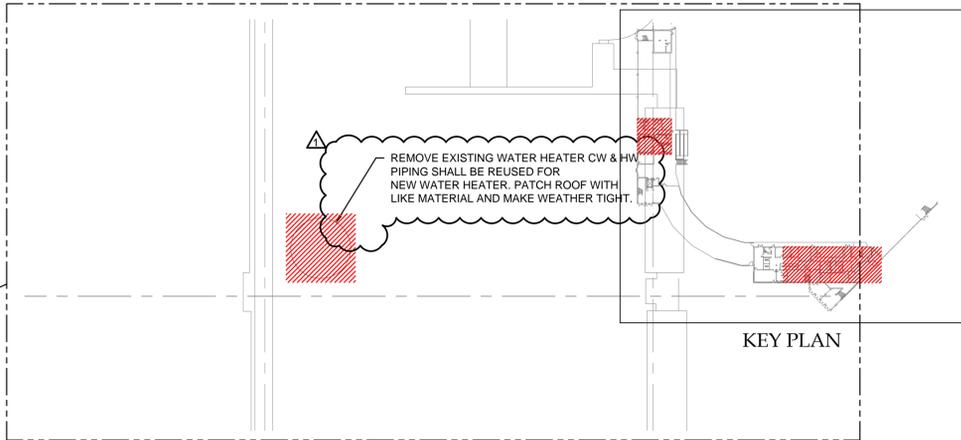
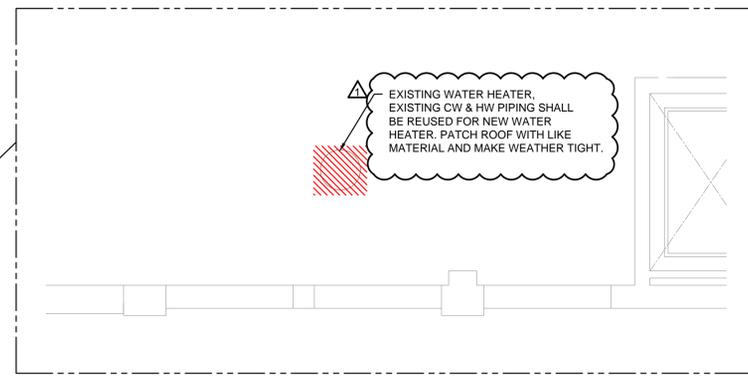


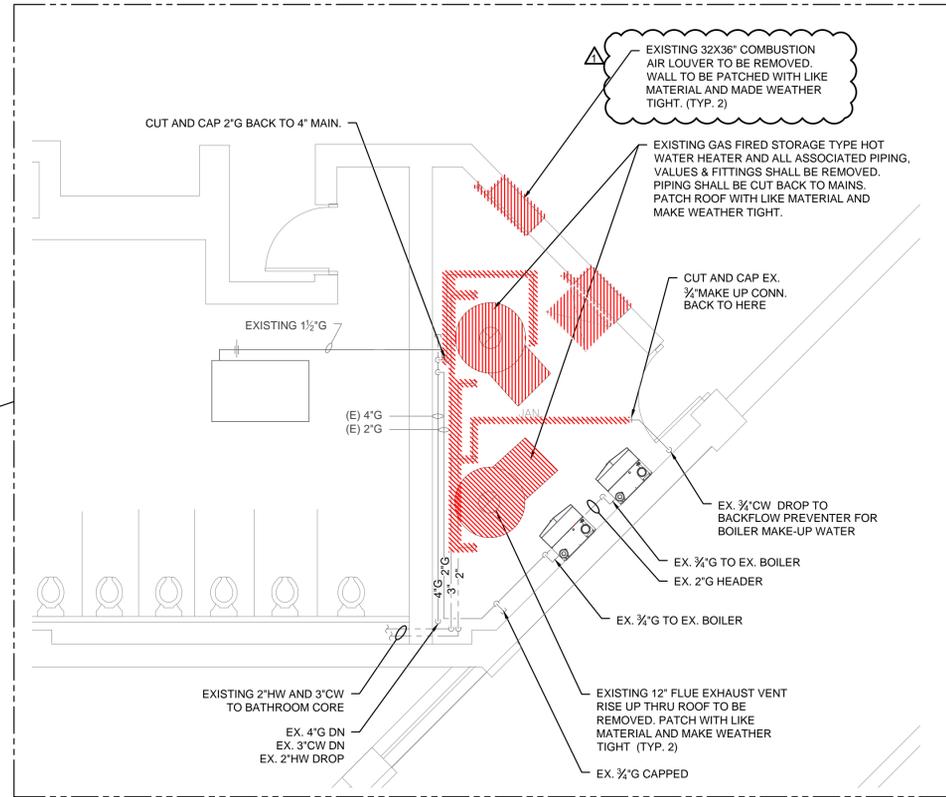
**CONCOURSE LEVEL OVERALL DEMO PLAN**  
SCALE: 1/32"=1'-0"



**ENLARGED CONCESSION 3RD BASELINE PLUMBING PLAN**  
SCALE: 1/4"=1'-0"



**ENLARGED CONCESSION 1ST BASELINE DEMO PLAN**  
SCALE: 1/4"=1'-0"



**ENLARGED JANITOR'S CLOSET DEMO PLAN**  
SCALE: 1/4"=1'-0"



999 BROADWAY SUITE 206  
SAUGUS, MA 01906  
781-233-4808

125 AVIATION AVE, SUITE 4  
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NORTH

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LOWELL, MA

LELACHEUR  
PARK  
HOT WATER  
UPGRADE

REVISIONS:

Date	Description
7-9-15	Addendum #1

BID SET  
06-30-2015

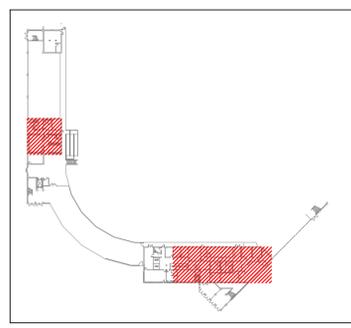
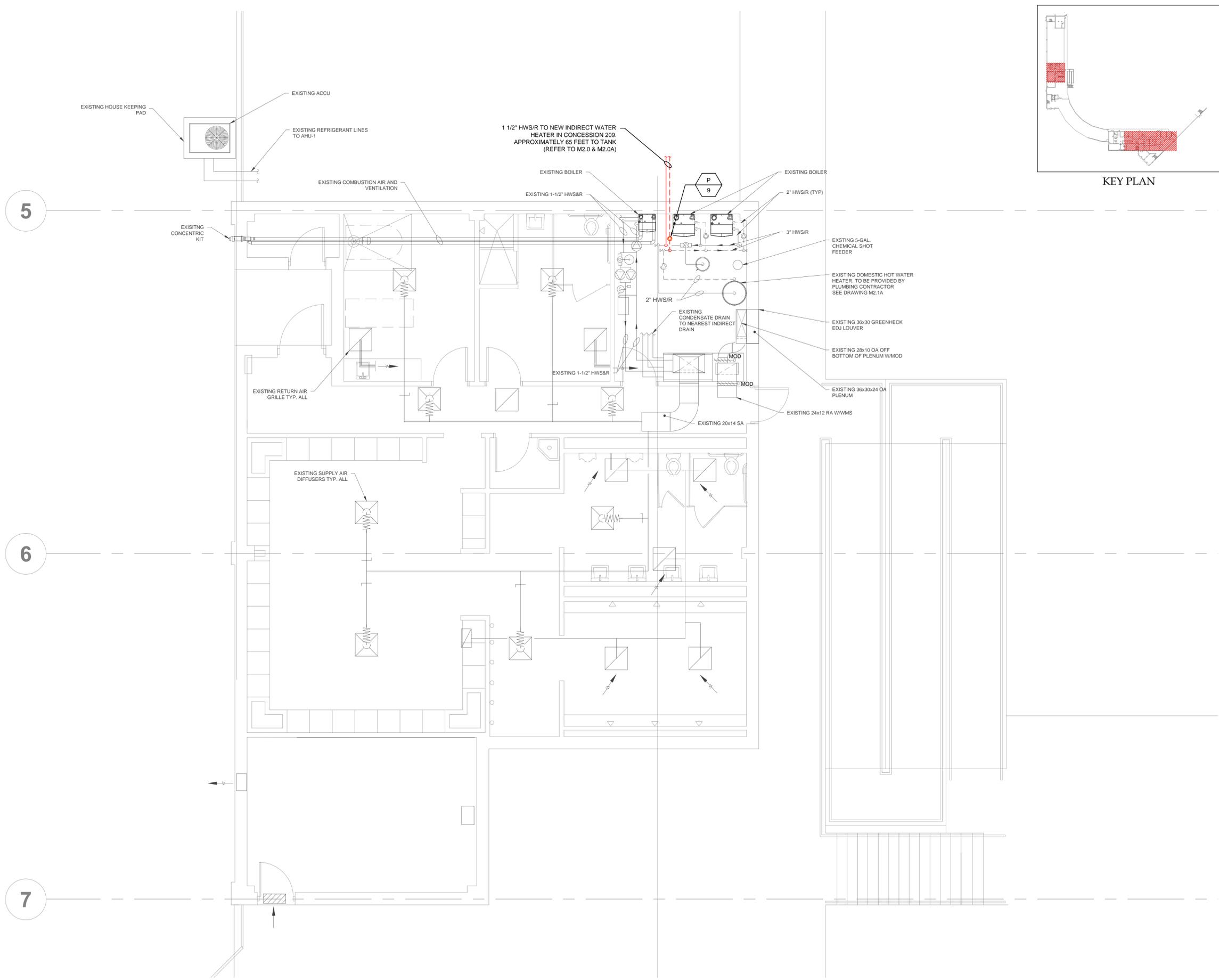
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Drawn By: MR  
Checked By: DM  
Date: 06-29-15

MECHANICAL  
CONCOURSE LEVEL  
DEMO PLANS

MD2.1

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7/9/2015 1:48pm - 2013-206 MD2.1 Mechanical Concourse Level Demo Plans.dwg



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LELACHEUR PARK  
HOT WATER  
UPGRADE

