MULTI-STEP BIDDING PROCESS
FOR
CONTRACTORS

Request For Solicitation For Construction Services

Stage II – Mechanical Contractors Bidders List FY09

April 16, 2009

MECHANICAL UPGRADES CENTRAL UTAH CORRECTIONAL FACILITY (CUCF)

DEPARTMENT OF CORRECTIONS
GUNNISON, UTAH

DFCM Project No. 08181110

WHW Engineering
8619 South Sandy Parkway #101
Sandy, Utah 84070

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Current copies of the following documents are hereby made part of these contract documents by reference. These documents are available on the DFCM web site at http://dfcm.utah.gov or are available upon request from DFCM:

DFCM Supplemental General Conditions dated July 15, 2008
DFCM General Conditions dated May 25, 2005
DFCM Application and Certificate for Payment dated May 25, 2005

Technical Specifications:
Drawings:

The Agreement and General Conditions dated May 25, 2005 have been updated from versions that were formally adopted and in use prior to this date. The changes made to the General Conditions are identified in a document entitled Revisions to General Conditions that is available on DFCM's web site at http://dfcm.utah.gov

INVITATION TO BID

ONLY FIRMS PRE-QUALIFIED DURING STAGE I OF THE RFS ARE ALLOWED TO BID ON THIS PROJECT

The State of Utah - Division of Facilities Construction and Management (DFCM) is requesting bids for the construction of the following project:

MECHANICAL UPGRADES – CENTRAL UTAH CORRECTIONAL FACILITY (CUCF)
DEPARTMENT OF CORRECTIONS – GUNNISON, UTAH
DFCM PROJECT NO: 08181110

Project Description: Replacement of the existing Armstrong instantaneous packaged water heaters with new heaters. Includes new double wall instantaneous water heater packages and connection to the steam and condensate piping systems. Construction Cost Estimate: $258,000.

Company	Contact	Fax	Company	Contact	Fax
Ben Lomond Mechanical	Jeff Dalton	801-731-7844	Mech Svc & Systems, Inc	Randy Karren	801-561-4673
Com Mech Sys & Srv	Norman J. Cole	801-977-3928	Ralph Tye and Sons, Inc.	Doug Tye	801-262-1391
Envision Mechanical, Inc	Ray Squier	801-731-8070	Rocky Mtn Mechanical	Jeff Larsen	801-467-1460
Harris Air Systems, Inc.	Omar Nava	801-467-6524	SR Mechanical, Inc	Steven Roberts	435-529-7851
Harris Companies	Frank Dorhofer	801-433-2641	Tod R. Packer Htg & AC	Tod R. Packer	801-849-1314
KOH Mech Contractors	Larry Hansen	801-254-6374			

The bid documents will be available at 3:00 PM on Thursday April 16, 2009 in electronic format only on CDs from DFCM at 4110 State Office Building, Salt Lake City, Utah 84114, telephone 801-538-3018 and on the DFCM web page at http://dfcm.utah.gov. For questions regarding this project, please contact Craig Wessman, PE, Project Manager, DFCM, at 801-673-2107. No others are to be contacted regarding this project.

A **MANDATORY** pre-bid meeting and site visit will be held at 3:00 PM on Wednesday, April 22, 2009 in the Main Lobby of Administration Building at the Central Utah Correctional Facility in Gunnison, Utah. All pre-qualified prime contractors wishing to bid on this project must attend this meeting. The pre-bid meeting will include entering into the security fenced areas for inspection of the mechanical spaces where the work will be performed. Prior to entrance into the security areas, a person must have a security clearance issued by the Department of Corrections. The security clearance is not required for the pre-bid general meeting in the Administration Building; however, if any contractor wishes to access the mechanical spaces as a part of the pre-bid meeting, that person must request a clearance from the Department of Corrections.

The following information must be sent to Dennis Sorensen at CUCF by e-mail (dsorensen@utah.gov) or fax (435-528-3051) by 3:00 PM on Monday April 20, 2009 to request a security clearance: (1) full name of the person requesting the clearance, (2) company the person is representing, (3) date of birth, (4) social security number, and (5) drivers license number and expiration date. For the project, all workers will be required to have a security clearance. Additional information is included in the bid documents regarding the clearance and access to the site and is found in section 01050 of the project manual. The facility representative for this project is Dennis Sorensen (435-528-3050) and not Terry Jacobs as listed.

Bids must be submitted by 3:00 PM on Wednesday, May 13, 2009 to DFCM, 4110 State Office Building, Salt Lake City, Utah 84114. Bids will be opened and read aloud in the DFCM Conference Room, 4110 State Office Building, Salt Lake City, Utah. Note: Bids must be received at 4110 State Office Building by the specified time. The contractor shall comply with and require all of its subcontractors to comply with the license laws as required by the State of Utah. A bid bond in the amount of five percent (5%) of the bid amount, made payable to the Division of Facilities Construction and Management on DFCM's bid bond form, shall accompany the bid.

The Division of Facilities Construction & Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of the State.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
MARLA WORKMAN, CONTRACT COORDINATOR
4110 State Office Bldg., Salt Lake City, Utah 84114

STAGE II - MULTI-STEP BIDDING PROCESS

ONLY FIRMS PRE-QUALIFIED DURING STAGE I OF THE RFS ARE ALLOWED TO BID ON THIS PROJECT

1. Invitational Bid Procedures

The following is an overview of the invitational bid process. More detailed information is contained throughout the document. Contractors are responsible for reading and complying with all information contained in this document.

Notification: DFCM will notify each registered pre-qualified firm (via fax or e-mail) when a project is ready for Construction Services and invite them to bid on the project.

Description of Work: A description of work or plans/specifications will be given to each contractor. If required, the plans and specifications will be available on the DFCM web page at http://dfcm.utah.gov and on CDs from DFCM, at 4110 State Office Building, Salt Lake City, Utah 84114.

Schedule: The Stage II Schedule shows critical dates including the mandatory pre-bid site meeting (if required), the question and answer period, the bid submittal deadline, the subcontractor list submittal deadline, etc. Contractors are responsible for meeting all deadlines shown on the schedule.

Mandatory Pre-Bid Site Meeting: If a firm fails to attend a pre-bid site meeting labeled "Mandatory" they will not be allowed to bid on the project. At the mandatory meeting, contractors may have an opportunity to inspect the site, receive additional instructions and ask questions about project. The schedule contains information on the date, time, and place of the mandatory pre-bid site meeting.

Written Questions: All questions must be in writing and directed to DFCM's project manager assigned to this project. No others are to be contacted regarding this project. The schedule contains information on the deadline for submitting questions.

Addendum: All clarifications from DFCM will be in writing and issued as an addendum to the RFS. Addenda will be posted on DFCM's web site at http://dfcm.utah.gov. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda may result in disqualification from bidding.

Submitting Bids: Bids must be submitted to DFCM 4110 State Office Building, Salt Lake City, Utah 84114 by the deadline indicated on the schedule. Bids submitted after the deadline will not be accepted. Bids will be opened at DFCM on the date, time, and place indicated on the schedule.

Subcontractors List: The firm selected for the project must submit a list of all subcontractors by the deadline indicated on the schedule contained in this document.

Pre-qualified List of Contractors: Contractors shall remain on DFCM's list of pre-qualified contractors provided: (a) they maintain a performance rating of 3.5 or greater on each project, (b) they are not suspended for failure to comply with requirements of their contract, (c) the firm has not undergone a significant reorganization involving the loss of key personnel (site superintendents, project managers, owners, etc.) to a degree such that the firm no longer meets the pre-qualification requirements outlined in Stage I, (d) the financial viability of the firm has not significantly changed, and (e) the firm is not otherwise disqualified by DFCM. Note: If a contractor fails to comply with items (a) through (e) above,

they may be removed from DFCM's list of pre-qualified contractors following an evaluation by a review committee. Contractors will be given the opportunity to address the review committee before a decision is made. Pre-qualified contractors are ONLY authorized to bid on projects within the discipline that they were originally pre-qualified under.

2. Drawings and Specifications and Interpretations

Drawings, specifications and other contract documents may be obtained as stated in the Invitation to Bid. If any firm is in doubt as to the meaning or interpretation of any part of the drawings, specifications, scope of work or contract documents, they shall submit, in writing, a request for interpretation to the authorized DFCM representative by the deadline identified in the schedule. Answers to questions and interpretations will be made via addenda issued by DFCM. Neither DFCM or the designer shall be responsible for incorrect information obtained by contractors from sources other than the official drawings/specifications and addenda issued by DFCM.

3. Product Approvals

Where reference is made to one or more proprietary products in the contract documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the contract documents, the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the drawings and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the Designer. Such written approval must occur prior to the deadline established for the last scheduled addendum to be issued. The Designer's written approval will be included as part of the addendum issued by DFCM. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the Designer.

4. Addenda

All clarifications from DFCM will be in writing and issued as an addendum to the RFS. Addenda will be posted on DFCM's web site at http://dfcm.utah.gov. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda shall result in disqualification from bidding. DFCM shall not be responsible for incorrect information obtained by contractors from sources other than official addenda issued by DFCM.

5. Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors

Contractors shall respond promptly to any inquiry in writing by DFCM to any concern of financial responsibility of the Contractor, Subcontractor or Sub-subcontractor. Failure to respond may result in suspension from DFCM's list of pre-qualified contractors.

6. Licensure

The Contractor shall comply with and require all of its Subcontractors to comply with the license laws as required by the State of Utah.

7. Permits

In concurrence with the requirements for permitting in the general conditions, it is the responsibility of the contractor to obtain the fugitive dust plan requirements from the Utah Division of Air Quality and the SWPPP requirements from the Utah Department of Environmental Quality and submit the completed forms and pay any permit fee that may be required for this specific project. Failure to obtain the required permit may result in work stoppage and/or fines from the regulating authority that will be the sole responsibility of the contractor. Any delay to the project as a result of any such failure to obtain the permit or noncompliance with the permit shall not be eligible for any extension in the Contract Time.

8. Time is of the Essence

Time is of the essence in regard to all the requirements of the contract documents.

9. Bids

Before submitting a bid, each bidder shall carefully examine the contract documents; shall visit the site of the work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the contract documents including those added via addenda. If the bidder observes that portions of the contract documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Project Manager prior to the bidding deadline. Changes necessary to correct these issues will be made via addenda issued by DFCM.

The bid, bearing original signatures, must be typed or handwritten in ink on the Bid Form provided in the procurement documents and submitted in a sealed envelope at the location specified by the Invitation to Bid prior to the published deadline for the submission of bids.

Bid bond security, in the amount of five percent (5%) of the bid, made payable to the Division of Facilities Construction and Management, shall accompany bid. THE BID BOND MUST BE ON THE BID BOND FORM PROVIDED IN THE PROCUREMENT DOCUMENTS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID.

If the bid bond security is submitted on a form other than DFCM's required bid bond form, and the bid security meets all other legal requirements, the bidder will be allowed to provide an acceptable bid bond by the close of business on the next business day following notification by DFCM of submission of a defective bid bond security. **A cashier's check cannot be used as a substitute for a bid bond.**

10. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the "Instructions and Subcontractor's List Form", included as part of the contract documents. The subcontractors list shall be delivered to DFCM or faxed to DFCM at (801) 538-3677 within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the contract documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements may be suspended from DFCM's list of pre-qualified contractors.

11. Contract and Bond

The Contractor's Agreement will be in the form provided in this document. The duration of the contract shall be for the time indicated by the project completion deadline shown on the schedule. The successful bidder, simultaneously with the execution of the Contractor's Agreement, will be required to furnish a performance bond and a payment bond, both bearing original signatures, upon the forms provided in the procurement documents.

The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the Contract Sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for Subcontractors will be specified in the Supplementary General Conditions.

12. Award of Contract

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is reasonable, is in the interests of DFCM to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc. Alternates will be selected in prioritized order up to the construction cost estimate.

13. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

14. Withdrawal of Bids

Bids may be withdrawn on written request received from bidders within 24 hours after the bid opening if the contractor has made an error in preparing the bid.

15. DFCM Contractor Performance Rating

As a contractor completes each project, DFCM will evaluate project performance based on the enclosed "DFCM Contractor Performance Rating" form. The ratings issued on this project may affect the firm's "pre-qualified" status and their ability to obtain future work with DFCM.

Stage II
PROJECT SCHEDULE

PROJECT NAME: **MECHANICAL UPGRADES – CENTRAL UTAH CORRECTIONAL FACILITY DEPARTMENT OF CORRECTIONS – GUNNISON, UTAH**
DFCM PROJECT #: **08181110**

Event	Day	Date	Time	Place
Stage II Bidding Documents Available	Thursday	April 16, 2009	3:00 PM	DFCM 4110 State Office Building SLC, UT and the DFCM web site*
Mandatory Pre-bid Site Meeting	Wednesday	April 22, 2009	3:00 PM	Main Lobby Administration Building CUCF Gunnison, UT
Deadline for Submitting Questions	Wednesday	April 29, 2009	3:00 PM	Craig Wessman – DFCM E-mail: cwessman@utah.gov Fax 801-538-3267
Addendum Deadline (exception for bid delays)	Monday	May 11, 2009	2:00 PM	DFCM web site*
Prime Contractors Turn in Bid and Bid Bond	Wednesday	May 13, 2009	3:00 PM	DFCM 4110 State Office Building SLC, UT
Subcontractors List Due	Thursday	May 14, 2009	3:00 PM	DFCM 4110 State Office Building SLC, UT Fax 801-538-3677
Substantial Completion Date	Wednesday	Sept. 30, 2009		

* **NOTE: DFCM's web site address is http://dfcm.utah.gov**

BID FORM

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Invitation to Bid" and in accordance with the Request for Bids for the **MECHANICAL UPGRADES – CENTRAL UTAH CORRECTIONAL FACILITY (CUCF) DEPARTMENT OF CORRECTIONS – GUNNISON, UTAH - DFCM PROJECT NO. 08181110** and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

BASE BID: For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

_____ DOLLARS ($_____)
(In case of discrepancy, written amount shall govern)

ADDITIVE ALTERNATE NO. 1: For all work shown on the Drawings and described in the Specifications and Contract Documents to provide three (3) emergency tube bundles for the heaters for storage, I/we agree to perform for the sum of:

_____ DOLLARS ($_____)
(In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete by **September 30, 2009**, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **$225.00** per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____.

