



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

STANDARD LOW BID PROJECT

March 11, 2009

STEAM CONTROL VALVES REPLACEMENT STUDENT CENTER

**SALT LAKE COMMUNITY COLLEGE
REDWOOD ROAD CAMPUS
SALT LAKE CITY, UTAH**

DFCM Project Number 08248660

Stanley Consultants Inc.
5353 South 960 East, Suite 220
Salt Lake City, Utah 84117

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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 Certification 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>

NOTICE TO CONTRACTORS

Sealed bids will be received by the Division of Facilities Construction and Management (DFCM) for:

STEAM CONTROL VALVES REPLACEMENT - STUDENT CENTER
SALT LAKE COMMUNITY COLLEGE - REDWOOD ROAD CAMPUS
SALT LAKE CITY, UTAH
DFCM PROJECT NO: 08248660

Bids will be in accordance with the Contract Documents that will be available at 2:00 PM on Wednesday, March 11, 2009, and distributed in electronic format only on CDs from DFCM, 4110 State Office Building, Salt Lake City, Utah and on the DFCM web page at <http://dfcm.utah.gov>. For questions regarding this project, please contact Craig Wessman, P.E., DFCM, at 801-538-3246. No others are to be contacted regarding this bidding process. The construction estimate for this project is \$121,000.

A **mandatory** pre-bid meeting will be held at 11:30 AM on Tuesday, March 17, 2009 at the Student Center on the Redwood Road Campus of Salt Lake Community College in Salt Lake City, Utah. Meet at the north entrance to the Student Center. All bidders wishing to bid on this project are required to attend this meeting.

Bids will be received until the hour of 3:30 PM on Wednesday, March 25, 2009 at 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.

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 and Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of DFCM.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
Marla Workman, Contract Coordinator
4110 State Office Building, Salt Lake City, Utah 84114

PROJECT DESCRIPTION

The project is the replacement of the existing steam pressure reducing valves in the building and the replacement of steam control valves for some of the equipment serving this building. The campus steam is supplied to the building at a pressure of 85 to 95 psig. The pressure is reduced in the building by steam pressure reducing stations. The pressure reducing stations will be modified as indicated by the contract documents with the control valves being the main work required. Once the pressure is reduced in the building, the steam is supplied to other equipment and there are control valves for the equipment. These valves will be replaced as indicated by the contract documents. Scheduling of the work will be required to minimize the disruption to the function in the building. Depending on the delivery of the valves, the work will then be scheduled between the college and the contractor to minimize the disruption in the space. This may require weekend or holiday period work. The timing for completion of the work will be determined once the delivery of the valves and miscellaneous components is known.

**PROJECT SCHEDULE**

PROJECT NAME: STEAM CONTROL VALVES REPLACEMENT – STUDENT CENTER SALT LAKE COMMUNITY COLLEGE - REDWOOD ROAD CAMPUS SALT LAKE CITY, UTAH				
DFCM PROJECT NO. 08248660				
Event	Day	Date	Time	Place
Bidding Documents Available	Wednesday	March 11, 2009	2:00 PM	DFCM 4110 State Office Bldg SLC, UT and the DFCM web site *
Mandatory Pre-bid Site Meeting	Tuesday	March 17, 2009	11:30 AM	Meet at north entrance Student Center Redwood Road Campus Salt Lake Community College SLC, UT
Last Day to Submit Questions	Thursday	March 19, 2009	4:00 PM	Craig Wessman – DFCM E-mail: cwessman@utah.gov
Addendum Deadline (exception for bid delays)	Monday	March 23, 2009	3:00 PM	DFCM web site *
Prime Contractors Turn In Bid and Bid Bond	Wednesday	March 25, 2009	3:30 PM	DFCM 4110 State Office Bldg SLC, UT
Sub-contractor List Due	Thursday	March 26, 2009	3:30 PM	DFCM 4110 State Office Bldg SLC, UT Fax 801-538-3677
Substantial Completion Date	Tuesday	June 30, 2009		

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



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

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 "Notice to Contractors" and in accordance with the "Instructions to Bidders", in compliance with your invitation for bids for the **STEAM CONTROL VALVES REPLACEMENT - STUDENT CENTER - SALT LAKE COMMUNITY COLLEGE - REDWOOD ROAD CAMPUS - SALT LAKE CITY, UTAH - DFCM PROJECT NO. 08248660** 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: _____

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)

I/We guarantee that the Work will be Substantially Complete by **June 30, 2009**, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **\$125.00** 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 the 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 100% Performance and Payment bonds are not delivered within the 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

INSTRUCTIONS TO BIDDERS

1. Drawings and Specifications, Other Contract Documents

Drawings and Specifications, as well as other available Contract Documents, may be obtained as stated in the Invitation to Bid.

2. Bids

Before submitting a bid, each contractor 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. 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 Representative and the necessary changes shall be accomplished by Addendum.

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 deadline for 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 bid bond 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. **NOTE: A cashier's check cannot be used as a substitute for a bid bond.**

3. Contract and Bond

The Contractor's Agreement will be in the form found in the specifications. The Contract Time will be as indicated in the bid. The successful bidder, simultaneously with the execution of the Contract 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.

4. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the “Instructions and Subcontractor’s List Form”, which are included as part of these 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 is subject to a debarment hearing and may be debarred from consideration for award of contracts for a period of up to three years.

5. Interpretation of Drawings and Specifications

If any person or entity contemplating submitting a bid is in doubt as to the meaning of any part of the drawings, specifications or other Contract Documents, such person shall submit to the DFCM Project Manager a request for an interpretation thereof. The person or entity submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addenda posted on DFCM’s web site at <http://dfcm.utah.gov>. Neither the DFCM nor A/E will be responsible for any other explanations or interpretations of the proposed documents. A/E shall be deemed to refer to the architect or engineer hired by DFCM as the A/E or Consultant for the Project.

6. Addenda

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.

7. 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 the State of Utah 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.

8. DFCM Contractor Performance Rating

As a contractor completes each DFCM project, DFCM, the architect/engineer and the using agency will evaluate project performance based on the enclosed “DFCM Contractor Performance Rating” form. The ratings issued on this project will not affect this project but may affect the award on future projects.

9. 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.

10. 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.

11. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

12. Time is of the Essence

Time is of the essence in regard to all the requirements of the Contract Documents.

13. Withdrawal of Bids

Bids may be withdrawn on written request received from bidder prior to the time fixed for opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

14. 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 A/E. Such written approval must occur prior to the deadline established for the last scheduled addenda to be issued. The A/E's written approval will be in an issued addendum. 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 A/E.

15. 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.

16. Debarment

By submitting a bid, the Contractor certifies that neither it nor its principals, including project and site managers, have been, or are under consideration for, debarment or suspension, or any action that would exclude such from participation in a construction contract by any governmental department or agency. If the Contractor cannot certify this statement, attach to the bid a detailed written explanation which must be reviewed and approved by DFCM as part of the requirements for award of the Project.

BID BOND

(Title 63, Chapter 56, U. C. A. 1953, 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:

By: _____

Attorney-in-Fact (Affix Corporate 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



Division of Facilities Construction and

INSTRUCTIONS 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

INSTRUCTIONS AND SUBCONTRACTORS LIST FORM
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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.

Table with 4 columns: TYPE OF WORK, SUBCONTRACTOR, 'SELF' OR 'SPECIAL EXCEPTION', SUBCONTRACTOR BID AMOUNT, CONT. LICENSE #. The table contains 15 empty rows for data entry.

We certify that:

- 1. 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") 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%

CONTRACTOR'S AGREEMENT
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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 Invitation to Bid, 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.

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: _____ (Seal)

Attorney-in-Fact

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. 1953, 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, 1953, 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: _____ (Seal)
Attorney-in-Fact

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



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:

- As-built 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.