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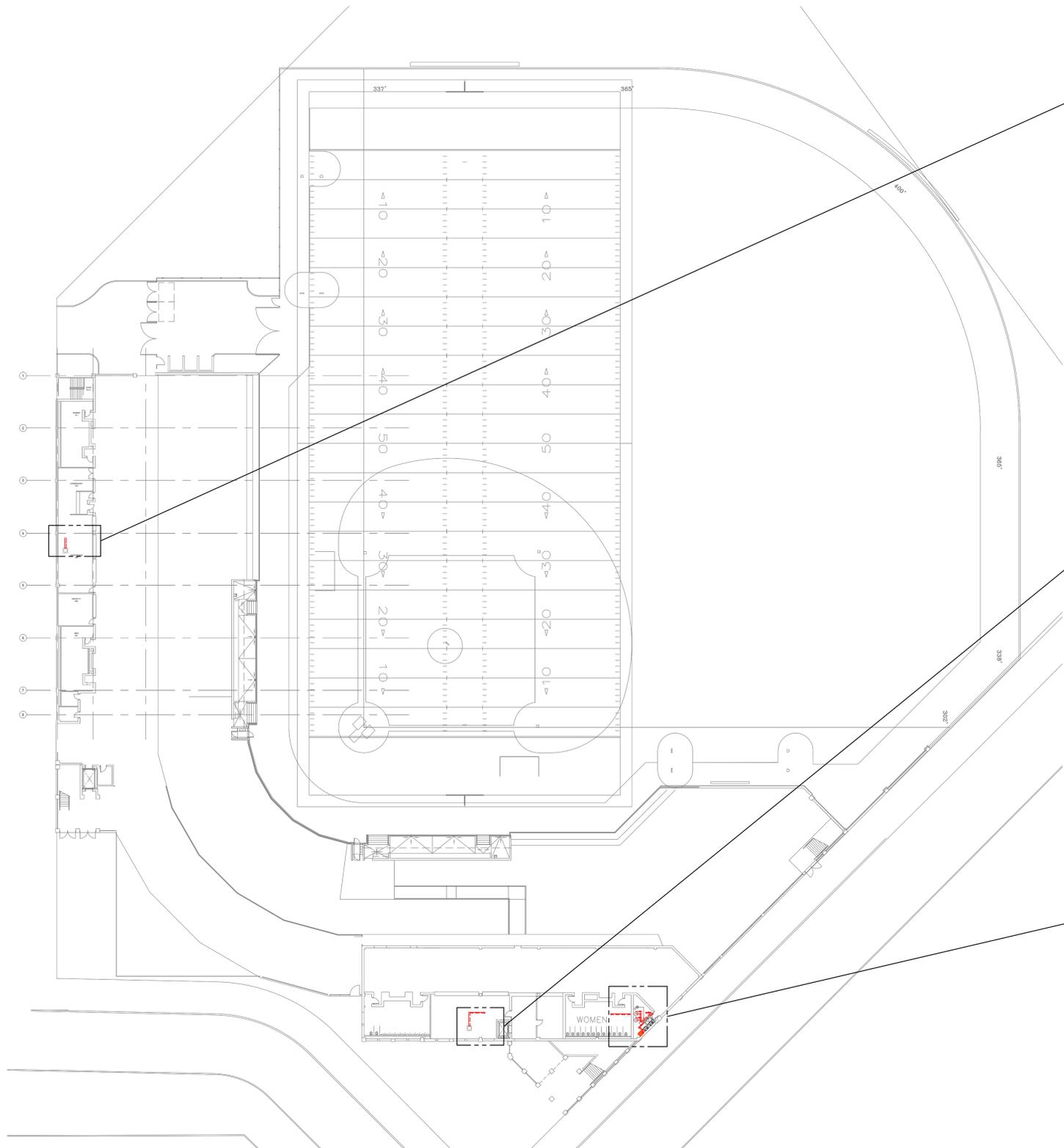
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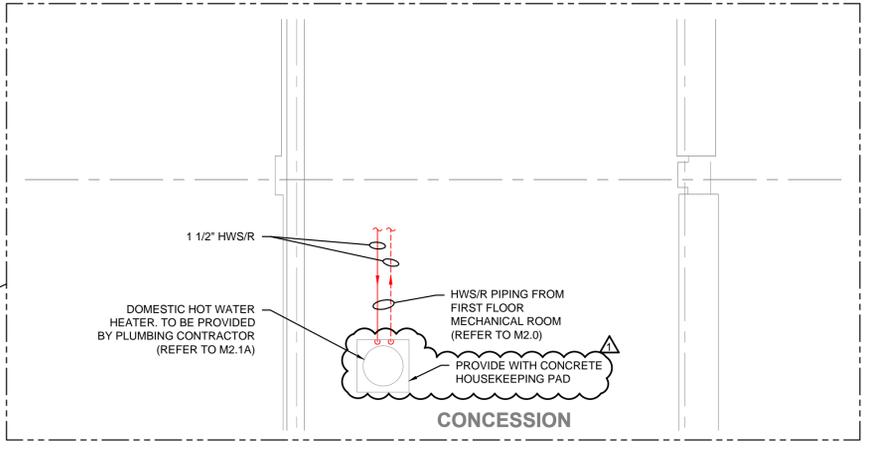
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Scale: 1/4"=1'-0"  
Drawn By: MR  
Checked By: DM  
Date: 06-29-15

MECHANICAL PLANS  
FIRST FLOOR

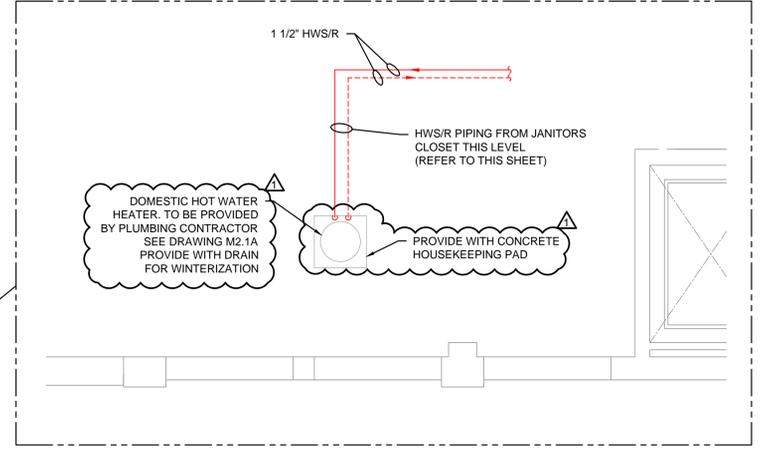
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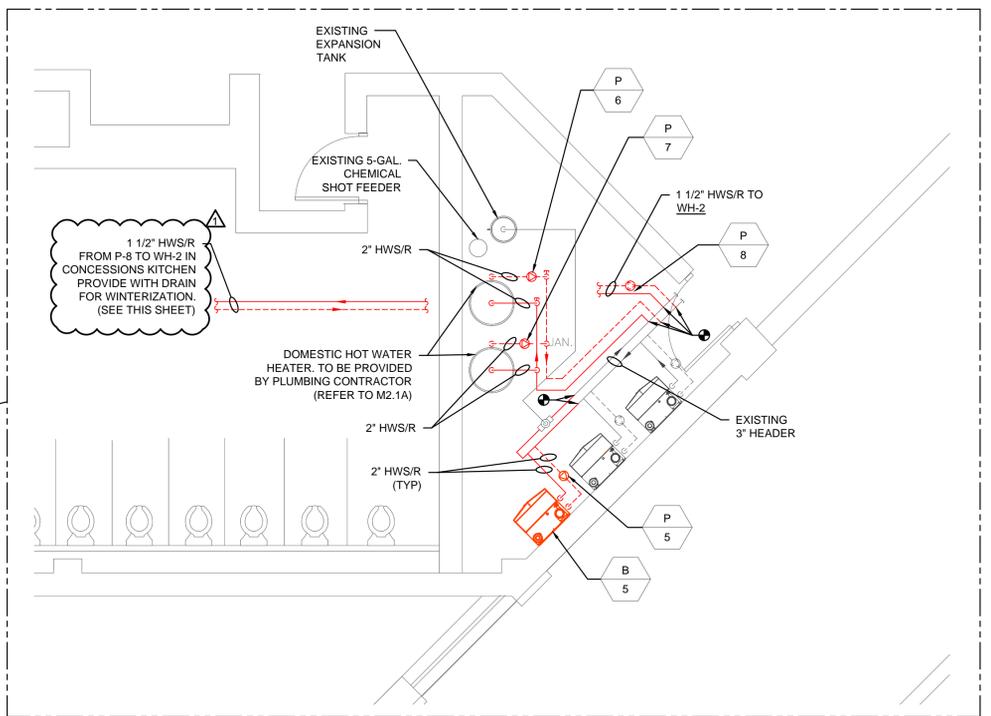
**CONCOURSE LEVEL OVERALL PLAN**  
SCALE: 1/32"=1'-0" 0 16' 32' 64'



**ENLARGED CONCESSION 3RD BASELINE PLUMBING PLAN**  
SCALE: 1/4"=1'-0" 0 2' 4' 8'



**ENLARGED CONCESSION 1ST BASELINE PLUMBING PLAN**  
SCALE: 1/4"=1'-0" 0 2' 4' 8'



**ENLARGED JANITOR'S CLOSET PLUMBING PLAN**  
SCALE: 1/4"=1'-0" 0 2' 4' 8'



FIRE PROTECTION  
999 BROADWAY SUITE 206  
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CSI Project Number: 2013-206  
Scale: 1/4"=1'-0"  
Drawn By: MR  
Checked By: DM  
Date: 06-29-15

MECHANICAL PLANS  
CONCOURSE LEVEL

**M2.1**  
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FIRE PROTECTION  
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 UPGRADE

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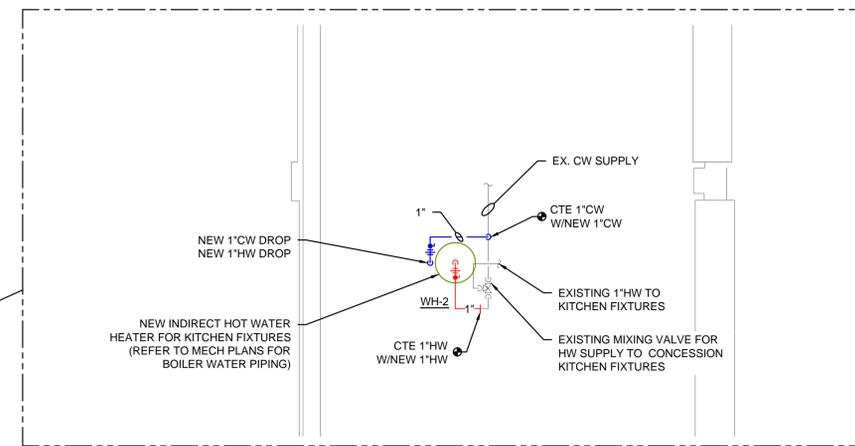
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 06-30-2015