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract. The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable l00% Performance and Payment bonds are not delivered within time set forth.

Type of Organization: _____
(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

_____

Respectfully submitted,

_____
Name of Bidder

ADDRESS:

_____

_____

_____
Authorized Signature

BID BOND

(Title 63, Chapter 56, U. C. A. l953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed, (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the STATE OF UTAH, hereinafter referred to as the "Obligee," in the amount of $_____ (5% of the accompanying bid), being the sum of this Bond to which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted to Obligee the accompanying bid incorporated by reference herein, dated as shown, to enter into a contract in writing for the _____ _____ Project.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal does not execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the principal, then the sum of the amount stated above will be forfeited to the State of Utah as liquidated damages and not as a penalty; if the said principal shall execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void. It is expressly understood and agreed that the liability of the Surety for any and all defaults of the Principal hereunder shall be the full penal sum of this Bond. The Surety, for value received, hereby stipulates and agrees that obligations of the Surety under this Bond shall be for a term of sixty (60) days from actual date of the bid opening.

PROVIDED, HOWEVER, that this Bond is executed pursuant to provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated below, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DATED this _____ day of _____, 20_____ .

Principal's name and address (if other than a corporation):

_____

_____

By: _____

Title: _____

Principal's name and address (if a corporation):

_____

_____

By: _____

Title: _____

(Affix Corporate Seal)

Surety's name and address:

_____

_____

STATE OF _____)
) ss.
COUNTY OF _____)

By: _____
Attorney-in-Fact (Affix Corporate Seal)

On this ____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.
My Commission Expires: _____
Resides at: _____

_____
NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

INSTRUCTION AND SUBCONTRACTORS LIST FORM

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, based on the following:

DOLLAR AMOUNTS FOR LISTING

PROJECTS UNDER $500,000: **ALL FIRST-TIER SUBS $20,000 OR OVER MUST BE LISTED**
PROJECTS $500,000 OR MORE: **ALL FIRST-TIER SUBS $35,000 OR OVER MUST BE LISTED**

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- If there are no subcontractors for the job that are required to be reported by State law (either because there are no subcontractors that will be used on the project or because there are no first-tier subcontractors over the dollar amounts referred to above), then you do not need to submit a sublist. If you do not submit a sublist, it will be deemed to be a representation by you that there are no subcontractors on the job that are required to be reported under State law. At any time, DFCM reserves the right to inquire, for security purposes, as to the identification of the subcontractors at any tier that will be on the worksite.

LICENSURE:

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

'SPECIAL EXCEPTION':

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A.Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

GROUNDS FOR DISQUALIFICATION:

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for such

other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

(1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
(2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
(3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
(4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
(5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
(6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

EXAMPLE:

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONTRACTOR LICENSE #
ELECTRICAL	ABCD Electric Inc.	$350,000.00	123456789000
LANDSCAPING	"Self" *	$300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	$298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: $350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

* Bidders may list "self", but it is not required.

PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS SUBCONTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.

SUBCONTRACTORS LIST
FAX TO 801-538-3677

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #

We certify that:

l. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed "Self" or "Special Exception" in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: _____

DATE: _____ SIGNED BY: _____

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR OWNER'S REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY OWNER. ATTACH A SECOND PAGE IF NECESSARY.

CONTRACTOR'S AGREEMENT

FOR:

_____
_____
_____

THIS CONTRACTOR'S AGREEMENT, made and entered into this ____ day of _____, 20__, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and _____, incorporated in the State of _____ and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is _____.

WITNESSETH: WHEREAS, DFCM intends to have Work performed at _____ _____.

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Work to be performed shall be in accordance with the Contract Documents prepared by _____ and entitled "_____."

The DFCM General Conditions ("General Conditions") dated May 25, 2005 and Supplemental General Conditions dated July 15, 2008 ("also referred to as General Conditions") and on file at the office of DFCM and available on the DFCM website, are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

ARTICLE 2. CONTRACT SUM. The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of _____ _____ DOLLARS AND NO CENTS ($_____.00), which is the base bid, and which sum also includes the cost of a 100%

Performance Bond and a 100% Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY. The Work shall be Substantially Complete by _____. Contractor agrees to pay liquidated damages in the amount of $_____ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Notice to Contractors, Instructions to Bidders/Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

ARTICLE 5. PAYMENT. The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the Contractor requests payment and agrees to safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

ARTICLE 6. INDEBTEDNESS. Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

ARTICLE 7. ADDITIONAL WORK. It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

ARTICLE 8. INSPECTIONS. The Work shall be inspected for acceptance in accordance with the General Conditions.

ARTICLE 9. DISPUTES. Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT. This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF. The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

ARTICLE 12. INDEMNIFICATION. The Contractor shall comply with the indemnification provisions of the General Conditions.

ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT. The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor's Agreement. The Contractor shall not assign this Contractor's Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor's Agreement, without prior written consent of the DFCM.

ARTICLE 14. RELATIONSHIP OF THE PARTIES. The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT. Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

ARTICLE 16. ATTORNEY FEES AND COSTS. Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.

IN WITNESS WHEREOF, the parties hereto have executed this Contractor's Agreement on the day and year stated hereinabove.

CONTRACTOR: _____

_____
Signature Date

Title: _____

State of _____)
)
County of _____) _____
Please type/print name clearly

On this ____ day of _____, 20____, personally appeared before me, _____, whose identity is personally known to me (or proved to me on the basis of satisfactory evidence) and who by me duly sworn (or affirmed), did say that he (she) is the _____ (title or office) of the firm and that said document was signed by him (her) in behalf of said firm.

_____
Notary Public

(SEAL)

My Commission Expires _____

APPROVED AS TO AVAILABILITY OF FUNDS:

_____
David D. Williams, Jr. Date
DFCM Administrative Services Director

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

_____
Lynn A. Hinrichs Date
Assistant Director Construction Management

APPROVED AS TO FORM:
ATTORNEY GENERAL
July 15, 2008
By: Alan S. Bachman
Asst Attorney General

APPROVED FOR EXPENDITURE:

_____
Division of Finance Date

PERFORMANCE BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That _____ hereinafter referred to as the "Principal" and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee, " in the amount of _____ _____ DOLLARS ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____, for the approximate sum of _____ _____ Dollars ($_____), which Contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

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

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20_____.

WITNESS OR ATTESTATION:

_____

PRINCIPAL:

_____

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

_____

SURETY:

_____

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)

) ss.

COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My commission expires: _____

Resides at: _____

_____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

PAYMENT BOND

(Title 63, Chapter 56, U. C. A. l953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____ _____, a corporation organized and existing under the laws of the State of _____authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of _____, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of _____ Dollars ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____ for the approximate sum of _____ _____ Dollars ($_____), which contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, l953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

_____

PRINCIPAL:

_____

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

_____

SURETY:

_____

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20_____, personally appeared before me _____ _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My commission expires: _____

Resides at: _____

_____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT _____ PROJECT NO: _____

AGENCY/INSTITUTION _____

AREA ACCEPTED _____

The Work performed under the subject Contract has been reviewed on this date and found to be Substantially Completed as defined in the General Conditions; including that the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the State of Utah can occupy the Project or specified area of the Project for the use for which it is intended.

The DFCM - (Owner) accepts the Project or specified area of the Project as Substantially Complete and will assume full possession of the Project or specified area of the Project at _____ (time) on _____ (date).

The DFCM accepts the Project for occupancy and agrees to assume full responsibility for maintenance and operation, including utilities and insurance, of the Project subject to the itemized responsibilities and/or exceptions noted below:

_____

_____

The Owner acknowledges receipt of the following closeout and transition materials:

Record Drawings O & M Manuals Warranty Documents Completion of Training Requirements

A list of items to be completed or corrected (Punch List) is attached hereto. The failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents, including authorized changes thereof. The amount of_____. (Twice the value of the punch list work) shall be retained to assure the completion of the punch list work.

The Contractor shall complete or correct the Work on the list of (Punch List) items appended hereto within _____ ____calendar days from the above date of issuance of this Certificate. If the list of items is not completed within the time allotted the Owner has the right to be compensated for the delays and/or complete the work with the help of independent contractor at the expense of the retained project funds. If the retained project funds are insufficient to cover the delay/completion damages, the Owner shall be promptly reimbursed for the balance of the funds needed to compensate the Owner.

_____ by: _____

CONTRACTOR (include name of firm) (Signature) DATE

_____ by: _____

A/E (include name of firm) (Signature) DATE

_____ by: _____

USING INSTITUTION OR AGENCY (Signature) DATE

_____ by: _____

DFCM (Owner) (Signature) DATE

4110 State Office Building, Salt Lake City, Utah 84114
telephone 801-538-3018 • facsimile 801-538-3267 • http://dfcm.utah.gov

cc: Parties Noted
DFCM, Director

STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

General Contractor Performance Rating Form

Project Name:		DFCM Project#	
Contractor: (ABC Construction, John Doe, 111-111-1111)	A/E: (ABC Architects, Jane Doe, 222-222-2222)	Original Contract Amount:	Final Contract Amount:
DFCM Project Manager:		Contract Date:	
Completion Date:		Date of Rating:	

Rating Guideline	QUALITY OF PRODUCT OR SERVICES	COST CONTROL	TIMELINESS OF PERFORMANCE	BUSINESS RELATIONS
5-Exceptional	Contractor has demonstrated an exceptional performance level in any of the above four categories that justifies adding a point to the score. Contractor performance clearly exceeds the performance levels described as "Very Good"			
4-Very Good	Contractor is in compliance with contract requirements and/or delivers quality product/service.	Contractor is effective in managing costs and submits current, accurate, and complete billings	Contractor is effective in meeting milestones and delivery schedule	Response to inquiries, technical/service/ administrative issues is effective
3-Satisfactory	Minor inefficiencies/errors have been identified	Contractor is usually effective in managing cost	Contractor is usually effective in meeting milestones and delivery schedules	Response to inquires technical/ service/administrative issues is somewhat effective
2-Marginal	Major problems have been encountered	Contractor is having major difficulty managing cost effectively	Contractor is having major difficulty meeting milestones and delivery schedule	Response to inquiries, technical/service/administrative issues is marginally effective
1-Unsatisfactory	Contractor is not in compliance and is jeopardizing achievement of contract objectives	Contractor is unable to manage costs effectively	Contractor delays are jeopardizing performance of contract objectives	Response to inquiries, technical/service/administrative issues is not effective

1. Rate Contractors quality of workmanship, management of sub contractor performance, project cleanliness, organization and safety requirement.	Score
Agency Comments:	
A & E Comments:	
DFCM Project Manager Comments:	

2. Rate Contractor administration of project costs, change orders and financial management of the project budget.	**Score**
Agency Comments:	
A & E Comments:	
DFCM Project Manager Comments:	

3. Rate Contractor's performance and adherence to Project Schedule, delay procedures and requirements of substantial completion, inspection and punch-list performance.	**Score**
Agency Comments:	
A & E Comments:	
DFCM Project Manager Comments:	

4. Evaluate performance of contractor management team including project manager, engineer and superintendent also include in the rating team's ability to work well with owner, user agency and consultants.	**Score**
Agency Comments:	
A & E Comments:	
DFCM Project Manager Comments:	

5. Rate success of Contractor's management plan, completion of the plans mitigation of project risks and performance of value engineering concepts.	Score
Agency Comments:	
A & E Comments:	
DFCM Project Manager Comments:	

Signed by:	Date:	Mean Score

Additional Comments:

CENTRAL UTAH CORRECTIONAL FACILITY MECHANICAL UPGRADES DEPARTMENT OF CORRECTIONS GUNNISON, UTAH

DFCM PROJECT # 08181110

State of Utah—Department of Administrative Services

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

4110 State Office Building / Salt Lake City, Utah 84114 / 538-3018

SPECIFICATIONS

PREPARED BY

WHW ENGINEERING INC.
8619 SOUTH SANDY PARKWAY, SUITE 101
SANDY, UTAH 84070
PHONE: (801) 466-4021
FAX: (801) 466-8536

March 2009

WHW Engineering Project # 08055

DIVISION 1 - GENERAL REQUIREMENTS

DIVISION 15 - MECHANICAL

DIVISION 1 - GENERAL REQUIREMENTS

UTAH DEPARTMENT OF CORRECTIONS
CENTRAL UTAH CORRECTIONAL FACILITY
CONTRACT STAFF ACCESS RULES & REGULATIONS
ORIENTATION

I. ID PROCESS

For the purpose of this document, contract staff will refer to any individual requesting access to the Central Utah Correctional Facility who are not Utah Department of Corrections paid staff or Central Utah Correctional Facility volunteers. Contract staff shall include, but is not limited to, all architects, engineers, consultants, contractors, subcontractors, educationa l agencies, medical agencies, etc. All contract staff are required to be cleared in advance for entry into secure areas of the Central Utah Correctional Facility (CUCF). The minimum information required for each individual is: Full Name, Date of Birth, Social Security Number and Driver's License State and Number. For full access to the CUCF with a contract ID card, the full CUCF ACCESS APPLICATION FORM must be filled out and submitted along with a signed copy of these rules and regulations. All of the required information must be submitted in typed or fully legible "hand printed" form a minimum of three (3) normal State workdays in advance of the requested entry date. The required information and/or any questions should be directed to a Facility Representative as follows:

TYPE OF CONTRACT STAFF	***FACILITY REPRESENTATIVE***	***PHONE***	***FAX***
BUILDING OR FACILITY WORKERS (IE. ARCHITECTS, ENGINEERS, CONSULTANTS, CONTRACTORS, SUBCONTRACTORS, THEIR EMPLOYEES, ETC.) ALSO SUPPORT FUNCTIONS SUCH AS REPAIRMAN (XEROX, ETC)	Terry Jacobs Or Lisa Irons	(435) 528-3050 (435) 528-6108	(435) 528-3051
EDUCATION	Dee Ivie	(435) 528-6233	(435) 528-6234
MEDICAL	Kaylene Avery	(435) 528-6276	(435) 528-6273
OTHERS (IE. COKE OR PEPSI EMPLOYEES, ETC.)	Melissa Marx	(435) 528-6176	

Ex-offenders or parolees are normally not permitted access to the facility, especially involving high security construction, security equipment and/or

systems. All contract staff are subject to having a criminal identification check processed. Anyo ne with a verified record of criminal activity deemed to pose a potential hazard to prison security may be denied access to prison property. In addition, the minimum contractor / worker age for access onto CUCF Property is 18 years old. A special review of denied individuals may be requested if their services are deemed critical.

