



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

# Request for Quotation

|            |
|------------|
| RFQ NUMBER |
| DNR209090  |

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| PAGE |
| 1    |

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| ADDRESS CORRESPONDENCE TO ATTENTION OF |
| FRANK WHITTAKER<br>304-558-2316        |

VENDOR

RFQ COPY  
 TYPE NAME/ADDRESS HERE

SHIP TO

DIVISION OF NATURAL RESOURCES  
 ELKINS OFFICE  
 RANDOLPH CENTER - SUITE 222  
 1200 HARRISON AVENUE  
 ELKINS, WV  
 26241

| DATE PRINTED | TERMS OF SALE | SHIP VIA | F.O.B. | FREIGHT TERMS |
|--------------|---------------|----------|--------|---------------|
| 03/04/2009   |               |          |        |               |

BID OPENING DATE: 03/19/2009 BID OPENING TIME 01:30PM

| LINE  | QUANTITY | UOP | CAT. NO. | ITEM NUMBER | UNIT PRICE | AMOUNT |
|---|----------|-----|----------|-------------|------------|--------|
| ***** ADDENDUM NO. 6 *****  |          |     |          |             |            |        |
| THIS ADDENDUM IS ISSUED TO PROVIDE THE ATTACHED CORRECTIONS/ADDITIONS TO THE PROJECT MANUAL, CORRECTIONS/ADDITIONS TO THE PROJECT DRAWINGS AND TECHNICAL QUESTIONS AND ANSWERS. |          |     |          |             |            |        |
| BID OPENING DATE AND TIME IS: MARCH 19, 2009 AT 1:30 PM   |          |     |          |             |            |        |
| 0001  | 1        | IS  |          | 968-42      |            |        |
| GENERAL CONSTRUCTION  |          |     |          |             |            |        |
| ***** THIS IS THE END OF RFQ DNR209090 ***** TOTAL:   |          |     |          |             |            |        |

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

|           |           |                                   |
|-----------|-----------|-----------------------------------|
| SIGNATURE | TELEPHONE | DATE                              |
| TITLE     | FEIN      | ADDRESS CHANGES TO BE NOTED ABOVE |

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**GENERAL TERMS & CONDITIONS**  
**REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)**

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. All quotations are governed by the *West Virginia Code* and the *Legislative Rules* of the Purchasing Division.
4. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
5. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
6. Payment may only be made after the delivery and acceptance of goods or services.
7. Interest may be paid for late payment in accordance with the *West Virginia Code*.
8. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
9. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
10. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
11. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.
12. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
13. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, this Contract may be deemed null and void, and terminated without further order.
14. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, and available online at the Purchasing Division's web site (<http://www.state.wv.us/admin/purchase/vrc/hipaa.htm>) is hereby made part of the agreement. Provided that, the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
15. **WEST VIRGINIA ALCOHOL & DRUG-FREE WORKPLACE ACT:** If this Contract constitutes a public improvement construction contract as set forth in Article 1D, Chapter 21 of the West Virginia Code ("The West Virginia Alcohol and Drug-Free Workplace Act"), then the following language shall hereby become part of this Contract: "The contractor and its subcontractors shall implement and maintain a written drug-free workplace policy in compliance with the West Virginia Alcohol and Drug-Free Workplace Act, as set forth in Article 1D, Chapter 21 of the West Virginia Code. The contractor and its subcontractors shall provide a sworn statement in writing, under the penalties of perjury, that they maintain a valid drug-free work place policy in compliance with the West Virginia and Drug-Free Workplace Act. It is understood and agreed that this Contract shall be cancelled by the awarding authority if the Contractor: 1) Fails to implement its drug-free workplace policy; 2) Fails to provide information regarding implementation of the contractor's drug-free workplace policy at the request of the public authority; or 3) Provides to the public authority false information regarding the contractor's drug-free workplace policy."

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**INSTRUCTIONS TO BIDDERS**

1. Use the quotation forms provided by the Purchasing Division.
2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Complete all sections of the quotation form.
4. Unit prices shall prevail in case of discrepancy.
5. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
6. **BID SUBMISSION:** All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130



Addendum No. 6  
Berkeley Springs Bath House  
DNR 209090

**DEPT. of Natural Resources**  
**Additions and Alterations to**  
**Berkeley Springs Bath House**

**AAI PROJECT NO.: 0408097.02**

**DNR-209090**

March 3, 2009

TO ALL BIDDERS:

**1.0 GENERAL NOTES:**

- .01 This Addendum is part of the Contract Documents for the Project.
- .02 Acknowledge receipt of this Addendum on the Form of Proposal in the space provided. Failure to do so may be cause for rejection of bid.
- .03 The bid opening time and date has been **changed**, and is due on Thursday, March 19, 2009 at 1:30PM.

**2.0 CORRECTIONS/ADDITIONS TO THE PROJECT MANUAL:**

- 2.01 Section 10505- Metal Lockers, 1.5,D: Regulatory Requirements.  
ADD: "4. In accordance with 28 CFR Chpt.1,4.1.3 (21), 5% of total locker count, but no less than 1, shall be provided for each locker space as defined on drawings by Room # 126 and Room # 136."
- 2.02 Section 08551-Wood Windows and Interior Storms  
ADD: SECTION BELOW:

**"2.2.1 Manufactured Units**

- A. Acceptable manufactured units: To match size, shape and profiles as existing double hung and divided light patterns of existing windows as closely as possible from profiles available from manufacturers. To be fully insulated units as certified through the Insulating Glass Certification Council or conforming to the requirements of IGCC. Provide dual sealed units consisting of polyisobutylene primary seal and silicone secondary seal. Provide metal spacers with bent or soldered corners. See section 2.3 Glazing for glass requirements.

**1. Andersen 400 Series Woodwright Full Frame Double-Hung Insert Window**

- a. Provide Permanent Exterior and Interior Grille Profiles with Permanent Full Divided Light Grill Spacers to match sash and frame material.

~~b. Profile and thickness to be selected and approved by architect in field, prior to fabrication.~~



- c. Provide Interior Sash Lock and hand lift.
- 2. Pella Architect Series Endura Clad, Full Frame Double-Hung Insert Window
  - a. Provide Integral Light Technology Grille Profile with Clad Exterior to match sash and frame material.
  - b. Profile and thickness to be selected and approved by architect in field, prior to fabrication.
  - c. Provide Interior Sash Lock and hand lift.
- B. Interior Sash and Muntins  
Chosen from manufacturer system above, may be factory primed, to receive field applied paint."

- 2.02 Section 15195- Liquid Propane Vaporizer  
ADD: Attached Section 15195 to Project Manual

**3.0 CORRECTIONS/ADDITIONS TO THE PROJECT DRAWINGS:**

- 3.01 Sheet A-0.2 Demolition, Sheet A-1.1-Floor Plan, Sheet A-6.1 Door Schedule  
MODIFY: According to sketches that are "Clouded" on attached AD-003; 5 pages.  
Removal of certain walls and widening of doors will provide better access into space with one piece fiberglass tubs as replacement Roman Baths.
- 3.02 Sheet A-1.A- Alternate No.1  
ADD: Notes I, J, K as listed on AD-008 1 of 1 attached.
- 3.03 Sheet A-1.1- Floor plan  
ADD: location of 2 6" dia. Sleeves through foundation for Water lines, see clouded area of AD-009 1 of 1 attached.
- 3.04 Sheet A-2.2- Front elevation façade.  
ADD: New 24" x 24" access to crawlspace with permanent screened louver, see AD-004 attached.
- 3.05 Sheet A-4.6- Enlarged Reception Desk Details  
CLARIFY: See AD-010 attached.
- 3.06 Sheet A-6.1, Room Finish Schedule  
ADD: Note " 9) All surfaces that state PEP (Painted Existing Plaster) are to have misc. holes repaired to like condition of adjacent surfaces. All hardware, etc. to be removed. Ensure, that any flaking, peeling paint has been removed back to a sound substrate, fill, sand, prime, and paint."
- 3.07 Sheet P1.1  
ADD the following as Note #19: "Final coordination of scope of work, dimensions, fixture placement, routings, etc is the responsibility of the GC and all sub contractors prior to bidding. Verify all field conditions and measurements prior to bidding. Coordinate all work with other trades. Coordinate all mounted devices with all other trades prior to installation. Firestop all penetrations of fire walls (see arch plans) and floors."
- 3.08 Sheet P.4.1  
ADD: Note: " Extend (Sanitary)to new floor drains as shown. (Location of existing approximate)" See attached AD-005.



Addendum No.6  
Berkeley Springs Bath House

- 3.09 Sheet P-5.1, Plumbing Details  
ADD: Vaporizer System Detail, See AD-011 attached.
- 3.10 Sheets: M-1.1  
ADD: Note: See clouded area of AD-006, 1 of 14 attached.  
ADD the following as Note #19: "Final coordination of scope of work, dimensions, fixture placement, routings, etc is the responsibility of the GC and all sub contractors prior to bidding. Verify all field conditions and measurements prior to bidding. Coordinate all work with other trades. Coordinate all mounted devices with all other trades prior to installation. Firestop all penetrations of fire walls (see arch plans) and floors."
- 3.11 Sheet M-1.2  
ADD: Information about exhaust fan number EF2, See clouded area of AD-006, 2 of 14 attached.  
DELETE: Return Air Duct, See clouded area of AD-006 3 of 14 attached.  
ADD: New exhaust Ductwork, See clouded area of AD-006 4 of 14 attached.
- 3.12 Sheet M-1.3  
REVISE: Hot and Chilled Water Piping, See clouded area of AD-006 5 of 14 attached.
- 3.13 Sheet M-4.1  
CLARIFICATION: Boiler Control Manufacturers, See clouded area of AD-006 6 of 14 attached.  
CLARIFICATION: Boiler Control Manufacturers, See clouded area of AD-006 7 of 14 attached.
- 3.14 Sheet M-5.1  
Detail 10  
CLARIFICATION: Roof Exhaust Fan, See clouded area of AD-006 8 of 14 attached.  
Detail 7  
CLARIFICATION: End elevation view of AHU-1 & AHU-2, See clouded area of AD-006 9 of 14 attached.  
Detail 8  
CLARIFICATION: Air Handling Unit, See clouded area of AD-006 10 of 14 attached.  
Detail 9  
CLARIFICATION: Air Handling Unit, See clouded area of AD-006 11 of 14 attached.
- 3.15 Sheet M-5.2  
CLARIFICATION: Pump Data, See AD-006 12 of 14 attached.
- 3.16 Sheet M-6.1, Exhaust Fan Schedules  
CLARIFICATION: Exhaust fan revisions, Supply Fan Note., See clouded area of AD-006 13 of 14 attached.
- 3.17 Sheet M-6.2, Hydronic Specialties Schedules and other notes.  
ADD: Expansion tank and louver notes, see clouded area of AD-006 14 of 14 attached.



- 3.18 Sheet E-1.1  
REVISE: Electrical Panel Revisions, See clouded area of attached AD-007 1 of 3.  
ADD the following as Note #32: "Final coordination of scope of work, dimensions, fixture placement, routings, etc is the responsibility of the GC and all sub contractors prior to bidding. Verify all field conditions and measurements prior to bidding. Coordinate all work with other trades. Coordinate all mounted devices with all other trades prior to installation. Firestop all penetrations of fire walls (see arch plans) and floors."
- 3.19 Sheet E-5.1, Electrical Details  
ADD: Vaporizer System Detail, See AD-011 attached.
- 3.20 Sheet E-6.1  
MODIFY: Breaker 32 description, See attached AD-007 2 of 3 attached.
- 3.21 Sheet E-6.2  
MODIFY: Breakers 26 & 28, See clouded area of AD-007 3 of 3 attached.

#### 4.0 QUESTIONS AND ANSWERS:

- 4.01 Q: On drawing A-4.1, Section @ Sinks in Dressing 137 (detail 2/A-4.1) Calls for solid shelf to be 1/2" x 6 5/8". Drawing A-4.6, , Elevation Dress 137 (detail 1/A-1.1) calls for shelf to be 5/4" x 7". Which is correct?  
A: See Addenda # 4, AD-002, 1 of 2. Solid surface shelf is 1/2" x 7".
- 4.02 Q: On Drawing A-4.6 Enlarged Plan-New Reception Desk, show a glass inset panel with a pencil drawer below. Is this correct?  
A: No, leader is drawn incorrectly. Return and front top are solid surface material, glass top is only over shelf at front of desk. See AD-010 and Section 3.17 above.
- 4.03 Q: The base at the New Reception Desk is P. Lam. Is this correct?  
A: See AD-010 and Section 3.17 above. P. Lam has been omitted from desk.
- 4.04 Q: Is there any additional insulation in the attic area? (except the area shown for the new mechanical units).  
A: No.
- 4.05 Q: Specification 08110.2.1 Lists Ceco, Curries and Steelcraft as acceptable manufacturers. Drawing A-6.2 jamb details J1-J5 show a detail that is only available for Curries. Confirm that Ceco and Steelcraft products do not meet the profile specification or is the standard rectangular profile acceptable?  
A: See previous response issued with Addendum # 4, Section 3.02 and 4.03.
- 4.06 Q: Drawing A-6.2, F-4 shows a transom with two lites, Drawings A-3.1 and A-4.6 shows a transom detail with four lites. Please clarify?  
A: See previous response issued with Addendum # 4, Section 3.02 and 4.03.



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Berkeley Springs Bath House

- 4.07 Q: How are we to get the new fiberglass roman baths into the building?  
A: See section 3.01 above and AD-003. Additional walls and/or doors have been modified to accommodate new baths. However, the general contractor should plan on installing the roman baths, early in the project, so that walls can be erected in a timely fashion.
- 4.08 Q: Please verify quantity of single and or double tier lockers. Please verify how many ADA lockers are required beyond regular.  
A: See specification Section 10505;2.3B.Locker Arrangement. See Section 2.01 above for ADA requirement.
- 4.09 Q: The plumbing fixture schedule on drawing P-6.1 does not list the Roman Baths. Are the Roman Baths part of the contract?  
A: The roman baths are part of the project, see Spec Section 15412. The General Contractor may assign furnish and installation responsibilities to whom he sees fit.
- 4.10 Q: I have a few questions concerning the mechanical piping systems for the Berkeley Springs Bath House.  
A: See below.
- 4.11 Q: Can heating water pipe above 2" be sch. 40 steel with Victaulic fittings?  
A: Yes, Rolled Groove Victaulic may be used in lieu of copper on Heating HW and Chilled Water. All piping transitions from copper to steel on this project will be protected by diaelectric unions.
- 4.12 Q: Specs. call for type K copper for above ground heating water, is this correct?  
A: All Domestic water and Roman Bath piping is to be Type K with ProPress fittings. Heating HW and Chilled Water piping may be type L but will also have ProPress fittings. Provide ProPress auxiliary seals suitable for glycol in Heating HW and Chilled Water systems.
- 4.13 Q: In talking with the maintenance man while on the jobsite, he is saying where the chilled pipe enters the crawlspace, on the SW end of the building, the piping will be located over the under floor reservoir and he has concerns about running the pipe over this because of the glycol in the system, in case there would be a leak. Would it be possible to run the chilled piping up the side of the building and onto the roof, where the units are going to set, and do away with any chilled pipe located in the crawl space completely?  
A: See addendum drawing AD-006 5 of 14 and AD-009 for revised routing of CW piping entry.
- 4.14 Q: Drawings do not show location of air separator on heating system. Can you clarify?  
A: Air Sep will be field located between pumps and HW converter. Extend 3/4" CU to expansion tank 5 in boiler room. ET5 added to schedule see addendum drawing. Provide chiller with factory internal expansion tank. Expansion tank mounts vertical on wall in location shown as high as practical.
- 4.15 Q: Drawing M-1.3 shows P-2 pumps feeding AHU. Flow diagram M-5.2 shows P-3 feeding AHU. Which is correct?  
A: M1.3 accurately represents the pump locations. See addendum drawing AD-006 12 of 14 for revised flow diagram.



- 4.16 Q: Can you issue a spec. for the underground chilled pipe?  
A: Pipe specified as P80 PVC with P80 fittings on sheet M1.3. Clarification: P80 must be pressure rated P80 pipe with pressure rated P80 fittings, with purple primer and grey heavy bodied PVC glue, Elson or approved equal. PVC piping will have fully sealed Rubatex insulation or approved equal from chiller to transition inside boiler room. At boiler room, piping will transition from PVC to steel or copper with kraft faced fiberglass insulation. Self regulating heat trace, controlled by BAS remains in project for exterior and buried CW piping.
- 4.17 Q: Schedule calls for 4 expansion tanks on the chilled system. Should they be for the plumbing system?  
A: Yes, as indicated in elevation on sheet P5.1. Schedule revised for use. Clarification: Elevation on Sheet P5.1 shows expansion tanks mounted horizontally. Specified tanks will be vertical mounted. Adjust piping routings and rack dimensions accordingly.
- 4.18 Q: What type of pipe for the boiler feed system? Not addressed in specs.  
A: P40 steel with iron fittings. Domestic makeup water to the boiler and boiler feed system are to be copper.
- 4.19 Q: Schedule calls for Bryan #CLM-210 boiler, specs. call for #RV-700. Which is correct?  
A: Delete reference to Bryan RV-700. As explained in the prebid, the Owner purchased a replacement boiler less than a year ago and the Bryan CLM-210 is being installed as a supplemental ("summer") boiler after the Existing boiler is relocated.
- 4.20 Q: Can you provide specifications for the drain valve for the Roman Baths.  
A: Asahi America Type 57, PVC wafer butterfly, PVC body, PVC disc, EPDM seat, EPDM Seal, 403 stainless stem, 403 stainless hardware, stainless flange bolts.
- 4.21 Q: Drawing M1.2 shows 350 cfm exhaust from Pump Room 111 but there is no grille identified. Also, the exhaust grille total for EF-2 exceeds the scheduled capacity of the fan.  
A: Provide 10" x 10" grille. See revised schedule entries in addendum drawing AD-006 13 of 14.
- 4.22 Q: Several notes indicate "color by architect". Can we assume colors from the manufacturers standard color chart will be acceptable or should we figure "custom" colors considering the type of building we're working on?  
A: Verify color selection in specification. Some products give a Basis of Design, others say select from manufacturer's full range of color. It is not the intent to assign "custom" colors outside of the manufacturer's full range of colors. Note, this does not limit color section "Standard" colors, we are seeking "Full range".





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- 4.23 Q: Drawing M1.1, note 3 indicates the mechanical contractor is responsible for determining the need and locations of fire dampers. Since NFPA states this responsibility cannot be placed on the contractor can the project requirements be clarified?
- A: Fire dampers are called for on one supply run (Sheet M1.1) and one exhaust run. Sheet M1.2; see addendum drawing AD-006.
- 4.24 Q: Drawing M1.1, note 14 calls for the installation of an LP tank and associated piping. Drawing PME-1.1 indicates the tank is existing. Please clarify.
- A: As discussed in the Pre-bid, the tank is now existing. The contract will be adding a liquid vaporizer to the tank to increase its drawing capacity.
- 4.25 Q: Electrical drawing E1.1, notes 10 and 16 indicate all control conduit and wiring to be installed by the electrical contractor. Please clarify.
- A: The controls contractor is responsible for the installation of conduits and wiring for the control system. The controls contractor may use either the electrical contractor selected by the GC, or another electrical contractor to provide the control wiring and conduit in accordance with the control contractors needs to accomplish the scope of work.
- 4.26 Q: Spec section 15899 calls for the installation of UVC disinfection units in the AHUs but I don't find any circuitry on the electrical drawings for these units. Who is to provide the power for these units?
- A: The UV lights are to be factory installed in the air handling units. The factory will extend the wiring to a junction somewhere within the unit; most likely the valve body enclosure. Under this contract, the wiring will be extended to an electrical panel for power. The lights require a single 20 Amp 120V circuit for both AHU's. As to who provides the wiring: the answer to the "who provides" question is always the same unless specifically called out in a note; regardless of the trades involved. The General Contractor's (GC's) CONTRACT includes the wiring or whatever trade item or service is in question. The GC and the GC's subs have the responsibility to coordinate their scopes of work prior to bidding and provide all work called for in the contract documents.
- 4.27 Q: What type of support will be required for the chiller? Details?
- A: See note detailing the chiller pad requirements on the 1/16" scale site plan on sheet A1.1, lower right hand corner.
- 4.28 Q: Will the piping shown on the surface of the existing retaining wall be exposed or will some type of cover be required?
- A: Provide banded aluminum overwrap with vinyl fitting covers, all sealed with mastic at the joints.
- 4.29 Q: Rooms 104, 105, 111, 112, 113, 114, and 162 have existing plaster or new drywall ceilings. Is there access to the area above the existing plaster to install ductwork, piping, etc. and do you want the VAV box over room 104 to remain or relocate to another area?
- A: It is the intention to maintain the existing ceiling's in these rooms and install the duct work underneath the ceiling. Light fixtures to be suspended on chains.



