd
Prestressed Panels Details					checking req'd
Diaphragm Details (1 or 2 sheets)					checking req'd
Railing Details (3 sheets)			2	2	checking req'd
Bill of Reinforcing			4	4	checking req'd
Cross Sections		8	16	16	checking req'd
Quantities and Final Cost Estimate			8	16	checking req'd
Contract Documents & Specifications	4	8			
P, S & E Submittal					
Bidding Documents	4				
Pre-bid Meeting	5				
Advertise for Bids					
Bid Opening					
Evaluate Bids & Request MoDOT appr.					
Construction issues	8				
	47	34	122	106	= 309

Boone County Public Works

Shane S. Creech, P.E.
Manager
Design and Construction Division



5551 Highway 63 South
Columbia, Missouri 65201-9711
(573) 449-8515
FAX (573) 875-1602
EMAIL: screech@boonecountymo.org
www.showmeboone.com

Date: March 26, 2007
To: Mark Huck, P.E.
From: Shane S. Creech, P.E.
Subject: Marshall Lane and River Road Drainage Improvements

Mark,

The Boone County Public Works Department (BCPW) has reviewed your proposal for these projects and has the following requests:

1. Please separate the proposals per bridge location. BCPW would prefer to handle these as separate projects.
2. Please refer to or provide the information discussed in the Request for Proposal (RFP) in the revised proposals. If you decide to refer to the RFP, the revised proposals must discuss the changes to the man hour estimate discussed in #4.
3. Please discuss in the proposals the factors affecting the design cost. The River Road proposal should discuss the variety of structures that must be researched to determine the proper drainage solution in this location. The Marshall Lane bridge project should discuss the complex drainage issues associated with it.
4. Please revise the man hour estimate to remove the public meeting and one of the review meetings. BCPW does not feel that a public meeting will be necessary on these two projects and feels that the utility meeting could be combined with the 50% plans meeting to eliminate a review meeting. This would also eliminate a portion of the money allocated for mileage and meals. Based on preliminary calculations this revision to the man hour estimate would reduce the maximum overall design cost by approximately \$3,100.

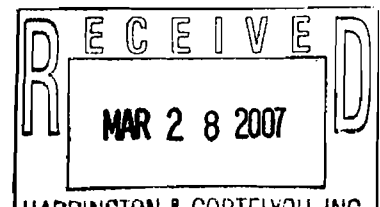
If you have any questions regarding these revisions please don't hesitate to contact me at (573) 449-8515.

Sincerely,

A handwritten signature in black ink, appearing to read "Shane S. Creech", is written over a horizontal line.

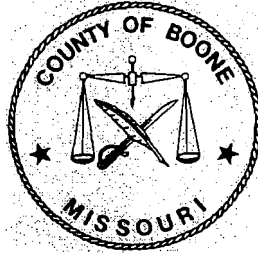
Shane S. Creech, P.E.

cc: David Mink, P.E.



Boone County Public Works

Shane S. Creech, P.E.
Manager
Design and Construction Division



5551 Highway 63 South
Columbia, Missouri 65201-9711
(573) 449-8515
FAX (573) 875-1602
EMAIL: screech@boonecountymo.org
www.showmeboone.com

Date: January 5, 2007
To: Mark Huck, P.E.
From: Shane S. Creech, P.E.
Subject: Request for Proposal - River Road and Marshall Lane Drainage Improvements
Riley Road Bridge Deck Improvements

Mark,

Attached are Requests for Proposals for the three projects referenced above and geotechnical reports for the River Road and Marshall Lane Drainage Improvement projects. If you would like to set up a site visit for any of these projects just let me know.

It is my understanding that you are currently developing a proposal for a fourth County project, Rolling Hills South Bridge Improvements. We look forward to the submittal of these four proposals and working with Harrington and Cortelyou, Inc. in 2007.

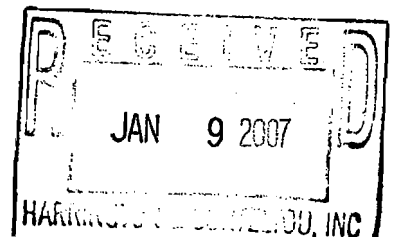
If you have any questions, please don't hesitate to call.

Sincerely,

A handwritten signature in black ink, appearing to read "Shane S. Creech", is written over a horizontal line.

Shane S. Creech, P.E.

Cc: David Mink, P.E.



REQUEST FOR PROPOSAL--ENGINEERING SERVICES

Project Name: Marshall Lane Drainage Improvements

The Boone County Public Works Department (BCPW) desires to select an engineering consultant for the purposes of developing construction plans and specifications for the above stated project. The BCPW invites Harrington and Cortelyou, Inc. to submit a proposal to provide design services for the future drainage improvements in this location. If interested a site visit may be scheduled with BCPW prior to submission of a proposal.

The primary scope of professional engineering services is to develop construction plans and specifications for the improvement of a drainage structure along Marshall Lane. Marshall Lane is located in northeastern Boone County and the drainage structure in question is south of Centralia, Missouri near the County line. The existing drainage structure consists of 3 – 60 inch corrugated metal pipes. Design services should include all study and design necessary to improve the roadway drainage in this area. Geotechnical information has been completed by Terracon Consultants, Inc. and a copy of their report is included with this request for proposal.

CONSTRUCTION PLANS - SCOPE OF WORK

The consultant shall provide the necessary services, including but not limited to:

1. Provide all necessary field survey of topography and land ownership information.
2. Obtain all required permits and approvals from the state and federal agencies.
3. Provide final construction plans and technical specifications necessary to bid and construct the project including project quantities. The plans shall conform to all existing County utility agreements and the requirements set forth in the Boone County Roadway Regulations.
4. A design schedule showing all pertinent dates in the design process, including the estimated date to Purchasing, prior to the start of design work. This schedule will be updated and submitted to the County for review at the following intervals: 50%, 75%, and 95% complete plans.
5. Schedule and participate in a utility meeting with the County and all utility companies within the project limits. Consultant shall submit a 50% complete set of plans to all utility companies and the County at the utility meeting for review and comment. Consultant shall incorporate all necessary utility/County comments into the plan set.
6. Participate in an onsite field check and submit a 75% complete set of plans to the County for review and comment. This set should show and be accompanied by all legal descriptions and exhibits necessary to start the easement/right of way acquisition process. Consultant shall incorporate all comments into the plan set as necessary.

7. Schedule and participate in a public meeting involving all adjacent property owners. This public meeting should include a presentation by the consultant, all necessary exhibits to convey the intention of the project, and adequate staff to answer questions as necessary. This requirement may be waived at the discretion of the Public Works Director if deemed unnecessary.
8. Submit a 95% complete set of plans to the County for review and participate in a review meeting, following submission, scheduled by the County. All comments discussed at this meeting will be incorporated into the plan set and the consultant will provide final plans for County review a minimum of two weeks prior to the scheduled date to Purchasing.
9. Provide an engineer's estimate of probable construction costs with the submission of 50%, 75%, and 100% complete plans.
10. Participate in the pre-bid meeting, respond to contractor questions, and develop any necessary addendums. During construction the consultant shall respond to contractor questions, as necessary, and help resolve any plan discrepancies. Design work associated with change orders, not related to plan discrepancies, shall be billed to the County as per the Consultants previously approved billing rates.

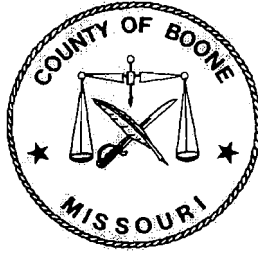
Questions regarding the contents of this Request for Proposal should be directed to:

Shane S. Creech, P.E.
Manager of Design and Construction
Boone County Public Works
(573) 449-8515
screech@boonecountymo.org

169-2007

Boone County Public Works

Shane S. Creech, P.E.
Manager
Design and Construction Division



5551 Highway 63 South
Columbia, Missouri 65201-9711
(573) 449-8515
FAX (573) 875-1602
EMAIL: screech@boonecountymo.org
www.showmeboone.com

Date: April 12, 2007
To: County Commission
From: Shane S. Creech, P.E.
Subject: River Road and Marshall Lane Drainage Improvements

The design fee requested by Harrington and Cortelyou, Inc. (H&C) to complete the construction plans, easements, and specifications associated with each of the above referenced projects exceeds the amount specified in the 2007 budget by a total of \$9,000. This number was achieved after considerable negotiation between H&C and Public Works in which a total of \$4,206.92 was removed from each contract by removing the public meeting from each project and combining the 50% plan meeting with the utility meeting on each project.

A design fee of \$50,000 was included in the 2007 budget for the design of these two structures. This number was determined based on a percentage of the estimated construction cost of these two structures with the assumption that the selected structure in each case would be similar to the typical single span, slab beam structures the County has constructed in recent years in several locations.

Upon further review of each location, each brings its own set of complications not originally anticipated when the budget was completed. The pipes currently in place on River Road replaced a 3-span, 65-foot long structure with 14-foot tall piers. The existing channel width varies from 30 feet at the bottom to 60 feet at the top. Therefore, to alleviate existing scour conditions and debris problems it is assumed that the new structure will consist of a much more substantial structure and require additional design time to complete. It is also anticipated that the Marshall Lane project will require additional design time due to the complicated stream conditions in this area. This area has two streams that converge at the proposed bridge location. One of the streams is parallel to the roadway and may require some channel realignment and/or abutments with flared wing walls.

Another item that may contribute to an increase in the design costs encountered in 2007 is the implementation of set meetings between the consultant and Public Works specified in the contract. All projects will have complete plan reviews at the 50%, 75%, and 95% stages of the process. Each submittal will be accompanied by a complete cost estimate and design schedule. The consultant is also required to schedule and participate in a utility meeting and a public meeting, if necessary. Public Works feels that the implementation of this process will result in less utility issues, easement issues, and change orders and provide a better finished product.

In previous years Public Works has included money in the budget for "bridge design review" which allows the Project Engineer the option to have his/her in-house design reviewed by a structural engineer prior to bidding the project. The 2007 budget includes \$20,000 for bridge design review. However, due to the Project Engineer vacancy these bridges will not be completed in-house. Therefore this money can be used to offset the additional cost of design of these two bridges.

CERTIFIED COPY OF ORDER

STATE OF MISSOURI }
County of Boone } ea.

April Session of the April Adjourned

Term. 20 07

In the County Commission of said county, on the 19th day of April 20 07

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

Now on this day the County Commission of the County of Boone does hereby award bid MM51 – Bituminous Material Term and Supply to the following vendors by line item.

Primary Supplier

Vance Brothers: CRS-2
Coastal Energy: CRS-2P, AEP
SemMaterials: MC-3000, PEP, SS-1, MC-800, EA-90, EA-90P

Secondary Supplier

Vance Brothers: MC-3000, SS-1, CRS2P, MC-800, AEP, EA-90, EA90P
Coastal: CRS-2

It is further ordered the Presiding Commissioner is hereby authorized to sign said contracts

Done this 19th day of April, 2007.

ATTEST:

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

Kenneth M. Pearson
Kenneth M. Pearson
Presiding Commissioner

Karen M. Miller
Karen M. Miller
District I Commissioner

Skip Elkin
Skip Elkin
District II Commissioner

CERTIFIED COPY OF ORDER

STATE OF MISSOURI }
County of Boone } ea.

April Session of the April Adjourned

Term. 20 07

In the County Commission of said county, on the 19th day of April 20 07

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

Now on this day the County Commission of the County of Boone does hereby award bid 16-03APR07 Repair Work to Hail Damaged Fairgrounds Facility to Watkins Roofing. It is further ordered the Presiding Commissioner is hereby authorized to sign said contract.

Done this 19th day of April, 2007.

ATTEST:

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

Kenneth M. Pearson
Kenneth M. Pearson
Presiding Commissioner

Karen M. Miller
Karen M. Miller
District I Commissioner

Skip Elkin
Skip Elkin
District II Commissioner

CERTIFIED COPY OF ORDER

STATE OF MISSOURI }
County of Boone } ea.

April Session of the April Adjourned

Term. 20 07

In the County Commission of said county, on the 19th day of April 20 07

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

Now on this day the County Commission of the County of Boone does hereby award bid 26-17APR07 – Boone County Jail HVAC Improvements to Harold G. Butzer, Inc. It is further ordered the Presiding Commissioner is hereby authorized to sign said contract.

Done this 19th day of April, 2007.

ATTEST:

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

Kenneth M. Pearson
Kenneth M. Pearson
Presiding Commissioner

Karen M. Miller
Karen M. Miller
District I Commissioner

Skip Elkin
Skip Elkin
District II Commissioner

172-2007

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 **Harold G. Butzer, Inc.** (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 26-17APR07
Boone County Jail HVAC Improvements
BOONE COUNTY, MISSOURI**

and agrees to perform all the work required by the contract as described in the specifications. The contract award includes the Base Bid (\$35,600.00); Alternate #1 (\$5,400.00); Alternate #2, Option 1, 6 @ \$80.00 (\$480.00); Alternate #2, Option 2, 2 @ \$178.00 (\$356.00); and Alternate #2, Option 3, 6 @ \$235.00 (\$1,410.00) for a total contract amount of \$43,246.00.

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.

1. Notice to Bidders
2. Bid Response
3. Statement of Bidders Qualifications
4. Instructions to Bidders
5. Bid Form
6. Anti-Collusion Statement
7. Signature and Identity of Bidder
8. Bidder's Acknowledgement
9. Insurance Requirements
10. Contract Conditions
11. Contract Agreement
12. Performance Bond
13. Labor & Material Payment Bond
14. Technical Specifications
15. Affidavit—Prevailing Wage
16. State Prevailing Wage Rates
17. Boone County Standard Terms and Conditions
18. Plan Sheets
19. Prevailing Wage Order #13
20. Addendum Number One

It is understood and agreed that, except as may be otherwise provided for by the "Primary Specifications", the work shall be done in accordance with the "Missouri Standard Specifications for Highway Construction, 1999", a copy of which can be obtained from the State of Missouri, Missouri Highway and Transportation Division in Jefferson City, Missouri. 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.

The Contractor further 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 10 days after receipt of Notice to Proceed, and to complete the work within 40 days after first day of work commencement 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 Public Works Department.

The Contractor further agrees that it shall forfeit as a penalty to the County of Boone the sum of \$10.00 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 Owner agrees to pay the Contractor in the amount:

Forty Three Thousand Two Hundred Forty Six Dollars and Zero Cents (\$43,246.00)

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 19 Apr 07 at Columbia, Missouri. (Date)

CONTRACTOR: **HAROLD G. BUTZER, INC.**

By: Harold G. Butzer

Authorized Representative Signature

By: HAROLD G. BUTZER

Authorized Representative Printed Name

Title: PRESIDENT

OWNER, BOONE COUNTY, MISSOURI

By: Kenneth M. Pearson

Kenneth M. Pearson, Presiding Commissioner

Approved as to Legal Form:

John Patton

John Patton
Boone County Counselor

ATTEST:

Wendy A. Noren
Wendy Noren, County Clerk by WKS

AUDITOR CERTIFICATION

In accordance with RSMo 55.660, 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.)

June E. Pitchford
Signature by cgj

4/18/07
Date

6200/60110 - \$43,246.00

Appropriation Account

PERFORMANCE BOND

Bond #54166057

KNOW ALL PERSONS BY THESE PRESENTS, that we,
Harold G. Butzer, Inc.

730 Wicker Lane, Jefferson City, MO 65109-4720

as Principal, hereinafter called Contractor, and United Fire & Casualty Company

a Corporation, organized under the laws of the State of Iowa
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 Forty-Three Thousand Two Hundred Forty-Six Dollars and 00/100 (\$43,246.00) 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 19 APR 07 entered into a
Contract with Owner for:

**BID NUMBER 26-17APR07
Boone County Jail HVAC Improvements
BOONE COUNTY, MISSOURI**

in accordance with specifications prepared by the County of Boone Purchasing Department,
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 Jefferson City, MO, on this 26th day of April, 2007.

Harold G. Butzer, Inc.
(Contractor)

(SEAL)

BY: Harold G. Butzer - President
United Fire & Casualty Company
(Surety Company)

(SEAL)

BY: Kris L. Bennett
(Attorney-In-Fact) Kris L. Bennett

BY: _____
(Missouri Representative)

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

Bond #54166057

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS, that we, Harold G. Butzer, Inc.
730 Wicker Lane, Jefferson City, MO 65109-4720,
as Principal, hereinafter called Contractor, and United Fire & Casualty Company

a corporation organized under the laws of the State of Iowa, 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 Forty-Three Thousand

Two Hundred Forty-Six Dollars and 00/100 DOLLARS

(\$ 43,246.00), 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 19 APR 07 entered
into a contract with Owner for

**BID NUMBER 26-17APR07
Boone County Jail HVAC Improvements
BOONE COUNTY, MISSOURI**

in accordance with 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 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 Jefferson City, MO on this 26th day of April 2007.

CONTRACTOR Harold G. Butzer, Inc. (SEAL)

BY: Harold G. Butzer President

SURETY COMPANY United Fire & Casualty Company

BY: Kris L. Bennett
(Attorney-In-Fact) Kris L. Bennett

BY: _____
(Missouri Representative)

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

ACKNOWLEDGMENT BY SURETY

STATE OF Missouri

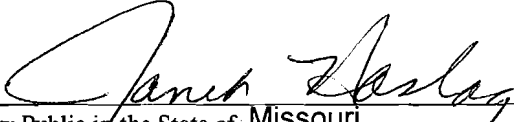
County of Cole

}
ss.

On this 26th day of April, 2007, before me personally appeared Kris L. Bennett, known to, me to be the Attorney-in-Fact of United Fire & Casualty Company

_____, the corporation that executed the within instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the aforesaid County, the day and year in this certificate first above written.



Notary Public in the State of Missouri
County of Osage

(Seal)

JANET HASLAG
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
OSAGE COUNTY
COMMISSION # 06427065
MY COMMISSION EXPIRES: OCT. 18, 2010

UNITED FIRE & CASUALTY COMPANY
HOME OFFICE - CEDAR RAPIDS, IOWA
CERTIFIED COPY OF POWER OF ATTORNEY

(Original on file at Home Office of Company - See Certification)

NOW ALL MEN BY THESE PRESENTS, That the UNITED FIRE & CASUALTY COMPANY, a corporation duly organized and existing under the laws of the State of Iowa, and having its principal office in Cedar Rapids, State of Iowa, does make, constitute and appoint

LOUIS A. LANDWEHR, OR CHARLES E. TRABUE, OR KRIS L. BENNETT, OR BEV J. BACKERS, ALL INDIVIDUALLY OF JEFFERSON CITY MO

its true and lawful Attorney(s)-in-Fact with power and authority hereby conferred to sign, seal and execute in its behalf all lawful bonds, undertakings and other obligatory instruments of similar nature as follows Any and All Bonds and to bind UNITED FIRE & CASUALTY COMPANY thereby as fully and to the same extent as if such instruments were signed by the duly authorized officers of UNITED FIRE & CASUALTY COMPANY and all the acts of said Attorney, pursuant to the authority hereby given are hereby ratified and confirmed.

The Authority hereby granted is continuous and shall remain in full force and effect until revoked by UNITED FIRE & CASUALTY COMPANY.

This power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by Board of Directors of the Company on April 18, 1973.

"Article V - Surety Bonds and Undertakings"

Section 2, Appointment of Attorney-in-Fact. "The President or any Vice President, or any other officer of the Company may, from time to time, appoint by written certificates attorneys-in-fact to act in behalf of the Company in the execution of policies of insurance, bonds, undertakings and other obligatory instruments of like nature. The signature of any officer authorized hereby, and the Corporate seal, may be affixed by facsimile to any power of attorney or special power of attorney or certification of either authorized hereby; such signature and seal, when so used, being adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed. Such attorneys-in fact, subject to the limitations set forth in their respective certificates of authority shall have full power to bind the Company by their signature and execution of any such instruments and to attach the seal of the Company thereto. The President or any Vice President, the Board of Directors or any other officer of the Company may at any time revoke all power and authority previously given to any attorney-in-fact.

IN WITNESS WHEREOF, the UNITED FIRE & CASUALTY COMPANY has caused these presents to be signed by its vice president and its corporate seal to be hereto affixed this 19th day of October, 2003

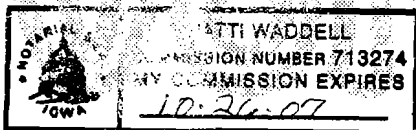
UNITED FIRE & CASUALTY COMPANY

By *Randy A. Ramlo* Vice President

State of Iowa, County of Linn, ss:

On 19th day of October, 2003, before me personally came Randy A. Ramlo

to me known, who being by me duly sworn, did depose and say, that he resides in Cedar Rapids, State of Iowa, that he is a Vice President of the UNITED FIRE & CASUALTY COMPANY, the corporation described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.



Patti Waddell
Notary Public
My commission expires.