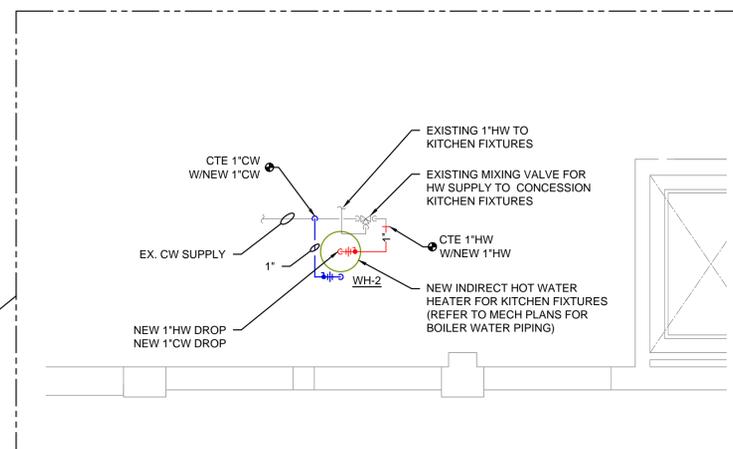
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 Drawn By: AP  
 Checked By: KC  
 Date: 06-29-15

PLUMBING PLANS  
 CONCOURSE LEVEL

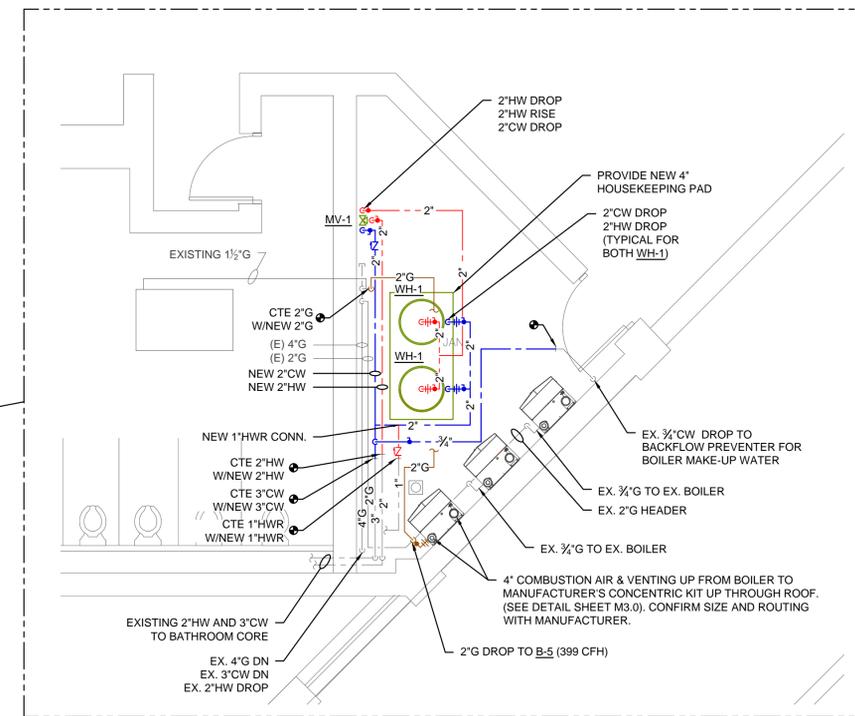
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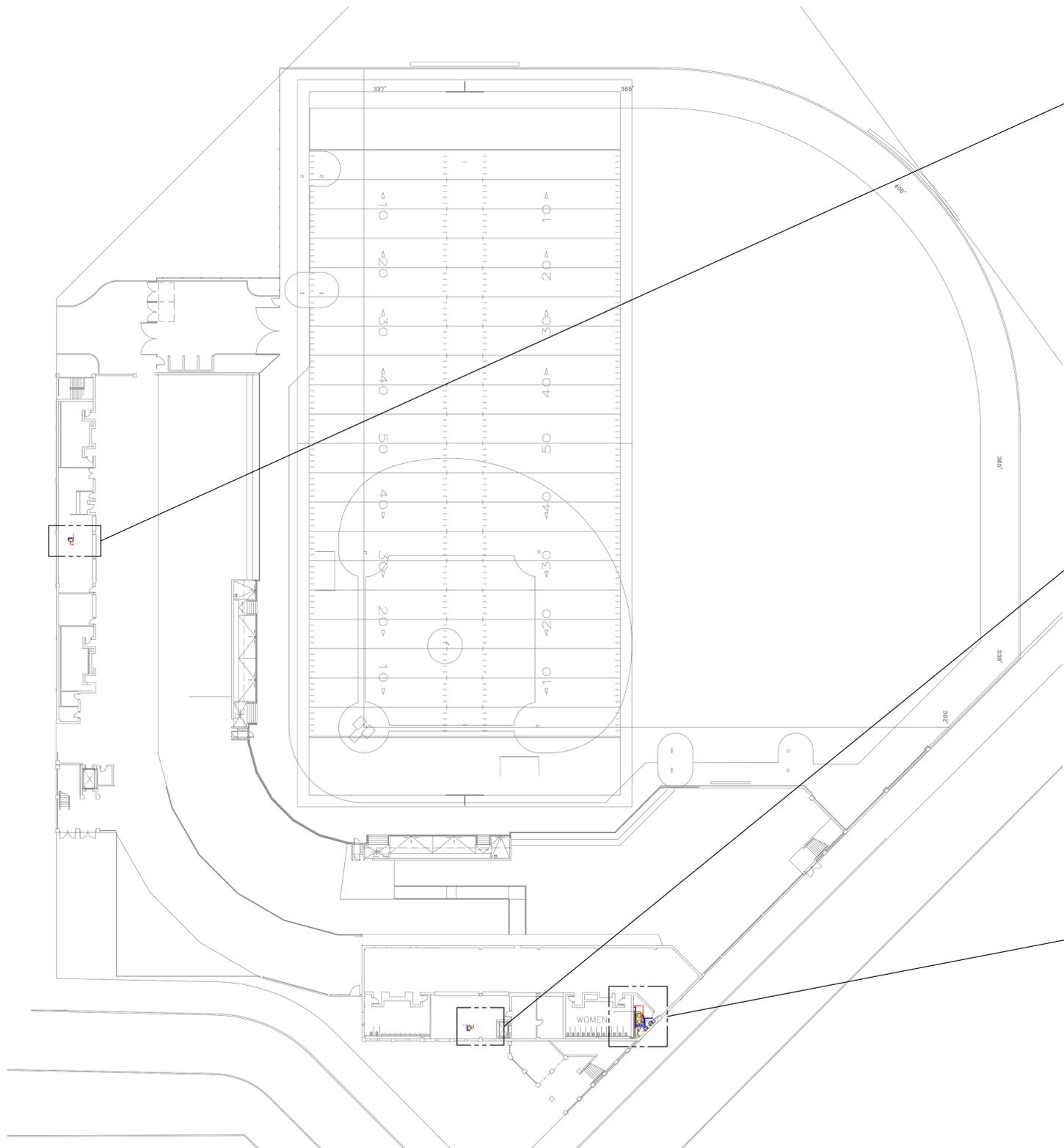
ENLARGED CONCESSION 3RD BASELINE PLUMBING PLAN  
 SCALE: 1/4"=1'-0"



ENLARGED CONCESSION 1ST BASELINE PLUMBING PLAN  
 SCALE: 1/4"=1'-0"

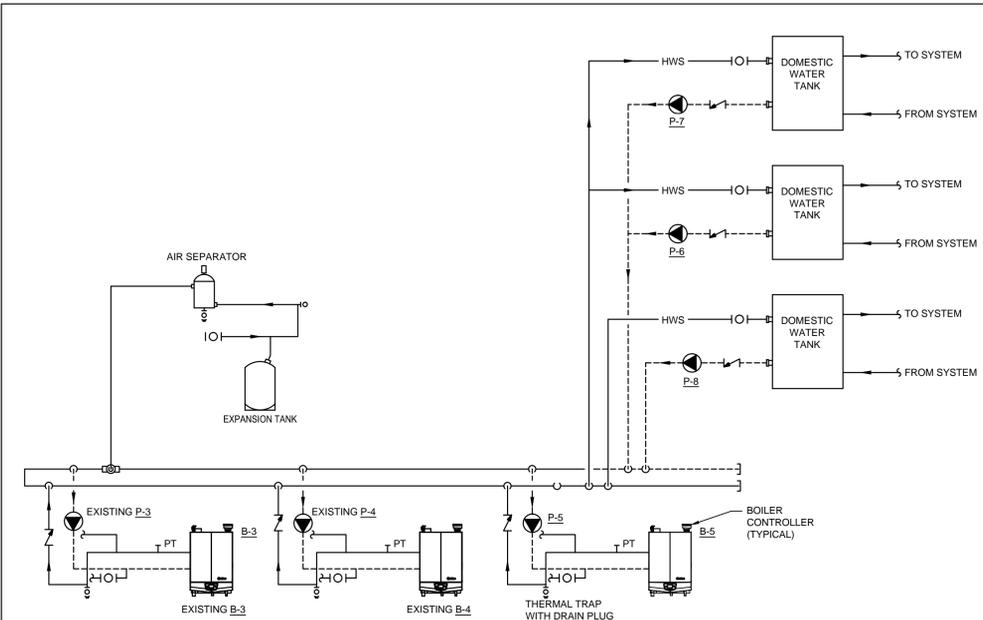


ENLARGED JANITOR'S CLOSET PLUMBING PLAN  
 SCALE: 1/4"=1'-0"



CONCOURSE LEVEL OVERALL PLAN  
 SCALE: 1/32"=1'-0"

10/06/15 - Jul 09, 2015 - 1:50pm - 2013-206 M2.1A Plumbing Plans Concourse Level.dwg



THE BOILERS AND PUMPS FOR THE DOMESTIC HOT WATER SYSTEM ARE CONTROLLED AND MONITORED BY THE BOILER CONTROL PANEL. THIS SYSTEM SHALL BE CAPABLE OF PROVIDING THE SPECIFIED SEQUENCE OF OPERATION ALONG WITH THE HOT WATER RESET, LEAD/LAG CONTROL ON BOILER B-5, THE CONTROL FOR THE PRIMARY PUMP P-5, AND TOTALIZES THE RUN TIME OF EACH BOILER AND EACH PRIMARY PUMP.