If approved full access to the CUCF, when first arriving at the facility each individual will have his or her picture taken, be entered into the facility bioscanner entry control system and a CUCF ID Card will be printed. All contract staff must have picture Identification on their person when arriving at the facility. A valid Utah Driver's License or Driver's License Division ID is preferred; however, any valid picture ID is acceptable. The individual's personal identification card will be exchanged for the CUCF ID Card. CUCF ID cards must be worn in plain sight while in the facility. Personal identifications will be returned upon return of the CUCF ID and exit from the facility. NOTE: Depending on the scope and location of any given work site, contract staff may be required to leave wallets, purses, keys, and other such personal items outside secured areas in locked vehicles, facility lockers, etc.

Full access to the CUCF will not include access to the prison dining room for meals unless the Warden has granted specific approval in advance.

Contract staff will notify their Facility Representative and turn in any facility issued identification or other state property in their possession upon termination of their services.

II. RULES & REGULATIONS CONTRACT STAFF WILL ADHERE TOWHILE AT THE FACILITY:

- ✓ No unlocked vehicles may be left unattended
- ✓ No running vehicles may be left unattended.
- ✓ No vehicle keys may be left in the vehicle to which they apply.
- ✓ All vehicles and equipment must be parked a minimum of 50 feet away from fences, unless otherwise authorized.
- ✓ CUCF offenders currently wear white clothing with CUCF markings. Inmate work crews wear Gold or "bright" Green colo red tee shirts, again with CUCF markings. Contract staff are requested to avoid wearing these colors of clothing at any time.
- ✓ Do Not Run - especially toward or away from any fence line.
- ✓ Anyone entering prison property is subject to search of his/her property, person and vehicle. Failure to submit to this search will result in expulsion from prison property and/or arrest upon probable cause.
- ✓ No weapons, ammunition, explosives, drugs, alcoholic beverages, poisons, acids or other dangerous objects or hazardous substances are allowed on Prison Property without specific written authorization. These items will be confiscated if found and appropriate action will be taken. Required prescription medications may be carried in limited daily dosages only.

- ✓ Any statutory or illegal contraband, or other controlled items as stipulated by this document, found on a person, in a work area or in a vehicle will be confiscated. Vehicles may also be confiscated. Any item(s) violating State Law will result in an investigation and/or arrest by the UDC Enforcement Bureau or local law enforcement agency. If any statutory or illegal contraband or other controlled items are returned to the prison a second time, access to CUCF property may be denied permanently.
- ✓ Any person who the officer believes is arriving at the facility impaired by alcohol or drugs shall be denied access to prison property and may also be detained pending arrival of an Enforcement Officer who will determine if a citation or arrest is warranted.
- ✓ In the event of a prison emergency; i.e. Fire, escape, riot, etc., all work sites will be secured and traffic to and from the sites halted. Work within the sites will be allowed to continue normally as long as it is deemed that there is no physical threat to the individuals or the site. When the emergency has been verified and resolved, the site(s) will be re-opened to traffic. If evacuation of a site is necessary, everyone will be expected to gather in one central location identified by security personnel and will be escorted to a safe area.
- ✓ SMOKING is not allowed in any UDC Correctional Facilities. Special outside smoking areas have been designed near some facilities. If you desire to smoke while on Correction's property, you will need to check with the security personnel for the nearest approved area.
- ✓ Cameras, tape recorders, or news media people will not be allowed on prison property without special approval.
- ✓ Contract staff may not represent themselves as a representative or paid employee of the Central Utah Correctional Facility or Department of Corrections.

III. RULES & REGULATIONS REGARDING INTERACTION WITH OFFENDERS:

- ✓ Contract staff shall not "visit" with offenders.
- ✓ Contract staff shall not give anything to offenders unless specifically outlined in their job description. Giving contraband to offenders is a felony.
- ✓ Contract staff shall not take anything from an offender unless it is specifically outlined in their job description.
- ✓ Contract staff must at all times avoid undue familiarity with offenders or their families including contact through visiting, mail or telephone calls. Contract staff will not pursue a relationship with an offender that is outside their assigned job description.
- ✓ Contract staff must report to the Facility Representative any relationship with an offender, including but not limited to being on an offenders visiting list and/or any family members incarcerated, as soon as the Contract staff becomes aware of the situation.
- ✓ Contract staff will understand that persons under the supervision of this Correctional Facility have been convicted of felony criminal activities and that any offender to which the contract staff comes in contact with may attempt to take unfair advantage, including a possible hostage situation. If taken hostage, contract staff shall understand that they will not be recognized as an advantage for the hostage taker(s).

- ✓ Nothing in / Nothing out. Contract Staff will not be permitted to bring anything into the facility, which is not required specifically for the completion of their duties. Any items taken through Central Control, or other control points, other than commonly accepted daily items or preapproved construction tools/materials, must be approved in writing prior to entering the facility. Contract staff wishing to bring anything in through Central Control should contact their Facility Representative for clearance procedures.

IV: CONTRACTORS/CONSTRUCTION SITE ISSUES:

- ✓ Ladders may not be left unsecured in construction sites at night or on weekends, holidays, etc, when no work is going on.
- ✓ Portable ladders must be removed from the site and secured outside of the fence perimeter at the end of all workdays.
- ✓ No tools or equipment may be left un-attended. Un-attended tools or equipment will be confiscated. Return of confiscated tools or equipment may require a meeting between the contract staff and CUCF officials.
- ✓ Larger, heavier ladders and scaffolding may with CUCF approval be secured by chains and padlocks to immoveable objects within the construction area, but safely away from all fences. NOTE: Unsecured ladders, etc., will be confiscated.
- ✓ Do Not throw away broken or worn out saw blades of any kind at the Prison Site. Dispose of them at your home, shop or office. NOTE: Your job specifications may establish a centralized disposal point for un- usable saw blades, used Hilti cartridge clips, etc.
- ✓ Explosive Cartridges or "Ammo Clips" for "Hilti type guns", etc. (explosive anchoring devices) must be locked up and/or strictly supervised at all times. Cartridge "clips" shall be disposed of away from prison property or in other "authorized locations". If you have a Hilti Gun, etc., in your equipment, the Security Officer for your work site must be notified.
- ✓ Cutting torches and equipment may not be left unattended in construction areas. All cutting torches, related fuel tanks, etc., must be maintained on carts or vehicles and must be removed from construction sites at the end of every workday.
- ✓ Work hours for construction within the prison fences will normally be limited strictly to daylight hours, Monday through Friday. If early morning, late evening, weekend or holiday work is planned or needed; the project security staff and Project Coordinator must be contacted at least 48 hours in advance for approval.
- ✓ Contractors will not be permitted to store flammable liquids or fuel tanks within the security fence perimeter. Contract staff will be assigned a specific approved storage area for any such items on request.
- ✓ When working inside the prison fence lines, all traffic is checked, searched and cleared at our main truck gate sally ports. In order to help us expedite your traffic, all trips through the gates should be limited to those that are absolutely necessary. "Car pooling" in company vehicles from the main prison parking areas into the construction site is required. When checking out through the prison gates, all workers in any vehicle must get out of the vehicle, check out through established bioscanner(s) and stand next to the vehicle while it is searched.

- ✓ Private vehicles used primarily for transportation will not be allowed into construction sites inside the secure perimeter without prior clearance. "Company" and/or primary "work" vehicles will be permitted.
- ✓ Foot traffic into construction sites is encouraged when practical.
- ✓ No vehicles or motorized construction equipment may be left inside the security fence perimeter when no construction work is going on. With special authorization "tracked" vehicles may be disabled, locked and left in a construction area.
- ✓ Contractors are responsible to provide their own portable restrooms for construction sites. Contract staff will not be allowed access to occupied prison facilities to utilize restrooms unless restrooms are located in the immediate work area and the CUCF Administration has approved such access.
- ✓ All contractors will be required to clean up all construction debris and "extra" construction supplies from work areas on a daily basis. Construction debris must be hauled away immediately or placed in a designated disposal site at the CUCF. (See Terry Jacobs for disposal area.) Contractors are required to immediately clean up and dispose of all construction "trash" scattered by wind, storms, etc., Special Authorization is required to enter main perimeter fence areas for cleanup. Contractors are responsible for providing their own project dumpsters.
- ✓ Contractors working at the CUCF on authorized bid projects are responsible to provide ALL of their own tools and equipment for the work involved in those projects. The CUCF cannot permit contractor use of state owned shops, tools, or equipment.
- ✓ All contractors working at the CUCF are required to fully comply with all applicable OSHA work safety requirements; take prudent precautions to protect the work site and adjacent facilities from damage; and to provide appropriate safety equipment, including fire extinguishers and other "fire protection devices" for their work areas.
- ✓ All contractors working at the CUCF are required to take reasonable precautions to avoid causing damage to the existing facility and it's utility lines, etc., in the course of completing their authorized project(s). Special attention should be given to utility lines that may be buried, or imbedded in walls, under floors, etc. The CUCF maintenance staff will provide the best available information on what lines are known or suspected to be in any given area. The contractor(s) are responsible to use due care to eliminate and /or minimize damages. When and if damage occurs, the contractor(s) are required to cooperate fully with prison maintenance or other emergency personnel to assist with and expedite any repairs required to restore normal prison services and operations. Negligence or carelessness on the part of any contractor that results in all or part of any "damage" will result in that contractor being held liable for all or part of the damages. In all cases the extent of any such liability will be negotiated with the primary or "general contractor" responsible for the project, with the assistance of the Project Architect and DFCM. In accepting the award of any project at the Central Utah Correctional Facility the contractor(s) also agrees to negotiate any such damages in good faith with State and CUCF representatives.
- ✓ All planned interruptions to utility services at CUCF require a minimum "five (5) work day notice" to CUCF Maintenance Department (phone 435-528-6471). Advance arrangement for all such facility disruptions must also be discussed

and "approved" in the regularly held project meetings, with the entire Project Planning Team (DFCM, Architect, CUCF/UDC, and General Contractor). In the case of an emergency "unscheduled utility disruption", CUCF maintenance is to be notified immediately and the contractor(s) is responsible to assist with and expedite needed repairs.

- ✓ Project Material Lay-down Area(s): Each construction project at CUCF will be individually evaluated for it's "material needs" and one or more material staging areas will be designated on a space available basis. The amount of materials allowed to be stored directly in the work area will be regulated in order to maintain area security. Identified excess materials must be returned to the designated storage area(s) at the end of each workday.

CONTRACT STAFF RULES & REGULATIONS AGREEMENT:

If you have any problems with these regulations or would like a special exemption, clarification, etc., contact your Facility Representative as identified.

Note: These rules are subject to review and change at any time. It is your responsibility to be aware of current policies and procedures and to adhere to them at all times.

I, (print name)_____, by my signature below, attest that I have read the preceding Rules and Regulations, rv 8/05/03, and that I agree to comply with all stipulations. Further I understand that I am being given access not to exceed four months. For full access longer than this four (4) month period of time, I understand I will need to attend a four (4) hour Contract Staff Training Session.

_____	_____
Signature	Date
_____	_____
Signature of Facility Representative	Date

DIVISION OF INSTITUTIONAL OPERATIONS

CENTRAL UTAH CORRECTIONAL FACILITY
ACCESS APPLICATION

_____ _____ _____

LAST NAME FIRST NAME MIDDLE INITIAL SIGNATURE DATE

The above NAME and SIGNATURE identifies you as the applicant and attests that the following information is correct. This information will be used by CUCF personnel to verify your identify. CUCF secure perimeter access is conditional and revocable at any time.

IDENTIFICATION CARD

I.D. TYPE: _____ ID # _____
(DRIVERS LICENSE, MILITARY, ETC.)

VALID FROM _____ TO _____ SSN # _____
(DATE) (DATE)

PHYSICAL DESCRIPTION

GENDER: _____ RACE: _____ COMPLEXTION: _____
(MALE/FEMALE) (CAUCASION, HISPANIC, OTHER, ETC.) (FAIR, MEDIUM, DARK, ETC.)

HEIGHT: _____ WEIGHT: _____ BUILD: _____

HAIR: _____ _____ _____
(COLOR) (STYLE: STRAIGHT, WAVY, ETC.) (LENGTH: SHORT, LONG, ETC.)

EYES: _____ _____
(COLOR) (WEAR: GLASSES, CONTACTS, ETC.)

FACIAL HAIR: _____ DATE OF BIRTH: _____ RIGHT/LEFT HANDED: _____

GENERAL INFORMATION

PURPOSE OF ENTRY (WHAT ARE YOU VOLUNTEERING/CONTRACTING FOR?) _____

ACCESS REQUESTED (WHERE ASSIGNMENT WILL BE) _____

HOME ADDRESS: _____ PHONE # _____
(STREET/PO BOX/CITY/STATE/ZIP CODE) (HOME PHONE)

OCCUPATION/COMPANY NAME: _____
(STREET/CITY/STATE/ZIP CODE)

COMPANY ADDRESS: _____ PHONE #: _____
(STREET/CITY/STATE/ZIP CODE)

1. Do you KNOW or are you RELATED to an INMATE? Circle One: Yes No
   If YES, give the name, location, relationship and circumstances concerning the inmate(s): _____
2. Have you ever been convicted of any traffic violations? Circle One: Yes No
3. Have you ever been convicted of any crime other than traffic violations? Circle One: Yes No
4. Are your currently, or have you ever been, on an inmate's visiting list? Circle One: Yes No

If you answered YES to any of the above questions, use the back of this FORM for explanations.

