ADDENDUM NUMBER 1
to the
CONSTRUCTION DOCUMENTS
January 19, 2012

General

The following changes, additions, or deletions shall be made to the following documents as indicated; and all other conditions shall remain the same:

I. ADVERTISEMENT FOR BIDS

Item Number

1. Page 1, BID DEADLINE – Change "Bids... must be received at or before: 2:00 p.m., Wednesday, January 25, 2012" to read "Bids... must be received at or before: **2:00 p.m., Friday, January 27, 2012**."

II. SPECIFICATIONS

1. Section 15060, PIPE AND PIPE FITTINGS – Delete in its entirety and replace with the attached revised Section 15060.

III. DRAWINGS

1. Sheet A-1.1:

   A. Add the following notes under "F.A. Control Center on Level 2 below:"

   "MAIN PANEL ROOM 2292: SIMPLEX GRINNELL AC2 HEADEND AUTO CALL.
   SUB-PANEL ROOM 2292: SIMPLEX GRINNELL 4100H."

2. Sheets AD-2.1, A-2.1 and A-3.1:

   A. Keynote #21 – Delete in its entirety and replace with the following:

   "3-5/8-INCH FULL HEIGHT METAL STUD WALL & (1) LAYER OF 5/8-INCH GYP. BD. ON EAST FACE TO BE COMPLETED UNDER SEPARATE CONTRACT. CONTRACTOR RESPONSIBLE FOR ADDING ADDITIONAL STUDS & BLOCKING AS REQUIRED FOR EQUIPMENT MOUNTING/BRACING AND FOR FINISHING OUT WALL WITH (1) LAYER 5/8-INCH GYP. BD. ON WEST FACE. RE: 3/A-5.1 FOR COMPLETED ASSEMBLY."

   B. Keynote #22 – Delete in its entirety and replace with the following:

   "NEW 3-5/8" 20GA. FURRING W/ (1) LAYER 5/8" GYP. BD. FULL HEIGHT, RE: 4/A-5.1."

   C. Keynote #24 – Delete in its entirety and replace with the following:

   "NEW (ADA ACCESSIBLE) DOOR, FRAME & HARDWARE TO MATCH EXISTING ADJACENT SUITE 6531 DOOR. REFER TO DETAIL 2/A7.1 FOR DOOR HARDWARE SET IN ADDENDUM #1."

D. Wall Legend, Final Item ("NEW 2-1/2" FURRED-OUT WALL...") – Delete in its entirety and replace with the following:

"NEW 3-5/8" FURRED-OUT WALL, W/ (1) LAYER 5/8" GYP. BD., FULL HEIGHT."

E. General Notes – Add the following new notes:

"P. REMOVE & REPLACE DOOR SIGNAGE ON EXTERIOR STRIKE SIDE OF DOOR WITH SAME STYLE, UPDATE TO ROOM NUMBER 6541, TO BE CODE COMPLIANT. (2 LOCATIONS)"

"Q. PROJECTOR WITH MOUNTING-PLATE (KEYNOTE #55), PROJECTION SCREEN (KEYNOTE #54) & A/V CONTROL CONSOLE (KEYNOTE #56) SUPPLIED BY THE UNIVERSITY TO BE INSTALLED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONDUITS, J-BOXES & POWER. THE UNIVERSITY IS RESPONSIBLE FOR DATA/A/V CABLING, CONNECTIONS & PROGRAMMING."

3. Sheet A-7.1:

A. Add the following new Detail #2 DOOR HARDWARE SET:

"DOOR HARDWARE SET

Single Leaf, Solid Core Door in Fully-Welded Hollow Metal Frame (painted to match existing), 20 min. Rating, 18"x32" ¼" wired-glass lite in chamfered metal frame (to match existing) (w/ 9" surround) (sill @ 43"AFF).

(1) Lock-Set, Schlage, ND60LDRHO, 26D, or equal
(1) Closer, LCN, 4041 TBWMS RWPA, 26D, or equal
(1) Door Seal Set, Pemko, HSS2000xS88, Black, or equal
(3) Hinges, Reuse Existing
(1) Kick-Plate, Reuse Existing
(1) Sill Threshold, Reuse Existing

Note: Hardware supplier to review locking functions as well as keying requirements with the University Hardware Shop"

B. Detail #3 EQUIPMENT INVENTORY – Add note #4:

"ALL EQUIPMENT LISTED IS TO BE FURNISHED & INSTALLED BY THE UNIVERSITY, UNLESS NOTED OTHERWISE. EQUIPMENT NOTED TO REQUIRE SEISMIC ANCHORING IS TO BE INSTALLED BY CONTRACTOR PER EQUIPMENT MANUFACTURER INSTRUCTIONS (REFER TO DETAIL 10 ON SHEET A-5.1 FOR WALL BACKING WHERE REQUIRED)."

