

SPECIFICATIONS
FOR
NEW STEAM LINE
FOR

POCATELLO HIGH SCHOOL GYM

POCATELLO SCHOOL DISTRICT #25
POCATELLO, IDAHO

February 2015



Prepared
by

Engineered Systems Associates, Inc.
1355 East Center
Pocatello, Idaho 83201
208-233-0501

INDEX

SECTION I - BIDS & CONTRACT DOCUMENTS

INVITATION TO BID

INSTRUCTIONS TO BIDDERS

BID FORM

CONSTRUCTION CONTRACT

FORM OF BOND

SECTION II - GENERAL SPECIFICATIONS

DIVISION 01: GENERAL PROVISIONS

01002	SCOPE OF WORK
01005	INTERPRETATIONS
01010	ORDINANCES
01015	WORMANSHIP
01018	EXAMINATION OF SITE AND CONDITIONS
01020	FEES & PERMITS
01040	HOLD HARMLESS AGREEMENT
01045	LIENS AND ENCUMBRANCES
01050	EXECUTION, CORRELATION AND INTENT OF DOCUMENTS
01055	DETAIL DRAWINGS AND INSTRUCTIONS
01065	BRAND NAMES AND SUBSTITUTIONS
01070	EQUIPMENT SUBMITTAL
01075	CONTRACTOR SHALL VISIT THE SITE
01080	MATERIALS, EQUIPMENT AND ACCESSORIES
01085	REMOVING OF DEBRIS, ETC.
01090	INSPECTIONS
01092	MAINTENANCE & OPERATING MANUALS
01100	BUILDING DAMAGE TO FURNISHINGS
01105	CONTRACTOR USE OF BUILDING FACILITIES
01110	CO-ORDINATION AND SCHEDULING
01115	TEST RUN
01120	GUARANTEE
01122	PATCHING AND PAINTING
01125	APPLICATIONS FOR PAYMENTS
01130	CONTRACTOR'S LIABILITY FOR TAXES
01135	OWNERSHIP OF REMOVALS
01136	DEMOLITION
01140	ROOFING REPAIRS
01142	ASBESTOS
01144	DATA, FIRE ALARM AND SECURITY
01146	LIQUIDATED DAMAGES
01147	SUPERINTENDENT
01148	CONSTRUCTION MEETINGS
01150	GENERAL CONDITIONS

DIVISION 02: GENERAL WORK

02002 CUTTING AND PATCHING
02002 SUSPENDED ACOUSTICAL TILE CEILINGS
02003 PAINTING
02011 CAST-IN-PLACE CONCRETE

DIVISION 22: PLUMBING

22 0501 COMMON PLUMBING REQUIREMENTS
22 0502 DEMOLITION AND REPAIR
22 0503 PIPE, PIPE FITTINGS, PIPE HANGERS & VALVES
22 0724 PREMOLDED ONE PIECE PVC FITTINGS INSULATION
22 0767 STEAM SUPPLY AND CONDENSATE RETURN PIPING INSULATION
22 0800 FIRE STOPPING
22 1184 STEAM AND CONDENSATE PIPING
22 1185 CONDENSATE RETURN PUMP

DIVISION 26: ELECTRICAL

26 0501 COMMON ELECTRICAL REQUIREMENTS
26 0502 ELECTRICAL DEMOLITION REQUIREMENTS
26 0519 LINE-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
26 0526 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
26 0533 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS
26 2726 WIRING DEVICES

INVITATION TO BID -

Sealed bids for the Pocatello High School New Steam Line project will be received and opened by a Representative of the Board of Trustees of School District No. 25, Bannock County, Idaho, at 3115 Pole Line Road, Pocatello, Idaho 83201, until 10:00 a.m. on March 18, 2015.

NEW STEAM LINE FOR POCATELLO HIGH SCHOOL GYM

Specifications or additional details (including bid forms) may be secured from Engineered Systems Associates, Inc. located at 1355 East Center, Pocatello, Idaho 83201. All bids must be on the forms furnished, all blank spaces filled in, and signed with the name, address, and license number of the Bidder. No qualified bids will be read.

Each bid shall be accompanied by a certified check, cashier's check or a bidder's bond (executed by a qualified surety company with the power to do business in the State of Idaho) in the sum of not less than five percent (5%) of the total bid, made payable to School District No. 25, Bannock County, Pocatello, Idaho. This surety shall be forfeited by the bidder in the event of failure to enter into a contract. Personal and company checks will not be accepted. Compliance with Idaho Public Works Law is required.

The Board of Trustees reserves the right to reject any or all bids or to waive any informalities, or to accept the bid or bids deemed best for School District No. 25, Bannock County, Pocatello, Idaho.

A **mandatory** pre-bid walk-through will be held on March 5th, 2015 at 10:00 a.m. All prime bidders are required to attend. Contact person for this project is Randy Gwynn, School Plant Coordinator

Plans, specifications, proposal forms, and other information are on file for examination at the following locations.

Engineered Systems Associates, Inc.
1355 East Center, Pocatello, Idaho 83201
208-233-0501

Associated General Contractors
984 John Adams Parkway, Idaho Falls, Idaho 83401

One set of documents may be obtained by licensed mechanical and electrical contractors from the Engineer for a refundable deposit of \$100.00. Others may obtain documents at cost, non-refundable.

Paul Vitale, Clerk
School District No. 25

Publish dates: [March 3rd, 2015, March 11th, 2015].

IDAHO STATE JOURNAL

INSTRUCTIONS TO BIDDERS

BIDS:

Sealed "Bids" will be received on or before the time and date set forth under "INVITATION TO BID."

The owner reserves the right to accept or reject any part of a bid, a single bid or all bids.

Bidders submitting a "Bid" on this work will be required to figure and furnish everything as called for by these plans, specifications, and the requirements of the "Bid" sheet.

All bids shall be in a sealed envelope addressed to the Board of Trustees of School District No. 25, 3115 Pole Line Road, Pocatello, Idaho. The following shall be written on the exterior of the envelope:

BIDS FOR POCATELLO HIGH SCHOOL NEW STEAM LINE

Bids to be opened on March 18, 2015 at 10:00 a.m., at the District Office, 3115 Pole Line Rd. Pocatello, Idaho. Bids not hand-delivered at the time of the bid opening must be received in the mail or at the Pocatello/Chubbuck School District No. 25 office no later than 4:00 pm the day prior to the bid opening.

MANDATORY PRE-BID WALK-THROUGH

A mandatory pre-bid walk-through will be held on March 5th, 2015. It is required that all prime bidders attend. The walk-through will begin at 10:00 a.m. at Pocatello High School, 325 N Arthur., Pocatello, Idaho. Access to the building after the walk through must be arranged thru Randy Gwynn, 208-233-2604.

EVIDENCE OF QUALIFICATIONS:

Upon request of the owner, a bidder whose bid is under consideration for award of the contract shall submit, promptly, satisfactory evidence of his financial resources, his experiences, and the organization and equipment he has available for performance of the contract.

BID GUARANTEE:

As a guarantee that, if awarded the contract, the bidder will execute same and furnish bond, each bid will be accompanied by a Certified Check, Cashier's Check or Bid Bond for not less than five percent (5%) of the base bid payable to the Owner. **NO PERSONAL OR COMPANY CHECKS WILL BE ACCEPTED.**

INSURANCE:

All contractors who provide goods or services to the District are required to provide the District with certificates of insurance for General Liability, Auto Liability, Workers Compensation, and Professional Liability, if applicable.

The General Liability and/or Professional Liability certificate must name the District as an additional insured under the contractor's policy.

Certificates are to be provided to the district prior to any work commencing on District property. This would include the placement of any equipment or materials at the work site.

Minimum Insurance Limits

General Liability	\$1,000,000 per occurrence \$1,000,000 products and completed operations \$1,000,000 annual aggregate
Auto Liability	\$1,000,000 per occurrence
Workers' Compensation	Statutory

HOLD HARMLESS AGREEMENTS:

The District expects your work to conform with professional standards. The contractor is expected to hold the District harmless for all damages or claims arising out of the work performed by the contractor. The District will not agree to hold the contractor harmless for damages or claims.

PERFORMANCE BOND:

The successful bidder will be required to furnish an 100% performance bond when entering into the contract work, per Idaho Code Section 54-1926, "...conditioned upon the faithful performance of the contract in accordance with the plans, specifications and conditions thereof."

PAYMENT BOND:

The successful bidder will be required to furnish a 100% payment bond when entering into the contract work, per Idaho code Section 54-1926, "solely for the protection of persons supplying labor or materials, or returning, leasing, or otherwise supplying equipment to the contractor or his subcontractors in the prosecution of the work provided for in such contract."

CONTRACTOR'S LICENSE:

In compliance with the Idaho Laws, the contractor must be registered with the State of Idaho, and hold the required Public Works Contractor's License before obtaining the contract documents and before submitting a bid for this work

RETAINAGE:

The Owner will retain 5% of the Contractor's earned sum to ensure faithful performance and verify that all taxes are paid on projects. The State Tax Commission requires up to 30 days to provide the verification to the Owner.

The five percent retainage may be used by Owner to offset any and all losses incurred by Owner in the course of the performance of the Contract by Contractor, including but not limited to tax liens, defective performance, defective products – including those of subcontractors or other damage caused by Contractor in the performance of this Contract. Owner shall provide Contractor with a written itemization of all sums retained by Owner at the time of its issuance of final payment. Under no circumstances shall Owner retain more than five percent of the contract price without written agreement of Contractor.

OWNER/CONTRACTOR AGREEMENT:

Unless otherwise required in the Bidding documents, the Agreement of the Work will be written on a contract similar to AIA Document A101, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a stipulated sum.

EMPLOYMENT OF RESIDENTS OF IDAHO:

In compliance with Idaho Laws, Sections 44-1001 and 44-1002 Idaho Code, the contractor "...must employ ninety-five percent (95%) bona fide Idaho residents as employees on any such contracts except where under such contracts fifty (50) or less persons are employed the contractor may employ ten percent (10%) nonresidents, provided however, in all cases such employers must give preference to the employment of bona fide Idaho residents in the performance of such work..."

TIME FRAME:

It is essential that this work be completed on schedule. Construction will begin May 25, 2015, and all work must be complete by August 1, 2015. The successful contractor will be required to work double shifts, overtime, or other arrangements as necessary to insure the project will be completed on time. See section 01142 Liquidated Damages.

BID SERVICE:

This project will not be run through the bid service. All sub-bids are to be bid directly to the Prime Bidding Contractors.

STATE TAX:

The successful bidder shall within thirty (30) days of award of bid, file appropriate documents with the State Tax Commission as required by the Idaho Code Section 54-1904 A.

END OF INSTRUCTIONS TO BIDDERS

POCATELLO HIGH SCHOOL GYM NEW STEAM LINE

BID FORM

TO: Pocatello School District #25

GENTLEMEN:

The Undersigned hereby submits the following proposals:

1. BID ITEM:

Having carefully examined the Specifications and Drawings entitled:

2015- NEW STEAM LINE
FOR
POCATELLO HIGH SCHOOL GYM

as well as the premises and conditions affecting the work, the undersigned proposes to furnish all labor and materials and to perform all work as required by and in strict accordance with the above-named documents for the following sum:

BASE BID: (\$ _____)

2. CONTRACT:

If the undersigned be notified of the acceptance of this proposal,
_____ agrees to execute a contract for
the above work, for a compensation of the above stated amount.

3. COMPLETION DATE:

The Undersigned hereby also agrees to complete the work contemplated on or before August 1, 2015, and agrees to the Liquidated Damages for work not substantially complete by this date.

The Undersigned acknowledges receipt of addenda numbers ____, ____, ____.

4. ALCOHOL AND DRUG-FREE WORKPLACE:

Pursuant to Idaho Code, Section 72-1717 I, the undersigned certify that

(Name of contractor)

is in compliance with the provisions of Idaho Code, Section 72-1717 and will maintain such program throughout the life of this contract and shall subcontract work only to subcontractors meeting the requirements of Idaho Code, Section 72-1717 (1)(a).

Dated at _____ this _____ day
of _____ 2015.

Very truly yours,

Bidder

Street or Building Address

Authorized Signature, Title

City State Zip

Idaho Public Works License No.

Telephone

WORKERS COMPENSATION AND EMPLOYEE LIABILITY EXPIRATION DATE: _____

SUB-CONTRACTORS WHO SHALL BE UTILIZED ON THIS CONTRACT:

PLUMBING: (name) _____

(Address): _____

Idaho Public Works Contractors License No.: _____

Idaho Plumbing Contractors License No.: _____

HEATING & AIR CONDITIONING (Name) : _____

(Address): _____

Idaho Public Works Contractors License No.: _____

ELECTRICAL (Name): _____

(Address): _____

Idaho Public Works License No.: _____

Idaho Electrical Contractor's License No.: _____

END OF BID FORM FOR **POCATELLO HIGH SCHOOL GYM NEW STEAM LINE**

CONSTRUCTION CONTRACT

This contract is made and entered into, effective as of «**ContractDate**», by and between School District No. 25, Bannock County, Idaho, («**Owner**»), and «**Company**», («**Contractor**»), a company duly licensed as a public works contractor in the State of Idaho, as follows:

1. **DESCRIPTION OF WORK.** Contractor shall perform the following described work, in accordance with the contract plans and specifications, more particularly described below:

NEW STEAM LINE
FOR
POCATELLO HIGH SCHOOL GYM

2. **CONTRACT DOCUMENTS.** The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings Specifications, Addenda issues prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement; these form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreement either written or oral.
3. **CONTRACT PRICE.** Owner agrees to pay Contractor, for the work described, the total price of «**ContractAmount**». Payment of this amount is subject to additions or deductions in accordance with the provisions of this contract.
4. **UNIT PRICES.** Unit prices, if any, are as follows:
UNIT PRICES GO HERE OR STATE "NONE"
5. **PAYMENT SCHEDULE.** Based upon applications for payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided in these Contract Documents.

Each Application for Payment shall be based on the most recent statement of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials, or equipment, which have not been delivered and stored at the site.

Owner shall make final payment to Contractor no later than 30-days after the issuance of the Architect's final Certificate for Payment or within thirty (30) days after the work is completed, if the contract is at that time fully performed, and subject to the condition that final payment shall not be due until Contractor has delivered to Owner a complete release of all liens arising out of the contract, or receipts in full covering all labor, materials, and equipment for which a lien could be filed. Notwithstanding the above, Owner will retain five percent of the contract price from the final payment to be released to the Contractor when the Owner receives a tax release from the Idaho State Tax Commission. The five percent retainage may be used by Owner to offset any and all losses incurred by Owner in the course of the performance of the Contract by Contractor, including but not limited to tax liens, defective performance, defective products – including those of subcontractors or other damage caused by Contractor in the performance of this Contract. Owner shall provide Contractor with a written

itemization of all sums retained by Owner at the time of its issuance of final payment. Under no circumstances shall Owner retain more than five percent of the contract price without written agreement of Contractor. In the event that progress payments will be made under this contract, the payment schedule will be set forth below or in an attachment hereto:

Provided that an Application for Payment is received by the Owner not later than the Twenty Fifth (25th) day of a month, the Owner shall make payment to the Contractor not later than the Fifteenth (15th) day of the following month. If an Application for Payment is received by the Owner after the application date fixed above, payment shall be made by the Owner not later than Thirty (30) days after the Owner receives the Application for Payment."

6. **EFFECT OF PAYMENT.** Owner by making payment waives all claims except those arising out of:
 - A. Faulty work appearing after final payment is made;
 - B. Work that does not comply with this contract;
 - C. Outstanding claims of lien;
 - D. Failure of Contractor to comply with any special guarantees required by the contract. Contractor, by accepting final payment, waives all claims except those that he has previously made in writing, and which remain unsettled at the time of acceptance.

7. **STARTING AND COMPLETION DATES.** Construction under this contract shall begin on May 25th, 2015, and be completed by August, 1, 2015.

8. **RESPONSIBILITIES OF OWNER.** Owner shall furnish all necessary surveys for the work, and shall secure and pay for easements for permanent structures or permanent changes in existing structures or facilities on the work site, or which are necessary for its proper completion.

Owner reserves the right to let other contracts for construction work to be performed at the work site. Contractor shall cooperate with all other contractors to the effect that their work shall not be impeded by his construction, and shall give such other contractors access to the work site necessary to perform their contracts.

9. **RESPONSIBILITIES OF CONTRACTOR.** Contractor's duties and rights in connection with the above-described project are as follow:
 - A. Responsibility for the Supervision of Construction. Contractor shall be solely responsible for all construction under this contract, including the techniques, sequences, procedures, and means, and for coordination for all work. Contractor shall supervise and direct the work to the best of his ability, and give it all the attention necessary for such proper supervision and direction. The project shall be completed in a proper, workmanlike manner, consistent with the highest standards of quality in the community.
 - B. Furnishing of Labor, Materials, etc. Contractor shall provide and pay for all labor, materials, and equipment, including tools, equipment, and machinery, utilities, including water, transportation, and all other facilities and services necessary for the proper completion of work on the project in accordance with the contract. Ninety-five percent (95%) of Contractor's employees must be bona fide Idaho residents as required by Idaho Code § 44-1001.
 - C. Procurement of Licenses and Permits. Contractor shall pay all taxes required by law in connection with work on the project in accordance with this contract including sales, use, and similar taxes, and shall secure all licenses and permits necessary for proper completion of the work, paying the fees for

such licenses and permits. Contractor represents that he is authorized to do business in the State of Idaho and, pursuant to Idaho Code §63-1502, shall provide evidence that he is so qualified.

D. Payment of Taxes.

- i Pursuant to Idaho Code §63-1503, Contractor agrees to pay promptly when due all taxes (other than on real property), excises and license fees due to the state, its subdivisions, and municipal and quasi-municipal corporation therein accrued or accruing during the term of this contract, whether or not the same shall be payable at the end of such term. If the said taxes, excises, and license fees are not payable at the end of said term, but liability for the payment thereof exists, even though the same constitute liens upon his property, to secure the same to the satisfaction of the respective officers charged with the collection thereof. In the event of the Contractor's default in the payment or securing of such taxes, excises, and license fees, the Contractor hereby consents that the Owner may withhold from any payment due to the Contractor under this contract, the estimated amount of such accrued and accruing taxes, excises, and license fees for the benefit of all taxing units to which said Contractor is liable.
- ii Pursuant to Idaho Code §63-1502, Contractor shall provide evidence that he has paid or secured to the satisfaction of the respective taxing units, as defined in Idaho Code §63-1501, all taxes for which he or his property is liable then due or delinquent.
- iii Pursuant to Idaho Code §63-1504, before Owner shall approve any claim on account of construction work performed as required by this contract, Contractor (or any sub-contractor claimant) must furnish evidence to Owner that he (i.e. Contractor or any sub-contractor, as the case may be) has paid all taxes, excises and license fees due to the state and its taxing units, due and payable during the term of this contract for such construction, and that he has secured all such taxes, excises, and license fees liability for the payment of which has accrued during the term of this contract, notwithstanding they may not yet be due or payable.