STOP: DO NOT WRITE BELOW THIS LINE

DATA TERMINAL OPERATOR

BCI COMPLETED: _____ BY: _____ SIGNATURE: _____

ACCESS IS REQUESTED FOR THE FOLLOWING AREAS: _____

_____ FROM: _____ TO: _____
(DATE) (DATE)

_____ _____ _____
(DTO PRINTED NAME) (DTO SIGNATURE AND TITLE) (DATE)

ACCESS AUTHORIZATION SIGNATURE
WARDEN/CORRECTIONS ADMINISTRATOR/OIC/DUTY CAPTAIN

_____ _____ _____
(PRINT NAME) (SIGNATURE & TITLE) (DATE)

SECTION 01100 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 DESCRIPTIVE SUMMARY OF THE WORK:

A. Without force and effect on the requirements of the Contract Documents, the description of the work of the Contract is summarized as follows:

1.2 SCOPE OF THE WORK:

A. The contractor is responsible for the complete execution of the Contract Documents as specified. He is responsible for the work performed and the acts and omissions of persons directly employed by him.

B. Conform to the highest quality standards for materials and workmanship as required to execute work specified and necessary.

C. The contractor is responsible to verify all field measurements of actual site conditions so that all work fits properly in the locations indicated and specified. Protect existing structures, improvements, etc. from physical damage.

D. Upon completion of the project, dismantle and remove all construction materials.

E. Any existing items which are damaged by the contractor shall be restored to their original or better condition to the satisfaction of the Owner.

F. **Base Bid:**

1. Remove and replace existing Armstrong instantaneous packaged water heaters. Remove all steam and water piping directly serving these heaters. The piping serving these heaters ie. steam, condensate, hot and cold water shall remain and be extended to new water heaters.
2. Provide nine new double wall instantaneous water heater packages and connect into all extended piping.
3. The pressure condensate pumps shall remain.

G. Alternates:

1. Alternate No 1: Provide three (3) emergency tube bundles to CUCF for storage. See Section 15480 2.2.D.

1.3 CONTRACTOR USE OF PREMISES:

A. General: During the Construction period, the Contractor will have full use of designated portions of the Owner's property necessary to perform the work as long as contractor follows all the rules and requirements of the correctional facilities. The Contractor's use of the premises, because this is a prison, is limited insofar as Owner operations in existing facilities is concerned.

B. See section 01050 CUCF Access Rules and Regulations and Access Application.

1.4 PERMIT FEES:

A. DFCM is the authority having jurisdiction and charges no fees for permits.

1.5 INTERRUPTION OF EXISTING UTILITIES

A. Whenever the work of this Owner's contract requires the temporary shutdown of any existing utilities, notify physical facilities Director 72 hours in advance and obtain written permission from him before shutting off any existing utilities.

1.6 OWNER OCCUPANCY:

A. All areas of the building and facilities shall remain in full use during construction.

1.7 GUARANTEE/WARRANTY:

A. Notwithstanding other guarantees or warranties for specific components of the work, the entire work included in this contract shall be guaranteed for a period of one (1) year from the date of issuance of the Certificate of Substantial Completion against all defects in equipment, material, or workmanship.

B. Furnish and pay for all labor, equipment, and material required to correct defects and deficiencies in the work without additional cost to the Owner and as approved by the Engineer.

C. In addition to the general project warranty, specific project warranties are required. Requirements of the warranties are noted in the indicated Specification Sections.

1.8 PROJECT CLOSE OUT:

A. Substantial Completion:

1. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
2. Obtain and submit releases enabling the owner unrestricted use of the work and access to services and utilities.
3. Submit **3 copies of operation and maintenance material**, to the Owner for his insertion into the original O & M manuals.
4. Complete testing of new system and instruction for the Owner's operating and maintenance personnel. Remove all construction tools, and similar elements.
5. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore new and existing marred exposed finished.

B. Final Acceptance:

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

PART 2 - PRODUCTS
(Not Used)

PART 3 - EXECUTION
(Not Used)

END OF SECTION 01100

SECTION 01200 - DEFINITIONS AND STANDARDS

PART 1 - GENERAL

1.1 Definitions:

A. General: Except as specifically defined otherwise, the following definitions shall supplement definitions of the Contract, General Conditions, Supplementary Conditions and other general contract documents, and apply generally to the work.

B. General Requirements: The provisions of Division-1 sections, General Requirements, apply to the entire work of the Contract.

C. Indicated: Shown on drawing by notes, graphics or schedules, or written into other portions of contract documents. Terms such as "shown", "noted", "schedules", and "specified" have same meaning as "indicated", and are used to assist the reader in locating particular information.

D. Directed, Requested, Approved, Accepted, etc.: These terms imply "by the Architect/Engineer", unless otherwise indicated.

E. Approved by Architect/Engineer: In no case releases Contractor from responsibility to fulfill requirements of contract documents.

F. Project Site: Space available to Contractor at location of project, either exclusively or to be shared with separate contractors, for performance of work.

G. Furnish: Supply and deliver to project site, ready for unloading, unpacking, assembly, installation, and similar subsequent requirements.

H. Install: Operations at project site, including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar requirements.

1. Provide: Furnish and install, complete and ready for intended use.

I. Installer: Entity (firm or person) engaged to install work, by Contractor, subcontractor or sub-sub contractor. Installers are required to be skilled in work they are engaged to install.

J. Specification Text Format: Underscoring facilities scan reading, no other meaning. Imperative language is directed at Contractor, unless otherwise noted.

K. Overlapping/Conflicting Requirements: Most stringent (generally) requirement written directly into the contract documents is intended and will be enforced, unless specifically detailed language written into the contract documents

clearly indicates that a less stringent requirement is acceptable. Refer uncertainties to the Architect/Engineer for a decision before proceeding.

1. Where optional requirements are specified in a parallel manner, option is intended to be Contractor's unless otherwise indicated.

L. Minimum Requirements: Indicated requirements are for a specific minimum acceptable level of quality/quantity, as recognized in the industry. Actual work must comply (within specified tolerances), or may exceed minimums within reasonable limits. Refer uncertainties to Architect/Engineer before proceeding.

M. Abbreviations, Plural Words: Abbreviations, where not defined in contract documents, will be interpreted to mean the normal construction industry terminology, determined by recognized grammatical rules, by the Architect/Engineer. Plural words will be interpreted as singular and singular words will be interpreted as plural where applicable for context of contract of documents.

N. Testing laboratory: An independent entity engaged for the project to provide inspections, tests, interpretations, reports and similar services.

1.2 Standards and Regulations:

A. Industry Standards: Applicable standards of construction industry have same force and effect on performance of the work as if copied directly into contract documents or bound and published therewith. Standards referenced in contract documents or in governing regulations have precedence over non-referenced standards, insofar as different standards may contain overlapping or conflicting requirements. Comply with standards in effect as of date of contract documents, unless otherwise indicated.

1. Abbreviations: Where abbreviations or acronyms are used in contract documents, they mean the well recognized name of entity in building construction industry; refer uncertainties to Architect/Engineer before proceeding, or consult "Encyclopedia of Associations" by Gale Research Co.

PART 2 - PRODUCTS
(Not Used)

PART 3 - EXECUTION
(Not Used)

END OF SECTION 01200

SECTION 01300 - PROCEDURES AND CONTROLS

PART 1 - GENERAL

1.1 ADMINISTRATION AND SUPERVISION:

A. Coordination: Coordinate various elements of the work and entities engaged to perform work; and coordinate the work with existing facilities/conditions, and with work by separate contractors (if any) and by Owner.

1.2 SURVEY/RECORDING:

A. General: Calculate dimensions and measure for layout of work; do not scale the drawings. Record deviations (if any) from drawing information on existing conditions, and review with Engineer at time of discovery.

1.3 INSPECTION AND TESTING:

A. General: Provide required inspection and testing services specified to be by independent agencies, where not indicated specifically as Owner's responsibility (this provision supplements General Conditions). Neither inspection and test results nor failure thereof to disclose deficiencies relieves Contractor of responsibility to comply with requirements of contract documents. Provide services to inspection and testing agencies (Owner's and Contractor's), including taking and delivery of samples, patch work and similar assistance. Require engaged agencies to perform indicated testing and submit records promptly; and to report significant observations having an important bearing on the work, to the Engineer by the most expeditious means possible.

1.4 INSTALLATION, GENERAL:

A. Comply with manufacturer's instructions and recommendations to extent printed information is more detailed or stringent than requirements contained directly in contract documents.

B. Timing: Install work during time and under conditions which will ensure best possible results, coordinated with required inspection and testing. Timing is of the up most importance.

C. Anchor work securely in place, properly located by measured line and level, organized for best possible uniformity, visual effect, operations efficiency, durability, and similar benefit to Owner's use. Isolate non-compatible materials from contact, sufficiently to prevent deterioration.

1.5 CLEANING AND PROTECTION:

A. General: Clean each element of work at time of installation. Provide sufficient maintenance and protection during construction to ensure freedom from damage and deterioration at time of substantial completion.

PART 2 - PRODUCTS
(Not Used)

PART 3 - EXECUTION
(Not Used)

END OF SECTION 01300

SECTION 01330 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 PRECONSTRUCTION CONFERENCE:

A. DFCM will schedule preconstruction conference and organizational meeting at Project site or other convenient location DFCM will conduct meeting to review responsibilities and personnel assignments.

B. Attenders - as directed by DFCM

C. Agenda - as directed by DFCM

D. DFCM will record significant discussions and agreements and disagreements of meeting and distribute minutes of meeting to everyone concerned.

1.2 PROGRESS MEETINGS:

A. Engineer will conduct progress meetings at Project site at regularly scheduled intervals.

B. Owner, Engineer, Contractor, and each Subcontractor concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings by persons familiar with Project and authorized to conclude matters relating to progress.

C. Engineer will include brief summary, in narrative form, of progress since previous meeting. Engineer will distribute copies of minutes of meeting to each party present and to parties who should have been present, including Owner.

PART 2 - PRODUCTS
(Not Used)

PART 3 - EXECUTION
(Not Used)

END OF SECTION 01330

SECTION 01400 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 Related Documents:

A. Drawings and general provisions of contract, including General and Supplementary Conditions and other division 1 specification sections shall apply to this section.

1.2 Summary:

A. This section specifies administrative and procedural requirements for project closeout, including but not limited to:

1. Inspection procedures.
2. Project record document submittal.
3. Operating and maintenance manual submittal.
4. Submittal of warranties.
5. Final cleaning.

B. Closeout requirements for specific construction activities are included in the appropriate sections.

1.3 Substantial Completion:

A. Preliminary Procedures:

1. Before requesting inspection for certification of substantial completion, complete the following. List any exceptions in the request.
2. In the application for payment that coincides with, or first follows, the date substantial completion is claimed, show 100 percent completion for the portion of the work claimed as substantially complete. Include supporting documentation for completion as indicated in these contract documents and a statement showing an accounting of changes to the contract sum.

    a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.

B. Advise Owner of pending insurance change-over requirements.

C. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.

D. Obtain and submit releases enabling the owner unrestricted use of the work and access to services and utilities.

E. Submit record drawings, maintenance manuals, and other similar final record information.

F. Deliver spare parts, extra stock, and similar items.

G. Complete testing of new system and instruction of the Owner's operating and maintenance personnel. Remove all construction tools, and similar elements.

H. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore new and existing marred exposed finishes.

1.4 Inspection Procedures:

A. On receipt of a request for inspection, the Engineer will either proceed with inspection or advise the contractor of unfilled requirements. The Engineer will prepare the Certificate of Substantial Completion following inspection, or advise the contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Engineer will repeat inspection when requested and assured that the work has been substantially completed.

2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.5 Final Acceptance:

A. Preliminary Procedures

1. Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

B. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

C. Submit an updated final statement, accounting for final additional changes to the contract sum.

D. Submit a certified copy of the Engineer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Engineer.

1. Submit consent of surety of final payment.

2. Submit a final liquidated damages settlement statement.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

1.6 Reinspection Procedure:

A. The Engineer will reinspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Owner and Engineer.

1. Upon completion of reinspection, the Engineer will prepare a certificate of final acceptance, or advise the contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance. If necessary, reinspection will be repeated.

1.7 Record Document Submittals:

A. General:

1. Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Engineer's reference during normal working hours.

1.8 Record Drawings:

A. Maintain a clean, undamaged set of blue or black line white prints of contract drawings and shop drawings. Mark the set to show the actual installation where the installation varies substantially from the work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the work.
2. Mark new information that is important to the Owner, but was not shown on the contract drawings or shop drawings.
3. Note related change order numbers where applicable.
4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.

1.9 Record Specifications:

A. Maintain one complete copy of the project manual, including addenda, and one copy of other written construction documents such as change orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the text of the specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and product data.

1. Upon completion of the work submit record specifications to the Engineer for the Owner's records.

1.10 Record Product Data:

A. Maintain one copy of each product data submittal. Mark these documents to show significant variations in actual work performed in comparison with information submitted. Include variations in product delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the work which cannot otherwise be readily discerned later by direct observation. Note related change orders and mark-up of record drawings and specifications.

1. Upon completion of mark-up, submit complete set of record product data to the Engineer for the Owner's records.

1.11 Miscellaneous Record Submittals:

A. Refer to other specification sections for requirements of miscellaneous recordkeeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Engineer for the Owner's records.

1.12 Final Cleaning:

A. General cleaning during construction is required by the General Conditions.

1. **Cleaning:** Employ experienced workers or professional cleaners for final cleaning. Comply with manufacturer's instructions.

1.13 Removal of Protection:

A. Remove temporary protection and facilities installed for protection of the work during construction.

1.14 Compliance:

A. Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

1. Where extra materials of value remain after completion of associated work arrange for disposition of these materials as directed.

PART 2 - PRODUCTS
(Not Used)

PART 3 - EXECUTION
(Not Used)

END OF SECTION 01400

DIVISION 15 - MECHANICAL

SECTION 15010 - GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL:

A. General Conditions and Division 01 apply to this Division.

1.2 SCOPE:

A. Includes -

1. Furnish all labor, materials, and equipment necessary for completion of the mechanical work for the CUCF Hot Water Tank Replacements located in Gunnison, Utah.
2. Placing the new culinary hot water heaters into full operation.
3. The satisfactory performance of the completed systems is a requirement of this specification.