I, the undersigned officer of the UNITED FIRE & CASUALTY COMPANY, do hereby certify that I have compared the foregoing copy of the Power of Attorney and affidavit, and the copy of the Section of the by-laws of said Company as set forth in said Power of Attorney, with the ORIGINALS ON FILE IN THE HOME OFFICE OF SAID COMPANY, and that the same are correct transcripts thereof, and of the whole of the said originals, and that the said Power of Attorney has not been revoked and is now in full force and effect.

In testimony whereof I have hereunto subscribed my name and affixed the corporate seal of the said Company this 26th day of April 20 07.

David A. Gange
Secretary



UNITED FIRE & CASUALTY COMPANY □ UNITED LIFE INSURANCE COMPANY
Second Avenue, S.E., Post Office Box 73909 Cedar Rapids, Iowa 52407

NOTICE TO MISSOURI SURETY BOND HOLDERS

Should you have a question about your bond or policy, please contact your insurance agent first.

If you are unable to contact or obtain information from your agent, you may contact our company at the address and phone number below:

United Fire & Casualty Company
ATTENTION: Bond Department
P.O. Box 73909
Cedar Rapids, Iowa 52407

800-343-9130



ACORD CERTIFICATE OF LIABILITY INSURANCE

OP ID CN
HAROL-2

DATE (MM/DD/YYYY)
04/25/07

PRODUCER
Winter-Dent & Company
101 E. McCarty Street
P.O. Box 1046
Jefferson City MO 65102-1046
Phone: 573-634-2122 Fax: 573-636-7500

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED

Harold G. Butzer Inc.
730 Wicker Ln
Jefferson City MO 65109-4720

INSURERS AFFORDING COVERAGE		NAIC #
INSURER A:	United Fire & Casualty Company	13021
INSURER B:	Builders Assc. Self-Insurers	510001
INSURER C:		
INSURER D:		
INSURER E:		

COVERAGES

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. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'L LTR	INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A		GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC	60326073	09/01/06	09/01/07	EACH OCCURRENCE	\$ 1000000
						DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 100000
						MED EXP (Any one person)	\$ 5000
						PERSONAL & ADV INJURY	\$ 1000000
						GENERAL AGGREGATE	\$ 2000000
						PRODUCTS - COM/PO/AGG	\$ 2000000
A		AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS	60326073	09/01/06	09/01/07	COMBINED SINGLE LIMIT (Ea accident)	\$ 1000000
						BODILY INJURY (Per person)	\$
						BODILY INJURY (Per accident)	\$
						PROPERTY DAMAGE (Per accident)	\$
		GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT	\$
						OTHER THAN AUTO ONLY: EA ACC	\$
						AGG	\$
A		EXCESS/UMBRELLA LIABILITY <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE DEDUCTIBLE <input checked="" type="checkbox"/> RETENTION \$10000	60326073	09/01/06	09/01/07	EACH OCCURRENCE	\$ 5000000
						AGGREGATE	\$ 5000000
							\$
							\$
B		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below	07WC0788	01/01/07	12/31/07	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER	
						E.L. EACH ACCIDENT	\$ 1000000
						E.L. DISEASE - EA EMPLOYEE	\$ 1000000
						E.L. DISEASE - POLICY LIMIT	\$ 1000000
A		Install Floater	60326073	09/01/06	09/01/07	Limit	1000000
A		Hired Equipment	60326073	09/01/06	09/01/07	Limit	100000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS
RE: HGB Job #152, Boone County Jail HVAC Improvements.

CERTIFICATE HOLDER

BOONE 45

Boone County Purchasing
601 E Walnut, Room 208
Columbia MO 65201

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

Crystal York

IMPORTANT

If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

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).

DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it *affirmatively or negatively amend, extend or alter* the coverage afforded by the policies listed thereon.



RECEIVED
APR 10 2007
HAROLD G. BUTZER

BOONE COUNTY, MISSOURI
Request for Bid #: 26-17APR07 - Boone County Jail HVAC Improvements

ADDENDUM #1 - (Issued April 9, 2007)

This addendum is issued in accordance with the Scope of Services of the Request for Bid and is hereby incorporated into and made a part of the Request for Bid Documents. Bidders are reminded that receipt of this addendum should be acknowledged and submitted with Bidder's bid response.

Specifications 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:

- 1) For informational purpose, the Pre-Bid Sign-In Sheet is attached.
- 2) Refer to Specification Section 15180 HVAC Piping.
All chilled water piping which is replaced as part of this project shall match the existing piping material regardless of pipe size. Disregard the size limitations noted in paragraph 2.01, B., sub-paragraphs a. and b.
- 3) Refer to Note 4, Drawings 1-ME2 and 2-ME2.
The variable frequency drive specified in this note is a Square D, Altivar 31. The Contractor may substitute a Toshiba or another manufacturer's variable frequency drive at their option if it can be shown that it is equal in quality.
- 4) Clarification of Temperature Controls Responsibilities
The Owner shall contract directly with C&C Group to provide technical support in reconnecting existing temperature control wiring to new equipment such as the chiller and the new VFD in Buildings B & C. The Contractor shall be responsible for coordinating and scheduling this work through the Owner.

By: Melinda Bobbitt
Melinda Bobbitt, CPPB
Director of Purchasing

OFFEROR has examined copy of Addendum #1 to Request for Bid # 26-17APR07 - Boone County Jail HVAC Improvements, receipt of which is hereby acknowledged:

Company Name: HAROLD G. BUTZER, INC.
Address: 730 WICKER LANE
JEFFERSON CITY, MO 65109

Phone Number: 573-636-4115 Fax Number: 573-636-7944

Authorized Representative Signature: Joe Raithel Date: 4/17/07
Authorized Representative Printed Name: JOE RAITHEL

BID FORM

Boone County Jail HVAC Improvements

All items shown on the project plan sheets and not included in the bid items shall be deemed incidental to the project and included in the unit prices given. In case of error in the extension, the unit price times the estimated quantity will govern.

The County plans to award the Base Bid and may or may not award Alternate #1 and Alternate #2 depending on County need and bid price received. Alternate #1 and #2 may be accepted at time of award or reinstated by the County at any time within 120 calendar days of award.

Bidder agrees to perform all the work described in the specifications and shown on the plans, for the following prices for the Boone County Jail HVAC Improvements project:	
Description	Price
Base Bid: Remove and replace existing packaged air-cooled chiller at the Boone County Jail Facility including accepting delivery of the chiller and means to place it on the existing pad along with all piping, electrical and temperature controls connections (see drawings).	\$ 35,600.00
Alternate #1: Additional cost for after hours installation of chiller	\$ 5,400.00
Total: Base Bid and Alternate #1	\$ 41,000.00
Alternate #2: Provide a unit cost with installation to replace ¾", 2" and 3" isolation butterfly valves respectively with like valves at each chilled water coil location should need arise at time of installation:	
Option 1: ¾" isolation butterfly valve	\$ 80.00
Option 2: 2" isolation butterfly valve	\$ 178.00
Option 3: 3" isolation butterfly valve	\$ 235.00
After Notice to Proceed is issued, contractor will begin work on this project within _____ days.	10 days
Project will be completed within _____ business days after first day of work commencement.	40 days

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

DATE	ADDENDUM NUMBER
4-9-07	1

COMPANY NAME: Harold G. Butzer, Inc.

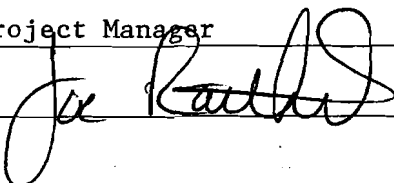
ADDRESS: 730 Wicker Lane

CITY, STATE, ZIP Jefferson City, MO 65109

PHONE NUMBER: 573-636-4115

AUTHORIZED REPRESENTATIVE: Joe Raithel

TITLE: Project Manager

SIGNATURE: 

BID RESPONSE

TO: COUNTY OF BOONE, MISSOURI

SUBJECT: 26-27APR07 - Boone County Jail HVAC Improvements

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 include 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 quantities given in the following itemized Request for Bid 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 bid response and hereby authorizes the Engineer to correct any multiplication of "Unit Price" by "Quantity" as shown under "Extended Total".

SECTION II

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

SECTION III

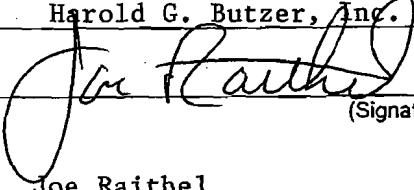
The undersigned agrees and understands that the County has the right to reject any and all bids, to waive informalities or other requirements for its benefit, and to accept such proposal as it deems to its best interest.

SECTION IV

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.

Accompanying this bid response 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 BID. If this bid response is accepted and the undersigned fails to execute the Contract and furnish a contract bond as required, then the bid guaranty shall be forfeited to the Owner.

Firm Name: Harold G. Butzer, Inc.

By: 
(Signature)

Joe Raithel
(Print or Type Name)

Title: Project Manager

Address: 730 Wicker Lane

City, State, Zip: Jefferson City, MO 65109

Phone: 573-636-4115

Fax: 573-636-7944

Date: 4-17-07

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 bid response.

1. Name of Bidder: Harold G. Butzer, Inc.
2. Business Address: 730 Wicker Lane
Jefferson City, MO 65109
3. When Organized: 1926
4. When Incorporated: 12-31-60
5. If not incorporated, state type of business and provide your federal tax identification number:

6. Number of years engaged in contracting business under present firm name:
46
7. If you have done business under a different name, please give name and location:

8. Percent of work done by own staff: 70
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
12. List of projects currently in progress: _____
see attached

* Attach additional sheets as necessary *

**HAROLD G. BUTZER, INC
CURRENT JOB LIST**

10/01/06

<u>JOB</u>	<u>CONTRACTOR/ OWNER</u>	<u>CONTRACT PRICE</u>	<u>PERCENT COMPLETE</u>	<u>COMPLETION DATE</u>
Phelps County Medical Office Building HVAC & Plumbing Rolla, MO	C.D. Smith Construction 889 East Johnson St. Fond Du Lac, WI 54936	\$2,128,800.00	50%	11/30/06
Faith Lutheran Church HVAC & Plumbing Jefferson City, MO	Dick Otke Construction Company 2421 West Edgewood Dr. Jefferson City, MO 65109	\$330,000.00	65%	12/30/06
MSHP Headquarters HVAC Jefferson City, MO	State of Missouri 301 West High St. Jefferson City, MO 65102	\$366,000.00	75%	01/16/07
Camdenton High School HVAC & Plumbing Camdenton, MO	SM Wilson 2150 South Hampton Ave. St. Louis, MO 63139	\$5,504,669.00	80%	03/01/07
Missouri School of Journalism Building HVAC & Plumbing Columbia, MO	Kozeny-Wagner, Inc. 951 West Outer Rd. Arnold, MO 63010	\$1,866,325.00	20%	05/31/07
Owensville Elementary School HVAC Owensville, MO	K & S Associates, Inc. 516 Hanley Industrial Blvd. St. Louis, MO 63144	\$1,587,570.00	10%	07/20/07

SCHEDULE OF COMPLETED JOBS
HAROLD G. BUTZER, INC.

HGB JOB NO.	PROJECT DESCRIPTION	CONTRACT AMOUNT	YEAR CLOSED
447	FT. LEONARD WOOD BOILER DECENTRALIZATION	\$2,200,739	2000
491	VON HOFFMANN GRAPHICS NEW EQUIPMENT	\$367,492	2000
494	AG LAB - UMC - COLUMBIA HVAC	\$29,267	2000
496	COLUMBIA POST OFFICE REPLACE HVAC SYSTEM	\$167,446	2001
504	KIRKSVILLE RIII SCHOOL ENERGY UPGRADES	\$206,922	2000
509	MO STATE HOUSE/SENATE HVAC	\$66,857	2001
511	WILL STALCUP PHYSICAL LAB DUST COLLECTION SYSTEM	\$89,769	2001
513	MO STATE HIGHWAY PATROL HVAC REPAIRS	\$381,940	2001
524	ADAIR FOODS INSTALL HIGH PRESSURE HOSE	\$15,511	2000
526	KIRKSVILLE ARMORY PLUMBING RENOVATION	\$33,727	2000
529	BASF CORPORATION BREATHING AIR LINES	\$10,190	2000
534	FT LEONARD WOOD BUILDING 708	\$279,541	2001

539	LINCOLN UNIVERSITY FURNACE REPLACEMENT	\$45,799	2000
549	WHITEMAN AFB B-2 LO RESTORATION	\$3,708,615	2002
544	ST. JOSEPH'S HOME HVAC & PLUMBING	\$42,967	2001
552	FULTON STATE HOSPITAL ROOF REPLACEMENT & TUCKPOINTING	\$106,633	2001
558	TRUMAN STATE UNIVERSITY RESIDENCE HALL RENOV.-PHASE III	\$127,349	2001
561	BURGER'S SMOKEHOUSE AMMONIA PIPING	\$134,246	2001
566	LINCOLN UNIVERSITY-PAGE LIBRARY TOWER LINE REPLACEMENT	\$29,347	2001
575	ST JAMES VETERAN HOME MECHANICAL & ELECTRICAL REPAIRS	\$329,568	2002
577	CERRO COPPER TUBE CO INSTALL NEW WATER TANK	\$54,397	2002
582	ADAIR FOODS RELOCATE BRINE PIPING	\$16,118	2001
586	UNILEVER-HPC RELOCATE 40-50 BLOW MOLD MACH.	\$32,787	2001
590	ADAIR FOODS WASTE WATER PIPING	\$180,106	2002
592	BASF CORPORATION UPGRADE 'B' INCINERATOR	\$92,010	2002
596	UNILEVER-HPC PROCESS TANK SETTING	\$130,978	2002
601	KINGSFORD INSTALL NEW PRE-TREAT SCREENER	\$22,166	2002

606	PILLSBURY PROCESS EQUIPMENT	\$112,365	2002
609	FIRST BAPTIST CHURCH REPLACE STEAM BOILER	\$98,320	2002
615	MO BAR ASSOCIATION HVAC EQUIPMENT REPLACEMENT	\$69,666	2002
618	ROLLA REGIONAL CENTER REPLACE WATER LINE	\$24,900	2002
625	GENERAL ELECTRIC CO MAINTENANCE ON 8 TURBINES	\$539,658	2002
639	MO HOSPITAL ASSOCIATION SEAL HVAC DUCT	\$23,000	2002
640	COLUMBIA FOODS LACTATE/DIACETATE ADDITION	\$144,772	2003
644	ST PETER & PAUL SCHOOL REPLACE GALV. WATER PIPE	\$24,100	2002
646	TEVA PHARMACEUTICALS REPLACE TANK V-001	\$20,054	2002
653	MO STATE HIGHWAY PATROL REMOVE, REPAIR & INST YORK CHILLER	\$10,400	2002
656	DYNO NOBEL MIST ELIMINATOR INSTALLATION	\$15,135	2002
665	BREWER SCIENCE, ROLLA, MO CLEAN ROOM HVAC	\$145,554	2003
672	ENG. RESEARCH LAB - UMR - ROLLA RENOV OF OFFICE STE 212 & 216	\$29,792	2003

ANTI-COLLUSION STATEMENT

STATE OF MISSOURI

COUNTY OF Cole

Joe Raithel, being first duly sworn, deposes and

says that he is Project Manager
(Title of Person Signing)

of Harold G. Butzer, Inc.
(Name of Bidder)

that all statements made and facts set out in the bid response 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 *Joe Raithel*
By _____
By _____

Sworn to before me this 17th day of April, 20 07

Connie S. Greer
Notary Public



CONNIE S. GREER
Moniteau County
My Commission Expires
July 28, 2007

My Commission Expires 7-28-07

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 bid response of a:

sole individual partnership joint venture
 corporation, incorporated under laws of the state of Missouri

Dated April 17, 2007
Name of individual, all partners, or joint ventures:

Address of each:

doing business under the name of:

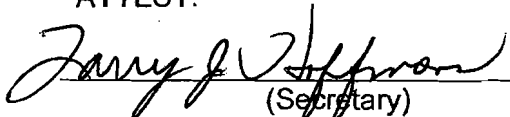
Address of principal place of business in Missouri:

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

Harold G. Butzer, Inc.
(If a corporation - show its name above)

730 Wicker Lane Jefferson City, MO
65109

ATTEST:


(Secretary)

Secretary/Controller
(Title)

NOTE: If the Bidder is doing business under a FICTITIOUS NAME, the bid response shall be executed in the legal name of the individual, partners, joint ventures, 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 Cole

On this 17th day of April, 20 07

before me appeared Harold G. Butzer to me personally known, who, being by me first duly sworn, did say that he executed the foregoing bid response 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 he 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

Harold G. Butzer
President or other agent

of Harold G. Butzer, Inc.; 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 Jefferson City, MO The day and year first above written.



(SEAL)
CONNIE S. GREER
Moniteau County
My Commission Expires
July 28, 2007

Connie S. Greer Notary Public

My Commission expires 7-28-07, 20 07



BOONE COUNTY JAIL HVAC IMPROVEMENTS

REQUEST FOR BID

Bid Number: 26-17-APR07

BOONE COUNTY COMMISSION

- Kenneth M. Pearson, Presiding Commissioner
- Karen M. Wilbur, District Commissioner
- Sam Ekin, District II Commissioner

PUBLIC WORKS

- Eric Davidson, Manager, Facility Maintenance
- David Wink, P.E., Public Works Director

Boone County Purchasing
601 E. Walnut Street, Room 203
Columbia, Missouri 65201

Melinda Bohart, CPPE, Director of Purchasing
Phone: (573) 886-4491 Fax: (573) 886-4490
Email: mbohart@booneco.mo.gov

INDEX - CONTRACT DOCUMENTS

Notice To Bidders.....	
Bid Response.....	
Statement of Bidder's Qualifications.....	
Instructions to Bidders.....	
Bid Form.....	
Anti-Collusion Statement.....	
Signature and Identity of Bidder.....	
Bidder's Acknowledgment.....	
Insurance Requirements.....	
Contract Conditions.....	
Contract Agreement.....	
Performance Bond	
Labor and Material Payment Bond	
Technical Specifications.....	
Affidavit--Prevailing Wage.....	
State Prevailing Wage Rates.....	
Boone County Standard Terms and Conditions.....	
Plan Sheets.....	
Prevailing Wage Order #13	

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

NOTICE TO BIDDERS

Boone County, Missouri is accepting sealed bids for BOONE COUNTY JAIL HVAC IMPROVEMENTS

Scope of Project Construction: Boone County has purchased a replacement chiller for the Boone County Jail Facility. The successful Contractor from this bid shall be responsible for the complete replacement of this equipment including, but not limited to, all hoisting, piping modifications, power and temperature control connections, and disposal of existing chiller.

Sealed bids will be accepted until 10:30 am on April 17, 2007 at the Boone County Purchasing Office, 601 E. Walnut, Room 208, 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 10:30 am on April 17, 2007 in the Boone County Johnson Building Conference Room 213, 601 E. Walnut, Columbia, MO 65201.

A MANDATORY Pre-Bid Conference will be held at 9:00 a.m. on April 9, 2007 at the Boone County Sheriff Department, 2121 County Drive, Columbia, MO 65202.

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.

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

Request for Bid and Plans may be obtained from Boone County Purchasing, 601 East Walnut, Room 208, Columbia, Missouri 65201, Telephone: (573) 886-4391. The current Prevailing Wage Statement can be viewed and downloaded from www.showmeboone.com/purchasing. Click on Current Prevailing Wage. If you can not view/download this bid, tabulation, and/or current prevailing wage, contact Boone County Purchasing, located at 601 E. Walnut, Room 208, Columbia, Missouri 65201, telephone (573) 886-4391, or fax (573) 886-4390 for copies.

BID RESPONSE

TO: COUNTY OF BOONE, MISSOURI

SUBJECT: 26-27APR07 - Boone County Jail HVAC Improvements

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 include 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 quantities given in the following itemized Request for Bid 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 bid response and hereby authorizes the Engineer to correct any multiplication of "Unit Price" by "Quantity" as shown under "Extended Total".

SECTION II

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

SECTION III

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 IV

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.

Accompanying this bid response is a certified check, treasurer's check or cashier's check, or a bid bond payable to the Owner for five percent of AMOUNT OF BID. If this bid response is accepted the undersigned fails to execute the Contract and furnish a contract bond as required, then the 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 bid response.

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

3. When Organized: _____
4. When Incorporated: _____
5. If not incorporated, state type of business and provide your federal tax identification 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 Jail HVAC Improvements** project 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 bid response 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 (**at the Mandatory Pre-Bid**), 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.

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 ten days
Owner shall deliver one fully signed counterpart to Contractor.

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 County a written request for an interpretation thereof seven working 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 and post office 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. *Performance Bond, and
8. *Labor and Material Payment Bond.

***FOR THE SUCCESSFUL BIDDER, PERFORMANCE BOND AND LABOR AND MATERIAL
PAYMENT BOND MUST BE SUBMITTED ON FORMS PROVIDED AT THE TIME OF CONTRACT
AWARD.**

BID FORM

Boone County Jail HVAC Improvements

All items shown on the project plan sheets and not included in the bid items shall be deemed incidental to the project and included in the unit prices given. In case of error in the extension, the unit price times the estimated quantity will govern.