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4.30 Q: Can you provide more specifics on the voice/data end of this project, capacity of phone system - how many telephone numbers and how many (and type) phones required. Is any specific manufacturer required, etc.

A: This project provides a complete stand alone phone system as specified in Section 16710 and on the project drawings. Sheet E1.1 indicates the number of phone sets to be provided by location and type. The type and location are given with one exception: the reception station is designated by a type "PH" station in Room 102 but is a receptionists desk set with pre-programmed extensions, forwarding, "night", voicemail, etc by set mounted buttons. The remaining "PH" are standard desk sets with multi-line, voicemail, transfer, forward, hold, hands free, conference, etc. The "PHI" sets will be wall mounted and have the intercom/ paging functions active only. The spec calls for a 25 pair service entrance but only 5 active outside at time of delivery. system will use the 5 activated. All 25 incoming service entrance lines will be punched and identified. The Owner will coordinate activation of the 5 lines with the local phone company, the contractor will coordinate and perform the punch to connect with the local phone company. The phone system will be traditional copper, not VOIP. The phone equipment provider will be a national manufacturer of at least 10 years documented experience in the manufacture of complete phone systems as described herein. The ecats wiring (required) for the phone sets is in addition to the tel/data locations shown on the project drawings.

4.31 Q: At the moment I have a question regarding the phone system for the bath house. I need to know how many phones total they wanted. I was told they would need a total of 25 phone lines, so I wanted to confirm that number as well. Also were they looking at a digital phone system on an IP system?

A: See answer above on item 4.30.

4.32 Q: I have a question about the glycol for the mech. system at the Berkeley Bath House. Mech. drawing M-6.1 chiller schedule and VAV schedule call for 20% Ethylene Glycol. Hydronic specialties schedule note, on drawing M-6.2, calls for 20% Propylene Glycol. Which type of glycol is correct?

A: Project requires 20% Ethylene glycol, factory premixed by volume, with corrosion inhibitors. DowTherm 4000 or approved equal. Provide minimum of 15 gallons of spare premixed 20% glycol at final completion.

4.33 Q: I need more information on the phone system. How many phones total how many phone lines?

A: See response for 4.31 and 4.30 above.

4.34 Q: Modular Trailer doesn't show point of connection, size of pipe for water supply & sanitary/storm? Please advise.

A: The points of connections are generally shown on Sheet A1.1A, along with the service piping sizes and types. The Sewer and Water connect under the trailer in the vicinity of the restrooms and the contractor will field adapt to the stub outs provided by the modular manufacturer. The 6" SDR 35 sanitary is to be changed to 4" SDR 35. Provide concrete splash blocks at each downspout location; no other storm piping is required.

Provide a 325 AMP single phase 2 pole NEMA 3R meter socket serving a 400 AMP 2 pole fused disconnect which in turn serves 2- 150A single phase 2 pole fused disconnects and 1- 100A single phase 2 pole fused disconnects. Provide multi tap lugs on load side of disconnect in disconnect or provide trough between main disconnect and smaller



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disconnects with multitap key tap. Reduce conductors' sizes to the disconnects in accordance with NEC appropriate "tap rules". Provide meter on a temporary service pole in accordance with power company requirements. Provide disconnects on rack adjacent to pole. Underground feeders to 150 AMP panels in outer modules will be 3-#1/0 THHN/THWN w/ 1 #6 GR in 2" pvc. Feeders to 100 AMP panel in center module will be 3- #1 THHN/THWN in 2" pvc. Roll up and extend into panel and provide conductors to panel conductor connections. Ground and bond service and modules in accordance with NEC, Power Company and local AHJ requirements. As a minimum, provide 2 - 3/4" x 10 rods at the service and at each module. Provide #2/0 bare as the grounding/ bonding jumper. Provide bonding jumpers between the frames of the modules at each end to ensure zero potential between the frames. Mechanical grounding and bonding lugs and connectors are acceptable for the temporary service.

- 4.35 Q: The existing flat roof appears not to have any tapered insulation (slope) and also appears to be in bad condition. Please advise how we are to achieve proper slope for drainage?  
A: See section detail on Sheet S-3.1 for tapered area. Project does not call for full replacement of roof.
- 4.36 Q: A-4.6 Enlarged Plan New Reception Desk calls for P. lam Base on front of the reception desk. Is this correct? The plans specify wood modesty and end panels, nothing else specs P. lam in this area. Also, what material is the 3 drawer cabinet to be made of? Plans also call for a pencil drawer below the area showing a 3/4" glass insert. Is this correct?  
A-4.6-1 &-2 show SS shelf in dress 137, 146, and Tlt 125 as 5/4", and A4.1-2 shows 1/2" ss shelf same as the window sills. Which is correct?  
A: See section 3.02 and 4.02 above and Ad-010 attached. See also previous response on Addendum # 4 AD-002, Solid surface shelf is 1/2" x 7".
- 4.37 Q: Has the color of the 12" split face block been determined?  
A: No, must match existing brick in color.
- 4.38 Q: Has the color of the 4" split face block been determined?  
A: No, must match existing brick in color.
- 4.39 Q: Has the color of the 4" Polished ground face block been determined?  
A: No, must match existing brick in color.
- 4.40 Q: What mortar color will be used on this project?  
A: Unknown at this time. Must match existing in color and texture.
- 4.41 Q: Does our WV Subcontractor license cover us in the Berkeley Springs area?  
A: According to the town a business license is required. See PB.14 from the Pre-bid meeting minutes attached to Addendum #4.



- 4.42 Q: Has a particular manufacturer already been contacted of the three listed in the specifications for materials needed?  
Reason to ask this question: The quantities coming up in our estimate are small enough that a set up charge will be applied unless that aspect has already been discussed with a manufacturer.  
A: Assuming the subject matter of this question is masonry, the answer is no. Samples of Alcon and Trendstone have been looked at to know that acceptable colors are available. We are looking for a color match to the existing brick which will be observed and verified in the field.
- 4.43 Q: The specs. only have one boiler manufacturer listed, Bryan, and no substitutions. Is Bryan the only manufacturer that will be accepted?  
A: An Ajax Model WRF-2100 steel water tube boiler or a Hurst Series 45 Fire box boiler meeting the listed capacities, requirements, and options for boiler trim are both approved substitutions to the Bryan CLM-210 as scheduled.  
Note the replacement of the Webster JB1-05 with a Weishaupt model WM-G 10/2-AZM with 10 to 1 turndown and linkage-less combustion controls for the aforementioned schedule boiler and approved substitutions. The Webster originally specified lacked the necessary turndown for the project.
- 4.44 Q: On the above referenced subject, is the bid bond amount 5%? Do we have the surety use form A310? This was not clear in the project manual. Also, although there is reference to insurance, there are no specific limits outlined in the supplemental general conditions. Most times an Accord form is included in the project manual, but I did not see anything specific.  
A: See Pre-Bid Meeting Minutes attached to previously issued Addendum # 4. Item PB.03, see also item 4.02 of previously issued Addendum #4.

## 5.0 STATEMENTS AND CLARIFICATIONS:

- 5.01 HVAC Controls System Training: Initial controls system training will be three (3) full 8-hour days on site; two (2) days one week and one (1) day approximately four (4) weeks later, all to occur prior to final completion. The follow up training will occur two times: one (1) day at three (3) months and one (1) day at six (6) months. The contractor will submit training syllabi and materials for approval of the Project MEP Engineer at least fourteen (14) days prior to each training session. Failure to do so will result in repeating the training at no cost to the Owner. Training will be by factory trained Service Engineer for each training session. The Service Engineer may be assisted by other personnel but is to be present for all training. The Controls System must be fully operational and reviewed by Project MEP Engineer prior to training. Controls startup and commissioning time or trouble shooting time will not count as training time. Provide resumes of training personnel, including proof of factory training, for approval of Project MEP Engineer prior to training.
- 5.02 The BAS will operate the package Chiller Chilled Water pump below 20 Degrees ambient temperature.

Addendum No.6  
Berkeley Springs Bath House



- 5.03 Provide ¼ turn hose bib capped drains at all low points and vents at all high points in HHW and CHW hydronic systems. Provide pentagon key locked rectangular handhole for drains in chiller CW piping at exterior of boiler room wall.
- 5.04 The new electric service is to be installed and activated prior to the removal of the existing service. The Owner has previously contacted the power company regarding the new service. The power company indicated they will be installing a new pole (approximate location shown) for the underground service to the facility. Coordinate the installation with the power company prior to installation, including an necessary documentation and inspections. The subfeeds to the pool and the office must be kept in service on the existing service until "cut over" during a planned outage of no more than 8 hours duration on a weekday. The precise location of the interception of the existing subfeeds is not indicated, field adjust location and provide junction boxes and pulp boxes as necessary.
- 5.05 Provide TACO 0011 circulators with check and isolation valves on the hot water return lines for both roman bath and both domestic HW systems. Extend ¾" return lines for roman baths from tempering valve locations shown to the corresponding roman bath HW tank and connect at tempering valve and tank according to Leonard's recommendations. Extend the ¾" return lines for the domestic HW from the tempering valve locations shown to the corresponding domestic hot water tank according to Leonards installation piping detail number 2 to for valve model TM-28.
- 5.06 The contract includes the installation of an electric fired LP vaporizer at the LP tank with all associated piping and wiring. The installation includes 3 regulators at the LP tank and vaporizer, a new regulator at the building if required, located as indicated, sized for the new boiler loads. The installation includes replacement of the LP dip tube and associated piping for the vaporizer and a vapor bypass line. The LP feed pressure at the entrance to the gas train of both boilers will be 5psi. Coordinate and review the installation of the propane vaporizer with the Owner and the Owner's propane supplier (Blue Flame, Butch Swink ph: 304-258-3495) prior to installation at an on site coordination meeting. See detail on addendum drawing and specification section 15195 "Liquid Propane Vaporizer" issued as part of this addendum.
- 5.07 As part of the steam system chemical treatment, provide a packaged chemical feed system with a stand mounted 50 gallon polyethylene tank, piston type chemical feed pump, ½" stainless steel tubing, control panel with starter, and motor driver agitator. Interlock the feed system to the boiler condensate feeder system. Provide TEND type motors for chemical feed. Provide a three months supply of all boiler feed chemicals at final completion. A water softener as specified is part of the chemical treatment requirement and will be field located by the Engineer and piped to the Boiler condensate feeder system makeup water connection, with a bypass. Provide a 3 months supply of softener salt.
- 5.08 The heating HW system, chilled water system, and steam systems (including boilers, condensate and feedwater systems, converters, traps, piping, etc) will be cleaned in accordance with the specifications prior to the addition of glycol or prior to being placed in full operation. The heating HW system, chilled water system, and steam systems will be chemically balanced prior to substantial completion by the chemical feed systems supplier's factory trained personnel.



Addendum No.6  
Berkeley Springs Bath House

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- 5.09 Condensate receiver and boiler feedwater system may be of steel construction in lieu of cast iron if constructed of ¼ carbon steel.
- 5.10 The successful bidder, upon entering a contract with the State shall receive a new set of documents that incorporate the addendum drawings (AD-001 to AD-011) in them.
- 5.11 Other than those products that may be mentioned in the sections above, no Submitted Substitution Requests have been accepted.

Issued: March 3, 2009  
Alpha Associates, Incorporated

*Rebecca Jean Key, AIA*  
Rebecca Jean Key, AIA

**SECTION 15195****LIQUID PROPANE VAPORIZER****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Liquid Propane (LP) vaporizer (NEC: Class I, Div 1 Group D) with economy option.

**1.02 REFERENCE STANDARDS**

- A. ASME (BPV IX) - Boiler and Pressure Vessel Code, Section IX - Welding and Brazing Qualifications; The American Society of Mechanical Engineers; 2007.
- B. ASME B16.3 - Malleable Iron Threaded Fittings; The American Society of Mechanical Engineers; 1998 (R2006).
- C. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers; 2001 (R2005) (ANSI B16.18).
- D. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers; 2001 (R2005).
- E. ASME B31.9 - Building Services Piping; The American Society of Mechanical Engineers; 2004 (ANSI/ASME B31.9).
- F. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2007.
- G. ASTM A 234/A 234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service; 2007.
- H. ASTM B 32 - Standard Specification for Solder Metal; 2004.
- I. ASTM B 88 - Standard Specification for Seamless Copper Water Tube; 2003.
- J. ASTM B 88M - Standard Specification for Seamless Copper Water Tube (Metric); 2005.
- K. AWS A5.8/A5.8M - Specification for Filler Metals for Brazing and Braze Welding; American Welding Society; 2004 and errata.
- L. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2006 and Errata.
- M. MSS SP-58 - Pipe Hangers and Supports - Materials, Design and Manufacture; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.; 2002.
- N. MSS SP-69 - Pipe Hangers and Supports - Selection and Application; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.; 2003.
- O. MSS SP-89 - Pipe Hangers and Supports - Fabrication and Installation Practices; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.; 2003.

**1.03 SYSTEM DESCRIPTION**

- A. Provide an electric fired LP vaporizer meeting the requirements and capacities set forth below.
- B. The Owner's local LP supplier is Blue Flame. The local Blue Flame contact is Butch Swink - 304-258-3495.
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**ALTERATIONS AND ADDITIONS TO BATH HOUSE  
BERKELEY SPRINGS, WEST VIRGINIA**

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**15195-2  
DIVISION 15****1.04 QUALITY ASSURANCE**

- A. **Manufacturer Qualifications:** Company specializing in manufacturing products of the type specified in this section, with minimum ten years of experience.
- B. **Installers Qualifications:** Installing personnel must possess a minimum of ten years experience in the installation of similar systems.

**1.05 REGULATORY REQUIREMENTS**

- A. Conform to NFPA 58 for the construction and installation of systems and associated piping.
- B. Conform to NFPA 70 for the installation of electrical systems supporting the systems, particularly, but not limited to, Article 500 and Article 501 of NFPA 70.

**PART 2 PRODUCTS****2.01 LIQUIID PROPANE VAPORIZER**

- A. The contractor shall furnish and install POWER P120 Vertical Electric Vaporizer(s) as manufactured by Algas-SDI International LLC (ASDI). The unit is listed in the Factory Mutual Systems (FM) Approval Guide.
  - B. The Pressure Vessel encloses a cast aluminum core which shall be the heat transfer medium. The unit shall be electrically heated by six (6) independent "cast-in" resistance heater elements. The elements must not come in contact with the propane. The Operating Temperature Controller will utilize a 12 Volt Control System and Thermocouple temperature sensing device.
  - C. Each Electric Vaporizer shall consist of a vertical tubular Pressure Vessel through which the propane flows. The Pressure Vessel shall be fabricated in accordance with the ASME code for pressure vessels for an internal working pressure of 250 PSIG. The Pressure Vessel shall be equipped with a Relief Valve to prevent unsafe internal pressure. The Relief Valve shall be sized in accordance with NFPA Pamphlet # 58. The Pressure Vessel shall be covered with an insulating jacket to minimize radiant heat loss.
  - D. The Vaporizer shall be equipped with two independent direct monitoring High Temperature Safety Shutdown Devices, and a Float Activated High Liquid Level Safety Switch to prevent passage of liquid propane downstream. The vaporizer shall be equipped with a Liquid Inlet Solenoid shutoff valve. During a cold start, the unit shall not flow propane until it has warmed sufficiently to assure adequate vaporization for the rated flow. In the event of a "high temperature shutdown" or a "liquid carryover shutdown", or a "power interruption", the Liquid Inlet Solenoid valve shall close and prevent Liquid Propane flow into the Vaporizer, and the Heater Element(s) will de-energize. After the occurrence and correction of a Safety Shutdown situation, manual restarting of the unit shall be required.
  - E. The Vaporizer shall comply with Class 1, Division II, Group D requirements as specified by NFPA Pamphlets #58 and 70. The Vaporizer shall be provided with a NEMA 4 Control Box equipped with four (4) Indicator Lamps that verify: Power ON/OFF Status, Heater ON/OFF Status, Safety Circuit Status, and Solenoid Valve Open/Closed Status. The Manual ON/OFF and Start switch is to be installed on the front panel of the Control Box.
  - F. The Vaporizer must include an Energy (Economy) conservation system that automatically and completely de-energizes the Vaporizer when natural Storage Tank Vaporization rates are sufficient to supply the demand. The Energy (Economy) Conservation system must also
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**ALTERATIONS AND ADDITIONS TO BATH HOUSE  
BERKELEY SPRINGS, WEST VIRGINIA**

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**15195-3  
DIVISION 15**

automatically re-energize the Vaporizer and begin vaporizing liquid propane when the natural Storage Tank Vaporization rate becomes insufficient to meet the demand.

- G. The Vaporizer shall be installed in accordance with NFPA Pamphlet # 58 for electrical vaporizers as an indirect-fired vaporizer.
- H. Vaporizer Piping: Steel Pipe, ASTM A 53/A 53M, Schedule 80, black.
- I. Provide piping and wiring as necessary for a complete, code compliant, installation of the vaporizer system as specified.

### **PART 3 EXECUTION**

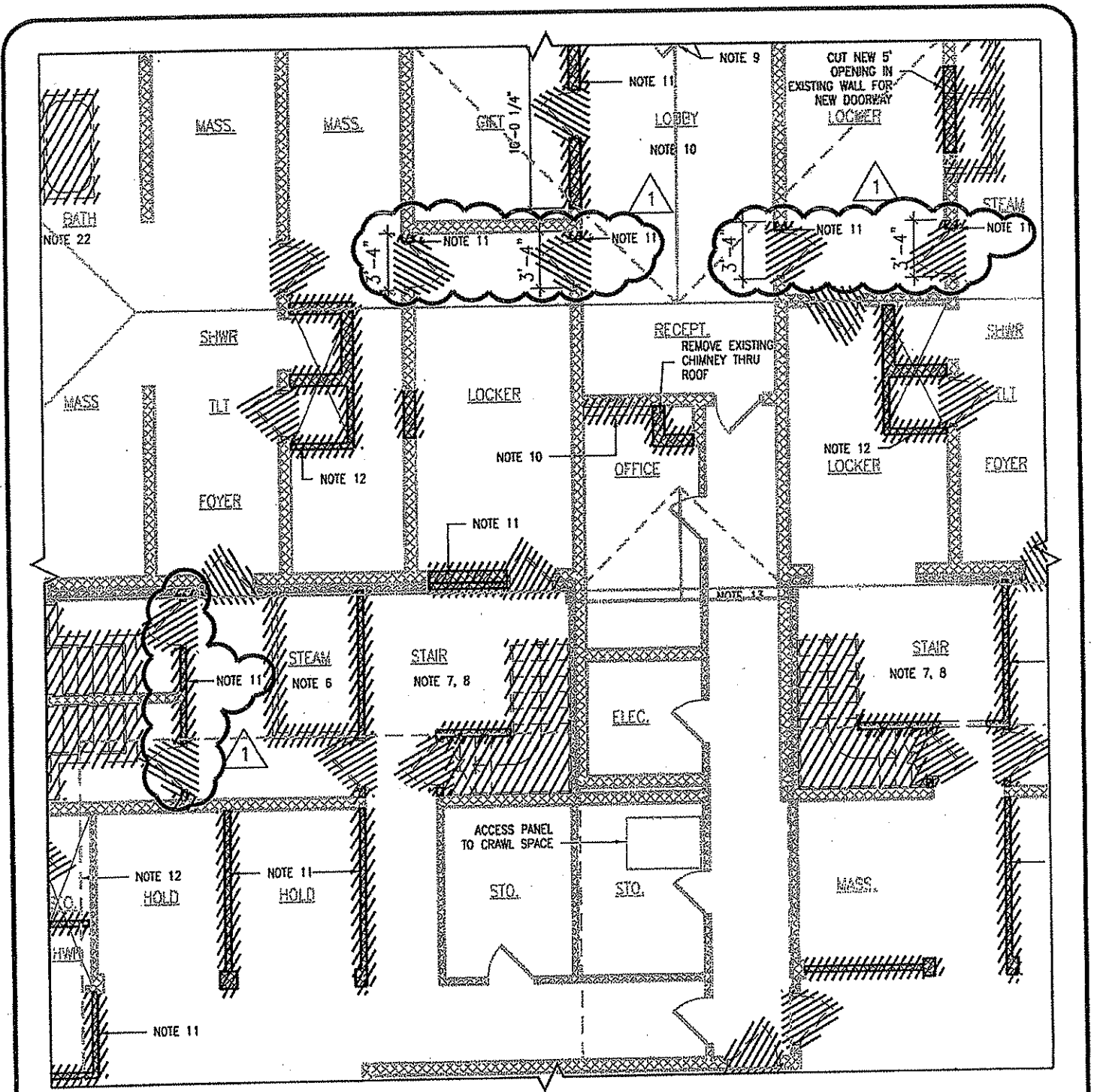
#### **3.01 PREPARATION**

- A. Remove propane from tank in accordance with Local and DOT standards and clean existing propane tank prior to installation of new dip tube.
- B. Verify all Existing conditions prior to start of work.

#### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Route piping in orderly manner, parallel to building structure, and maintain gradient.
- C. Install piping securely on rack supports and in a manner and with fitting to ensure reasonable maintenance in the future.
- D. Group piping whenever practical at common elevations.
- E. Reconnect to existing 5 psi vapor line serving facility. Verify sizing, pressure rating, and flow off all regulators. Field verify regulator discharge pressure are correct for 24 hours prior to pressurizing LP equipment.

**END OF SECTION**



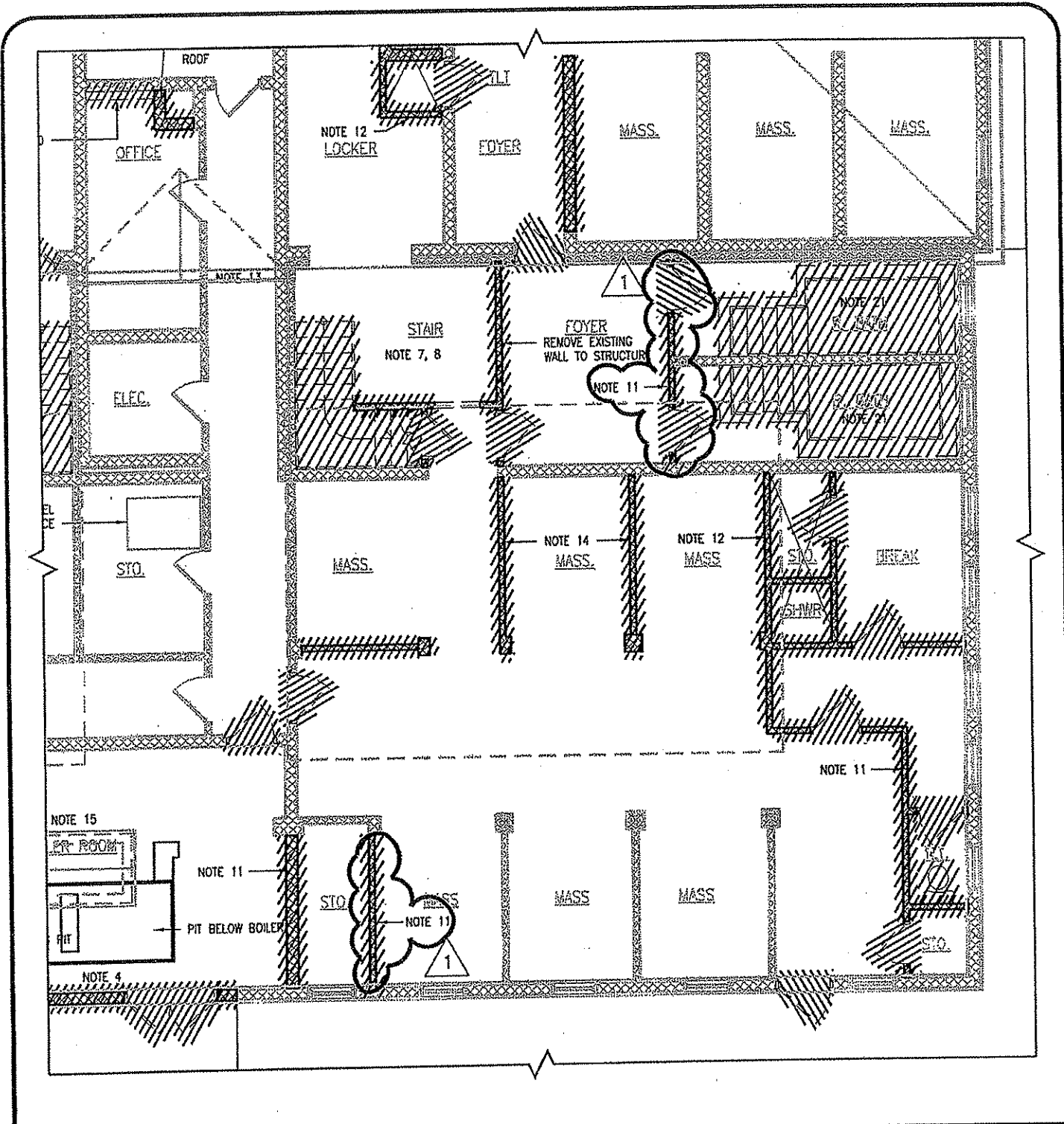
## ADDENDUM DRAWING



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|  |   |                           |
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| REV. BY:<br>RJK                              | DWG. DESCRIPTION:<br>ADDITIONAL WALL AND DOOR<br>DEMOLITION | DWG. NO:<br>AD-003 1 OF 5 |
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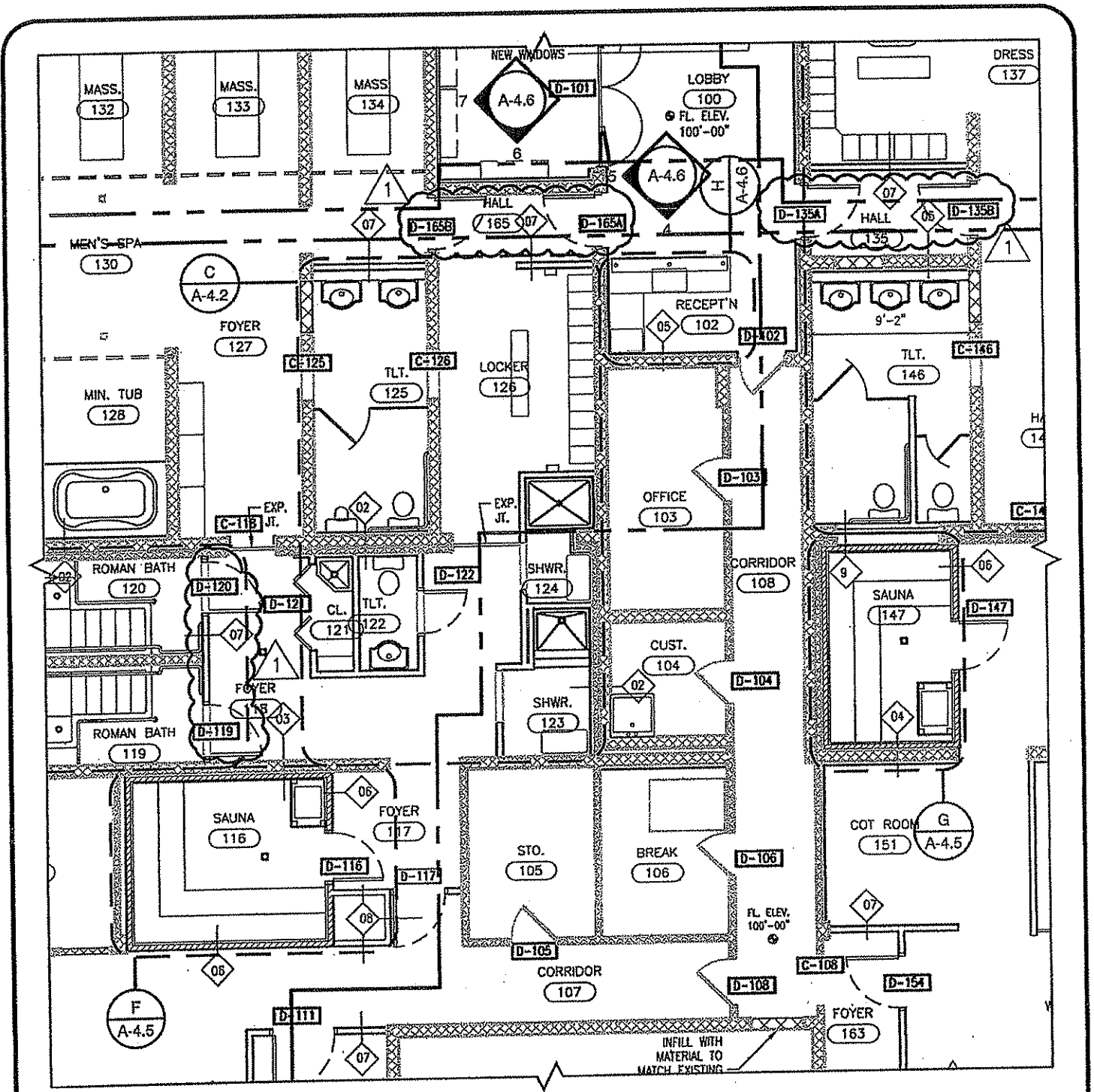


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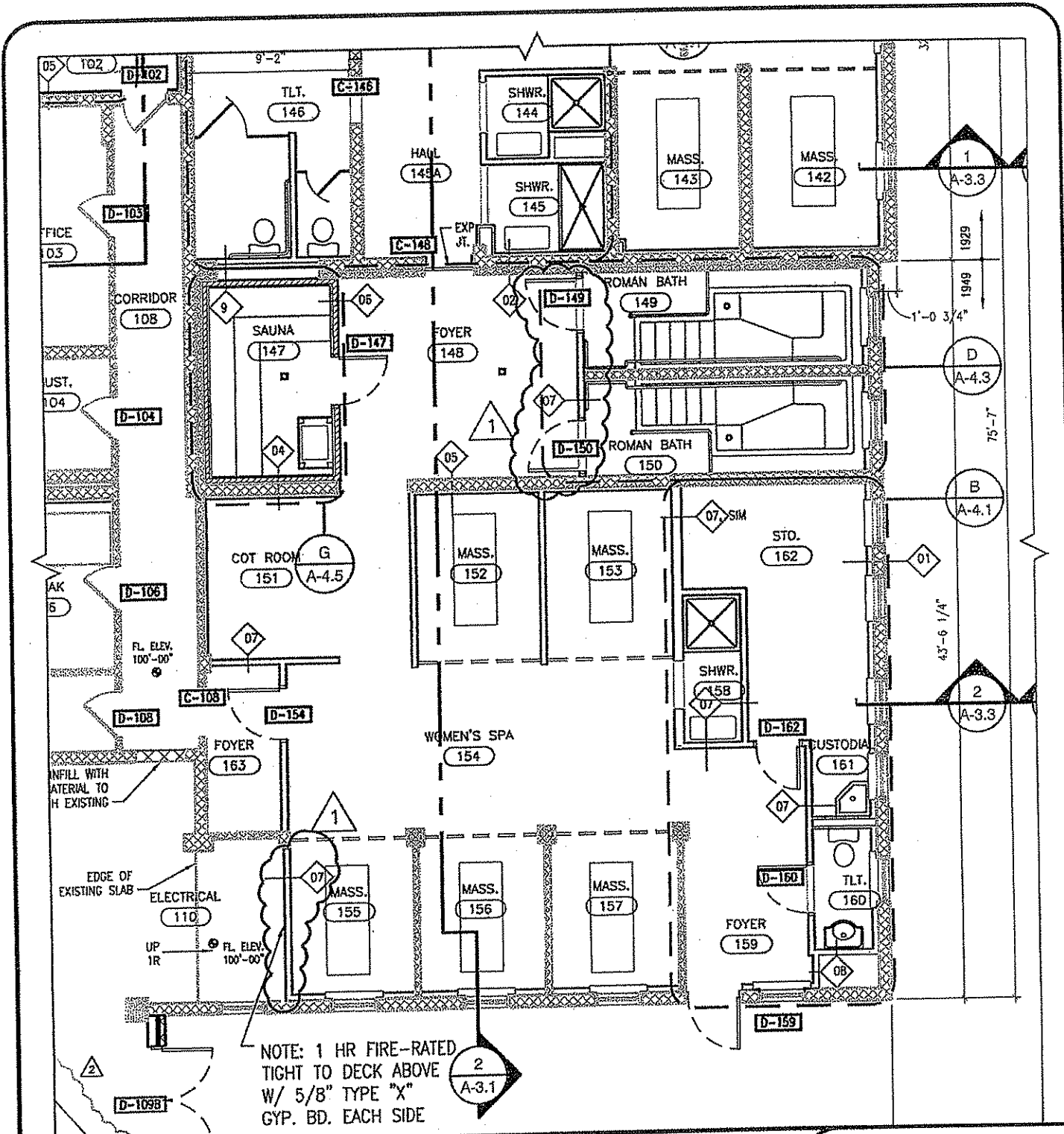
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| PROJECT NAME:<br>BERKELEY SPRINGS BATH HOUSE |   | PROJECT NO:<br>0408097.02 |



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| PROJECT NAME: ADDITIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |   | PROJECT NO:<br>0408097.02 |

**DOOR & CASED OPENING SCHEDULE**

| DOOR NO. | CASED OPENING NO. | SIZE           | LABEL | DOOR |       | FRAME    |       | HDWR SET NO. | JAMB TYPE | NC |
|----------|-------------------|----------------|-------|------|-------|----------|-------|--------------|-----------|----|
|          |                   |                |       | TYPE | MAT'L | TYPE     | MAT'L |              |           |    |
| -        | C-118             | EXISTING       | 2     | -    | -     | -        | HM    | -            | J-2       |    |
| D-119    |                   | 3'-0" x 6'-8"  |       | D-1  | HM    | F-1      | HM    | 05           | J-4       |    |
| D-120    |                   | 3'-0" x 6'-8"  |       | D-1  | HM    | F-1      | HM    | 05           | J-4       |    |
| D-121    |                   | 1'-0" x 6'-8"  |       | D-8  | WD    | (BY MFR) | WD    | 14           | (BY MFR)  |    |
| -        | C-126             | 3'-0" x 6'-10" | 2     | -    | -     | -        | HM    | -            | J-1       |    |
| D-135A   |                   | 3'-0" x 6'-10" |       | D-1  | HM    | F-1      | HM    | 03           | J-1       |    |
| D-135B   |                   | 3'-0" x 6'-10" |       | D-1  | HM    | F-1      | HM    | 04           | J-1       |    |
| -        | C-146             | 3'-0" x 6'-10" |       | -    | -     | -        | HM    | -            | J-1       |    |
| -        | C-148             | EXISTING       | 2     | -    | -     | -        | HM    | -            | J-2       |    |
| D-149    |                   | 3'-0" x 6'-8"  |       | D-1  | HM    | F-1      | HM    | 05           | J-4       |    |
| D-150    |                   | 3'-0" x 6'-8"  |       | D-1  | HM    | F-1      | HM    | 05           | J-4       |    |
| D-154    |                   | 3'-0" x 6'-10" |       | D-1  | HM    | F-1      | HM    | 12           | J-5       |    |
| -        |                   |                |       | -    | -     | -        | -     | -            | -         |    |
| D-165A   |                   | 3'-0" x 6'-10" |       | D-1  | HM    | F-1      | HM    | 03           | J-1       |    |
| D-165B   |                   | 3'-0" x 6'-10" |       | D-1  | HM    | F-1      | HM    | 04           | J-1       |    |

NOTES:

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REV. BY:  
RJK

DWG. BY:  
KCB

DATE:  
02-19-09

PROJECT NAME: ALTERATIONS & UPGRADES TO THE  
BERKELEY SPRINGS BATH HOUSE

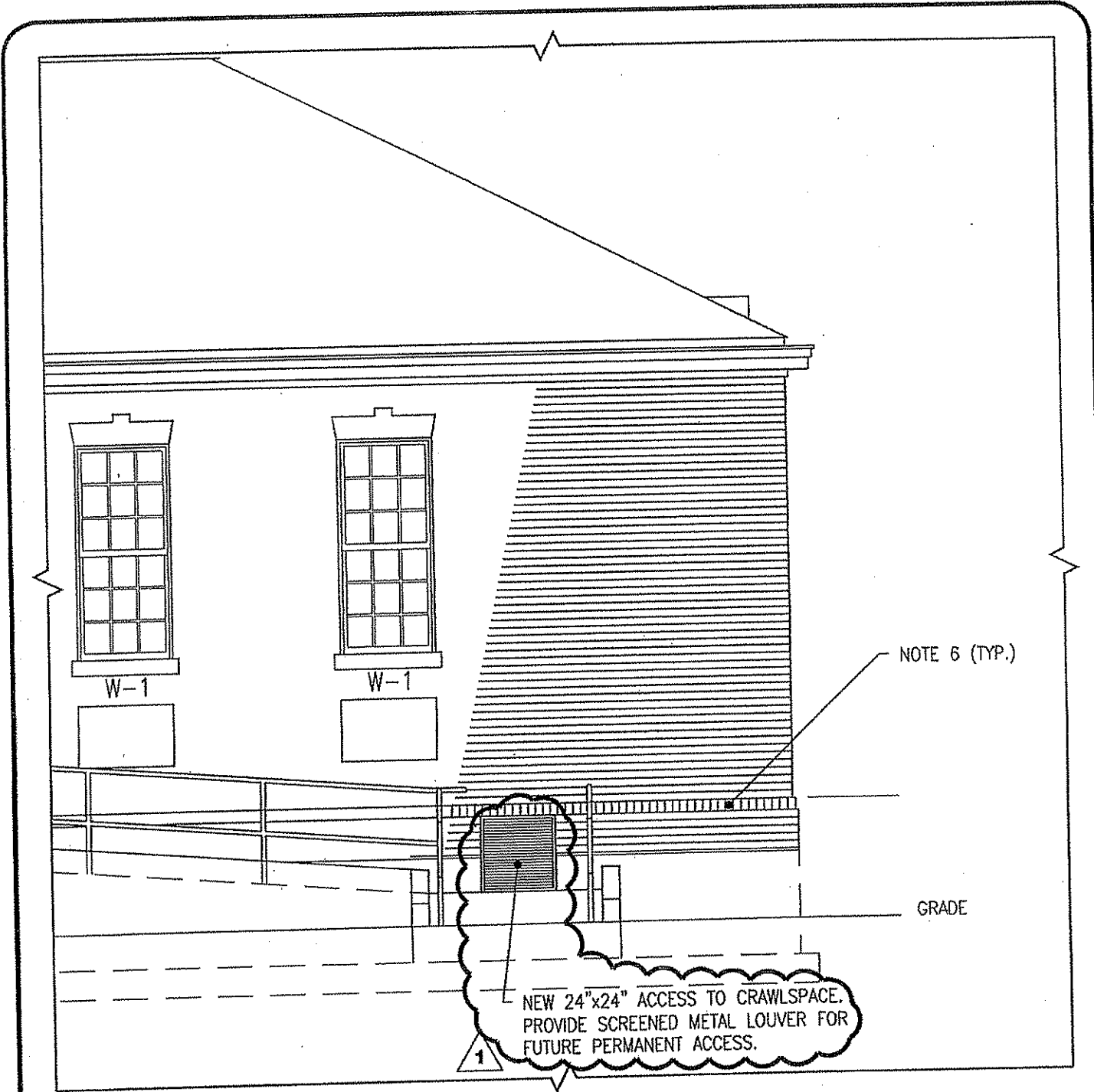
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DEMOLITION