E. Except as otherwise provided in Idaho Code §44-1002, Contractor must employ ninety-five percent (95%) bona fide Idaho residents as employees on the project unless fifty (50) or less persons are employed in which event Contractor may employ ten percent (10%) nonresidents, provided however, in any case Contractor must give preference to the employment of bona fide residents in the performance of said work.

F. Compliance With Construction Laws and Regulations. Contractor shall comply with all laws and ordinances, and the rules, regulations, or orders of all public authorities relating to the performance of the work under and pursuant to this contract. If any of this contract is at variance with any such laws, ordinances, rules, regulations, or orders, he shall notify Owner promptly on discovery of such variance.

G. Responsibility for Negligence of Employees and Subcontractors. Contractor assumes full responsibility for acts, negligence, or omissions of all his employees on the project, for those of his subcontractors and their employees, and for those of all other persons doing work under a contract with him. Smoking and alcohol are prohibited on school property. Unauthorized persons are not allowed on the job site.

H. Warranty of Fitness of Equipment and Materials. Contractor represents and warrants to Owner that all equipment and materials used in the work, and made a part of the structures on such work, or placed permanently in connection with such work, will be new, of good quality, free of defects, and in conformity with this contract. It is understood and agreed between the parties to this contract that all equipment and materials not so in conformity will be considered defective.

I. Clean-up. Contractor agrees to keep the work premises and adjoining ways free of waste material and rubbish caused by his work or that of his subcontractors. Contractor further agrees to remove all such waste material and rubbish on termination of the project, together with all of his tools, equipment, machinery, and surplus materials. Contractor agrees, on terminating his work at the site, to conduct general clean-up operations, including the cleaning of all glass surfaces, paved streets and walks, steps, and interior floors and walls.

J. Indemnity and Hold Harmless Agreement.

- i Contractor agrees to indemnify and hold harmless Owner, and its agents and employees, from and against any and all claims, damages, losses, and expenses, including reasonable attorney's fees in case it shall be necessary to file an action, arising out of performance of the work in this contract, that is (a) for bodily injury, illness, or death, or for property damage, including loss of use, and (b) caused in whole or in part by Contractor's intentional and/or negligent act or omission, the act of an employee or agent of the Contractor or that of a subcontractor.
- ii Contractor further agrees to indemnify, save harmless, and make whole, Owner from any and all defects appearing or developing in the workmanship or materials performed or furnished under this Contract for a period of one (1) year after the acceptance thereof by Owner.

K. Performance and Payment Bonds. Contemporaneously with the execution of this contract, Contractor shall provide performance and payment bonds in the form required by Idaho Code § 54-1926. The bonds shall be eighty-five percent (85%) of the contract price and shall provide Owner with security for faithful performance of the contract and also provide security for protection of persons supplying labor and/or materials for the contract.

10. **TIME OF ESSENCE; EXTENSION OF TIME.** All times stated in this contract are of the essence. The time stated in this contract may be extended by a change order from Owner for such reasonable time as it may determine, when in its opinion Contractor is delayed in work progress by changes ordered, labor disputes, fire, prolonged transportation delays, injuries, or other causes beyond Contractor's control or which justify the delay. Otherwise, in the event the project is not completed by the scheduled completion date, Contractor shall be required to pay Owner as liquidated damages the sum of \$500 for each calendar day, after the scheduled completion date, that the project is unfinished.

11. **SUBCONTRACTORS.** Contractor agrees to furnish Owner, prior to the execution of this contract, with a list of names of subcontractors to whom he proposes to award the principal portions of the work to be subcontracted by him.

A subcontractor, for the purposes of this contract, shall be a person with whom Contractor has a direct contract for work at the project site.

Contractor agrees not to employ a subcontractor to whose employment Owner reasonably objects, nor shall Contractor be required to hire a subcontractor to whose employment he reasonably objects.

All contracts between Contractor and subcontractor shall conform to the provisions of this contract, and shall incorporate in them the relevant provisions of this contract.

12. **ARBITRATION.** All claims and disputes relating to this contract shall be subject to arbitration at the option of either Owner or Contractor in accordance with the Arbitration Rules of the American Arbitration Association for the construction industry.

- A. A formal written demand for Arbitration shall be filed with BOTH the other party to this contract AND with the American Arbitration Association, within a reasonable time after the dispute has arisen, but NOT LATER THAN SIXTY (60) DAYS after the claim or dispute arose.

- B. A “claim” or “dispute” under this Paragraph arises when the claiming or disputing party FIRST knew or reasonably should have known of the subject matter of the “claim” or “dispute.” The purpose of this Paragraph is to encourage the prompt resolution of any and all “claims” or “disputes.” As a result, any doubts regarding the determination of when such notice occurred shall be resolved by giving all due deference to the EARLIEST date of notice. The determination of when a “claim” or “dispute” occurred shall not be determined by reference to the date where an “impasse” had occurred.
- C. The Arbitrator is authorized to award reasonable attorney fees to the prevailing party.

13. **INSURANCE.** Contractor agrees to keep in force at his own expense during the entire period of construction on the project such liability insurance as will protect him from claims, under workers’ compensation and other employee benefit laws, for bodily injury and death, and for property damage, that may arise out of work under this contract, whether directly or indirectly by Contractor, or directly or indirectly by a subcontractor. The minimum liability limits of such insurance shall not be less than the limits required by law for that type of damage claim. Proof of such insurance shall be filed by Contractor with Owner within a reasonable time after execution of this contract. Contractor shall be responsible for insuring all construction materials, tools and equipment stored at the job site.

14. **CORRECTING WORK.** When it appears to the Owner or the Contractor during the course of construction that any work does not conform to the provisions of this contract, Contractor shall make necessary corrections so that such work will so conform, and in addition will correct any defects caused by faulty materials, equipment, or quality of performance in work supervised by him or by a subcontractor, appearing within one (1) year from the date of final payment, or within such longer period as may be prescribed by law.

15. **WORK CHANGES.** Owner reserves the right to order work changes in the nature of additions, deletions, or modifications, without invalidating this contract, and agrees to make corresponding adjustments in the contract price and time for completion.

All changes will be authorized by a written change order signed by Owner. The change order will include conforming changes in the contract price and completion time.

Work shall be changed, and the contract price and completion time shall be modified only as set out in the written change order. No work is to be initiated without the written change order in place.

Any adjustment in the contract price resulting in a credit or a charge to Owner shall be determined by mutual contract of the parties, or by arbitration, before starting the work involved in the change.

The total allowance for combined overhead and profit for changes shall be included in the total cost to the

owner and shall be based on the following schedule.

- A. For the Contractor, 10% over cost.
- B. For the Sub-Contractor, 15% over cost to be divided 10% for Sub-Contractor and 5% for Contractor.
- C. For any Sub-Subcontractor, 15% over cost to be divided 5% for Contractor, 5% for Sub-Contractor, and 5% for Sub-Subcontractor.

16. **CONTRACTOR'S TERMINATION.** Owner may, on five days notice to Contractor, terminate this contract before the completion date specified in this contract, or extended times provided by approved change orders, and without prejudice to any other remedy they may have, if Contractor defaults in performance of any provision in this contract, or fails to carry out his work in accordance with the provisions of the contract documents. If the unpaid balance on the contract price at the time of such termination exceeds the expense of finishing the work, owners will pay such excess to Contractor. If the expense of finishing the work exceeds the unpaid balance at the time of termination, Contractor agrees to pay the difference to Owners.

17. **GOVERNING LAW.** It is agreed that this contract shall be governed by, construed, and enforced in accordance with the laws of the State of Idaho.

18. **GENDER AND NUMBER.** As used in this contract, the masculine, feminine, or neuter gender, and the singular or plural number, each shall be deemed to include the other whenever the context so indicates.

19. **ATTORNEY FEES.** In the event that any action, including Arbitration, is filed in relation to this contract, the unsuccessful party in the action shall pay to the prevailing party, in addition to all the sums that either party may be called on to pay at Arbitration, a reasonable sum for the successful party's attorney's fees.

20. **ENTIRE AGREEMENT.** This contract shall constitute the entire agreement between the parties and any prior understanding or representation of any kind preceding the date of this contract shall not be binding upon either party except to the extent incorporated in this contract.

21. **MODIFICATION OF AGREEMENT.** Any modification of this contract or additional obligation assumed by either party in connection with this agreement shall not be binding upon either party except to the extent an amendment in writing, executed by both the Owner and the Contractor.

22. **NOTICES.** Any notice provided for or concerning this contract shall be in writing and be deemed sufficiently given when sent by certified or registered mail and addressed as follows:

To: Owner
School District No. 25
3115 Poleline Rd.
Pocatello, Idaho 83201-6119

To: Engineered Systems Assoc., Inc.
1355 East Center
Pocatello, Idaho 83201

23. **ASSIGNMENT OF RIGHTS.** The rights of each party under this contract are personal to that party and may not be assigned or transferred to any other person, firm, corporation, or other entity without the prior, express, and written consent of the other party.

24. **PARAGRAPH HEADINGS.** The titles to the paragraphs of this contract are solely for the convenience of the parties and shall not be used to explain, modify, simplify, or aid in the interpretation of the provisions of this contract.

IN WITNESS WHEREOF the parties have executed this contract on the date indicated below:

CONTRACTOR:
«Company»

Dated: _____

By: _____

Title: _____

Attest: _____

OWNER:
School District No. 25
Bannock County, Idaho

Dated: _____

By: _____

Bart J. Reed
Director of Business Operations

Attest: _____

10018M.wpd
REVISED March 1, 2011.cbg
Reviewed/Approved/BR

KNOW ALL MEN: That we _____, Principal,
_____, Surety,

are held firmly bound unto _____, Owner,
in the sum of _____ Dollars
(\$ _____)

for the payment of which we bind ourselves, our legal representatives, successors, and assigns, jointly and severally, firmly by the presents.

WHEREAS, Principal has executed contract with Owner, dated
for

copy of which contract is by reference made a part hereof.

NOW, THEREFORE, if Principal shall faithfully perform such contract and pay all persons who have furnished labor or material for use in or about the improvement and shall indemnify and save harmless the Owner from all cost and indemnify and save harmless the Owner from any defect or defects in any of the workmanship or materials entering into any part of the work which shall develop or be discovered within one year after the final acceptance of such work, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

Provided, that the liability hereunder for defects in materials or workmanship for a period of one year after final acceptance of the work shall not exceed the sum of: _____ Dollars
(\$ _____)

All persons who have furnished labor or materials for use in or about the improvement shall have a direct right of action under the bond, subject to the Owner's priority.

The Contract, including the completion thereof after default, if any, shall be prosecuted under full supervision of a duly qualified Engineer.

Any payment of payments under the bond shall reduce its penalty to the extent of such payment of payments.

No suit or action may be maintained under the bond unless it shall have been instituted within two years from date on which final payment under the contract falls due.

The Owner and Engineer shall cooperate with and assist Surety in prosecuting its rights and claims, if any, against Principal and others by supplying testimony, books, records, and documentary evidences in their possession.

The Surety hereby waives notice of any alterations, extensions, or forbearance made or extended by the Owner or Principal.

In event Principal is in default under the contract as defined therein, Surety will (a) within fifteen days of determination of such default, take over and assume completion of said contract and become entitled to the payment of the balance of the contract price, or (b) pay the Owner in cash the reasonable cost of completion, less the balance of the contract price including retained percentage. The cost of completion shall be fixed by taking bids from at least three responsible contractors, one chosen by the Owner, one by the Engineer, and one by the Surety. The Surety will make such payment within fifteen days after the cost of completion shall have been so determined.

Signed and sealed this _____ day of _____ 2015.

(Principal)

(Surety)

DIVISION 01 - GENERAL PROVISIONS

01002 SCOPE OF WORK

1. The work to be done under this specification includes the furnishing of all labor, equipment, and materials to do all work as specified and shown on the drawings. It is the intent of these specifications that the work shall be complete and ready for operation before acceptance. The work shall include, but is not necessarily limited to, the following:
 - a. Replacement of the existing underground steam and condensate lines with new above grade piping and insulation, new ceilings, and cutting and patching and concrete work required for the replacement work.

01005 INTERPRETATIONS

1. Questions regarding drawings and specifications should be addressed to Engineered Systems Associates, 1355 East Center, Pocatello, Idaho 83201. Questions will be answered by bulletin or addendum addressed to all Bidders. All addenda issued during the time of bidding will be incorporated into the contract. Questions received less than 48 hours before bid time cannot be answered. Contact with District Staff, Board of Trustees, or Administration will be by written permission only.

01010 ORDINANCES

1. The work shall be installed in accordance with the local plumbing and electrical codes, any other government code or ordinance that pertains to this type of work, and to the rules and regulations of the local utility companies.
2. Should these specifications and drawings conflict with any regulatory codes, the most stringent requirement shall govern the proper installation of the work and no extra charge shall be made for any changes required to comply with the code.
3. The contractor hereby binds himself to protect and save harmless the owner from all damages arising from the violation of any and all Federal, State, County, City, and all other laws, rules, regulations, in the performance of the terms of the contract.

01015 WORKMANSHIP

1. Workmanship shall be the best quality of its kind for respective industries, trades, crafts, and practices and shall be acceptable in every respect to the Owner, making good and perfect work in all details of construction.

01018 EXAMINATION OF SITE AND CONDITIONS

1. Before submitting a proposal, Bidders shall carefully examine the drawings and specifications, visit the worksite and fully inform themselves of all existing conditions and limitations, and shall include in their proposal a sum to cover the cost of all items included in the contract and shall rely entirely on their own examination in making their proposal.

01020 FEES & PERMITS

1. The Contractor shall procure all necessary permits, pay for the same and shall obtain all official license for the construction of the work and for temporary obstructions, enclosures, openings of streets for pipes, walls, etc. arising from the construction and completion of the work as mentioned in the specifications. He shall be responsible for all violations of the law for any reason in connection with the construction of the work or caused by obstructing streets, sidewalks, etc., and he shall give all requisite notice to public authorities.

01040 HOLD HARMLESS AGREEMENT

1. In addition to obtaining insurance coverage as required by the Contract Documents above, Contractor shall indemnify and save harmless Owner from and against any and all liability, demands, causes of action, or claims thereof, whether well-founded or otherwise, including the cost of defending the same, for bodily injury to any person whomsoever, (including employees of Owner) or damage to property of any person in the course of, or in connection with, the operations by Contractor under this Contract. No subcontractor shall relieve the Contractor of any of his liability or obligations under the contract. Contractor agrees that he is fully responsible to Owner for acts or omissions of his sub-contractors and their material men and of persons either directly or indirectly employed by them.

01045 LIENS AND ENCUMBRANCES

1. The Contractor, before receiving final payment of the job, shall furnish evidence of satisfactory and complete release on all liens and encumbrances of any nature that he may have placed thereon.
2. All sub-contractors furnishing material must be paid in full and receipted bills therefrom be submitted before final payment is made.

01050 EXECUTION, CORRELATION AND INTENT OF DOCUMENTS

1. Perfect coordination of all the documents comprising the contract is sought in their preparation. The formal contract document shall, however, be construed as precedent to and as superseding provisions in, or inferences drawn from provisions in any or all other documents of the contract in disagreement therewith. In case of disagreement between the drawings and the specifications, the specifications' requirements shall prevail. Requirements shown on the drawings and not cited or contradicted in the specifications or requirements cited in the specifications and not shown on the drawings, shall be as binding upon the parties as though cited in the specifications and shown on the drawings.

01055 DETAIL DRAWINGS AND INSTRUCTIONS

1. Contractor shall check all drawings and any supplementary drawings which may be furnished by the Engineer and shall promptly notify the Engineer of any discrepancies. Each Contractor shall compare all drawings and verify figures before laying out his work and will be responsible for any errors which might have been avoided thereby. When measurements are affected by conditions already established, the Contractor shall take measurements, notwithstanding the giving of scale, or figure, dimensions on the drawings. All questions regarding the figures, drawings, plans and specifications and the interpretation thereof and resolving of conflicts and inconsistencies therein shall be determined by the Engineer, and the work shall be performed in accordance with such determinations and instructions of the Engineer.
2. The omission from the drawings or specifications or the description of details of work which is evidently necessary to carry out the intent of the drawings and specifications, or which is customarily performed, shall not relieve the Contractor from performing such omission and details of work but they shall be performed as if fully, correctly set forth and described in the drawings and specifications.

01060 CHANGES IN THE WORK

1. The owner, without invalidating the contract, may order extra work or make changes by altering, adding to or deducting from the work, the contract sum being adjusted accordingly. All such work shall be executed under the conditions of the original contract, except that any claim for extension of the time caused thereby shall be adjusted at the time of ordering such change.
2. The total allowance for combined overhead and profit for changes shall be included in the total cost to the owner and shall be based on the following schedule: A. For the Contractor, 10% over cost.; B. For the Sub-Contractor, 15% over cost to be divided 10% for Sub-Contractor and 5% for Contractor; and C. For any Sub-Subcontractor, 15% over cost to be divided 5% for Contractor, 5% for Sub-Contractor, and 5% for Sub-Subcontractor.

01065 BRAND NAMES AND SUBSTITUTIONS

1. Reference in this specification to any product or material by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limited competition. The Contractor may, at his option, use any product or material that conforms with this specification for which he has received written approval five days prior to bid opening.
2. Substitution request shall include complete submittal data showing compliance with the specified items and listing any differences from that specified.

01070 EQUIPMENT SUBMITTAL

1. Equipment and materials proposed for installation shall be submitted in six copies to the Engineer by the Contractor for the Engineer's approval or rejection. The schedules shall include catalogs, cuts, drawings and such other descriptive data or samples that are requested by the Engineer. The submittals must be in the Engineer's office not later than ten (10) days after award of contract. Contractor shall not order any equipment until he has received written approval from the Engineer.
2. The contractor shall provide all labor, materials, tools, and equipment, etc. necessary for the complete and substantial execution of everything described in the plans and specifications.

01075 CONTRACTOR SHALL VISIT THE SITE

1. The Contractor shall visit the site before placing his bid in order to become familiar with existing conditions. No extra charge will be paid to the Contractor due to his failure to completely ascertain existing conditions.