The County plans to award the Base Bid and may or may not award Alternate #1 and Alternate #2 depending on County need and bid price received. Alternate #1 and #2 may be accepted at time of award or reinstated by the County at any time within 120 calendar days of award.

Bidder agrees to perform all the work described in the specifications and shown on the plans, for the following prices for the Boone County Jail HVAC Improvements project:	
Description	Price
Base Bid: Remove and replace existing packaged air-cooled chiller at the Boone County Jail Facility including accepting delivery of the chiller and means to place it on the existing pad along with all piping, electrical and temperature controls connections (see drawings).	\$
Alternate #1: Additional cost for after hours installation of chiller	\$
Total: Base Bid and Alternate #1	\$
Alternate #2: Provide a unit cost with installation to replace ¾", 2" and 3" isolation butterfly valves respectively with like valves at each chilled water coil location should need arise at time of installation:	
Option 1: ¾" isolation butterfly valve	\$
Option 2: 2" isolation butterfly valve	\$
Option 3: 3" isolation butterfly valve	\$
After Notice to Proceed is issued, contractor will begin work on this project within _____ days.	_____ days
Project will be completed within _____ business days after first day of work commencement.	_____ days

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

DATE

ADDENDUM NUMBER

COMPANY NAME: _____

ADDRESS: _____

CITY, STATE, ZIP _____

PHONE NUMBER: _____

AUTHORIZED REPRESENTATIVE: _____

TITLE: _____

SIGNATURE: _____

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 bid response 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 bid response of a:

- sole individual partnership joint venture
 corporation, incorporated under laws of the state of _____

Dated _____, 20____
Name of individual, all partners, or joint ventures:

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 bid response shall be executed in the legal name of the individual, partners, joint ventures, 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 bid response 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 \$500,000.00 each employee, \$500,000.00 each accident, and \$500,000.00 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.

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 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.

"Department" shall mean the Boone County Facility Maintenance Department.

"Director" shall mean the Director of Boone County Public Works or his/her designated representative.

"Engineer" shall mean the Director or the authorized representative of the Department for whom the work is to be performed.

"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 30 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 and 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 a 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 a 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 or about the work covered by this Contract. 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 covering material, equipment, and methods used.

DISCHARGE OF EMPLOYEES: Any employee of the Contractor who is stationed at the site of the work and should prove to be quarrelsome, dishonest, incompetent or inexperienced, or should not work for the good of the job shall, upon written notice from the County, be removed by the Contractor and replaced by an employee with proper qualifications.

ASSIGNMENT OF CONTRACT: No assignment by the Contractor of any principal construction contract or any part thereof or of the funds to be received there under 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 complete 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 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 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 Contract Documents) of any such Subcontractor, Supplier, or other person or organization 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.

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into by and between the Boone County Commission of Columbia, Missouri, (hereinafter referred to as the Owner), and _____ (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 proposal designated and marked:

Boone County Jail HVAC Improvements

and agrees to perform all the work required by the Contract as shown on the plans and specifications.

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 the agreement unless otherwise specified in writing.

1. Notice to Bidders,
2. Bid Response,
3. Statement of Bidder's Qualifications,
4. Instructions to Bidders,
5. Bid Form,
6. Anti-Collusion Statement,
7. Signature and Identity of Bidder,
8. Bidder's Acknowledgment,
9. Insurance Requirements,
10. Contract Conditions,
11. Contract Agreement,
12. Performance Bond,
13. Labor and Material Payment Bond,
14. Technical Specifications,
15. Affidavit--Prevailing Wage,
16. State Prevailing Wage Rates,
17. Boone County Standard Terms and Conditions
18. Plan Sheets
19. Prevailing Wage Order #13

The Contractor further 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 bid response 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 agents of such government agency.

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

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 \$10.00 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 there under 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 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 a 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 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 him hereunder; and that he has not, in estimating the Contract price demanded by him included any sum by reason of any such brokerage, commission, or percentage; and that 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. 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.

The Owner agrees to pay the Contractor in the amount:

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 _____ at
Columbia, Missouri. (Date)

CONTRACTOR:

OWNER, BOONE COUNTY, MISSOURI

By: _____
Authorized Representative Signature

By: _____
Kenneth M. Pearson, Presiding Commissioner

By: _____
Authorized Representative Printed Name
Title: _____

ATTEST:

Approved as to Legal Form:

Wendy Noren
Boone County Clerk

John Patton
Boone County Counselor

Auditor Certification:

In Accordance with RSMo 55.660, 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

Date

Appropriation Account

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 Jail HVAC Improvements

in accordance with plans and specifications prepared by the County of Boone Public Works Department, 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 there under, 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 there under, 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 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 it 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).

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 Jail HVAC Improvements

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 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 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 the 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 date of this bond).

TECHNICAL SPECIFICATIONS

DIVISION 15000

SECTION 15050

BASIC MECHANICAL MATERIALS & METHODS

PART I – GENERAL

1.01 SUMMARY

- A. The entire set of bid documents including plans & specifications applies to this section.

1.02 DRAWINGS AND SPECIFICATIONS

- A. All drawings and specifications on the project are complementary, each to all other sets, and they shall be used in combination for the execution of this work. Mechanical work shown on any of the contract drawings or any section of the contract specifications shall be considered as included in this work unless specifically excluded by inclusion in some other branch of the work. This shall include roughing-in for connections and equipment as called for or inferred. The Contractor shall check all drawings and specifications for the project and shall be responsible for the installation of all electrical work.
- B. The contract drawings for mechanical work are in part schematic, intended to convey the scope of work and indicate the general layout, design and arrangement. The Contractor shall follow these drawings in the layout of his work and shall consult general construction drawings, electrical drawings and all other drawings for this project to determine all conditions affecting the mechanical work. The contract drawings are not to be scaled and the Contractor shall verify spaces in which the mechanical work is to be installed.
- C. Where specific details and dimensions for mechanical work are not shown on the drawings, the Contractor shall take measurements and make layouts as required for the proper installation of the work and coordination with all other work on the project. In case of any discrepancies between the drawings and the specifications that have not been clarified by addendum prior to bidding, it shall be assumed by the signing of the contract that the higher cost (if any difference in costs) is included in the contract price, and the Contractor shall perform the work in accordance with the drawings or with the specifications, and no additional costs shall be allowed by the contract price.

1.03 WORK INCLUDED

- A. This work shall include all plant, labor, material and equipment as required to furnish and install mechanical work including demolition as shown on drawings and as hereinafter specified. Work shall also include all labor, material and equipment not shown on drawings and not specified but necessary and reasonably incidental to comply with the intent of contract to provide first class and complete installations of mechanical work. Furnish and install all materials, equipment, devices, and accessories not specifically called for by item but that are necessary to provide the requirements in operation and function that is established by the design and by the equipment specified.
- B. Work shall also include: (1) All hoists, scaffolds, staging, runways, and equipment required for the performance of the work; (2) All job measurements and shop layouts required for the proper installation of material and equipment included in the work; (3) All lights, guards, and signs as required by safety regulations applicable to the work; (4) The removal from the premises, as it accumulates, of all dirt and refuse resulting from the performance of the work; and (5) Modifications to existing structure, equipment and installations required in order to install new work; (6) Demolition Work.
- C. Work shall include providing labor and equipment for adjustments required on mechanical equipment for testing and balancing of mechanical systems as specified in Section Division 15 of this specification.

1.04 CONDUCT AND SEQUENCE IN PERFORMING WORK

- A. The Contractor shall be responsible for a scheduled sequence in performing the work so that it will not interfere with the Owner's operation with the existing wastewater treatment facility. Before any work is started, the Contractor shall consult with the Owner's Representatives and arrange a satisfactory schedule. Make temporary alterations as required to execute work so that all operations and services in the area building are maintained with the minimum possible interruption. Temporary shut-downs shall be segregated and shall be of the shortest possible duration. All facilities shall be kept in continuous operation unless specific permission to the contrary is arranged by the Owner's Representative.

1.05 MATERIAL AND MANUFACTURER

- A. All material and equipment shall be new except as stated otherwise; shall be of the best quality and design; shall be free from defects and imperfections and shall have markings or a nameplate identifying the manufacturer and providing sufficient reference to establish quality, size and capacity. As possible, all material and equipment of the same type shall be of the same manufacturer. Equipment shall function and perform efficiently and quietly at the required capacity without producing objectionable noise within the occupied areas of the building.

1.06 SUBSTITUTIONS

- A. Reference in the specifications to any article, device, product, material, fixture, equipment, form or type of construction by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. Any article, device, product, material, fixtures, equipment, form or type of construction other than those specified may be substituted for consideration, in accordance with the preliminary matters, general conditions, and supplemental conditions as applicable unless otherwise specified.

1.07 LABOR, WORKMANSHIP AND SUPERVISION

- A. All labor for the installation of material and equipment furnished under the mechanical work shall be done by experienced mechanics of the proper trade and all workmanship shall be first class and in compliance with the specific requirements of drawings and specifications.
- B. All material and equipment for the mechanical work shall be installed under competent supervisory service furnished by the Contractor. Where necessary, this shall include the services of special technicians and operation personnel.

1.08 SAETY REGULATIONS

- A. All work shall be performed in compliance with all applicable and governing safety regulations, including the regulations of the Occupational and Safety Health Act. All safety lights, signs and guards required for performance of mechanical work shall be provided by the Contractor.

1.09 CODES, ORDINANCES, REGULATIONS AND U.L. APPROVAL

- A. See General Conditions
- B. Laws, codes, ordinances and regulations shall take precedent excepting only where the work called for by the drawings and specifications exceeds by quality and quantity.
- C. Fixtures, appliances, equipment and materials which are subject to Underwriter's Laboratory tests shall bear such approval.

1.10 CONTRACTOR'S EQUIPMENT

- A. All hoists, scaffolds, staging, runways, tools, machinery and equipment required for the performance of the mechanical work shall be furnished by the Contractor.

1.11 STORAGE AND PROTECTION

- A. Material and equipment for the mechanical work shall be protected from dirt and damage and maintained in a clean condition during the performance of the work. This shall include adequate protection from the weather if storage is outside. All parts of material and equipment that have become rusted or damaged shall be replaced or restored to an acceptable condition as approved by the Owner's Representative. This shall include factory finishes damaged during construction.

1.12 CLEANING

- A. Dirt and refuse resulting from the performance of the work shall be removed from the premises as required to prevent accumulation and the Contractor shall cooperate in the maintenance of reasonably clean premises at all times.
- B. Immediately prior to the final inspection, Contractor shall clean all material and equipment. Dirt, refuse and stains shall be removed from all surfaces and damaged finishes restored to original condition.

1.13 OPERATION AND MAINTENANCE INSTRUCTION

- A. This Contractor shall furnish all services as required for adequate verbal and printed instructions to the Owner's operating and maintenance personnel for operation and maintenance of all equipment and systems installed under this Division. Three complete copies of service manuals in hardback binders shall be furnished at the end of the project in accordance with the General Conditions of the specifications. The manuals shall include warranties, printed operating and maintenance instructions for systems and equipment specified under this Division, all approved shop drawings, manufacturer's printed data, parts lists, control diagrams, valve schedules, parts list, list of equipment suppliers, list of Contractors & Subcontractors, balancing reports, test reports.
- B. When the work is complete and at a time designated by the Owner's Representative, the Contractor shall furnish the services of a qualified instructor to instruct Owner's operating and maintenance personnel in the operation and maintenance of the systems and equipment furnished and installed under this Division.
- C. The bound copies of the operating and maintenance manuals shall be used during the verbal instructions.

1.14 ADJUSTING, ALIGNING AND TESTING

- A. All mechanical equipment furnished under this Division shall be adjusted and tested by this Contractor. Motors and other equipment furnished by others, to which electrical connections are made under this Division, shall be checked for short circuit and open circuits before energizing. Motors shall be checked for proper phasing and rotation. The thermal overload protection shall be checked in all motor starters, and any protector heaters found to be of improper size as required by the motor name plate full load amperage and voltage rating for protection of the motor shall be listed (include equipment designation, rating of heater, motor-nameplate horsepower, full load amps and voltage) and 4 copies of list shall be submitted to the Owner's Representative.

1.15 CLEARANCES

- A. Provide adequate clearance in accordance with all codes and regulations, 3 feet minimum, for the proper installation of this work. Cooperate with all other Contractors whose work is in the same space, and advise the General Contractor of mechanical requirements.
- B. Locate all equipment which must be serviced, operated or maintained in fully accessible positions. Minor deviations from drawings may be made in order to allow for better accessibility. The Contractor shall ascertain from his examination of the Architectural and Structural Drawing whether any special temporary or permanent openings in the building for the admission or installation of apparatus furnished under this Contract will be necessary and he shall notify the General Contractor accordingly. He shall pay all cost of making such openings in case of failure to give this notification in time for the General Contractor to arrange for same during construction
- C. Where valves, traps, fire dampers, control damper, controls, and other equipment are installed in concealed spaces, access panels shall be installed in ceilings or furring to provide for operation, service, inspection and maintenance.
- D. Access panels in non-fire rated construction shall be Milcor, style K, M, DW, or AT as required for wall ceiling construction materials, equivalent Zurn or Wade, flush type steel units with frames. Construction shall be of not less than 16 gauge leveled stock, and fitted with pivot hinges and screw-driver coin type lock and finished with prime coat of paint. Access panels in acoustical tile ceilings shall be style AT recessed type fitted with acoustical tile to match ceiling tile. Panels shall have a minimum size of 18" x 18" for handholes and 24" x 24" for manholes.

- F. Access panels in fire rated construction shall be Underwriter's Laboratories rated labeled assemblies (frame and door) for 1-1/2 hour, "B" label. Each panel assembly shall bear the U.L. Label. Each assembly shall have steel frame and anchors designed for the type construction steel door; continuous steel hinges with stainless steel pin; automatic closing mechanism on door; self-latching latch-bolt assembly knob operator on outside and with latch-bolt release on inside; and shall be phosphate treated and have factory prime coat of baked white finish. Assemblies shall be installed in accordance with the instructions furnished by the manufacturer for the U.L. labeling.
- G. Accessible ceilings with removable type ceiling tiles do not require access panels to be installed.

1.16 CUTTING AND PATCHING

- A. The Contractor shall coordinate with the Owner's Representative before any cutting and obtain approval from the Owner's Representative prior to any cutting. All patching and finishing shall be by the Contractor.
- B. Cutting shall be done with extreme care and in such a manner that the strength of the structure will not be endangered. Wherever possible, openings in concrete or masonry construction shall be by concrete saw or rotary core drill. Openings in any construction shall be cut the minimum size required for the installation of the work. Adequate protection shall be provided to prevent damage to adjacent areas and to prevent dust from spreading to adjacent areas.
- C. Where openings or holes are cut in existing construction and the cutting breaks existing electrical circuitry or control circuitry conduit and wiring, then it shall be the responsibility of the Contractor to reroute the circuitry conduit and requiring and to complete the circuitry as required and as approved by the Engineers. Temporary completion shall be provided where necessary before the permanent rerouting and completion work is finished.
- D. Before any cutting, patching, or finishing work is started, dust and moisture protection shall first be installed as required in these specifications.
- F. Openings cut in floor shall be cut by core drilling where possible. After work is installed through any opening in floor, the opening around the work shall be patched and sealed watertight with epoxy or silicone based, non-cracking elastomeric sealant.
- G. Where existing work is removed from sleeves or openings through floor and the sleeve or opening is not to be reused, patch the hole or opening by filling with shrink epoxy cement grout, in strict accordance with the grout manufacturer's instructions and recommendations and as required to make completely watertight and fireproof. Finish the floor surface as directed by the Owner's Representative.

1.17 SHOP DRAWINGS AND SAMPLES

- A. Acceptance of the work shall be subject to the Engineers review and acceptance of shop drawings, product data and samples, as specified in the "General Conditions" of these specifications.
- B. Submittals shall include the manufacturer's model number, capacity, performance data, electrical characteristics, etc., all clearly shown and marked for the specific item of equipment to be furnished on this project. General catalog data that does not indicate the specifics for the item to be furnished for this project will not be accepted. Performance data shown or marked on the submittals shall be at the actual specified operating conditions for this project.

1.18 IDENTIFICATION, INSTALLATION AND USE OF MECHANICAL EQUIPMENT

- A. All mechanical equipment shall be furnished with factory identification for the suitability of use and installation, either by a description marked on the equipment, permanently attached label, or printed description packed with the equipment. If a printed description is packaged with the equipment, this shall be bound in the Operation and Maintenance Manuals.

1.19 NOISE AND VIBRATION

- A. Contractor shall be responsible for the installation of all equipment in such a manner as to control the transmission of noise and vibration for many installed equipment or system, so the sound level shall not exceed NC35, in any occupied space. Contractor shall be responsible for the correction of any objectionable noise in any occupied area due to improperly installed equipment.

1.20 EQUIPMENT IDENTIFICATION AND LABELS

- A. All mechanical equipment, such as pumps, airhandling units, and other similar items shall be adequately identified with labels. Labels shall clearly designate name and use of equipment. Labels shall be laminated plastic with 1/4" white letters on a black background. Labels shall be attached with pop-rivets or permanent adhesive. "Dymo" type labels not acceptable.

1.21 WARRANTIES

- A. Warranties shall be provided for all equipment in accordance with the requirement the General Conditions, except that all warranties shall be non-prorated for one ye
- B. Acceptance of the work under this Division shall be subject to the conditions that a installed systems, equipment, apparatus, and appliances included in the work shal operate and perform as designed, including code clearances, and as selected with respect to efficiency, capacity and quietness and shall operate and perform without producing objectionable noise within occupied areas of the building.
- C. Acceptance of the work shall also be subject to the conditions that any time within one year after date of acceptance final payment, any defective part of the work resulting from the supply of faulty workmanship or material shall be immediately amended, required or replaced as a part of the contract work without cost to the contract.

PART II – PRODUCTS

2.01 NONE

PART III – EXECUTION

3.01 NONE

The entire set of bid documents including plans & specifications applies to this section.

1.22 TECHNICAL SPECIFICATIONS

DIVISION 15000

SECTION 15060

HANGERS AND SUPPORTS

PART 1. - GENERAL

1.01 QUALITY ASSURANCE

- A. Manufacturer's Standardization Society (MSS) Standard Compliance:
- B. Provide pipe hangers and supports of which materials, design, and manufacture comply with MSS SP-58, SP-69, and SP-89.

PART 2. - PRODUCTS

2.01 GENERAL

- A. Provide hangers and supports manufactured by B-Line, Elcen Metal Products or Grinnell, unless otherwise specified.
- B. Except as otherwise indicated, provide factory-fabricated piping hangers, supports, rod attachments, building attachments, shields and saddles, of the following MSS types listed, to suit piping systems.
- C. Select and apply supports in accordance with MSS SP-69 and manufacturer's published product information.
- D. Select size of hangers and supports to fit pipe size for bare piping, and to fit around piping insulation with saddle or shield for insulated piping.

2.02 HORIZONTAL-PIPING HANGERS

- A. Adjustable Steel Clevis Hangers: MSS Type 1.
- B. Steel Double Bolt Pipe Clamps: MSS Type 3.

- C. Adjustable Steel Band Hangers: MSS Type 7.
- D. U-Bolts: MSS Type 24, where indicated in details or with engineer approval onl

2.04 HANGER-ROD ATTACHMENTS

- A. Steel Turnbuckles: MSS Type 13.
- B. Steel Clevises: MSS Type 14.
- C. Steel Weldless Eye Nuts: MSS Type 17.

2.05 BUILDING ATTACHMENTS

- A. Mechanical type anchors for installation in existing concrete structure as recommended by the manufacturer.

2.06 SADDLES AND SHIELDS

Note: No wood spacers will be allowed on the chilled water systems

- A. Protection Saddles: MSS Type 39; fill interior voids with segments of insulation matching adjoining insulation.
- B. Protection Shields: MSS Type 40; galvanized or plastic coated, of length and ga recommended by manufacturer to prevent crushing of insulation, and as recommended in MSS SP-69. A high density insulation insert of 8 pcf or greater shall be used for piping 2 inches and larger. Insert shall be at least as long as sh
- C. Thermal Hanger Shields: Constructed of 360° insert of high density, 100 psi, wat proofed calcium silicate, encased in 360° sheet metal shield. Provide assembly c same thickness as adjoining insulation.

2.07 MISCELLANEOUS METALS

- A. Metal Framing: Provide products complying with NEMA Std. ML 1.
- B. Steel plates, shapes, bars, and bar grating: ASTM A 36.
- C. Cold-Formed Steel Tubing: ASTM A 500.
- D. Hot-Rolled Steel Tubing: ASTM A 501.
- E. Steel Pipe: ASTM A 53, Schedule 40, welded.
- F. Fasteners: Zinc-coated.
- G. Heavy-Duty Steel Trapezes: Fabricate from steel shapes selected for loads required; weld steel in accordance with AWS standards.