DWG. NO:  
AD-003 5 OF 5

PBI NO:  
##

SHEET REF:  
A-6.1

PROJECT NO:  
0408097.02



**NORTH ELEVATION**

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

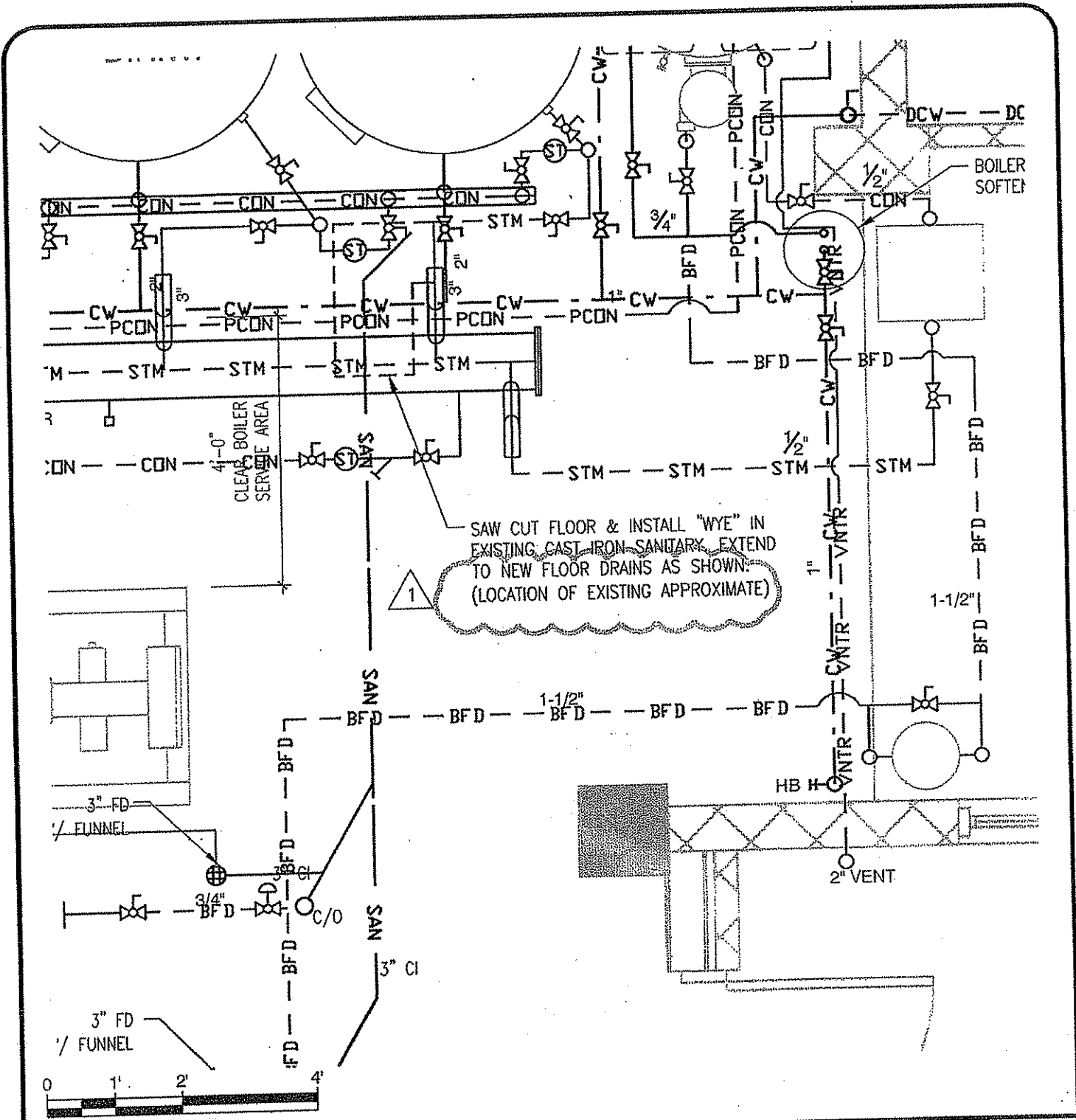
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|  |   |                           |
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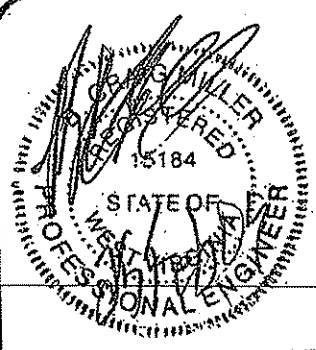
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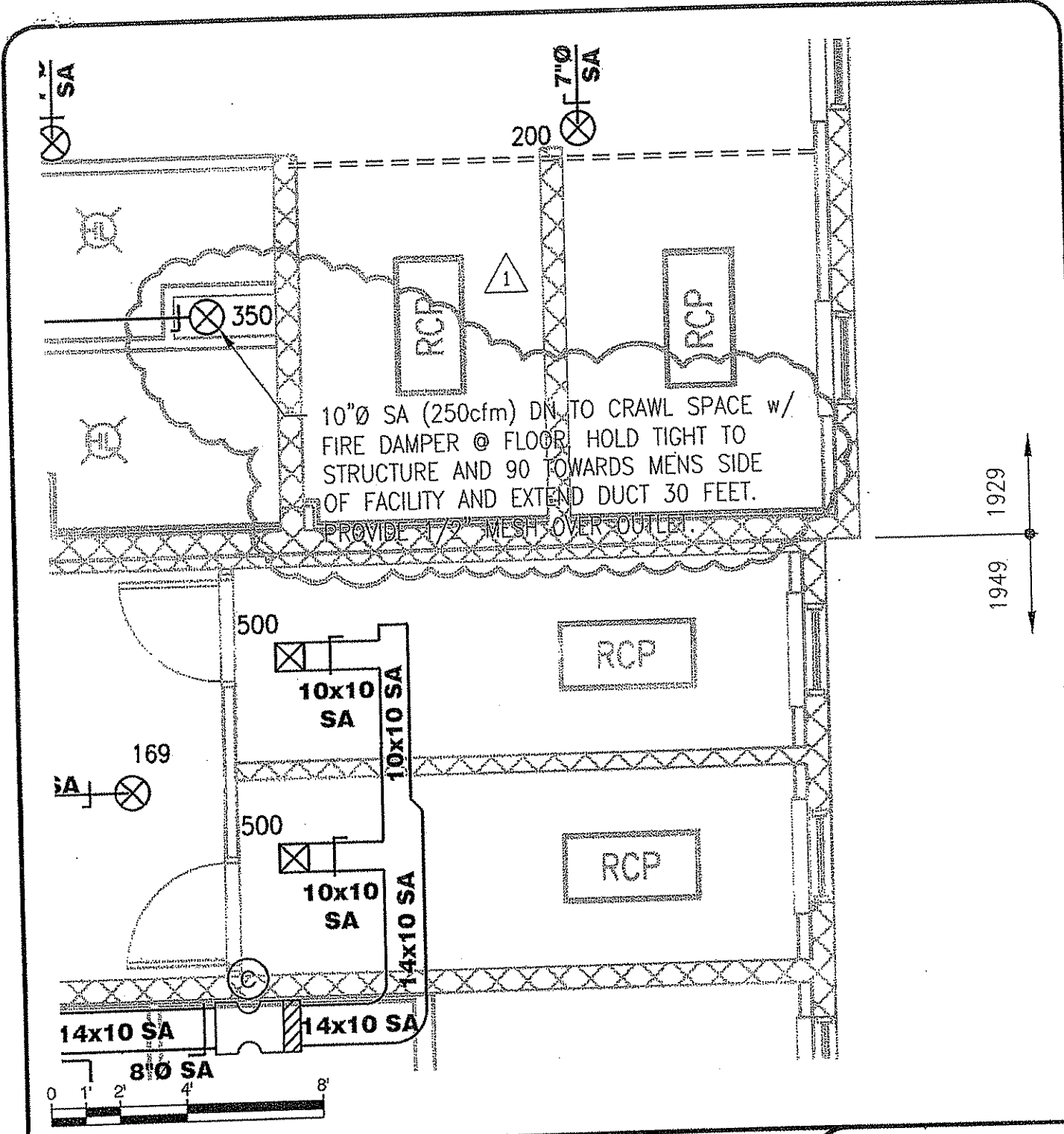
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| DATE:<br>02-25-2009 |                                      | SHEET REF:<br>P-4.1       |

PROJECT NAME: ALTERATIONS & UPGRADES TO THE BERKELEY SPRINGS BATH HOUSE

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| PROJECT NO:<br>0408097.02 |
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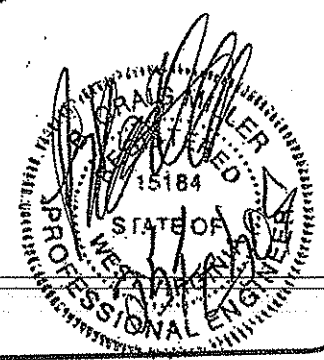
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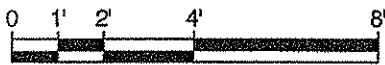
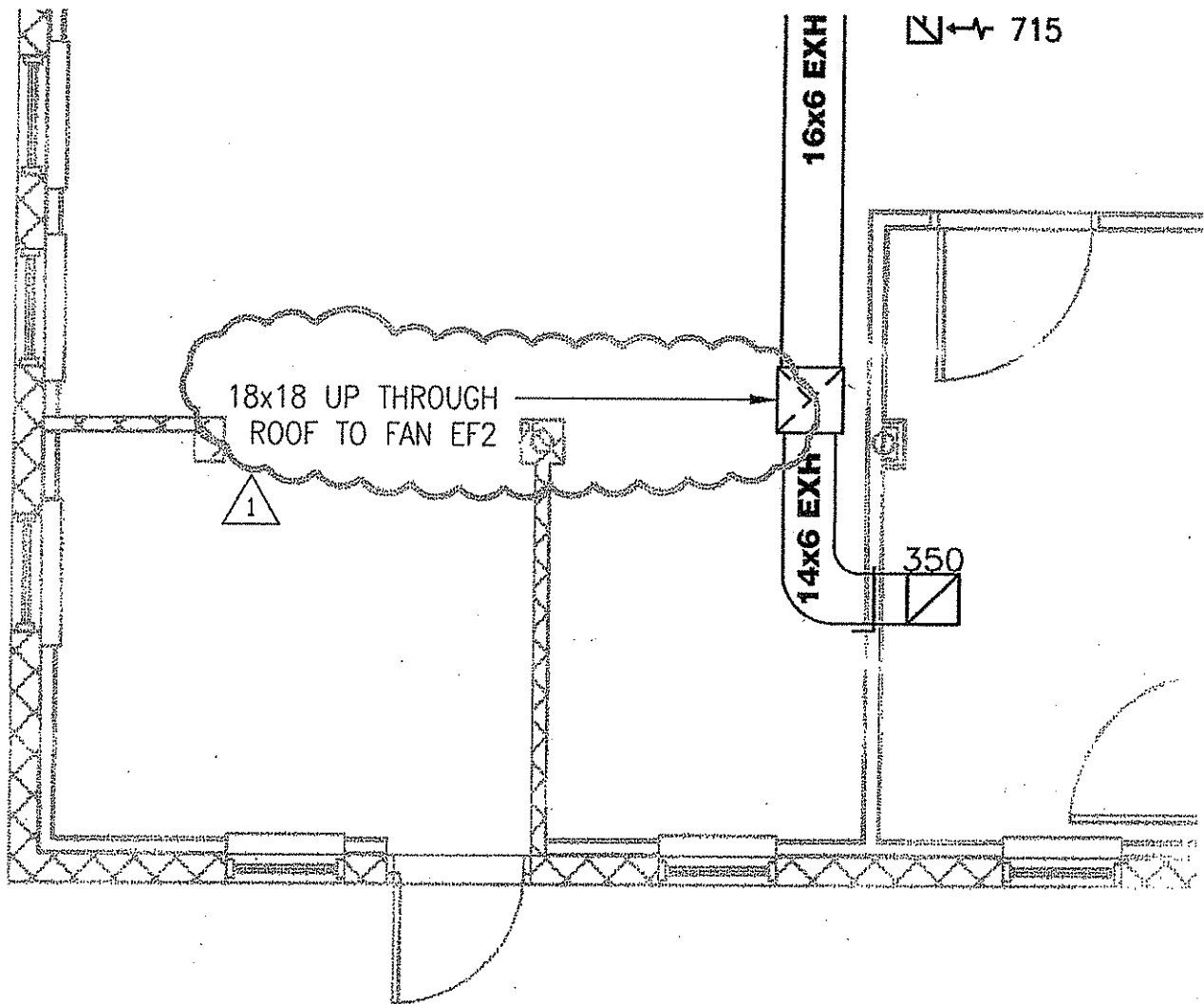
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|  |                                       |                            |
|--|---------------------------------------|----------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>ADDITIONAL NOTES | DWG. NO:<br>AD-006 1 OF 14 |
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| DATE:<br>02-25-2009  |                                       | SHEET REF:<br>M-1.1        |
| PROJECT NAME: ADDITIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |                                       | PROJECT NO:<br>0408097.02  |





### ADDENDUM DRAWING



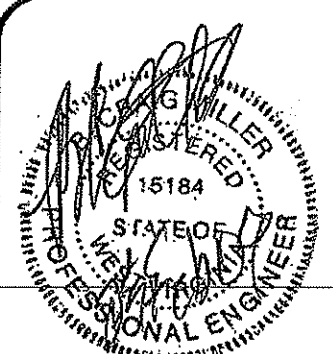
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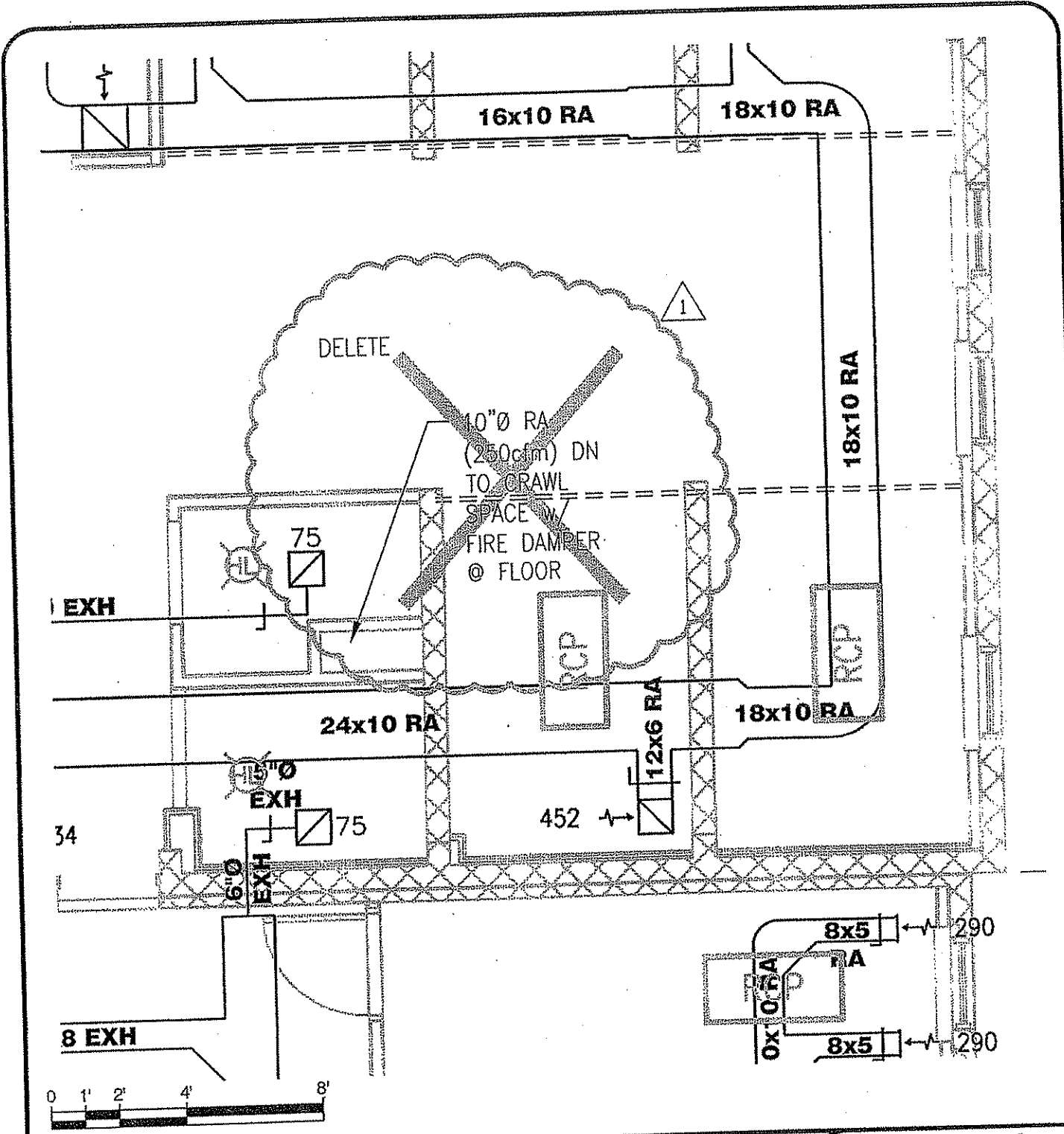
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PROJECT NAME: ALTERATIONS & UPGRADES TO THE  
 BERKELEY SPRINGS BATH HOUSE

DWG. NO: AD-006 2 OF 14  
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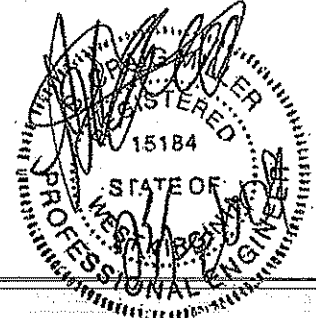


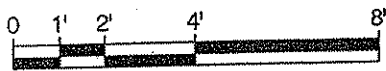
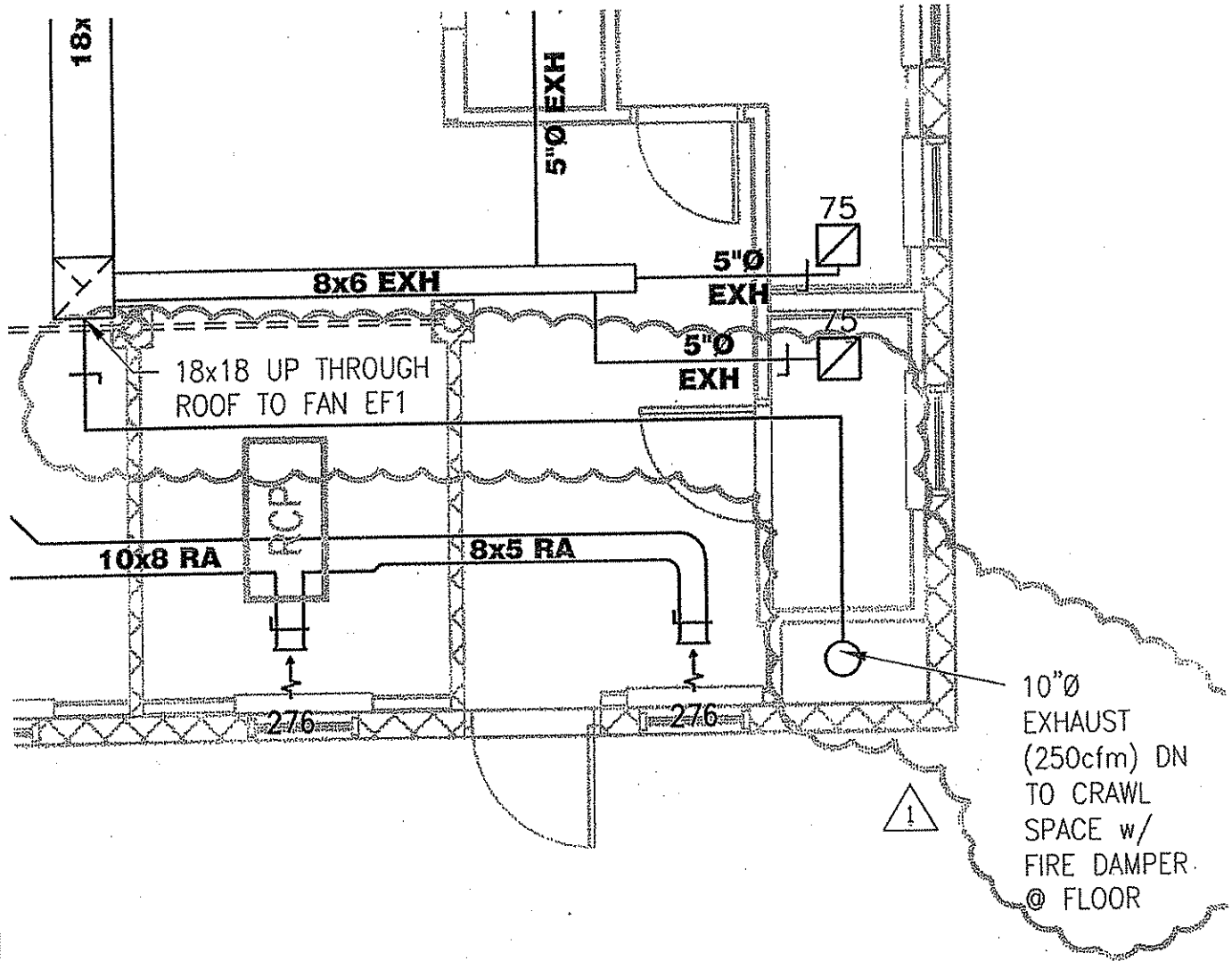