01080 MATERIALS, EQUIPMENT AND ACCESSORIES

1. Unless otherwise specified, all equipment, accessories and materials shall be new and undamaged, and the workmanship shall be of the best quality for use intended and shall be acceptable to the Engineer or Owner.
2. Equipment, accessories and materials shall be essentially the standard products of the manufacturer, or as specified herein. Where two or more units of the same class of new equipment are required, these units shall be products of a single manufacturer.
3. The contractor shall make arrangement and coordinate with the Maintenance Dept. for storage of materials and equipment. Any damages of life or property caused by storage of materials on the above indicated place shall be paid for by the contractor, who shall hold the owner harmless for any damages concerning the same.

01085 REMOVING OF DEBRIS, ETC.

1. The contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his employees or work, and at the completion of the work he shall remove all his rubbish from and about the building and all tools and surplus materials and shall leave his work clean. In case of dispute, the owner shall remove the rubbish and surplus materials and charge the cost to the contractor.
2. Upon completion of the work remove all surplus materials and rubbish. Clean all spots resulting from this work from hardware, floors, glass, walls, etc. Do all required patching up and repair of work of other trades damaged by this division of the work and leave the premises in a clean, orderly condition.

01090 INSPECTIONS

1. The Contractor must at all times allow the Owner's authorized representative to come on the job for the purpose of inspection and lend any assistance necessary to help this work along.

01092 MAINTENANCE & OPERATING MANUALS

1. Prior to the pre-final project review, this Contractor shall compile two (2) sets of Maintenance and Operating Instructions. Bind each set in a three-ring loose leaf binder. Manuals shall include, but shall not be limited to, the following:
 - a. Provide a master index at beginning of Manual showing items included. Use plastic index tabs for sections of Manual.
 - b. First section shall have an index tab labeled "General" and shall contain the following information:
 1. One sheet consisting of names, addresses, and phone numbers of Mechanical & Electrical Engineers, General Contractor, and Subcontractors.
 2. One sheet entitled List of Suppliers which gives a complete list of equipment installed with name, address, and phone number of vendor for each item of equipment.
 3. Sheets entitled Description of System which give a general description of the mechanical system. The information should be broken into three categories:
 - Major Equipment Location
 - Descriptions of Systems and Operations
 - Suggested Maintenance and Routines:
 - a) Summary list of mechanical equipment requiring lubrication showing name of equipment, location, and type and frequency of lubrication.
 - b) List of mechanical equipment used indicating name, model, serial number, and name plate data of each item together with number and name associated with each system item.
 - c. The second section shall have an index tab labeled "Equipment" and shall be followed by an index tab for each type of equipment, including plumbing fixtures, temperature controls, doors, ceilings, floor, and electrical.
 1. Include approved copies of submittals for each piece of equipment. Literature shall show capacities and size of equipment used and be marked indicating each specific item with applicable data underlined.
 2. Include manufacturer's published maintenance and operating instructions for each piece of equipment.
 - a) Instructions shall include name of vendor, installation instructions, parts numbers & lists, operation instructions of equipment, and maintenance & lubrication instructions.
 - b) Step-by-step procedure to follow in putting each piece of mechanical equipment into operation.
 - c) Provide schematic control diagrams for each separate fan system, refrigeration system, heating system, control panel, etc. Each diagram shall show locations of start-stop switches, insertion thermostats, room thermostats, thermometers, firestats, pressure gauges, automatic valves, and refrigeration accessories. Mark correct operating settings for each control instrument on these diagrams.
 - d) Provide diagram for electrical control system showing wiring of related electrical control items such as firestats, fuses, interlocks, electrical switches, and relays.
 - e) Provide a drawing of each temperature control panel identifying components on the panels and their function.
 - f) Provide a sequence of control as part of the temperature control section.
 - d. Provide an index tab for the Air Balance and Test Run Reports and insert the reports.
2. These manuals shall be submitted to the Engineer for approval and distribution prior to the pre-final project review.

01100 BUILDING DAMAGE

1. This Contractor shall be responsible for any damage to the building, carpets, furnishings, etc., caused by his workmen. Special care shall be taken to cover all carpets, floors, protect wall and ceilings. If floors are damaged repairs will be at the Contractors expense. If carpets are soiled by this Contractor, he shall clean the carpets at his expense. If building walls are soiled, he shall be required to clean the walls or repaint them. Take special care in moving about in this building facility. Protect stairs with covering and plywood.
2. All walls, floors and ceilings shall be protected in the areas of construction and the areas of access to the construction. Any damage to existing surfaces shall be patched and repaired to match the existing conditions as approved by the Engineer at the Contractor's expense.

01105 CONTRACTOR USE OF BUILDING FACILITIES

1. This Contractor will not be allowed the use of the building rest room facilities, showers, cooking facilities, refrigerators, etc., or to occupy other areas of the building such as classroom facilities. Lunches and food should be eaten in the mechanical room or outside of the building. The Contractor will be responsible to clean the facilities when he leaves the project.
2. The Contractor shall provide onsite temporary toilet facilities for use of Contractor's employees during the period of work on this contract.

01110 CO-ORDINATION AND SCHEDULING

1. Contractor shall confer with the Owner at site to determine most suitable time to perform the work. Once started, the installation shall be completed promptly to get the system back in service as soon as practical.

01115 TEST RUN

1. Contractor shall operate system for such time as necessary to demonstrate satisfactory performance. Make required adjustments and instruct Owner's representative in its proper operation and maintenance.

01120 GUARANTEE

1. Contractor shall warrant and guarantee all work performed by him directly and by his sub-contractors, and shall make good any defect in workmanship or materials which may develop in his work within one year from the date of final acceptance thereof. Any repairs, adjustments or replacements must be made promptly after notification from the Owner of such defects.

01122 PATCHING AND PAINTING EXCEPT WHERE NOTED OTHERWISE.

1. Necessary openings shall be cut to approximately the required size with neat workmanship and with openings properly located for the proper operation of the system and the utility of the space considered. Necessary patching shall be done in such a way that brick and concrete if removed shall be restored as it was. Plaster shall be restored as it was; plaster shall be spackled or re-plastered as required. All surfaces shall be restored with first quality materials of a color to properly match the existing materials surrounding the opening or place where patching has been done.
2. All equipment furnished in finished painted condition by this Contractor shall be left without mark or scratch. Any necessary refinishing to match original shall be done.
3. It is the Contractors responsibility to patch and repair all openings or unfinished areas left by the Contractor and subcontractors due to the demolition of the existing equipment and piping or installation of new equipment and piping except where noted. Areas shall be patched to match the existing conditions where noted. Painting will be done by the Owner.

01125 APPLICATIONS FOR PAYMENTS

1. At least ten (10) days before the request for the first payment on the contract the Contractor shall furnish to the Engineer, for his approval, a schedule of values or a breakdown of the various parts of the work as subdivided in the specifications (for the total equaling the contract price) on forms approved by the Engineer in triplicate. The approved values shall become the basis for determining progress payments and for negotiating change orders. Reference be made to the Contract Agreement, a copy of which is bound with these specifications.
2. At least ten (10) days before each payment falls due, the Contractor shall submit to the Engineer three copies of a statement of the form described above showing the proportionate part of the work performed and materials on the site up to the first of the month, which date shall be the termination of the period covered by the payment. Such statement shall be made in the form approved by the Engineer, but it shall not be binding against the Engineer's judgment.
3. Application for payments dated on or prior to the 25th of the month, shall be made by the 15th of the following month. Application for payments dated after the 25th of the month, payment shall be made within the next pay cycle.
4. The first payment on this project will be made after July 1, 2015.

01130 CONTRACTOR'S LIABILITY FOR TAXES

1. In accordance with Section 3, Chapter 246, Idaho Session Laws, 1937, the Contractor in consideration of securing the business of erecting or construction public works in the state, recognizing that the business in which he is engaged is of a transitory character and that in the pursuit thereof, his property contained therein may be without the state when taxes, excises or license fees to which he is liable become payable, agrees:
 - a. To pay promptly when due all taxes (other than real property) and license fees due to the state, its subdivisions and municipal or quasimunicipal corporation therein accrued or accruing during the term of this Contract, whether or not the same shall be payable at the end of such term.
 - b. That if said taxes, excises and license fees are not payable at the end of such term, both liability for the payment thereof, exists, even though the same constitute liens upon his property to secure the same to the satisfaction of the respective officers charged with the collection thereof;
 - c. That, in the event of his default in the payment of securing of such taxes, excises and license fees, to consent that the department, officer, board or taxing unit entering into the Contract may withhold from any payments due him hereunder the estimated amount of such accrued and accruing taxes, excises and license fees for the benefit of all taxing units to which said Contractor is liable.
 - d. The Contract Sum and any agreed variations there, includes all Federal, State and Local taxes imposed by law.

01135 OWNERSHIP OF REMOVALS

1. The Owner shall have first right to claim any of the existing equipment or materials being removed. The Contractor shall notify the Owner when he is ready to do the demolition and the Owner shall have a maximum of one week to make his wishes known to the Contractor. A list of Owner desired equipment will be issued as an addendum.
2. The Contractor shall be responsible for any or all other removals as may be necessary and required to entirely complete the work included under this contract.
3. All apparatus, equipment, fixtures, electrical work, mechanical work, utilities, piping and all other salvageable materials of whatever character shall carefully be removed by the Contractor and/or Subcontractors and same shall be the property of the Contractor, except where specifically called out on the drawings or listed in the addendum.

01136 DEMOLITION

1. The Contractor shall contain demolition work required in each room or area so as to minimize any dust and damage to other parts of the building.
2. Protect all walls, floors and ceilings where demolition takes place.
3. Remove all material from the building as soon as possible and protect areas of exit from damage from the removed material and equipment.

01142 ASBESTOS

1. Any asbestos encountered shall be called to the attention of the engineer and the owner.
2. All asbestos removal work will be taken care of by the school district under separate contract.

01144 DATA AND SECURITY

1. Any changes necessary to the existing data, security, or speaker system to complete the work specified shall be called to the attention of the engineer and the owner.
2. The owner shall take care of any changes to the existing data, fire alarm, security system, or speaker system under separate contract or with their own forces.

01146 LIQUIDATED DAMAGES

1. The Owner will suffer financial loss in an amount that is difficult to quantify if the Project is not Substantially Complete on the date set forth in the Contract Documents. The Contractor (and his Surety) shall be liable for and shall pay to the Owner the sums hereinafter stipulated as fixed, agreed and liquidated damages, and not as a penalty, for each calendar day of delay until work is Substantially Complete:.

Five Hundred and no/100-----Dollars (\$500.00)

01147 SUPERINTENDENT

1. The Contractor shall employ a competent Superintendent who shall be in attendance at the project site during the performance of any work by the Contractor or his sub-contractors. The Superintendent shall represent the Contractor and communications given to the Superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing.
2. The Superintendent shall not be changed except with the consent of the Engineer unless the Superintendent proves to be unsatisfactory to the Contractor and ceases to be in his employ. Under this circumstance the new Superintendent shall also be satisfactory to the Engineer and the Owner.
3. The Superintendent shall coordinate all work of the sub-contractors so as to insure the work is completed on time and coordinate between all sub-contractors.
4. The Superintendent shall have safety and coordination meetings with all contractors and sub-contractors at least weekly.

01148 CONSTRUCTION MEETINGS

1. At the pre-construction meeting all contractors and sub-contractors shall be present. A construction schedule shall be presented by the contractor.
2. Construction meetings will be scheduled for the project. All contractors and sub-contractors working at the time are expected to be present for the construction meetings.

3. The Owners representative and the Engineer will be present at all construction meetings.

01150 GENERAL CONDITIONS

1. By reference, the Standard Form of the American Institute of Architects for General Conditions of the Contract, A.I.A. Document A 201 is a part of this contract.

END OF DIVISION 01

DIVISION 02: GENERAL WORK

- 02002 CUTTING AND PATCHING
- 02002 SUSPENDED ACOUSTICAL TILE CEILINGS
- 02003 PAINTING
- 02011 CAST-IN-PLACE CONCRETE

DIVISION 02: GENERAL WORK

SECTION 02002 – CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. All existing surfaces that must be cut or demolished as shown on the drawings or as required for the demolition for the existing system and the installation of the new equipment.
- B. All surfaces shall be patched with materials to match the existing surfaces.
- C. All surfaces that are patched shall be finished and ready for painting. All touch-up painting work to be done by the Contractors.
- D. Any wood floors or structures will be patched by this Contractor.
- E. Any concrete masonry walls or structure shall be patched with concrete masonry.
- F. All existing carpet areas and flooring shall be protected with four mil plastic and plywood covering to protect the area where construction work is taking place and the hallways and exits are being used for access by the Contractor.
- G. All hall walls and exits used by the Contractor shall be protected by heavy plastic floor to ceiling to prevent damage by the Contractor during the construction period.

END OF SECTION 02002

SECTION 02002 - SUSPENDED ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Suspended metal grid ceiling system and perimeter trim.

1.2 SYSTEM DESCRIPTION

- A. Suspension system to rigidly secure acoustical ceiling system including integral mechanical and electrical components with maximum deflection of 1/360.

1.3 QUALIFICATIONS

- A. Grid Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years experience.
- B. Acoustical Unit Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

PART 2 - PRODUCTS

2.1 MANUFACTURER'S - SUSPENSION SYSTEM

- A. Armsrong, World Industries, Inc.
- B. USG Interiors.
- C. Substitutions: Under provisions of Section 01600.

2.2 SUSPENSION SYSTEM MATERIALS

- A. Non-fire Rated Grid: ASTM C635, intermediate; exposed T; components die cut and interlocking.
- B. Grid materials: Commercial quality cold rolled steel with galvanized coating.
- C. Exposed Grid Surface Width; 15/16 inch as indicated.
- D. Grid Finish: White.
- E. Accessories: stabilizer bars, clips, splices, edge moldings, and hold down clips required for suspended grid system.
- F. Support Channels and Hangers: Galvanized or Primed steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- G. Wall angles to have 2" support surface as detailed.

2.3 MANUFACTURERS - ACOUSTICAL UNITS

- A. Armstrong, World Industries, inc.
- B. USG Interiors, Inc.

2.4 ACOUSTICAL UNIT MATERIALS

- A. General Acoustical Tile: Armstrong Armatuff - or USG Rock Face, conforming to the following:
- B. Size: 24 x 48 inches and 24 x 24 inches #860.
- C. Thickness: 5/8 inches
- D. Composition: Mineral fiber
- E. Suspension System: Prelude Exposed Tee Grid
- F. Light Reflectance: .75 min. percent
- G. NRC Range: .50 to .60
- H. STC Range: 35 to 39
- I. Edge: Square
- J. Surface Color: White
- K. Surface Finish: Non-directional fissured

2.5 ACCESSORIES

- A. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify site conditions.
- B. Verify that layout hangers will not interfere with other work.

3.2 INSTALLATION - LAY-IN GRID SUSPENSION SYSTEM

- A. Install suspension system in accordance with manufacturer's instructions and as supplemented in this section.
- B. Install system in accordance with ASTM E580 and building fire code requirements.
- C. Install system capable of supporting imposed loads to a deflection of 1/360 maximum.
- D. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.
- E. Install after major above ceiling work is complete. Coordinate the location of hangers with other work.
- F. Hang suspension system independent of walls, columns, ducts, pipes, and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- G. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability. Support fixture loads by supplementary hangers located within 6 inches of each corner; or support components independently.
- I. Do not eccentrically load system or produce rotation of runners.

- J. Install edge molding at intersection of ceiling and vertical surfaces, using longest practical lengths. Miter corners. Provide edge moldings at junctions with other interruptions.

3.3 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Cut tile to fit irregular grid and perimeter edge trim. Field rabbet tile edge. Double cut and field paint exposed edges of tegular units.

3.4 ERECTION TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

3.5 SPARE CEILING TILE

- A. At the end of the project provide to the Owner four complete packages of the ceiling tile used on this project.

END OF SECTION

SECTION 02003 - PAINTING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Surface preparation and field application of paints and coatings for mechanical, plumbing and electrical equipment.
- B. All walls, exposed ceilings, floors, and doors will be painted by School District No. 25.

1.2 SUBMITTALS

- A. Product Data: Provide data on all finishing products.
- B. Manufacturer's Instructions: Indicate any special surface preparation procedures and substrate conditions requiring special attention.
- C. Provide a schedule of paint and coating used, including manufacturer, type, and color.
- D. All paint colors will be selected by the Owner. The Owner has special colors to be used in all of their buildings.

1.3 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years experience.
- B. Applicator: Company specializing in performing the work of this section with minimum three years experience.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers - Paint
 - 1. Benjamin Moore.
 - 2. Columbia.
 - 3. Sherwin Williams.
- B. Manufacturers - Primer Sealers
 - 1. Benjamin Moore.
 - 2. Columbia.
 - 3. Sherwin Williams.
- C. Manufacturers - Block Filler
 - 1. Benjamin Moore.
 - 2. Columbia.
 - 3. Sherwin Williams.

2.2 MATERIALS

- A. Coatings: Ready mixed. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating; good flow and brushing properties; capable of drying or curing free of streaks or sages.
- B. Accessory Materials: Linseed Oil, Shellac, Turpentine, Paint thinners, and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

- C. Patching Materials: Latex filler.
- D. Fastener Head Cover Materials: Latex filler.

2.3 FINISHES

- A. Refer to schedule at end of section for surface finish schedule.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify site conditions. Patch and repair where called for.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces schedules to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- D. Test shop applied primer for compatibility with subsequent cover materials.
- E. Paint all exterior steel and internal steel used to support mechanical equipment and provide roof access.
- F. Paint exposed gas lines inside the building.
- G. Paint exposed gas lines on the roof and exposed up walls with primer and finish paint.
- H. Paint exterior gas lines to the gas meter.

3.2 PREPARATION

- A. Remove electrical plates, hardware, light fixture trim, escutcheons and fittings prior to preparing surfaces or finishing.
- B. Correct defects and clean surfaces which affect work of this section. Remove existing coatings that exhibit loose surface defects.
- C. Seal with shellac and seal marks which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- F. Uncoated Steel and Iron Surfaces (interior and exterior): Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- G. Shop Primed Steel Surfaces (interior and exterior): Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.

3.3 SCHEDULE

- A. Wood - Painted (Trim):
 - 1. One coat of alkyd prime sealer.
 - 2. Two coats of alkyd enamel, semi-gloss.

- B. Steel - Unprimed or Primed (including steel doors):
 - 1. One coat of alkyd primer.
 - 2. Two coats of alkyd enamel, semi-gloss.

- C. Steel - Exterior:
 - 1. One coat alkyd primer.
 - 2. Two coats of alkyd enamel, semi-gloss rated for exterior use.

- D. Steel - Galvanized:
 - 1. One coat of galvanized primer.
 - 2. Two coats of alkyd enamel, semi-gloss.

END OF SECTION

SECTION 02011 – CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Condition and other Division - 01 Specifications Sections apply to the Section.

1.2 SUMMARY:

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Fill-in of existing concrete floor openings at underground piping.