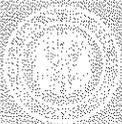
The Contractor shall complete or correct the Work on the list of (Punch List) items appended hereto within _____ calendar days from the above date of issuance of this Certificate. The amount withheld pending completion of the list of items noted and agreed to shall be: \$_____. If the list of items is 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

**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
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

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

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

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
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

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

Signed by:	Date:	Mean Score
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Additional Comments:

Project Manual

for

DFCM Project No. 08248660 SLCC Redwood Road Campus Student Center – Steam Control Valves Replacement

**Salt Lake Community College
Taylorsville, Utah**

**Issued for Bid
January 2009**



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Engineering, Environmental and Construction Services - Worldwide

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Resp. Charge	Section	Title	Page
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DFCM Project No. 08248660
SLCC Redwood Road Campus
Student Center – Steam Control Valves Replacement

Salt Lake Community College
Salt Lake City, Utah

SPECIFICATIONS GROUP

GENERAL REQUIREMENTS SUBGROUP

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DIVISION 00	COVER PAGES	
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00 01 10	Table of Contents	1 thru 1
00 01 15	Drawing List	1 thru 1
DIVISION 01	GENERAL REQUIREMENTS	
01 11 00	Summary of Work	1 thru 2
01 29 72	Applications and Certificates for Payment	1 thru 2
01 30 00	Administrative Requirements	1 thru 2
01 33 00	Submittal Procedures & Submittal Transmittal Form	1 thru 6
01 40 00	Quality Requirements	1 thru 2
01 43 30	Welding Qualifications	1 thru 1
01 70 00	Execution and Closeout Requirements	1 thru 2
01 74 23	Final Cleaning	1 thru 2
01 78 23	Operating and Maintenance Data	1 thru 2

FACILITY SERVICES SUBGROUP

DIVISION 20	FACILITY SERVICES	
20 05 00	Common Work Results for Facility Services	1 thru 5
20 05 23	General Duty Valves for Facility Services Piping	1 thru 2
20 07 00	Facility Services Systems Insulation	1 thru 5
DIVISION 23	HEATING, VENTILATING, AND AIR CONDITIONING	
23 05 93	Testing, Adjusting, and Balancing for HVAC	1 thru 5
23 09 13	Instrumentation and Control Devices for HVAC	1 thru 2

Drawing No.	Title	Rev. No.
GG1	Title Sheet & Index	0
MG1	Mechanical Symbols Legend	0
MH1	Mechanical Steam System Schematic Diagrams	0
MH2	Mechanical Steam System Equipment Schedules	0

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Work covered by Contract Documents.
- B. Agreement.
- C. Work sequence.
- D. Contractor use of premises.
- E. Owner occupancy.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work of this Agreement comprises general removal and replacement of existing pressure reducing valves, control valves, and associated isolation gate valves, reducers, piping insulation, and appurtenances as shown on construction drawings for steam service. Project is located on the Redwood Campus of Salt Lake Community College (SLCC) in the Student Center Building.

1.03 AGREEMENT

- A. Construct Work under single lump sum Agreement.

1.04 WORK SEQUENCE

- A. Construct Work in stages to accommodate Owner's use of premises during construction period; coordinate construction schedule and operations with Owner's Representative.
 - 1. Schedule Work to minimize interruptions to utility service or use of street barricades and detours.

1.05 CONTRACTOR USE OF PREMISES

- A. Limit Contractor's use of premises for Work and for storage, to allow for:
 - 1. Work by other contractors.
 - 2. Owner occupancy.
 - 3. Public use.
- B. Coordinate use of premises under direction of Engineer. Contractor shall confine construction equipment, storage of materials and equipment and operations of workers to areas permitted by law, ordinances, permits, or requirements of Contract Documents, and shall not unreasonably encumber premises with construction equipment or other material or equipment.
- C. Assume full responsibility for protection and safekeeping of items under this Agreement, stored on Site.
- D. Move any stored items, under Contractor's control, which interfere with operations of Owner or separate contractor.
- E. Obtain and pay for use of additional storage or Work areas needed for operations.

1.06 OWNER OCCUPANCY

- A. Owner will occupy premises during entire period of construction for conduct of its normal operations. Cooperate with Owner's Representative in all construction operations to minimize conflict, and to facilitate Owner usage.

1. Maintain existing service in substantially continuous operation during construction, making and removing temporary connections as necessary.
2. Perform Work which will require interruption of service at times specifically approved by Owner.

B. Contractor shall at all times conduct its operations as to ensure least inconvenience to general public.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for payment.

1.02 RELATED SECTIONS

- A. Section 01 33 00 - Submittal Procedures.
- B. Section 01 70 00 - Execution and Closeout Requirements: Final payment.

1.03 FORMAT

- A. As required per DFCM standards.
- B. For each item, provide a column for listing each of the following:
 1. Item Number.
 2. Description of work.
 3. Scheduled Values.
 4. Previous Applications.
 5. Work in Place under this Application.
 6. Authorized Change Orders.
 7. Total Completed to Date of Application.
 8. Percentage of Completion.
 9. Balance to Finish.
 10. Retainage.

1.04 PREPARATION OF APPLICATIONS

- A. Present required information on electronic media printout.
- B. Execute certification by signature of authorized officer.
- C. List each authorized Change Order as required per DFCM requirements.
- D. Prepare Application for Final Payment as specified in Section 01 70 00.

1.05 SUBMITTAL PROCEDURES

- A. Submit three copies of each Application for Payment.
- B. Submit an updated construction schedule with each Application for Payment.
- C. Payment Period: Submit at intervals stipulated in the Agreement.
- D. Submit with transmittal letter as specified for submittals in Section 01 33 00.

1.06 SUBSTANTIATING DATA

- A. When Architect/Engineer requires substantiating information, submit data justifying dollar amounts in question.
- B. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.
- C. Include the following with the application:

1. Partial release of liens from major subcontractors and vendors.
2. Affidavits attesting to off-site stored products.
3. Construction progress schedules, revised and current.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

PART 1 GENERAL

1.01 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate space requirements, supports, and installation of mechanical and control Work which are indicated diagrammatically on Drawings. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.
- E. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.02 COPIES OF DRAWINGS AND PROJECT MANUALS

- A. After Notice of Award, Contractor may obtain, at no charge, up to 5 printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction plus handling charge.

1.03 PROJECT SITE ADMINISTRATION

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out Work and perform construction as required by Contract Documents. Contractor shall at all times maintain good discipline and order at site.
- B. Except in connection with safety or protection of persons or Work or property at site or adjacent thereto, and except as otherwise indicated in Contract Documents, all Work at site shall be performed during regular working hours, and Contractor shall not permit overtime work or performance of Work on Saturday, Sunday, or any legal holiday without Owner's written consent given after prior written notice to Engineer.
- C. Incompetent or incorrigible employees shall be dismissed from Work by Contractor or its representative when requested by Engineer, and such persons shall not again be permitted to return to Work without written consent of Engineer.
- D. Workmanship shall be of best quality.

1.04 PROJECT MEETINGS

- A. Representatives of Contractor, Subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of entity each represents.
- B. Preconstruction meeting:
 - 1. Engineer will schedule a meeting after 15 days after Notice of Award.
 - 2. Location: As designated by Engineer.
 - 3. Attendance:
 - a. Owner's representative.
 - b. Engineer and its professional consultants.
 - c. Resident Project Representative.

- d. Contractor's superintendent.
- e. Major Subcontractors.
- f. Major suppliers.
- g. Others as appropriate.
- 4. Agenda:
 - a. Execution of Owner-Contractor Agreement.
 - b. Submission of executed bonds and insurance certificates.
 - c. Distribution of Contract Documents.
 - d. Submission of list of Subcontractors, list of products, and progress schedule.
 - e. Designation of personnel representing the parties in Contract.
 - f. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - g. Scheduling.
- C. Progress meetings:
 - 1. Schedule and administer meetings throughout progress of the Work at periodic intervals.
 - 2. Engineer will hold called meetings as required by progress of Work.
 - 3. Location of meetings: As directed by Engineer.
 - 4. Engineer will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
 - 5. Attendance:
 - a. Engineer, and its professional consultants as needed.
 - b. Contractor and Subcontractors as appropriate to agenda.
 - c. Suppliers as appropriate to agenda.
 - d. Others.
 - 6. Suggested agenda:
 - a. Review, approval of minutes of previous meeting.
 - b. Review of Work progress since previous meeting.
 - c. Field observations, problems, conflicts.
 - d. Problems which impede construction schedule.
 - e. Review of off-site fabrication, delivery schedules.
 - f. Corrective measures and procedures to regain projected schedule.
 - g. Revisions to construction schedule.
 - h. Progress, schedule, during succeeding Work period.
 - i. Coordination of schedules.
 - j. Review submittal schedules; expedite as required.
 - k. Maintenance of quality standards.
 - l. Pending changes and substitutions.
 - m. Review proposed changes for:
 - 1) Effect on construction schedule and on completion date.
 - 2) Effect on other contracts of Project.
 - 3) Other business.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SUBMITTAL PROCEDURES

A. Deliver submittals to person listed below when required by Specification Sections:

1. Engineer:
Mr. Dan Rollins
Email: RollinsDan@stanleygroup.com
Stanley Consultants, Inc.
Suite 220
5353 S 960 E
Salt Lake City, UT 84117-7269

B. Submittals shall be in English language.

C. Weights, measures, and units shall be English units.

1.02 CONTRACTOR RESPONSIBILITIES

A. Review submittals prior to submission.

B. Determine and verify:

1. Field measurements.
2. Field construction criteria.
3. Catalog numbers and similar data.
4. Conformance to Specifications.