PART 3. - EXECUTION

3.01 PREPARATION

- A. Proceed with installation of hangers, supports and anchors only after required building structural work has been completed in areas where the work is to be installed. Correct inadequacies including, but not limited to proper placement of inserts, anchors and other building structural attachments, provided during structural work.
- B. Prior to installation of hangers, supports, anchors and associated work, installer shall meet at project site with Contractor, installer of each component of associated work, inspection and testing agency representatives (if any), installers of other work requiring coordination with work of this section for purpose of reviewing material selections and procedures to be followed in performing the work in compliance with requirements specified.

3.02 INSTALLATION

- A. General: Install pipe hangers, supports, clamps, and attachments to support piping properly from building structure, and complying with MSS SP-69, SP-89, and enforced plumbing code. Do not use wire or perforated metal to support piping, and do not support piping from other piping.
- B. Arrange for grouping of parallel runs of horizontal piping to be supported together on trapeze type hangers where possible.
- C. Install additional building attachments where support is required for additional concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at changes in direction of piping.
- D. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers and other accessories.
- E. Install hangers and supports to allow controlled movement of piping systems and to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion bends and similar units, if provided.
- F. Load Distribution: Install hangers and supports so that piping live and dead loading and stresses from movement will not be transmitted to connected equipment, and that maximum pipe deflections allowed by ANSI B31 Pressure Piping Codes are not exceeded.
- G. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes.

3.03 INSTALLATION OF BUILDING ATTACHMENTS

- A. Install mechanical-anchor fasteners in concrete according to manufacturer's written instructions.

3.04 INSTALLATION OF HANGERS AND SUPPORTS

- A. Where piping of various sizes is to be supported together by trapeze hangers, space hangers for smallest pipe size or install intermediate supports for smaller diameter pipe. Conform to the table for maximum spacing of supports.
- B. Install the following pipe attachments:
 - 1. Adjustable steel clevis hangers for individual horizontal runs less than 20 feet in length.
- C. In general, the following chart shows the requirements for minimum rod sizes and maximum spacing, unless indicated otherwise on the drawings.

Nom. Pipe Size	Max. Span-Ft.		Min. Rod Size Inches
	Copper	Steel	
<1	5	7	3/8
1 to 1-1/4	6	7	3/8
1-1/2	8	9	3/8
2	8	10	3/8
3>	10	12	1/2

- D. In addition to the above requirements:
 - 1. Provide a support not over one foot from each change in direction pipe fitting joint and not over five feet from a valve.
- E. Insulated Piping: Comply with the following installation requirements.
 - 1. Piping insulation shall run continuous through all piping hangers.
 - 2. Shields: Where low-compressive-strength insulation is provided on piping under 8", install protective shields.
 - 3. Saddles: For pipe 8" and over, install insulation protection saddles.

3.05 ERECTION OF METAL SUPPORTS AND ANCHORAGE

- A. Provide structural steel stands to support equipment not floor mounted or hung structure. Construct of structural steel members or steel pipe and fittings. Provide factory-fabricated tank saddles for tanks mounted on steel stands.
- B. Cut, fit, and place miscellaneous metal fabrications accurately in location, alignment and elevation to support and anchor mechanical materials and equipment.
- C. Field Welding: Comply with AWS "Structural Welding Code."

3.07 ADJUSTING AND CLEANING

- A. Hanger Adjustment: Adjust hangers so as to distribute loads equally on attachment

DIVISION 15000
SECTION 15080
HVAC INSULATION

PART I – GENERAL

1.01 SUMMARY

- A. The entire set of bid documents including plans & specifications applies to this section.
- B. The Contractor shall be responsible for reinsulating existing chilled, domestic and condensate water piping to the extent that is required to perform the mechanical work indicated in these construction documents. Any insulation that must be removed to perform this work shall be restored.

1.02 QUALITY ASSURANCE

- A. Fire Performance Characteristics: Provide composite mechanical insulation (insulation, facings, jacketings, coverings, sealers, mastics, cements, and adhesives) with flame-spread index of 25 or less, and smoke-developed index of 50 or less, when tested according to ASTM E 84 (NFPA 255), UL 723, by UL or other testing or inspecting organization acceptable to the Owner. Label insulation with appropriate markings of testing laboratory.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide products from one of the following manufacturers:
 - a. Armstrong
 - b. Johns Manville
 - c. Owens-Corning
 - d. Pittsburgh Corning

2.02 PIPING INSULATION

- A. Fiberglass Piping Insulation: ASTM C 547, Class 1, 'k' = 0.29 @ 150°F mean temperature.

- B. Glass Cell Foam Piping Insulation: ASTM C 240, Type I, 'k' = 0.28 @ 50°F, 7.5# density.
- C. Elastomeric Piping Insulation: ASTM C 518, C 177, E 96 (procedure A), & D 105 Type I & II, 'k' = 0.27 @ 75°F mean temperature.

2.03 PIPE INSULATION COVER

- A. All Service Jacket (ASJ) cover shall be white kraft bonded to aluminum foil, fiberglass reinforced (ASTM E 96 (procedure A), D 781, & D 828). Pipe fitting covers shall be one-piece premolded PVC fitting covers, fastened as per manufacturer recommendations with fiberglass inserts.
- B. Aluminum jacket pipe insulation shall be .010" thick, embossed finish, with a one n polyethylene film / forty pound kraft paper integral vapor barrier affixed to the interior of the cover in conformance with ASTM B-209.
- C. Two piece fittings shall be preformed and sized for the specified pipe & insulatic thickness.
- D. Elastomeric insulation shall be covered with two coats of paint manufacture specifically for covering Elastomeric insulation, WB Armaflex Finish or equal.

2.04 EQUIPMENT INSULATION MATERIALS HVAC INSULATION

- A. Rigid fiberglass equipment insulation shall conform to ASTM C 612, Class 2, 6.0 PC density, 'k' = 0.23 @ 75°F mean temperature. cover insulation with pre-sized glass cloth jacketing material, not less than 7.8 ounces per square yard. Provide a trowel glove grade water based general purpose mastic (white or light gray) suitable for interior or exterior applications. Install per manufacturer's written installation instructions.

2.05 EXTERIOR INSULATION JACKETING

- A. Exterior piping and ductwork insulation shall be furnished with a 0.010" thick embossed aluminum jacket. Seal all seams for a weatherproof installation.

PART III – EXECUTION

3.01 INSTALLATION OF PIPING SYSTEM INSULATION

- A. Apply insulation continuously over system piping, fittings, and components except as otherwise indicated. Coat pipe insulation ends with vapor barrier coating. Apply pre-molded, precut, or field-fabricated segments of insulation around flanges, and fittings. Use same material and thickness as adjacent pipe insulation. Apply materials with adhesive, fill voids with mineral fiber insulating cement. Secure with wire or tape.

3.02 HANGERS AND SUPPORTS

- A. Apply insulation continuously **through** hangers and around anchor attachments. Install saddles, shields, and inserts as specified in Division 15 Section "Hangers and Supports".

3.03 PIPING INSULATION SCHEDULE

Pipe Application

<u>Size</u> (inches)	<u>Cond. Drain</u>	<u>Chilled Water</u>	<u>Dom. Cold Water</u>
3/4"	--	1"	1"
1"	3/4"	1-1/2"	1"
1-1/2"	3/4"	1-1/2"	1"
2"	3/4"	1-1/2"	1"
3"	--	2"	1"
4"	--	2"	1"
6"	--	2"	1"
8" & UP	--	2"	1"

3.04 INSTALLATION OF INSULATION

- A. Items Not Insulated: Unless otherwise indicated do not apply insulation to:
1. Metal ducts with duct liner.
 2. Factory-insulated flexible ducts.
 3. Factory insulated plenums, casings, terminal boxes, and filter boxes and sections.
 4. Flexible connectors for ducts and pipes.
 5. Vibration control devices.
 6. Testing laboratory labels and stamps.
 7. Nameplates and data plates.

8. Access panels and doors in air distribution systems.
9. Fire protection piping system.
10. Piping specialties including unions, strainers, check valves, plug valves, etc.

B. Insulation shall be applied to the following piping systems in accordance with ASHRAE 90.1:

1. Interior piping: Chilled water, and domestic cold water piping shall be insulated with fiberglass insulation, with ASJ.
2. Exterior piping: Exterior chilled water piping shall be cellular glass insulation. Insulation shall receive a 0.010" thick embossed aluminum jacket.
3. Insulation shall be applied to the following piping systems to prevent condensation:
 - a. Interior condensate drain shall be insulated with closed cell foam type insulation with vapor barrier.

END OF SECTION 15080

DIVISION 15000

SECTION 15120

HYDRONIC SPECIALTIES

PART I – GENERAL

1.01 QUALITY ASSURANCE

- A. ASME B 31.9 "Building Services Piping" for materials, products, and installation.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide hydronic piping system specialties from one of the following acceptable manufacturers listed for specialty item:

2.02 CALIBRATED BALANCE VALVES (Circuit Setter)

- A. Calibrated balance valves shall be bronze bodied, brass ball construction with glass and carbon filled TFE rings. Valve shall be equipped with differential pressure read-out ports across valve, 1/4" NPT tapped drain/purge port, memory stop and calibrated nameplate to assure specific valve setting. Valves shall be designed for positive shut off.
- B. Acceptable Manufacturer(s)
Bell & Gossett
Nibco
Flow Fab

2.03 MANUAL AIR VENT

- A. Rated working pressure of 150 psig, and temperature of 225°F. Bronze or brass body, nonferrous internal parts, discharge connection copper tube pig-tail, and manually operated with screwdriver or thumbscrew. 1/2" ball valves may be used in lieu of manual air vents.

PART III – EXECUTION

3.01 PROCEDURES

- A. Install hydronic system specialties as shown on the drawings, and in accordance with manufacturer's instructions and recommendations. Install in a location readily accessible for maintenance and inspection.

3.02 HYDRONIC SPECIALTIES INSTALLATION

- A. Install calibrated balance valves (circuit setters) where indicated in the drawings.
- B. Install manual air vents as required due to reconfigured piping to bleed air from system.

END OF SECTION 15120

DIVISION 15000

SECTION 15180

HVAC PIPING

PART I – GENERAL

1.01 SUMMARY

- A. The entire set of bid documents including plans & specifications applies to this section.

1.02 QUALITY ASSURANCE

- A. American Society of Mechanical Engineers (ASME) Compliance: Comply with ASME B31.9 for building services piping.
- B. ASME ratings shall be cast, or stamped into the respective product.

1.03 WORK INCLUDED

- A. The extent of work is shown on drawings, and includes but is not necessarily limited to the following:
- a. Piping Demolition
 - b. Chilled Water Piping (Hydronic Piping)
 - c. Hydronic Specialties

PART II – PRODUCTS

2.01 PIPING MATERIALS

- A. All domestic cold water piping shall be Type L copper hard temper with wrought copper fittings. Unions in copper tube shall be cast bronze solder-end ground joint type, Nibco 733 or equal. Manufactured by Jenkins, Nibco-Scott, Hammond or equal. Solder shall be 95% tin/5% silver, no-lead 450 degrees F. Manufactured by J.W. Harris, Handy and Harman, Divco, Hercules or equal.
- B. Chilled water piping shall be as follows:

- a. 4" and smaller, Type L copper with wrought copper fittings.
- b. Larger than 4", ASTM 53, Schedule 40 black steel with welded, or class 1 malleable iron threaded fittings, ASTM A-197, ANSI B16.3.
- c. At the contractor's option, Victaulic, Grinnell, or Approved Equal, rolled groove piping systems may be used in lieu of screwed, or welded fittings and joints for heating and chilled water piping in all sizes.
- d. Condensate piping 2-1/2 inches and larger shall be schedule 80 steel pipe with welded joints.

PART III – EXECUTION

3.01 DEMOLITION

A. See drawings for demolition work. All removed materials shall be removed from site and disposed of legally.

3.02 GENERAL

- A. All pipe, fittings, valves, etc., shall be cleaned of grease, dirt, scale and foreign materials before installation. All temporary pipe openings shall be kept closed during the performance of the work. The ends of the pipe shall be reamed smooth and all burrs removed before installation.
- B. All pipe shall be cut accurately to measurements taken on job. Offset connections shall be installed for alignment of vertical to horizontal piping and where required to make a true connection and to provide for expansion. Bent or sprung pipe shall not be acceptable.
- C. Piping connections shall have unions where necessary for replacement and repair of equipment. Shut-off valves, flow control valves and control valves shall be installed where shown and where necessary for proper operation and service. Vertical piping shall be plumb, horizontal piping shall be run as high as possible and all piping shall

be run parallel to or at right angles with lines and surfaces of the building. Piping shall be supported as required to prevent transmission of noise and vibration. Vertical pipe shall be adequately supported to prevent lateral movement.

- D. Final connections to all equipment and fixtures shall be made in a manner that will permit the complete removal of any fixtures or any piece of equipment without cutting pipe lines.
- E. Work shall include all pipe, fittings, offsets, etc., as required for the installation of piping to meet all construction conditions and allow for the installation of other work including ducts and conduit. All changes in direction of pipe shall be made with fittings; bending of pipe will not be allowed. Reducing fittings shall be used where pipe changes size. The use of reducing bushings will not be allowed. All piping shall be installed with ample clearance for installation of covering. All piping shall be installed to center accurately in sleeves through floors, walls and partitions.

3.03 INSTALLATION OF HYDRONIC PIPING

- A. Install shutoff valves at each branch connection to existing supply mains, and at supply connections to each piece of equipment.
- B. Install throttling (balance) valves at each branch connection to return mains and at return connections to each piece of equipment.
- C. Install calibrated plug valves on the outlet of each heating or cooling element.
- D. Install drain valves at low points in mains, risers and branch lines.
- E. Install check valves on each pump discharge.
- F. Install flexible connectors at inlet and discharge connection to pumps and other vibration producing equipment.

- G. Install unions in pipes 2 inches and smaller, adjacent to each valve and at final connections of each piece of equipment. Unions are not required at flanged connections.
- H. Install strainers on supply side of each control valve, pressure reducing valve and line pump.
- I. Install automatic air vents at high point in system, and at heat transfer coils.
- J. Provide pressure gages on the inlet and outlet of coils rated for 400 cfm or more.

3.04 INSTALLATION OF STEAM PIPING

- A. Install drain valves at low points in mains, risers and branch lines.
- B. Install swing check valves to control flow direction and to serve as vacuum breakers.
- C. Provide float and thermostatic traps on steam mains riser drop legs, heat exchangers and coils.
- D. Provide for branch connections to steam mains using 45-degree fittings.
- E. Install unions or flanges adjacent to each valve and final connections to each piece of equipment.
- F. Install strainers on supply side of each control valve, pressure regulating valve, and trap. Install nipple and ball valve in blow down connection of strainers 2 inches and larger.
- G. Provide for drip legs at low points and natural drainage points at the end of mains, bottom of risers and ahead of pressure regulators, control valves and pipe bends.
- H. Provide drip legs every 200 feet where pipe is pitched down in the direction of steam flow and every 150 feet where pipe is pitched in the opposite direction of steam flow.

- I. Provide for vacuum breaker downstream from control valve.

3.05 PIPE CLEANING

- A. Thoroughly clean all piping prior to putting into operation.

3.06 TEST OF PIPING SYSTEMS

- A. All piping systems shall be pressure tested for leaks as herein specified. Test pressure shall remain on each system for not less than 8 hours. If leaks develop, test shall be repeated after leaks are corrected. The Owner's representative shall be notified at least 48 hours prior to the scheduled test of piping system so that arrangements can be made for the Owner's representative to observe the test.
- B. No part of the piping systems shall be covered or concealed until it has been tested, tests observed and system approved by the Owner's representative. All tests performed shall be confirmed in writing and signed by Architect or Owners Representative.
- B. All equipment, materials, temporary installations, connections, by-passes, and instruments required for the testing shall be furnished and installed by the Contractor. After testing has been completed and the system has been approved by the Architect, the Contractor shall remove all temporary equipment, materials and connections.

DIVISION 15000

SECTION 15684

PACKAGED AIR-COOLED CHILLERS

PART I – GENERAL

1.01 SUMMARY

- A. Boone County Public Works, hereinafter referred to as the Owner, has pre-purchased a replacement chiller for the Boone County Jail Facility located at 2121 County Drive, Columbia, MO 65202.
- B. The Contractor shall be responsible for coordinating and accepting delivery of this chiller from the chiller supplier, Thermal Mechanics, Inc. Contact Kevin Kimmel (636) 532-1110 to coordinate this work.
- C. The Contractor shall be responsible for the complete replacement of this equipment. This shall include, but not be limited to, all hoisting, piping modifications, power and temperature control connections, etc. as required to make a complete installation.
- D. The Contractor shall be responsible for the removing and legally disposing of the existing chiller from the site.

1.02 PRODUCT SUBMITTAL

- A. For reference, the new chiller is a McQuay Model AGS-210C, 208V-3 PH.
- B. A full chiller submittal is included at the end of this specification section for use by the installing contractor.
- C. Any questions, or clarifications shall be discussed with the chiller supplier prior to installation.

1.03 WARRANTY

- A. The proposed chiller includes a written warranty from the chiller manufacturer with a standard one year warranty covering parts and labor for all chiller components, and an extended warranty agreeing to furnish parts for compressor and motor failures within a 5 year period from start-up.
- B. The Contractor's Warranty shall cover all piping, power and temperature controls connections, etc. that are related to the chiller installation.

PART II – PRODUCTS

2.01 NOT APPLICABLE

PART III – EXECUTION

3.01 FIELD QUALITY CONTROL

- A. The chiller suppliers proposal includes the services of a factory-authorized service representative to provide start-up services and review installation of chillers, including piping and electrical connections, and to report results in writing.
- B. It shall be the responsibility of the installing contractor to coordinate the start-up of this equipment with the chiller supplier and assist the start-up technician as required to initiate start and test this equipment.

3.02 DEMONSTRATION

- A. *The chiller supplier's contract includes the cost for a factory-authorized service representative to demonstrate and train Owner's maintenance personnel as specified below:*
 - 1. Train Owner's maintenance personnel on procedures and schedules related to startup, shutdown, troubleshooting, servicing, and preventive maintenance.
 - 2. Review data in the operation and maintenance manuals.
 - 3. Schedule training with Owner, through Engineer, with at least 7 days' advance notice.
- B. The installing Contractor shall participate and assist the factory representative in demonstrating the chiller equipment to the Owner's maintenance personnel.

END OF SECTION 15684

McQUAY PDC - TECHNICAL BREAKDOWN

Date saved: March 27, 2007

JOB NUMBER	QRZ343	REP. OFFICE	Thermal Mechanics, Inc.
JOB DESCRIPTION	Boone County chiller	SALESMAN	Thermal Mechanics, Inc.
MODEL NUMBER	AGS210C	CUSTOMER	
UNIT TAGGING	CH-1	VERSION	7.52

GENERAL DATA	
Approval listing	ETL / Canadian ETL Listed and Labeled

PHYSICAL DATA			
Length (ins)	263.0	Shipping weight (lb)	11011.0
Width (ins)	89.0	Operating weight (lb)	11928.0
Height (ins)	101.0	Refrigerant	R134a
		Refrigerant charge (lb)	402.0

EVAPORATOR DATA		CONDENSER DATA	
LWT (°F)	44.5	Design ambient (°F)	105.0
EWT (°F)	55.6	Altitude (ft)	0
Flow (gpm)	424.5	Fan diameter (ins)	30
Delta T (°F)	11.1	Fan motor HP	2.5
Fluid type	Water	Fan RPM	1140
Percentage of fluid	100	Low ambient control to (°F)	30.0
Number of passes	2	Unit airflow (cfm)	130360
Fouling Factor (F.ft ² .h/Btu)	0.00010		
Tube material	Cu		
Tube wall thickness (ins)	0.025		
Water volume (gal)	106.0		

UNIT ELECTRICAL DATA			
Volts	208	LRA Fan Motors (each)	46.0
Num Fan Motors	12	RLA Fan Motors (each)	11.0
	Single Point	Multi Point	
		Ckt 1	Ckt 2
			Ckt 3
MCA	897		
Field Wire Gauge	300		
Field Wire Qty	12		
Conduit Qty			
Conduit Nom Size			
Recommend Fuse Size	1000		
Maximum Fuse Size	1200		
Terminal Amps**			
Connector Wire Range**	1/0 - 750 (4/C)		

** Amp and Wire Range values shown are for Standard Power Block. Consult catalog for values when selecting Disconnect Switch option.

McQUAY PDC - TECHNICAL BREAKDOWN

Date saved: March 27, 2007

COMPRESSOR ELECTRICAL DATA						
Type / Quantity	Screw/2					
	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Comp 6
RLA	340.0	340.0	-	-	-	-
LRA						
Across the Line	-	-	-	-	-	-
Reduced Inrush / Part Winding	-	-	-	-	-	-
Solid State	-	-	-	-	-	-

DESIGN PERFORMANCE										
Capacity (tons)	Input power (kW)	Performance (EER)	Flow (gpm)	IPLV	Evaporator			Condenser		
					P.D. (ft-Hd)	T In (°F)	T out (°F)	Ambient (°F)	Altitude (ft)	NA
196.3	266.7	8.8	424.5	12.99	11.4	55.6	44.5	105.0	0	NA

PART LOAD PERFORMANCE AT ARI STANDARD CONDITIONS				
P#	%load request	Capacity (tons)	Total unit input power (kW)	Performance (EER)
1	100	201.2	241.5	10.0
2	75	151.0	159.5	11.4
3	50	100.6	89.8	13.4
4	25	60.8	49.1	12.3

SOUND DATA								
Sound pressure (at 30 feet) - octave band at center frequency (dBA)								
63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz	Overall
41	46	54	69	65	66	62	56	70
Sound power - octave band at center frequency (dBA)								
63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz	Overall
68	72	80	85	91	93	89	82	97

Sound data rated in accordance with ARI Standard-370. Sound data may not be available for all models.