1.1 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

PART 2 - PRODUCTS

2.1 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Admixtures which result in more than 0.1 percent of soluble chloride ions by weight of cement are prohibited.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

2.2 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
 - 2. Minimum Cementitious Materials Content: 520 lb/cu. yd. (309 kg/cu. M).
 - 3. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (24 mm).
 - 4. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

2.3 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.4 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116, furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during deliver, at Project site, or during placement unless approved by Engineer.
- C. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.
 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 4. Slope surfaces uniformly to drains where required.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

3.2 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302. 1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Re-straighten, cut down high spots, and fill low spots. Repeat float passes and re-straightening until surface is left with a uniform, smooth, granular texture.
 1. Apply float finish to surfaces to receive trowel finish.
- C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and re-straighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 1. Apply a trowel finish.

END OF SECTION

END OF DIVISION 02

DIVISION 22: PLUMBING

22 0000 PLUMBING

- 22 0501 COMMON PLUMBING REQUIREMENTS
- 22 0502 DEMOLITION AND REPAIR
- 22 0503 PIPE, PIPE FITTINGS, PIPE HANGERS & VALVES
- 22 0553 IDENTIFICATION FOR PLUMBING PIPES AND EQUIPMENT
- 22 0703 MECHANICAL INSULATION AND FIRE STOPPING
- 22 0724 PREMOLDED ONE PIECE PVC FITTINGS INSULATION
- 22 0767 STEAM SUPPLY AND CONDENSATE RETURN PIPING INSULATION
- 22 0800 FIRE STOPPING

22 1000 PLUMBING PIPING AND VALVES

- 22 1184 STEAM AND CONDENSATE PIPING
- 22 1185 CONDENSATE RETURN PUMP

END TABLE OF CONTENTS

DIVISION 22: PLUMBING

SECTION 22 0501 - COMMON PLUMBING REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Furnish labor, materials, and equipment necessary for completion of work as described in Contract Documents.
- B. It is the intent of these specifications that the systems specified herein are to be complete and operational before being turned over to the owner. During the bidding process, the contractor is to ask questions or call to the engineer's attention any items that are not shown or may be required to make the system complete and operational. Once the project is bid and the contractor has accepted the contract, it is his responsibility to furnish and install all equipment and parts necessary to provide a complete and operational system without additional cost to the owner.
- C. Furnish and install fire stopping materials to seal penetrations through fire rated structures and draft stops.

1.3 SUBMITTALS

- A. Substitutions: By specific designation and description, standards are established for specialties and equipment. Other makes of specialties and equipment of equal quality will be considered provided such proposed substitutions are submitted to the Architect for his approval, complete with specification data showing how it meets the specifications, at least 5 working days prior to bid opening. A list of approved substitutions will be published as an addendum.
 - 1. Submit a single copy of Manufacturer's catalog data including Manufacturer's complete specification for each proposed substitution.
 - 2. The Architect or Engineer is to be the sole judge as to the quality of any material offered as an equal.
- B. Product Data, Shop Drawings: Within 30 days after award of contract, submit 10 sets of Manufacturer's catalog data for each manufactured item.
 - 1. Literature shall include enough information to show complete compliance with Contract Document requirements.
 - 2. Mark literature to indicate specific item with applicable data underlined.
 - 3. Information shall include but not be limited to capacities, ratings, type of material used, guarantee, and such dimensions as are necessary to check space requirements.
 - 4. When accepted, submittal shall be an addition to Contract Documents and shall be in equal force. No variation shall be permitted.
 - 5. Even though the submittals have been accepted by the Engineer, it does not relieve the contractor from meeting all of the requirements of the plans and specifications and providing a complete and operational system.
- C. Drawings of Record: One complete set of blue line mechanical drawings shall be provided for the purpose of showing a complete picture of the work as actually installed.
 - 1. These drawings shall serve as work progress report sheets. Contractor shall make notations neat and legible therein daily as the work proceeds.
 - 2. The drawings shall be kept at the job at a location designated by the Mechanical Engineer.
 - 3. At completion of the project these "as-built" drawings shall be signed by the Contractor, dated, and returned to the Architect.
- D. Operating Instructions and Service Manual: The Mechanical Contractor shall prepare 2 copies of an Operation and Maintenance Manual for all mechanical systems and equipment used in this project. Manuals shall be bound in hard-backed binders and the front cover and spine of each binder shall indicate the name and location of the project. Use plastic tab indexes for all sections. Provide a section for each different type of equipment item. The following items

shall be included in the manual, together with any other pertinent data. This list is not complete and is to be used as a guide.

1. Provide a master index at the beginning of the manual showing all items included.
2. The first section of the manual shall contain:
 - a. Names, addresses, and telephone numbers of Architect, Mechanical Engineer, Electrical Engineer, General Contractor, Plumbing Contractor, Sheet Metal Contractor, and Temperature Control Contractor.
 - b. List of Suppliers which shall include a complete list of each piece of equipment used with the name, address, and telephone number of vendor.
 - c. General Description of Systems including –
 - 1) Location of all major equipment
 - 2) Description of the various mechanical systems
 - 3) Description of operation and control of the mechanical systems
 - 4) Suggested maintenance schedule
 - d. Copy of contractor's written warranty
3. Provide a copy of approved submittal literature for each piece of equipment.
4. Provide maintenance and operation literature published by the manufacturer for each piece of equipment which includes: oiling, lubrication and greasing data; belt sizes, types and lengths; wiring diagrams; step-by-step procedure to follow in putting each piece of mechanical equipment in operation.
5. Include parts numbers of all replaceable items.
6. Provide control diagram and operation sequence, along with labeling of control piping and instruments to match diagram.
7. Include a valve chart indicating valve locations.

1.4 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies:
 1. Perform work in accordance with applicable provisions of local and state Plumbing Code, Gas Ordinances, and adoptions thereof. Provide materials and labor necessary to comply with rules, regulations, and ordinances.
 2. In case of differences between building codes, state laws, local ordinances, utility company regulations, and Contract Documents, the most stringent shall govern. Promptly notify Architect in writing of such differences.
- B. Applicable Specifications: Referenced specifications, standards, and publications shall be of the issues in effect on date of Advertisement for Bid.
 1. "Heating, Ventilating and Air Conditioning Guide" published by the American Society of Heating and Air Conditioning Engineers.
 2. "Engineering Standards" published by the Heating, Piping, and Air Conditioning Contractors National Association.
 3. "2009 International Building Code", "2009 International Mechanical Code", and "2009 International Fire Code" as published by the International Conference of Building Officials.
 4. 2009 International Plumbing Code as published by the International Conference of Building.
 5. "National Electrical Code" as published by the National Fire Protection Association.
 6. "2009 International Energy Conservation Code".

1.5 INSPECTIONS AND PERMITS

- A. Pay for permits, fees, or charges for inspection or other services. Local and state codes and ordinances must be properly executed without expense to Owner and are considered as minimum requirements. Local and state codes and ordinances do not relieve the Contractor from work shown that exceeds minimum requirements.

1.6 ADDITIONAL WORK:

- A. Design is based on equipment as described in the drawing equipment schedule. Any change in foundation bases, electrical wiring, conduit connections, piping, controls and openings required by alternate equipment submitted and approved shall be paid for by this division. All work shall be in accordance with the requirements of the applicable sections.

PART 2 - NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Site Inspection:
 - 1. Examine premises and understand the conditions which may affect performance of work of this Division before submitting proposals for this work.
 - 2. No subsequent allowance for time or money will be considered for any consequence related to failure to examine site conditions.

- B. Drawings:
 - 1. Mechanical drawings show general arrangement of piping, ductwork, equipment, etc, and do not attempt to show complete details of building construction which affect installation. This Contractor shall refer to architectural, structural, and electrical drawings for additional building detail which affect installation of his work.
 - a. Follow mechanical drawings as closely as actual building construction and work of other trades will permit.
 - b. No extra payments will be allowed where piping and/or ductwork must be offset to avoid other work or where minor changes are necessary to facilitate installation.
 - c. Everything shown on the mechanical drawings shall be the responsibility of Mechanical Contractor unless specifically noted otherwise.
 - 2. Consider architectural and structural drawings part of this work insofar as these drawings furnish information relating to design and construction of building. These drawings take precedence over mechanical drawings.
 - 3. Because of small scale of mechanical drawings, it is not possible to indicate all offsets, fittings, and accessories which may be required. Investigate structural and finish conditions affecting this work and arrange work accordingly, providing such fittings, valves, and accessories required to meet conditions. Do not scale drawings for locations of equipment or piping. Refer to large scale dimensioned drawings for exact locations.

- C. Insure that items to be furnished fit space available. Make necessary field measurements to ascertain space requirements including those for connections and furnish and install equipment of size and shape so final installation shall suit true intent and meaning of Contract Documents.
 - 1. If approval is received to use other than specified items, responsibility for specified capacities and insuring that items to be furnished will fit space available lies with this Division.
 - 2. If non-specified equipment is used and it will not fit job site conditions, this Contractor assumes responsibility for replacement with items named in Contract Documents.

3.2 PREPARATION

- A. Cut carefully to minimize necessity for repairs to existing work. Do not cut beams, columns, or trusses.
 - 1. Patch and repair walls, floors, ceilings, and roofs with materials of same quality and appearance as adjacent surfaces unless otherwise shown. Surface finishes shall exactly match existing finishes of same materials.
 - 2. Each Section of this Division shall bear expense of cutting, patching, repairing, and replacing of work of other Sections required because of its fault, error, tardiness, or because of damage done by it.
 - 3. Cutting, patching, repairing, and replacing pavements, sidewalks, roads, and curbs to permit installation of work of this Division is responsibility of Section installing work.

3.3 INSTALLATION

- A. Arrange pipes, ducts, and equipment to permit ready access to valves, unions, traps, starters, motors, control components, and to clear openings of doors and access panels.

3.4 STORAGE AND PROTECTION OF MATERIALS:

- A. Provide storage space for storage of materials and assume complete responsibility for losses due to any cause whatsoever. Storage shall not interfere with traffic conditions in any public thoroughfare.

- B. Protect completed work, work underway, and materials against loss or damage.

- C. Close pipe openings with caps or plugs during installation. Cover fixtures and equipment and protect against dirt, or injury caused by water, chemical, or mechanical accident.

3.5 EXCAVATION AND BACKFILL

- A. Perform necessary excavation of whatever substance encountered for proper laying of all pipes and underground ducts.
 - 1. Excavated materials not required for fill shall be removed from site as directed by Engineer.
 - 2. Excavation shall be carried low enough to allow a minimum coverage over underground piping of 5'-0" or to be below local frost level.
 - 3. Excess excavation below required level shall be backfilled at Contractor's expense with earth, sand, or gravel as directed by Engineer. Tamp ground thoroughly.
 - 4. Ground adjacent to all excavations shall be graded to prevent water running into excavated areas.
- B. Backfill pipe trenches and allow for settlement.
 - 1. Backfill shall be mechanically compacted to same density as surrounding undisturbed earth.
 - 2. Cinders shall not be used in backfilling where steel or iron pipe is used.
 - 3. No backfilling shall be done until installation has been approved by the Engineer.

3.6 COOPERATION

- A. Cooperate with other crafts in coordination of work. Promptly respond when notified that construction is ready for installation of work under Division 22. Contractor will be held responsible for any delays which might be caused by his negligence or failure to cooperate with the other Contractors or crafts.

3.7 SUPERVISION

- A. Provide a competent superintendent in charge of the work at all times. Anyone found incompetent shall be removed at once and replaced by someone satisfactory, when requested by the Architect.

3.8 INSTALLATION CHECK:

- A. An experienced, competent, and authorized representative of the manufacturer or supplier of each item of equipment indicated in the equipment schedule shall visit the project to inspect, check, adjust if necessary, and approve the equipment installation. In each case, the equipment supplier's representative shall be present when the equipment is placed in operation. The equipment supplier's representative shall revisit the project as often as necessary until all trouble is corrected and the equipment installation and operation is satisfactory to the Engineer.
- B. Each equipment supplier's representative shall furnish to the Owner, through the Engineer, a written report certifying the following:
 - 1. Equipment has been properly installed and lubricated.
 - 2. Equipment is in accurate alignment.
 - 3. Equipment is free from any undue stress imposed by connecting piping or anchor bolts.
 - 4. Equipment has been operated under full load conditions.
 - 5. Equipment operated satisfactorily.
- C. All costs for this installation check shall be included in the prices quoted by equipment suppliers.

3.9 CLEANING EQUIPMENT AND PREMISES

- A. Properly lubricate equipment before Owner's acceptance.
- B. Clean exposed piping, equipment, and fixtures. Repair damaged finishes and leave everything in working order.
- C. Remove stickers from fixtures and adjust flush valves.
- D. Trap elements shall be removed during cleaning and flushing period. Replace trap elements and adjust after cleaning and flushing period.

3.10 TESTS

- A. No piping work, fixtures, or equipment shall be concealed or covered until they have been inspected and approved by the inspector. Notify inspector when the work is ready for inspection.
- B. All work shall be completely installed, tested as required by Contract Documents and the city and county ordinances and shall be leak-tight before the inspection is requested.
- C. Tests shall be repeated to the satisfaction of those making the inspections.
- D. Water piping shall be flushed out, tested at 100 psi and left under pressure of supply main or a minimum of 40 psi for the balance of the construction period.

3.11 WARRANTY

- A. Contractor shall guarantee work under Division 22 to be free from inherent defects for a period of one year from acceptance.
 - 1. Contractor shall repair, revise or replace any and all such leaks, failure or inoperativeness due to defective work, materials, or parts free of charge for a period of one year from final acceptance, provided such defect is not due to carelessness in operation or maintenance.
- B. In addition to warranty specified in General Conditions and plumbing systems are to be free from noise in operation that may develop from failure to construct system in accordance with Contract Documents.

3.12 SYSTEM START-UP, OWNER'S INSTRUCTIONS

- A. Owner's Instructions
 - 1. Instruct building maintenance personnel and Owner Representative in operation and maintenance of mechanical systems utilizing Operation & Maintenance Manual when so doing.
 - 2. Minimum instruction periods shall be as follows –
 - a. Plumbing - Four hours.
 - 3. Instruction periods shall occur after Substantial Completion inspection when systems are properly working and before final payment is made.
 - 4. None of these instructional periods shall overlap another.

END OF SECTION 22 0501

SECTION 22 0502 - DEMOLITION AND REPAIR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of Contract, including General and Supplementary Conditions and Section 22 0501 apply to this Section.

1.2 SUMMARY

- A. Under this section remove obsolete piping and mechanical equipment and relocate, reconnect or replace existing piping affected by demolition or new construction. Remove concealed piping abandoned due to demolition or new construction, or cap piping flush with existing surfaces.

1.3 DRAWINGS AND EXISTING CONDITIONS

- A. All relocations, reconnections and removals are not necessarily indicated on the drawings. As such, the Contractor shall make adequate allowance in his proposal for this work as no extra charges will be allowed for these items.

PART 2 - NOT USED

PART 3 - EXECUTION

3.1 TEMPORARY CONNECTIONS

- A. Where existing piping must remain in service to supply occupied areas during construction, provide temporary piping, connections, and equipment to maintain service to such areas. All shall be performed in a neat and safe manner to prevent injury to the building or its occupants.

3.2 EXISTING TO BE ABANDONED

- A. All Required drilling, cutting, block-outs and demolition work required for the removal and/or installation of the mechanical system is the responsibility of this Contractor.
- B. No joists, beams, girders, trusses or columns shall be cut by any Contractor without written permission from the Architect.
- C. The patching, repair, and finishing to existing or new surfaces is the responsibility of this Contractor, unless specifically called for under sections of specifications covering these materials.
- D. Disconnect all equipment that is to be removed or relocated. Relocate any existing equipment that obstructs new construction.

3.3 EXISTING TO REMAIN IN USE

- A. Where affected by demolition or new construction, relocate, replace, extend, or repair piping and equipment to allow continued use of same. Use methods and materials as specified for new construction.

3.4 MATERIALS AND EQUIPMENT REMOVED

- A. All obsolete materials, piping, and equipment shall become the property of the Contractor and be removed from the site promptly.

END OF SECTION 22 0502

SECTION 22 0503 - PIPE, PIPE FITTINGS, PIPE HANGERS & VALVES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of Contract, including General and Supplementary Conditions and Section 22 0501 apply to this Section.

1.2 SUMMARY

- A. General piping and valve materials and installation procedures for all piping systems.

1.3 QUALITY ASSURANCE

- A. Manufacture:
 - 1. Use domestic made valves, pipe and pipe fittings.
- B. General: Support components shall conform to Manufacturer's Standardization Society Specification SP-58.

PART 2 - PRODUCTS

2.1 VALVES

- A. Ball Valves:
 - 1. 2" and smaller for domestic water service:
 - a. Milwaukee BA-100, bronze, screwed, 600# WOG ball valve with Teflon seats
 - b. Victaulic S/722.
 - 2. 2" and smaller for heating hot water service:
 - a. Milwaukee BA-100, bronze, screwed, 600# WOG ball valve with Teflon seats
 - b. Victaulic S/722.
 - 3. 2½" and larger - 3 piece full port, bronze, flanged 400# WOG with seats rated for temperature service.
 - 4. Ball valves shall be used where ever possible.
- B. Butterfly Valves:
 - 1. 2" and Smaller:
 - a. Milwaukee BB2-100, bronze body, 350# WOG, stainless steel disc and stem, viton seal, and lever handle
 - b. Victaulic S/700, 300, 709.
 - 2. 2 ½" and Larger:
 - a. Milwaukee ML-223-E, lug wafer type, iron body, 200# WOG with aluminum-bronze disc, 416 S.S. stem, EPDM liner rated for temperature conditions and multi-lock lever
 - b. Victaulic
 - 3. Butterfly valves may be used in lieu of gate, globe, and ball valves where temperature and pressure allow.
- C. Cutoff service valves may be gate Valves:
 - 1. Up to 2" inclusive: Milwaukee No. 148
 - 2. 2 1/2" and larger: Milwaukee No. F-2885
- D. Valves used in bypasses and for throttling service may be globe valves:
 - 1. Up to 2" inclusive: Milwaukee No. 590
 - 2. 2 1/2" and larger:
 - a. Milwaukee No. 359
 - b. Victaulic actuated butterfly valves
- E. Check Valves:
 - 1. Up to 2" inclusive: Milwaukee No. 509
 - 2. 2 1/2" and larger:
 - a. Milwaukee No. F-2974

b. Victaulic 716, 779

- F. Stop and Waste Cocks:
1. Milwaukee No. F-2885 with 3/4" Milwaukee No. 105 gate valve tapped into pipe on outlet side of main valve.
- G. Use ball valves or butterfly valves everywhere unless noted otherwise.
- H. Approved Manufacturers:
1. Crane
 2. Nibco
 3. Hammond
 4. Stockham
 5. Milwaukee
 6. Victaulic

2.2 PIPE

- A. Steam Supply Piping: Schedule 40-A-120 black steel piping. Ends of all pipe shall be reamed out before being made up into fittings. Use graphite and oil applied to male threads only in making all pipe joint fittings. Fittings shall be standard weight 150 lb. malleable iron screwed pattern up to 2 1/2". Piping over 2 1/2" shall be welded with full weld fittings.
- B. Condensate Piping: Schedule 80 black steel piping. Ends of all pipe shall be reamed out before being made up into fittings. Use graphite and oil applied to male threads only in making up all pipe joint fittings. Fittings shall be standard weight 300 lb. malleable iron screwed pattern up to 2 1/2". Piping over 2 1/2" shall be welded with full weld fittings.