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|  |   |                            |
|--|---|----------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>DELETION OF RETURN AIR<br>DUCT | DWG. NO:<br>AD-006 3 OF 14 |
| DWG. BY:<br>RTL  |   | PBI NO:<br>--              |
| DATE:<br>02-25-2009  |   | SHEET REF:<br>M-12         |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |   | PROJECT NO:<br>0408097.02  |





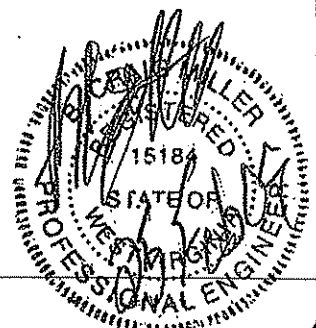
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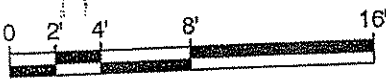
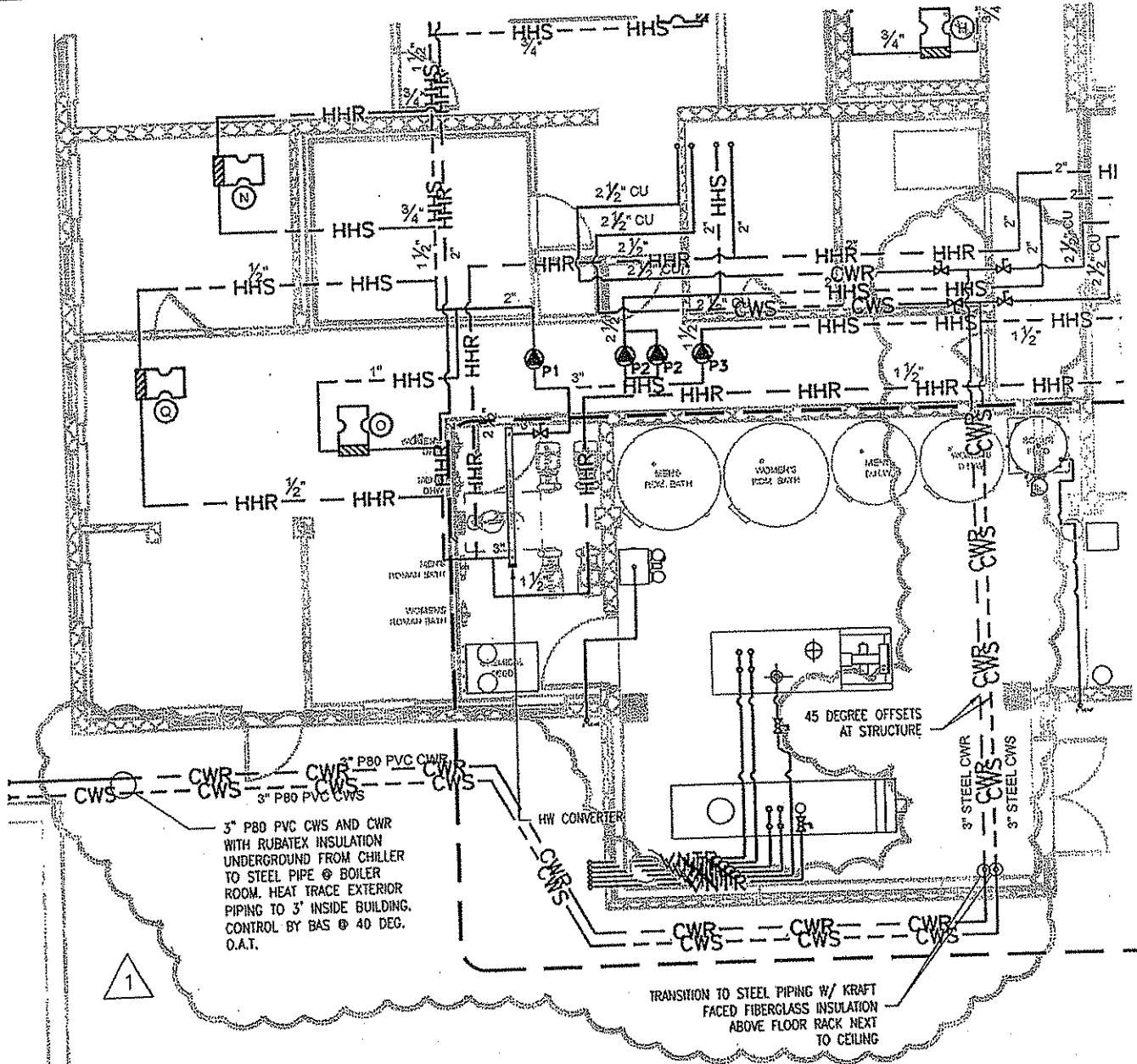
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HTTP: [www.alphaoec.com](http://www.alphaoec.com)

|  |  |                            |
|--|--|----------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>ADDITION OF NEW EXHAUST<br>DUCTWORK | DWG. NO:<br>AD-006 4 OF 14 |
| DWG. BY:<br>RTL  |  | PBI NO:<br>--              |
| DATE:<br>02-25-2009  |  | SHEET REF:<br>M-1.2        |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |  | PROJECT NO:<br>0408097.02  |

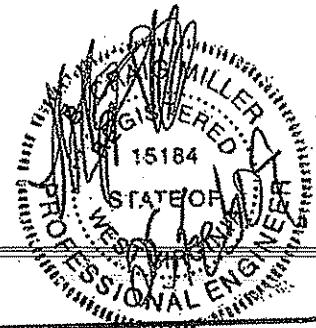


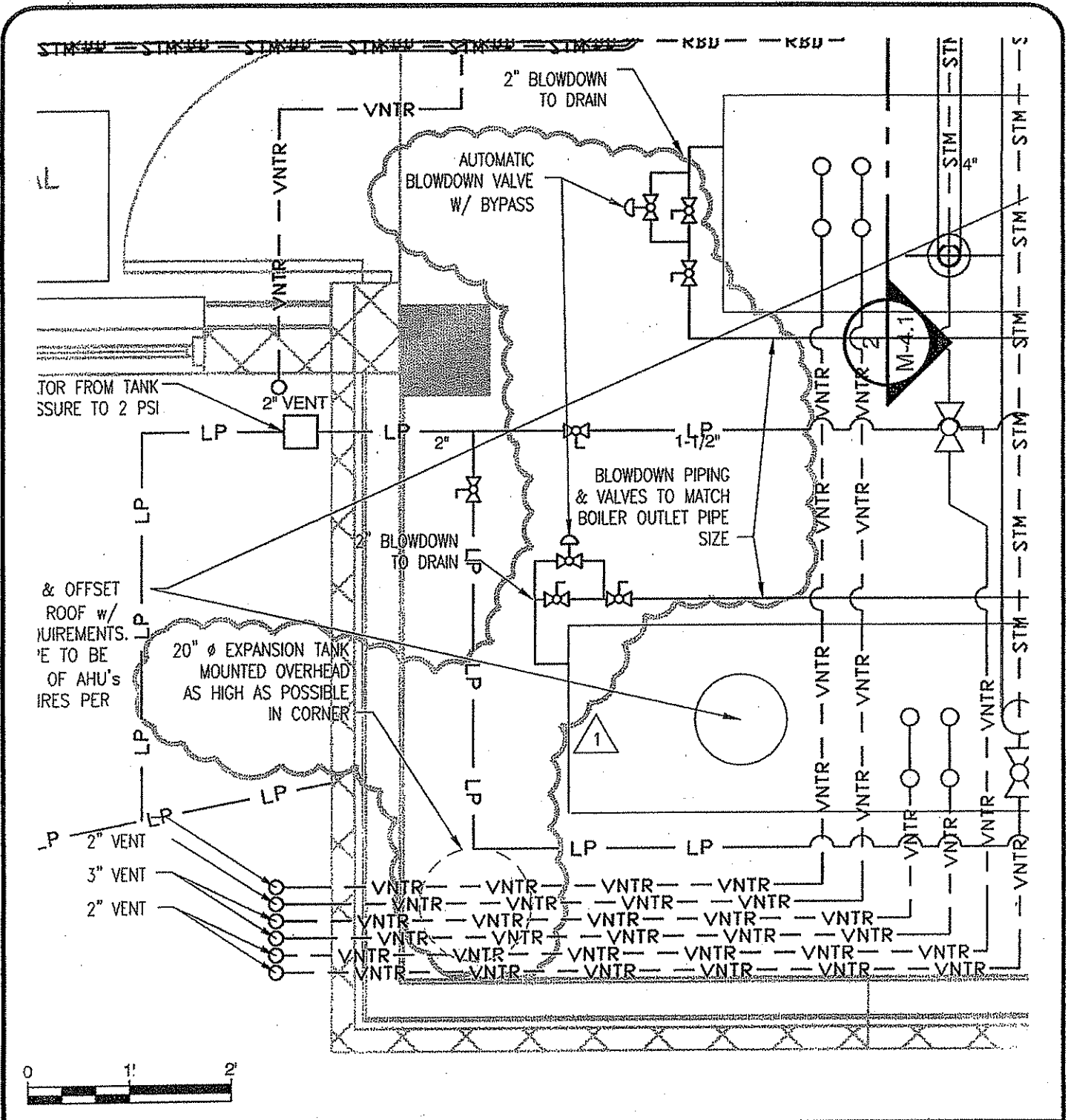


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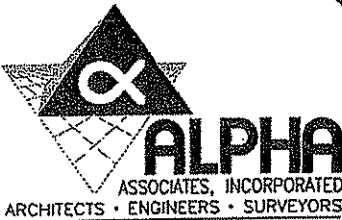
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|  |  |                            |
|--|--|----------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>HOT & CHILLED WATER<br>PIPING REVISIONS | DWG. NO:<br>AD-006 5 OF 14 |
| DWG. BY:<br>RTL  |  | PBI NO:<br>--              |
| DATE:<br>02-25-2009  |  | SHEET REF:<br>M-1.3        |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |  | PROJECT NO:<br>0408097.02  |





### ADDENDUM DRAWING



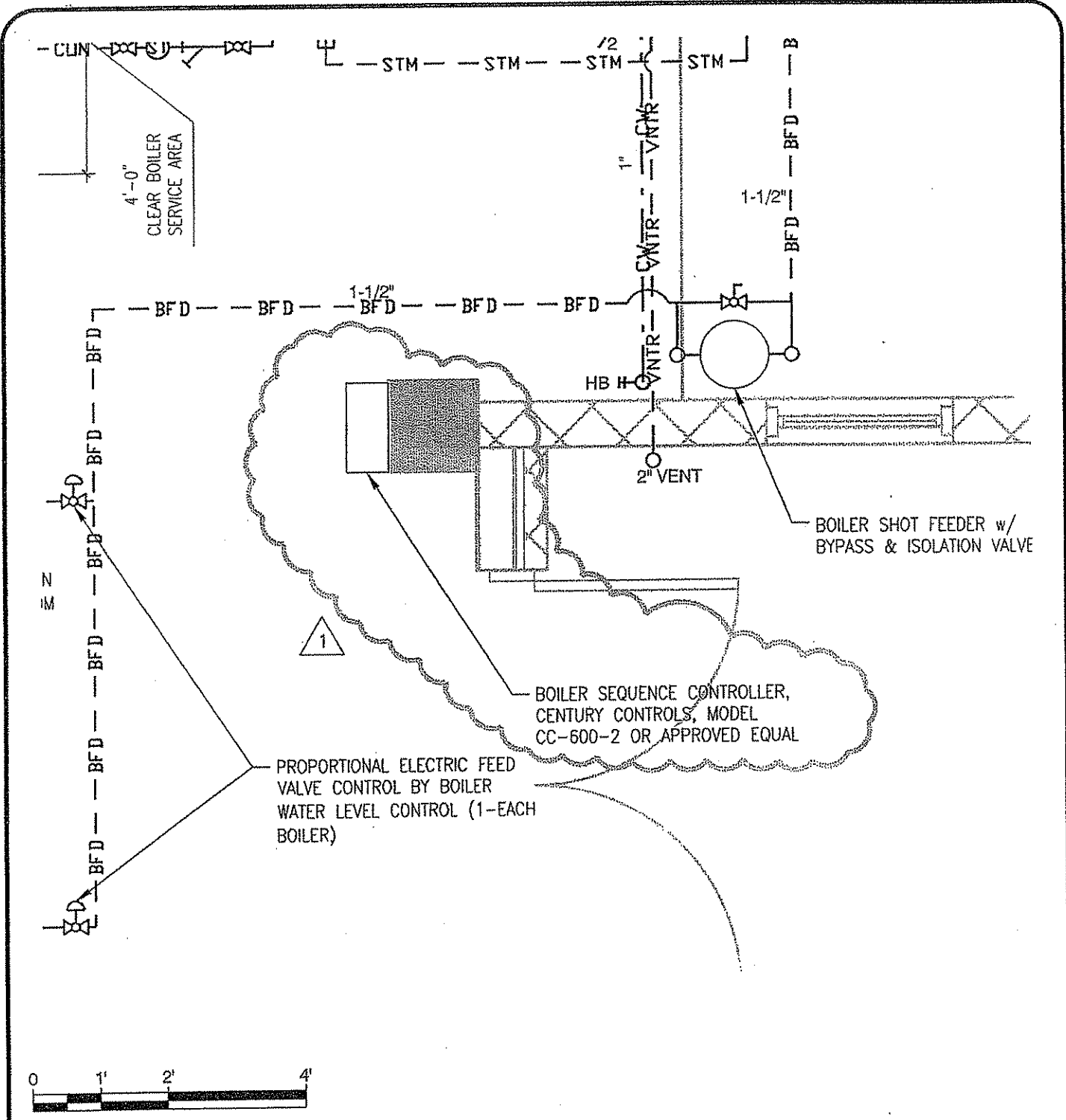
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 EMAIL: alpha@alphaec.com  
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REV. BY: MEI  
 DWG. BY: RTL  
 DATE: 02-25-2009

DWG. DESCRIPTION: BOILER CONTROL MANUFACTURERS CLARIFICATION  
 PROJECT NAME: ADDITIONS & UPGRADES TO THE BERKELEY SPRINGS BATH HOUSE

DWG. NO: AD-006 6 OF 14  
 PBI NO: --  
 SHEET REF: M-4.1  
 PROJECT NO: 0408097.02





### ADDENDUM DRAWING



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PHONE/FAX: 304-286-8216  
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HTTP: www.alphasec.com

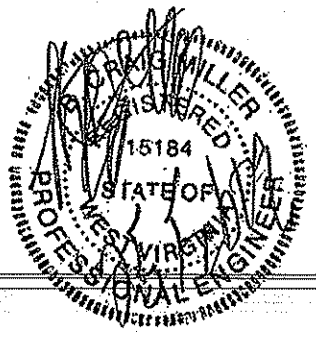
REV. BY: MEI  
DWG. BY: RTL  
DATE: 02-25-2009

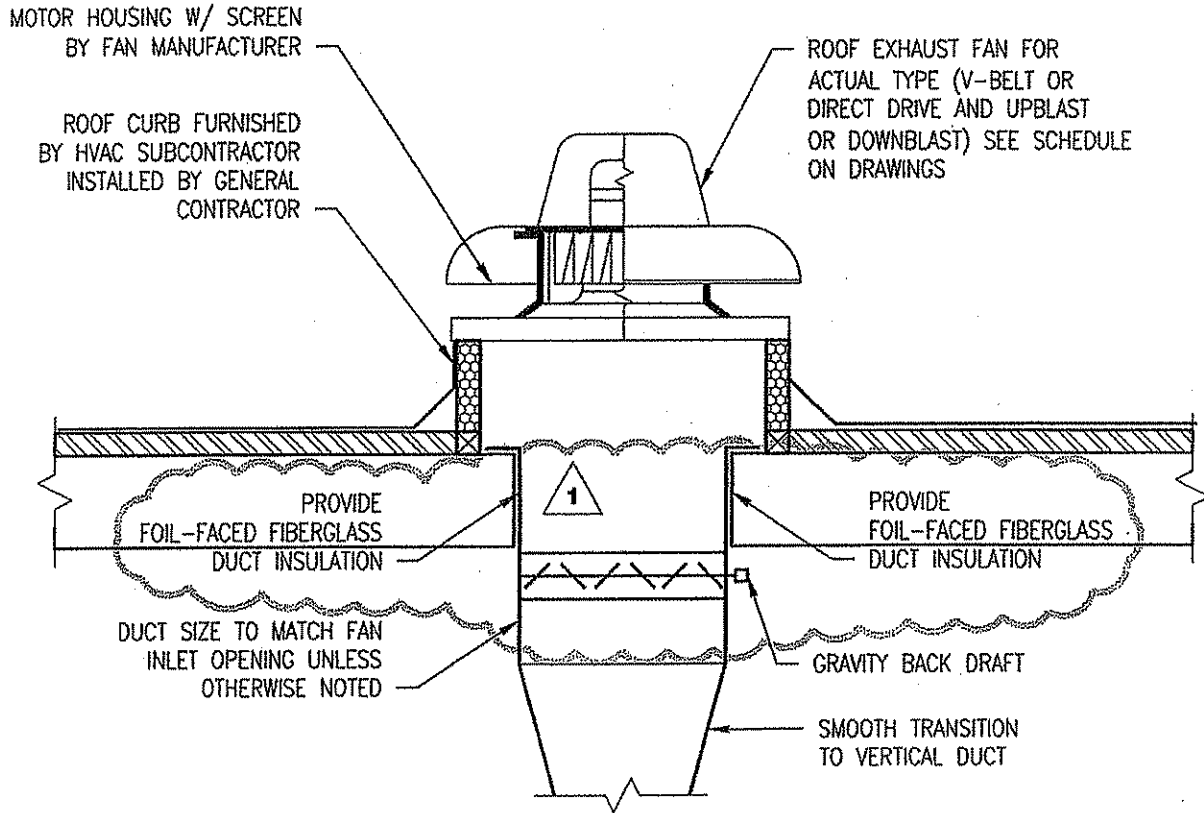
DWG. DESCRIPTION:  
BOILER CONTROL  
MANUFACTURERS  
CLARIFICATION

DWG. NO: AD-006 7 OF 14  
PBI NO: --  
SHEET REF: M-4.1

PROJECT NAME: ADDITIONS & UPGRADES TO THE  
BERKELEY SPRINGS BATH HOUSE

PROJECT NO: 0408097.02





- NOTE:**
- 1) ROOF PENETRATION AND FLASHING TO BE BY ORIGINAL ROOF MFR. CERTIFIED PERSON TO MAINTAIN WARRANTY.
  - 2) PROVIDE OWNER W/ INSPECTION DOCUMENTATION AS REQUIRED BY MANUFACTURER TO MAINTAIN ROOF WARRANTY.

**DETAIL -  
ROOF EXHAUST FAN (MUSHROOM TYPE)**

SCALE : N.T.S.