NOTES:

The ARI 60 hertz Certification Program covers models that are:

- rated up to 200 tons at ARI Standard Rating Conditions
- voltages less than or equal to 600 volts
- leaving chilled water temperature 40 to 48 °F
- ambient temperature 55 to 125 °F
- hermetic or open type electric motor driven
- chiller selections that are within the scope of the Application Rating Conditions of ARI Standard 550/590-1998 have chiller performance this is "Certified in accordance with the ARI Water-Chilling Packages Using the Vapor Compression Cycle Certification Program, which is based on ARI Standard 550/590."

The ARI Certification Program specifically excludes:

- chillers above 200 tons
- chillers with voltages above 600 volts
- secondary coolant ratings other than water (e.g. glycol ratings)
- chiller selections that are not within the scope of the Application Rating Conditions of ARI Standard 550/590-1998 have chiller performance this is "Rated in accordance with ARI Standard 550/590-Outside the scope of Certification Program."
- Above RLA values are per compressor. kW values are total unit kW.

Certified Drawing	CD: AGS C PKG COVR
McQuay International certifies that it will furnish equipment in accordance with this drawing and specifications, and subject to its published warranty. Purchaser's approval to this drawing signifies that the equipment is acceptable under the provisions of the job specifications. Any change made hereon by any person whatsoever is subject to acceptance by McQuay International, P.O. Box 2510, Staunton, VA 24402 USA; (540) 248-0711.	Group: Chiller Type: AGS-C Effective: February 2004

Model AGS-C Packaged Air-Cooled Screw Compressor Water Chiller

Sold To: Boone County	McQuay G.O. No.	Date: 3/26/07
Customer P.O.:		
Job: Air Cooled Chiller, Boone County Jail		
Rep. Name: Thermal Mechanics, Inc. Rep. P.O.:		
<input type="checkbox"/> Copies <input checked="" type="checkbox"/> For Approval <input type="checkbox"/> For Record		
Consulting Engineer:		
Rev. No. 1	By MAB	Date 3/27/07

Certified Performance Data

Tag	Model Number	Qty.	Electrical Charac. V/Hz/Ph	Capacity Tons	Compressor Power KW	Unit Efficiency EER	Evaporator				Ambient Air Temp.
							Flow GPM	EWT °F	LWT °F	PD Ft	
	AGS210C	1	208/60/3	196.3	266.7	8.8	424	55.6	44.5	11.4	105

Standard Features

Cabinet: Unit casing and all structural members and rails are fabricated of steel and painted to meet ASTM B117, 500 hour salt spray.

Compressors: Two, independent, direct drive 3600 rpm, single screw type, with one main rotor meshing with two diametrically opposed gaterotors

Condenser Coil: Copper tube and aluminum fin with integral subcooler section. Wire mesh coil guards are standard.

Condenser Fans: Direct drive propeller type with heavy gauge mesh fan guard.

Condenser Fan Motors: Three phase, 1140 rpm, TEAO type.

Evaporator: Two circuit, direct expansion, shell-and-tube type, with water in the shell and refrigerant in the tubes. Removable heads and internally finned tubes mechanically bonded to the steel tube sheets. Drain and vent fittings. ASME designed, constructed, inspected, and stamped. Insulated with 3/4 in. (19mm) thick closed shell insulation. Resistance type heating cable and thermostat for freeze protection to -20°F (-29°C).

Piping and Accessories: Manual liquid line shutoff valve, filter-drier, liquid line solenoid valve, sight glass/moisture indicator, electronic expansion valve and suction insulation.

Control Center: A microprocessor based control system. The controller features easy to use 12-key keypad and 32 character digital display that provides access to temperatures, pressures, setpoints, operating status and alarm messages. The control transformer is included. Solid State Starters are standard and include ground fault and phase voltage protection. Standard power connection is multi-point to power blocks.

Assembly and Test: Assembly includes complete factory fabrication and assembly of parts, insulation, wiring between control components and all controls listed, factory supplied oil and refrigerant charge. Testing includes full operational and safety testing.

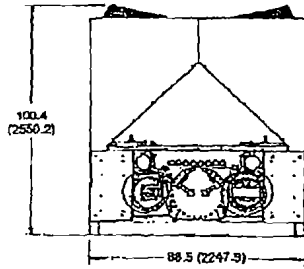
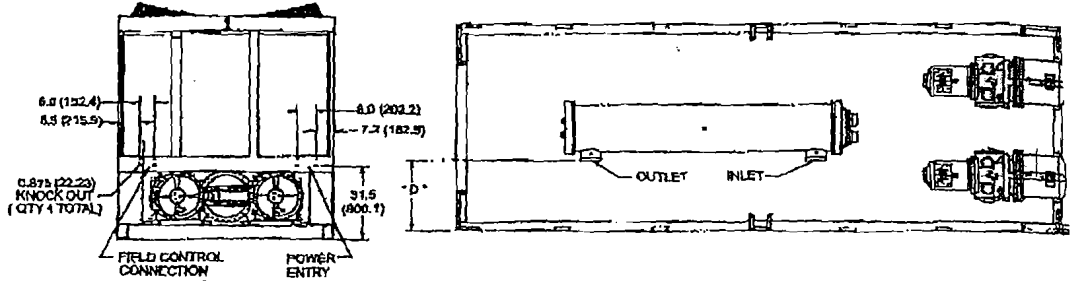
Additional Features As Checked Below:

Field Installed	
<input checked="" type="checkbox"/> Chilled Water Flow Switch, Field Installed	<input type="checkbox"/> Spring Isolators
<input type="checkbox"/> Chilled Water Flow Switch, Factory Installed	<input type="checkbox"/> Wind Baffles/Hall Guards
Factory Installed	
<input type="checkbox"/> Copper Condenser Fins	<input type="checkbox"/> Single-point Connection to Power Block w/ Compressor Circuit Breakers
<input type="checkbox"/> Baked Epoxy Coil Coating	<input checked="" type="checkbox"/> Single-point Connection to Disc. Switch w/ Compressor Circuit Breakers
<input type="checkbox"/> Black Fin Coil	<input type="checkbox"/> Single-point Connection to High Interrupt DS w/ Compressor Circuit Breakers
<input checked="" type="checkbox"/> 115V Convenience Outlet	<input type="checkbox"/> Single-point Connection to High Interrupt DS w/ Compressor Circuit Breakers
<input checked="" type="checkbox"/> VFD Low Ambient Control	In a High Short Circuit Rated Panel
<input checked="" type="checkbox"/> High Ambient Temperature Operation	<input type="checkbox"/> Multi-point Connection to Disconnect Switches
<input type="checkbox"/> BAS Interface Module <input type="checkbox"/> Modbus <input type="checkbox"/> BACnet <input type="checkbox"/> LONTALK	<input type="checkbox"/> Multi-point Connection to High Interrupt Disconnect Switches
<input type="checkbox"/> Right-hand Evaporator Connections	<input type="checkbox"/> Multi-point Connection to High Interrupt DS in a High Short Circuit Rated Panel
<input type="checkbox"/> 115 Volt Convenience Outlet	<input checked="" type="checkbox"/> Sound Enclosure (Field Installed kit)
<input type="checkbox"/> Protective Base Guards	<input checked="" type="checkbox"/> Suction Shutoff valve
<input type="checkbox"/> Louvers <input type="checkbox"/> Coil Only <input type="checkbox"/> Coil and Base	<input type="checkbox"/> Other

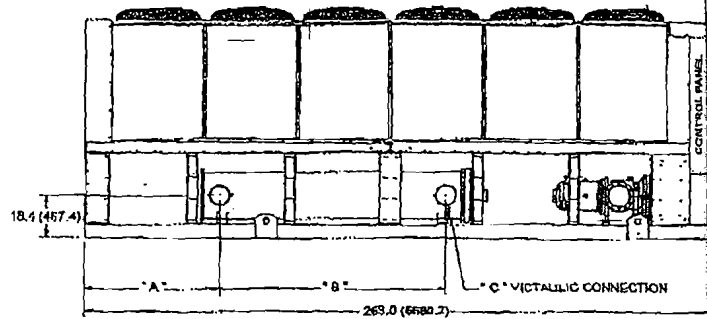


Certified Drawing		CD: AGS120-210C
Job Name:		Group: Chiller
		Type: AGS 120-210CS
		Date: June 2005
Tag / Item No.:		Supersedes: April 200

Dimensions: AGS 165C -210C Packaged Chiller



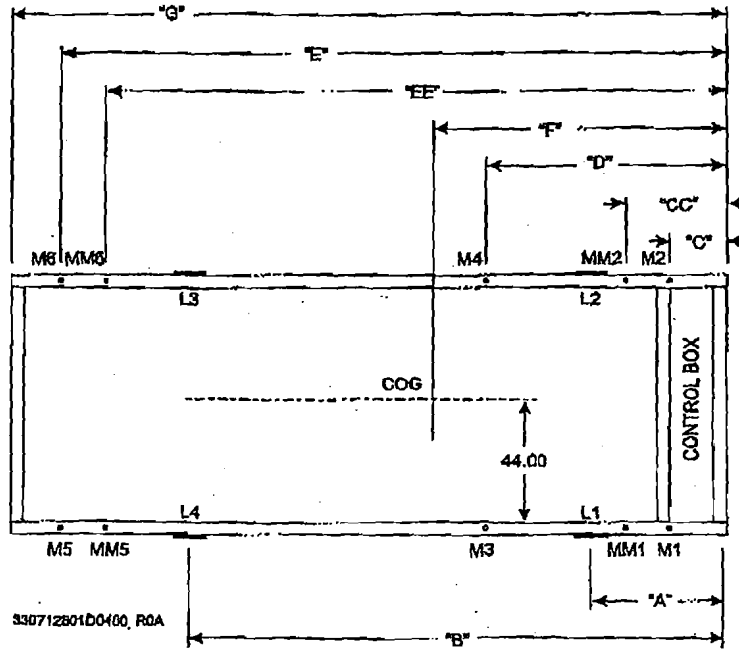
330712701-03



UNIT SIZE	Dimensions in (mm)			
	"A"	"B"	"C"	"D"
AGS165C	54.9 (1394.5)	92.9 (2359.7)	8 (203.2)	30.1 (764.5)
AGS175C	54.9 (1394.5)	92.9 (2359.7)	8 (203.2)	30.1 (764.5)
AGS195C	54.9 (1394.5)	92.9 (2359.7)	8 (203.2)	30.1 (764.5)
AGS210C	54.9 (1394.5)	92.9 (2359.7)	8 (203.2)	30.1 (764.5)

Certified Drawing		CD: AGS120-210CS-CH
Job Name:		Group: Chiller
		Type: AGS 120-210CS/CH
		Date: June 2005
Tag / Item No.:		Supersedes: April 2005

Mounting and Lifting Dimensions



NOTE: "L" are lifting tab locations, "M" are standard isolator locations, MM and M3 and M4 are for seismic mounts.

AGS MODEL	A	B	C	CC	D	E	EE	F	G
120	38.00	138.60	12.00	21.00	57.30	174.60	165.80	71.49	186.60
125	36.00	168.85	12.00	21.00	69.25	212.80	203.80	86.64	224.80
130	36.00	136.60	12.00	21.00	57.30	174.60	165.80	71.49	186.60
135	36.00	168.85	12.00	21.00	69.25	212.80	203.80	86.64	224.80
140	36.00	136.60	12.00	21.00	57.30	174.60	165.80	71.49	186.60
145	36.00	168.85	12.00	21.00	69.25	212.80	203.80	86.66	224.80
160	36.00	136.60	12.00	21.00	57.30	174.60	165.80	71.49	186.60
165	36.00	189.00	12.00	21.00	84.00	251.00	242.00	105.17	263.00
170	36.00	168.85	12.00	21.00	69.25	212.80	203.80	86.65	224.80
175	36.00	189.00	12.00	21.00	84.00	251.00	242.00	105.17	263.00
180	36.00	168.85	12.00	21.00	69.25	212.80	203.80	86.65	224.80
190	36.00	168.85	12.00	21.00	69.25	212.80	203.80	86.65	224.80
185	36.00	189.00	12.00	21.00	84.00	251.00	242.00	105.17	263.00
210	36.00	189.00	12.00	21.00	84.00	251.00	242.00	105.17	263.00

NOTES:

- Center of gravity (F) is calculated from shipping weight.
- Dimensions are in inches.
- Mounting holes are 0.75 inch diameter and have center located 2.0 inches from the outside edge.

Certified Drawing		CD: AGS120-210CS-
Job Name:		Group: Chiller
		Type: AGS 120-210CS/C
		Date: June 2005
Tag / Item No.:		Supersedes: April 2005

Lifting and Mounting Weights, Aluminum Fins

AGS	Lifting Weights				Mounting Weights						Operating Weight		Shipping Weight	
	L1, L2		L3, L4		M1, M2		M3, M4		M5, M6		lbs	kg	lbs	kg
	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg				
120	2919	1325	1591	722	1735	788	1631	740	1359	617	9452	4291	9020	4095
125	3161	1435	1941	831	1980	899	1875	851	1610	731	10930	4962	10205	4633
130	2919	1325	1591	722	1735	788	1631	740	1359	617	9452	4291	9020	4095
135	3161	1435	1941	831	1980	899	1875	851	1610	731	10930	4962	10205	4633
140	2919	1325	1591	722	1735	788	1631	740	1359	617	9452	4291	9020	4095
145	3075	1396	1898	861	1905	865	1800	817	1538	698	10485	4760	9942	4514
180	2933	1332	1809	821	1766	802	1724	783	1614	733	10209	4635	9484	4306
165	3017	1370	2489	1130	2129	967	2031	922	1804	819	11928	5415	11011	4999
170	3269	1484	2007	911	1940	881	1900	863	1798	816	11277	5120	10552	4791
175	3017	1370	2489	1130	2129	967	2031	922	1804	819	11928	5415	11011	4999
180	3269	1484	2007	911	1940	881	1900	863	1798	816	11277	5120	10552	4791
190	3269	1484	2007	911	1940	881	1900	863	1798	816	11277	5120	10552	4791
195	3017	1370	2489	1130	2129	967	2031	922	1804	819	11928	5415	11011	4999
210	3017	1370	2489	1130	2129	967	2031	922	1804	819	11928	5415	11011	4999

Lifting and Mounting Weights, Copper Fins

AGS	Lifting Weights				Mounting Weights						Operating Weight		Shipping Weight	
	L1, L2		L3, L4		M1, M2		M3, M4		M5, M6		lbs	kg	lbs	kg
	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg				
120	3238	1470	1910	867	1948	884	1844	837	1572	714	10728	4871	10296	4674
125	3560	1616	2340	1062	2246	1020	2141	972	1878	852	12526	5687	11801	5358
130	3238	1470	1910	867	1948	884	1844	837	1572	714	10728	4871	10296	4674
135	3560	1616	2340	1062	2246	1020	2141	972	1878	852	12526	5687	11801	5358
140	3238	1470	1910	867	1948	884	1844	837	1572	714	10728	4871	10296	4674
145	3474	1577	2295	1042	2171	986	2066	938	1804	819	12081	5485	11538	5238
160	3252	1476	2128	966	1979	898	1937	879	1827	829	11485	5214	10760	4885
165	3496	1587	2968	1347	2448	1112	2350	1067	2123	964	13844	6285	12927	5869
170	3668	1665	2406	1092	2206	1002	2166	983	2064	937	12873	5844	12148	5515
175	3496	1587	2968	1347	2448	1112	2350	1067	2123	964	13844	6285	12927	5869
180	3668	1665	2406	1092	2206	1002	2166	983	2064	937	12873	5844	12148	5515
190	3668	1665	2406	1092	2206	1002	2166	983	2064	937	12873	5844	12148	5515
195	3496	1587	2968	1347	2448	1112	2350	1067	2123	964	13844	6285	12927	5869
210	3496	1587	2968	1347	2448	1112	2350	1067	2123	964	13844	6285	12927	5869

Certified Drawing

CD: AGS120-210CS-CH

Job Name:	Group: Chiller
	Type: AGS 120-210CS/CH
	Date: June 2005
Tag / Item No.:	Supersedes: April 2005

Table Continued from Previous Page

AGS UNIT SIZE	VOLTS	HZ	MINIMUM CIRCUIT AMPACITY (MCA)	POWER SUPPLY (NOTE 1) FIELD WIRE	FIELD FUSE SIZE or HACR BREAKER SIZE	
					RECOM-MENDED	MAXIMUM
180C	208	60	853	(2) 2-300 MCM	1000	1000
	230		772	(2) 2-250 MCM	1000	1000
	380		469	(2)-250 MCM	600	600
	460		380	2-250 MCM	450	500
	575		301	350 MCM	350	400
190C	208	60	853	(2) 2-300 MCM	1000	1000
	230		772	(2) 2-250 MCM	1000	1000
	380		469	(2)-250 MCM	600	600
	460		380	2-250 MCM	450	500
	575		301	350 MCM	350	400
195C	208	60	871	(2) 2-300 MCM	1000	1000
	230		788	(2) 2-250 MCM	1000	1000
	380		479	(2)-250 MCM	600	600
	460		387	2-250 MCM	450	500
	575		300	350 MCM	350	400
210C	208	60	897	(2) 2-300 MCM	1000	1200
	230		812	(2) 2-250 MCM	1000	1000
	380		493	(2)-250 MCM	600	600
	460		396	2-250 MCM	450	500
	575		313	400 MCM	350	400

Notes

1. Table based on 75°C field wire.
2. A "HACR" breaker is a circuit breaker designed for use on equipment with multiple motors. It stands for Heating, Air Conditioning, Refrigeration.