2.3 PIPE HANGERS

- A. Adjustable, malleable iron clevis type of a diameter adequate to support pipe size.
- B. Approved Manufacturers:
1. B-Line Systems Fig. B3100
 2. Grinnell No. 260
 3. Kin-Line 455
 4. Superstrut CL-710

2.4 INSULATING COUPLINGS

- A. Suitable for at least 175 PSIG WP at 250 deg F.
- B. Approved Manufacturers:
1. Central Plastics Co
 2. Victaulic Co
 3. Watts Regulator Co

2.5 EXPANSION JOINTS

- A. Install at all building expansion joints and as shown on the drawings, flexible, or nipple/flexible coupling combinations for added expansion/deflection. Submit Manufacturer's data.
- B. Approved Manufacturers
1. Victaulic Style 155, 150
 2. Grinnell - Gruv-Lok
 3. Garlock Garlflex 8100
 4. Vibration Mountings & Controls, Inc.

2.6 SLEEVES

- A. Sleeves shall be standard weight galvanized iron pipe, Schedule 40 PVC, or 14 gauge galvanized sheet metal two sizes larger than pipe or insulation.
- B. Steel or heavy steel metal of the telescoping type of a size to accommodate pipe and covering wherever it passes through floors, walls, or ceilings.

2.7 INTERMEDIATE ATTACHMENTS

- A. Continuous threaded rod may be used wherever possible.
- B. No chain, wire, or perforated strap shall be used.

2.8 FLOOR AND CEILING PLATES

- A. Brass chrome plated

2.9 APPROVED MANUFACTURERS - Grinnell and Fee/Mason

- A. Concrete Inserts: Grinnell Fig. 282
- B. Pipe Hanger Flange: Grinnell Fig. 163
- C. Vertical Pipe: Grinnell Fig. 261 or equal.
- D. Cast Iron Pipe: Grinnell Fig. 260 clevis hanger or equal
- E. Pipe Attachments for steel pipe with 1" or less of insulation:
 - 1. Grinnell Fig. 108 ring
 - 2. Grinnell Fig. 114 turnbuckle adjuster
 - 3. Or equal

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Furnish and install complete system of piping, valved as indicated or as necessary to completely control entire apparatus. Pipe drawings are diagrammatic and indicate general location and connections. Piping may have to be offset, lowered, or raised as required or directed at site. This does not relieve this Contractor from responsibility for proper erection of systems of piping in every respect.
- B. Properly support piping and make adequate provisions for expansion, contraction, slope, and anchorage.
 - 1. Cut piping accurately for fabrication to measurements established at site and work into place without springing or forcing.
 - 2. Do not use pipe hooks, chains, or perforated metal for pipe support.
 - 3. Remove burr and cutting slag from pipes.
 - 4. Make changes in direction with proper fittings.
 - 5. Insulate hangers for copper pipe from piping by means of at least two layers of Scotch 33 plastic tape.
 - 6. Support piping at 8 feet on center maximum for pipe 1-1/4 inches or larger and 6 feet on center maximum for pipe one inch or less. Provide support at each elbow. Install additional support as required.
 - 7. Suspend piping from roof trusses or clamp to vertical walls using Unistrut and clamps (except underground pipe). Laying of piping on any building member is not allowed.
- C. Arrange piping to not interfere with removal of other equipment, ducts, or devices, or block access to doors, windows, or access openings. Provide accessible, ground joint unions in piping at connections to equipment.
- D. Make connections of dissimilar metals with insulating couplings.

- E. Provide sleeves around pipes passing through floors, walls, partitions, or structural members.
 1. Seal sleeves with plastic or other acceptable material.
 2. Do not place sleeves around soil, waste, vent, or roof drain lines passing through concrete floors on grade.
- F. Cap or plug open ends of pipes and equipment to keep dirt and other foreign materials out of system. Do not use plugs of rags, wool, cotton waste, or similar materials.
- G. Install piping systems so they may be easily drained.
- H. Grade soil and waste lines within building perimeter 1/4 inch fall per ft in direction of flow.
- I. Insulate water piping buried within building perimeter.
 1. Do not use reducing bushings, street elbows, or close nipples.
 2. Bury water piping 6 inches minimum below bottom of slab and encase in 2 inches minimum of sand.
 3. Do not install piping in shear walls.

3.2 HORIZONTAL PIPING INSTALLATION

- A. Locate hangers, supports, and anchors near or at changes in piping direction and concentrated loads.
- B. Provide for vertical adjustment to maintain pitch required for proper drainage.
- C. Allow for expansion and contraction of the piping.

3.3 PIPE SLEEVES AND INSERTS

- A. Set sleeves before concrete is poured or floors finished.
- B. Inserts for units should be placed in the concrete or masonry during construction to avoid cutting of finished work. When and if cutting becomes necessary, it must be done in accordance with the cutting and patching specifications.

3.4 FLOOR AND CEILING PLATES

- A. Install on all pipes passing through floors, partitions, and ceilings.

3.5 UNIONS AND CONNECTIONS

- A. Install malleable ground joint unions in hot and cold water piping throughout the system so that any portion can be taken down for repairs or inspections without injury to same or covering.
- B. Running threads or long screws will not be permitted in jointing any pipe.
- C. Provide dielectric waterways Style #47 between ferrous and non-ferrous metals.

3.6 FIRE STOPPING

- A. Fire stop all penetrations of fire walls, fire barriers, fire partitions, and other fire rated walls and ceilings and floors as per IBC Section 711. See Specification 22 0800.

END OF SECTION 22 0503

SECTION 22 0553 - IDENTIFICATION FOR PLUMBING PIPES AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of Contract, including General and Supplementary Conditions and Section 22 0501 apply to this Section.

1.2 SUMMARY

- A. Furnish and install identification of equipment and piping as described in Contract Documents.
- B. Mechanical Contractor shall touch-up equipment where factory paint has been damaged. Repaint entire item where more than 20 percent of the surface is involved.
- C. Primary painting of walls, ceilings, ductwork, piping and plenums is covered in the general painting section of these Contract Documents.

PART 2 - PRODUCTS

2.1 PAINT

- A. Benjamin Moore Impervo or equivalent by Paint Manufacturer approved in Section 09 900.
- B. Use appropriate primer.

2.2 LABELS

- A. Black Formica with white reveal on engraving.

2.3 CODED BANDS

- A. Using colored bands and arrows to indicate supply and return, with colored reflective tape, color code all piping installed in this contract at not more than 20-foot intervals, at equipment, at walls, etc., in accordance with ANSI Standards.
- B. Approved Manufacturers:
 - 1. Seton
 - 2. Craftmark

2.4 PIPE IDENTIFICATION

- A. In addition to the colored bands, stencil with black paint in 1/2 inch high letters a symbol and directional arrow for all fluids handled or use Seaton coded and colored pipe markers and arrows to meet ANSI Standards.

2.5 EQUIPMENT IDENTIFICATION

- A. Provide an engraved plastic plate for each piece of equipment stating the name of the item, symbol number, area served, and capacity. Label all control components with plastic embossed mechanically attached labels. Sample:
Condensate Pump CP-1
1.5 GPM, 15'

2.6 VALVE IDENTIFICATION

- A. Make a list of and tag all valves installed in this work.
 - 1. Valve tags shall be of brass, not less than 1"x2" size, hung with brass chains.

2. Tag shall indicate plumbing or heating service.

PART 3 - EXECUTION

3.1 APPLICATION

A. Stenciling:

1. Locate identifying legends and directional arrows at following points on each piping system –
 - a. Adjacent to each item of equipment and special fitting.
 - b. At point of entry and exit where piping goes through wall.
 - c. On each riser and junction.
 - d. Every 50 feet on long continuous lines.
2. Steam Pipe, Condensate Lines, & Valve Identification –
 - a. Identify specific pipe contents by stenciling pipe with written legend and placing of arrows to indicate direction of flow.

B. Painting:

1. Background Color - Provide by continuous painting of piping.

Symbol	Name	Color
STM	Steam Lines	Orange
COND	Steam Condensate Return Line	Lt Orange

2. Identification stenciling and flow arrows shall be following colors for proper contrast:

<u>Arrows & ID Stenciling</u>	<u>Color Shade of Pipe</u>
White	Red, Grays, & black
Black	Yellows, Oranges, Greens, & White

END OF SECTION 22 0553

SECTION 22 0703 - MECHANICAL INSULATION AND FIRE STOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of Contract, including General and Supplementary Conditions and Section 22 0501 apply to this Section.

1.2 SUMMARY

- A. Furnish and install mechanical insulation and fire stopping as described in Contract Documents including but not limited to the following:
 - 1. Steam and Condensate Piping Insulation
 - 2. Fire Stopping

1.3 QUALITY ASSURANCE

- A. Insulation shall have composite (insulation, jacket or facing and adhesive used to adhere facing or jacket to insulation) fire and smoke hazard ratings as tested by Procedure ASTM E-84, NFPA 255 and UL 723 not exceeding: Flame Spread of 25 and Smoke Developed of 50.
- B. Insulation Contractor shall certify in writing, prior to installation, that all products to be used will meet the above criteria.
- C. Accessories, such as adhesives, mastics, cements, and tapes, for fittings shall have the same component ratings as listed above.
- D. Products, or their shipping cartons, shall bear a label indicating that flame and smoke ratings do not exceed above requirements.
- E. Any treatment of jacket or facings to impart flame and smoke safety shall be permanent.
- F. The use of water-soluble treatments is prohibited.

END OF SECTION 22 0703

SECTION 22 0724 - PREMOLDED ONE PIECE PVC FITTINGS INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of Contract, including General and Supplementary Conditions and Section 22 0501 apply to this Section.

1.2 SUMMARY

- A. Furnish and install premolded one piece PVC fittings insulation as described in Contract Documents.

1.3 QUALITY ASSURANCE

- A. Fittings shall be UL rated 25/50 PVC.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Approved Manufacturers:
 - 1. Zeston

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Where factory premolded one piece PVC insulating fitting covers are to be used, proper factory precut Hi-Lo Temp insulation shall be applied to the fitting. Ends of Hi-Lo Temp insulation shall be tucked snugly into throat of fitting and edges adjacent to pipe covering tufted and tucked in. Fully insulate pipe fittings. One piece PVC fitting cover is then secured by stapling, tack fastening, banding or taping ends to adjacent pipe covering.
- B. Hot:
 - 1. On fittings where temperature exceeds 250 degrees F., two layers of factory precut Hi-Lo Temp insulation inserts shall be applied with a few wrappings of twine on first layer, to be sure there are no voids or hot spots. Fitting cover shall then be applied over Hi-Lo Temp insulation as described above in "A."

END OF SECTION 22 0724

SECTION 22 0767 - STEAM SUPPLY AND CONDENSATE RETURN PIPING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, and Section 22 0501 apply to this Section.

1.2 SUMMARY

- A. Furnish and install insulation on piping mains, branches, risers, fittings, and valves, pump bodies and flanges as described in Contract Documents.

PART 2 - PRODUCTS

2.1 MATERIAL

- A. 6 lb./cu.ft. heavy density fiberglass with fire retardant vapor barrier jacket with self sealing laps. Thickness shall be 1-1/2 inches on heating supply and return lines.
- B. Approved Manufacturers:
 - 1. Owens-Corning Fiberglass heavy density with ASJ-SSL jacket
 - 2. Equals by Johns-Manville or CTM.
 - 3. Zeston covers for valves and fittings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Pipes:
 - 1. Install in accordance with manufacturer's directions on clean dry pipes.
 - 2. Butt joints firmly together.
 - 3. Seal vapor barrier longitudinal seam overlap with vapor barrier adhesive.
 - 4. Wrap butt joints with four inch strip of vapor barrier jacket material cemented with vapor barrier adhesive.
 - 5. Finish with bands applied at mid-section and at each end of insulation.
- B. Valves & Fittings:
 - 1. Insulate and finish by one of following methods -
 - 2. With hydraulic setting insulating cement, or equal, to thickness equal to adjoining pipe insulation.
 - 3. With segments of molded insulation securely wired in place.
 - 4. With prefabricated covers made from molded pipe insulation finished with vapor barrier adhesive.
 - 5. With Zeston covers and factory supplied insulation diapers.
 - 6. Finish fittings and valves with four ounce canvas and coat with vapor barrier adhesive or Zeston covers.

END OF SECTION 22 0768

SECTION 22 0800 - FIRE STOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of Contract, including General and Supplementary Conditions and Section 22 0501 apply to this Section.

1.2 SUMMARY

- A. Furnish and install fire stopping as described in Contract Documents.

1.3 QUALITY ASSURANCE

- A. Fire stopping material shall meet ASTM E814, E84 and be UL listed.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Material shall be flexible, long lasting, intumescent acrylic seal to accommodate vibration and building movement.
- B. Caulk simple penetrations with gaps of 1/4" or less with:
 - 1. Dow Corning Fire Stop Sealant
 - 2. Pensil 300
- C. Caulk multiple penetrations and/or penetrations with gaps in excess of 1/4" with:
 - 1. Dow Corning Fire Stop Foam
 - 2. Pensil 200
 - 3. IPC flame safe FS-1900
 - 4. Tremco "Tremstop 1A"

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Follow manufacturer's installation instructions explicitly.
- B. Seal penetrations of ductwork, piping, and other mechanical equipment through one-hour and two-hour rated partitions as shown on Architectural and Mechanical Drawings.
- C. Install fire stopping material on clean surfaces to assure adherence.

END OF SECTION 22 0800

SECTION 22 1184 - STEAM AND CONDENSATE PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, and Section 22 0501 apply to this Section.

1.2 SUMMARY

- A. Furnish and install steam and condensate piping as described in Contract Documents.

1.3 QUALITY ASSURANCE

- A. Cleaning System:
 - 1. Thoroughly clean equipment, piping, and other material under this contract.
 - 2. Remove rust, scale, and other dirt before painting or covering.
 - 3. Remove rust, scale, and other dirt before operating the system.
- B. Operate heating system at 10 psi for at least 6 hours, then -
 - 1. Fill boiler to the top with water to wash any film, oil or grease over the top.
 - 2. Drain boiler and refill to proper level with fresh water.
 - 3. Use 1 pound tri-sodium phosphate for every 100 gallons of water during cleaning operation.
- C. Tests:
 - 1. No piping systems shall be covered or concealed until hydraulically tested at 50 psi in excess of maximum working pressure (100 psi minimum) and inspected and approved by Architect and any local inspector having jurisdiction.
 - 2. When directed by Architect or Engineer, Contractor shall conduct an operating test on any piece of equipment to demonstrate its capacity and operating characteristics.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Steam Supply Piping
 - 1. Schedule 40-A-120 black steel piping.
 - 2. Pipe ends shall be reamed out before being made up into fittings.
 - 3. Use graphite and oil applied to male threads only in making pipe joint fittings.
 - 4. Fittings shall be standard weight 150 lb. malleable iron screwed pattern up to 2 1/2 inches.
 - 5. Piping over 2 1/2 inches shall be welded with full weld fittings.
- B. Condensate Piping:
 - 1. Schedule 80 black steel piping.
 - 2. Pipe ends shall be reamed out before being made up into fittings.
 - 3. Use graphite and oil applied to male threads only in making up pipe joint fittings.
 - 4. Fittings shall be standard weight 300 lb. malleable iron screwed pattern up to 2 1/2 inches.
 - 5. Piping over 2 1/2 inches shall be welded with full weld fittings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Heating piping shall run generally as indicated on the Drawings.
- B. Pipe ends shall be reamed and burrs removed.
- C. Unions shall be installed where necessary and on both sides of equipment and drip traps.

- D. Install float and thermostatic drip traps in sizes shown on drawings.
 - 1. Install at ends of steam mains.
 - 2. Install on raises in steam mains.
 - 3. Install dirt strainer and gate valve ahead of each drip trap.
- E. Runs of main piping shall start as high as possible.
- F. Keep as close to the ceiling as possible.
- G. Make sufficient allowance for grade and branches to be taken off top at 45 degree angles.
- H. Steam and return mains shall be graded downward in direction of flow 1 inch in 20 feet.
- I. Runouts and branches that grade back against flow of steam shall be graded 1/4 inch per foot.

END OF SECTION 22 1184

SECTION 22 1185 - CONDENSATE RETURN PUMP

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General Provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, and Section 15055 apply to this Section.

1.2 SUMMARY

- A. Furnish and install a condensate return pump as described in Contract Documents.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Simplex packaged unit with duplex heavy cast iron receiver with supports and two pumps all piped on one base.
- B. Each pump shall have a capacity as shown and shall be operated from float switches, magnetic starter, and alternator provided with the pump and mounted on pump assembly.
- C. Approved Manufacturers:
 - 1. Federal
 - 2. Roth
 - 3. Pacific

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install check valve and gate valve on pump discharge.
- B. Run vent line from receivers and terminate as high as possible with return bends.

END OF SECTION 22 1185

END OF DIVISION 22

DIVISION 26: ELECTRICAL

26 0000 ELECTRICAL

- 26 0501 COMMON ELECTRICAL REQUIREMENTS
- 26 0502 ELECTRICAL DEMOLITION REQUIREMENTS
- 26 0519 LINE-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
- 26 0533 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

26 2000 LOW (LINE) VOLTAGE DISTRIBUTION

- 26 2726 WIRING DEVICES

END OF TABLE OF CONTENTS

SECTION 26 0501 - COMMON ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. General electrical system requirements and procedures.
 - 2. Make electrical connections to equipment provided under other Sections.
 - 3. Furnish and install Penetration Firestop Systems at electrical system penetrations as described in Contract Documents.

1.2 SUBMITTALS

- A. Product Data:
 - 1. Provide following information for each item of equipment:
 - a. Catalog Sheets.
 - b. Assembly details or dimension drawings.
 - c. Installation instructions.
 - d. Manufacturer's name and catalog number.
 - e. Name of local supplier.
 - 2. Furnish such information for following equipment:
 - a. Section 26 2726: Wiring devices.
 - 3. Do not purchase equipment before approval of product data.
 - 4. Submit in three-ring binder with hard cover (six sets)
- B. Quality Assurance / Control:
 - 1. Report of site tests, before Substantial Completion.