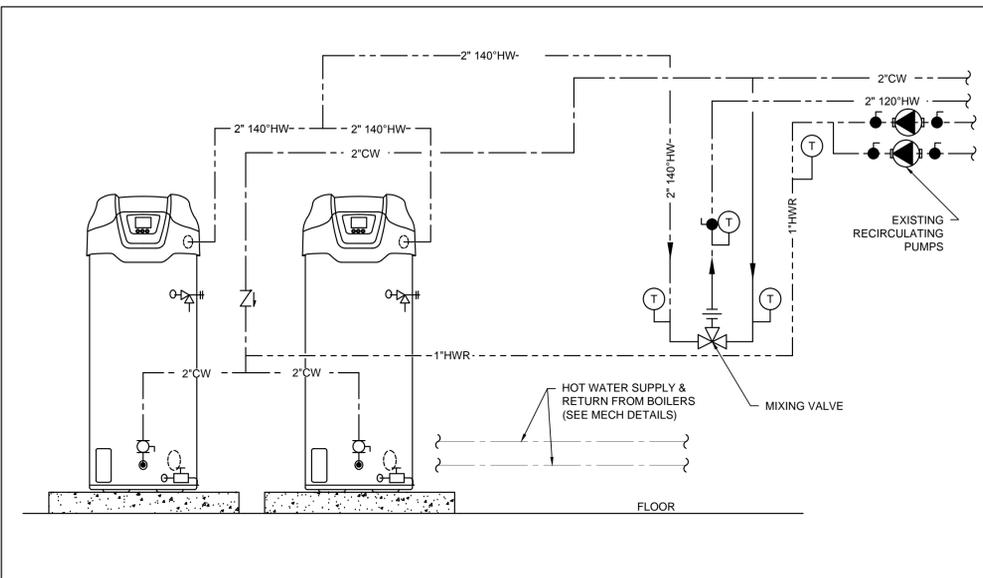
BOILER CONTROL PANEL WILL TURN ON THE MOST BOILERS POSSIBLE TO MEET THE LOAD. THE CONTROL WILL BRING ON THE FIRST PUMP AND BOILER AT MINIMUM MODULATION AND DOES NOT INCREASE ITS MODULATION. IF MORE BOILER OUTPUT IS REQUIRED, THE SECOND PUMP AND BOILER WILL TURN ON AT MINIMUM MODULATION AND DOES NOT INCREASE ITS MODULATION. IF STILL MORE BOILER OUTPUT IS REQUIRED, ALL BOILERS ARE MODULATED UP IN PARALLEL UNTIL THEY REACH THEIR MAXIMUM MODULATION SETTINGS. REVERSE SHALL OCCUR ONCE LOAD IS SATISFIED.

SECONDARY PUMP FAILURE ALARM SIGNALS TO THE BOILER CONTROL PANEL IF A NO FLOW CONDITION IS SENSED OR NO CURRENT IS SENSED AT THE DUTY PUMP. THE CONTROLLER PANEL SHALL THEN DISABLE THE DUTY PUMP AND ENABLE THE STANDBY PUMP.

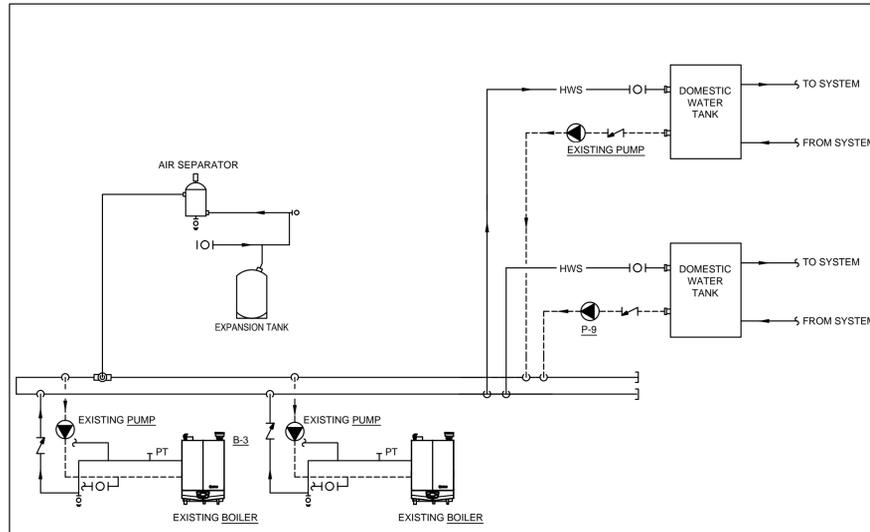
THE BOILER CONTROL PANEL ALLOWS FOR SELECTION OF LEAD BOILER AND PRIMARY PUMP BY EITHER MANUALLY (BY OPERATOR) OR AUTOMATICALLY (EVERY TWO WEEKS BOILERS AND PUMPS ROTATE POSITIONS).

ON A CALL FOR DHW, THE BOILER CONTROL WILL SUPPLY 180°F WATER TO SYSTEM. THE BOILERS WILL MAINTAIN A SUPPLY TEMPERATURE NO HIGHER THAN THE BOIL MAX SETTING.

**HOT WATER BOILERS AND ASSOCIATED PUMPS FOR 1ST BASE SIDE DOMESTIC HOT WATER CONTROL SEQUENCE AND PIPING DIAGRAM**



**GAS FIRED WATER HEATER PIPING DIAGRAM (WH-1 & WH-2)**



THE BOILERS AND PUMPS FOR THE DOMESTIC HOT WATER SYSTEM ARE CONTROLLED AND MONITORED BY THE BOILER CONTROL PANEL. THIS SYSTEM SHALL BE CAPABLE OF PROVIDING THE SPECIFIED SEQUENCE OF OPERATION ALONG WITH THE HOT WATER RESET, LEAD/LAG CONTROL ON BOILER, THE CONTROL FOR THE PRIMARY PUMP, AND TOTALIZES THE RUN TIME OF EACH BOILER AND EACH PRIMARY PUMP.

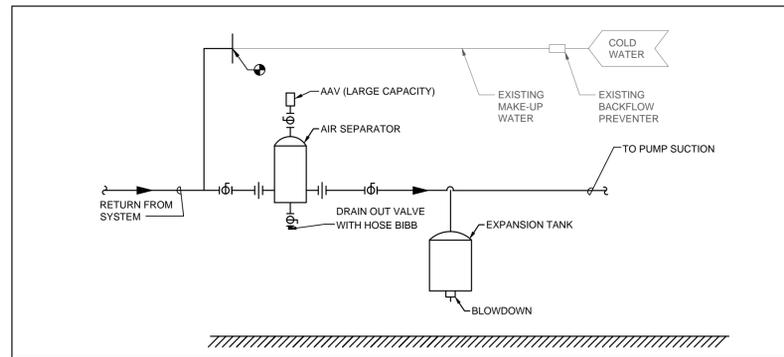
BOILER CONTROL PANEL WILL TURN ON THE MOST BOILERS POSSIBLE TO MEET THE LOAD. THE CONTROL WILL BRING ON THE FIRST PUMP AND BOILER AT MINIMUM MODULATION AND DOES NOT INCREASE ITS MODULATION. IF MORE BOILER OUTPUT IS REQUIRED, THE SECOND PUMP AND BOILER WILL TURN ON AT MINIMUM MODULATION AND DOES NOT INCREASE ITS MODULATION. IF STILL MORE BOILER OUTPUT IS REQUIRED, ALL BOILERS ARE MODULATED UP IN PARALLEL UNTIL THEY REACH THEIR MAXIMUM MODULATION SETTINGS. REVERSE SHALL OCCUR ONCE LOAD IS SATISFIED.

SECONDARY PUMP FAILURE ALARM SIGNALS TO THE BOILER CONTROL PANEL IF A NO FLOW CONDITION IS SENSED OR NO CURRENT IS SENSED AT THE DUTY PUMP. THE CONTROLLER PANEL SHALL THEN DISABLE THE DUTY PUMP AND ENABLE THE STANDBY PUMP.

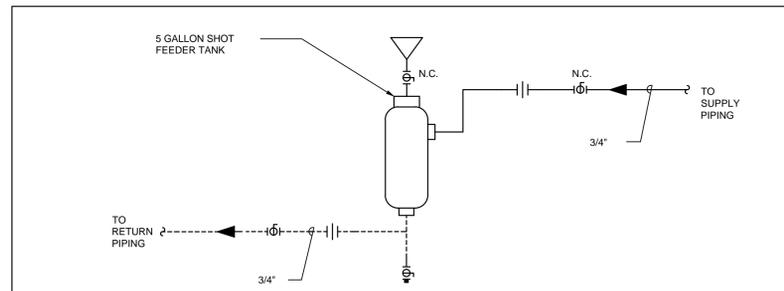
THE BOILER CONTROL PANEL ALLOWS FOR SELECTION OF LEAD BOILER AND PRIMARY PUMP BY EITHER MANUALLY (BY OPERATOR) OR AUTOMATICALLY (EVERY TWO WEEKS BOILERS AND PUMPS ROTATE POSITIONS).

ON A CALL FOR DHW, THE BOILER CONTROL WILL SUPPLY 180°F WATER TO SYSTEM. THE BOILERS WILL MAINTAIN A SUPPLY TEMPERATURE NO HIGHER THAN THE BOIL MAX SETTING.