C. Coordinate each submittal with other submittals and with requirements of Work and of Contract Documents.

D. Notify Engineer in writing, at time of submission, of any deviations in submittals from requirements of Contract Documents. Any such deviations permitted by Engineer will require modifications of Contract Documents.

E. Provide space on Shop Drawings for Contractor and Engineer stamps.

F. When Shop Drawings are revised for resubmission, identify all changes made since previous submission.

G. Submittals containing language imposing duties on others (such as verification of dimensions or supply of related information) inconsistent with contract language shall be null and void.

H. Submittals shall not be used as media for inquiries for information or for verification of information that must be supplied by others to Contractor. Inquiries or verification of information shall be made by separate Contractor submittal using Request for Information (RFI) process.

I. Begin no fabrication or Work which requires submittal review until return of submittals by Engineer with stamp, as either "Reviewed", "Reviewed as Noted", or "Reviewed as Noted-Resubmit."

J. Distribute copies of reviewed submittals that carry Engineer stamp as either "Reviewed" or "Reviewed as Noted" as appropriate. Instruct parties to promptly report any inability to comply with requirements.

K. Submittals not requested will not be recognized or processed.

1.03 ENGINEER DUTIES

- A. Review required submittals with reasonable promptness and in accord with schedule, only for general conformance to design concept of Project and compliance with information given in Contract Documents. Review shall not extend to means, methods, sequences, techniques, or procedures of construction or to safety precautions or program incident thereto. Review of a separate item as such will not indicate approval of assembly in which item functions.
- B. Affix stamp and initials or signature, and indicate requirements for resubmittal, or review of submittal. Engineer's action on submittals is classified as follows:
 - 1. Reviewed: Submittal has been reviewed and appears to be in conformance to design concept of Project and Contract Documents. Contractor may proceed with fabrication of work in submittal.
 - 2. Reviewed As Noted: Submittal has been reviewed and appears to be in conformance to design concept of Project and Contract Documents, except as noted by reviewer. Contractor may proceed with fabrication of work in submittal with modifications and corrections as indicated by reviewer.
 - 3. Reviewed As Noted-Resubmit: Submittal has been reviewed and appears to be in conformance to design concept of Project and Contract Documents, except as noted by reviewer. Contractor may proceed with fabrication of work in submittal with modifications and corrections as indicated by reviewer. Contractor shall make any corrections indicated by reviewer and resubmit for review.
 - 4. Resubmit: Submittal has been reviewed and appears not to be in conformance to design concept of Project or with Contract Documents. Contractor shall not proceed with fabrication of work in submittal, but instead shall make any corrections required by reviewer and resubmit for review.
 - 5. Returned without Review: Submittal is being returned without having been reviewed because: 1) not required by Contract Documents; 2) grossly incomplete; 3) indicates no attempt at conformance to Contract Documents; 4) cannot be reproduced; 5) lacks Contractor's completed approval stamp; or 6) lacks design professional's seal when required by law or Contract Documents. If submittal is required by Contract Documents, Contractor shall not proceed with Work as detailed in submittal, but instead shall correct defects and resubmit for review.
 - 6. For Information Only: Submittal has not been reviewed but is being retained for informational purposes only.
 - 7. Void: Submittal is voided because it is no longer required or has been superseded by another submittal.
- C. Return 1 copy of submittals to Contractor. Contractor shall make additional copies as required.
- D. Review of submittals shall not relieve Contractor from responsibility for any variation from Contract Documents unless Contractor has, in writing, called Engineer's attention to such variation at time of submission, and Engineer has given written concurrence pursuant to Contract Documents to specific variation, nor shall any concurrence by Engineer or other reviewer relieve Contractor from responsibility for errors or omissions in submittals.

1.04 SHOP DRAWINGS SUBMITTALS

- A. Submit for review for limited purpose of checking for conformance to information given and design concept expressed in Contract Documents. Produce copies and distribute in accordance with article "Submittal Procedures" and for record documents purposes as described in Section 01 70 00.
- B. Designate in construction schedule, or in separate coordinated submittal schedule, dates for submission and dates that reviewed submittals will be needed.
- C. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in Work or in work of other contractors.
- D. Present in clear and thorough manner, complete with respect to dimensions, design criteria, materials of construction, and like information to enable review of information as required.
- E. Details shall be identified by reference to sheet and detail, schedule or room numbers shown on Drawings.

- F. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- G. Equipment which is identified on Contract Documents with tag number or name shall be identified on Shop Drawing with same tag.
- H. Schedule submittals to expedite Project. Coordinate submission of related items.
- I. For each submittal for review, allow 5 business days excluding delivery time to and from Contractor.
- J. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.
- K. Shop Drawings may be submitted in electronic format.
 - 1. Submit electronic copy on CD or E-mail files.
 - 2. Text documents shall be submitted in .pdf format.
 - 3. Drawings shall be submitted in .pdf or .tif format.
 - 4. Electronic submittal shall be suitable for reproduction in black and white.
- L. Number required:
 - 1. Submit 5 opaque reproductions of each Shop Drawing.
 - 2. Copies of Shop Drawings submitted shall be black line on white background.
 - 3. Shop Drawings shall be suitable for reproduction in black and white. Shop Drawings submitted which are not suitable for reproduction will not be reviewed.
 - 4. Drawings larger than 8-1/2" x 11" shall be rolled.
- M. Submittals shall contain:
 - 1. Date of submission and dates of any previous submissions.
 - 2. Project title and number.
 - 3. Contract identification.
 - 4. Names of:
 - a. Contractor.
 - b. Supplier.
 - c. Manufacturer.
 - 5. Identification of product, with Specification section number and article number.
 - 6. Field dimensions, clearly identified as such.
 - 7. Relation to adjacent or critical features of Work or materials.
 - 8. Applicable standards, such as ASTM or Federal Specification numbers.
 - 9. Identification of deviations from Contract Documents.
 - 10. Identification of revisions on resubmittals.
 - 11. An 8" x 3" blank space for Contractor and reviewer stamps.
 - 12. Indication of Contractor's approval, initialed or signed, with wording substantially as follows:

"Contractor represents to Owner and Engineer that Contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, or assumes full responsibility for doing so and has reviewed or coordinated each submittal with requirements of Work and Contract Documents."
- N. Product Data:
 - 1. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
 - 2. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- O. Operations and maintenance manuals:
 - 1. Designate in construction schedule, or in separate coordinated schedule, dates for submission and dates that reviewed operations and maintenance manuals will be needed.

2. Operations and maintenance manuals shall be presented in clear and thorough manner, complete with respect to dimensions, design criteria, materials of construction, and like information to enable reviewer to review information as required. Details shall be identified by reference to sheet and detail, schedule or room numbers shown on Drawings.

1.05 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in submittals required by Engineer and resubmit until stamped as either "Reviewed," "Reviewed as Noted," or "For Information Only."
- B. Text and depictions changed on Submittal shall be back-circled (clouded).
- C. Engineer will assume that portions of Submittal not back-circled have not been changed by Contractor from previous submission.
- D. Indicate revision number and date in document revision block.

1.06 DISTRIBUTION

- A. Distribute reproductions of Shop Drawings which carry Engineer stamp as either "Reviewed" or "Reviewed as Noted" to:
 1. Job site file.
 2. Record Documents file.
 3. Other affected contractors.
 4. Subcontractors.
 5. Supplier or fabricator.

1.07 CONSTRUCTION PROGRESS DOCUMENTATION

- A. Construction progress schedules:
 1. Submit initial schedules to Engineer within 5 days after date of Owner-Contractor Agreement. After review, resubmit required revised data within 2 days.
- B. Form of schedules:
 1. In accordance to DFCM requirements.
- C. Progress revisions:
 1. Indicate progress of each activity to date of submission.
 2. Show changes occurring since previous submission of schedule:
 - a. Major changes in scope.
 - b. Activities modified since previous submission.
 - c. Revised projections of progress and completion.
 - d. Other identifiable changes.
 3. Provide narrative report as needed to define:
 - a. Problem areas, anticipated delays, and impact on schedule.
 - b. Corrective action recommended, and its effect.
 - c. Effect of changes on schedules of other prime contractors.
- D. Distribution copies of reviewed schedules to:
 1. Job site file.
 2. Subcontractors.
 3. Other concerned parties.
- E. Instruct recipients to report promptly to Contractor, in writing, any problems anticipated by projects shown in schedules.

1.08 SAFETY PROCEDURES MANUAL

- A. Prepare and submit to Owner safety procedures manual defining Contractor's safety program for work on site. Manual shall include:
 - 1. Safety responsibilities of Contractor's personnel.
 - 2. Description of Contractor's safety program.
 - 3. Requirements of use of personal protective equipment.
 - 4. General safety-related rules of conduct.
 - 5. Fire prevention measures.
 - 6. Accident reporting procedures.
 - 7. Procedures for hot work (welding, cutting, etc.), overhead work, and work in enclosed, confined spaces (tank, boiler, etc.). Reference 29 CFR Part 1910.