4. Sheet MD-2.1 and M-2.1 – Delete these sheets in their entirety and replace with the attached revised sheets.

5. Sheet P-0.2 – Revise the Plumbing Fixture Connection Schedule as shown on the attached PSK-01.

6. Sheet P-2.1:

   A. Revise Sink S-1A with Sink S-2 as shown on the attached PSK-02.

   B. General Note #1 – Delete in its entirety and replace with the following:

      "THE UNIVERSITY WILL INSTALL THE (2) GAS CYLINDERS AND ASSOCIATED PIPING/TUBING. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF THE UNIVERSITY SUPPLIED GAS CYLINDER BASE-PLATE AS PER KEYNOTE #47 AND DETAIL #1 PROPOSED FLOOR PLAN ON SHEET A-2.1."

END OF ADDENDUM NUMBER 1

SECTION 15060 - PIPE AND PIPE FITTINGS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. Provide all HVAC and Plumbing piping and pipe fittings necessary for complete installation as indicated on the Drawings and as specified, complete. All exposed pipe uninsulated threading to be coated with zinc rich paint.

1.2 RELATED SECTIONS

A. ~~LEED and~~ Commissioning

~~1. Section 01352 – Sustainable Design Requirements~~
~~2. Section 01624 – Construction Waste Management & Disposal~~
~~3. Section 01810 – Commissioning~~
~~4~~1. Section 15995 – Commissioning of Mechanical Systems

1.3 SUBMITTALS

A. Shop Drawings and Product Data

1. Refer to Section 01340, SHOP DRAWINGS, PRODUCT DATA & SAMPLES, for procedures.
2. The following list includes the required shop drawings and product data that shall be submitted:

a. Manufacturer's technical product data, installation instructions, and dimensioned drawings for each type of pipe and pipe fitting.
b. Piping schedule showing manufacturer, pipe weight, fitting type, and joint type for each piping system.

PART 2 - PRODUCTS

~~2.1 BUY AMERICAN ACT~~

~~A. Contractor shall comply with the Buy American Act (Federal Acquisition Regulation ARRA Clauses 52.225-21 and 52.225-22).~~

~~2.2~~2.1 MATERIALS

A. Galvanized Steel and Black Steel Pipe and Fittings for Steel Pipe

1. Steel Pipe

a. Standard Weight

Diameter in Inches	Manufacturing Methods	Wall Thickness	ASTM Spec	Grade
2-1/2 thru 10	Welded or Seamless	Schedule 40	A-53	A or B

b. 2-1/2 through 6 Seamless Schedule 80 A-53 A or B.

2. Fittings for Steel Pipe

a. General: When threaded fittings made of cast iron, malleable iron, and ductile iron are specified to be galvanized, hot dip galvanize each fitting before cutting threads.
b. Cast Iron Fittings: Provide fittings, free of sand holes and imperfections, with clean American Standard taper pipe threads, complying with FS SS-P-501, ANSI Standard B16.4. Material shall conform to ASTM A 126, Class B for 126 lb. class.
c. Malleable Iron Fittings: Provide 150 lb. class with clean American Standard taper pipe threads complying with FS WW-P-521 and ANSI Standard B16.3. Materials shall conform to ASTM A 197.
d. Ductile Iron Fittings: Provide 300 lb. Safe Working Pressure (SWP) class with clean American Standard taper pipe threads and comply with ASTM Specification A 395 Grade 60-45-15.
e. Welding Fittings: Provide factory made fittings as set forth and dimensioned in ANSI B16.9. Match wall thickness of fittings to steel pipe wall thickness specified above. Fittings shall conform to ASTM Specification A 106, Grade B. Short radius elbows and other fittings not meeting ANSI B16.9, shall not be used. Weldolets shall be manufactured and installed in accordance with ANSI B16.9 and ANSI B31.1. Threadolets shall be in accordance with ANSI B16.11. Flanges shall be raised face weld-neck.