1.3 SITE INSPECTION:

A. The Contractor, with permission, may examine the site and understand the conditions which may affect the performance of work of this Division before submitting proposals for this work.

B. No subsequent allowance for time or money will be considered for any consequence related to failure to examine existing site conditions.

1.4 DRAWINGS:

A. Mechanical drawings show general arrangement of piping, equipment, etc; however, locations are to be regarded as shown diagrammatically only. Follow as closely as actual building construction will permit.

B. Because of the small scale of mechanical drawings, it is not possible to indicate all offsets, fittings, and accessories which may be required. Investigate existing finished conditions affecting this work and arrange work accordingly, providing such fittings, valves, and accessories required to meet conditions.

C. If changes in location of piping, equipment, etc. are required due to lack of coordination of work under this division, such changes shall be made without charge. Contractor shall review drawings with state agencies having jurisdiction and any changes required by them shall be brought to the attention of the Engineer prior to bidding or commencement of work.

1.5 CODE REQUIREMENTS, FEES, AND PERMITS:

A. The work shall be installed in accordance with the following applicable codes, ordinances and standards unless otherwise specified. The codes and standards shall include but not be limited to and be of the latest and current editions.

1. American National Standards Institute (ANSI)
2. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
3. American Society of Mechanical Engineers (ASME)
4. American Society of Testing Materials (ASTM)
5. American Standards Association (ASA)
6. American Welding Society (AWS)
7. National Electrical Code (NEC)
8. National Fire Protection Association (NFPA)
9. Underwriters Laboratories (UL)
10. International Building Code (IBC) 2003 ed
11. International Mechanical Code (IMC) 2003 ed
12. International Plumbing Code (IPC) with Utah Amendments 2003 ed
13. Utah State Safety Orders (OSHA/UOSH)
14. Utah Boiler and Pressure Vessel Law
15. Utah Air Conservation Regulations/Waste Disposal regulations.

B. Should drawings conflict with any code, the code shall govern. If drawings and specifications establish a quality exceeding the code, the drawings and specifications shall govern. If conflicts do exist among the drawings, specifications and codes, the same shall be brought to the attention of the Engineer in writing prior to bidding, otherwise Contractor shall comply with applicable codes.

C. The latest edition of all codes shall be used.

D. Contractor shall give all notices, prepare documents and obtain approvals, and pay all fees required for completion of the mechanical and plumbing work outlined in this Division of the specifications and shown on the Mechanical Drawings.

1.6 OPERATION AND MAINTENANCE MANUAL:

A. Upon completion of work and before substantial completion, Contractor shall furnish and deliver to the Owner, through the Engineer, three (3) printed sets of the new hot water heater’s, operating and maintenance manuals and instructions. Where O & M Manuals are not delivered at substantial completion, the Contractor shall assume 100% responsibility for all maintenance until the manuals are delivered to the project manager’s satisfaction.

B. Deliver the O & M manuals for the hot water heaters, valves etc. in a manner that they can be incorporated in the existing O & M manuals.

C. Add to the existing O & M manual the following:

1. Add to the table of contents the name of this project, date awarded and date of substantial completion. Add the names, phone numbers and addresses of Consulting Engineers, and Associates, list of names, addresses and phone numbers of contractors and all sub-contractors and work to which each was assigned.
2. Provide equipment descriptions, detailed installation instruction, operating and maintenance instructions (provided more than just product operations and maintenance instructions provided with unit. Instructions should be written in a step by step manner identifying start-up, operating, shutdown and emergency action sequence sufficiently clear so a person unfamiliar with the equipment could perform its operations.
3. Provide name, addresses and phone number of manufacturer, fabricator and local vender clearly printed or stamped on cover, complete parts listing which include catalog number, serial number, contract number or other accurate provision for ordering replacement and spare parts.
4. Provide equipment shop drawings.

1.7 OPERATION AND MAINTENANCE INSTRUCTIONS:

A. Contractor shall instruct building maintenance personnel in the operation and maintenance of the installed hot water heaters utilizing the Operation and Maintenance Manual when so doing.

B. Instruction period shall occur before final inspection when heaters are properly working and before final payment is made.

1.8 RECORD DRAWINGS:

A. Contractor shall keep an up-to-date set of mechanical and plumbing drawings in his custody showing all changes in red, clearly defined and neatly drafted by him. At the end of construction, he shall turn these drawings over to the Engineer. Record drawings must be completed and submitted prior to final inspection.

PART 2 - PRODUCTS
(Not Used)

PART 3 - EXECUTION
(Not Used)

SECTION 15051 - BASIC MATERIALS & METHODS GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL:

A. Division 15010 General applies to this Section.

1.2 COORDINATION OF WORK:

A. It is understood that while Drawings are to be followed as closely as circumstances permit, this Division will be held responsible for the installation of systems according to the true intent and meaning of the Contract Documents. Anything not clear or in conflict will be explained by making application to the Engineer in writing. Should conditions arise where certain changes would be advisable, secure Owner's and Engineer approval for these changes before proceeding with work.

B. Coordinate work of various trades in installing interrelated work. Changes required in work specified in Division 15 caused by neglect to secure approval shall be made at no cost to Owner.

C. Arrange piping, and new equipment to permit ready access to valves, unions, control components, and to clear openings of doors.

D. Furnish and install supports required by Division 15 unless otherwise noted. Expense resulting from improper installation of items above shall be borne by Contractor.

E. Be responsible for required cutting, and patching incident to work of this Division and make required repairs afterwards to satisfaction of Owner and Engineer. Do not cut beams, columns, or trusses.

1. Patch and repair walls and floors with materials of same quality and appearance as adjacent surfaces unless otherwise shown. Surface finishes shall exactly match existing finishes of same materials.
2. This Division shall bear expense of cutting, patching, repairing, and replacing of work because of its fault, error, tardiness, or because of damage done by it.

F. Adjust locations of piping, equipment, etc, to accommodate work from interferences anticipated and encountered. Determine exact route and location of each pipe and cut prior to fabrication.

1. Make offsets, transitions, and changes in direction of piping, as required to maintain proper head room and pitch of sloping lines whether or not indicated on Drawings.

G. This Contractor shall schedule his work, store his equipment and materials, with corrections personnel so as to not delay or jeopardize the construction.

1.3 EQUIPMENT & MATERIALS:

A. Requests for substitution shall be received in writing a minimum of seven days prior to bidding. Prior acceptance shall be by Manufacturer's name only. Items not listed in this specification or subsequent addendums shall not be considered. No oral approvals will be acceptable. Manufacturers listed in this specification are acceptable only for items listed. All other items manufacturer wishes to bid must be prior approved. All equipment shall be subject to final review in accordance with "Project Submittals".

B. Product Approvals -

1. If approval is received to use other than specified items, responsibility for specified capacities and insuring that items to be furnished will fit space available lies with this Division.

2. In the event other than specified equipment is used and will not fit job site conditions, this Division assumes responsibility for replacement with items named in Specification at no additional cost to Owner.

C. Use domestic made pipe, and pipe fittings on Project.

D. Equipment name plates as well as applicable UL labels shall be in place when Project is turned over to Owner.

E. Insure that items to be furnished fit spaces available. Make necessary field measurements to ascertain space requirements including those for connections and furnish and install equipment of size and shape so final installation shall suit true intent and meaning of Contract Documents. Do not scale off drawings.

F. All materials shall be of the best commercial quality obtainable, consistent with specified materials and for the purpose or function intended. Materials shall be new.

G. Equipment catalog or model numbers shown define the basic equipment types and quality standard only. Catalog numbers shall not be considered as all inclusive and shall be verified to include all devices, controls, operators, and appurtenances necessary for the satisfactory and complete operation of the equipment.

H. Follow manufacturer's directions in delivery, storage, protection, and installation of equipment and materials.

1. Promptly notify Engineer in writing of conflicts between requirements of Contract Documents and Manufacturer's directions and obtain Engineer’s

written instructions before proceeding with work. Contractor shall bear all expenses arising from correcting deficiencies of work that does not comply with Manufacturer's directions or such written instructions from Engineer.

I. Deliver equipment and material to site and tightly cover and protect against dirt, water, and chemical or mechanical injury but have readily accessible for inspection. Store items subject to moisture damage in a dry, heated space.

1.4 PROJECT SUBMITTALS:

A. Furnish complete catalog data for manufactured items of equipment to be used in the Work to Engineer for review within 10 days after award of Contract.

B. Submittal shall include, but not be limited to the following:

1. equipment scheduled
2. insulation
3. certificates of guarantee
4. valves
5. any item for which more than one manufacturer is mentioned

C. Submit a minimum of five copies of data in binders and index in same order and name as they appear in Specification.

1. State sizes, capacities, brand names, motor HP, electrical requirements, accessories, materials, gauges, dimensions, and other pertinent information.
2. List on catalog covers page numbers of submitted items.
3. Underline or highlight applicable data.

D. If material or equipment is not as specified or submittal is not complete, it will be rejected.

E. Catalog data or shop drawings for equipment which are noted as being reviewed by Engineer shall not supercede Contract Documents.

F. Review comments of Engineer shall not relieve this Division from responsibility for deviations from Contract Documents unless Engineer’s attention has been called to such deviations in writing at time of submission, nor shall they relieve this Division from responsibility for errors in items submitted.

G. Check work described by catalog data with Contract Documents for deviations and errors.

H. All items other than first named specified equipment shall show and state all exceptions and deviations taken and shall include design calculations and drawing layouts.

I. The Contractor shall review the submittals prior to submission to the Engineer to make sure that the submittals are complete in all details. No submittal will be reviewed which does not bear the contractor's notation that such checking has been made.

J. No partial submittals will be considered unless approved by the Engineer.

K. Manufacturers' names shall be mentioned as acceptable prior to bidding.

L. Contractor shall verify equipment dimensions to fit the spaces provided with sufficient clearance for servicing the equipment.

M. Contractor shall review equipment submittals for compliance with schedules, specifications, and drawing plans and details. Equipment submittal shall show the proper arrangements to suit installation and maintenance such as piping connections, etc.

N. Equipment submittal sheets shall be clearly marked indicating equipment symbol and exact selection of proposed equipment. Submittals shall clearly indicate name of manufacturer of each item.

O. For unacceptable items, the right shall be reserved to require the first named specified items.

P. Where submittals are sent to Engineer with any of the above listed information missing or are incomplete they will be returned to the contractor unchecked to be completed and resubmitted. No additional time or money shall be allowed for failure to provide complete submittals on the first review.

Q. If an item requiring submittal review is ordered, purchased, shipped, or installed prior to the submittal review and is subsequently disapproved the item shall be removed from the job site and replaced with an approved item at contractors expense.

1.5 CLEANING & FINISHING:

A. Contractor shall, at all times, keep the premises free from waste material and rubbish. Upon completion of this Section of the work, Contractor shall remove all surplus materials and rubbish; clean all spots resulting from the mechanical work from hardware, floors, walls, etc.; do all required patching up and repair all work damaged by Contractor under this Section of the work, and leave the premises in a clean orderly condition. Remove rust, dirt, grease and oil before painting, insulating, or exposing to view the equipment, piping, etc. in completed structure. Refinish any damaged surfaces and leave in proper working order at final completion.

1.6 EQUIPMENT SERVICING:

A. Prior to starting mechanical equipment, all motors, bearings and moving parts shall be properly oiled, greased and lubricated as required. Full and adequate maintenance service shall be given and upon completion all equipment shall be cleaned and checked and placed in perfect condition for the Owner.

B. Provide lubrication for the following:

1. Pumps

C. Amount and type of lubricant shall be per manufacturer's specification.

1.7 SUPERVISION:

A. The Contractor shall supervise and direct the work with his best skill and attention. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor will be responsible to see that the finished work complies accurately with the Contract Documents.

1.8 SAFETY REGULATIONS:

A. Contractor shall provide equipment, supervision, construction, procedures, and everything necessary to assure safety of life or property.

B. Refer also to General Condition and Special Conditions for protection clauses.

1.9 LEAK DAMAGE:

A. Contractor shall be responsible for damages to the building, or to its contents, people, etc., caused by leaks in any of the equipment or piping installed by him through equipment or material failures, leaking joints or disconnected pipes, fittings, or by overflows and shall make at his own expense all repairs to building interior and equipment so damaged.

1.10 TOOLS AND STORAGE OF EQUIPMENT:

A. The Contractor shall furnish all necessary tools, staging and whatever may be necessary for the installation of this work and shall at all times protect this work and others, and the materials to be used therein from damage by the weather, accident and other causes, and shall repair and make good any damage thus occurring.

1.11 WORKMANSHIP:

A. Workmanship shall be the best quality of its kind for respective industries, trades, crafts and practices and shall be acceptable in every respect to the Owner and Engineer. Nothing contained herein shall relieve the Contractor from performing good work, perfect in all details of construction.

1.12 TEMPORARY FACILITIES:

A. Furnishing of temporary water, sanitary facilities, drainage lines, light and power will be as specified in Division 01 General Conditions. All expenses involved shall be paid by the Contractor as described in General and Special Conditions.

1.13 PAINTING BY CONTRACTOR:

A. Painting shall be by persons experienced in painting.

B. All equipment, metal stands and supports shall be painted as follows:

1. The prime coat on equipment shall be factory applied. The finish coats shall be applied under this Section.
2. All equipment which is to be furnished in finished painted condition by Contractor shall be left without mark, scratch or impairment to finish upon completion and acceptance of job. Any necessary refinishing to match original shall be done by Contractor. Do not paint over name plates, serial numbers or other identifying marks.

1.14 INSPECTION NOTICE:

A. The following is a basic list of guideline items so that the Engineer and Owner's representative can be at job site for these inspections as the building progresses. Mechanical Contractor shall inform these people one week in advance of test time.

1. Pressure tests on all water service piping.
2. Pressure tests on steam supply and condensate return piping.
3. The initial start-up of equipment, etc.
4. Any changes or problems occurring at job site.
5. Periodic inspection at their discretion will be made to insure compliance to Contract Documents and codes. Contractor shall provide ladders, access and other assistance as requested during inspections.
6. Final inspection before giving approval for final payment.