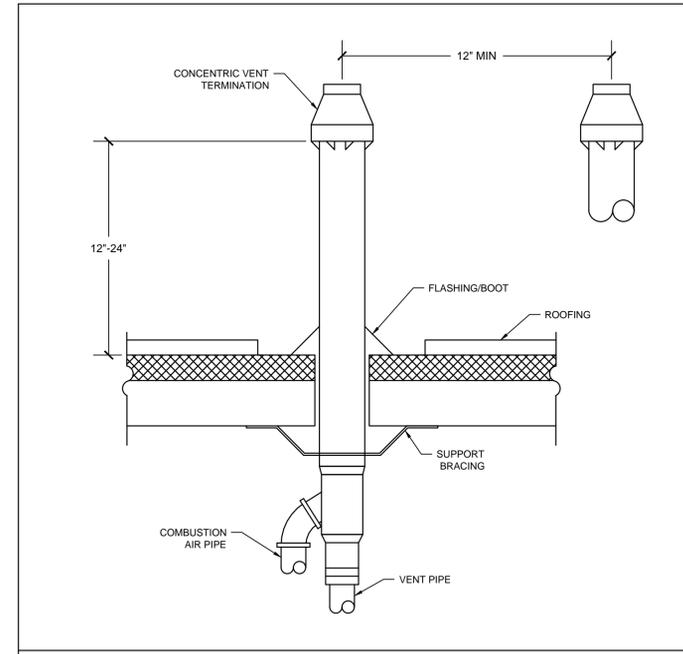
**HOT WATER BOILERS AND ASSOCIATED PUMPS FOR 3RD BASE SIDE DOMESTIC HOT WATER CONTROL SEQUENCE AND PIPING DIAGRAM**



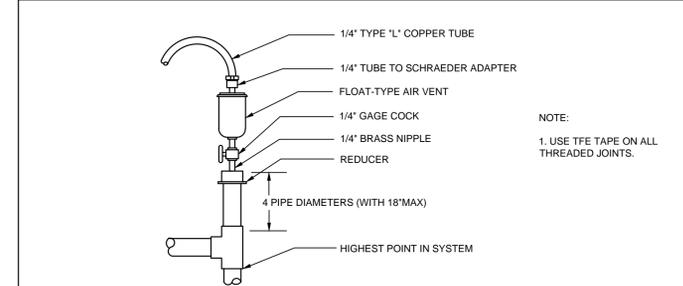
**HYDRONIC SPECIALTIES FOR CLOSED LOOP WATER SYSTEMS**



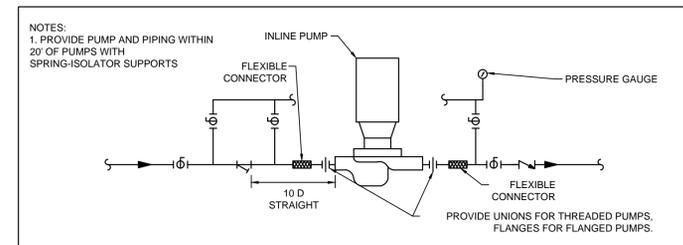
**CHEMICAL FEED (SHOT FEEDER)**



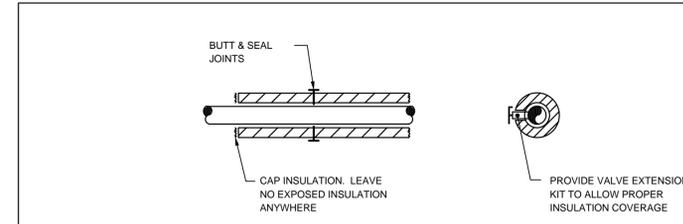
**VERTICAL CONCENTRIC VENT DETAIL**



**AUTOMATIC AIR VENT ASSEMBLY**



**INLINE PUMP PIPING**



**TYPICAL PIPE INSULATION & VALVE HANDLE EXTENSION**


  
 999 BROADWAY SUITE 206  
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 PARK  
 HOT WATER  
 UPGRADE

REVISIONS:

Date	Description

**BID SET**  
**06-30-2015**

CSI Project Number: 2013-206  
 Scale: NTS  
 Drawn By: MR  
 Checked By: DM  
 Date: 06-29-15

MECHANICAL  
 DETAILS

**M3.0**  
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## HVAC SPECIFICATIONS

### A. GENERAL NOTES

1. GENERAL PROVISIONS: DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK IN CONTRACT.
2. THE CONTRACTOR SHALL PERFORM THE WORK AND PROVIDE NEW MATERIAL AND EQUIPMENT AS SHOWN ON DRAWINGS AND AS SPECIFIED IN THE SPECIFICATIONS. PROVIDE ALL COMPONENTS AND MATERIALS, WHETHER SPECIFICALLY SHOWN OR NOT, THAT ARE NECESSARY TO MAKE THE SYSTEMS COMPLETE AND FULLY OPERATIONAL AS INTENDED IN THE CONSTRUCTION DOCUMENTS
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL WORK INCLUDED UNDER THIS SECTION UNTIL THE COMPLETION AND FINAL ACCEPTANCE OF THIS PROJECT. PROTECT ALL EQUIPMENT AND MATERIALS FROM DAMAGE FROM ALL CAUSES. ALL MATERIALS AND EQUIPMENT DAMAGED OR STOLEN SHALL BE REPAIRED OR REPLACED WITH EQUAL MATERIAL OR EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER. PROTECT ALL EQUIPMENT, OUTLETS AND OPENINGS, AND ROOF PENETRATIONS. PROTECT WORK AND MATERIALS OF OTHER TRADES FROM DAMAGE THAT MIGHT BE CAUSED BY WORK OR WORKMEN UNDER THIS SECTION. DAMAGED MATERIALS ARE TO BE REMOVED FROM THE SITE. NO SITE STORAGE OF DAMAGED MATERIALS WILL BE ALLOWED. ANY DAMAGE TO EXISTING SYSTEMS AND EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE OWNER.
4. WHERE DRAWINGS OR SPECIFICATIONS DO NOT COINCIDE WITH MANUFACTURER'S RECOMMENDATIONS, ARE UNCLEAR AS TO INTENT AND/OR REQUIRED MATERIAL QUALITY, ADVISE CSI ENGINEERING IN WRITING BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REWORK NECESSARY TO RESOLVE THESE DISCREPANCIES.
5. THE CONTRACTOR SHALL CAREFULLY EXAMINE SITE TO IDENTIFY EXISTING CONDITIONS THAT MAY IMPACT THE WORK OF THIS SECTION BEFORE SUBMITTING BID. NO EXTRA PAYMENT SHALL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY THE SITE CONDITIONS THAT ARE VISIBLE OR EASILY DISCERNED BY AN THE CONTRACTOR.
6. THE FOLLOWING WORK IS NOT INCLUDED IN THIS SECTION AND WILL BE PROVIDED UNDER OTHER SECTIONS: TEMPORARY HEAT, TESTING, PAINTING, PATCHING, ELECTRICAL POWER WIRING TO ALL EQUIPMENT, AND DUCT MOUNTED SMOKE DETECTORS.
7. ALL WORK WILL BE DESIGNED PER THE MASSACHUSETTS STATE BUILDING CODE, MASSACHUSETTS NATIONAL ELECTRICAL CODE, STATE GAS CODE, SMACNA, NFPA, ANSI/ASHRAE, ASME, UL, NEMA, OSHA, ARCHITECTURAL ACCESS BOARD, AND ALL OTHER APPLICABLE FEDERAL, STATE OR LOCAL CODES. THESE DRAWINGS AND SPECIFICATIONS ILLUSTRATE THE SCOPE REQUIRED FOR THIS PROJECT, WHICH MAY EXCEED MINIMUM CODE, LAW AND STANDARDS CRITERIA.
8. THE CONTRACTOR SHALL PROVIDE SUBMITTALS THAT SPECIFY SPECIFIED ITEMS, EQUIPMENT AND THE MANUFACTURER'S PRODUCT DATA. DEVIATIONS TO SPECIFIED ITEMS SHALL BE AT THE SOLE RISK OF THE CONTRACTOR, WHO SHALL BE RESPONSIBLE FOR ALL ASSOCIATED CHANGES TO THIS AND OTHER TRADES. REVIEW OF THE SHOP DRAWINGS BY THE ENGINEER SHALL NOT ABSOLVE THE CONTRACTOR FROM MEETING THE FULL DESIGN INTENT OF THE ASSOCIATED SYSTEMS. THE CONTRACTOR SHALL HAVE PREVIOUSLY REVIEWED AND APPROVED THE SUBMITTALS BEFORE SUBMITTING TO CSI ENGINEERING.
9. SUBMIT OPERATING AND MAINTENANCE MANUALS PRIOR TO THE COMPLETION OF THE PROJECT. PROVIDE ON-SITE DEMONSTRATION OF ALL SYSTEMS TO OWNER AFTER SYSTEMS ARE FULLY OPERATIONAL. O&M MANUALS SHALL INCLUDE ALL COMPONENTS AS WELL AS SYSTEM DESCRIPTIONS OF ALL SYSTEMS WITH FLOW DIAGRAMS, WIRING DIAGRAMS, WRITTEN WARRANTIES, RECOMMENDED SPARE PARTS AND ROUTINE MAINTENANCE REQUIREMENTS WITH RECOMMENDED INTERVALS FOR ALL MOVING EQUIPMENT AND CONTROLS.
10. WARRANTY INSTALLATION IN WRITING FOR ONE YEAR FROM DATE OF OWNER'S ACCEPTANCE OF CERTIFICATE OF SUBSTANTIAL COMPLETION.
11. COORDINATE WITH ALL OTHER TRADES RELATIVE TO LOCATION OF ALL APPARATUS AND EQUIPMENT TO BE INSTALLED AND SELECT LOCATIONS SO AS NOT TO CONFLICT WITH OR HINDER THE PROGRESS OF THE WORK OF OTHER SECTIONS. WORK INSTALLED THAT CREATES INTERFERENCE OR RESTRICTS ACCESS REQUIRED BY CODE OR TO CONDUCT MAINTENANCE AND/OR ADJUSTMENTS SHALL BE MODIFIED AT NO ADDITIONAL COST TO THE OWNER.
12. INCLUDE ALL STRUCTURAL STEEL SUPPORTS, HANGER BRACKETS, ETC., REQUIRED FOR THE WORK IN THIS SECTION. HANGERS SHALL BE STEEL ANGLE IRON, CHANNEL OR STEEL ROD USED WITH APPROVED CLAMPS, INSERTS, ETC. ALL HANGERS SHALL BE GALVANIZED OR PAINTED WITH TWO COATS OF RUST PREVENTING PAINT BEFORE INSTALLATION. SUPPORTS INSTALLED IN EXTERIOR LOCATIONS SHALL BE GALVANIZED STEEL OR STAINLESS STEEL WITH STAINLESS STEEL HARDWARE.
13. IF THE GENERAL CONTRACTOR IS NOT RESPONSIBLE FOR THE CUTTING AND PATCHING REQUIRED IN THIS SECTION THEN THE CONTRACTOR SHALL INCLUDE ALL CORING, CUTTING, PATCHING AND FIREPROOFING NECESSARY FOR THE WORK OF THIS SECTION. STRUCTURAL ELEMENTS SHALL NOT BE CUT, FILL AND PATCH ALL OPENINGS OR HOLES LEFT IN THE EXISTING STRUCTURES BY THE REMOVAL OF EXISTING EQUIPMENT. PATCH, SEAL AND MAKE AIR AND WATER TIGHT ALL EXISTING OPENINGS IN DUCTWORK AND PIPING NOT USED FOR THE WORK.
14. THE CONTRACTOR SHALL PROVIDE, SET-UP AND MAINTAIN THE HOISTING, CRANES, SCAFFOLDS, STAGING AND PLANKING AS REQUIRED FOR THE WORK FOR THIS SECTION.
15. THE CONTRACTOR SHALL COMPLY WITH ALL OF THE SAFETY REQUIREMENTS OF THE OWNER AND OSHA THROUGHOUT THE COURSE OF THE PROJECT.
16. THE CONTRACTOR SHALL PROVIDE A CERTIFICATE OF COMPLETION STATING THAT THE INSTALLATION IS IN COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS AND ALL APPLICABLE CODES. ALL SUBMITTALS, AS-BUILTS, O&M MANUALS, COMPLETED PUNCH LIST ITEMS AND REPORTS ARE TO BE PROVIDED PRIOR TO REQUEST FOR COMPLETION CERTIFICATES. THE CONTRACTOR SHALL VERIFY THAT ALL SYSTEMS AND EQUIPMENT ARE WORKING PER THE CONTRACT DRAWINGS.