B. Copper Tube and Fittings

1. For chilled and hot water piping 2 inches and smaller and for all Copper Water Tube and Fittings for domestic hot and cold water.

a. Provide seamless copper water tube conforming to the requirements of ASTM Specification B88 in weight K, and temper annealed or drawn as specified.
b. Fittings for Copper Water Tube.

1) Wrought Copper Fittings. Provide wrought pressure solder joint fittings, pressure fittings conforming in all respects to ANSI B16.22.
2) Cast Bronze Fittings. Provide cast bronze solder joints pressure fittings conforming in all respects to ANSI B16.18 and same weight as pipe.
3) Brazolets shall be high silicon bronze conforming to ASTM B283 in sizes 2 inches and smaller, and conforming to MIL B-16541 in sizes 2-1/2 inches and larger.
4) All silver brazed joint fittings shall have integral factory formed pipe stops on each inlet or outlet.
5) All joints shall be made with approved factory formed fittings.

c. Formed tee outlets utilizing mechanically extracted collars shall not be used.
d. Press fit O-ring type fittings shall not be used.

2. Plumbing only fittings and joints above grade, sizes 1/2-inch through 4 inches downstream of the building PRV station may be made used a pressed connection

method rated at a working pressure of 200 PSI. Joining system shall comply with ASTM D2000, ASTM B88, ANSI/ASME B16.22, and NSF 61. There shall be press points on both sides of the seal, fitting is to be wrought copper.

C. Waste and Vent Service Pipe

1. Above Ground

a. Waste and Vent Piping – 2 Inches and Larger: Standard weight cast iron no-hub type soil pipe.
b. Waste and Vent Fittings – 2 Inches and Larger: Standard weight cast iron no-hub type soil fittings neoprene gasket and stainless steel bands and shield, no hub couplings.
c. Waste Piping – 1-1/2 Inches and Smaller: Schedule 40 galvanized steel pipe.
d. Waste Fittings – 1-1/2 Inches and Smaller: Galvanized cast iron drainage type screwed fittings.

2. Cast Iron Drainage Pipe and Fittings Below Grade

a. Comply with ANSI Standard A-40.1, ASTM Specification A-74, and FS WW-P-401. Joints below grade shall be made up with hub and spigot type fittings and ends. Inside and outside of pipe and fittings shall be coated with tar. In accordance with the codes as listed in Section 01060, REGULATORY REQUIREMENTS, joints above grade may be made with hubless pipe and fittings, using an elastomeric sealing sleeve and stainless steel clamp, clamping screw and housing, or by using hub and spigot pipe and fittings with a compression gasket that is compressed when the spigot is inserted into the hub of the pipe.

1) Minimum weight in pounds for single hub 5 foot lengths shall be as follows:

Size in Inches	Service Weight in Pounds
2	20
3	30
4	40
5	55
6	65

2) Provide fittings, specials, and miscellaneous lengths in the same thickness class as herein specified for 5-foot lengths.

D. Condensate Drain Pipe

1. Seamless copper tubing, Type L for condensate drains, cold drawn, hard temper, ASTM B-88.
2. All piping shall be brazed.

E. Fittings: Wrought copper solder sweat type, ANSI B16.22 or brass castings, ANSI B16.18.

2.2 INDUSTRIAL WATER (NON POTABLE) / -COMPRESSED AIR / VACUUM

A. Above Ground: Type K~~L~~ copper water tube, hard (drawn) temper, ASTM B88; with cast copper pressure fittings, ANSI B16.18; wrought copper pressure fittings, ANSI B16.22; lead free (< 2%) solder, ASTM B32; flux, ASTM B813. ~~Mechanically formed brazed tee connections may be used in lieu of specified tee fittings.Below Ground 2-1/2" and smaller: Type K copper water tube, O (annealed) temper, ASTM B88; with cast copper pressure fittings, ANSI B16.18; wrought copper pressure fittings, ANSI B16.22; lead free (< 2%) solder, ASTM B32; flux, ASTM B813; or cast copper flared pressure fittings, ANSI B16.26.~~

B. Pneumatic control air piping shall be type L hard copper tubing with rough copper fittings. Plastic tubing is not permitted. Soft copper can be used in wall drop to thermostat. Control air piping supports shall be as specified under Piping Support Section of the specification.