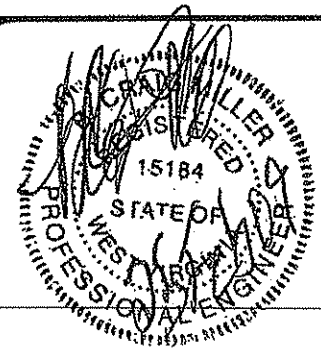
10



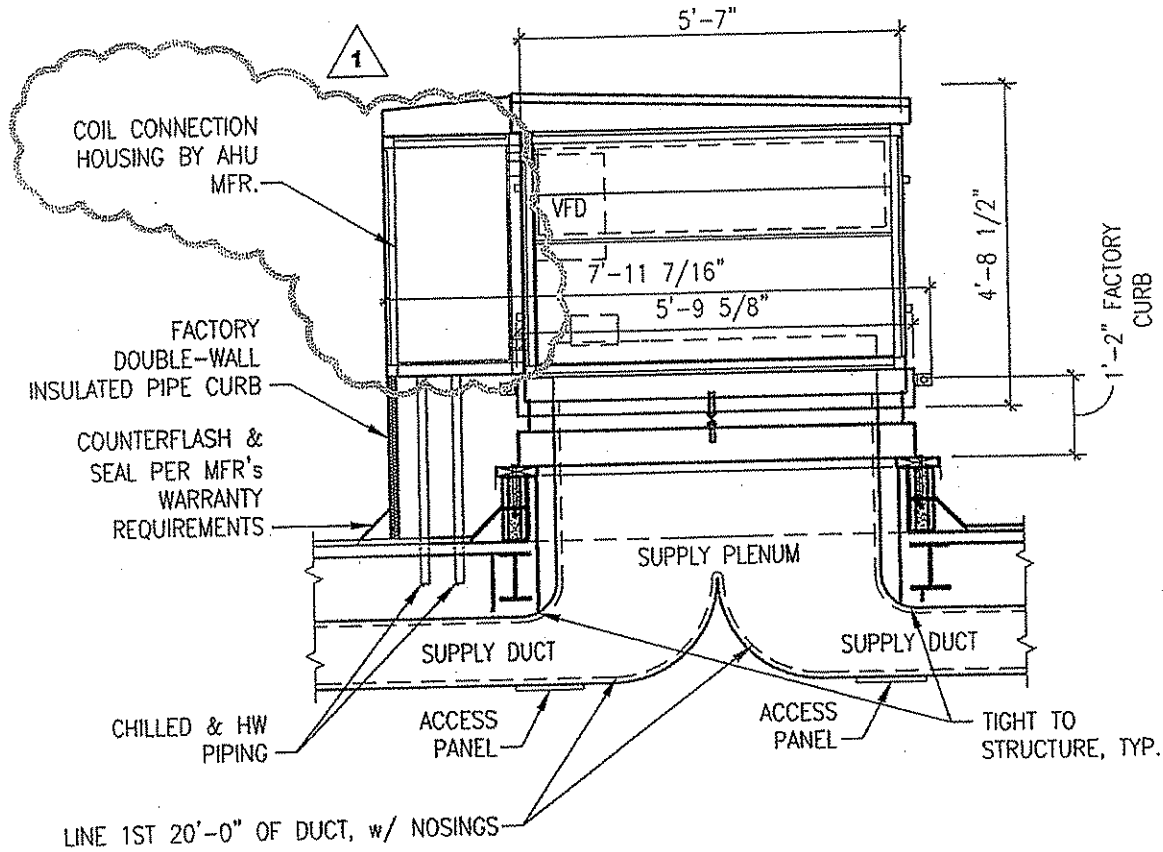
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|  |   |                            |
|--|---|----------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>ROOF EXHAUST FAN DETAIL<br>CLARIFICATION | DWG. NO:<br>AD-006 8 OF 14 |
| DWG. BY:<br>RTL  |   | PBI NO:<br>--              |
| DATE:<br>02-25-2009  |   | SHEET REF:<br>M-5.1        |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |   | PROJECT NO:<br>0408097.02  |







**DETAIL - END ELEVATION VIEW OF AIR HANDLING UNIT (AHU-1 & AHU-2)**

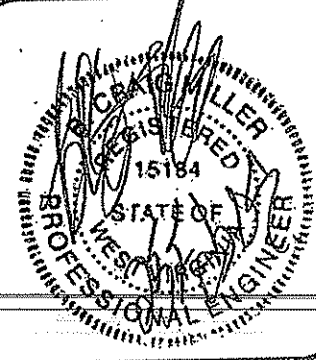
SCALE: N.T.S.

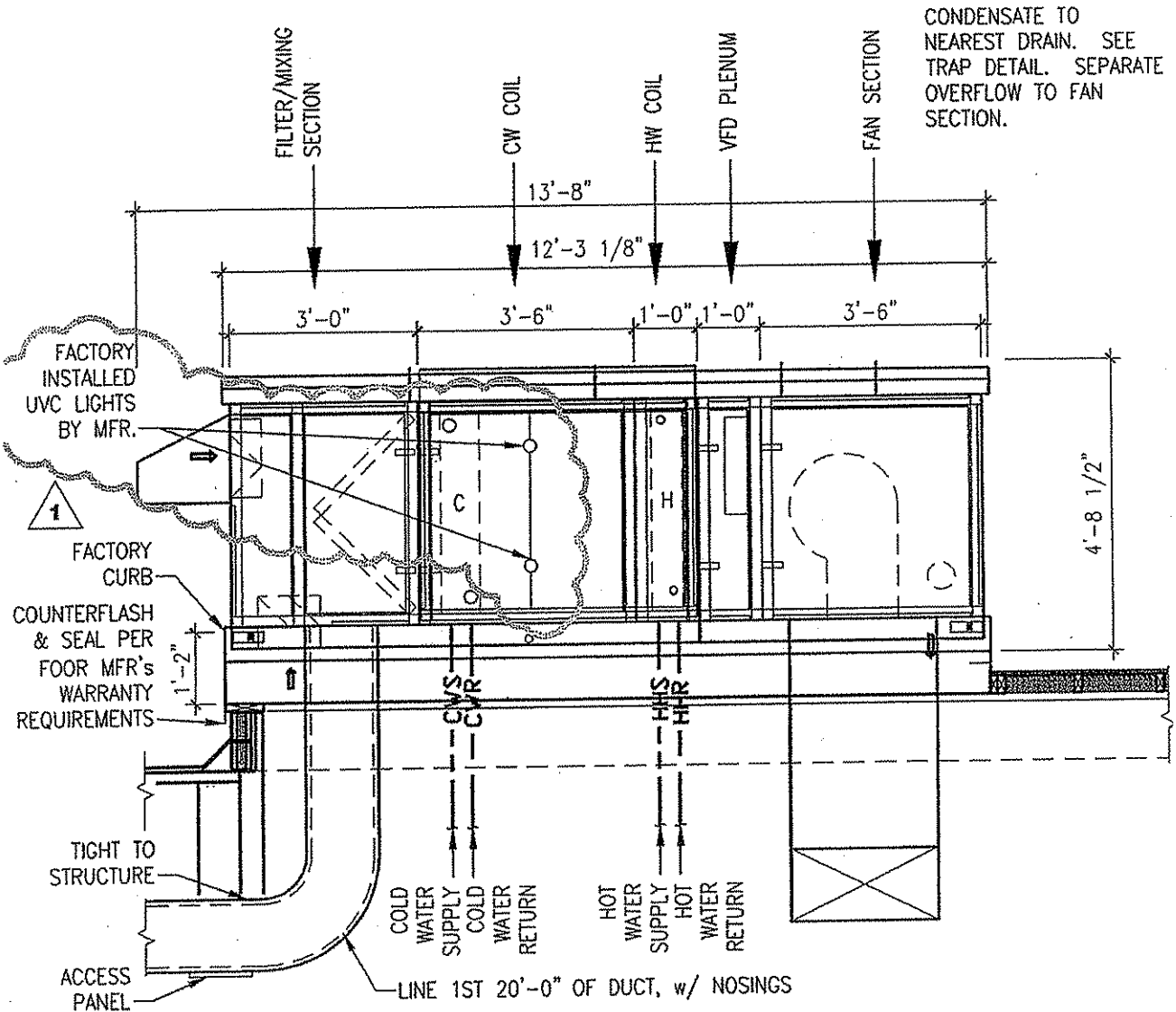
7

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|  |   |                            |
|--|---|----------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>AIR HANDLING UNIT<br>CLARIFICATION | DWG. NO:<br>AD-006 9 OF 14 |
| DWG. BY:<br>RTL  |   | PBI NO:<br>--              |
| DATE:<br>02-25-2009  |   | SHEET REF:<br>M-5.1        |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |   | PROJECT NO:<br>0408097.02  |

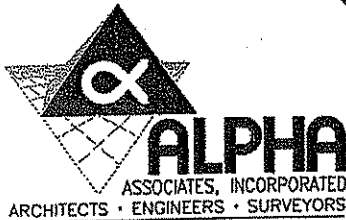




**DETAIL - ELEVATION VIEW OF AIR HANDLING UNIT (AHU-1 & AHU-2)**

SCALE : N.T.S.

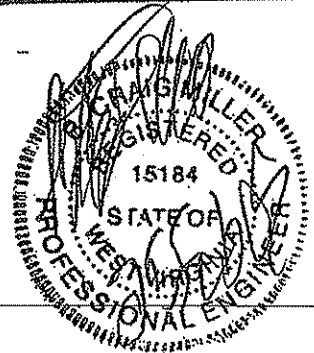
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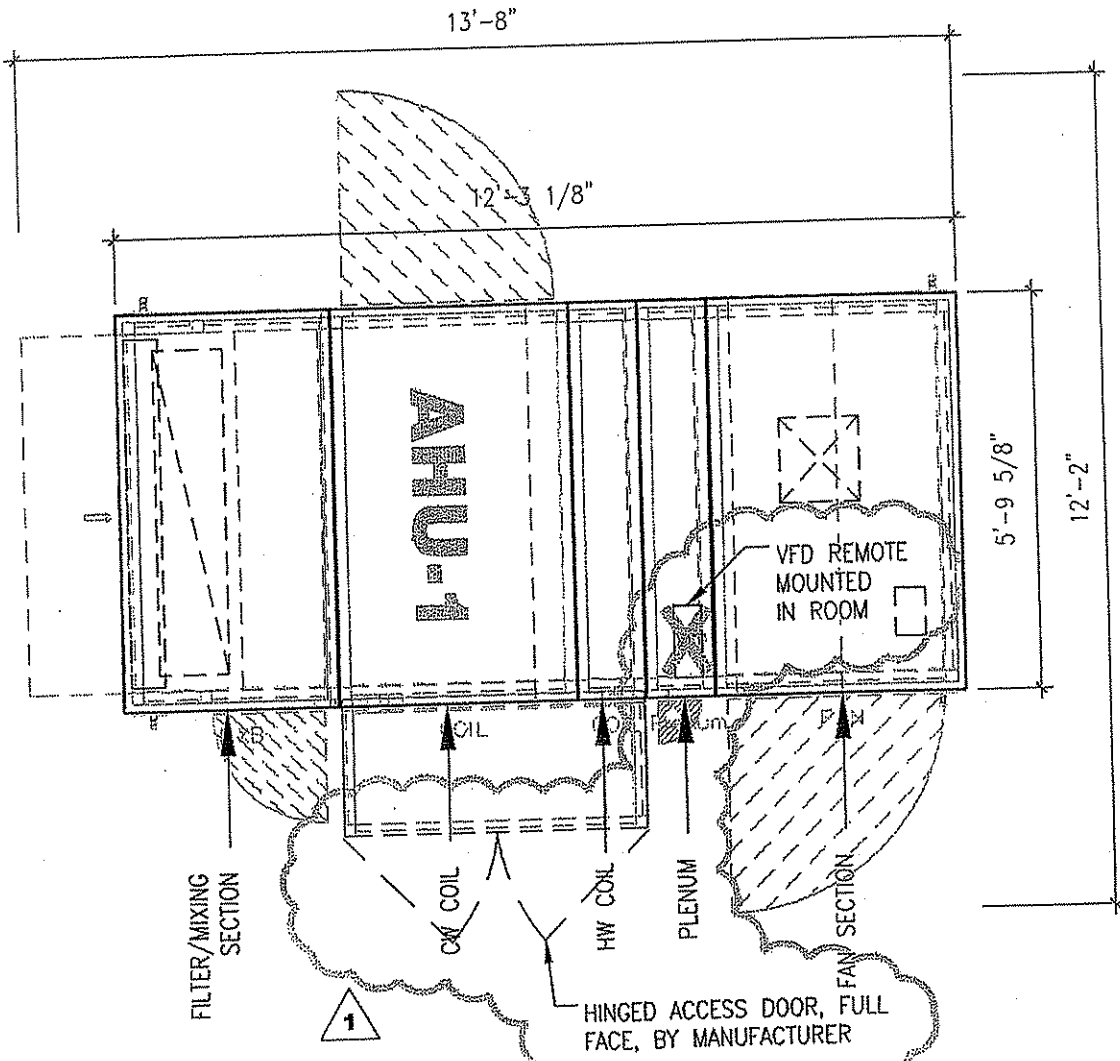


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ADDENDUM DRAWING

|  |   |                                |
|--|---|--------------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>AIR HANDLING UNIT<br>CLARIFICATION | DWG. NO:<br>AD-006 10 OF<br>14 |
| DWG. BY:<br>RTL  |   | PBI NO:<br>--                  |
| DATE:<br>02-25-2009  |   | SHEET REF:<br>M-5.1            |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |   | PROJECT NO:<br>0408097.02      |





**DETAIL - PLAN VIEW OF AIR HANDLING UNIT (AHU-1 & AHU-2)**

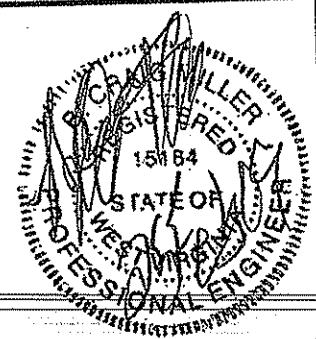
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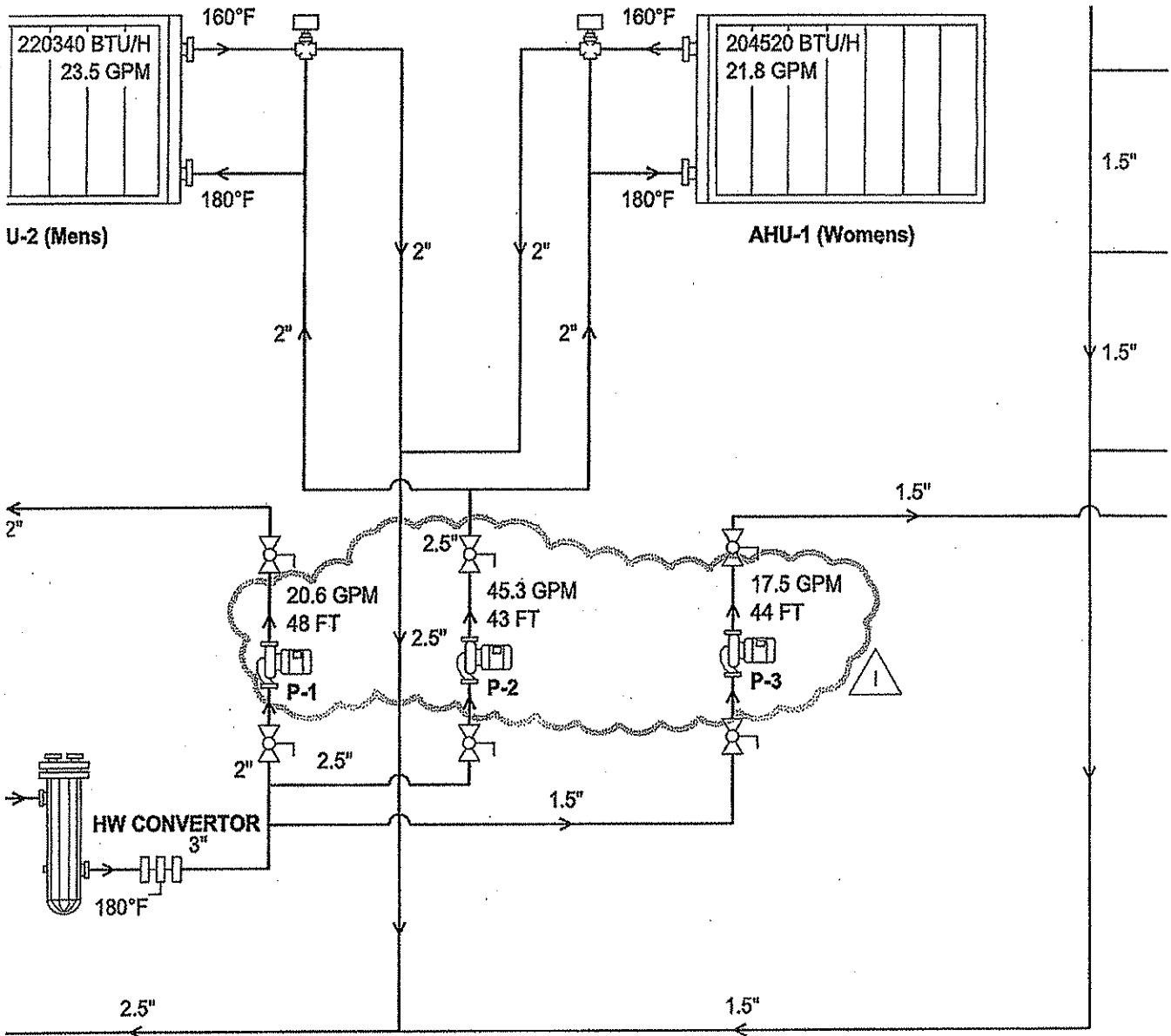
9

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|   |   |                             |
|---|---|-----------------------------|
| REV. BY:<br>MEI   | DWG. DESCRIPTION:<br>AIR HANDLING UNIT<br>CLARIFICATION | DWG. NO:<br>AD-006 11 OF 14 |
| DWG. BY:<br>RTL   |   | PBI NO:<br>--               |
| DATE:<br>02-25-2009   |   | SHEET REF:<br>M-5.1         |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE BERKELEY SPRINGS BATH HOUSE |   | PROJECT NO:<br>0408097.02   |





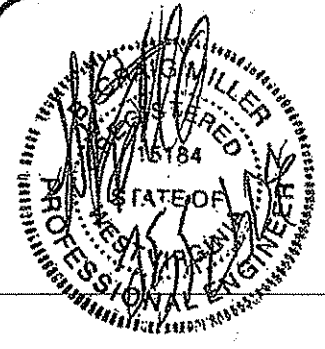
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### ADDENDUM DRAWING

REV. BY: MEI  
 DWG. BY: RTL  
 DATE: 02-25-2009

DWG. DESCRIPTION: PUMP DATA CLARIFICATION  
 PROJECT NAME: ALTERATIONS & UPGRADES TO THE BERKELEY SPRINGS BATH HOUSE

DWG. NO: AD-006 12 OF 14  
 FBI NO: --  
 SHEET REF: M-5.2  
 PROJECT NO: 0408097.02



| Supply Fan   |   |  |
|--|---|--|
| Location   | Type  | Comments   |
| Lead Water Coil  |   |  |
| Steel drain pan right<br>1/2" Tube diameter,<br>Galv. Casing     | Draw-Thru, Horizontal, Rear<br>Inlet, 4.3 (hp), 4300cfm, 1.6<br>(in wg) Downstream Static | Down blast front discharge, 7.5 HP<br>High Efficiency ODP, <b>Remote</b><br>Variable Freq. Drive 208/230 Volts,<br>1.5 Service factor, w/ Variable pitch<br>drive. |
| Steel drain pan right<br>5/8" Tube diameter,<br>Stainless Casing | Draw-Thru, Horizontal, Rear<br>Inlet, 6.1 (hp), 5000cfm, 1.9<br>(in wg) Downstream Static | Down blast front discharge, 7.5 HP<br>High Efficiency ODP, <b>Remote</b><br>Variable Freq. Drive 208/230 Volts,<br>1.5 Service factor, w/ Variable pitch<br>drive. |

1

| EXHAUST FAN SCHEDULE |          |     |               |                      |              |                      |       |                        |                      |                 |
|----------------------|----------|-----|---------------|----------------------|--------------|----------------------|-------|------------------------|----------------------|-----------------|
| NAME                 | LOCATION | HP  | DESIGN<br>CFM | TOTAL SF<br>(W/ N2O) | FAN<br>SPEED | MFR/ MODEL<br>#      | DRIVE | INTEGRAL<br>DISCONNECT | BACK DRAFT<br>DAMPER | VOLTS/<br>PHASE |
| EF1                  | ROOF     | 1/3 | 1125          | .5 in.               | 1635         | GREENHECK<br>4X-QDR4 | BELT  | YES                    | YES                  | 120/1           |
| EF-2                 | ROOF     | 1/3 | 900           | .5 in.               | 1400         | GREENHECK<br>4X-QDR4 | BELT  | YES                    | YES                  | 120/1           |