### B. PROJECT PRODUCTS

1. WATER PIPING AND VALVES: PIPING 2 1/2" AND LARGER SHALL BE WELDED SCHEDULE 40 STEEL, 2" AND SMALLER SHALL BE SCREWED SCHEDULE 40 STEEL, 95/5 SOLDERED TYPE L COPPER. CONDENSATE DRAIN PIPING SHALL BE COPPER. PROVIDE FLEX CONNECTORS AT ALL CONNECTIONS TO ROTATING EQUIPMENT. PROVIDE DIELECTRIC FITTINGS TO CONNECT DIFFERENT PIPING MATERIALS. VALVES SHALL HAVE NAME OF MANUFACTURER AND GUARANTEED WORKING PRESSURE CAST OR STAMPED ON BODIES. VALVES AND STRAINERS SHALL BE AS MANUFACTURED BY NEXUS, DANFOSS OR APOLLO. BALL VALVES SHALL BE USED ON 2" AND SMALLER WATER PIPING, BUTTERFLY USED ON 2 1/2" AND LARGER WATER PIPING. PROVIDE DRAIN VALVES AT LOW POINTS IN PIPING AND VALVED VENTS AT HIGH POINTS. STRAINERS SHALL BE "Y" TYPE, FULL SIZE OF ENTERING PIPE SIZE AND HAVE A MAXIMUM CLEAN PRESSURE DROP OF 1 PSID. STRAINERS SHALL INCLUDE BLOW DOWN VALVE.
2. PIPE INSULATION: INSULATION SHALL BE FIBROUS GLASS INSULATION WITH FACTORY-APPLIED FIRE RETARDANT VAPOR BARRIER JACKET WITH K FACTOR OF AT LEAST 0.23 AT 75 DEG. F MEAN TEMPERATURE BY CERTAIN-TEED, MANVILLE, OR KNAUF. ASTM E-84 FIRE HAZARD RATINGS SHALL BE 25 FLAME SPREAD, 50 SMOKE DEVELOPED AND 50 FUEL CONTRIBUTED. INSULATION THICKNESS SHALL BE 1-1/2" FOR HOT WATER.
3. PIPE HANGERS AND SUPPORTS: PROVIDE PIPE STANDS, SUPPORTS, HANGERS, AND OTHER SUPPORTING APPLIANCES AS NECESSARY TO SUPPORT WORK REQUIRED BY CONTRACT DOCUMENTS. SPACING OF HANGERS SHALL BE INSTRUCTED IN ACCORDANCE WITH APPLICABLE BUILDING AND MECHANICAL CODES. SIZE OF HANGERS SHALL INCLUDE THE PIPE INSULATION WITH SHIELD. WHERE HANGERS ARE USED OUTDOORS, THEY SHALL BE STAINLESS STEEL OR PVC COATED GALVANIZED STEEL.
4. INSULATION SHALL BE CERTAIN-TEED, MANVILLE OR OWENS CORNING AND SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. INSULATE THE FOLLOWING EQUIPMENT: AIR SEPARATORS, PUMPS, EXPANSION TANKS, ETC. INSULATION SHALL BE FORMED OR FABRICATED TO FIT EQUIPMENT AND HAVE REMOVABLE SECTIONS FOR SERVICING.
5. MOTORS, STARTERS, AND WIRING: PROVIDE PREMIUM EFFICIENCY MOTORS. STARTERS AND/OR VFD'S SHALL BE PROVIDED BY DIVISION 16 UNLESS PART OF PACKAGED EQUIPMENT. PROVIDE CONTROL AND OTHER RELATED WIRING INCLUDING INTERLOCKS.

## PLUMBING SPECIFICATIONS

### A. GENERAL

1. GENERAL: ALL WORK COVERED CONSISTS OF FURNISHING ALL MATERIALS, LABOR, EQUIPMENT AND SUPPLIES NECESSARY TO PROVIDE A COMPLETE WORKING SYSTEM REQUIRED PER THE DESIGN DRAWINGS AND MASSACHUSETTS STATE CODES.
2. SHOP DRAWINGS: SHOP DRAWING SUBMITALS AND TESTING REPORTS OF ALL SPECIFIED FIXTURES, EQUIPMENT AND PIPING SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL.
3. CODES: ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THE PLUMBING SUB-CONTRACT, LABOR, AND TESTING PERFORMED HEREIN SHALL BE IN COMPLETE ACCORDANCE WITH THE MASSACHUSETTS STATE BUILDING CODE, INTERNATIONAL FUEL GAS CODE, STATE PLUMBING CODE, LOCAL ORDINANCES AND REGULATIONS OF THE CITY OR TOWN, NATIONAL FIRE PROTECTION ASSOCIATION AND INSURANCE REGULATIONS AND REQUIREMENTS GOVERNING SUCH WORK.
4. PRIOR TO BID: THE PLUMBING SUBCONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH ALL TRADE DRAWINGS AND ASPECTS OF THE SCOPE AND EXISTING CONDITIONS TO WHICH THE WORK WILL BE INSTALLED. ANY DISCREPANCIES BETWEEN THE SCOPE OF WORK SHOWN ON THE DRAWINGS AND ANY CONDITIONS SHALL BE SUBMITTED TO THE ARCHITECT IN WRITING. FAILURE OF THE CONTRACTOR TO DO SO SHALL NOT CONSTITUTE AN EXTRA TO THE CONTRACT.
5. PERMITS: ALL PERMITS, FEES OR EXPENSES INCURRED THAT ARE REQUIRED FOR INSTALLATION OF ANY MATERIAL SHALL BE OBTAINED AS PART OF THE WORK OF THIS SPECIFICATION INCLUDING.
6. INSTRUCTIONS: ALL INSTRUCTION SHALL BE PROVIDED AFTER COMPLETION OF PROJECT TO THE OWNER'S OPERATING PERSONNEL REGARDING ALL SYSTEMS AND EQUIPMENT OPERATION AND MAINTENANCE. OPERATION AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE OWNER.
7. GUARANTEE: ALL MATERIALS, EQUIPMENT AND WORK FURNISHED UNDER THIS SECTION SHALL BE GUARANTEED AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR COMMENCING WITH THE DATE OF THE SUBSTANTIAL COMPLETION.
8. RECORD DRAWINGS: THE PLUMBING SUBCONTRACTOR SHALL MAINTAIN AT THE JOB, AT ALL TIMES, A COMPLETE AND SEPARATE SET OF BLACKLINE PRINTS OF THE PLUMBING DRAWINGS OF HIS TRADE ON WHICH HE SHALL MARK CLEARLY, NEATLY, ACCURATELY, AND PROMPTLY AS THE WORK PROGRESSES. TWO CADD DISKS, AUTOCAD RELEASE 2000 MINIMUM OR COMPATIBLE SYSTEM AS WELL AS MYLAR REPRODUCIBLE, AS-BUILTS, SHALL BE FURNISHED BY THE PLUMBING SUBCONTRACTOR AT THE JOB COMPLETION.
9. COORDINATION: CONTRACTOR TO CAREFULLY COORDINATE ALL WORK INSTALLED WITH THAT OF ALL OTHER TRADES.
10. PROTECTION OF PROPERTY: PROTECT ALL NEW AND EXISTING WORK BEFORE, DURING AND AFTER INSTALLATION.
11. DISINFECTION: ALL DOMESTIC WATER SYSTEMS SHALL BE DISINFECTED IN ACCORDANCE WITH THE LOCAL PUBLIC HEALTH AND MASSACHUSETTS PLUMBING CODE REQUIREMENTS SECTION 10.14.
12. TESTS: THE PLUMBING SUBCONTRACTOR SHALL PERFORM ALL TESTS AT THE COMPLETION OF THE WORK, AND THE RESULTS FURNISHED TO THE OWNER AND ARCHITECT IN WRITING.
13. CERTIFICATES OF APPROVAL: UPON COMPLETION OF ALL WORK, THE PLUMBING SUBCONTRACTOR SHALL FURNISH, IN DUPLICATE, CERTIFICATES OF INSPECTIONS FROM ALL INSPECTORS AND AUTHORITIES HAVING JURISDICTION, NOTARIZED LETTERS FROM THE MANUFACTURERS STATING THAT AUTHORIZED FACTORY ENGINEERS HAVE INSPECTED AND TESTED THE INSTALLATION OF THEIR RESPECTIVE SYSTEMS AND FOUND SAME TO BE IN PERFECT OPERATING CONDITION.
14. DRAWING INTERPRETATION: THE CONTRACT DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATE ONLY THE GENERAL ARRANGEMENTS OF WORK. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW EVERY PIPE, RISE, DROP, ELBOW, ETC. ANY ADDITIONAL WORK NOT SHOWN AND REQUIRED TO INSTALL THE PLUMBING SYSTEMS SHALL BE INCLUDED AS PART OF THIS CONTRACT.
15. DEMOLITION WORK: PARTICULAR CARE SHALL BE TAKEN TO AVOID CREATING HAZARDS ON THE SITE OR CAUSING DISRUPTION OF SERVICE IN THE BUILDING. ALL EXISTING EQUIPMENT TO BE REMOVED SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER. ALL EXISTING EQUIPMENT TO BE TURNED OVER TO THE OWNER SHALL BE PRESENTED TO THE OWNER IN GOOD CONDITION AT A LOCATION DESIGNATED BY THE OWNER. ALL OTHER EQUIPMENT SHALL BE REMOVED FROM THE PREMISES. REMOVE ALL ABANDONED PIPING AND EQUIPMENT NOT BUILT INTO BUILDING CONSTRUCTION. WHERE CEILING OR WALLS ARE REMOVED, ALL ABANDONED PIPING SHALL BE REMOVED AND ENDS OF LIVE SERVICES CAPPED. ABANDONED ELEMENTS BUILT INTO WALLS OR LOCATED ABOVE EXISTING INACCESSIBLE CEILINGS SHALL REMAIN AND ENDS CAPPED AND MARKED ABANDONED.
16. CONTINUITY OF SERVICES: SERVICES SHALL NOT BE INTERRUPTED WITHOUT OWNER'S APPROVAL. WHEN AN INTERRUPTION OF SERVICE BECOMES NECESSARY, CONTRACTOR SHALL CONSULT WITH THE OWNER AND SCHEDULE THE PROPER TIME TO DO THE SHUT-DOWN. SCHEDULE MUST NOT DELAY NOR INTERFERE WITH THE PROGRESS OF THE PROJECT.
17. SEISMIC RESTRAINTS: PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH THE SEISMIC REQUIREMENTS IDENTIFIED IN THE MASSACHUSETTS STATE BUILDING CODE, EIGHTH (8TH) EDITION.