2.3 ACID / LABORATORY WASTE AND VENT

A. Polypropylene pipe and fittings, Type I homopolymer, flame retardant (<5 sec & 5 mm ASTM D635), Schedule 40; heat fusion fittings with embedded electrical coils; fitting patterns, ASTM D3311.

B. Below Grade. High silicon cast iron pipe and fittings, acid-proof mechanical or hub and spigot joints, ASTM A861.

2.4 NATURAL GAS

A. Above Ground 2" and Smaller: Black steel pipe, Schedule 40, Type F, Grade A, ASTM A53; with black malleable iron threaded fittings, Class 150, ASTM A197/ANSI B16.3; seamless carbon steel weld fittings, standard weight, ASTM A234 grade WPB/ANSI B16.9.

B. Above Ground 2-1/2" and Larger: Black steel pipe, Schedule 40, type F, Grade A, ASTM A53; with seamless carbon steel weld fittings, ASTM A234 grade WPB/ANSI B16.9.

2.5 PLASTIC PIPE FOR DEIONIZED WATER

A. Polypropylene (PP)

1. Pipes and fittings shall be fusion welded, Schedule 80
~~F.~~2. Manufactured to the dimensions and tolerances of ASTM D-1785, ASTM D-2464 and ASTM D-2467 from pure natural PP.

~~2.3~~2.6 REFRIGERANT PIPING

A. Refrigeration lines from the outdoor condensing unit to the indoor evaporator section shall be provided as required to install a complete system.

B. All refrigeration piping shall be refrigeration grade copper tubing, Copper Tubing: ASTM B280, Type "L" hard drawn. In instances where refrigeration lines must be snaked through conduits or trenches, that portion of tubing required to complete connections may be soft drawn. Extreme care shall be taken to keep entire system clean and dry during installation. Pipe to be sealed until installed.

C. All refrigeration lines, both hard and soft drawn, shall be straight and free from kinks, restrictions or traps. Horizontal runs shall be sloped towards compressor 1" per 10'-0" wherever possible.

D. Joints shall be made with Sil-Fos 15, Silvaloy 15 or equal, high melting-point solder and leak tested.

E. Any flare nuts required on suction lines shall be of short forged or "frostproof" type. All other fittings shall be standard sweat-soldered type. All ells and return bends shall be long radius type. Install leak lock material. Cast fittings should not be used.

F. Refrigeration lines shall be thoroughly flushed and cleaned before connection. Bleed nitrogen through lines during silver brazing. Cap and seal lines when not completed or connected to equipment.

G. Sleeve: All penetrations of floors, walls and ceiling to allow free motion of pipe. Use #24 gage galvanized iron pipe and chrome plated escutcheon plates. Pack annular space between pipe and sleeve with incombustible material, fiberglass or equal and seal each end with mastic waterproofing compound.

H. Fittings shall be ASME B16.22 wrought copper. Install insulated couplings at points of connection between all dissimilar metals for cathodic protection. Insulate copper tubing from ferrous materials and hangers with 2 thicknesses of 3" wide strip of 10-mil polyvinyl tape wrapped around pipe.

I. Support all piping so that it is firmly held in place by iron hangers and supports, per manufacturer's recommendations. Provide saddles to protect pipe insulation.

~~2.4~~2.7 REFRIGERANT VALVES

A. Refrigerant valves for Freon in copper pipe systems shall be bronze, diaphragm packless type with soldered ends. Valves 1-1/8" to 4-1/8" shall be bronze seal cap, back-seating type with soldered ends. In sizes larger than 4-1/8", valves shall be semi-steel bodies with flanged ends.

B. Magnetic solenoid valves in Freon refrigerant lines shall be provided with bronze bodies, with soldered or flanged ends and shall be equipped with manual opening stem. Solenoids shall be suitable for actual operating voltage provided.

~~2.5~~2.8 REFRIGERANT LEAK TESTING

A. Refrigerant pipe shall be tested with nitrogen to 150 percent of operating pressure. Should a leak be detected evacuate tube and repair leak, then retest. This procedure shall be repeated until no leak is evident. Then evacuate pipe and hold below 1mm mercury absolute pressure to boil out all residual water before system is charged with refrigerant.