1.09 SUBMITTAL TRANSMITTAL FORM PROCEDURES

- A. Submittals shall be accompanied by completed copies of Submittal Transmittal form, bound herein. An electronic version of transmittal form is available and may be obtained from Engineer. Reproduce additional copies required.
- B. Submit 5 copies of transmittal form for initial submittals and re-submittals. Sequentially number transmittal form. Revise submittals with original number and sequential alphabetic suffix.
- C. Prior to submittal, complete information under heading "Contractor's Transmittal."
- D. Engineer will complete information under "Reviewer's Action."
- E. Do not include submittals for more than one section of Specifications on Submittal Transmittal form.
- F. Identify project title, location, and number and contract title and number.
- G. Identify preparer name and, submittal number, including preparer's submittal revision number.
- H. A brief description under "Title" should clearly identify specific application of equipment or material covered by Submittal, utilizing where possible same title used in Drawings and Specifications.
- I. Identify Specification Section number.
- J. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of Work and Contract Documents.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

Date Received _____
 Date Distributed _____

SUBMITTAL TRANSMITTAL

Transmittal No. _____

Project Title _____ Project No. _____ Contract No. _____
 Project Location _____ Contract Title _____

CONTRACTOR'S TRANSMITTAL

ENGINEER'S/ARCHITECT'S ACTION

Status Abbreviations:
 R - Reviewed
 RN - Reviewed as Noted
 RNR - Reviewed as Noted Resubmit
 RS - Resubmit
 RET - Returned Without Review
 FIO - For Information Only
 V - Void

Preparer	Preparer Submittal No.	Rev. No.	Title	Section No.	SC Submittal No.	Status	Distribution (No.)						
							Cont	RPR	Own	Des			

Contractor Remarks

Engineer/Architect Remarks

Address

By _____ Date _____

By Signature above, the Contractor shall certify that they have reviewed the submittal and that they comply with all applicable specification sections and contract drawings. Action of any kind on submittal by Engineer/Architect does not relieve Contractor from responsibility for errors, correctness of details, or conformance to the contract.



By _____
 Date _____

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Quality control and control of installation.
- B. Welding certificates
- C. Examination.
- D. Preparation.

1.02 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on Shop Drawings or as instructed by manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.03 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date for receiving bids, date of Owner-Contractor Agreement when there are no Bids, except where a specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. Should specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- E. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.
- F. Abbreviations used in Drawings and Specifications are as specified in ASME Y14.38 and IEEE 260.

1.04 WELDING CERTIFICATES

- A. Promptly after Notice of Award, submit to Engineer one copy, unless specified otherwise, for each person, by name, assigned to do field welding of materials installed under this Agreement.

- B. Show on certificates that each person has passed tests described in Specifications.
- C. Submit certificates prior to execution of any welding. Certificates not required for nonstructural tack welding.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 FIELD PERFORMANCE TESTS

- A. Notify Engineer when Work is considered to be complete, in operating condition, and ready for inspection and tests.
- B. Engineer will conduct tests it deems necessary to determine if equipment or system functions properly.
- C. If equipment or system fails to function properly, Contractor shall make necessary corrections, including replacement, at no cost to Owner, and after such corrections are completed, demonstrate to Engineer that equipment or system functions properly.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Welding requirements.
- B. Procedure qualification.
- C. Performance qualification.

1.02 WELDING REQUIREMENTS

- A. Welding shall be performed by qualified welding operators using procedures which have been qualified in accordance with applicable codes and standards specified.

1.03 PROCEDURE QUALIFICATION

- A. Contractor, subcontractor, or fabricator performing welding under jurisdiction of referenced codes shall be responsible for obtaining and qualifying welding procedures. Structural welding procedures conforming to AWS D1.1 are prequalified as defined in AWS D1.1.
- B. Contractor shall maintain records, and make available to Engineer when requested, certifying successful completion of procedure qualification tests.

1.04 PERFORMANCE QUALIFICATION

- A. Contractor, subcontractor, or fabricator performing welding under jurisdiction of referenced codes shall be responsible for testing and qualifying its welding operators in accordance with applicable procedures.
- B. Unless welding operators have been previously qualified by Contractor within last 6 months and have been continuously employed as welders by Contractor following qualification, requalification tests must be performed.
- C. Engineer reserves right to require any welder to retake tests when, in opinion of Engineer, work of welder creates reasonable doubt as to welder's proficiency; Engineer reserves right to witness any required retesting; conduct such tests at no additional expense to Owner.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Protecting installed construction.
- D. Project record documents.

1.02 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.
- B. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.03 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.04 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

1.05 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.

- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.

- F. Record Drawings: Legibly mark each item to record actual construction including:
 - 1. Field changes of dimension and detail.
 - 2. Details not on original Contract Drawings.

- G. Submit documents to Engineer with claim for final Application for Payment.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Disposal requirements.
- B. Materials.
- C. Cleaning during construction.
- D. Dust control
- E. Final cleaning.

1.02 DISPOSAL REQUIREMENTS

- A. Conduct cleaning and disposal requirements to comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by manufacturer of surface material to be cleaned.
- C. Use cleaning materials only on surface recommended by cleaning material manufacturer.

PART 3 EXECUTION

3.01 CLEANING DURING CONSTRUCTION

- A. Execute periodic cleaning to keep Work, site, and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris, resulting from construction operations.
- B. Provide on-site containers for collection waste materials, debris, and rubbish.
- C. Remove waste materials, debris, and rubbish from site periodically and dispose of at legal disposal areas away from site.

3.02 DUST CONTROL

- A. Clean interior spaces prior to start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.

3.03 FINAL CLEANING

- A. Employ skilled workers for final cleaning.

- B. Remove grease, mastic, adhesives, dust, dirt stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces, as well as all tools, appliances, construction equipment and machinery, and surplus materials.
- C. Polish glossy surfaces to clear shine.
- D. Prior to final completion, or Owner occupancy, Contractor shall conduct inspection of sight-exposed interior and exterior surfaces, and all work areas, to verify that entire Work is clean.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Operating and maintenance data requirements.
- B. Quality assurance.
- C. Form of submittals.
- D. Content of manual.

1.02 OPERATING AND MAINTENANCE DATA REQUIREMENTS

- A. Operating and maintenance data shall be in English language.
- B. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under Agreement.
- C. Prepare operating and maintenance data as specified in this section and as referenced in other pertinent sections of Specifications.
- D. Instruct Owner's personnel in maintenance of products and in operation of equipment and systems.

1.03 FORM OF SUBMITTALS

- A. Prepare data in form of an instructional manual for use by Owner's personnel.
- B. Format:
 - 1. Sheet size: 8-1/2" x 11" minimum.
 - 2. Paper: 20 lb minimum, white, for typed pages.
 - 3. Text: Manufacturer's printed data, or neatly typewritten.
 - 4. Drawings:
 - a. Provide reinforced punched binder tab, bind in with text.
 - b. Larger size drawings shall be folded to 8-1/2" x 11", and inserted into pockets.
 - 5. Provide fly-leaf for each separate product, or each piece of operating equipment.
 - a. Provide typed description of product, and major component parts of equipment.
 - b. Provide indexed tabs.
 - 6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS." List:
 - a. Title of Project.
 - b. Identity of separate structure as applicable.
 - c. Identity of general subject matter covered in manual.
 - 7. Binders:
 - a. Commercial quality 3-ring binders with durable and cleanable plastic covers.
 - b. Maximum ring size: 1".
 - c. When multiple binders are used, correlate data into related consistent groupings.

1.04 CONTENT OF MANUAL

- A. Neatly typewritten table of contents for each volume, arranged in systematic order.
 - 1. Contractor, name of responsible principal, address, and telephone number.
 - 2. List of each product required to be included, indexed to content of volume.
 - 3. List, with each product, name, address, and telephone number of:
 - a. Subcontractor or installer.
 - b. Maintenance contractor, as appropriate.

- c. Identify area of responsibility of each.
 - d. Local source of supply for parts and replacement and list of recommended spare parts.
 4. Identify each product by product name and other identifying symbols as set forth in Contract Documents, including nameplate information and shop order numbers for each item of equipment furnished.
- B. Product data:
 1. Include only those sheets which are pertinent to specific product.
 2. Annotate each sheet to:
 - a. Clearly identify specific product or part installed.
 - b. Clearly identify data applicable to installation.
 - c. Delete references to inapplicable information.
- C. Drawings:
 1. Supplement product data with Drawings as necessary to clearly illustrate:
 - a. Relations of component parts of equipment and systems.
 - b. Control and flow diagrams.
 2. Coordinate Drawings with information in Project record documents to assure correct illustration of completed installation.
 3. Do not use Project record documents as maintenance Drawings.
- D. Written text, as required to supplement product data for particular installation.
 1. Organize in consistent format under separate headings for different procedures.
 2. Provide logical sequence of instructions for each procedure.
- E. Copy of each warranty, Bond, and service contract issued.
 1. Provide information sheet for Owner's personnel, giving:
 - a. Proper procedures in event of failure.
 - b. Instances which might affect validity of warranties or Bonds.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe materials.
- B. Fittings, unions, flanges, and couplings.
- C. Welding fittings.
- D. Piping identification.
- E. Wiring
- F. Pipe joining methods.
- G. Cleaning and protection.
- H. Piping schedules.