Certified Drawing		CD: AGS120-210K
Job Name:		Group: Chiller
		Type: AGS 120-210C
		Date: June 2005
Tag / Item No.:		Supersedes: April 20

Table Continued from Previous Page

AGS UNIT SIZE	VOLTS	HZ	RATED LOAD AMPS		FAN MOTORS FLA (EACH)	NO OF FAN MOTORS	L R A FAN MOTORS (EACH)
			COMP. #1	COMP. #2			
180	208	60	340	340	7.3	10	40.0
	230		308	308	6.6	10	40.0
	380		187	187	4.0	10	20.0
	480		154	154	3.3	10	20.0
	575		123	123	2.4	10	12.8
190	208	60	340	340	7.3	10	40.0
	230		308	308	6.6	10	40.0
	380		187	187	4.0	10	20.0
	460		154	154	3.3	10	20.0
	575		123	123	2.4	10	12.8
195	208	60	340	340	7.3	12	40.0
	230		308	308	6.6	12	40.0
	380		187	187	4.0	12	20.0
	480		154	154	3.3	12	20.0
	575		123	123	2.4	12	12.8
210	208	60	340	340	11.0	12	45.0
	230		308	308	9.9	12	45.0
	380		187	187	6.0	12	25.0
	460		154	154	4.1	12	23.0
	575		123	123	3.0	12	20.0

NOTES:

1. Table based on 75°C field wire.

Certified Drawing

CD: AGS120-210CS-CH

Job Name:	Group: Chiller
	Type: AGS 120-210CS/CH
	Date: June 2005
Tag / Item No.:	Supersedes: April 2005

Table Continued from Previous Page

AGS UNIT SIZE	VOLTS	HZ	WIRING TO STANDARD UNIT POWER BLOCK		WIRING TO OPTIONAL NONFUSED MOLDED CASE SWITCH IN UNIT	
			TERMINAL SIZE AMPS	CONNECTOR WIRE RANGE PER PHASE (COPPER WIRE ONLY)	SIZE AMPS	CONNECTOR WIRE RANGE PER PHASE (COPPER WIRE ONLY)
160	208	60	800	1/0 - 750 MCM (4/C)	800	1/0 - 500 MCM (3/C)
	230		800	1/0 - 750 MCM (4/C)	800	1/0 - 500 MCM (3/C)
	380		800	1/0 - 750 MCM (4/C)	600	3/0 - 500 MCM (2/C)
	460		400	#6 - 350 MCM (2/C)	600	3/0 - 500 MCM (2/C)
	575		400	#6 - 350 MCM (2/C)	600	3/0 - 500 MCM (2/C)
165	208	60	800	1/0 - 750 MCM (4/C)	800	1/0 - 500 MCM (3/C)
	230		800	1/0 - 750 MCM (4/C)	800	1/0 - 500 MCM (3/C)
	380		800	1/0 - 750 MCM (4/C)	600	3/0 - 500 MCM (2/C)
	460		400	#6 - 350 MCM (2/C)	600	3/0 - 500 MCM (2/C)
	575		400	#6 - 350 MCM (2/C)	600	3/0 - 500 MCM (2/C)
170	208	60	1000	1/0 - 750 MCM (4/C)	1200	250 - 500 MCM (4/C)
	230		800	1/0 - 750 MCM (4/C)	800	1/0 - 500 MCM (2/C)
	380		800	1/0 - 750 MCM (4/C)	600	3/0 - 500 MCM (2/C)
	460		400	#6 - 350 MCM (2/C)	600	3/0 - 500 MCM (2/C)
	575		400	#6 - 350 MCM (2/C)	400	3/0 - 500 MCM (2/C)
175	208	60	1000	1/0 - 750 MCM (4/C)	1200	250 - 500 MCM (4/C)
	230		800	1/0 - 750 MCM (4/C)	800	1/0 - 500 MCM (2/C)
	380		800	1/0 - 750 MCM (4/C)	600	3/0 - 500 MCM (2/C)
	460		400	#6 - 350 MCM (2/C)	600	3/0 - 500 MCM (2/C)
	575		400	#6 - 350 MCM (2/C)	400	3/0 - 500 MCM (2/C)
180	208	60	1000	1/0 - 750 MCM (4/C)	1200	250 - 500 MCM (4/C)
	230		1000	1/0 - 750 MCM (4/C)	1200	250 - 500 MCM (4/C)
	380		800	1/0 - 750 MCM (4/C)	800	3/0 - 500 MCM (2/C)
	460		400	#6 - 350 MCM (2/C)	600	3/0 - 500 MCM (2/C)
	575		400	#6 - 350 MCM (2/C)	400	3/0 - 500 MCM (2/C)
190	208	60	1000	1/0 - 750 MCM (4/C)	1200	250 - 500 MCM (4/C)
	230		1000	1/0 - 750 MCM (4/C)	1200	250 - 500 MCM (4/C)
	380		800	1/0 - 750 MCM (4/C)	600	3/0 - 500 MCM (2/C)
	460		400	#6 - 350 MCM (2/C)	600	3/0 - 500 MCM (2/C)
	575		400	#6 - 350 MCM (2/C)	400	3/0 - 500 MCM (2/C)
195	208	60	1000	1/0 - 750 MCM (4/C)	1200	250 - 500 MCM (4/C)
	230		1000	1/0 - 750 MCM (4/C)	1200	250 - 500 MCM (4/C)
	380		800	1/0 - 750 MCM (4/C)	600	3/0 - 500 MCM (2/C)
	460		400	#6 - 350 MCM (2/C)	600	3/0 - 500 MCM (2/C)
	575		400	#6 - 350 MCM (2/C)	400	3/0 - 500 MCM (2/C)
210	208	60	1000	1/0 - 750 MCM (4/C)	1200	250 - 500 MCM (4/C)
	230		1000	1/0 - 750 MCM (4/C)	1200	250 - 500 MCM (4/C)
	380		800	1/0 - 750 MCM (4/C)	600	3/0 - 500 MCM (2/C)
	460		400	#6 - 350 MCM (2/C)	600	3/0 - 500 MCM (2/C)
	575		400	#6 - 350 MCM (2/C)	400	3/0 - 500 MCM (2/C)

NOTES:

- Terminal size amps are the maximum amps that the power block is rated for.
- Data based on 75°C wire.
- (2/C) notation means two cables per conduit.



Certified Drawing		CD: AGS120-210CS-Cl
Job Name:		Group: Chiller
		Type: AGS 120-210CS/CH
		Date: June 2005
Tag / Item No.:		Supersedes: April 2005

Electrical Data Notes

1. Explanation of field wiring designation:

Designation	Total Wires	Total Conduits
350 MCM	3	1
2-250 MCM	6	1
(2) 250 MCM	6	2
(2) 2-300 MCM	12	2

NOTE: Wire size shown is for illustrative purposes only.

2. Allowable voltage limits:

Unit nameplate 208V/60Hz/3Ph: 187V to 229V

Unit nameplate 230V/60Hz/3Ph: 207V to 253V

Unit nameplate 380V/60Hz/3Ph: 342V to 418V

Unit nameplate 460V/60Hz/3Ph: 414V to 506V

Unit nameplate 575V/60Hz/3Ph: 517V to 633V

NOTE: Voltage unbalance not to exceed 2% with a resultant current unbalance of 6 to 10 times the voltage unbalance per NEMA MG-1, 1998 Standard.

3. Unit wire size ampacity (MCA) is equal to 125% of the largest compressor-motor RLA plus 100% of RLA of all other loads in the circuit including control transformer. Wire size ampacity for separate 115V control circuit power is 15 amps.
4. Compressor RLA values are for wire sizing purposes only, but do reflect normal operating current draw at unit rated capacity.
5. Single point power supply requires a single disconnect to supply electrical power to the unit. This power must be fused.
6. Multiple point power supply requires two independent power circuits.
7. All field wiring to unit power block or optional nonfused disconnect switch must be copper.
8. Field wire size values given in tables apply to 75°C rated wire per NEC.
9. External disconnect switch(s) or HACR breakers must be field supplied.
10. All wiring must be done in accordance with applicable local and national codes.
11. Recommended time delay fuse size or HACR breakers is equal to 150% of the largest compressor motor RLA plus 100% of remaining compressor RLAs and the sum of condenser fan FLAs.
12. Maximum time delay fuse size or HACR breakers is equal to 225% of the largest compressor-motor RLA plus 100% of remaining compressor RLAs and the sum of condenser fan FLAs.

Power Limitations:

1. Voltage within ± 10 percent of nameplate rating.
2. Voltage unbalance not to exceed 2% with a resultant current unbalance of 6 to 10 times the voltage unbalance per NEMA MG-1, 1998 Standard.

Optional Protocol Selectability Connection for BAS

The locations and interconnection requirements for the various standard protocols are found in their respective installation manuals, obtainable from the local McQuay sales office and also shipped with each unit.

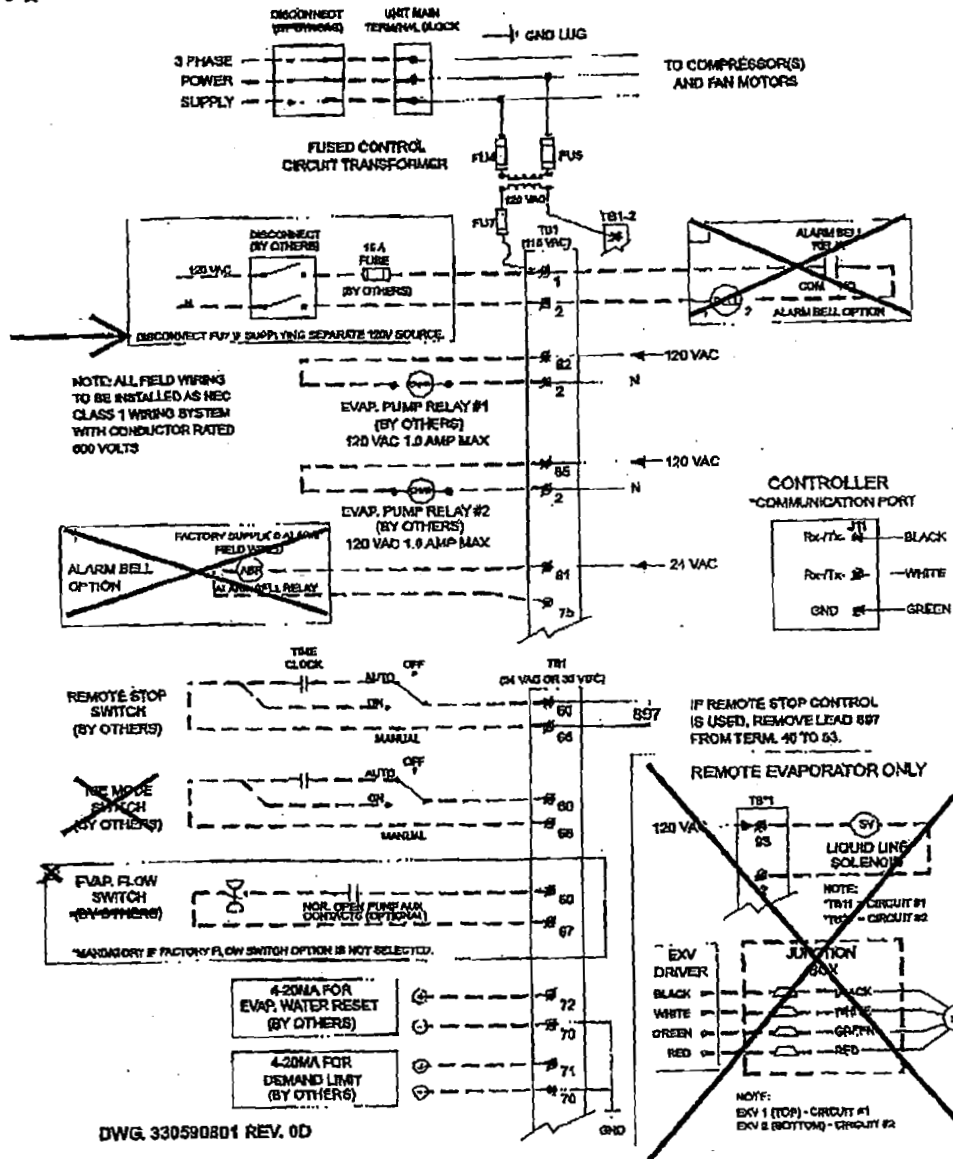
Modbus IM 743

LONWORKS IM 735

BACnet IM 736

Certified Drawing		CD: AGS120-210CS-CH
Job Name:		Group: Chiller
		Type: AGS 120-210CS/CH
		Date: June 2005
Tag / Item No.:		Supersedes: April 2005

Typical Field Wiring Diagram



DIVISION 15000

SECTION 15950

TESTING, ADJUSTING AND BALANCING FOR HVAC

PART I – GENERAL

1.01 SUMMARY

- A. The entire set of bid documents including plans and specifications applies to this section.
- B. The Test and Balance Contractor shall be responsible for measuring and adjusting all chilled water flows indicated in the Construction Documents.

1.02 QUALITY ASSURANCE

- A. The test and balance work for this project shall be performed by a test and balance contractor certified by one of the following organizations:
 - 1. National Environmental Balancing Bureau (NEBB)
 - 2. Associated Air Balance Council (AABC)

PART II – PRODUCTS

2.01 NONE

PART III – EXECUTION

3.01 PRELIMINARY PROCEDURES FOR HYDRONIC SYSTEM BALANCING

- A. Before operating the system perform these steps:
 - 1. Prepare "punch list" of items the contractor must correct prior to commencing work.
 - 2. Open valves to full open position. Close coil bypass valves.
 - 3. Remove and clean all strainers.
 - 4. Examine hydronic systems and determine if water has been treated and cleaned.
 - 5. Check pump rotation.
 - 6. Clean and set automatic fill valves for required system pressure.

7. Check expansion tanks to determine that they are not air bound and that the system is completely full of water.
8. Check air vents at high points of systems and determine if all are installed and operating freely (automatic type) or to bleed air completely (manual type).
9. Set temperature controls so all coils are calling for full flow.
10. Check operation of automatic bypass valves
11. Check and set operating temperatures of chillers to design requirements.
12. Lubricate all motors and bearings.

3.02 MEASUREMENTS

- A. Provide all required instrumentation to obtain proper measurements, calibrated to the tolerances specified in the referenced standards. Instruments shall be properly maintained and protected against damage.
- B. Provide instruments meeting the specifications of the referenced standards.
- C. Use only those instruments which have the maximum field measuring accuracy and are best suited to the function being measured.
- D. Apply instrument as recommended by the manufacturer.
- E. Use instruments with minimum scale and maximum subdivisions and with scale ranges proper for the value being measured.
- F. When averaging values, take a sufficient quantity of readings which will result in a repeatability error of less than 5 percent. When measuring a single point, repeat readings until 2 consecutive identical values are obtained.
- G. Take all reading with the eye at the level of the indicated value to prevent parallax.
- H. Use pulsation dampeners where necessary to eliminate error involved in estimating average of rapidly fluctuation readings.
- I. Take measurements in the system where best suited to the task.

3.03 PERFORMING TESTING, ADJUSTING, AND BALANCING

- A. Perform testing and balancing procedures on each system identified, in accordance with the detailed procedures outlined in the referenced standards.
- B. Cut insulation, ductwork, and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures.
- C. Patch insulation, ductwork, and housings, using materials identical to those removed.

- D. Seal ducts and piping, and test for and repair leaks.
- E. Seal insulation to re-establish integrity of the vapor barrier.
- F. Mark equipment settings, including damper control positions, valve indicators, fan speed control levers, and similar controls and devices, to show final settings. Mark with paint or other suitable, permanent identification materials.
- G. Retest, adjust, and balance systems subsequent to significant system modifications, and resubmit test results.
- H. Test, adjust and balance domestic hot water circulating loops so that the pressure drop in each loop is equal.

3.04 RECORD AND REPORT DATA

- A. Record all data obtained during testing, adjusting, and balancing in accordance with, and on the forms recommended by the referenced standards, and as approved on the sample report forms.
- B. Prepare report of recommendations for correcting unsatisfactory mechanical performances when system cannot be successfully balanced.
- C. Provide a total of (5) copies of the final test and balance report to the engineer for review and distribution to the owner.

END OF SECTION 15950

DIVISION 16000

SECTION 16050

BASIC ELECTRICAL MATERIALS & METHODS

PART I – GENERAL

1.01 SUMMARY

A. The entire set of bid documents including plans & specifications applies to this section.

1.02 DRAWINGS AND SPECIFICATIONS

- A. All drawings and specifications on the project are complementary, each to all other sets, and they shall be used in combination for the execution of this work. Electrical work shown on any of the contract drawings or any section of the contract specifications, shall be considered as included in this work unless specifically excluded by inclusion in some other branch of the work. This shall include roughing-in for connections and equipment as called for or inferred. The Contractor shall check all drawings and specifications for the project and shall be responsible for the installation of all electrical work.
- B. The contract drawings for electrical work are in part schematic, intended to convey the scope of work and indicate the general layout, design and arrangement. The Contractor shall follow these drawings in the layout of his work and shall consult general construction drawings, mechanical drawings and all other drawings for this project to determine all conditions affecting the electrical work. The contract drawings are not to be scaled and the Contractor shall verify spaces in which the electrical work is to be installed.
- C. Where specific details and dimensions for electrical work are not shown on the drawings, the Contractor shall take measurements and make layouts as required for the proper installation of the work and coordination with all other work on the project. In case of any discrepancies between the drawings and the specifications that have not been clarified by addendum prior to bidding, it shall be assumed by the signing of the contract that the higher cost (if any difference in costs) is included in the contract price, and the Contractor shall perform the work in accordance with the drawings or with the specifications, as determined and approved by the Engineer, and no additional costs shall be allowed by the contract price.

1.03 WORK INCLUDED

- A. This work shall include all plant, labor, material and equipment as required to furnish and install electrical work including demolition as shown on drawings and as hereinafter specified. Work shall also include all labor, material and equipment not shown on drawings and not specified but necessary and reasonably incidental to comply with the intent of contract to provide first class and complete installations of electrical work. Furnish and install all materials, equipment, devices, and accessories not specifically called for by item but that are necessary to provide the requirements in operation and function that is established by the design and by the equipment specified.
- B. Work shall also include: (1) All hoists, scaffolds, staging, runways, and equipment required for the performance of the work; (2) All job measurements and shop layout required for the proper installation of material and equipment included in the work; (3) All lights, guards, and signs as required by safety regulations applicable to the work; (4) The removal from the premises, as it accumulates, of all dirt and refuse resulting from the performance of the work; and (5) Modifications to existing structure, equipment and installations required in order to install new work; (6) Demolition Work.
- C. Work shall include providing labor and equipment for current and voltage readings, and adjustments required on electrical equipment for testing and balancing of mechanical systems as specified elsewhere in this specification.

1.04 MATERIAL AND MANUFACTURER

- A. All material and equipment shall be new except as stated otherwise; shall be of the best quality and design; shall be free from defects and imperfections and shall have markings or nameplate identifying the manufacturer and providing sufficient reference to establish quality, size and capacity. As possible, all material and equipment of the same type shall be of the same manufacturer. Equipment shall function and perform efficiently and quietly at the required capacity without producing objectionable noise within the occupied areas of the building; if not, the Contractor shall remedy the condition or replace the equipment at no additional cost to the contract.

1.05 SUBSTITUTIONS

- A. Reference in the specifications to any article, device, product, material, fixture, equipment, form or type of construction by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. Any article, device, product, material, fixtures, equipment, form or type of construction other than those specified may be substituted for consideration, in accordance with the preliminary matters, general conditions, and supplemental conditions as applicable unless otherwise specified.

1.06 LABOR, WORKMANSHIP AND SUPERVISION

- A. All labor for the installation of material and equipment furnished under the electrical work shall be done by experienced mechanics of the proper trade and all workmanship shall be first class and in compliance with the specific requirements of drawings and specifications.
- B. All material and equipment for the electrical work shall be installed under competent supervisory service furnished by the Contractor. Where necessary, this shall include the services of special technicians and operation personnel.

1.07 SAFETY REGULATIONS

- A. All electrical work shall be performed in compliance with all applicable and governing safety regulations including the regulations of the Occupational and Safety Health Act. All safety lights, signs and guards required for performance of electrical work shall be the responsibility of the Contractor.

1.08 CODES, ORDINANCES, REGULATIONS AND U.L. APPROVAL

- A. See General Conditions
- B. Laws, codes, ordinances and regulations shall take precedent excepting only where the work called for by the drawings and specifications exceeds by quality and quantity.
- C. Fixtures, appliances, equipment and materials which are subject to Underwriter's Laboratory tests shall bear such approval.
- D. All work of this Division shall be installed in strict accordance with the latest addition of NFPA 70, The National Electric Code. (NEC)

1.09 CONTRACTOR'S EQUIPMENT

- A. All hoists, scaffolds, staging, runways, tools, machinery and equipment required for the performance of the electrical work shall be furnished by the Contractor.

1.10 STORAGE AND PROTECTION

- A. Material and equipment for the electrical work shall be protected from dirt and damage and maintained in a clean condition during the performance of the work. This shall include adequate protection from the weather if storage is outside. All parts of material and equipment that have become rusted or damaged shall be replaced or restored to an acceptable condition as approved by the Owner's Representative. This shall include factory finishes damaged during construction.

1.11 CLEANING

- A. Dirt and refuse resulting from the performance of the work shall be removed from the premises as required to prevent accumulation and the Contractor shall cooperate in the maintenance of reasonably clean premises at all times.
- B. Immediately prior to the final inspection, Contractor shall clean all material and equipment. Dirt, refuse and stains shall be removed from all surfaces and damaged finishes restored to original condition.

1.12 OPERATION AND MAINTENANCE INSTRUCTION

- A. This Contractor shall furnish all services as required for adequate verbal and printed instructions to the Owner's operating and maintenance personnel for operation and maintenance of all equipment and systems installed under this Division. Three complete copies of service manuals in hardback binders shall be furnished at the end of the project in accordance with the General Conditions of the specifications. The manuals shall include warranties, printed operating and maintenance instructions for systems and equipment specified under this Division, all approved shop drawings, all manufacturer's printed data, parts lists, control diagrams, valve schedules, parts lists, list of equipment suppliers, list of Contractors & Subcontractors, balancing reports, test reports.
- B. When the work is complete and at a time designated by the Owner's Representative, the Contractor shall furnish the services of a qualified instructor to instruct Owner's operating and maintenance personnel in the operation and maintenance of the systems and equipment furnished and installed under this Division.
- C. The bound copies of the operating and maintenance manuals shall be used during the verbal instructions.

1.13 MOTORS, CONTROLS, AND OTHER EQUIPMENT

- A. Except as otherwise specified electrical contractor shall make one power connection to each piece of equipment, (i.e., exhaust fan, rooftop unit, chiller, pump, etc. Any parts furnished loose by mechanical contractor that require wiring to the main unit shall be wired by electrical contractor at mechanical contractor's expense, and shall not be an extra cost to the owner.

- B. Except as otherwise specified, the electrical work shall include receiving, installing and mounting all detached motors, switches, motor control equipment and other control devices furnished under other divisions or work. Contractor shall check all headings of specifications for equipment to be installed. Work shall include overload heater for motor starters, mountings and supports as required for all equipment, including angle frames, steel plates, bars, bolts, etc., and all conduit, wire, etc., as required to connect all equipment including motors, disconnect switches, starters, controls, pushbuttons, etc. Detached motors shall be set and aligned with coupling or drive. Motor connections shall be terminated with unexposed leads in suitable conduit and cover. Conduit shall terminate close to motor with a minimum of 12" of flexible liquid tight conduit between rigid conduit or EMT and motor.
- C. Unless specified otherwise, perform all work required to rough-in and connect to all equipment requiring electrical connections. This work shall be as indicated on drawings, by approved equipment shop drawings and by direction on the job.
- D. All equipment, materials or devices furnished by others including that furnished by the Owner or under any other division which require electrical connections shall be roughed-in and connected under this division, unless specified otherwise. It shall be the Contractor's responsibility to verify exact requirements for rough-in and connection of equipment furnished by others prior to installation. Extras will not be allowed for failure to verify same.
- F. The Contractor shall run feeders to starters, disconnects, control panels and motors as shown on drawings, make connections, furnish overload heaters for motor starters, and install and wire all mechanical components in accordance with wiring diagrams furnished under mechanical work. The Contractor shall coordinate with any other trades involved for the proper coil voltages for control of magnetic starters and contactors.