1.15 WARRANTY GUARANTEE:

A. The Contractor shall warrant all materials and equipment to be of quality consistent with specifications as represented by manufacturer's published data.

B. The Contractor shall guarantee that the installation and operation of the equipment shall be free from defects for a period of one year beginning at date of substantial completion and acceptance. The Contractor shall replace or repair any part of the installation that is found to be defective or incomplete within the guarantee period.

C. The one year guarantee on equipment and systems shall commence when equipment has been demonstrated to work and has been accepted. (Example: If an equipment item fails to perform and it takes 9 months after substantial completion to correct, then the guarantee shall commence after the item has been demonstrated to perform and has been accepted.)

D. Substantial completion and acceptance in no way relieves the Contractor from providing the systems and equipment as specified.

E. See individual warrantees and guarantees in the individual specification sections.

1.16 COMPLETION SCHEDULE:

A. Start-up and verification of basic equipment items shall be done prior to the date of substantial completion with sufficient time to allow testing and adjusting to be performed.

B. At the time of the final inspection a date shall be agreed upon for completion of any remaining items. At least double the estimated cost of the work will be withheld from the Contractor's payment.

PART 2 - PRODUCTS
(Not Used)

PART 3 - EXECUTION
(Not Used)

SECTION 15070 SEISMIC RESTRAINT

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work in this section consists of furnishing engineering and materials necessary for seismic restraints for equipment contained herein for the project.

B. Unless otherwise specified, all equipment, pipe, shall be restrained to resist seismic forces. Restraints shall maintain equipment and piping work in a captive position. Restraint devices shall be designed and selected to meet the seismic requirements as defined in the latest issue of the IBC or local jurisdiction building code.

1. For this project all systems shall be considered to be essential with an Ip=1.5

1.2 SEISMIC RESTRAINT SHALL NOT BE REQUIRED FOR THE FOLLOWING

A. Rigidly floor mounted mechanical, and plumbing components in all seismic design categories, where Ip=1.0.

B. Piping supported by individual clevis hangers where the distance, as measured from the top of the pipe to the supporting structure, is less than 12 inches (305mm) for the entire pipe run and the pipe can accommodate the expected deflections. Hanger rods shall not be constructed in a manner that would subject the rod to bending moments (swivel, eye bolt, or vibration isolation hanger connection to structure).

C. High deformability piping (steel, copper) designated as having an Ip=1.5 and a nominal pipe size of 1 inch (25 mm) or less where provisions are made to protect the piping from impact or to avoid the impact of larger piping or other mechanical equipment. Note, any combination of piping supported on a trapeze where the total weight exceeds 10lb/ft. Must be braced

D. High deformability piping (steel, copper) designed with an Ip=1.0 and a nominal pipe size of 1 inch and less in the mechanical equipment room.

1.3 MANUFACTURER'S RESPONSIBILITIES: Manufacturer of seismic control products shall have the following responsibilities.

A. Determine seismic restraint sizes and locations.

B. Provide piping and equipment seismic restraints as required.

C. Provide installation instructions and shop drawings for all materials supplied under this section of the specifications.

D. Provide calculations to determine restraint loads resulting from seismic forces presented in local building code or IBC, Chapter 16 latest edition. Seismic calculations shall be certified by a licensed engineer licensed in the State of Utah in the employ of the seismic equipment manufacturer with a maximun 5 years experience. Provide calculations for all floor mounted equipment 400lbs (1780 N) or greater (20lbs (89 N) or greater for Ip=1.5).

E. Seismic restraint load ratings must be certified and substantiated by testing or calculations under direct control of a registered professional engineer licensed in the State of Utah.

F. Calculations and restraint device submittal drawings shall specify anchor bolt type, embedment, concrete compasive strength, minimum spacing between anchors, and minimum distances of anchors from concrete edges. Concrete anchor locations shall not be near edges, stress joints, or an existing fracture. All bolts shall be ASTM A307 or better.

1.4 QUALITY CONTROL

A. The seismic restraint systems listed herein are as manufactured by:

1. Amber/Booth.
2. Mason Industries
3. Korfund

B. Steel components shall be cleaned and painted with industrial enamel. All nuts, bolts, and washers shall be zinc-electroplated. Structural steel bases shall be thoroughly cleaned of welding slag and primed with zinc-chromate or metal etching primer.

1.5 SUBMITTALS

A. Submit shop drawings of all seismic restraints and calculations provided (para 1.3)

B. The manufacturer of vibration isolation products shall submit the following data for each piece of isolated equipment: clearly identified equipment tag, quantity and size of seismic restraints. Submittals shall include seismic calculations signed and checked by a qualified licensed engineer licensed in the State of Utah in the employ of the manufacturer. Catalog cut sheets and installation instructions shall be included for each type of seismic restraint used on equipment being isolated.

C. Submit quality assurance procedures as required under 1.4.D at time of seismic submittals. Submittals must be stamped by a registered professional engineer

licensed in the State of Utah who is responsible for the seismic restraint design. All seismic submittals not complying with this certification will be rejected.

D. Provide shop drawings indicating location of all specification SC cable restraints (section 2.3.B) required for pipe. Drawing must be stamped by manufacturer's registered professional engineer licensed in the State of Utah.

E. Provide a certification from the seismic design engineer that the seismic restraints will comply with the applicable code requirements. Certification must be stamped by a registered profession engineer licensed in the State of Utah.

F. Provide a Certificate of Completion from the manufacturer's representative upon completion of the job.

PART 2 - PRODUCTS

2.1 EISMIC RESTRAINTS:

A. Specification SC: a restraint assembly for suspended piping consisting of high strength galvanized steel aircraft cable. Cable must have Underwriters Laboratories listed certified break strength, and shall be color-coded for easy field verification. Secure cable to structure and to braced component through bracket or stake eye specifically designed to exceed cable restraint rated capacity. Cable must be manufactured to meet or exceed minimum materials and standard requirements per AISI Manual for structural applications of steel cables and ASTM A630. Break strengths must be per ASTM E-8 procedures. Safety factor of 1.5 may be used when prestretched cable is used with end connections designed to meet the cable break strength. Otherwise safety factor 3.76 must be used. Cables shall be sized for a force as listed in section 1.3. Cables shall be installed to prevent excessive seismic motion and so arranged that they do not engage during normal operation. Restraint shall be type LRC.

PART 3 - EXECUTION

3.1 GENERAL

A. Seismic restrains shall be installed as recommended by the manufacturer.

3.2 APPLICATION OF SEISMIC RESTRAINTS

A. Isolated Equipment

1. All floor mounted isolated equipment shall be protected with type SB or type C unitized isolator and restraint or with separate type SL restraints (minimum of 4) in conjunction with type B isolators. For equipment with high center of gravity additional cable restraints shall be furnished, as required by isolation manufacturer, to limit forces and motion caused by rocking. Cables shall be installed to prevent excessive seismic motion and so arranged that they do not engage during normal operation.

B. Rigidly Mounted Equipment

1. Floor mounted which are not exempt (para 1.1.D) shall be protected by properly sized anchor bolts with elastomeric grommets provided by the isolation manufacturer.

C. Piping

1. All piping shall be protected in all planes by SC restraints, designed to accommodate thermal movement as well as restrain seismic motion. Tanks and vessels connected inline to piping shall be restrained independently. Locations shall be as determined by the seismic restraint supplier and shall include, but not be limited to:

   a. At a proximity to protect all drops to the equipment connections.
   b. At changes in direction or pipe as required to limit over stressing of pipe movement that contacts other building material
   c. At horizontal runs of pipe, not to exceed the spacing as presented in Amber/Booth design criteria.
   d. SMACNA design criteria. Seismic restraints shall not be required for piping exempted by paragraph 1.2.

D. The seismic restraint listed shall be furnished and installed for the equipment listed in the table below in accordance with the previous sections of this specification:

END OF SECTION 15070

SECTION 15075 - PIPE AND EQUIPMENT IDENTIFICATION

PART 1 - GENERAL

1.1 SCOPE:

A. Piping Identification

1. All new pipes shall be labeled and color coded with contents clearly identified and arrows indicating direction of flow. This applies only to the newpiping exposed in the equipment room. Pipes shall be identified at the following locations:

   a. Adjacent to each valve.
   b. On each riser and junction.
   c. Adjacent to all special fittings or devices (regulating valves, etc..
   d. Connection to equipment.

B. Equipment Identification

1. Identify all new equipment.

PART 2 - MATERIALS

2.1 PIPING IDENTIFICATION:

A. Labels and markers shall be of the self-sticking, all-temperature permanent type as manufactured by W. H. Brady Co., 727 West Glendale Ave., Milwaukee, Wisconsin; or Seton Name Plate Corp., 592 Boulevard, New Haven, Connecticut.

B. Pipe color coding shall match existing.

C. All paint to be Enamel, Moore Impervo and Iron Clad.

D. Letters of identification legend and directional flow arrows shall be 2" high for pipes 3" and larger, and 1" high for pipes 2-1/2" and under.

E. Proposed identification system shall be approved by Owner and Engineer prior to installation.

2.2 EQUIPMENT IDENTIFICATION:

A. Equipment shall be identified with signs made of laminated plastic with 1/8" or larger engraved letters. Signs shall be securely attached by rust proof screwed or some other permanent means (no adhesives).

B. Information on signs shall include name of equipment, identification on plans and schedules.

PART 3 - EXECUTION

3.1 PIPING IDENTIFICATION:

A. Markers shall be installed in strict accordance with manufacturer's instructions. Use vinyl tape first and stick markers over tape. This procedure assures that the tape will not fall off.

B. On chalky and loose insulation, soft, porous, fiber-filled or fiberglass covering, a spiral wrap of pipe banding tape shall be made around the circumference of the pipe. Sufficient spiral wraps shall be made to accommodate the horizontal dimension of the pipe marker.

C. On bare pipes, painted pipes, and pipes insulated with a firm covering pipe banding tape matching the background color of the marker shall be used. After applying pipe markers, wrap pipe banding tape around pipe at each end of marker. Tape should cover 1/4" to 1/2" to 1" on itself. Be sure pipe surface is dry and free of dirt or grease before applying markers or banding tape.

D. Apply markers so they can be read from floor.

3.2 EQUIPMENT IDENTIFICATION:

A. Signs shall be attached to equipment so they can be easily read. Attachment shall be by screws or rivets. Glue shall not be used.

END OF SECTION 15075

SECTION 15082 - EQUIPMENT INSULATION

PART 1 - GENERAL

1.1 SCOPE:

A. Includes -

1. Shell and tube exchangers.

PART 2 - PRODUCTS

2.1 INSULATION - HOT EQUIPMENT

A. Insulation shall be rigid formed or fabricated to fit the equipment. To insure a tight fit on round equipment, edges shall be beveled and joints shall be tightly butted and staggered. Insulation shall have a flame spread rating of 25 and a smoke density of 450 when tested to UBC Standards.

B. Approved Manufacturers -

1. Owens-Corning
2. Johns-Manville
3. Knauf

PART 3 - EXECUTION

3.1 HOT EQUIPMENT:

A. Insulation shall be rigid block suitable for the temperature encountered. Hot equipment shall include condensate pressure pump and shell and tube exchangers. Insulation thickness shall be 2-inch thick material.

B. Insulation shall be formed or fabricated to fit the equipment. To insure a tight fit on round equipment, edges shall be beveled and joints shall be tightly butted and staggered.

C. Insulation shall be secured in place with bands or wires at intervals as recommended by the manufacturer but not greater than 12-inch centers. Insulation corners shall be protected under wires and bands with suitable corner angles.

D. Exposed insulation corners shall be protected with corner angles.

E. Smoothing coat of insulating cement shall be applied over insulation, except for removable sections of insulation.

F. Upon completion of installation of insulation, two coats of adhesive shall be applied. The dry film thickness of the finish shall be 1/16 inch.

END OF SECTION 15082

SECTION 15083 - CULINARY WATER PIPE INSULATION

PART 1 - GENERAL

1.1 SCOPE:

A. Includes -

1. Insulating of all new culinary hot water, re-circulating hot water, and cold water lines and fittings. Existing damaged insulation shall be replaced,
2. The insulation products used on this project shall be of one manufacturer. All pipe insulation shall meet the requirements of IBC.
3. Insulation products on this project shall be installed by a licensed insulation contractor using materials, and methods described in this section. Installation by other than an experienced licensed contractor shall not be acceptable.

PART 2 - PRODUCTS

2.1 INSULATION:

A. Snap-on glass fiber pipe insulation with surface burning characteristics as determined by ASTM E84 with a flame spread rating not to exceed 25 and smoke developed not to exceed 50.

B. Snap-on glass fiber pipe insulation. Heavy density pipe insulation with a factory applied ASJ vapor barrier jacket.

C. Approved Manufacturers:

1. Owens-Corning
2. Johns-Manville
3. Knauf

D. Thickness shall be as noted in Table 1.

2.2 COVERING:

A. Where piping insulation is susceptible to damage, or routed below 6'0" above finished floor, provide with pre-finished heavy duty aluminum or PVC jacket.

1. Jacket material shall be a standard weight and material for use as insulation jacketing and shall be smooth. Jacket shall be pre-finished with color selected by the owner’s representative.

2. Where piping is located in the mechanical room, jacket shall be secured with screws.

PART 3 - EXECUTION

3.1 PIPING:

A. General

1. An aluminum jacket shall be provided over the insulation wherever caulking is required.
2. Insulation shall be continuous through hangers.
3. Support points such as hangers shall have a calcium silicate support block or inserts as furnished by insulation manufacturer. See section 15101.

B. Cold Lines

1. Insulation shall be applied to clean, dry pipe with joints tightly butted and the ends of the insulation sealed off with vapor barrier coating at intervals not to exceed 15 feet.
2. Longitudinal laps of the jacket material shall overlap not less than 1-1/2 inches. Butt strips 3 inches wide shall be provided for circumferential joints.
3. All laps and butt strips shall be secured with adhesive and stapled on 4-inch centers.
4. Staples and seams, including those on self-sealing lap systems shall be coated with a vapor barrier coating.
5. Breaks and punctures in the jacket material shall be patched by wrapping a strip of jacket material around the pipe and securing it with adhesive, stapling, and coating as specified for butt strips. The patch shall extend not less than 1-1/2 inches past the break.
6. At penetrations such as thermometers, the void in the insulation shall be filled with vapor barrier coating and the penetration shall be sealed with a brush coat of the same coating.