PART 3 - EXECUTION

3.1 PREPARATION

A. Piping and Fittings: Ream all pipes to full inside diameter after cutting and clean before erection.

3.2 INSTALLATION

A. General

1. Run all piping as direct as possible, and conceal piping in finished rooms unless shown or specified otherwise. Arrange pipe lines to give ample room for the pipe insulation specified in Section 15250, MECHANICAL INSULATION.
2. Make tee connections with standard tee fittings for full size branches. For reduction branches, when branch line is a minimum of 2 pipe sizes smaller than main line, use reducing tees or weldolets and threadolets for steel pipe and brazolets for copper pipe.
3. Screwed joints shall be made with Teflon tape or a pipe joint compound recommended by the pipe manufacturer, applied to the male threads only. Welded joints shall be welded as set forth in the standard manual of Pipe Welding of the Heating, Piping, and Air Conditioning Contractors Association.
4. For joints in copper pipework, refer to Section 15050, BASIC MECHANICAL MATERIALS AND METHODS, Paragraph 3.4.

B. Installation

1. Drainage System Pipe Joints

a. Joints in threaded piping shall be made only with Teflon tape or with a pipe joint compound recommended by the pipe manufacturer, applied on the male thread only. The ends of the pipes shall be reamed out before being made up into fittings.
b. Joints in cast iron soil pipe and fittings using a double seal, compression-type molded neoprene gasket shall be provided with a modified hub to furnish a positive seal.
c. Joints in cast iron soil pipe and fittings without hubs shall be made using a mechanical compression-type coupling consisting of a neoprene collar, stainless steel band with transverse corrugations and two corrosion-resisting steel clamps with corrosion-resisting steel set screws all assembled to provide a positive seal.
d. Joints in copper drainage tube shall be soldered using ASTM B 32, Grade 50A solder and fittings recommended by the tube manufacturer. Surfaces to be soldered shall be cleaned bright. The joints shall be fluxed and made with solder.
e. Joints in threaded galvanized steel pipe shall conform to the American National taper pipe thread, ANSI B2.1. All burrs shall be removed, pipe ends shall be reamed or filed out to size of bore, and all chips shall be removed. Pipe joint compound shall be applied only on male threads. Every joint between galvanized steel pipe and cast iron pipe shall be either caulked, threaded, or shall be made with adaptor fittings.

3.3 ADJUSTMENT AND CLEANING

A. After piping is erected, flush all piping before running pumps, returning condensate or sterilizing the potable water system.

B. All new HVAC and plumbing systems and equipment shall be cleaned by passing cleaning fluids through pipework. Equipment that has been previously cleaned shall be isolated from the system and not be subjected to cleaning fluids. Add temporary by-pass line across coils in the cleaning and flushing procedure.

C. Clean piping utilizing temporary pumps with water velocity at a minimum of 7 ft per second for a 24 hrs period. Provide temporary pumps and create temporary piping loops for piping cleaning. Remove temporary piping loops and cap openings in piping to remain watertight when cleaning is done.

D. Systems shall be completely flushed after cleaning. Furnish a separate pump for cleaning. Do not use pumps that are furnished as a part of this Contract.