1.3 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies:
 - 1. NEC and local ordinances and regulations shall govern unless more stringent requirements are specified.
 - 2. Material and equipment provided shall meet standards of NEMA or UL, or ULC, CSA, or EEMAC and bear their label wherever standards have been established and label service is available.
- B. Materials and equipment provided under following Sections shall be by same Manufacturer:
 - 1. Sections 26 2416, 26 2816, and 26 2913: Panelboards, Enclosed Switches And Circuit Breakers, and Enclosed Controllers.
- C. Contractor shall obtain all permits and arrange all inspections required by local codes and ordinances applicable to this Division.

1.4 OWNER'S INSTRUCTIONS

- A. Provide competent instructor for time required to adequately train maintenance personnel in operation and maintenance of electrical equipment and systems. Factory representatives shall assist this instruction as necessary. Schedule instruction period at time of final inspection.

1.5 OPERATION AND MAINTENANCE MANUALS

- A. Prepare and submit (2) two complete copies of the O & M Manuals—manuals to contain information listed below. Place each manual in a tabbed three-ring binder upon completion of the project. Deliver to General Contractor upon completion.

1. Operation and Maintenance manual must contain the following items:
 - a. Copies of reviewed shop drawings.
 - b. Letter of 1-year guarantee of workmanship.
 - c. Copy of voltage and ammeter readings.
 - d. Copy of letter verifying owner's receipt of spare parts.
 - e. Manufacturers installation instructions and parts.

1.6 GUARANTEE

- A. The following guarantee is a part of this specification and shall be binding on the part of the Contractor:
 1. "The Contractor guarantees that this installation is free from mechanical defects. He agrees to replace or repair, to the satisfaction of the Owner's Representative, any part of this installation which may fail or be determined unacceptable within a period of one (1) year after final acceptance."

1.7 RECORD DRAWINGS

- A. During the course of construction, the Electrical Contractor shall maintain a set of drawings upon which all deviations from the original layout are recorded. These marked-up prints shall be turned over to the Architect/Engineer at the conclusion of the work.

PART 2 - PRODUCTS: Not Used

PART 3 - EXECUTION

3.1 EXAMINATION

- A. All relocations, reconnections, and removals are not necessarily indicated on Drawings. All such work shall be included without additional cost to Owner.
- B. Confirm dimensions, ratings, and specifications of equipment to be installed and coordinate these with site dimensions and with other Sections.

3.2 INSTALLATION

- A. General:
 1. Locations of electrical equipment shown on Drawings are approximate only. Field verify actual locations for proper installation.
 2. Coordinate electrical equipment locations and conduit runs with those providing equipment to be served before installation or rough-in.
 - a. Notify Architect of conflicts before beginning work.
 - b. Coordinate locations of power and lighting outlets in mechanical rooms and other areas with mechanical equipment, piping, ductwork, cabinets, etc, so they will be readily accessible and functional.
 3. Work related to other trades which is required under this Division, such as cutting and patching, trenching, and backfilling, shall be performed according to standards specified in applicable Sections.
- B. Install Penetration Firestop System appropriate for penetration at electrical system penetrations through walls, ceilings, and top plates of walls.
 1. General: All recessed fixtures and devices installed in fire rated walls and ceilings shall be installed to maintain the fire rating of the surface. Coordinate all fire rated surfaces with Architectural Drawings.

3.3 FIELD QUALITY CONTROL

- A. Site Tests: Test systems and demonstrate equipment as working and operating properly. Notify Architect before test. Rectify defects at no additional cost to Owner.
- B. Measure current for each phase of each motor under actual final load operation, i.e. after air balance is completed for fan units, etc. Record this information along with full-load nameplates current rating and size of thermal overload unit installed for each motor.

END OF SECTION

SECTION 26 0502 - ELECTRICAL DEMOLITION REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To
 - 1. Demolition involving electrical system as described in Contract Documents.
- B. Related Sections
 - 1. Section 26 0501 - Common Electrical Requirements
 - 2. New and replacement work specified in appropriate specification Section.

PART 2 - NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. All relocations, reconnections, and removals are not necessarily indicated on Drawings. All such work shall be included without additional cost to Owner.

3.2 PREPARATION

- A. Disconnect equipment that is to be removed or relocated. Carefully remove, disassemble, or dismantle as required, and store in approved location on site, existing items to be reused in completed work.
- B. Where affected by demolition or new construction, relocate, extend, or repair raceways, conductors, outlets, and apparatus to allow continued use of electrical system. Use methods and materials as specified for new construction.

3.3 PERFORMANCE

- A. Perform drilling, cutting, block-offs, and demolition work required for removal of necessary portions of electrical system. Do not cut joists, beams, girders, trusses, or columns without prior written permission from Architect.
- B. Remove concealed wiring abandoned due to demolition or new construction. Remove circuits, conduits, and conductors that are not to be re-used back to next active fixture, device, or junction box.
- C. Patch, repair, and finish surfaces affected by electrical demolition work, unless work is specifically called for under other Sections of the specifications.
- D. Coordinate electrical demolition with general demolition work being performed by the School District and the General Contractor.

3.4 CLEANING

- A. Remove obsolete raceways, conductors, apparatus, and lighting fixtures promptly from site and dispose of legally.

END OF SECTION

SECTION 26 0519 - LINE-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Quality of conductors used on Project except as excluded below.
- B. Related Sections:
 - 1. Section 26 0501: Common Electrical Requirements.

1.2 DEFINITIONS

- A. Line Voltage: Over 70 Volts.

PART 2 - PRODUCTS

2.1 COMPONENTS

- A. Line Voltage Conductors:
 - 1. Copper with AWG sizes as shown:
 - a. Minimum size shall be No. 12 except where specified otherwise.
 - b. Conductor size No. 8 and larger.
 - 2. Insulation:
 - a. Standard Conductor Size No. 10 And Smaller: 600V type THWN or XHHW (75 deg C).
 - b. Standard Conductor Size No. 8 And Larger: 600V Type THW, THWN, or XHHW (75 deg C).
 - c. Higher temperature insulation as required by NEC or local codes.
 - 3. Colors:
 - a. 208Y / 120 V System:
 - 1) Black: Phase A.
 - 2) Red: Phase B.
 - 3) Blue: Phase C.
 - 4) Green: Ground.
 - 5) White: Neutral.
 - b. Conductors size No. 10 and smaller shall be colored full length. Tagging or other methods for coding of conductors size No. 10 and smaller not allowed.
 - c. For feeder conductors larger than No. 10 at pull boxes, gutters, and panels, use painted or taped band or color tag color-coded as specified above.
- B. Standard Connectors:
 - 1. Conductors No. 8 And Smaller: Steel spring wire connectors.
 - 2. Conductors Larger Than No. 8: Pressure type terminal lugs.
 - 3. Connections Outside Building: Watertight steel spring wire connections with waterproof, non-hardening sealant.
- C. Terminal blocks for tapping conductors:
 - 1. Terminals shall be suitable for use with 75 deg C copper conductors.
 - 2. Acceptable Products:
 - a. 16323 by Cooper Bussmann, St Louis, MO www.bussmann.com
 - b. LBA363106 by Square D Co, Palatine, IL www.squared.com.
 - c. Equal as approved by Architect before bidding. See Section 01 6000.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General:
 - 1. Conductors and cables shall be continuous from outlet to outlet.
 - 2. Do not use direct burial cable.

- B. Line Voltage Conductors (Over 70 Volts):
1. Install conductors in raceway except where specifically indicated otherwise. Run conductors of different voltage systems in separate conduits.
 2. Route circuits at own discretion, however, circuiting shall be as shown in Panel Schedules. Group circuit homeruns to panels as shown on Drawings.
 3. Neutrals:
 - a. On three-phase, 4-wire systems, do not use common neutral for more than three circuits.
 - b. On single-phase, 3-wire systems, do not use common neutral for more than two circuits.
 - c. Run separate neutrals for each circuit where specifically noted on Drawings.
 - d. Where common neutral is run for two or three home run circuits, connect phase conductors to breakers in panel which are attached to separate phase legs so neutral conductors will carry only unbalanced current. Neutral conductors shall be of same size as phase conductors unless specifically noted otherwise.
 4. Pulling Conductors:
 - a. Do not pull conductors into conduit until raceway system is complete and cabinets and outlet boxes are free of foreign matter and moisture.
 - b. Do not use heavy mechanical means for pulling conductors.
 - c. Use only listed wire pulling lubricants.

END OF SECTION

SECTION 26 0533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Quality of material and installation procedures for raceway, boxes, and fittings used on Project but furnished under other Divisions.
 - 2. Furnish and install raceway, conduit, and boxes used on Project not specified to be installed under other Divisions.
- B. Related Sections
 - 1. Section 26 0501: General Electrical Requirements.

PART 2 - PRODUCTS

2.1 COMPONENTS

- A. Raceway And Conduit:
 - 1. Sizes:
 - a. 3/4 inch min. for exterior underground use.
 - b. 1/2 inch minimum elsewhere, all home runs shall be 3/4 inch min. unless indicated otherwise.
 - 2. Types: Usage of each type is restricted as specified below by product.
 - a. Galvanized rigid steel or galvanized intermediate metal conduit (IMC) is allowed for use in all areas. Where in contact with earth or concrete, wrap buried galvanized rigid steel and galvanized IMC conduit and fittings completely with vinyl tape.
 - b. Galvanized Electrical Metallic Tubing (EMT):
 - 1) Allowed for use only in indoor dry locations where it is:
 - a) Not subject to damage.
 - b) Not in contact with earth.
 - c) Not in concrete.
 - 2) Flexible steel conduit or metal-clad cable required for final connections to indoor mechanical equipment.
 - c. Schedule 40 Polyvinyl Chloride (PVC) Conduit:
 - 1) Allowed for use only underground or below concrete with galvanized rigid steel or IMC elbows and risers.
 - d. Listed, Liquid-Tight Flexible Metal Conduit:
 - 1) Use in outdoor final connections to mechanical equipment, length not to exceed 36 inches.
 - e. Pre-wired 3/8 Inch Flexible Fixture Whips: Allowed only for connection to recessed lighting fixtures, lengths not to exceed 72 inches.
 - 3. Prohibited Raceway Materials:
 - a. Aluminum conduit.
 - b. Armored cable type AC (BX) cable.
- B. Raceway And Conduit Fittings:
 - 1. Rigid Steel Conduit And IMC: Threaded and designed for conduit use.
 - 2. EMT:
 - a. Compression type.
 - b. Steel set screw housing type.
 - 3. PVC Conduit:
 - a. PVC type. Use PVC adapters at all boxes.
 - b. PVC components, (conduit, fittings, cement) shall be from same Manufacturer.
 - 4. Flexible Steel Conduit: Screw-in type.
 - 5. Liquid-tight Flexible Metal Conduit: Sealite type.
 - 6. Expansion fittings shall be equal to OZ Type AX sized to raceway and including bonding jumper.
 - 7. Prohibited Fitting Materials:
 - a. Crimp-on, tap-on, indenter type fittings.
 - b. Cast set-screw fittings for EMT.
 - c. Spray (aerosol) PVC cement.
- C. Outlet Boxes:
 - 1. Galvanized steel of proper size and shape are acceptable for all systems. Where metal boxes are used, provide following:

- a. Provide metal supports and other accessories for installation of each box.
- b. Equip ceiling and bracket fixture boxes with fixture studs where required.
- c. Equip outlets in plastered, paneled, and furred finishes with plaster rings and extensions to bring box flush with finish surface.

2.2 MANUFACTURERS

- A. Contact Information:
 1. Cooper B-Line, Highland, IL www.bline.com.
 2. Hubbell Incorporated, Milford, CT www.hubbell-wiring.com.
 3. Square D, Palatine, IL www.squared.com.
 4. Steel City, Div Thomas & Betts, Memphis, TN www.tnb.com.
 5. Thomas & Betts, Memphis, TN www.tnb.com.
 6. Walker Systems Inc, Williamstown, www.wiremold.com.
 7. Wiremold Co, West Hartford, CT www.wiremold.com.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Confirm dimensions, ratings, and specifications of materials to be installed and coordinate these with site dimensions and with other Sections.

3.2 INSTALLATION

- A. Interface With Other Work:
 1. Coordinate with Divisions 22 and 23 for installation of raceway for control of plumbing and HVAC equipment.
 2. Before rough-in, verify locations of boxes with work of other trades to insure that they are properly located for purpose intended.
 - a. Coordinate location of outlet for water cooler with Division 22.
 - b. Coordinate location of outlets adjacent to or in millwork before rough-in. Refer conflicts to Architect and locate outlet under his direction.
 3. Install pull wires in raceways installed under this Section where conductors or cables are to be installed under other Divisions.
- B. Conduit And Raceway:
 1. Conceal raceways within ceilings, walls, and floors, except at Contractor's option, conduit may be exposed on walls or ceilings of mechanical equipment areas and above acoustical panel suspension ceiling systems. Install exposed raceway runs parallel to or at right angles to building structure lines.
 2. Keep raceway runs 6 inches minimum from hot water pipes.
 3. Make no more than four quarter bends, 360 degrees total, in any conduit run between outlet and outlet, fitting and fitting, or outlet and fitting.
 - a. Make bends and offsets so conduit is not injured and internal diameter of conduit is not effectively reduced.
 - b. Radius of curve shall be at least minimum indicated by NEC.
 4. Cut conduit smooth and square with run and ream to remove rough edges. Cap raceway ends during construction. Clean or replace raceway in which water or foreign matter have accumulated.
 5. Install insulated bushings on each end of raceway 1-1/4 inches in diameter and larger, and on all raceways where low voltage cables emerge. Install expansion fittings where raceways cross building expansion joints.
 6. Run two spare conduits from each new panelboard to ceiling access area or other acceptable accessible area and cap for future use.
 7. Route conduit through roof openings for piping and ductwork where possible; otherwise. All roof penetrations shall be flashed, counter flashed and sealed per Roofing Contractor. Coordinate all roof penetrations with the Roofing Contractor.
 8. Provide nylon pull string with printed footage indicators secured at each end of each empty conduit, except sleeves and nipples. Identify with tags at each end the origin and destination of each empty conduit, and indicate same on all empty or spare conduits on the as-built drawings.
 9. Install expansion-deflection joints where conduit crosses building expansion, seismic, or structural isolation break (SIB) joints.
 10. Where conduit penetrates fire-rated walls and floors, seal opening around conduit with UL-listed foamed silicone elastomer compound. Fill void around perimeter of conduits with nonmetallic nonshrink grout in all concrete or masonry walls.
 11. Bend PVC conduit by hot box bender and, for PVC 2 inches in diameter and larger, expanding plugs. Apply PVC adhesive only by brush.
 12. Installation In Framing:

- a. Do not bore holes in joists or beams outside center 1/3 of member depth or within 24 inches of bearing points. Do not bore holes in vertical framing members outside center 1/3 of member width.
- b. Holes shall be one inch diameter maximum.
- 13. Underground Raceway And Conduit:
 - a. Bury underground raceway installed outside building 24 inches deep minimum.
 - b. Bury underground conduit in planting areas 18 inches deep minimum. It is permissible to install conduit directly below concrete sidewalks, however, conduit must be buried 18 inches deep at point of exit from planting areas.
- 14. Conduit And Raceway Support:
 - a. Securely support raceway with approved straps, clamps, or hangers, spaced as required.
 - b. Do not support from mechanical ducts or duct supports without Architect's written approval. Securely mount raceway supports, boxes, and cabinets in an approved manner by:
 - 1) Expansion shields in concrete or solid masonry.
 - 2) Toggle bolts on hollow masonry units.
 - 3) Wood screws on wood.
 - 4) Metal screws on metal.
- 15. Prohibited Procedures:
 - a. Use of wooden plugs inserted in concrete or masonry units for mounting raceway, supports, boxes, cabinets, or other equipment.
 - b. Installation of raceway that has been crushed or deformed.
 - c. Use of torches for bending PVC.
 - d. Spray applied PVC cement.
 - e. Boring holes in truss members.
 - f. Notching of structural members.
 - g. Supporting raceway from ceiling system support wires.
 - h. Nail drive straps or tie wire for supporting raceway.

C. Boxes:

- 1. Boxes shall be accessible and installed with approved cover.
- 2. Do not locate device boxes that are on opposite sides of framed walls in the same stud space. In other wall construction, do not install boxes back to back.
- 3. Locate boxes so pipes, ducts, or other items do not obstruct outlets.
- 4. Install outlets flush with finished surface and level and plumb.
- 5. Support switch boxes larger than two-gang with side brackets and steel bar hangers in framed walls.
- 6. At time of substantial completion, install blank plates on uncovered outlet boxes that are for future use.
- 7. Location:
 - a. Install boxes at door locations on latch side of door, unless explicitly shown otherwise on Drawings. Verify door swings shown on electrical drawings with architectural drawings, and report discrepancies to Architect before rough-in. Distance of switch boxes from jamb shall be within 6 inches of door jamb.
 - b. Arrange boxes for ceiling light fixtures symmetrically with respect to room dimensions and structural features.
 - c. Properly center boxes located in walls with respect to doors, panels, furring, trim and consistent with architectural details. Where two or more outlets occur, space them uniformly and in straight lines with each other, if possible.

END OF SECTION

SECTION 26 2726 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Furnish and install wiring devices complete with plates as described in Contract Documents.
- B. Related Sections
 - 1. Section 26 0501: Common Electrical Requirements.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Faces shall be nylon where available.
- B. Devices of single type shall be from same Manufacturer.
- C. Device color shall be selected after bid. Standard colors shall include brown, gray, ivory and black for all devices. Emergency devices shall be red.
- D. GFCI Receptacles: Duplex convenience receptacle with integral ground fault current interrupter. NEMA Type 5-20R. All units shall be feed-through type for downstream device protection. All receptacles indicated to be installed in a toilet room, bathroom, kitchen (except for refrigerator receptacle), roof top, and outdoors or within 6 feet of a sink, basin, tub or floor sink be GFCI protected.