C. Hot Lines

1. Insulation shall be applied to clean, dry pipe with joints tightly butted.
2. Longitudinal laps of the jacket material shall overlap not less than 1-1/2 inches, and butt strips 3 inches wide shall be provided for circumferential joints.
3. Laps and butt strips shall be secured with adhesive and stapled on 4-inch centers. Adhesive may be omitted where pipe is concealed.
4. Breaks and punctures in the jacket material shall be patched by wrapping a strip of jacket material around the pipe and cementing, stapling, and coating as noted for butt strips. Patch shall extend not less than 1-1/2 inches past the break.

5. The run of the line pipe insulation shall have the ends brought up to the item.
6. Penetrations such as thermometers, pressure gauges etc., the void in the insulation shall be filled with vapor barrier coating and the penetration shall be sealed with a brush coat of the same coating.

3.2 FITTINGS:

A. Insulate fittings with same type and thickness of insulation as pipe, with ends of insulation tucked snugly into throat of fitting and edges adjacent to pipe insulation tufted and tucked in or tapered.

B. Cover insulation with one piece "Zeston" type PVC fitting cover or equal by Ceel Co.secured by stapling or taping ends to adjacent pipe covering.

C. Alternate Method -

1. Insulate fittings with one inch of insulating cement and vapor seal with two 1/8 inch wet coats of vapor barrier mastic reinforced with glass fabric extending two inches onto adjacent insulation.

TABLE 1
Pipe Insulation Thickness

PIPE SYSTEM	PIPE SIZE		
	LESS THAN 1"	1" TO 1-1/4"	1-1/2" TO 4"
HOT WATER	1/2”	1/2”	1”
COLD WATER	1/2“	1/2”	1”

END OF SECTION 15083

SECTION 15087 - STEAM AND CONDENSATE RETURN PIPING INSULATION

PART 1 - GENERAL

1.1 SCOPE:

A. Includes -

1. Insulating of steam supply and condensate return piping, fittings and valves.

PART 2 - PRODUCTS

2.1 INSULATION:

A. Snap-on glass fiber pipe insulation with surface burning characteristics as determined by ASTM E84 with a flame spread rating not to exceed 25 and smoke developed not to exceed 50 when tested to IBC Standards.

B. All areas -

1. Insulation shall be Owens-Corning Heavy Density Sectional Pipe Insulation with FRJ Jacket with Self-Seal Lap or equal.

C. Approved Manufacturers -

1. Owens-Corning
2. Johns-Manville
3. Knauf

D. Thickness shall be as noted in Table 1.

2.2 COVERING:

A. Where piping insulation is susceptible to damage, or routed below 6'0" above finished floor, provide with pre-finished heavy duty aluminum jacket.

1. Jacket material shall be a standard weight and material for use as insulation jacketing and shall be smooth. Jacket shall be pre-finished with color selected by the owner’s representative.
2. Where piping is located in the mechanical room, jacket shall be secured with screws.

PART 3 - EXECUTION

3.1 PIPING:

A. General
1. An aluminum jacket shall be provided over the insulation wherever caulking is required and over piping as noted above.
2. Insulation shall be continuous through hangers.
3. Support points such as hangers shall have a calcium silicate blocks at point of support. See section 15101.
4. Insulation shall be applied to clean, dry pipe with joints tightly butted and the ends of the insulation sealed off with vapor barrier coating at intervals not to exceed 15 feet.
5. Longitudinal laps of the jacket material shall overlap not less than 1-1/2 inches. Butt strips 3 inches wide shall be provided for circumferential joints.
6. All laps and butt strips shall be secured with adhesive and stapled on 4-inch centers.
7. Staples and seams, including those on self-sealing lap systems shall be coated with a vapor barrier coating.
8. Breaks and punctures in the jacket material shall be patched by wrapping a strip of jacket material around the pipe and securing it with adhesive, stapling, and coating as specified for butt strips. The patch shall extend not less than 1-1/2 inches past the break.
9. At penetrations such as thermometers, the void in the insulation shall be filled with vapor barrier coating and the penetration shall be sealed with a brush coat of the same coating.

3.2 FITTINGS:

A. Insulate fittings with same type and thickness of insulation as pipe, with ends of insulation tucked snugly into throat of fitting and edges adjacent to pipe insulation tufted and tucked in or tapered.

B. Cover insulation with one piece "Zeston" PVC fitting cover secured by stapling or taping ends to adjacent pipe covering.

C. Alternate Method - 1. Insulate fittings with one inch of insulating cement and vapor seal with two 1/8 inch wet coats of vapor barrier mastic reinforced with glass fabric extending two inches onto adjacent insulation.

TABLE 1
Thickness of Pipe Insulation For Steam and Condensate Return Piping

PIPING SYSTEM	PIPE SIZES Insulation Thickness		
	UP TO 1"	1-1/4" TO 1-1/2"	2" AND LARGER
LOW PRESSURE STEAM	1-1/2"	1-1/2"	2"
MEDIUM PRESSURE STEAM	1-1/2"	2-1/2"	3"
HIGH PRESSURE STEAM	1-1/2"	2-1/2"	3"
CONDENSATE RETURN	1”	1”	1”

END OF SECTION 15087

SECTION 15101 - PIPE AND PIPE FITTINGS

PART 1 - GENERAL

1.1 SCOPE:

A. Includes -

1. General piping installation, materials and procedures for all piping systems.

B. Related Work Specified Elsewhere -

1. Type of pipe and fittings for culinary water, steam and condensate return, etc. shall be specified in that particular Section.

PART 2 - PRODUCTS

2.1 HANGERS: Hangers listed in this section are for pipe sizes and types not covered under section 15070. Contractor shall coordinate with Section 15070 supplier so as to not duplicate.

A. Provide one of the following types of hangers for horizontal piping. Comparable products of Grinnell, Globe Pipehanger, B-Line, Michigan Hanger, Superstrut or Piping Technology and Products (PTP) considered equal.

B. Except as otherwise specified hereinafter: Clevis type, B-Line Fig. B3100.

C. Supporting rods shall be attached to existing overhead structure.

D. Supporting rods over 18 inches long shall be braced at every fourth hanger with diagonal bracing attached to existing slab or beam.

E. For copper tubing use copper hanger; or dielectrically isolate.

2.2 FLOOR SUPPORTS:

A. Provide the following for supporting horizontal piping from floor:

1. Pipe Saddle Support, B-Line, Fig. B3095 with pipe nipples to suit. Fasten to floor.

2.3 WALL SUPPORTS:

A. Provide one of the following means of supporting horizontal piping from wall:

1. B-Line B-200 pipe clamp.
2. For hanger suspension, 750 pound maximum loading, light welded steel bracket with hole for one rod, 3/4 inch diameter. B-Line Fig. B3068.

2.4 VERTICAL PIPING SUPPORTS:

A. Vertical pipe supports shall be steel extension pipe clamps, B-Line Fig. B3373 or Fig. B3131, refer to manufacturer's rated maximum loading for each size pipe. Bolt clamp securely to pipe, rest clamp-end extension on building structure.

2.5 CLAMPS:

A. Beam clamps shall be malleable iron, B-Line Fig. B442 for 1/4 inch hanger rods; forged steel beam clamp, B-Line B321 for hanger rod up to 1-1/2 inches.

2.6 PIPE COVERING PROTECTION:

A. Provide calcium silicate blocks in the bottom 1/2 diameter of pipe to protect insulation at areas of contact with hangers and supports. Material shall be 8 inches long for pipes up to 3 inches and 12 inches long for pipes 3-1/2 inches and larger. Insulation manufacturer supplied inserts shall be acceptable.

2.7 UNIONS AND COUPLINGS:

A. Unions: Malleable iron, brass to iron seat, ground joint, same materials as pipe. Crane, Walworth, or approved equal.

B. Dielectric Unions: Mechanical Contractor shall install dielectric union or couplings whenever copper pipe connects to steel pipe or other items of equipment. Couplings and unions shall be as manufactured by the Water Vallot Company of Detroit, Michigan, or approved equal. Union shall be installed in an accessible location.

2.8 PIPING SPECIALTIES:

A. Provide thermometers, pressure gages, vents, tank fittings, and other miscellaneous piping specialties as shown or as may be required by usual good practices for a complete system.

B. Thermometers shall be 9" scale, blue reading, glass covered, immersion type with separable sockets. Marshall-Town, Trerice, Miljoco, Weskler, or Weiss, with neck extension to accommodate insulation.

C. Pressure gages shall be 4-1/2" diameter dial, liquid filled, molded case dust proof, phosphor bronze, bourdon tube type installed with integral check screw or pressure snubber. MILJOCO ASME B40.1 or approved equal by Marshalltown, U.S., Ashcroft, Trerice or Marsh.

2.9 STRAINERS:

A. Walworth 3699 - 1/2 Sarco SB; bronze, smaller than 2-1/2 inches. Bailey 125 pound No. 100; Zurn 125 pound No. 540 FPS; or Crane No. 989-1/2, cast iron 2-1/2 inches and larger. Water straining element shall be perforated 20 mesh monel screen. Strainers shall be designed for the same working pressure as the control valves. Provide strainer blowoff port with line size hose bibb and vacuum breakers.

2.10 VALVES:

A. Provide on each valve a name plate showing manufacturer, valve size, grade, and pressure temperature service rating.

B. See specific piping system sections for valves to be used for that system.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Furnish and install a complete system of steam and culinary water piping, valves as indicated or as necessary to completely control entire apparatus. Pipe drawings are diagrammatic and indicate general location and connections. Piping may have to be offset, lowered, or raised as required or directed at site. This does not relieve this Division from responsibility for proper erection of systems of piping in every respect.

B. Properly support piping and make adequate provision for expansion, contraction, slope, and anchorage.
   1. Cut piping accurately for fabrication to measurements established at site and work into place without springing or forcing.
   2. Do not use pipe hooks, chains, or perforated metal for pipe support.
   3. Remove burr and cutting slag from pipes.

C. Piping shall not interfere with removal of other equipment, or devices, or block access to doors. Provide accessible, ground joint unions in piping at connections to equipment.

D. Make connections of dissimilar metals with insulating couplings.

E. Cap or plug open ends of pipes and equipment to keep dirt and other foreign materials out of systems. Do not use plugs of rags, wool, cotton waste, or similar materials.

F. Install piping systems so they may be easily drained.

G. Valves of same type shall be of same Manufacturer.

H. Do not use reducing bushings, street elbows, or close nipples.

I. Make changes in direction with proper fittings. Bending of pipe is not approved.

J. Hanger rods shall be of a diameter adequate to support pipe size.

K. Install additional supports as required.

L. Suspend all piping in building. Laying of piping on any building member or piece of equipment is not allowed.

M. Design all hangers to support the required loads. Where necessary, supports shall be designed to permit movement due to expansion and contraction. Where drawings show details of supports conform to details shown. Where details are not shown, conform to General Requirements specified in sub-paragraph.

N. Horizontal Piping Support Schedule: Support horizontal piping of steel, and copper as follows:

HORIZONTAL PIPING SUPPORT SCHEDULE

Pipe Size	Rod Diameter	Maximum Spacing
Up to 1-1/4"	3/8"	6'-0"
1-1/2" and 2"	3/8"	10'-0"
2-1/2" and 3"	1/2"	10'-0"
4" and up	5/8"	12'-0"

O. Support horizontal lines of copper tubing with hangers. Space not more than 8 feet center to center.

P. The Contractor shall demonstrate that no weight or stress is placed upon the equipment by the piping and that piping and connection of equipment are in perfect alignment. When so directed, disconnection and reconnection of piping

shall be done by Contractor for designated pipe section to properly demonstrate stress; this shall be at no cost to Owner.

Q. Flanges or unions as applicable for the type of piping specified shall be provided in the piping at connections to all items of equipment. All piping shall be installed to insure noiseless circulation. All valves and specialties shall be placed, packed and adjusted at the completion of the work before final acceptance.

R. Operating Valves shall be accessible for operation from floors and handwheels shall not be more than 4'-6" above the floor or platform. In other cases, valves and cocks shall be equipped with chain operated handwheels or extension stems, or other suitable means of remote control.

1. Tighten glands and add additional gland packing as required before final inspection.

S. Provide sufficient clearance for insulated piping and fittings to permit application of insulation without cutting either pipe line covering or fitting coverings.

3.2 PIPE PROTECTION:

A. All piping as installed shall be plugged or capped until equipment has been permanently connected.

3.3 GRADE AND DRAINAGE:

A. Domestic hot and cold water lines shall be graded so as to drain system with as few drains as possible. Drains shall be located in convenient and accessible places. All drainage piping shall extend to floor drains.

B. Steam lines shall be pitched 1" in 15 feet to drain to traps and condensate drain lines shall be pitched 1" to 15 feet to drain to condensate pumps.

3.4 CROSS CONNECTIONS:

A. No piping shall be installed which will provide a cross-connection or interconnection between a distributing water supply for drinking or domestic purposes and polluted source.

B. Provide all hose connections with a vacuum breaker.

3.5 FLEXIBLE CONNECTIONS:

A. Shall be provided wherever pipe connects to motor operated equipment.

3.6 DIELECTRIC FITTINGS:

A. Shall be used to connect dissimilar metals (such as steel and copper) to prevent electrolytic action.

3.7 PIPE JOINTING:

A. All steel pipe shall be joined by flanged, or screwed connections or by welding. Where welding is employed, welding type fittings with beveled ends shall be used. The mitering of pipes to form elbows and the notching of straight runs to form tees will not be allowed. Copper pipe shall be soldered. All piping shall be cut to length by hack-saw or pipe cutter. Cutting of pipe with a torch will not be allowed.

B. Threaded Piping:

1. Threading shall be American-Standard taper pipe threads. Ream pipe ends and remove burrs after threading. Limit number of threads so that not more than two (2) threads will show beyond fitting.
2. All pipe joints shall be properly sealed with thread coatings applied to the male thread. Sealer for culinary water piping shall be Teflon tape. Sealer for steel pipe shall be powdered graphite and Linseed oil or plumage and linseed oil or "Type-Unyte", or Teflon tape.