1.02 SUBMITTALS

- A. Quality assurance data: Certified records, indicating that procedures used and welding operators employed are in compliance with codes referenced in article "Quality Assurance."

1.03 QUALITY ASSURANCE

- A. Regulatory requirements:
 - 1. Piping construction criteria shall conform to requirements of ANSI B31.1, B31.2, B31.5, and B31.9 as applicable. Work shall also comply with applicable state and local codes.
 - 2. Qualification of welding procedures to be used and welding operators shall be in accordance with ASME Boiler and Pressure Vessel Code, Section IX.
- B. Certifications: New materials and equipment shall bear manufacturer's name, model number, or other identification marking.
- C. Standard product shall be of latest design with published properties of manufacturer regularly engaged in production of specified material or equipment for minimum 5 years (unless exempted by Engineer).
- D. Unless otherwise indicated, equipment of same type in same room shall match color, finish, and design.
- E. Standardization: Unless otherwise submitted to and accepted by Engineer, equipment and its devices shall be of same manufacturer; or devices must be approved and warranted by equipment manufacturer.

1.04 COORDINATION

- A. Coordinate with all trades regarding location and size of pipes, equipment, ducts, openings, light fixtures, and other similar items mutually located in same or adjacent spaces.
- B. Make minor modifications in Work required by interferences (structural, work of other trades) following notification to Engineer.

PART 2 PRODUCTS

2.01 PIPE MATERIALS

- A. Pipe materials shall be as specified herein and in Mechanical Standards bound at end of Project Manual. No asbestos shall be used. If pipe wall thickness specified is not available, use next heavier wall.

2.02 FITTINGS - GENERAL

- A. Material, wall thickness, and pressure class: As specified in article "Pipe Materials," unless otherwise noted.
- B. Use long radius fittings, except where space limitations require short radius.
- C. Provide dielectric unions at connections between ferrous and nonferrous piping and at connections of nonferrous piping to ferrous equipment.

2.03 UNIONS, FLANGES, AND COUPLINGS

- A. Pressure class, material, and facing: As specified in article "Pipe Materials."
- B. Pipe size 2" and smaller: Malleable iron unions for threaded ferrous piping; cast bronze or wrought copper unions for copper piping with soldered or brazed joints.
- C. Pipe size 2-1/2" and larger: Forged steel welding neck or slip-on flanges for ferrous piping; bronze flanges for copper piping; 1/8" thick preformed synthetic fiber gaskets, Garlock "Blue-Gard 3000," or equal.

2.04 WELDING FITTINGS

- A. Material and wall thickness: As specified in article "Pipe Materials."
- B. Use welding tees for socket-welded piping for field-fabricated branch tees in butt-weld end piping.
- C. Nozzle-welded branches or "Weldolets" and "Threadolets" will be permitted instead of butt welding tees for shop-fabricated black steel piping, provided that such nozzles are fabricated in accordance with ASME B31.9. Use tees for branches in nonblack piping.
- D. Mitering of pipe to form elbows, notching straight pipe to form tees, and similar construction will not be acceptable for pressure piping except where specifically permitted in Mechanical Standards.

2.05 PIPE MARKERS

- A. Type: SNA "Setmark," snap-on type with arrows as manufactured by Seton, or equal.
- B. Wording and color combinations: ANSI A13.1.

2.06 WIRING

- A. Provide wiring not indicated on Drawings including electrical conduit, wire and connections related to mechanical equipment controls.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Work provided shall be complete and operable, and shall include required accessories, specialties, fastenings, supports, auxiliary building steel, and similar items.
- B. Determine required location, arrangement, and quantities of equipment and materials from Drawings.
- C. Equipment shall be installed in accordance with manufacturers' recommendations.
- D. Install piping as shown on Drawing and as specified.
- E. Provide sufficient unions and flanges to permit removal of equipment.
- F. Provide nuts, bolts, gaskets, and washers for complete and proper installation.

3.02 PIPE JOINING METHODS

- A. Comply with Mechanical Standards listed under article "Pipe Materials" and with requirements of ANSI B31, unless otherwise indicated.
- B. Flanged joints:
 - 1. Clean mating surfaces of flanges.
 - 2. Install gasket and tighten bolts evenly.
- C. Weld joints:
 - 1. Cut pipe square, and prepare pipe ends for welding as required by ANSI B31.
 - 2. Workmanship shall conform to details and requirements of ANSI B31.
- D. Brazed joints:
 - 1. Cut tube square and prepare for brazing as required by ANSI B31.
 - 2. Workmanship shall conform to details and requirements of ANSI B31.
 - 3. Qualifications of brazing procedures and brazing operators shall be in accordance with Part C, Section IX, ASME Boiler and Pressure Vessel Code.
- E. Other joints and jointing methods: In accordance with Pipe Material Schedule and Mechanical Standards.

3.03 LEAKAGE TESTS

- A. Notify Engineer and Owner of intent to test piping at least 1 week prior to test. Test in presence of Engineer and Owner, unless notified otherwise.
- B. Test hydrostatically, in accordance with ANSI B31.
- C. Provide pumps, compressors, meters, gages, piping, fittings, accessories, and labor required to conduct tests.
- D. Isolate equipment that may be damaged by test pressure.
- E. Refit joints indicating leakage, replace defective pipe, fittings, and accessories.

3.04 CLEANING AND PROTECTION

- A. Remove foreign material from pipes before erection.
- B. Close ends of partially erected systems.
- C. Remove temporary preservative coatings from valves and accessories.

- D. Flush or otherwise clean systems after erection.
- E. Prior to conducting final performance test Contractor shall verify that strainers are clean.
- F. Contractor shall be responsible for malfunctioning of pumps, valves, controls, or other equipment due to presence of foreign material. Contractor shall clean, repair or replace malfunctioning equipment at no cost to Owner.

3.05 PIPE IDENTIFICATION

- A. Provide pipe markers on steam PRV and control valve assembly per DFCM standards.
- B. Install markers on both horizontal and vertical section of pipe and at each valve. In tunnels, markers shall be no greater than 20' apart, or 1 marker minimum for sections less than 20'.

3.06 EXPOSED INTERIOR PIPING SCHEDULE

Service	Pipe	Mechanical Standard No.
Steam 1/2" and larger	ASTM A53 seamless black steel welded	M-1715

PIPE	MATERIAL, ASTM	A53 A TYPE E OR S (1)			
	MIN PIPE SIZE TO BE USED	1/4"			
	PIPE SIZES (INCLUSIVE) AND MIN WALL THICKNESS	1/4" - 2"	SCHEDULE 80		
		2 1/2" - 6"	SCHEDULE 40		
	8" - 24"	SCHEDULE 20			
JOINTS	TYPE	SCREWED	SOCKET WELDED	BUTT WELDED	FLANGED
	USE FOR PIPE SIZE (INCL)	1/4" - 2"	NONE	2 1/2" & LARGER	2 1/2" - 12" (5)
FLANGES	MATERIAL, ASTM				A105
	PRESSURE CLASS, ANSI B16.5				300
	FACING				1/8" RAISED FACE
	GASKETS				FLAT RING 1/8" THICK (3)
	BOLT STUDS, ASTM				A307 B
	NUTS, ASTM				A194 2H
FITTINGS	MATERIAL, ASTM	A197 MALLEABLE		A234 WPB	A126 A OR B
	PRESSURE CLASS, ANSI B16.1 B16.3 B16.9	300		---	250
	MINIMUM WALL THICKNESS	---		SAME AS PIPE	---
	WELDING END	---		STD. BEVEL (2) FLAT RING	---
	UNIONS	GROUND JOINT SWEATED		---	---
VALVES - RISING STEM	BODY MATERIAL, ASTM	B51 BRONZE			A126 A OR B CAST IRON (4)
	PRESSURE CLASS, ANSI	300			250
	BONNET TYPE	UNION			BOLTED
	INTERNAL AND TRIM	CHROME STEEL BALL			RENEWABLE BRONZE
	BYPASS REQUIRED ON VALVES LARGER THAN:	---			---
<p>NOTES:</p> <p>(1) ALL THREADED PIPE SHALL BE SEAMLESS, ASTM A53 (TYPE S) OR A106.</p> <p>(2) NO BACKING RING 3 1/2" AND SMALLER.</p> <p>(3) USE GARLOCK BLUE-GARD 3000 FOR WATER, STEAM, OIL, AND GASOLINE ONLY.</p> <p>(4) VALVES LARGER THAN 12" USE A216 WCB CLASS 300.</p> <p>(5) FOR PIPING 14" - 24" DIAMETER, RATING IS REDUCED TO 200 PSIG AT 400°F.</p>					
 Stanley Consultants Inc.					
DESIGNED		DRAWN		CHECKED	
C.R.H.		C.R.H.		H.L.G.	
APPROVED		DATE		4-24-87	
MECHANICAL STANDARD PIPING DESIGN TABLE			GENERAL SERVICE PIPING CLASS ST250A1 250 PSIG 406°F		SCALE NONE
					NO. M-1715
					REV. 1