1

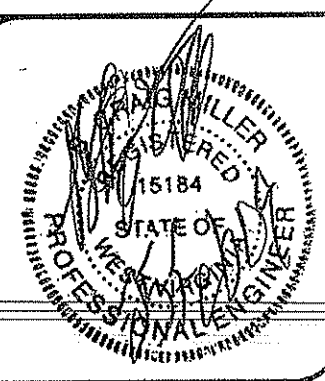
### ADDENDUM DRAWING



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|  |  |                                |
|--|--|--------------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>EXHAUST FAN REVISIONS,<br>SUPPLY FAN NOTE<br>CLARIFICATIONS | DWG. NO:<br>AD-006 13 OF<br>14 |
| DWG. BY:<br>RTL  |  | FBI NO:<br>--                  |
| DATE:<br>02-25-2009  |  | SHEET REF:<br>M-6.1            |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |  | PROJECT NO:<br>0408097.02      |



**BOILER CONDENSATE FEEDER SCHEDULE**

| Make     | Model Number | Capacity | Flow Cap. (gpm) | Tank Position        | HP  | Volts | Notes  |
|----------|--------------|----------|-----------------|----------------------|-----|-------|--|
| Lockwood | BNK2114*     | 211      | 30 @ 40 psi     | Vertical Single Pump | 3/4 | 200/1 | HOA, LED Pilot Light, Pressure Gauge, Thermometer, Tank Insulation, Pump Isolation Valve, Magnesium Anode, 1/4" carbon steel construction, and one Complete spare pump including Motor, Pump, Housing and Gaskets. |

1

1

**HYDRONIC SPECIALTIES SCHEDULE**

| MARK            | MFR     | MODEL   | PERFORMANCE DATA   | OPTIONS   | DUTY                   | NOTES  |
|-----------------|---------|---------|--|---|------------------------|--|
| P1              | TACO    | 1400-S0 | 20.6 gpm @ 48' head, 1/2 HP  | w/ flanges, check, & isol valves  | Heating HW             | Insulated housing with removable insulation  |
| P2 (2)          | TACO    | 1618    | 45.3 gpm @ 43' head, 1 HP  | w/ flanges, check, & isol valves  | Heating HW             | Insulated housing with removable insulation  |
| P3              | TACO    | 1400-S0 | 17.5 gpm @ 44' head, 1/2 HP  | w/ flanges, check, & isol valves  | Heating HW             | Insulated housing with removable insulation  |
| AIR SEPARATOR 1 | TACO    | AC28F   | 2.5'   | strainer, ASME label  | Heating HW             | Connect to CW system, provide 3/4" domestic water system PRV w/ air gap check, piped bypass, valves, & gauges, pipe drains to floor drain  |
| AIR SEPARATOR 2 | TACO    | AC3F    | 3'   | strainer, ASME label  | Chilled Water          | Connect to CW system, provide 3/4" domestic water system PRV w/ air gap check, piped bypass, valves, & gauges, pipe drains to floor drain  |
| STEAM CONVERTER | Comline | 472EX-S | 80 GPM from 150 degF to 160 degF, utilizing 1132 BHP of 15 psi Steam | TLV ball trap, carbon steel shell, flanged opening, C1 2-pass coil head, ASME label, with relief valves | Heating HW             | Steel between-the-boiler tube sheet, "U" band coil, 3/4" OD x 19 BWG copper tubes, non asbestos gaskets, insulated, all isol valves, control valve by BAS, vacuum breaker, piped trap bypass |
| EXP TANK 1-4    | TACO    | CA 140  | 37 gal, 42" length, 20" diam   | ASME label  | Domestic Water & RB HW | Bladder tank w/ ball isolation valve, mounted and racked horizontally  |
| EXP TANK 5      | TACO    | CA 215  | 57 gal, 58" length, 20" diam   | ASME label  | HW                     | Bladder tank w/ ball isolation valve, mounted and racked horizontally  |

NOTES: Heating and Cooling working with the contractor.

1

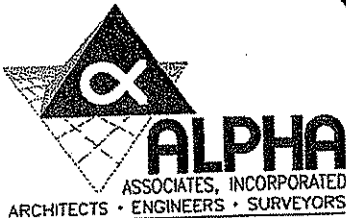
ne valves. The recirculation system will maintain the design pressure (with onset) continuously to provide pressure to the relief valves in the roman bath HW tanks. The pumps for each feedwater system are single operation with lead/lag and time equalization.

**BOILER ROOM COMBUSTION AIR LOUVERS**

When the BAS receives a "start" from the boiler, it will open both the high & low louvers in the boiler room wall. On "stop" from boiler, the dampers will close. Prove position by feed back w/ alarms. The larger damper sections will open with the larger boiler, the smaller sections will open with the smaller boiler, both high & low.

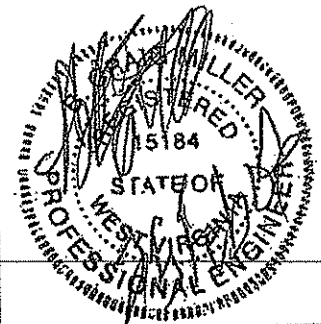
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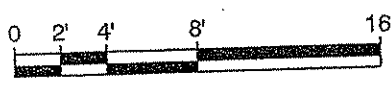
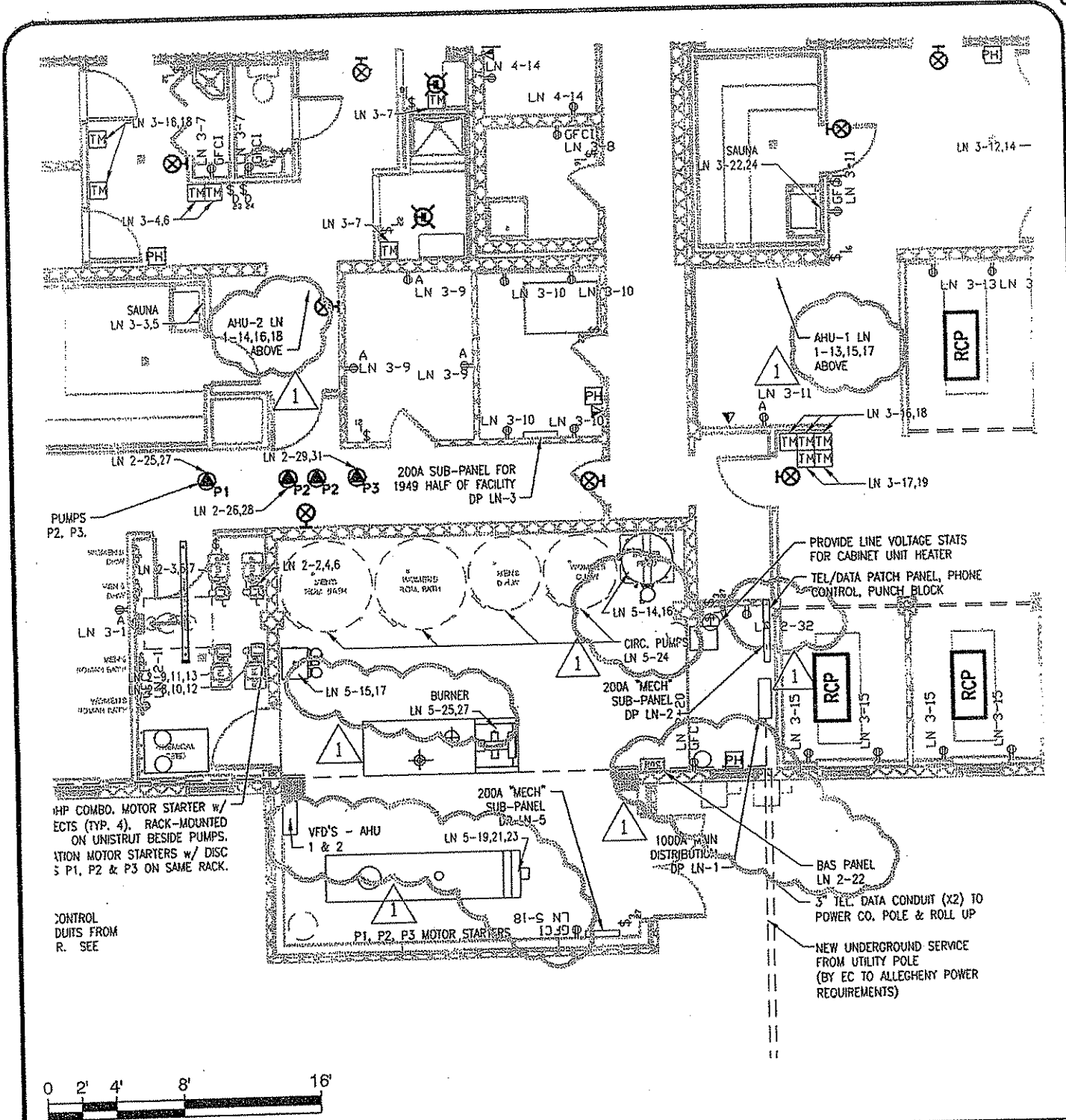
**ADDENDUM DRAWING**



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|  |   |                                |
|--|---|--------------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>ADDITIONAL EXPANSION<br>TANK, LOUVER NOTES | DWG. NO:<br>AD-006 14 OF<br>14 |
| DWG. BY:<br>RTL  |   | PBI NO:<br>--                  |
| DATE:<br>02-25-2009  |   | SHEET REF:<br>M-6.2            |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |   | PROJECT NO:<br>0408097.02      |



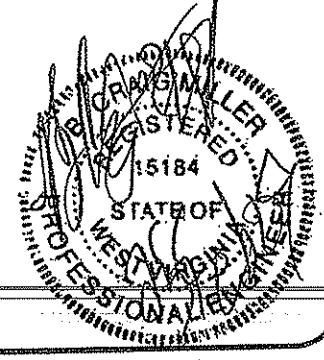


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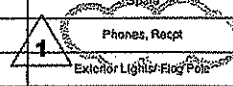
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TOLL FREE: 800-640-8216  
EMAIL: alpha@alphaec.com  
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|  |  |                           |
|--|--|---------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>ELECTRICAL PANEL<br>REVISIONS | DWG. NO:<br>AD-007 1 OF 3 |
| DWG. BY:<br>RTL  |  | PBI NO:<br>--             |
| DATE:<br>02-25-2009  |  | SHEET REF:<br>E-1.1       |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |  | PROJECT NO:<br>0408097.02 |



| Panel DP-LN2 300A 208/120 3ph 42 ckt w/ main (65 KAIC-SERIES) |      |      |                     |         |      |      |   |
|---|------|------|---------------------|---------|------|------|---|
| Breaker   | pole | Amps | Description         | Breaker | pole | Amps | Description                                 |
| 1   | 1    | 20   | Recept, Rm 100      | 2       | 3    | 100  | RB Pump, Rm 111 *                           |
| 3   | 3    | 100  | RB Pump, Rm 111 *   | 4       | 3    | 100  | RB Pump, Rm 111 *                           |
| 5   | 3    | 100  | RB Pump, Rm 111 *   | 6       | 3    | 100  | RB Pump, Rm 111 *                           |
| 7   | 3    | 100  | RB Pump, Rm 111 *   | 8       | 3    | 100  | RB Pump, Rm 111 *                           |
| 9   | 3    | 100  | RB Pump, Rm 111 *   | 10      | 3    | 100  | RB Pump, Rm 111 *                           |
| 11  | 3    | 100  | RB Pump, Rm 111 *   | 12      | 3    | 100  | RB Pump, Rm 111 *                           |
| 13  | 3    | 100  | RB Pump, Rm 111 *   | 14      | 1    | 20   | Spare                                       |
| 15  | 1    | 20   | Spare               | 16      | 1    | 20   | Spare                                       |
| 17  | 1    | 20   | Spare               | 18      | 1    | 20   | Recept, Rm 111                              |
| 19  | 1    | 20   | Spare               | 20      | 1    | 20   | Recept, Rm 110                              |
| 21  | 1    | 20   | Spare               | 22      | 1    | 20   | BAS Panel, Rm 110                           |
| 23  | 1    | 20   | Spare               | 24      | 1    | 20   | HWT Circ, Rm 109                            |
| 25  | 2    | 20   | HHW pump P1, Rm 107 | 26      | 1    | 20   | HHW pump P2, Rm 107                         |
| 27  | 2    | 20   | HHW pump P1, Rm 107 | 28      | 1    | 20   | HHW pump P2, Rm 107                         |
| 29  | 2    | 20   | HHW pump P3, Rm 107 | 30      | 1    | 20   | Spare                                       |
| 31  | 2    | 20   | HHW pump P3, Rm 107 | 32      | 1    | 20   | Phones, Recept<br>Exterior Lights/Flag Pole |
| 33  | 1    | 20   | Cabinet Unit Heater | 34      | 1    | 20   | Exterior Lights                             |
| 36  | 2    | 20   | HHW pump P2, Rm 107 | 35      | 1    | 20   | Lights Nighttime                            |
| 37  | 2    | 20   | HHW pump P2, Rm 107 | 38      | 1    | 20   | Lights EM lights                            |
| 39  | 1    | 20   | Spare               | 40      | 1    | 20   | Lights sw 27,30                             |
| 41  | 1    | 20   | Lights Exit signs   | 42      | 1    | 20   | Lights sw 27,30                             |

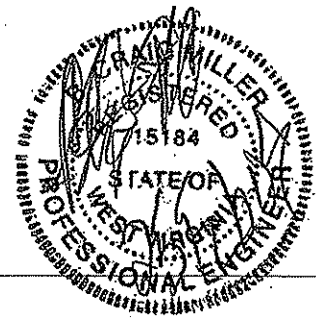
\* PROVIDE REDUCED VOLTAGE STARTERS PER SCHEDULE



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HTTP: www.alphaeec.com

### ADDENDUM DRAWING

|  |   |                           |
|--|---|---------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>DP-LN2 CHANGE TO<br>BREAKER 32 DESCRIPTION | DWG. NO:<br>AD-007 2 OF 3 |
| DWG. BY:<br>RTL  |   | PBI NO:<br>--             |
| DATE:<br>02-25-2009  |   | SHEET REF:<br>E-6.1       |
| PROJECT NAME: ADDITIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |   | PROJECT NO:<br>0408097.02 |






**Panel DP-LN5 200A 208/120 3ph 42 ckt w/ main (65 KAIC-SERIES)**

| Breaker | pole | Amps | Description             | Breaker | pole | Amps | Description                        |
|---------|------|------|-------------------------|---------|------|------|------------------------------------|
| 1       | 1    | 20   | Spare                   | 2       | 1    | 20   | Spare                              |
| 3       | 1    | 20   | Spare                   | 4       | 1    | 20   | Spare                              |
| 5       | 1    | 20   | Spare                   | 6       | 1    | 20   | Spare                              |
| 7       | 1    | 20   | Spare                   | 8       | 1    | 20   | Spare                              |
| 9       | 1    | 20   | Spare                   | 10      | 1    | 20   | Spare                              |
| 11      | 1    | 20   | Spare                   | 12      | 1    | 20   | Spare                              |
| 13      | 1    | 20   | Spare                   | 14      | 2    | 20   | Boiler Feed, Rm 109                |
| 15      | 2    | 20   | Cond Receiver, Rm 109   | 16      | 2    | 20   | Boiler Feed, Rm 109                |
| 17      | 2    | 20   | Cond Receiver, Rm 109   | 18      | 1    | 20   | Spare                              |
| 19      | 3    | 20   | Boiler 1 Burner, Rm 109 | 20      | 1    | 20   | Spare                              |
| 21      | 3    | 20   | Boiler 1 Burner, Rm 109 | 22      | 1    | 20   | Spare                              |
| 23      | 3    | 20   | Boiler 1 Burner, Rm 109 | 24      | 1    | 20   | Spare                              |
| 25      | 2    | 20   | Boiler 2 Burner         | 26      | 1    | 20   | Boiler Load/Lag Controller, Rm 109 |
| 27      | 2    | 20   | Boiler 2 Burner         | 28      | 1    | 20   | #1 Boiler Control, Rm 109          |
| 29      | 1    | 20   | Spare                   | 29      | 1    | 20   | #2 Boiler Control, Rm 109          |
| 31      | 1    | 20   | Spare                   | 32      | 1    | 20   | Spare                              |
| 33      | 1    | 20   | Spare                   | 34      | 1    | 20   | Spare                              |
| 35      | 1    | 20   | Future                  | 35      | 1    | 20   | Future                             |
| 37      | 1    | 20   | Future                  | 38      | 1    | 20   | Future                             |
| 39      | 1    | 20   | Future                  | 40      | 1    | 20   | Future                             |
| 41      | 1    | 20   | Future                  | 42      | 1    | 20   | Future                             |

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## ADDENDUM DRAWING

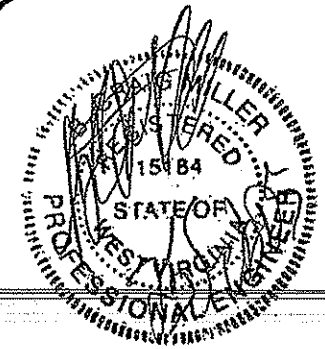
REV. BY: CMA  
DWG. BY: RTL  
DATE: 02-25-2009

DWG. DESCRIPTION:  
DP-LN5 BREAKERS 26 &  
28 CHANGE TO SINGLE  
POLE

DWG. NO: AD-007 3 OF 3  
PEI NO: --  
SHEET REF: E-6.2

PROJECT NAME: ADDITIONS & UPGRADES TO THE  
BERKELEY SPRINGS BATH HOUSE

PROJECT NO: 0408097.02






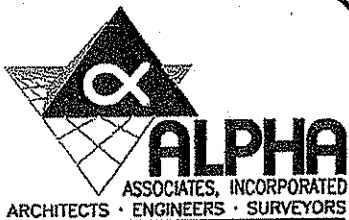
I. Plumbing: Fixtures shall be as shown on drawing. Water closets floor mounted tank type, china; urinal wall mounted china with flush valve; lavatory ADA china wall hung with single lever faucet. Provide 36" x 36" pre-fabricated shower as shown. Water heater to be electric, mounted in janitor closet, sized per fixture demand. Mop sink to be 24" square fiberglass with legs. Supply lines to be Type "L" copper, sanitary plumbing to be schedule 40 PVC. Water & sanitary are to stub out to a single service connection location. Grab bars 36" and 42", 1-1/4" diameter. Mirrors to be 18" x 30" framed. Toilet paper holder single roll, wall mounted. Toilet partitions to be floor mounted overhead braced tan metal.

J. Electrical: Each module shall be furnished with a load center, with a main breaker, 150 amp on side modules, 100 amp on center module, 120/240 V, single phase, 60 Hz, 3 wire, BR type breakers. Contractor shall be responsible for complete installation of electrical feed from temporary power pole to each module load center via underground conduit and shall include all electrical components required by the local power company and the National Electric Code. Provide two PVC "stub-downs" from each module load center to below module floor for field connection of electric.

K. HVAC: Shall be "Bard" wall hung 3 ton A/C with electric heat; 15 KW on side units, 10 KW center unit. Thermostat to be manual changeover heat and cool "Honeywell" T8400C or equal. Supply ducts to be fiberglass above drop in ceiling with 24" square lay in diffusers, adjustable damper. Return duct fiberglass above ceiling with 24" lay in return air diffuser. Ducts will be sized to evenly distribute the air flow throughout the module.