1.14 ADJUSTING, ALIGNING AND TESTING

- A. All electrical equipment furnished under this Division shall be adjusted and tested by this Contractor. Motors and other equipment furnished by others, to which electrical connections are made under this Division, shall be checked for short circuit and open circuits before energizing. Motors shall be checked for proper phasing and rotation. The thermal overload protection shall be checked in all motor starters, and any protector heaters found to be of improper size as required by the motor name plate full load amperage and voltage rating for protection of the motor shall be listed (include equipment designation, rating of heater, motor nameplate horsepower, full load amps and voltage) and 4 copies of list shall be submitted to the Owner's Representative.

- B. Mechanism of all electrical equipment shall be checked, adjusted and tested for proper operation. Protective devices and parts shall be checked and tested for specified and required application and adjusted as required. Adjustable parts of all lighting fixtures and electrical equipment shall be checked, tested and adjusted as required to produce the intended performance.
- C. Completed wiring systems shall be free from short circuits and after completion, perform tests for insulation resistance in accordance with the requirements of the National Electrical Code.
- D. The Contractor shall be held responsible for the operation, service and maintenance of electrical equipment during construction and prior to acceptance by the Owner. All electrical equipment shall be maintained in the best operating condition. Operational failure caused by defective material and/or labor furnished under this Division shall be immediately corrected. The Owner's Representative shall be immediately notified of any operational failures caused by defective material and/or labor covered under other Divisions or furnished by others.

1.15 ELECTRICAL CIRCUITRY FOR EQUIPMENT

- A. The electrical circuits, components, and controls for all equipment are selected and sized based on the equipment as furnished. It shall be the responsibility of all parties concerned involved in, and furnishing the substitute and/or equivalent equipment to verify and compare the electrical characteristics and requirements of that furnished to that specified and/or shown. If greater capacity or more materials or labor is required for the rough-in, circuitry connections than for the item specified and provided for, then it shall be the responsibility of the parties involved in providing the substitute and/or equivalent items of equipment to provide all compensation for additional charges made for the proper rough-in, circuitry and connections for the equipment furnished. No additional charges shall be made to the Base Bid price or to the Owner.
- B. Before rough-in of circuitry or connecting to equipment, the Contractor shall verify the electrical characteristics and requirements of the equipment being furnished, and for that specified and shown on drawings.

1.16 CLEARANCES

- A. All electrical equipment shall be so installed to maintain proper clearance and headroom as required by the National Electrical Code. (NEC)

1.17 CUTTING AND PATCHING

- A. The Contractor shall coordinate with the Owner's Representative before any cutting and obtain approval from the Owner's Representative prior to any cutting. All patching and finishing shall be by the Contractor.
- B. Cutting shall be done with extreme care and in such a manner that the strength of the structure will not be endangered. Wherever possible, openings in concrete or masonry construction shall be by concrete saw or rotary core drill. Openings in any construction shall be cut the minimum size required for the installation of the work. Adequate protection shall be provided to prevent damage to adjacent areas and to prevent dust from spreading to adjacent areas.
- C. Where openings or holes are cut in existing construction and the cutting breaks existing electrical circuitry or control circuitry conduit and wiring, then it shall be the responsibility of the Contractor to reroute the circuitry conduit and requiring and to complete the circuitry as required and as approved by the Architects. Temporary completion shall be provided where necessary before the permanent rerouting and completion work is finished.
- D. Before any cutting, patching, or finishing work is started, dust and moisture protection shall first be installed as required in these specifications.
- E. Openings cut in floor shall be cut by core drilling where possible. After work is installed through any opening in floor, the opening around the work shall be patched and sealed watertight with epoxy or silicone based, non-cracking elastomeric sealant.
- F. Where existing work is removed from sleeves or openings through floor and the sleeve or opening is not to be reused, patch the hole or opening by filling with shrink epoxy cement grout, in strict accordance with the grout manufacturer's instructions and recommendations and as required to make completely watertight and fireproof. Finish the floor surface as directed by the Owner's Representative.

1.18 SHOP DRAWINGS AND SAMPLES

- A. Acceptance of the work shall be subject to the Engineer's approval of shop drawings, product data and samples, as specified in the "General Conditions" of these specifications.
- B. Submittals shall include the manufacturer's model number, capacity, performance data, electrical characteristics, etc., all clearly shown and marked for the specific item of equipment to be furnished on this project. General catalog data that does not indicate the specifics for the item to be furnished for this project will not be accepted. Performance data shown or marked on the submittals shall be at the actual specified operating conditions for this project.

1.19 IDENTIFICATION, INSTALLATION AND USE OF ELECTRICAL EQUIPMENT

- A. All electrical equipment shall be furnished with factory identification for the suitability of and installation, either by a description marked on the equipment, permanently attached label, or printed description packed with the equipment, in accordance with article 110 of National Electrical Code (NEC). If a printed description is packaged with the equipment, shall be bound in the Operation and Maintenance Manuals.

1.20 NOISE AND VIBRATION

- A. Contractor shall be responsible for the installation of all equipment in such a manner as to control the transmission of noise and vibration for many installed equipment or system, so the sound level shall not exceed NC35, in any occupied space. Contractor shall be responsible for the correction of any objectionable noise in any occupied area due to improperly installed equipment.

1.21 EQUIPMENT IDENTIFICATION AND LABELS

- A. All electrical equipment, such as disconnect switches, motor starters, controls, push-button, panel boards, and other similar items shall be adequately identified with labels. Labels shall clearly designate name and use of equipment, and panel and circuit number or power source. Labels shall be laminated plastic with 1/4" white letters on a black background. Labels shall be attached with pop-rivets or permanent adhesive. "Dymo" type labels not acceptable.

1.22 WARRANTIES

- A. Warranties shall be provided for all equipment in accordance with the requirements of the General Conditions, except that all warranties shall be non-prorated for one year.
- B. Acceptance of the work under this Division shall be subject to the conditions that all installed systems, equipment, apparatus, and appliances included in the work shall operate and perform as designed, including code clearances, and as selected with respect to efficiency, capacity and quietness and shall operate and perform without producing objectionable noise within occupied areas of the building.
- C. Acceptance of the work shall also be subject to the conditions that any time within one year after date of acceptance final payment, any defective part of the work resulting from the supply of faulty workmanship or material shall be immediately amended, required or replaced as a part of the contract work without cost to the contract.

PART II – PRODUCTS

2.01 NONE

PART III – EXECUTION

3.01 NONE

END OF SECTION

DIVISION 16000
SECTION 16060
GROUNDING AND BONDING

PART I – GENERAL

1.01 SUMMARY

- A. The entire set of bid documents including plans & specifications applies to this section.
- B. Related Sections: The following Division 16 Sections contain requirements that relate to this Section.
 - 1. “Basic Electrical Materials and Methods.”
- C. This Section includes grounding of electrical systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field Test Reports: Submit written test reports to include the following:
 - 1. Test procedures used.
 - 2. Test results that comply with requirements.
 - 3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

1.03 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.
 - 1. Comply with UL 467.
- B. Comply with NFPA 70; for overhead-line construction and medium-voltage underground construction, comply with IEEE C2.

PART II – PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements, provide products by one of the following:
 - 1. Grounding Conductors, Cables, Connectors, and Rods:
 - a. Apache Grounding/Erico Inc.
 - b. Chance/Hubbell.
 - c. Copperweld Corp.
 - d. Harger Lightning Protection, Inc.
 - e. Heary Brothers Lightning Protection Co.
 - f. O-Z/Gedney Co.; a business of the EGS Electrical Group.
 - g. Raco, Inc.; Division of Hubbell.
 - h. Robbins Lightning, Inc.
 - i. Salisbury: W. H. Salisbury & Co.
 - j. Superior Grounding Systems, Inc.
 - k. Thomas & Betts, Electrical.

2.02 GROUNDING CONDUCTORS

- A. For insulated conductors, comply with Division 16 Section "Conductors and Cables
- B. Material: Copper.
- C. Equipment Grounding Conductors: Insulated with green-colored insulation.
- D. Bare Copper Conductors: Comply with the following:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Assembly of Stranded Conductors: ASTM B 8.
 - 3. Tinned Conductors: ASTM B 33.

E. Copper Bonding Conductors: As follows:

1. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG copper conductor, 1/4 inch (6.4 mm) in diameter.

2. Bonding Conductor: No. 4 or No. 6 AWG, stranded copper conductor.

3. Bonding Jumper: Bare copper tape, braided bare copper conductors, terminated with copper ferrules; 1-5/8 inches (42 mm) wide and 1/16 inch (1.5 mm) thick.

4. Tinned Bonding Jumper: Tinned-copper tape, braided copper conductors, terminated with copper ferrules; 1-5/8 inches (42 mm) wide and 1/16 inch (1.5 mm) thick.

F. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulators.

2.03 CONNECTOR PRODUCTS

A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.

B. Bolted Connectors: Bolted-pressure-type connectors, or compression type.

PART III – EXECUTION

3.01 APPLICATION

A. Use only copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and similar materials.

B. In raceways, use insulated equipment grounding conductors.

C. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.

3.02 EQUIPMENT GROUNDING CONDUCTORS

A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.

- B. Install equipment grounding conductors in all feeders and circuits.
- C. Install insulated equipment grounding conductor with circuit conductors for the following items, in addition to those required by NEC:
 - 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.
- D. Nonmetallic Raceways: Install an equipment grounding conductor in nonmetallic raceways unless they are designated for telephone or data cables.

3.03 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment. Use exothermic-welded connectors for outdoor locations, unless a disconnect-type connection is required; then, use a bolted clamp. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts. Install straps only in locations accessible for maintenance.

3.04 CONNECTIONS

- A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
 - 1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.

2. Make connections with clean, bare metal at points of contact.
3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
4. Make aluminum-to-galvanized steel connections with tin-plated copper jumpers and mechanical clamps.
5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

- B. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.
- C. Noncontact Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically noncontinuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.
- D. Tighten screws and bolts for grounding and bonding 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].
- E. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.

END OF SECTION 16060

DIVISION 16000
SECTION 16100
WIRING METHODS

PART I – GENERAL

1.01 SUMMARY

- A. The entire set of bid documents including plans & specifications applies to this section.

PART II – PRODUCTS

ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide products from one of the following manufacturers:

1. Hubbell
2. Arrow-Hart
3. General Electric
4. Sierra
5. Circle F
6. Bryant
7. Pass & Seymour

2.02 CONDUIT AND INSTALLATION

- A. Rigid threaded conduit, threaded intermediate conduit and electrical metallic tubing shall be standard size of approved manufacturer and shall be galvanized or sherardized on inside and outside, including with water-tight compression fittings or with concrete-tight, pressure cast set screw type fittings. Rigid threaded conduit and threaded intermediate conduit shall be installed with threaded couplings and fittings.

- B. Conduit may be electrical metallic tubing (E.M.T.), except conduit larger than 4", conduit in wet or damp locations, conduit in hazardous locations, conduit in earth or below grade, except as otherwise noted on drawings or specified otherwise. Conduit shall be minimum 3/4" dia., except switch legs and control wiring may be minimum 1/2" size.
- C. Galvanized steel rigid or intermediate grade (I.M.C.) conduit shall be used in wet or damp locations, in NEC classified hazardous locations and for conduit sizes larger than 4" except below grade outside of building. Aluminum conduit may not be used.
- D. Short sections of flexible conduit may be used from junction or outlet boxes to lighting fixtures as permitted by the National Electrical Code. Connections from outlet boxes above ceilings to fluorescent fixtures recessed in ceiling shall be made with flexible steel conduit not to exceed 6 ft. in length.
- E. Short sections of flexible watertight (Sealtite) conduit shall be used for connections to motors, transformers and vibrating type equipment.
- F. Unless specified or noted on drawings otherwise, conduit shall be installed concealed, excepting in areas where concealment of conduit is not possible or practicable and is approved by the Engineer. Conduits shall be installed continuous between outlets, boxes, cabinets, etc.
- G. Conduits installed exposed to view (not concealed by finish) shall be run parallel and perpendicular to building lines and shall be run against the structure in a neat workmanlike manner with conduit offsets neatly formed around all structure offsets and obstructions.
- H. Conduits shall be securely fastened in place with approved type hangers, clamps and supports. Conduit shall not be fastened to or supported from ductwork, piping, lay in ceiling support wires or mechanical equipment. Conduit ends shall be reamed before installation and all conduit shall be thoroughly cleaned before installation and kept clean after installation. All conduit shall be fished clean before pulling of wires. Plug ends of conduits with temporary plugs, where conduits are open to weather and before concrete is poured to keep inside of conduit free of water and concrete.
- I. Exposed conduits shall be securely fastened in place on intervals in accordance with the NEC, and hanger supports and fastenings shall be provided at each elbow, at the end of each straight run terminating at a box or cabinet, and adjacent to each outlet.
- J. Horizontal and vertical conduit runs 2-1/2" and smaller may be supported by one hole malleable straps, clamp backs or devices with suitable bolts, expansion shields or beam-clamps for mounting to building structure.
- K. Adjustable hangers may be used to suspend 3" or larger conduits when separately located.

- L. Hangers shall be suitable for the application involved. Where excessive corrosive conditions are encountered, hanger assemblies shall be protected after fabrication by sherardizing or galvanizing, special paint or other suitable preservative methods.
- M. Use of perforated iron strap, cord or wire for supporting conduits will not be permitted.
- N. The required strength of the supporting equipment, size and type of anchors shall be based on the combined weight of conduit, hanger and cables.
- O. Install pull wire or pull string in all unused empty conduits.

2.03 OPENINGS AND SLEEVES

- A. The Contractor shall furnish and install all box-outs and sleeves for openings required to install this work. Openings through structural members shall be only as approved by the Architect or as shown on the structural drawings. Openings through concrete walls and floors shall be core drilled. Openings through masonry walls shall be galvanized steel conduit sleeves.

2.04 ACCESS DOORS

- A. Where junction boxes and equipment are installed in concealed spaces, access doors shall be installed infurring to provide for operation, service, inspection, and maintenance.
- B. Access doors shall be Milcor style K, M, DW, or AT as required by construction, equivalent Zum or Wade, flush type steel units with frames. Construction shall be of #14 gauge level stock, cadmium plated and fitted with pivot hinges and screw driver coin type lock and finished with prime coat of paint. Panels shall have a minimum size of 12" x 12" for hand holes and 18" x 18" for manholes.
- C. Accessible ceilings with removable type ceiling tiles do not require access panels to be installed.

2.05 WIRES AND WIRING FOR 600 VOLT OR LESS

- A. Wires and cables shall be insulated soft annealed copper conductors with 600 volt insulation unless noted or specified otherwise and shall be listed and approved by Underwriter's Laboratories and shall meet all specifications of the IPCEA and NEMA Standards. Gauge of wire shall be (AWG) gauge. No. 10 gauge and smaller shall be solid conductor or stranded conductor. No. 8 gauge and larger shall be stranded conductor, except all ground wires shall be stranded. Stranded conductors shall not be fastened directly under screw terminals that rotate against conductors (such as side screw terminals of wall switches and convenience receptacles). Wire smaller than No. 12 gauge, shall not be used unless specifically called for on drawings or in specifications. Aluminum wiring shall not be used.

- B. Unless specified otherwise, 600 volt wires in general use shall be type "THHN".
- C. Grounding wires shall be stranded copper with 75 degrees C. "THHN" insulation with green color or green tracer. Every branch & feeder conduit shall contain a code sized green insulated ground conductor.
- D. Wire insulation shall be color coded as follows:
 - 1. 120/208 VOLT
 - 2. Phase A - Black
 - 3. Phase B - Red
 - 4. Phase C - Blue
 - 5. Neutral - White
 - 6. Ground - Green
- E. Control and indication wiring shall be #14 AWG type "THHN", except runs greater than 20 feet in length shall be #12 AWG unless noted otherwise on drawings.
- F. Conductors used where low leakage type is required, such as for ground fault protected circuits, the insulation shall be type "XHHW".
- G. All wires shall be run in conduit or surface raceway shall be continuous between outlets or boxes. At least 8" of wire shall be left at outlets for fixture connections.
- H. All terminations and splices shall be made in accordance with proper methods and recommendations for the type of wire and devices used and as recommended by the manufacturers of material and equipment involved.
- I. Splice and Terminal Materials: Splices for 600 volt conductors smaller than No. 8 AWG shall utilize twist type insulated spring connectors. Terminals or splices for stranded conductors No. 8 AWG and larger shall utilize indent, hex screw, or bolt clamp-type connectors, with or without tongue, properly taped, and approved for the particular application. Exposed splice connector device shall be insulated with a minimum of two half-lapped layers of specification grade rubber insulating tape and a minimum of two half lapped layers of polyvinyl chloride electrical tape applied over the rubber tape. The polyvinyl chloride type shall extend a minimum of two cable diameters over the cable jacket. For cable size 250 MCM and larger, connectors shall have at least two clamping elements or compression indents, and shall have at least two clamping elements or compression indents, and shall have provision for at least two bolts for joining to apparatus terminals. All wire and cable connectors shall be of high conductivity corrosion resistant material and have actual contact area equal at least to the current carrying capacity of the wire or cable.

- J. Crimping Hand Tools used in securing the conductor in the compression type connectors or terminal lugs shall be those made for the purpose and for the conductor sizes involved. The crimping tools shall be of the ratchet type which prevents the tool from opening until the crimp action is completed. Such tools shall be a product of the connector manufacturer.
- K. Insulating Compounds and Tapes for splice and termination insulation shall be of a type approved by the cable manufacturer for the particular use, location, and voltage.
- L. Where wire size is shown on drawings or specified it shall be the same size throughout the circuit.

2.06 OUTLET BOXES, JUNCTION BOXES, PULL BOXES AND LOCATION OF OUTLETS

- A. Outlet boxes shall be installed for all electrical service outlets, including plug receptacles, lamp receptacles, lighting fixtures, switches, etc. Boxes for concealed work shall be size 4" code gauge steel knockout boxes, galvanized or sherardized and of required depth for services and devices. Boxes installed for concealed work shall have code gauge galvanized raised plaster rings set to plaster ground or markers with outside edge flush with plaster or wall finish. Plaster rings shall be selected with proper opening for device installed in box. Thru-wall type box will not be permitted. Outlet boxes in unplastered concrete block walls in finished rooms shall be masonry type and shall be set to line with wall joints.
- B. Boxes for exposed work, where permitted or approved, shall be 4" square or 4" long by 2-1/8" wide standard utility boxes specifically designed for surface installation and as required by device, wiring, and number of conduits and all covers for devices and blank covers shall be stamped steel with turned down edges to fit with sides of box.
- C. Pull and junction boxes shall be code gauge galvanized steel boxes of size shown or required and with bolted or screwed covers. Boxes shall be flush or surface mounted as shown or required and shall be finished with factory prime coat of paint.
- D. All rigid threaded and intermediate threaded conduit shall be clamped to boxes and enclosures with bushing inside of box and locknut outside of box. Bushings and locknuts shall be galvanized malleable iron. EMT shall be clamped to boxes and enclosures with fittings designed for EMT connections to boxes, and the fittings shall be tightly secured to the EMT and shall be clamped to box with locknut inside of box. Open end of fitting inside of box shall be smooth to prevent damage to conductor insulation when pulling conductors.
- E. Location of outlets on drawings is approximate and, except where dimensions are shown, exact location of outlets shall be as taken from plans and details on general drawings or as directed by the Engineer. Outlets shall be located generally from column centers and finished wall lines or to center of acoustical and decorative ceiling panels and to centers of joints of wall panels. Outlets shall be installed in accessible location and no outlets shall be installed above ducts, behind furring or other obstructions. Outlets below ducts shall be connected with extension connections to outlets in ceiling or slab above.
- F. Switch outlets, convenience receptacle outlets and telephone outlets, unless shown otherwise or required otherwise by wainscots, counters, etc., shall be mounted at height as specified under the device heading in this specification. Each device shall be carefully aligned to center vertically on other devices that are installed in the same vicinity.