### B. SCOPE

1. THE WORK OF THIS SECTION CONSISTS OF ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO PROVIDE ALL PLUMBING WORK COMPLETE, IN PLACE, AS SHOWN ON THE DRAWINGS, SPECIFIED HEREIN AND AS NECESSARY FOR A PROPER INSTALLATION.
2. THE EXTENT OF THE PLUMBING WORK SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
  - a. DOMESTIC COLD WATER SYSTEM.
  - b. DOMESTIC HOT WATER SUPPLY AND HOT WATER RECIRCULATION SYSTEM.
  - c. CORE DRILLING
  - d. INSULATION OF ALL EXISTING COLD WATER, HOT WATER, HOT WATER RECIRCULATION AND CONDUCTORS SYSTEMS PIPING, VALVES AND FITTINGS MADE BARE AS A RESULT OF ASBESTOS ABATEMENT. WHEN CONNECTING TO EXISTING INSULATED SYSTEM PROVIDE NEW INSULATION FOR THREE FEET ON EITHER SIDE OF THE NEW CONNECTION.
  - e. FURNISHING OF ACCESS PANELS.
3. **RELATED WORK**
  1. THE FOLLOWING EQUIPMENT ITEMS AND WORK SHALL BE THE RESPONSIBILITY OF OTHERS:
    - a. CUTTING AND PATCHING
    - b. TEMPORARY WATER, HEAT, FIRE PROTECTION AND TOILET FACILITIES
    - c. TEMPORARY POWER AND LIGHTING
    - d. CONCRETE AND MASONRY SUPPORTS AND EQUIPMENT BASES
    - e. FLASHING AND CAULKING

6. VIBRATION ISOLATION: PROVIDE VIBRATION ISOLATION FOR EACH PIECE OF ROTATING OR PISTON DRIVEN HVAC EQUIPMENT SHOWN ON THE DRAWINGS. ISOLATION MAY BE INTERNAL OR EXTERNAL TO THE EQUIPMENT AND SHALL PROVIDE AT LEAST 90% ISOLATION EFFICIENCY. ISOLATE THE FIRST FOUR PIPE HANGER LOCATIONS FROM EQUIPMENT WITH 1" DEFLECTION COMBINATION SPRING AND NEOPRENE. INSTALLATION PRACTICES SHALL BE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE VIBRATION ISOLATION MANUFACTURER.
7. CENTRIFUGAL PUMPS: PROVIDE WHERE SHOWN ON DRAWINGS, CENTRIFUGAL PUMPS, OF CAPACITIES, TYPES, AND CONFIGURATIONS SHOWN ON SCHEDULES. PROVIDE PREMIUM EFFICIENCY VFD COMPATIBLE MOTORS THAT ARE NON-OVERLOADING THROUGHOUT PUMP CURVE. ACCEPTABLE MANUFACTURERS SHALL BE: GRUNDFOS, PACO AND BELL AND GOSSETT. PROVIDE A NON-REDUCING SUCTION DIFFUSERS ON PUMP INLETS.
8. HYDRONIC SPECIALTIES: PROVIDE 125 PSI RATED (ASME) AIR SEPARATORS AND DIAPHRAGM EXPANSION TANKS AS SHOWN ON DRAWINGS. PROVIDE WITH AUTOMATIC AIR VENTS AND DRAIN VALVES. SPECIALTIES SHALL BE AS MANUFACTURED BY SPROVENT, AMTRCO.
9. CLOSED WATER TREATMENT: PROVIDE CLOSED LOOP SYSTEMS WITH WATER TREATMENT CONSISTING OF 5 GALLON BY-PASS SHOT FEEDER TO FEED CHEMICAL SOLUTION INTO EACH PIPING SYSTEM. FLUSH AND CLEAN ALL SYSTEMS AFTER INSTALLATION. SUBMIT WRITTEN REPORT INDICATING THAT SYSTEMS HAVE BEEN THOROUGHLY CLEANED AND CHARGED WITH CORROSION INHIBITOR. EFFLUENT FROM SYSTEMS DISCHARGED TO SEWER SHALL MEET REQUIREMENTS OF APPLICABLE LOCAL, STATE, AND NATIONAL WATER QUALITY STANDARDS. PROVIDE ONE-YEAR SERVICE INCLUDING MAINTAINING CHEMICALS AS WELL AS ANALYZING WATER SAMPLES.
10. GAS FIRED BOILERS: THE BOILERS SHALL BE A LOCHINVAR KNIGHT MODEL WHN OR APPROVED EQUAL AND SHALL BE OPERATED ON NATURAL GAS. THE BOILER SHALL BE CAPABLE OF FULL MODULATION, FIRING DOWN TO 20% OF RATED INPUT WITH A TURNDOWN RATIO OF 5:1. THE BOILER SHALL BE OF A FIRE TUBE DESIGN AND SHALL BE VERTICALLY DOWN FIRED. THE BOILER SHALL BEAR THE ASME "H" STAMP FOR 80 PSI WORKING PRESSURE AND SHALL BE NATIONAL BOARD LISTED. THE HEAT EXCHANGER ASSEMBLY SHALL BE FULLY WELDED THROUGH AN AUTOMATED PROCESS TO ENSURE WELD INTEGRITY. THE 439 STAINLESS STEEL COMBUSTION CHAMBER AND TUBES SHALL BE SELF CLEANING AND DESIGNED TO DRAIN CONDENSATION TO THE BOTTOM OF THE HEAT EXCHANGER ASSEMBLY. A BUILT-IN STAINLESS STEEL FLUE COLLECTOR SHALL ALLOW CONDENSATION TO DRAIN FROM THE HEAT EXCHANGER ASSEMBLY AND INTO THE EXTERNAL CONDENSATE TRAP. THE COMPLETE HEAT EXCHANGER ASSEMBLY SHALL CARRY A TWELVE (12) YEAR LIMITED WARRANTY. THE BOILER SHALL BE CERTIFIED AND LISTED BY C.S.A. INTERNATIONAL UNDER THE LATEST EDITION OF THE HARMONIZED ANSI Z21.13/CSA 4.9 TEST STANDARD FOR THE U.S. AND CANADA. THE BOILER SHALL COMPLY WITH THE ENERGY EFFICIENCY REQUIREMENTS OF THE LATEST EDITION OF THE ASHRAE 90.1 STANDARD AND THE MINIMUM EFFICIENCY REQUIREMENTS OF THE LATEST EDITION OF THE ASHRAE 103 STANDARD. THE BOILER SHALL MEET U.S. ENVIRONMENTAL PROTECTION AGENCY AND DEPARTMENT OF ENERGY GUIDELINES FOR "ENERGY STAR". THE BOILER SHALL BE CERTIFIED FOR INDOOR INSTALLATION. THE BOILER'S EFFICIENCY RATINGS SHALL BE VERIFIED THROUGH THIRD PARTY TESTING BY THE HYDRONICS INSTITUTE DIVISION OF AHRI AND LISTED IN THE AHRI CERTIFICATION DIRECTORY. THE BOILER SHALL BE CONSTRUCTED WITH A HEAVY GAUGE STEEL JACKET ASSEMBLY, PRIMED AND PRE-PAINTED ON BOTH SIDES. THE COMBUSTION CHAMBER SHALL BE SEALED AND COMPLETELY ENCLOSED, INDEPENDENT OF THE OUTER JACKET ASSEMBLY, SO THAT INTEGRITY OF THE OUTER JACKET DOES NOT AFFECT A PROPER SEAL. A BURNER/FLAME OBSERVATION PORT SHALL BE PROVIDED. THE BURNER SHALL BE A PREMIX DESIGN AND CONSTRUCTED OF HIGH TEMPERATURE STAINLESS STEEL WITH A WOVEN METAL FIBER OUTER COVERING TO PROVIDE MODULATING FIRING RATES. THE BOILER SHALL BE SUPPLIED WITH A GAS VALVE DESIGNED WITH NEGATIVE PRESSURE REGULATION AND BE EQUIPPED WITH A VARIABLE SPEED BLOWER SYSTEM, TO PRECISELY CONTROL THE FUEL/AIR MIXTURE TO PROVIDE MODULATING BOILER FIRING RATES FOR MAXIMUM EFFICIENCY. THE BOILER SHALL OPERATE IN A SAFE CONDITION AT A DERATED OUTPUT WITH GAS SUPPLY PRESSURES AS LOW AS 4 INCHES OF WATER COLUMN. THE BOILER SHALL UTILIZE A 24 VDC CONTROL CIRCUIT AND COMPONENTS. THE CONTROL SYSTEM SHALL HAVE AN ELECTRONIC DISPLAY FOR BOILER SET-UP, BOILER STATUS, AND BOILER DIAGNOSTICS. ALL COMPONENTS SHALL BE EASILY ACCESSED AND SERVICEABLE FROM THE FRONT AND TOP OF THE JACKET. THE BOILER SHALL BE EQUIPPED WITH: A TEMPERATURE/PRESSURE GAUGE, HIGH LIMIT TEMPERATURE CONTROL CERTIFIED TO UL333, ASME CERTIFIED PRESSURE RELIEF VALVE, OUTLET WATER TEMPERATURE SENSOR, RETURN WATER TEMPERATURE SENSOR, A UL 353 CERTIFIED FLUE TEMPERATURE SENSOR, OUTDOOR AIR SENSOR, LOW WATER FLOW PROTECTION AND BUILT-IN ADJUSTABLE FREEZE PROTECTION. THE BOILER SHALL FEATURE THE "SMART SYSTEM" CONTROL WITH A MULTI-COLORED GRAPHIC LCD DISPLAY WITH NAVIGATION DIAL AND SOFT KEYS FOR, PASSWORD SECURITY, THREE LOOP TEMPERATURE SETPOINTS WITH INDIVIDUAL OUTDOOR AIR RESET CURVES, PUMP DELAY WITH ADJUSTABLE FREEZE PROTECTION, PUMP EXERCISE, DOMESTIC HOT WATER PRIORITY WITH DHW MODULATION LIMITING AND USB PC PORT CONNECTION. THE BOILER SHALL BE CAPABLE OF CONTROLLING A VARIABLE SPEED BOILER PUMP TO KEEP A CONSTANT DELTA T AT ALL MODULATION RATES. THE BOILER SHALL HAVE THE CAPABILITY TO ACCEPT A 0-10 VDC INPUT CONNECTION FOR BMS CONTROL OF MODULATION OR SETPOINT, ENABLE/DISABLE OF THE BOILER, VARIABLE SYSTEM PUMP SIGNAL AND A 0-10VDC OUTPUT OF BOILER MODULATION RATE. THE BOILER SHALL HAVE A BUILT-IN "CASCADE" WITH SEQUENCING OPTIONS FOR "LEAD/LAG" OR "EFFICIENCY OPTIMIZED" MODULATION LOGIC, WITH BOTH CAPABLE OF ROTATION WHILE MAINTAINING MODULATION OF UP TO EIGHT BOILERS WITHOUT UTILIZATION OF AN EXTERNAL CONTROLLER. SUPPLY VOLTAGE SHALL BE 120 VOLT/60 HERTZ / SINGLE PHASE. THE BOILER SHALL BE EQUIPPED WITH TWO TERMINAL STRIPS FOR ELECTRICAL CONNECTION. A LOW VOLTAGE CONNECTION BOARD WITH 42 DATA POINTS FOR SAFETY AND OPERATING CONTROLS, I.E., AUXILIARY PROVING SWITCH, ALARM CONTACTS, RUNTIME CONTACTS, MANUAL RESET LOW WATER CUTOFF, FLOW SWITCH, HIGH AND LOW GAS PRESSURE SWITCHES, TANK THERMOSTAT, THREE WALL THERMOSTATZONE CONTROLS, SYSTEM SUPPLY SENSOR, OUTDOOR SENSOR, BUILDING MANAGEMENT SYSTEM SIGNAL, MODBUS CONTROL CONTACTS AND CASCADE CONTROL CIRCUIT. A HIGH VOLTAGE TERMINAL STRIP SHALL BE PROVIDED FOR SUPPLY VOLTAGE. THE HIGH VOLTAGE TERMINAL STRIP PLUS INTEGRAL RELAYS ARE PROVIDED FOR INDEPENDENT PUMP CONTROL OF THE SYSTEM PUMP. THE BOILER PUMP AND THE DOMESTIC HOT WATER PUMP. THE BOILER SHALL BE INSTALLED AND VENTED WITH A DIRECT VENT SIDEWALL SYSTEM WITH A HORIZONTAL SIDEWALL TERMINATION OF BOTH THE VENT AND COMBUSTION AIR. THE FLUE SHALL BE PVC, CPVC OR STAINLESS STEEL SEALED VENT MATERIAL TERMINATING AT THE SIDEWALL WITH THE MANUFACTURER'S SPECIFIED VENT TERMINATION. A SEPARATE PIPE SHALL SUPPLY COMBUSTION AIR DIRECTLY TO THE BOILER FROM THE OUTSIDE. THE AIR INLET PIPE MAY BE PVC, CPVC, ABS, GALVANIZED, DRYER VENT, OR STAINLESS STEEL SEALED PIPE. THE AIR INLET MUST TERMINATE ON THE SAME SIDEWALL WITH THE MANUFACTURER'S SPECIFIED AIR INLET CAP. THE BOILER'S TOTAL COMBINED AIR INTAKE LENGTH SHALL NOT EXCEED 100 EQUIVALENT FEET. THE BOILER'S TOTAL COMBINED EXHAUST VENTING LENGTH SHALL NOT EXCEED 100 EQUIVALENT FEET. FOAM CORE PIPE IS NOT AN APPROVED MATERIAL FOR EXHAUST PIPING. THE BOILER SHALL HAVE AN INDEPENDENT LABORATORY RATING FOR OXIDES OF NITROGEN (NOX) OF 20 PPM OR LESS CORRECTED TO 3% O2. THE MANUFACTURER SHALL VERIFY PROPER OPERATION OF THE BURNER, ALL CONTROLS AND THE HEAT EXCHANGER BY CONNECTION TO WATER AND VENTING FOR A FACTORY FIRE TEST PRIOR TO SHIPPING.