C. Soldered Piping:

1. Tubing shall be cut square and burrs removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Joints for sweated fittings shall be made with a non-corrosive paste flux and solid wire solder. Use 95-5 or 96-4 Tin-Antimony solder. Cored solder will not be permitted.

D. Welding:

1. Welders shall be certified.

a. Welders shall be 6G pipe certified and shall bear evidence of certification within 30 days prior to commencing work on this project.
b. If there is any doubt as to the proficiency of the welder, the Owner may require the welder to take another test. This shall be done at no additional expense to the Owner.
c. Welders shall be certified in accordance with section IX of the ASME Boiler and Pressure Vessel Code by Pittsburgh Testing Laboratories or other Testing Agency acceptable to the Owner. Piping 2 ½ " and larger shall be welded. Welding shall be done using either gas or electric welding equipment. No electric welding shall be done when the atmospheric temperature is

below 40 degrees F. without first preheating the ends of the pipe. Thoroughly clean all piping surfaces before welding. The width of circumferential welds shall be 2-1/2 times the wall thickness of the pipe. Piping shall be securely aligned and spaced. The deposited metal shall form a gradual increase in thickness from the outside surface to the center of the weld. Make welds with a minimum of two beads. Each shall be cleaned using stiff wire brushes or pointed descaling tools. The final beads shall be similarly cleaned for inspection.

2. Fittings -

   a. All fittings shall be ASA Standard fittings and shall be of standard pipe thickness.
   b. All elbows shall be long radius.
   c. Wherever tee connections are made to piping systems on the main run, welding sockets shall be installed for the branch connections up to one half the size of the main run, welding tees shall be used.
   d. The use of fittings formed from welded pipe sections and or notching of pipe will not be permitted. Changes in pipe size shall be made with tapered fittings.
   e. Connection to equipment shall be flanged using std 150 psi weld neck flanges or flanges rated for pressure of system encountered. Gaskets shall be non-asbestos type of material suitable for temperature, pressure and substance in system.
   f. All welding fittings used in welding system shall be manufactured by Tube Turns Inc., Taylor Forge and Pipe Works, Midwest Piping and Supply Co., or Bonney Forge and Tool Works, for “Weld-OLot” or Thread-O-Lot”, or approved equal fittings and shall match the pipe in which they are installed.

3. Safety precautions -

   a. The contractor shall provide a fire proof mat or blanket to protect the structure, and adequate fire protection at all locations where welding is done.

4. Testing and acceptance -

   a. Engineer and Owners Representative shall at their disgression shall inspect welds. If welds are found to be suspect, contractor shall provide testing of questionable welds at contractors expense.
   b. Testing shall be by radiograph, ultrasonic, sectioning or a combination of these methods at the option of the Owner.
   c. The contractor shall test a minimum of 6 welds up to a maximum of 1/4 of all welds on project as selected by Engineer.
   d. Tests shall be preformed by a recognized independent testing agency acceptable to all parties. Agency shall submit a test report.

e. If defective joints are discovered Owner shall have right to require all welds removed and redone or remaining welds tested and all defective welds replaced. All work to test, remove and replace welds shall be at contractors expense.

3.8 PIPE CLEANING AND DISINFECTION:

A. All piping shall be flushed clean before connection to equipment. For specification cleaning requirements see individual piping sections.

3.9 PIPE TESTING:

A. Test all piping prior to painting, insulating, or concealment. Valve off or isolate controls, fittings, equipment or other piping which may be damaged by testing pressures. Provide relief valves set to avoid bursting pressure during test.

B. Domestic water, steam supply and condensate return piping shall be hydrostatically tested at 100 psi or 1 ½ times working pressure of medium being conveyed in piping with less than a four percent drop in pressure over a four hour period.

END OF SECTION 15101

SECTION 15140 - HOT AND COLD WATER SYSTEMS

PART 1 - GENERAL

1.1 SCOPE:

A. Includes -

1. Furnish and install all culinary hot, recirculating hot, and cold water piping shown on the drawings complete with necessary valves, connections, and accessories inside the building and connect into cold water service piping where shown on the drawings.

2. All water systems shall meet the requirements of ANSI/NSF Standard 61 Section 9 (1998) or latest addition, concerning metal contaminants in the water system.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS:

A. Inside Building

1. Hot and cold water service piping: Type L, copper, hard drawn with wrought copper fittings.

2.2 VALVES:

A. Interior culinary water valves shall be ball type.

1. Con Bra Co “Apollo”
2. Hammond
3. Honeywell - Braukmann
4. Jenkins
5. Milwaukee
6. Nibco - Scott
7. Stockham
8. Watts

2.3 VACUUM BREAKERS AND BACKFLOW PREVENTERS:

A. Backflow preventers and vacuum breakers shall be installed in water lines to provide protection against cross contamination. Such devices shall be of approved manufacture and installed in accordance with the International Plumbing Code. Provide backflow preventers for:

B. Backflow preventers, vacuum breakers and completed assembly shall comply with the International Plumbing Code.

PART 3 - EXECUTION

3.1 INSTALLATION

A. For general piping installation, see Section 15101**.**

B. Piping Inside of Building

1. Provide valves on hot and cold water lines for isolation of systems.
2. Locate cold water piping a minimum of six inches from hot water piping.
3. Contractor shall test the piping installation in the presence of the Engineer, and Owners Representative. Piping shall be tested as described in Section 15101.

C. Pipe Sterilization and Disinfection

1. Sterilize the new domestic water system as described:

   a. After the water system has been flushed clean, the shutoff valve located between the new and existing water piping to the water main shall be closed. All outlets shall be opened slightly. A solution of sodium hypochlorite and clean water shall be introduced at the new tie-in to the existing water pipes downstream of new valve, until residual chlorine is detected at all water faucets, outlets, etc. The solution shall consist of 1 gallon of 5 percent sodium hypochlorite (Chlorox or Purex) to 200 gallons of water. The solution shall be flushed and all aerators and strainers shall be removed, cleaned, and replaced.
   b. Contractor shall furnish to Owner and Engineer a written report certifying completion that pipe cleaning and disinfection has been completed and accepted.

2. After sterilization, flush solution from system with clean water until residual chlorine content is less than 0.2 parts per million.
3. Water system will not be accepted until a negative bacteriological test is made on water taken from system. Chlorine dosing shall be repeated as necessary until such negative test is accomplished.
4. Contractor shall properly protect and cap the existing piping or Contractor shall stand the cost of cleaning and disinfecting the existing piping system to Owner's satisfaction.
5. Contractor shall use the facilities approved water treatment contractor.

END OF SECTION 15140

SECTION 15185 - STEAM AND CONDENSATE RETURN PIPING AND SPECIALTIES

PART 1 - GENERAL

1.1 SCOPE:

A. Includes furnishing and installing steam supply and condensate return piping as shown on drawings.

B. Furnish and install traps on end of mains, pressure reducing stations, drip legs and equipment where shown on the drawings or where required for proper operation of the system.

PART 2 - PRODUCTS

2.1 PIPING:

A. Low and medium pressure steam piping and fittings

1. Black steel schedule 40 pipe.

a. ASTM A53 - Seamless
b. ASTM A120 - Seamless

2. Fittings

a. Steel fittings 125 psi screwed or butt welded with 125 psi flanges.
b. Valve rating shall be 125 psi.

B. High pressure steam piping and fittings.

1. Black steel schedule 80.

a. ASTM A53 - Seamless
b. ASTM A120 - Seamless

2. Fittings

a. Steel fittings 300 psi screwed or butt welded with 300 psi flanges.
b. Valve rating shall be for steam at pressures encountered but no less than 300 psi.

C. Condensate return gravity flow and pumped piping and fittings.

1. Black steel schedule 80

a. ASTM A53 - Seamless

b. ASTM A120 - Seamless

2. Fittings

a. Steel fittings 300 psi screwed or butt welded with 300 psi flanges.
b. Valve rating shall be 125lb except where pressures encountered are greater then use valves rated for that pressure.

2.2 VALVES:

A. Provide on each valve a name plate showing manufacturer, valve size, grade and pressure temperature service rating. Valve fluid bore shall match pipe size. All valves shall have renewable seats and discs, large deep stuffing boxes, packing glands and back seat on steam for repacking under pressure. Valves 2" and smaller shall be screwed or soldered connections. Valves 2 1/2" and larger shall be flanged. Manufacturers may be Crane, Walworth, Powell, NIBCO, or approved equal by Owner.

B. General Purpose -

1. Provide ball valves for piping 2 inches and smaller.
2. Provide butterfly valves for piping 2 1/2 inches and larger.
3. Check Valves Smaller than 2-1/2 Inches: Crane 372
4. Check Valves 2-1/2 Inches and Larger: Crane 373
5. Valve shall be of proper size and type for temperature, pressure, and fluid encountered.

2.3 TRAPS:

A. Inverted Bucket Traps: Traps for condensate of saturated steam over 15 psig shall have capacities as shown on the drawings except that no trap shall have a capacity of less than 200 lbs condensate per hour with an inlet pressure of 40 psig and a pressure differential across trap of 20 psig.

1. Bucket traps shall be either of the inverted or vertical type, with automatic air discharge, and shall have a heavy body of fine-grained cast iron, brass bucket, bronze mechanism, and corrosion-resistant stainless steel valves and seats.
2. Traps shall have a working pressure of 125 psig saturated steam pressure and in all details not specified above shall equal RP&C, Barnes and Jones, Armstrong, Sarco, or Hoffman.
3. Use bucket traps for medium pressure steam system.

B. Float and thermostatic traps shall be suitable for 15 psig steam working pressure. Install in ends of low pressure steam mains, at points where the steam main rises, and at all other points where shown or required for proper operation of system.

1. Materials shall be as follows:

   a. Float - copper alloy
   b. Float valve and seat - Monel metal, or stainless steel
   c. Body - renewable gray cast-iron, covers removable without disturbing piping connections.

2. Capacities of the traps shall be with 5 psig pressure at the trap inlet and a differential pressure across the trap of 2 psig unless otherwise noted. Traps shall have capacity of 200 lbs per hour unless noted otherwise.
3. Traps shall be Barnes & Jones, RP&C, Armstrong, Sarco, or Hoffman.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. See section 15101 for general piping installation procedures.

3.2 PIPE CLEANING:

A. Clean and flush all new steam and condensate return piping using a liquid alkaline cleaning agent.

B. Use CUCF's approved water treatment contractor.

3.3 TESTING:

A. Conduct tests in presence of Engineer.

B. Tests shall be as described in Section 15101.

END OF SECTION 15185

SECTION 15480 - HOT WATER HEATERS - SHELL AND TUBE (Two Required)

PART 1 - GENERAL

1.1 SCOPE:

A. Provide and install the nine (9) instantaneous double wall water heater packages with the capacity and type as required by the specifications and scheduled on the drawings.

B. Provide three (3) tube bundles for emergency purposes. Installation is not required. Size bundles to replace one of the installed bundles.

1.2 QUALITY ASSURANCE:

A. Regulatory Requirements

1. Hot water heater shall be manufactured in strict accordance with Section VIII Div 1 of ASME design code for design pressures of 150 psig at 350 Deg F and shall bear the ASME label with National Board registration.

PART 2 - PRODUCTS

2.1 EQUIPMENT:

A. Provide and install the instantaneous hot water heaters as shown and scheduled on the drawings. Heaters shall be packaged units mounted on a steel frame. Two heaters in one package and one heater in the other package per buildings.

B. Hot Water Heater

1. The instantaneous water heater shall be manufactured in strict accordance with Section VIII Div 1 of the ASME Code for design pressures of 150 psig at 300 Deg F and shall bear the ASME label with National Board registration.

C. General Performance

1. The maximum water pressure drop shall not exceed 10 psig.
2. Outlet water temperature shall be controlled to within plus or minus 4 Deg F.
3. Operational steam pressure shall be 2 to 15 psig adjustable.
4. Operational water pressure shall be 20 to 150 psig.

D. Materials of Construction

1. The shell of the heat exchanger shall be double wall carbon steel and designed for a maximum allowable pressure of 150 psig.
2. The inner tubes shall be cuper nickel with a maximum allowable pressure of 150 psig.
3. Steam control valve shall be provided and mounted with package.
4. The stand shall be fabricated of 2" carbon steel angle iron.
5. The water pipe shall be Type L copper.

E. General Design

1. The instantaneous water heater shall be of the horizontal shell and tube design avoiding vertical removal of coils.
2. The instantaneous water heater shall have easy access to the individual tubes without moving the heater from its installed position.
3. The instantaneous water heater shall be pre-piped with only steam, water and condensate hook-ups necessary.
4. The instantaneous water heater shall be mounted on an angle iron frame.
5. The package shall be pre-piped with all the necessary pipe, valve fittings and gauges.
6. The frame shall be able to be mounted to the floor.
7. The instantaneous water heaters shall be pre-piped such that each unit could be run separately or together.

F. Warranty

1. The instantaneous hot water heater packages shall have a two-year guarantee against defective material or faulty workmanship.
2. The tube bundle shall have an unconditional 10 year guarantee against failure caused by thermal shock or mechanical failure, but not against gasket failure or damage caused by corrosion, improper cleaning or lack of proper cleaning.

2.2 EQUIPMENT AND ACCESSORIES:

A. Standard Package

1. Steam traps
2. Air Vent
3. Thermometers
4. Waterside piping, valves and fittings
5. Mounting frame
6. Clean in place isolation valves and connections

B. Accessory
1. Provide safety shutdown system

C. **Alternate #2:** Provide three emergency tube bundle, the same as specified above for CUCF storage at correctional facilities. Installation is **not** required.

2.3 APPROVED MANUFACTURERS:

A. Prior Approved Equal

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Install instantaneous water heaters per manufacturer's instructions and 2003 IPC, ANSI/ ASHRAE/ IESNA 90.1, 2001 and any other applicable codes.

B. Install on same pads and location as existing removed water heaters.

C. Connect to existing extended cold water piping, hot water piping, steam, condensate, controls and hot water re-circulating piping.

END OF SECTION 15480