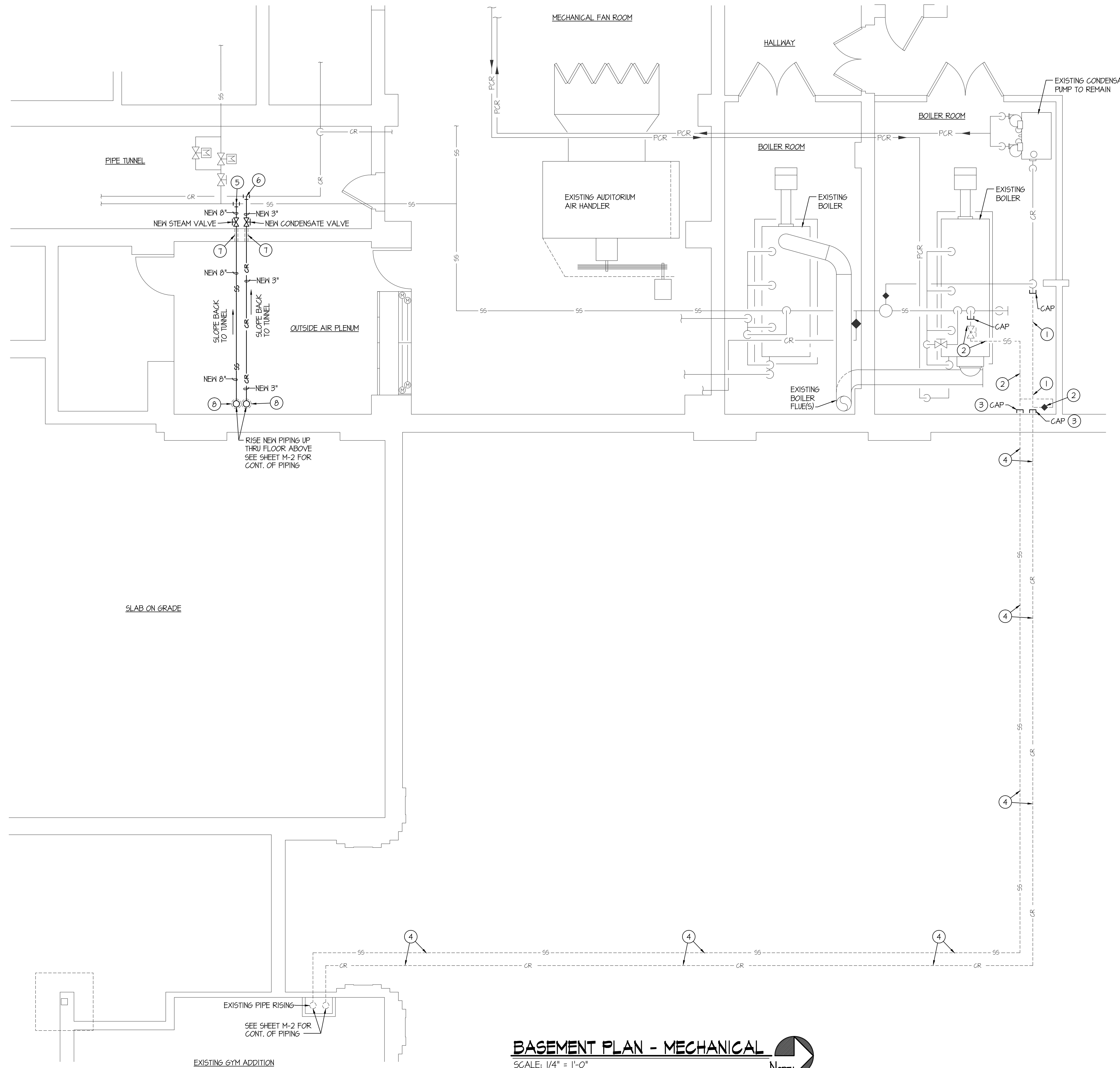
2.2 MANUFACTURED UNITS

- A. Receptacles:
 - 1. Standard Style:
 - a. 20 AMP, specification grade, back and side wired, self grounding.
 - b. Approved Products
 - 1) Eagle: 5362X.
 - 2) Hubbell: 5352X.
 - 3) Leviton: 5352X.
 - 4) Pass & Seymour: 5352X.
 - 2. Ground Fault Circuit Interrupter (GFCI):
 - a. 20 AMP, specification grade.
 - b. Approved Products.
 - 1) Cooper: GF20X.
 - 2) Hubbell: GF5262X.
 - 3) Leviton: 8599-X.
 - 4) Pass & Seymour: 2094X.
- B. Plates:
 - 1. Standard Cover Plates:
 - a. All areas with finished walls:
 - 1) Nylon or high impact resistant thermoplastic.
 - 2) Color shall match wiring device.
 - b. All Other: galvanized steel.
 - c. Ganged switches shall have gang plates.
 - d. Approved Products.
 - 1) Cooper.
 - 2) Hubbell.
 - 3) Leviton.
 - 4) Pass & Seymour.

END OF SECTION

END OF DIVISION 26

F:\14123 POKY H5.5 STEAM LINE\14123-M-1.dwg Feb 11, 2015 - 9:07am



BASEMENT PLAN - MECHANICAL
SCALE: 1/4" = 1'-0"

PLAN NOTES:

- ① CAP AND REMOVE EXISTING CONDENSATE RETURN PIPING LOCATED IN EXISTING BOILER ROOM AS SHOWN.
- ② CAP AND REMOVE EXISTING STEAM SUPPLY LINE, VALVE AND DRIP TRAP LOCATED INSIDE EXISTING BOILER ROOM.
- ③ CAP EXISTING STEAM SUPPLY AND CONDENSATE RETURN PIPING AT EXTERIOR WALL PENETRATION OF BOILER ROOM.
- ④ ABANDON IN PLACE EXISTING 8" STEAM SUPPLY AND 3" CONDENSATE RETURN PIPING LOCATED UNDERGROUND FROM EXISTING BOILER ROOM TO EXISTING GYM ADDITION.
- ⑤ CONNECT NEW 8" STEAM SUPPLY LINE TO EXISTING STEAM SUPPLY LINE LOCATED IN TUNNEL PRIOR TO EXISTING TEE.
- ⑥ CONNECT NEW 3" CONDENSATE RETURN PIPING TO EXISTING CONDENSATE RETURN PIPING IN LOCATION SHOWN IN EXISTING TUNNEL.
- ⑦ CORE DRILL EXISTING CONCRETE WALL AS REQUIRED TO INSTALL NEW PIPING AS SHOWN.
- ⑧ CORE DRILL EXISTING CONCRETE FLOOR SLAB TO RISE NEW PIPING UP IN EXISTING STORAGE CLOSET ABOVE. SEE SHEET M-2 FOR CONTINUATION OF PIPING.

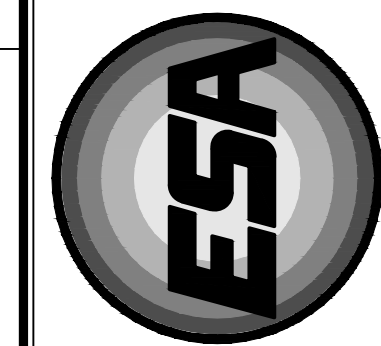
MECHANICAL LEGEND

SYMBOL	DESCRIPTION
①	PLAN NOTE
	EQUIPMENT SYMBOL
	PIPE DROP
	PIPE RISE
SS	STEAM SUPPLY LINE
CR	CONDENSATE RETURN LINE
PCR	PUMPED COND. RETURN LINE
	GATE VALVE
	BALL VALVE
	DRIP TRAP
	DEMO PIPE

GENERAL NOTES:

- A- THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND CONNECTIONS ON THE JOB SITE. ALL WORK SHALL BE EXECUTED FROM MEASUREMENTS TAKEN AT THE SITE.
- B- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO INSURE PROPER CODE CLEARANCES FOR ELECTRICAL AND MECHANICAL ACCESS WHEN INSTALLING ANY EQUIPMENT SUPPLIED BY THE MECHANICAL CONTRACTOR.
- C- IT IS CRITICAL THAT THIS CONTRACTOR COORDINATE EQUIPMENT LOCATIONS WITH PIPING, DUCTWORK, ELECTRICAL CONDUIT AND BUILDING STRUCTURE TO INSURE CODE COMPLIANCE.
- D- CEILING DIFFUSERS ARE SHOWN IN APPROXIMATE LOCATIONS. REFER TO LIGHTING PLANS AND REFLECTED CEILING PLAN FOR EXACT LOCATIONS.
- E- DUCT DIMENSIONS CALLED OUT ON DRAWINGS ARE INSIDE FREE AREA DIMENSIONS. ACOUSTICAL DUCT LINER ARE TO BE ADDED TO OVERALL MEASUREMENTS.
- F- ALL DUCTWORK AND PIPING WHICH PASSES THRU FIRE RATED WALLS TO BE FIRE STOPPED WITH APPROVED FOAM OR SEALANT. REFER TO SPECIFICATIONS FOR APPROVED MANUFACTURERS.

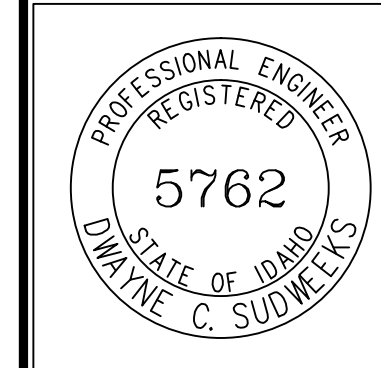
ORIGINAL DRAWING SIGNED BY: DWAYNE C. SUDWEEKS
DATE ORIGINAL SIGNED: FEB. 10, 2015
ORIGINAL ON FILE AT ENGINEERED SYSTEMS ASSOCIATES
1355 EAST CENTER, POCAATELLO, IDAHO 83201



Engineered Systems Associates
Mechanical Engineers
Dwayne Sudweeks - Ron Rice
1355 East Center - Pocatello, Idaho 83201
Phone: (208) 233-0501 Fax: (208) 233-0529 email: esa@engsystems.com

NEW STEAM PIPING FOR:
POCAATELLO HIGH SCHOOL GYM
SCHOOL DISTRICT #25
POCAATELLO, IDAHO

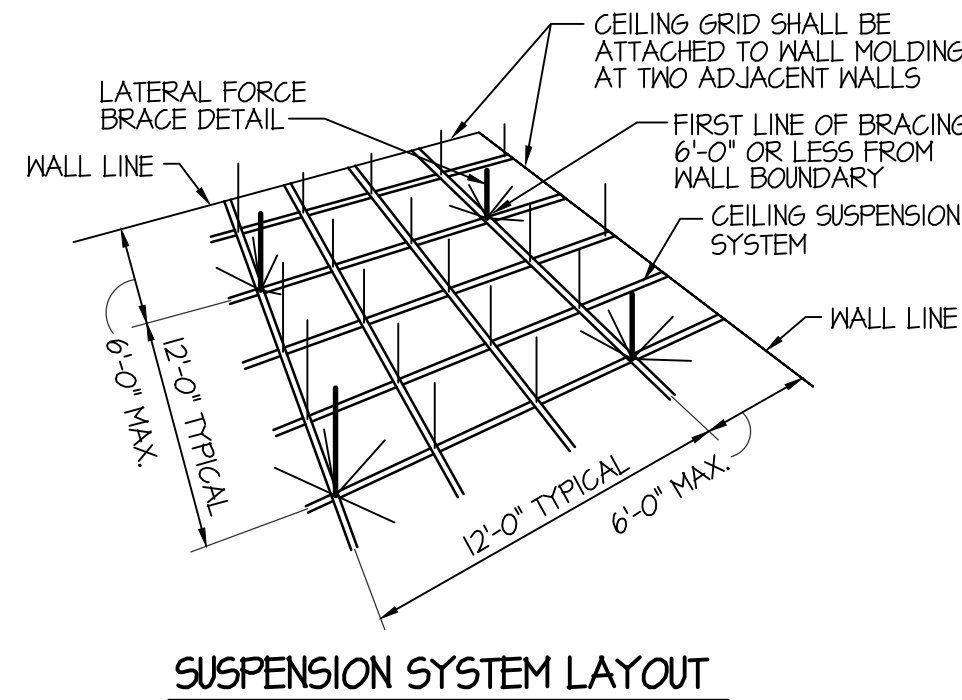
PROJECT:
SHEET TITLE:
BASEMENT MECHANICAL PLAN



DRWN. BY: SR
CHK. BY: DCS
JOB NO. 14123
DATE: FEB. 2015

SHEET: **M-1**
OF: **TWO**

STEAM CONDENSATE PUMP SCHEDULE										
SYM.	TYPE	EDR	PSI	GPM	H.P.	CHAR.	RPM	RECEIVER SIZE	CONTROL	REMARKS
CP	FLOOR MOUNTED SIMPLEX	1000	20	15	1/4	120/60/1	1750	10 GALLON	AUTOMATIC FLOAT SWITCH	FEDERAL PUMPS MODEL VTC-120-4 FLOOR MOUNTED SIMPLEX PUMP WITH 10 GALLON TANK, 120 VOLT POWER CORD.

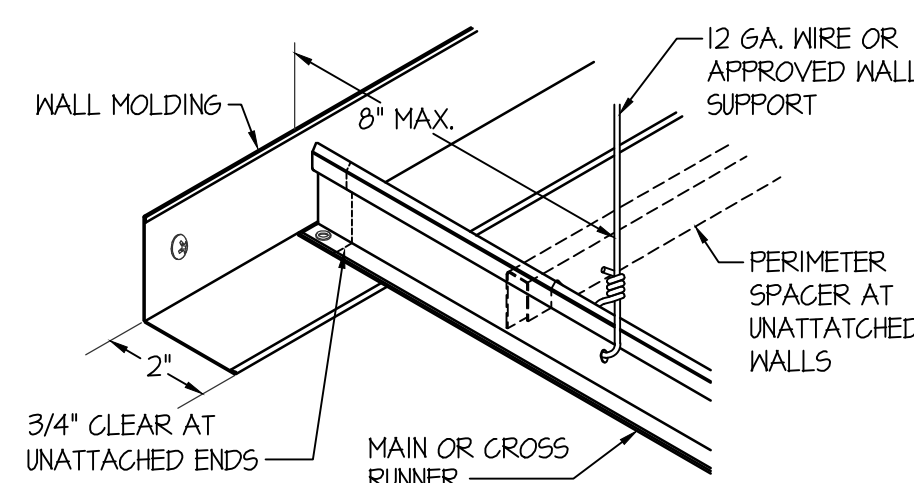


LATH AND PLASTER OR SCREW APPLIED GYPSUM BOARD CEILING ARE EXEMPT FROM THESE REQUIREMENTS.

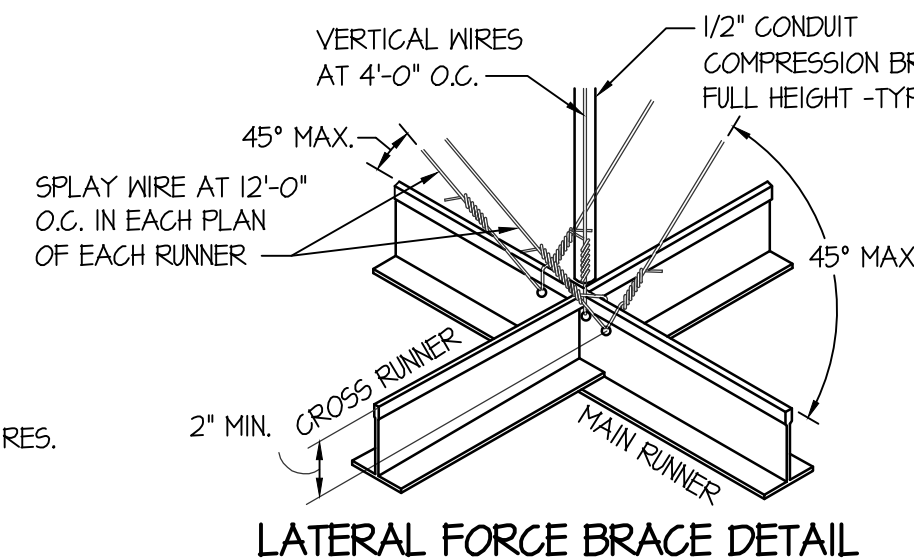
LATERAL FORCED BRACING REQUIRED FOR CEILING AREAS OVER 1,000 SF. CEILING AREAS UNDER 1,000 SF. ARE NOT REQUIRED TO BE LATERAL BRACED.

RIDGED BRACES MAY BE USED INSTEAD OF DIAGONAL SPLAY WIRES.

A SEISMIC SEPARATION JOINT IS REQUIRED FOR CEILING AREAS GREATER THAN 2,500 SF.