### C. EXECUTION

1. DEMOLITION: THE EXISTING FACILITY WILL CONTINUE TO OPERATE DURING ALL PHASES OF THE DEMOLITION WORK AND SUBSEQUENT CONSTRUCTION. NO INTERRUPTION OF THE SYSTEMS WILL BE PERMITTED WITHOUT PRIOR APPROVAL OF THE OWNER'S REPRESENTATIVE. SUBMIT PROPOSED METHODS AND SEQUENCE OF OPERATIONS FOR THE SELECTIVE DEMOLITION WORK TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO THE START OF THE WORK. ANY DEMOLITION SHALL BE COORDINATED WITH OWNER, AND CM/CG. PERFORM ALL DEMOLITION WHILE ENSURING MINIMUM INTERFERENCE WITH ADJACENT OCCUPIED AREAS.
2. START UP, TESTING AND BALANCING: PROVIDE QUALIFIED PERSONNEL, EQUIPMENT, APPARATUS, AND SERVICES FOR START-UP, TESTING AND BALANCING OF THE MECHANICAL SYSTEMS TO PERFORMANCE DATA SHOWN IN SCHEDULES AND ON DRAWINGS. AIR AND WATER FLOWS SHALL BE BALANCED TO +/- 5% OF DESIGN. LEAKS, DAMAGE, AND DEFECTS DISCOVERED OR RESULTING FROM START-UP AND BALANCING SHALL BE REPAIRED OR REPLACED TO LIKE-NEW CONDITION WITH ACCEPTABLE MATERIALS. TESTING SHALL CONTINUE UNTIL SYSTEM OPERATES WITHOUT ADJUSTMENTS OR REPAIRS. REPORT DATA ON INDUSTRY STANDARD NEBB OR AABC REPORTING FORMS. THE TAB CONTRACTOR WILL PROVIDE A TAB REPORT THAT HAS THE FOLLOWING: THE REPORT SHALL BE APPROPRIATELY BOUND, A COVER PAGE, A TABLE OF CONTENTS, THE CONTRACTOR'S CERTIFICATION INFORMATION, THE CONTRACTOR'S EQUIPMENT CALIBRATION INFORMATION, FLOW DIAGRAMS OF THE SYSTEM WITH MINIMUM, MAXIMUM AND DESIGN FLOWS AND PRESSURE DATA, A PAGE FOR EACH PUMP WITH ALL THE INFORMATION FILLED IN (ACTUAL AND DESIGN), PUMP CURVES WITH DESIGN AND MAXIMUM PRESSURES PLOTTED, A PAGE FOR EACH BOILER WITH ALL THE INFORMATION FILLED IN (ACTUAL AND DESIGN), THIS REPORT SHALL HELP THE OWNER DIAGNOSE ANY PROBLEMS WITH THE SYSTEMS SHOULD ANY ARISE IN THE FUTURE. STARTUP AND BALANCING OF START-UP AND BALANCING OF START-UP AND BALANCING OF START-UP TO THE START OF ANY DEMOLITION. THE TESTING AND BALANCING CONTRACTOR SHALL TAKE CFM AND STATIC PRESSURE READINGS AT AREAS DESIGNATED ON THE DRAWINGS. READINGS SHALL BE SUBMITTED TO CSI ENGINEERING PRIOR TO THE START OF THE DESIGN.
3. INSTALL ALL EQUIPMENT ACCORDING TO THE MANUFACTURER'S REQUIREMENTS, SHOP DRAWINGS, AND DETAILS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED. INSTALL ALL WORK SO THAT PARTS REQUIRING INSPECTION, REPLACEMENT, MAINTENANCE AND REPAIR SHALL BE READILY ACCESSIBLE. SMALL DEVIATIONS FROM THE DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT ANY SUBSTANTIAL CHANGE SHALL NOT BE MADE WITHOUT PRIOR WRITTEN OWNER APPROVAL.
4. ALL EQUIPMENT, PIPING, VALVES, AND DUCTWORK PROVIDED UNDER THIS SECTION OF THE SPECIFICATIONS SHALL BE MARKED FOR EASE OF IDENTIFICATION PER OWNER'S OR INDUSTRY STANDARDS.
5. PROVIDE QUALIFIED PERSONNEL, EQUIPMENT, APPARATUS, AND SERVICES FOR TESTING AND INSPECTION OF MECHANICAL SYSTEMS. WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT 130% OF DESIGN PRESSURE AT A MINIMUM OF 120 PSIG. TESTS SHALL BE FOR A FIVE-HOUR DURATION, DURING WHICH TIME PIPING SHALL SHOW NO LEAKS AND NO SEALING OF LEAKS SHALL BE PERMITTED. ANY EQUIPMENT NOT CAPABLE OF WITHSTANDING TEST PRESSURES SHALL BE ISOLATED FROM THE TEST. LEAKS, DAMAGE, AND DEFECTS DISCOVERED OR RESULTING FROM TESTING SHALL BE REPAIRED OR REPLACED TO LIKE-NEW CONDITION WITH ACCEPTABLE MATERIALS. TESTS SHALL BE CONTINUED UNTIL SYSTEMS OPERATE WITHOUT LEAKS OR REPAIRS. SUBMIT COPIES OF TESTING REPORTS FOR APPROVAL. DO NOT COVER OR CONCEAL WORK BEFORE TESTING AND INSPECTION.



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STAMP

LOWELL, MA

LELACHEUR  
PARK  
HOT WATER  
UPGRADE

REVISIONS:	
Date	Description

BID SET  
06-30-2015

CSI Project Number: 2013-206  
Scale: NTS  
Drawn By: MR  
Checked By: DM  
Date: 06-29-15

MECHANICAL  
SPECIFICATIONS