2.07 LIGHTING CONTROL SWITCHES

- A. Occupancy Sensor Switches - Leviton #6768, 180 VA fluorescent, 120 V, equal by Lut Hubbell, Arrow Hart, GE.
- B. General use wall switches unless specified otherwise, shall be specification grade, quiet operating for A.C. inductive loads and with side screw terminals, and back wiring screw clamp type terminals. Stranded conductors shall not be directly terminated under side terminals that rotate against the conductors. Groups of switches shall be installed under one-piece plate. Switches, where indicated on drawings, shall be key operated type; and others shall be toggle handle type. Switches shall be mounted with centerline 3'-10" above floor unless otherwise noted on drawings. Color as selected by Engineer (Basis of design is Hubbell)
 - 1. Single Pole #1221-GRY 20 amp - 120/277 volts
 - 2. Three Way #1223-GRY 20 amp - 120/277 volts
 - 3. Momentary #1556-GRY 15 amp - 120/277 volts
 - 4. 3 position, 2 circuit, single pole, double throw.

2.08 RECEPTACLES

- A. Receptacles, unless specified or shown otherwise, shall be 3 wire grounding type, NEMA configuration 5-20R, duplex receptacle rated 20 amps @ 125 volts. Receptacles shall have automatic grounding clip on receptacle mounting ear and shall have side screw terminals and back-wiring screw-clamp type terminals including grounding terminal Stranded conductors shall not be mounted directly under binding screws without clamp type terminals. Receptacles shall be mounted in wall with centerline 12" above finished floor unless noted otherwise on drawings or unless required to be higher by counter wainscots, etc. (Basis of design is Hubbell #5362.)
- B. Special receptacles shall be as required for load served.

2.09 DEVICE PLATES AND BLANK PLATES

- A. Wall plates for switches and receptacles in flush wall boxes shall be .040" thick beveled edge, satin-finished stainless steel. Plates for devices in exposed boxes shall be stamped steel with turned down edges to fit side of box.
- B. Blank plates on boxes in finished spaces shall be stainless steel or brass as specified to match receptacle and switch plates. Blank plates on flush boxes in unfinished spaces shall be flat galvanized steel. Plates for surface mounted boxes shall be galvanized stamped steel with turned down edges to fit side of box.

PART III – EXECUTION

3.01 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.
- B. Refer to equipment specifications for rough-in requirements.

3.02 GENERAL

- A. Sequence, coordinate and integrate the various elements of electrical systems, materials, and equipment. Comply with the following requirements:
 - 1. Coordinate electrical systems, equipment, and materials installation with other building components.
 - 2. Verify all dimensions by field measurements.
 - 3. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for electrical installations.
 - 4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
 - 5. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.
 - 6. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
 - 7. Coordinate connection of electrical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.
 - 8. Install systems, materials, and equipment to conform with reviewed submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.
 - 9. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
 - 10. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.
 - 11. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.
 - 12. Install electrical equipment in order to maintain required clearances. Where space limitations mandate that equipment (i.e. water piping) may contribute moisture within these clearances, provide non-combustible shielding to protect electrical equipment from moisture.

3.03 ELECTRICAL CONNECTIONS TO MECHANICAL EQUIPMENT

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

_____ located at
(name of project)

_____ in _____ County,
(name of institution)

Missouri and completed on the _____ day of _____, 20____

Signature

Subscribed and sworn to me this _____ day of _____, 20____

My commission expires _____, 20____

Notary Public

- A. Electrical: Conform to applicable requirements in Division 16 Sections.
- B. Grounding: Ground equipment. Tighten electrical connectors and terminals' including grounding connections according to manufacturer's published torque tightening valves. Where manufacturer's torque valves are not indicated, use those specified in UL 486A ; UL 486B.
- C. Obtain all mechanical equipment control wiring diagrams from mechanical contractor so to allow installation of field-installed control wiring in conduit between any mechanical equipment and accessories. This electrical contractor shall provide all control wiring in conduit under the supervision of the SCADA System contractor. All accessories will be mounted by the contractor providing that accessory. Control wiring includes all accessories operating at 110-volts or above and 50 volts or below.
- D. Provide all power connections to mechanical equipment as indicated on drawings or on in Division 16 Sections.

END OF SECTION 16100

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

_____ of
(name and title)

_____ (a corporation) (a partnership) (a proprietorship)
(name of company)

and after being duly sworn did depose and say that all provisions and requirements set forth 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 complied with and there has been no exception to the full and complete compliance with said provisions.

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, ten 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 attached prevailing wage rate determination made by the Industrial Commission of Missouri is reproduced verbatim and is applicable to this Contract.

APPENDIX B

Boone County Purchasing
601 E. Walnut, Room 208
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.

APPENDIX C

Plan Sheets – See Attached

ME1

ME2

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



MATT BLUNT, Governor

Annual Wage Order No. 13

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

Allen E. Dillingham, Director
Division of Labor Standards

This Is A True And Accurate Copy Which Was Filed With The Secretary of State: March 10, 2006

Last Date Objections May Be Filed: April 10, 2006

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Effective Date of	*	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits
Asbestos Worker	10/06		\$26.44	55	60	\$13.66
Boilermaker	9/06		\$29.20	57	7	\$17.90
Bricklayers - Stone Mason			\$25.39	59	7	\$10.12
Carpenter			\$21.13	60	15	\$9.58
Cement Mason			\$23.56	9	3	\$9.92
Electrician (Inside Wireman)			\$26.32	28	7	\$10.50 + 13%
Communication Technician			USE ELECTRICIAN (INSIDE WIREMAN) RATE			
Elevator Constructor		a	\$34.065	26	54	\$13.241
Operating Engineer						
Group I	5/06		\$24.62	86	66	\$15.40
Group II	5/06		\$24.62	86	66	\$15.40
Group III	5/06		\$23.37	86	66	\$15.40
Group III-A	5/06		\$24.62	86	66	\$15.40
Group IV	5/06		\$22.39	86	66	\$15.40
Group V	5/06		\$25.32	86	66	\$15.40
Pipe Fitter	7/06	b	\$31.00	91	69	\$17.93
Glazier			\$21.75	FED		\$12.21 + 9.4%
Laborer (Building):						
			\$17.87	110	7	\$8.43
First Semi-Skilled			\$19.87	110	7	\$8.43
Second Semi-Skilled			\$18.87	110	7	\$8.43
Lather			USE CARPENTER RATE			
Linoleum Layer & Cutter			USE CARPENTER RATE			
Marble Mason			\$25.39	59	7	\$10.12
Millwright			\$22.13	60	15	\$9.58
Iron Worker	8/06		\$23.72	11	8	\$15.02
Painter	2/07		\$20.25	18	7	\$7.82
Plasterer			\$20.01	94	5	\$9.10
Plumber	7/06	b	\$31.00	91	69	\$17.93
Pile Driver			\$22.13	60	15	\$9.58
Roofer	10/06		\$25.25	12	4	\$9.84
Sheet Metal Worker	7/06		\$25.55	40	23	\$11.18
Sprinkler Fitter	1/07		\$29.09	33	19	\$13.40
Terrazzo Worker			\$25.39	59	7	\$10.12
Tile Setter			\$25.39	59	7	\$10.12
Truck Driver - Teamster						
Group I			\$21.00	101	5	\$7.50
Group II			\$21.65	101	5	\$7.50
Group III			\$21.15	101	5	\$7.50
Group IV			\$21.65	101	5	\$7.50
Traffic Control Service Driver						
Welders - Acetylene & Electric		*				

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.

**Annual Incremental Increase

*SEE FOOTNOTE PAGE

ANNUAL WAGE ORDER NO. 13

1/07

OCCUPATIONAL TITLE	Effective Date of Increase	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits

* Welders receive rate prescribed for the occupational title performing operation to which welding is incidental.

Use Building Construction Rates on Building(s) and All Immediate Attachments. Use Heavy Construction rates for remainder of project. For the occupational titles not listed in Heavy Construction Sheets, use Rates shown on Building Construction Rate Sheet.

a - Vacation: Employees over 5 years - 8%; Employees under 5 years - 6%

*b -All work over \$3.5 Mil. Total Mech. Contract - \$31.00, Fringes - \$17.93
All work under \$3.5 Mil. Total Mech. Contract - \$29.66, Fringes - \$13.83

**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 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. 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 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, 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 7:00 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.

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. The above may be changed by mutual consent of authorized personnel. When circumstances warrant, the Employer may change the regular workweek to four (4) ten-hour days at the regular time rate of pay. It being understood that all other pertinent information must be adjusted accordingly. All time worked before and after the established workday of eight (8) hours, Monday through Friday, 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.

**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 (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. Friday must be scheduled for no more than ten (10) hours at the straight time rate, but 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 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 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. 65: Means Monday through Sunday shall constitute the work week. Regular starting time shall be 8:00 a.m., with one half hour for lunch between three and one-half (3½) and five (5) hours after starting time. The starting time may be advanced by two (2) hours or delayed one (1) hour by the employer from the regular starting time. All work performed before the advanced starting time and during the half hour lunch shall be paid at the overtime rate of time and one-half (1½). Work performed outside these hours shall be paid at the overtime rate of time and one-half (1½), except as provided otherwise below. All work performed on Sundays or recognized holidays shall be paid at the double (2) time rate. When the start time is delayed past 9:00 a.m., the employee's pay shall start at 9:00 a.m. and all time, after the normal quitting time (5:30 p.m.), shall be paid at the overtime rate. Eight (8) hours shall constitute the work day. All work performed prior to or after the regular eight (8) hour work day, as described above, and all work performed on Saturday shall be paid at time and one-half (1½) the regular rate. In the event that a scheduled eight (8) hour work day is missed (not including recognized holidays) because of inclement weather, then that missed work day may be made up at straight time on the following Saturday. It is recognized that not all employees working on a Saturday make-up day will have worked the same number of hours during the regular work week. It is further recognized that any work after forty (40) hours must be paid at time and one-half (1½). The employer may establish a 4-10's schedule on projects (4 days with 10 hours per day at straight time). In order to use the 4-10's schedule, the employer must schedule the 4-10's for a minimum of one (1) week. If using a 4-10's schedule, a Friday make-up day is allowed.

**BOONE COUNTY OVERTIME SCHEDULE
BUILDING CONSTRUCTION**

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.

NO. 87: Means eight (8) hours starting between 6:00 a.m. and 8:00 a.m. and ending between 2:30 p.m. and 4:30 p.m. at the Employers discretion shall constitute a day's work. Any work prior to 6:00 a.m. or after eight (8) hours shall be paid at the overtime rate. Five (5) days from Monday through Friday inclusive shall constitute a regular work week. All hours before and after these regular hours shall be considered overtime and shall be paid for at the rate of double (2) time. All work on Saturday and Sunday shall be paid at double (2) the prevailing scale of wages.

NO. 91: Means eight (8) hours shall constitute a day's work commencing at 8:00 a.m. and ending at 4:30 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 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 Saturdays, Sundays and recognized holidays shall be paid at the double (2) time rate of pay.

NO. 94: Means eight (8) hours shall constitute a days 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.

**BOONE COUNTY OVERTIME SCHEDULE
BUILDING CONSTRUCTION**

NO. 110: 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. If an Employer is prevented from working forty (40) hours, Monday through Friday, or any part thereof by reason of inclement weather (rain and 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. Friday must be scheduled for at least eight (8) hours and no more than ten (10) hours at the straight time rate, but all hours worked over the forty (40) hours Monday through Friday will be paid at time and one-half (1½) overtime rate.

**BOONE COUNTY
HOLIDAY SCHEDULE – BUILDING CONSTRUCTION**

NO. 3: All work done on New Year's Day, Decoration Day, July 4th, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day shall be paid at the double time rate of pay. Whenever any such holidays fall on a Sunday, the following Monday shall be observed as a holiday.

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: All work done on New Year's Day, Memorial Day, Independence Day, Labor 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 preceding Friday.

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 the holiday and all work performed on said day shall be at the double (2) time rate. When one of the holidays falls on Saturday, the preceding Friday shall be considered the holiday and all work performed on said day shall be at the double (2) time rate.

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.

NO. 31: All work done on New Year's Day, Presidents Day, Good Friday, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Day, and Employee's Birthday shall be paid at the double time rate of pay. If a holiday falls on Sunday, the following Monday will be observed as the recognized holiday. If a holiday falls on Saturday, the preceding Friday will be observed as the recognized holiday.

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. 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.

**BOONE COUNTY
HOLIDAY SCHEDULE – BUILDING CONSTRUCTION**

NO. 69: All work performed on New Year's Day, Decoration 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 will also be holidays, but if the employer chooses to work these days, the employee will be paid at straight-time rate of pay. If a holiday falls on a Sunday in a particular year, the holiday will be observed on the following Monday.

Heavy Construction Rates for
BOONE County

REPLACEMENT PAGE

Section 010

OCCUPATIONAL TITLE	*Effective Date of Increase	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits
CARPENTER					
Journeyman	5/06	\$26.18	7	16	\$9.49
Millwright	5/06	\$26.18	7	16	\$9.49
Pile Driver Worker	5/06	\$26.18	7	16	\$9.49
OPERATING ENGINEER					
Group I	5/06	\$23.70	21	5	\$15.31
Group II	5/06	\$23.35	21	5	\$15.31
Group III	5/06	\$23.15	21	5	\$15.31
Group IV	5/06	\$19.50	21	5	\$15.31
Oilier-Driver	5/06	\$19.50	21	5	\$15.31
LABORER					
General Laborer	5/06	\$22.52	2	4	\$8.13
Skilled Laborer	5/06	\$23.12	2	4	\$8.13
TRUCK DRIVER - TEAMSTER					
Group I	5/06	\$24.27	22	19	\$8.00
Group II	5/06	\$24.43	22	19	\$8.00
Group III	5/06	\$24.42	22	19	\$8.00
Group IV	5/06	\$24.54	22	19	\$8.00

For the occupational titles not listed on the Heavy Construction Rate Sheet, use Rates shown on the Building Construction Rate Sheet.

**BOONE COUNTY
OVERTIME SCHEDULE – HEAVY CONSTRUCTION**

NO. 2: Means a regular workweek shall be forty (40) hours and 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 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.

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 from holidays. 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. 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. For all time worked on recognized holidays, or days observed as such, double (2) time shall be paid.

**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 days 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. 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 Thursday work week. The ten (10) hours shall be applied to the forty (40) hour work week.

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. 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. 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.

**REPLACEMENT PAGE
OUTSIDE ELECTRICIAN**

These rates are to be used for the following counties:

Adair, Audrain, Boone, Callaway, Camden, Carter, Chariton, Clark, Cole, Cooper, Crawford, Dent, Franklin, Gasconade, Howard, Howell, Iron, Jefferson, Knox, Lewis, Lincoln, Linn, Macon, Maries, Marion, Miller, Moniteau, Monroe, Montgomery, Morgan, Oregon, Osage, Perry, Phelps, Pike, Pulaski, Putnam, Ralls, Randolph, Reynolds, Ripley, St. Charles, St. Francois, St. Louis City, St. Louis County, Ste. Genevieve, Schuyler, Scotland, Shannon, Shelby, Sullivan, Texas, Warren, and Washington

COMMERCIAL WORK

Occupational Title	Basic Hourly Rate	Total Fringe Benefits
*Journeyman Lineman	\$31.36	\$4.75 + 41.3%
*Lineman Operator	\$27.50	\$4.75 + 41.3%
*Groundman	\$21.41	\$4.75 + 41.3%

OVERTIME RATE: 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.

HOLIDAY RATE: 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.

UTILITY WORK

Occupational Title	Basic Hourly Rate	Total Fringe Benefits
*Journeyman Lineman	\$31.36	\$4.75 + 37.3%
*Lineman Operator	\$27.08	\$4.75 + 37.3%
*Groundman	\$20.94	\$4.75 + 37.3%

OVERTIME RATE: 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.

HOLIDAY RATE: 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.

*Annual Incremental Increase

CERTIFIED COPY OF ORDER

STATE OF MISSOURI }
 County of Boone } ea.

April Session of the April Adjourned

Term. 20 07

In the County Commission of said county, on the 19th day of April 20 07

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

Now on this day the County Commission of the County of Boone does hereby approve the **On-Site Wastewater Code Enforcement Cooperative Agreement** between the County of Boone and the City of Ashland as attached. It is further ordered the Presiding Commissioner is hereby authorized to sign said agreement.

Done this 19th day of April, 2007.

ATTEST:

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

Kenneth M. Pearson
 Kenneth M. Pearson
 Presiding Commissioner

Karen M. Miller
 Karen M. Miller
 District I Commissioner

Skip Elkin
 Skip Elkin
 District II Commissioner

On –Site Wastewater Code Enforcement Cooperative Agreement

This agreement is entered into this 19 day of April, 2007, by and between the County of Boone, State of Missouri through the Boone County Commission (hereafter “County”) and the City of Ashland, a municipal corporation within the County of Boone, State of Missouri (herein after “City”).

WITNESSETH:

Whereas, County has duly enacted certain regulations pertaining to Small On-site Wastewater Systems and Public Health Hazards and Nuisances as it pertains to Sewage Treatment and Disposal pursuant to Section 192.300, RSMo, and provided a program for inspection and enforcement of same within the unincorporated areas of Boone County, Missouri; and

Whereas, City has enacted, or shall enact concurrently with execution of this agreement, Chapter IV, Small On-site Wastewater Systems, and Chapter VI, Public Health Hazards and Nuisances as the same apply to enforcement of section 6.8, On-site Sewage Treatment and Disposal, Boone County Code of Health Regulations, copies of which are attached and incorporated herein by reference (herein simply called “Wastewater Codes”), and desires to establish a program for inspection and enforcement of its Wastewater Codes; and

Whereas, the parties hereto believe that it is their respective economic interests and in the public interest in general to enter into this agreement to have a uniform program for Wastewater Code inspection and enforcement in order to promote the health, safety, and welfare for the citizens of Ashland, Missouri and Boone County, Missouri; and

Whereas, the parties hereto are authorized by law to contract for common services pursuant to Section 70.220, RSMo, and each by order or ordinance has empowered their respective signatories to enter into this agreement.

NOW THEREFORE, in consideration of the mutual understandings and undertakings contained in this agreement, the parties agree as follows:

1. The City shall enact and keep in full force the following “Wastewater Codes”:
 - A. Chapter IV, Small On-site Wastewater Systems, Boone County Code of


Health Regulations

- B. Chapter VI, Public Health Hazards and Nuisances, as the same apply to enforcement of section 6.8, On-site Sewage Treatment and Disposal, Boone County Code of Health Regulations.
 - C. An ordinance which establishes fines and penalties for violation of the Wastewater Codes and remedies to provide for the enforcement thereof.
 - D. An ordinance which authorizes this agreement and empowers the County through the city of Columbia/Boone County Health Department (hereafter “Department”) to administer and enforce the foregoing regulations within City.
2. County agrees to administer a code permit system substantially in compliance with the regulations contained in the above Wastewater Code and to provide City through the Department with copies of permits upon request after issuance of such permits.
 3. County agrees to provide inspection and code enforcement services within City through the Department. In addition, County through the Department shall maintain membership in the various code organizations as it deems appropriate, provide City with Wastewater Code interpretations and otherwise work with City as mutually deemed appropriate to implement this agreement. County through the Department also shall keep and maintain records and inspection reports of all inspections performed within City and provide City with copies of same upon request or as mutually deemed appropriate.
 4. City agrees to inform the public in the City of the adoption of the Wastewater Codes and administration and enforcement thereof by the Department. City also agrees to provide Department with copies of all amendments of Codes and relevant administration and legal proceedings.
 5. City agrees to adopt permit fees and to pay County such fees as collected as follows, namely: \$200.00 each for permits for new construction of any onsite wastewater treatment system; and \$125.00 each for permits to repair an existing

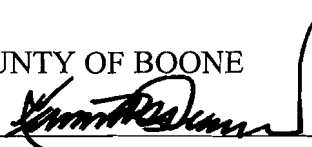
onsite wastewater treatment system. These fees are subject to change by the Boone County Commission; City promptly amend its ordinances to adopt current county fees for services within City as soon as reasonably practicable after they are adopted by County.

- 6. City agrees to enforce compliance with the Wastewater Codes by bringing civil or criminal legal proceedings against those for whom violations have been reported as deemed appropriate by legal counsel for the City. City also shall, at its own expense, prosecute or defend all legal actions pertaining to the interpretation or implementation of the Wastewater Codes provided for herein and adopted by City.
- 7. This agreement shall be effective for a period of one year commencing on the day and year first above-written and shall automatically renew from year to year unless sooner terminated by either party. This agreement may be terminated by either party immediately for breach of this agreement or other reasonable cause warranting immediate termination as specified in writing, or for any other reason by giving the other party at least sixty (60) days advance written notice of termination, unless both parties agree in writing that it may be terminated on some other basis.
- 8. This agreement shall not be assignable or otherwise transferable except upon mutual consent of the parties and shall not be modified or otherwise amended except by written instrument executed with the same formality as this agreement.
- 9. This agreement shall be binding upon and enure to the benefit of the parties hereto and their respective successors and assigns in office.

IN WITNESS WHEREOF, the parties have executed this agreement on the day and year first above-written.

CITY OF ASHLAND
By: 

Mayor

COUNTY OF BOONE
By: 

Presiding Commissioner

ATTEST: Darla Dapp
City Clerk

APPROVED AS TO FORM:

[Signature]
City Attorney

ATTEST: Wendy A Noren
County Clerk *by dds*

APPROVED AS TO FORM:

[Signature]
County Counselor