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 CAD 11-96
 STANLEY CONSULTANTS

END OF SECTION

- 1) C. Kim
- 2) D. Rollins

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Gate valves.
- B. Globe valves.
- C. Steam pressure reducing station

1.02 RELATED REQUIREMENTS

- A. Section 23 09 13 – Instrumentation and Control Devices for HVAC: Steam control valves for steam heat control assembly.

1.03 QUALITY ASSURANCE

- A. International Plumbing Code.
- B. International Mechanical Code.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Valves meeting the requirements specified as manufactured by Spence, Crane, Jenkins, or approved equal.
- B. Wherever possible, provide valves of same manufacturer throughout.
- C. Manufacturer's name and pressure rating shall be clearly marked on outside of valve body.

2.02 GATE VALVES

- A. 2-1/2" or larger:
 - 1. Body: Flanged OS&Y iron.
 - 2. Solid bronze wedge, rising stem.
 - 3. Pressure class: See valve schedule in mechanical drawings.
 - 4. Internals: Renewable bronze.
 - 5. Packing: Graphite impregnated non-asbestos fibers.
 - 6. Manufacturer: Crane, Jenkins, or approved equal.

2.03 GLOBE VALVES

- A. 2-1/2" through 6".
 - 1. Body: 250 psi, cast iron, OS&Y.
 - 2. Seat ring: Renewable, ASTM B61, bronze.
 - 3. Disc: Renewable, teflon-coated, ASTM B61 bronze.
 - 4. Packing: Graphite impregnated non-asbestos fibers.
 - 5. Stem: ASTM B16 bronze.
 - 6. Manufacturer: Crane, Jenkins, or approved equal.

2.04 STEAM PRESSURE REDUCING STATION

- A. Main valve:
 - 1. Body: ASTM A126, Class B, cast iron.

- 2. Seat and plug: ASTM A314, stainless steel, replaceable.
- 3. Gaskets: ASTM D1170, non-asbestos fibers.
- 4. Pressure class: 250 psig at 450°F.

B. Pilot valve:

- 1. Type: Spring pilot.
- 2. Body: ASTM A126, Class B, cast iron.
- 3. Components: ASTM A314, stainless steel.
- 4. Gaskets: ASTM D1170 non-asbestos fibers.
- 5. Pressure range: 2-30 psig.

C. Inlet pressure: 75 psig.

D. Outlet pressure: 15 psig.

E. Capacity: See equipment schedule in mechanical drawings.

F. Manufacturer: Spence or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install valves with stems upright or horizontal, not inverted.

3.02 STEAM PRESSURE REDUCING STATIONS

A. Connect pilot operator control line downstream far enough to sense true pressure.

B. Rate relief valves for station upstream steam pressure. Size for full installed capacity of reducing station. Set valve to relieve at not more than 20% above reduced pressure.

END OF SECTION

- 1) C. Kim
- 2) D. Rollins

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Insulating and jacketing, including, but not limited to:
 - 1. Piping systems indicated on Drawings.

1.02 SUBMITTALS

- A. Product Data: Schedule for insulating materials, including adhesives, fastening methods, and fitting materials, and intended use. Include catalog sheets indicating density, thermal characteristics, jacket, installation instructions.

1.03 QUALITY ASSURANCE

- A. Products shall conform to NFPA 90A and 90B with special regard to fire hazard classification requirements of NFPA 255, including vapor barriers and adhesives.
- B. Products shall possess a flame spread rating of not over 25 without evidence of continued progressive combustion and a smoke developed rating no higher than 50.
- C. Materials shall be asbestos-free.

1.04 JOB CONDITIONS

- A. Perform Work at ambient and equipment temperatures as recommended by adhesive manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver material to job site in original non-broken factory packaging, labeled with manufacturer's density and thickness.
- B. Protect insulation during storage and in erected state from damage. Remove and replace all damaged insulation and jacketing.

PART 2 PRODUCTS

2.01 ADHESIVES AND COATINGS

- A. Compatible to mechanical surfaces, insulations, and jackets to which they are applied in both wet and dry state.
- B. Fire-retardant, moisture-resistant, mildew-resistant and verminproof.
- C. Suitable for temperature of systems to which they are applied.
- D. Wire mesh reinforcing: 22-gage, 1" galvanized.
- E. Glass fabric reinforcing: Childers Chilglass No. 1, or equal.
- F. Insulation bonding adhesive to metal surfaces: Foster Products Corp. No. 85-20, or equal.
- G. Insulating and finishing cement: P. K. Manufacturing "Quick Cote," Ryder "V-Cement," or equal.
- H. Lap adhesives: Foster Products Corp. No. 85-20, or equal.

- I. Lagging adhesives: Foster Products Corp. No. 30-36, or equal.
- J. PVC jacket lap and seam adhesive: "Zeston" Perma-weld adhesive by Manville.

2.02 JACKETS

- A. Puncture resistance rating based on ASTM D781 test method.
- B. Permeance ratings based on ASTM E96, Procedure A.
- C. Type P-1 jacket:
 - 1. Material: Heavy-duty, fire-retardant, glass fiber reinforced material with self-sealing lap.
 - 2. Factory applied to insulation.
 - 3. Finish: White vinyl or white kraft suitable for painting.
 - 4. Bench puncture resistance: 50 units minimum.
 - 5. Permeance: 0.02 perms, maximum.
 - 6. Vapor barrier: 0.001" aluminum foil adhered to inner surface of jacket.
 - 7. Manufacturer: Owens-Corning Type ASJ, or equal.
- D. Banding:
 - 1. Over aluminum jacketing with insulation less than 13" diameter: Stainless steel, 1/2" x 0.020"; A. J. Gerrard & Co., No. 305-SS with No. 202-SS seals.
 - 2. Over aluminum jacketing with insulation larger than 13", but less than 6'-0" in diameter: Stainless steel, 3/4" x 0.020"; A. J. Gerrard & Co., No. 311-SS with No. 204-SS seals.
 - 3. Over aluminum jacketing with insulation larger than 6'-0" diameter: Stainless steel, 3/4" x 0.022" Expand-R-Strap"; A. J. Gerrard & Co.
 - 4. Maximum spacing 12" oc.

2.03 INSULATION

- A. Insulating materials: Fire-retardant, moisture- and mildew-resistant, and verminproof. Insulation shall be suitable to receive jackets, adhesives, and coatings as indicated.
- B. Glass fiber insulation: Inert inorganic material, noncorrosive to mechanical surfaces, preformed into flexible or rigid board as indicated, suitable for temperatures to 450°F.
- C. Insulating cement: P. K. "Super Stick" or Ryder "G.P.," dry density 34 lb/cu ft, thermal conductivity 0.91 Btu-in/hr-sq ft-°F at 400°F, or other asbestos-free equal suitable for same temperature range as adjacent pipe or insulation.
- D. Filling and finishing cement: P. K. "Quick Cote" or Ryder "MW," dry density 40 lb/cu ft, thermal conductivity 0.89 Btu-in/hr-sq ft-°F at 400°F.
- E. Type BS-2 rigid fiberglass insulation:
 - 1. Temperature rating: -20 to 850°F only for pipe insulation.
 - 2. Density: 3 lb/cu ft.
 - 3. Conductivity: Not more than 0.22 Btu-in/hr-sq ft-°F at 75°F.
 - 4. Manufacturer: Owens-Corning Fiberglas 25, or equal.

2.04 REMOVABLE INSULATION BLANKET

- A. Application: Use for control, isolation, and pressure reducing valves as shown on drawings with 2" overlap onto other insulation.
- B. Inner and outer jackets and gussets: Teflon-coated fiberglass cloth.
- C. Thickness: 2" fiberglass.

- D. Seams: Factory-sewn.
- E. Attachment: Stainless steel "D" rings, Teflon-coated strap, and industrial strength Velcro.
- F. Manufacturer: TANI Division, or approved equal.