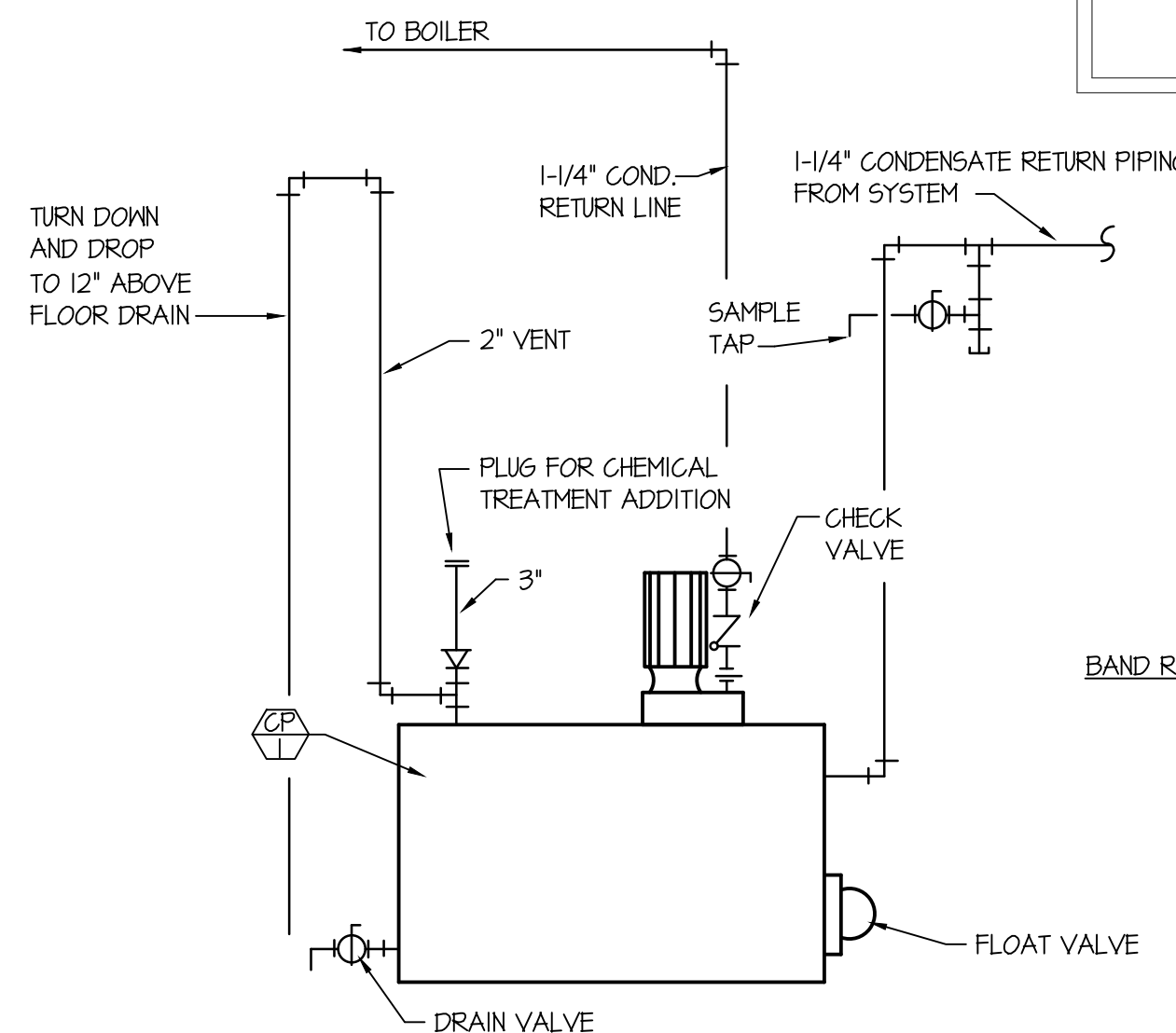
WALL MOLDING DETAIL



LATERAL FORCE BRACE DETAIL

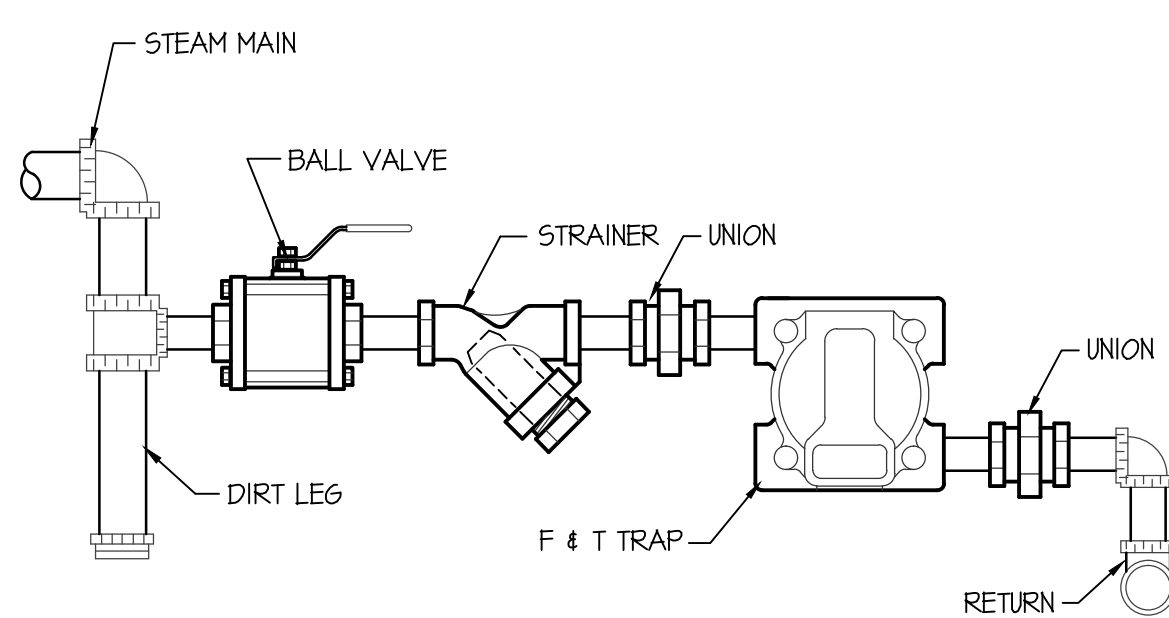
CEILING SUPPORT DETAILS

NO SCALE



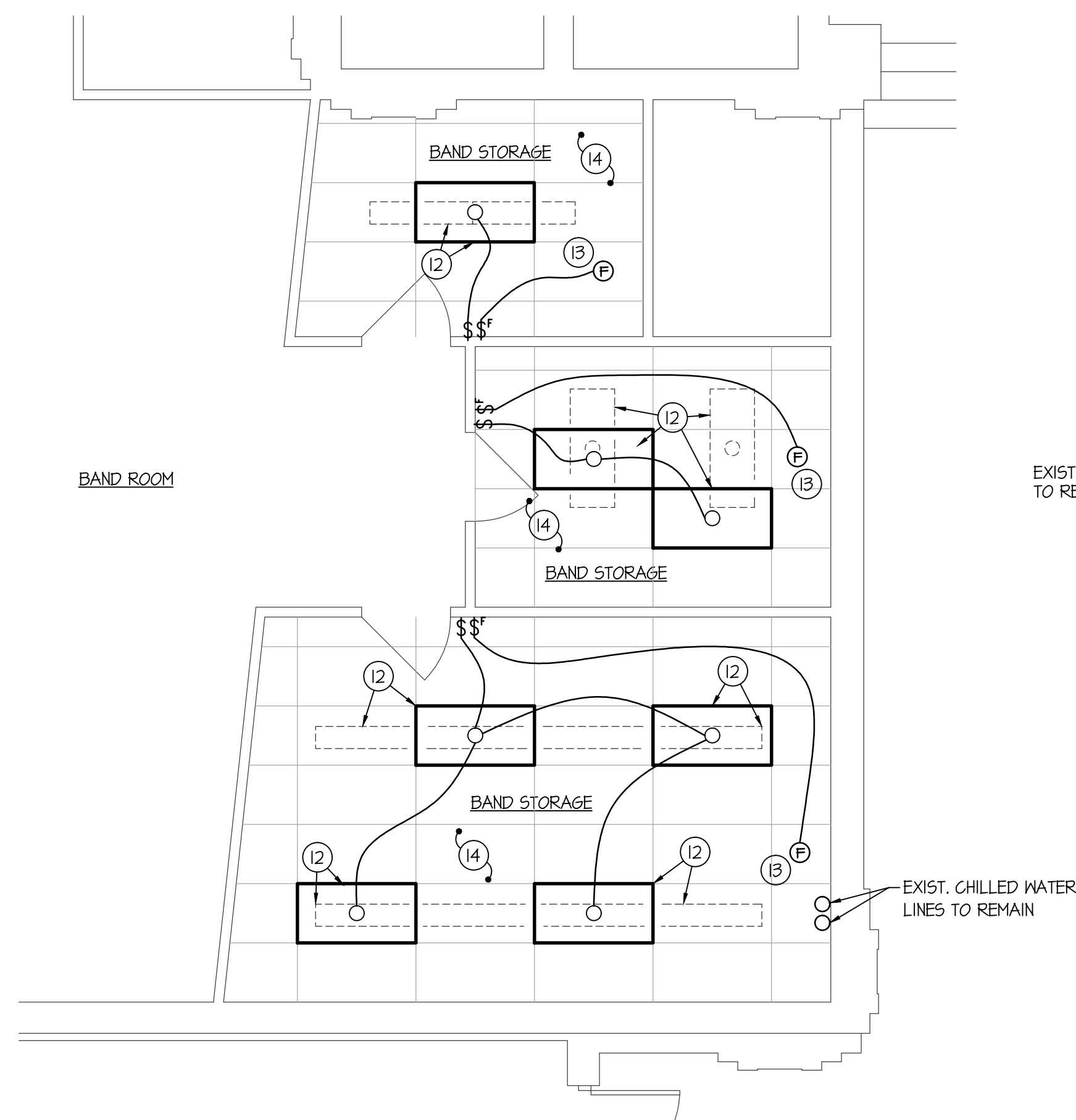
CONDENSATE PUMP DETAIL

NO SCALE



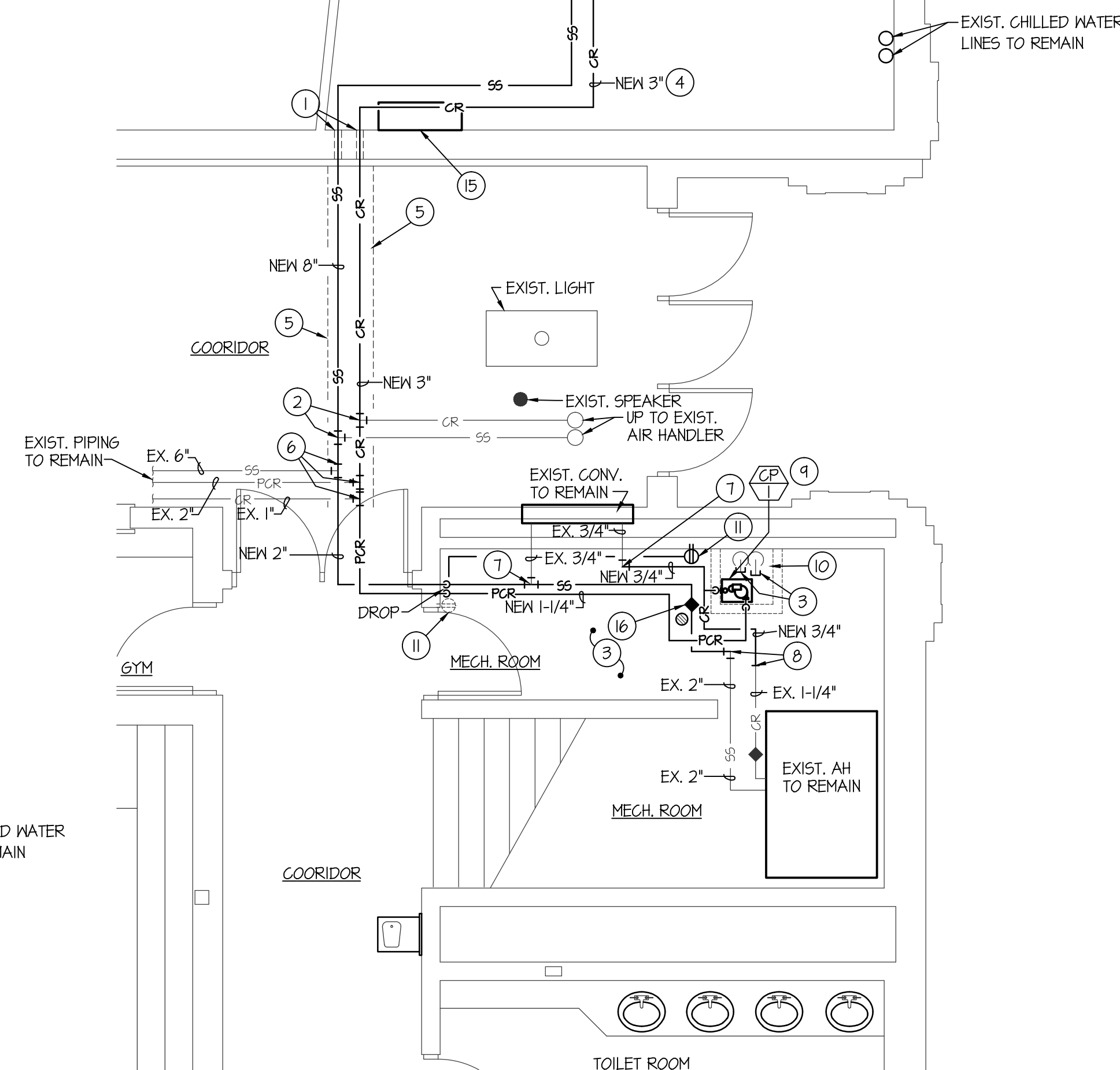
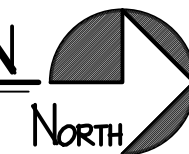
END OF MAIN STEAM TRAP DETAIL

NO SCALE



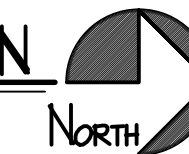
MAIN LEVEL - CEILING / LIGHTING PLAN

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



MAIN LEVEL - MECHANICAL PLAN

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



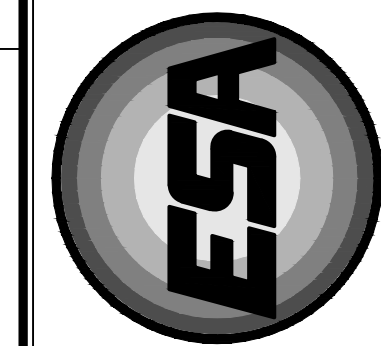
PLAN NOTES:

- CORE DRILL EXISTING CONCRETE WALL AS REQUIRED TO INSTALL NEW PIPING AS SHOWN.
- CONNECT EXISTING 6" STEAM SUPPLY LINE AND 2-1/2" CONDENSATE RETURN LINE FEEDING EXISTING AIR HANDLER & FAN COIL(S) TO NEW 8" STEAM SUPPLY AND NEW 3" CONDENSATE RETURN.
- REMOVE EXISTING STEAM LINES LOCATED IN MECH. ROOM AS SHOWN, CAP AND ABANDON IN PLACE EXISTING 8" STEAM SUPPLY AND 3" CONDENSATE RETURN PIPING LOCATED UNDERGROUND FROM EXISTING BOILER ROOM TO EXISTING GYM ADDITION.
- RUN NEW STEAM SUPPLY AND CONDENSATE RETURN PIPING ABOVE NEW LAY-IN CEILING. GRADE NEW CONDENSATE RETURN PIPING AT 1/4" PER FOOT BACK TO STEAM TUNNEL.
- CUT AND PATCH EXISTING GYP. BOARD CEILING AS REQUIRED TO INSTALL NEW PIPING ABOVE. TAPE TEXTURE AND PAINT TO MATCH EXISTING CEILING. CAREFULLY COORDINATE LOCATION OF CUTTING TO AVOID EXISTING LIGHT AND SPEAKER ASSEMBLY.
- CONNECT EXISTING 6" STEAM SUPPLY, 2" CONDENSATE RETURN AND 1" RUMPED CONDENSATE RETURN LINES TO NEW 8" STEAM SUPPLY LINE AND 3" CONDENSATE RETURN LINE.
- CONNECT EXISTING 3/4" STEAM AND CONDENSATE PIPING SERVING EXISTING CONVECTOR TO NEW PIPING INSIDE MECH. ROOM.
- CONNECT EXISTING 2" STEAM AND 1-1/4" CONDENSATE PIPING SERVING EXISTING AIR HANDLER TO NEW PIPING INSIDE MECH. ROOM.
- INSTALL NEW CONDENSATE PUMP IN FIT OF MECH ROOM AND PIPE AS SHOWN ON PLAN AND DETAIL THIS SHEET.
- FILL PIT WITH CLEAN GRAVEL AND POUR 4" CONCRETE SLAB 12" BELOW EXISTING FLOOR. SET NEW CONDENSATE PUMP IN PIT BELOW EXISTING DUCTWORK.
- REMOVE EXISTING GFCI OUTLET AND INSTALL SURFACE BOX AND CONDUIT TO EXTEND CIRCUIT TO NEW LOCATION AS SHOWN. RE-INSTALL GFCI OUTLET AND PROTECT DOWNSTREAM CONVENIENCE OUTLET.
- REMOVE EXISTING SURFACE MOUNTED LIGHT FIXTURE AND REPLACE WITH NEW FIXTURES PROVIDED BY THE OWNER. EXTEND CONDUIT AND WIRING AS REQUIRED TO CONNECT TO EXISTING CIRCUITS AND SWITCHING.
- EXISTING CEILING FAN TO REMAIN IN USE. REMOVE AND RE-INSTALL INTO NEW CEILING GRID AS REQUIRED.
- REMOVE ENTIRE CEILING TILE AND GRID. REPLACE WITH NEW AS PER DETAILS AND SPECIFICATIONS.
- EXISTING CONVECTOR AND TEMP CONTROLS TO REMAIN.
- INSTALL END OF MAIN TRAP IN STEAM LINE. SEE DETAIL THIS SHEET.

GENERAL NOTES:

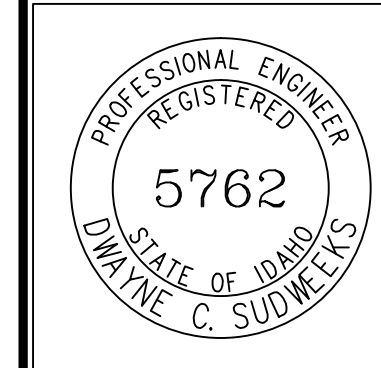
- A- THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND CONNECTIONS ON THE JOB SITE. ALL WORK SHALL BE EXECUTED FROM MEASUREMENTS TAKEN AT THE SITE.
- B- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO INSURE PROPER CODE CLEARANCES FOR ELECTRICAL AND MECHANICAL ACCESS WHEN INSTALLING ANY EQUIPMENT SUPPLIED BY THE MECHANICAL CONTRACTOR.
- C- IT IS CRITICAL THAT THIS CONTRACTOR COORDINATE EQUIPMENT LOCATIONS WITH PIPING, DUCTWORK, ELECTRICAL CONDUIT AND BUILDING STRUCTURE TO INSURE CODE COMPLIANCE.
- D- CEILING DIFFUSERS ARE SHOWN IN APPROXIMATE LOCATIONS. REFER TO LIGHTING PLANS AND REFLECTED CEILING PLAN FOR EXACT LOCATIONS.
- E- DUCT DIMENSIONS CALLED OUT ON DRAWINGS ARE INSIDE FREE AREA DIMENSIONS. ACOUSTICAL DUCT LINER ARE TO BE ADDED TO OVERALL MEASUREMENTS.
- F- ALL DUCTWORK AND PIPING WHICH PASSES THRU FIRE RATED WALLS TO BE FIRE STOPPED WITH APPROVED FOAM OR SEALANT. REFER TO SPECIFICATIONS FOR APPROVED MANUFACTURERS.

ORIGINAL DRAWING SIGNED BY: DWAYNE C. SUDWEEKS
 DATE ORIGINAL SIGNED: FEB. 10, 2015
 ORIGINAL ON FILE AT ENGINEERED SYSTEMS ASSOCIATES
 1355 EAST CENTER, POCAATELLO, IDAHO 83201



Engineered Systems Associates
Mechanical Engineers
 Dwayne Sudweeks - Ron Rice
 East Center - Pocatello, Idaho 83201
 Phone: (208) 233-0501 Fax: (208) 233-0529 email: esa@engsystems.com

NEW STEAM PIPING FOR:
POCAATELLO HIGH SCHOOL GYM
 SCHOOL DISTRICT #25
 POCAATELLO, IDAHO
 PROJECT:
 SHEET TITLE: **MAIN LEVEL MECHANICAL PLAN**



DRWN. BY:	OKD. BY:
SR	DCS
JOB NO.	DATE:
14123	FEB. 2015

SHEET:
M-2
 OF: TWO