E. Domestic water piping system shall be sterilized.

F. Pressure test all new pressure piping at 125 psi.

END OF SECTION

PLUMBING SCHEDULES

PLUMBING FIXTURE CONNECTION SCHEDULE

CODE	DESCRIPTION	LOCATION	ACCESSIBLE	WASTE	VENT	LAB WASTE	TRAP	LAB VENT	COLD WATER	HOT WATER	TEMPERED WATER (HOT & COLD)	INDUSTRIAL WATER (HOT & COLD)	DI WATER	REMARKS
S-1	LABORATORY SINK	LABORATORY	—	-	-	2"	1 1/2"	1 1/2"	-	-	3/4"	3/4"	-	SINK WILL BE STANDARD EPOXY RESIN DROP IN SINK, REFER TO LAB CASEWORK SPECS. WITH CHICAGO 1017 LOOSE KEY ANGLE STOPS (OR EQUAL) AND GLASS DRAIN TRAP, CHICAGO FAUCET MODEL 895-317-CP DECK MOUNTED FAUCET (OR EQUAL) DI FAUCET: WATERSAVER MODEL LFK550C-1E (OR EQUAL)
S-2	LABORATORY SINK	LABORATORY	YES	-	-	2"	1 1/2"	1 1/2"	-	-	3/4"	3/4"	3/4"	ACCESSIBLE UNDER COUNTER STAINLESS STEEL SINK ELKAY MODEL ELUH3018 (OR EQUAL) WITH CHICAGO 1017 LOOSE KEY ANGLE STOPS (OR EQUAL) AND GLASS DRAIN TRAP, CHICAGO FAUCET MODEL 895-317-CP DECK MOUNTED FAUCET (OR EQUAL) COVER TRAP & HW SUPPLY WITH ONE PIECE INSULATION DI FAUCET: WATERSAVER MODEL LFK550C-1E (OR EQUAL)
GV-1	GAS VALVE	LABORATORY	—	-	-	-	-	-	-	-	-	-	-	COUNTER TYPE, DUAL OUTLETS, FOR VACUUM, AIR OR GAS CHICAGO FAUCET MODEL 981-ABCDHCP (OR EQUAL)
GV-2	GAS VALVE	LABORATORY	—	-	-	-	-	-	-	-	-	-	-	WALL TYPE, SINGLE OUTLET, FOR VACUUM, AIR OR GAS CHICAGO FAUCET MODEL 984-ABCHDCP (OR EQUAL)
EDSS-1	EMERGENCY EYEWASH & SHOWER	LABORATORY	YES	-	-	-	-	-	1"	-	-	-	-	WATER SAVER MODEL SSW217G, BARRIER-FREE RECESSED EYE/FACE WASH WITH RECESSED SHOWER HANDLE, EXPOSED SHOWER HEAD & VALVEPIECE (OR EQUAL)
FS-1	FLOOR SINK	AS NOTED	-	-	-	2"	2"	1 1/2"	-	-	-	-	-	MIFAB MODEL F24, WILL HAVE GRATE WITH VACUUM BREAKER WITH TRAP PRIMER CONNECTION, 12" x 12" x 6" SUMP DEPTH, (OR EQUAL)
TP-1	ELECTRONIC TRAP PRIMER	AS NOTED	-	-	-	-	-	-	-	-	-	-	-	PPP MODEL MPR-500-115V, MINI-PRIME 1/ BOX ELECTRONIC TRAP PRIMING MANIFOLD, DIMENSIONS: 12x12x4.5"FPK, (OR EQUAL)
HB-1	HOSE BIBB	AS NOTED	-	-	-	-	-	-	-	-	-	3/4"	-	WOODFORD MODEL 24, WILL HAVE GRATE WITH VACUUM BREAKER

IBE CONSULTING ENGINEERS

Ideas for the Built Environment

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Project Title:

BOELTER HSSEAS - UNDER GRADUATE LAB 6541 RENOVATION

Project Manager: ----	Project Number: 11-1039
Drawn By: RC	Drawing Number: PSK-01
Date: 01/18/2012	
Scale: NTS	

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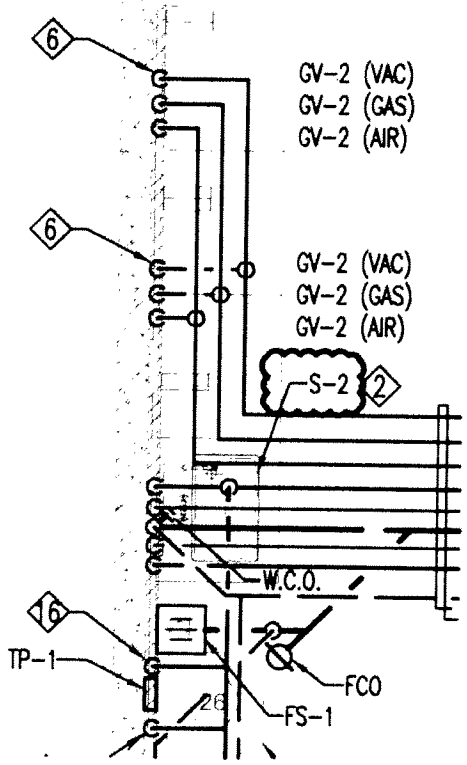

PLUMBING PROPOSED PLAN

CONSULTING ENGINEERS

Ideas for the Built Environment

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Project Title:

BOELTER HSSEAS - UNDER GRADUATE LAB 6541 RENOVATION

Project Manager: —	Project Number: 11-1039
Drawn By: RCA	Drawing Number: PSK-02
Date: 01/18/2012	
Scale: 1/4"=1'-0"	