PART 3 EXECUTION

3.01 PREPARATION

- A. Do not install covering before piping and equipment has been tested.
- B. Verify surface is clean and dry prior to installation. Verify insulation is dry before and during application. Finish with systems at operating conditions.

3.02 INSTALLATION - GENERAL

- A. Insulate fittings, in-line specialties, and valves. Do not insulate unions, flanges necessary for maintenance of equipment, strainers, flexible connections, and expansion joints. Terminate insulation neatly with plastic material troweled on bevel.
- B. Finish insulation neatly at hangers, supports, and other protrusions.
- C. Locate insulation or cover seams in least visible locations.
- D. Insulating materials shall be installed with necessary joints and terminations, to permit easy access and removal of equipment sections where inspection or frequent service or repair is required, and to allow for expansion.

3.03 INSTALLATION - PIPING, VALVE, AND FITTING INSULATION

- A. Apply insulation to piping with bonding adhesive, with butt joints and longitudinal seams closed tightly.
- B. Laps on factory-applied jackets shall be 1-1/2" minimum width firmly cemented with lap adhesive, or be pressure sealing type lap.
- C. Cover joints with factory furnished tape (2" minimum width) to match jacket, firmly cemented with lap adhesive.
- D. Install factory-molded insulation for fittings as indicated for valve insulation.
- E. For finishing of insulated pipe fittings, one piece PVC fitting covers may be used.
- F. Taper terminations of pipe insulation ends.
- G. Where thermal pipe shields are used at hanger locations, insulation shall extend to thermal shield. Where vapor barrier is required, Contractor shall be responsible for continuity of vapor barrier at thermal shield.
- H. Insulation at anchors, secured directly to pipe surface, shall extend up anchor for distance of 4 times insulation thickness. Assure vapor seal at termination of vapor barrier.
- I. Piping and fittings not to be insulated: Fire protection piping and fittings, sanitary waste, compressed air, natural gas, gasoline, fuel oil, vent, emergency generator radiator piping.

3.04 INSULATION THICKNESS SCHEDULE

- A. Furnish and install insulation and jackets on piping, valves, and piping accessories where required. Thickness shall be in accordance with Mechanical Standard M-1008, or as noted below.
- B. Piping insulation application schedule:

Service	Insulation	Jacket	Thickness
Steam	BS-2	P-1	---

FLUID TEMPERATURE RANGES	39°F & BELOW	40°F TO 60°F	61°F TO 104°F	105°F TO 140°F	141°F TO 200°F	201°F TO 250°F	251°F TO 350°F	351°F TO 400°F
NOMINAL PIPE SIZE								
LESS THAN 1	0.5	0.5	0.5	0.5	1.0	1.5	1.5	2.5
1 - 1.25	1.0	0.5	0.5	0.5	1.0	1.5	2.5	3.0
1.5 - 3	1.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
4 - 8	1.0	1.0	1.0	1.0	1.5	2.0	3.0	4.0
8 & LARGER	1.5	1.0	1.0	1.0	1.5	2.0	3.0	4.0

NOTES:

1. INSULATION THICKNESSES ARE BASED ON ANSI/ASHRAE/IESNA STANDARD 90.1.
2. ON OUTDOOR EQUIPMENT AND PIPING, THE INSULATING THICKNESS SHOWN ABOVE SHALL BE INCREASED 0.5".
3. INSULATION THICKNESSES SHOWN ARE MINIMUM THICKNESSES AND DO NOT INCLUDE FINISHING OR SEALING COATS.
4. THE MINIMUM INSULATION THICKNESSES ARE BASED ON INSULATION WITHIN THE FOLLOWING CONDUCTIVITY RANGES.

CONDUCTIVITY MEAN RATING TEMPERATURE	100°F	125°F	150°F	200°F	250°F
CONDUCTIVITY (BTU-IN/HR FT-°F)	0.22 - 0.28	0.25 - 0.29	0.27 - 0.30	0.29 - 0.32	0.32 - 0.34

FOR INSULATION WITH CONDUCTIVITY VALUES OUTSIDE THE GIVEN RANGES, THE MINIMUM INSULATION THICKNESS SHALL BE ADJUSTED BASED ON THE FOLLOWING FORMULA.

$$T = r \cdot \left[\left(1 + \frac{t}{r} \right)^{\frac{K}{k}} - 1 \right]$$

WHERE:

- T = MINIMUM INSULATION THICKNESS IN INCHES.
- r = ACTUAL OUTSIDE PIPE RADIUS IN INCHES
- t = MINIMUM THICKNESS FROM ABOVE TABLE.
- K = CONDUCTIVITY OF ALTERNATE MATERIAL AT MEAN RATING TEMPERATURE INDICATED FOR THE APPLICABLE FLUID TEMPERATURE IN BTU-IN/HR FT-°F
- k = THE UPPER VALUE OF THE CONDUCTIVITY RANGE LISTED IN THE ABOVE TABLE FOR THE APPLICABLE FLUID TEMPERATURE.

3- GENERAL	TJL	JJB	MAE	7/13/2007
2- REV HEADING	JBP	SJS	SJS	10/6/1995
1- REVS & CADD	TRK	SJS	SJS	9/16/1994
REVISIONS	DES	CHK	APP	DATE



Stanley Consultants INC.

MECHANICAL STANDARD INSULATION	PIPING AND EQUIPMENT INSULATION THICKNESS	SCALE: NONE
		NO. M-1008 REV 3

END OF SECTION

- 1) C. Kim
- 2) D. Rollins

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures, general.
- B. Final reports.
- C. Contractor responsibilities.
- D. Preparation.

1.02 SUBMITTALS

- A. Prior to start of Work, submit name of organization proposed to perform services. Designate managerial responsibilities for coordination of entire testing, adjusting, and balancing.
- B. Submit documentation to confirm organization qualifications.
- C. Submit 3 preliminary specimen copies of each of report forms proposed for use.
- D. Fifteen days prior to Substantial Completion, submit 3 copies of final reports. Submit reports of testing, adjusting, and balancing which is postponed due to seasonal, climatic, occupancy, or other reasons beyond Contractor's control, promptly after execution of those services.
- E. Schedule of start-up to Engineer.
- F. Contractor shall prepare instrument calibration reports in duplicate for each instrument and control loop. Include instrument calibration data and status of equipment. Note any deficiencies yet to be corrected on instruments that are suitable for operation (e.g.: broken lenses, faulty local indicators on transmitters that can still perform correct output transmission) Contractor shall correct these deficiencies at earliest possible date. Copies shall be submitted for Resident Project Representative's review. Each calibration report shall be signed by Contractor's representative witnessing test.
 - 1. Control systems test reports: Typewritten, listing equipment used, person or persons performing tests, date tested, circuits tested, and results of tests.
- G. At completion of Work, Contractor shall submit to Owner certification that equipment has been commissioned and is in operating condition in accordance with Contract Documents.
- H. Final reports:
 - 1. Organization having managerial responsibility shall make reports.
 - 2. Each form: Bear signature of recorder, and that of supervisor of reporting organization.
 - 3. Identify each instrument used and latest date of calibration of each.

1.03 QUALITY ASSURANCE

- A. Comply with procedural standards of certifying association under whose standards service will be performed.
- B. Notify Engineer 3 days prior to beginning of operations.
- C. Accurately record data for each step.
- D. Comply with applicable procedures and standards of certification sponsoring association; either:

1. "National Standards for Field Measurements and Instrumentation, Total Systems Balance, Air Distribution-Hydrionics Systems," by AABC, or "Procedural Standards for Testing, Adjusting and Balancing of Environmental Systems," by NEBB.
 2. Perform services under direction of supervisor who is designated and qualified under certification requirements of sponsoring association.
 3. Calibration and maintenance of instruments shall be in accordance with requirements of standards, and calibration histories for each instrument shall be available for examination.
 4. Accuracy of measurements shall comply with requirements of standards.
- E. Comply fully with procedural standards of certifying association under whose standards service will be performed.
1. Execute each step of prescribed testing, adjusting, and balancing procedures without omission.
 2. Accurately record required data.

1.04 JOB CONDITIONS

- A. Prior to start of testing, adjusting, and balancing, verify that required "job conditions" are met:
1. Systems installation is complete and in full operation.
 2. Outside conditions are within reasonable range relative to design conditions.
 3. Special equipment such as computers, laboratory equipment, and electronic equipment are in full operation.
- B. Verify that requirements for preparation for testing and balancing have been met for elements of each of systems that require testing.

1.05 COORDINATION

- A. Coordinate services with Work of various trades to ensure rapid completion of services.
- B. Promptly report to Engineer any deficiencies noted during performance of services.

PART 2 PRODUCTS

2.01 SYSTEM REQUIREMENTS

- A. Prepare each system for testing and balancing.
- B. Cooperate with testing organization, provide access to equipment and systems. Operate systems at designated times, and under conditions required for proper testing, adjusting, and balancing.
- C. Notify testing organization 7 days prior to time system will be ready for testing, adjusting, and balancing.
- D. Perform specified services with Contractor's qualified personnel, or employ and pay for qualified organization to perform specified services.
- E. Provide instruments required for testing, adjusting, and balancing operations.
1. Make instruments available to Engineer to facilitate spot checks during testing.
 2. Retain possession of instruments; remove from Site at completion of services.
- F. Furnish material, tools, and labor required to perform start-up of each respective item of equipment, instrument and system:
- G. Provide information and assistance required, cooperate with test, adjust, and balance services.
- H. Comply strictly with specified manufacturer's or Engineer's procedures in starting up specified systems.

2.02 MATERIALS

- A. Provide and maintain tools and test equipment in first-class condition and quantities sufficient to assure successful performance and completion of required Work.
- B. Furnish and use materials in accordance with these Specifications. Materials shall be of first-class quality, free from defects or imperfections, of recent manufacture, unused and of classification and grade specified.
- C. Test equipment shall have recent calibration checks by equipment manufacturer or authorized facility to assure accuracy of commissioning process.
- D. Piping system joint leak testing compound: "Leak-Tek," or equal.
- E. Anti-rust compound for packing gland threads and valve stems: "Moly-Cote" or "Fel-Pro."

PART 3 EXECUTION

3.01 PREPARATION

- A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Engineer to facilitate spot checks during testing. Retain possession of instruments and remove at completion of services.
- B. Verify installation of system to be tested is complete and in continuous operation.
- C. Verify ambient conditions and related facilities are in full operation.

3.02 MECHANICAL SYSTEMS

- A. Piping systems:
 - 1. Tighten flanges after system has been placed in operation. Replace flange gaskets which show any sign of leakage after tightening.
 - 2. After system has been placed in operation, clean strainers, dirt pockets, orifices, valves seats, and headers in fluid systems, to assure they are free of foreign materials.
 - 3. Open air vents; remove operating elements. Clean thoroughly, replace internal parts and put back into operation.
 - 4. Repair damaged insulation.
 - 5. Vent gasses trapped in any part of systems.
 - 6. Check piping for leaks at every joint, and at every screwed, flanged, or welded connection.
 - 7. Control valves:
 - a. Inspect both hand and automatic control valves; clean bonnets and stems.
 - b. Tighten packing glands to ensure no leakage, but permit valve stems to operate without galling.
 - c. Replace packing in valves to retain maximum adjustment after system is judged complete.
 - d. Replace packing on any valve that continues to leak.
 - e. Remove and repair bonnets that leak.
 - f. Coat packing gland threads and valve stems with surface preparation of anti-rust compound after cleaning.

3.03 INSTRUMENTATION SYSTEMS

- A. Commission controls and instruments prior to start-up to assure in situ performance in accordance with specifications under simulated operating conditions. Contractor to determine initial start-up conditions.

- B. Remove shipping stops from instruments before starting with procedures listed herein. Contractor shall have instruction manuals available, and shall install miscellaneous components such as charts, illumination, mercury, etc., which have been supplied separately but are integral parts of equipment.
- C. If any doubt exists as to correct method for calibrating or checking calibration of instrument, manufacturer's printed recommendations shall be used.
- D. Many instruments contain small supply pressure gages or output pressure gages. Calibration of these gages will not be required. However, if gage is found to be defective, instrument involved shall be immediately called to attention of Engineer and reporting of its condition confirmed in writing.
- E. If any instrument cannot be properly adjusted, it shall be immediately called to attention of Engineer and report of its condition confirmed in writing.
- F. Instrument check: Verify data on nameplate with respect to conditions of range, operating temperature, specific gravity, and components as stated on unit specifications. Any discrepancies shall be immediately called to attention of Engineer and report of condition confirmed in writing.
- G. Verify that control valve seats are free from foreign material, and are properly positioned for intended service.
- H. Test procedures:
 - 1. Perform Work of placing in initial operation equipment installed or wired under this contract, following instructions and recommendations of equipment manufacturers.
 - a. After energizing and prior to start-up, check control circuits and programs for proper sequence of operation and interlocking functions.
 - b. Wiring changes required as result of such checks shall be properly identified by changing terminal strip and/or wiring markers.
 - 2. Contractor shall provide necessary construction labor to make equipment final adjustments that are required to place systems in good operating condition, and furnish labor to assist in solving instrument or control problems.
 - 3. Contractor shall calibrate instruments and components in accordance with manufacturer's calibration data over full operational range, prove instruments to be within published specification, accuracy, and affix calibration sticker. Instruments shall be calibrated individually and where applicable, as system (i.e., control loop transmitter, controller, and valve). Components which have adjustable features shall be carefully set for specific conditions and applications of this Project. Each calibration sticker shall be signed by Contractor's representative witnessing test.
 - 4. Calibration sticker shall contain the following information: Equipment identification tag number, range of calibration, and date and name of person doing calibration.
 - 5. Valves and operations:
 - a. Control valves: Operation of control valve shall be verified within limits of practicality. Particular attention must be given to manufacturer's instructions and applicable nameplate data in reference to valve spring scale and actuation conditions. Pay close attention to bench set.
 - b. Valve action: Check valve action for conformance to specifications (open or closed on power failure).
 - c. Valve positioner: Check for conformance to specifications relative to spring action and input range (particularly for split range applications), valve action, and length of stroke. If valve positioner is fitted with standard characterized cam, check to see if proper cam is mounted. If specifications call for specially cut cam, refer this item in writing to Engineer for handling. Do not cut or modify standard cam.
 - 6. Acceptable calibration standards:
 - a. Pressure:
 - 1) 0" to 5" w.c.: Inclined water filled manometer graduated in tenths and inches of water.
 - 2) 5" to 60" w.c.: Water manometer graduated in inches of water.
 - 3) 3 to 25 psig: Mercury manometer graduated in psi.
 - 4) 25 to 150 psig: Precision pressure gage, 0-160 psi, 1/4 of 1% accuracy, 8-1/2" dial minimum.

b. Differential:

- 1) 0" to 5" w.c.: Inclined water filled manometer graduated in tenths and inches of water.
- 2) 5" to 300" w.c.: Mercury manometer graduated in inches of water.
- 3) 5 to 25 psig: Mercury manometer graduated in psi.
- 4) Above 25 psig: Use pressure gages listed hereinbefore.

END OF SECTION

- 1) C. Kim
- 2) D. Rollins

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. HVAC instrumentation for use with existing control system.

1.02 SUBMITTALS

- A. Specification Data Sheets for control components.
- B. Complete instruction manual covering function and operation of control components.
- C. Bill of Materials.

1.03 QUALITY ASSURANCE

- A. Manufacturer shall guarantee control device installed under this Specification to be free from defects in workmanship and material under normal use for a period of one year from date of acceptance of building by Owner.
- B. Replace defective material or workmanship within guarantee period, immediately, without cost to Owner.
- C. Control devices shall be by same manufacturer insofar as practicable. Control devices shall be provided by control system manufacturer unless noted otherwise.

PART 2 PRODUCTS

2.01 CONTROL VALVES

- A. Modulating steam valve:
 - 1. Normally closed.
 - 2. Equal percentage throttling plug.
 - 3. Brass seat, stainless steel stems.
 - 4. Replaceable composition disc.
 - 5. Construction:
 - a. 2" and smaller: ASTM B61 bronze body, screwed ends
 - b. 2-1/2" and larger: ASTM A126 cast iron body, bronze trim.
 - 6. Pressure class: 150 psig.
 - 7. Provide positive positioners where needed.
 - 8. Manufacturer:
 - a. Spence or approved equal, as required for application.

2.02 CONTROL VALVE ACTUATORS

- A. Low-voltage, electronic:
 - 1. Power: 24 volts ac or volts dc, to suit application.
 - 2. Size: Adequate to provide smooth modulating action or 2-position action, as required.
 - 3. Input: 0 to 10 volts dc or 4 to 20 mA, as required.
 - 4. Output feedback.
 - 5. Spring return: As required.
 - 6. Manufacturer:
 - a. Spence or approved equal.

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Size control apparatus to supply and/or operate and control devices served.

3.02 INSTALLATION

- A. Wiring associated with new control valves shall be as indicated on design drawings. Programming of new control devices shall be as such to maintain existing sequence of operations.

3.03 TESTING

- A. Tests shall be made from time to time during progress of installation to ensure against leaks.

3.04 ADJUSTMENT

- A. After completion of installation, regulate and adjust controllers, operators, and other equipment provided.

END OF SECTION

- 1) C. Kim
- 2) D. Rollins