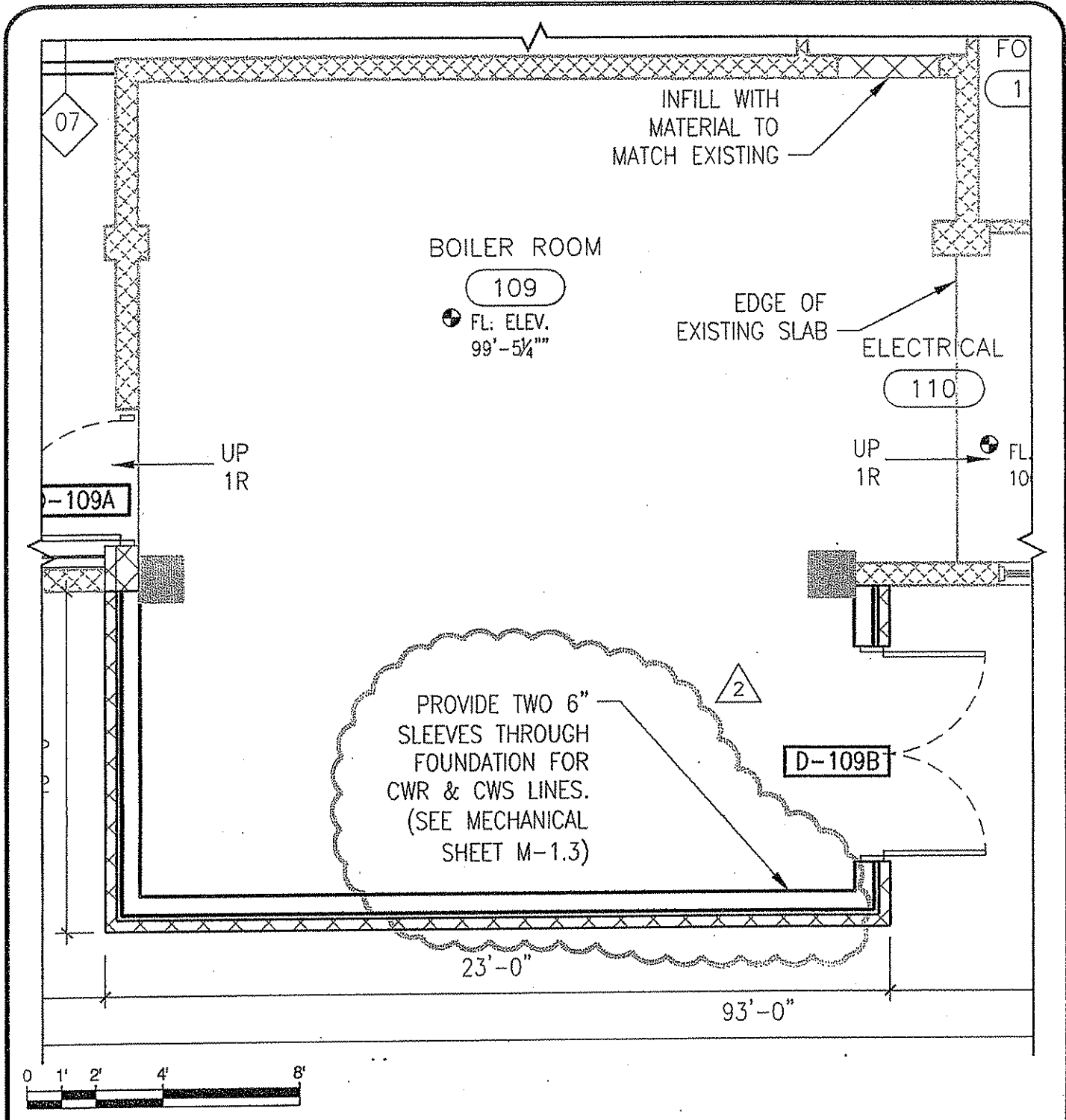
 L. Footers/Tie Downs/Blocking and Leveling: Concrete footers of recommended size to be installed by contractor or by modular building provider. Submit modular building providers recommendations for footer size, shape and number to Owner prior to installation. Tie downs shall be installed by contractor or modular building provider and shall be of the size and type

## ADDENDUM DRAWING



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|  |  |                           |
|--|--|---------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>ALTERNATE NO. 1<br>ADDITIONAL NOTES | DWG. NO:<br>AD-008 1 OF 1 |
| DWG. BY:<br>RTL  |  | PBI NO:<br>--             |
| DATE:<br>02-25-2009  |  | SHEET REF:<br>A-1.A       |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |  | PROJECT NO:<br>0408097.02 |

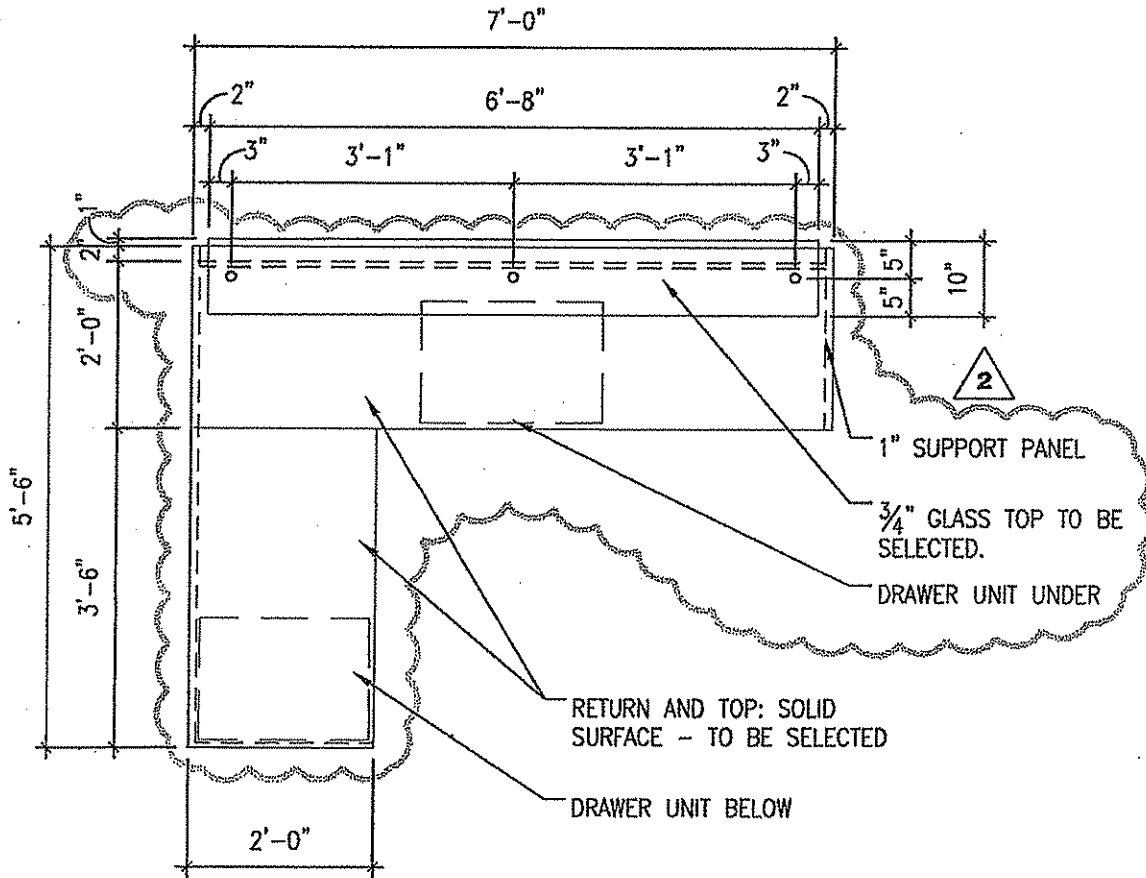


### ADDENDUM DRAWING

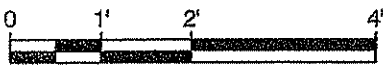
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|  |   |                           |
|--|---|---------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>ADDITION OF SLEEVES<br>THROUGH FOUNDATION OF<br>NEW ADDITION | DWG. NO:<br>AD-009 1 OF 1 |
| DWG. BY:<br>RTL  |   | PBI NO:<br>##             |
| DATE:<br>02-25-2009  |   | SHEET REF:<br>A-1.1       |
| PROJECT NAME: ADDITIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |   | PROJECT NO:<br>0408097.02 |



PLAN

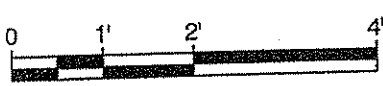
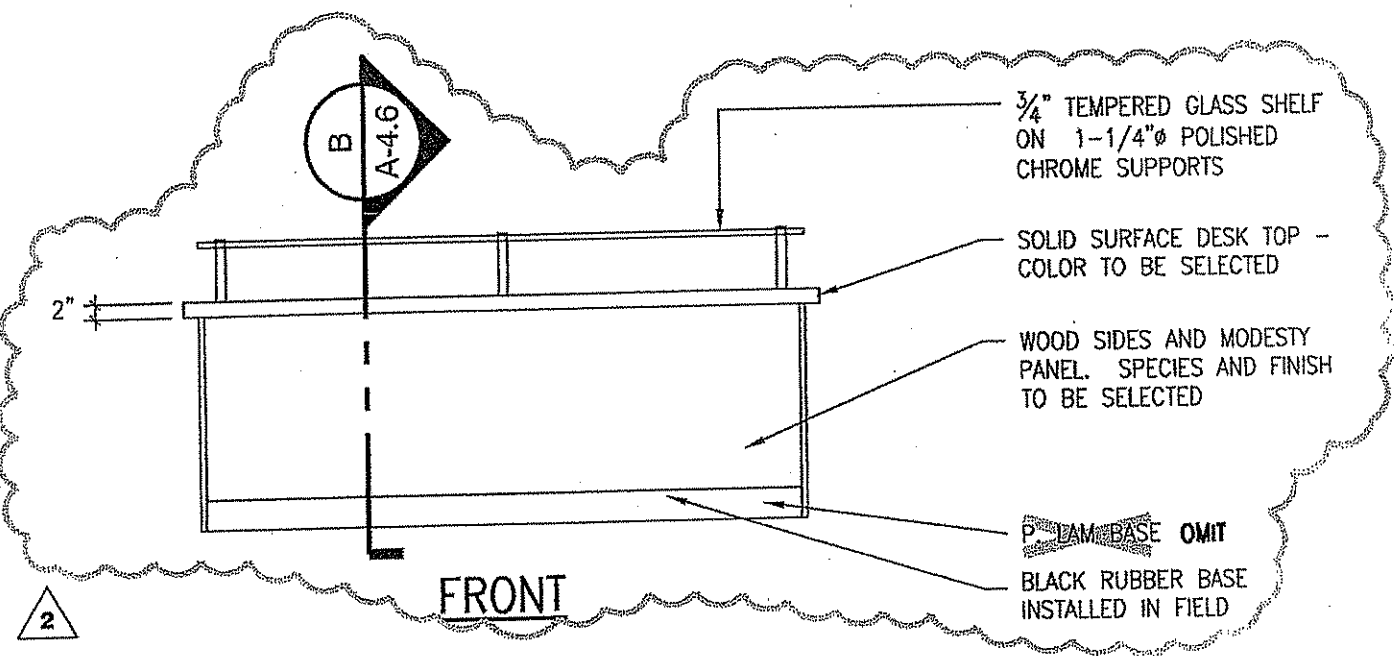
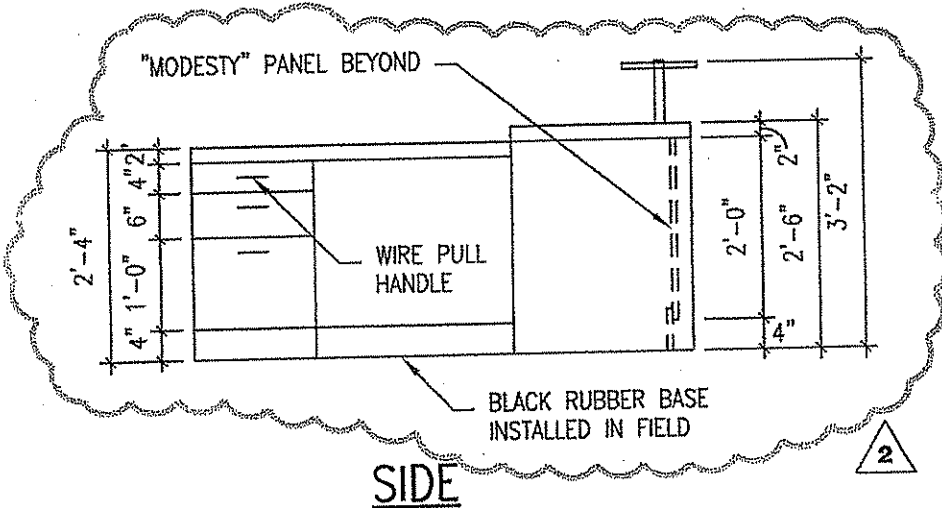


ADDENDUM DRAWING



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|  |  |                           |
|--|--|---------------------------|
| REV. BY:<br>RJK  | DWG. DESCRIPTION:<br>RECEPTION DESK<br>CLARIFICATION | DWG. NO:<br>AD-010 1 OF 3 |
| DWG. BY:<br>RTL  |  | PBI NO:<br>--             |
| DATE:<br>03-02-2009  |  | SHEET REF:<br>A-4.6       |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |  | PROJECT NO:<br>0408097.02 |



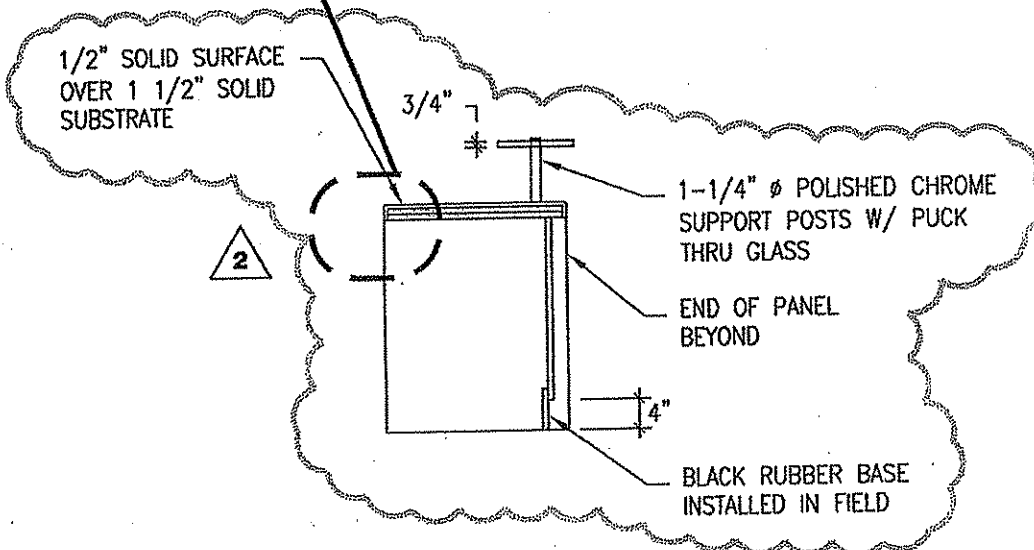
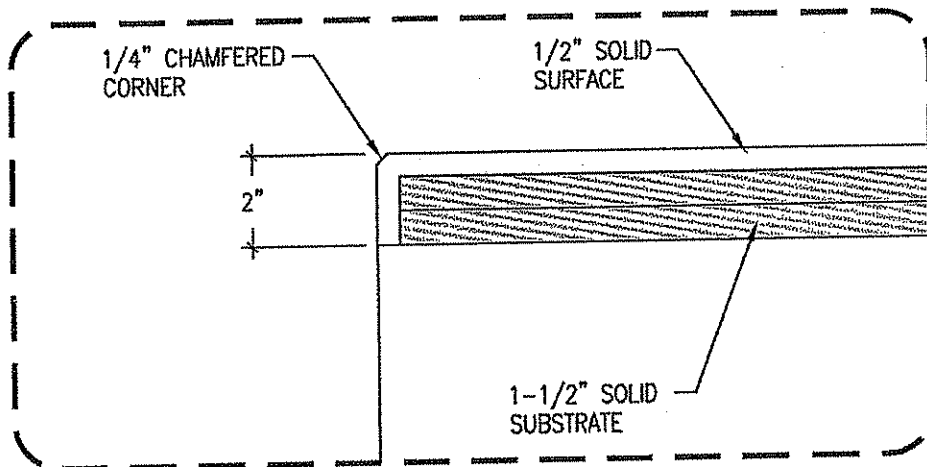
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|  |  |                           |
|--|--|---------------------------|
| REV. BY:<br>RJK  | DWG. DESCRIPTION:<br>RECEPTION DESK<br>CLARIFICATION | DWG. NO:<br>AD-010 2 OF 3 |
| DWG. BY:<br>RTL  |  | PBI NO:<br>--             |
| DATE:<br>03-02-2009  |  | SHEET REF:<br>A-4.6       |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |  | PROJECT NO:<br>0408097.02 |



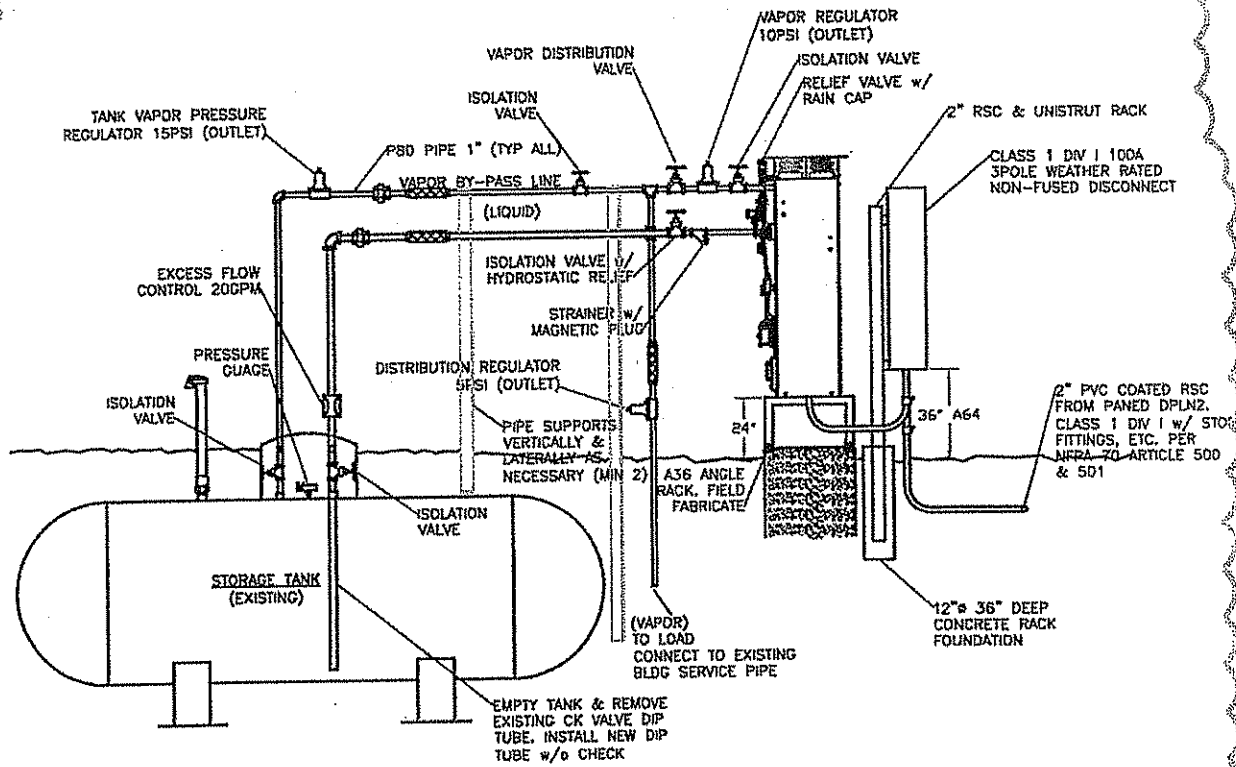
### ADDENDUM DRAWING

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|  |   |                           |
|--|---|---------------------------|
| REV. BY:<br>RJK  | DWG. DESCRIPTION:<br>RECEPTION DESK SECTION | DWG. NO:<br>AD-010 3 OF 3 |
| DWG. BY:<br>RTL  |   | PBI NO:<br>--             |
| DATE:<br>03-02-2009  |   | SHEET REF:<br>A-4.6       |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE<br>BERKELEY SPRINGS BATH HOUSE |   | PROJECT NO:<br>0408097.02 |



- NOTES:**
1. INSTALL SYSTEM PER NFPA 58 AND 70 AND OTHER APPLICABLE CODES.
  2. NO CHECK VALVES IN LIQUID LINE; LIQUID MUST BE ABLE TO FLOW BOTH DIRECTIONS
  3. PIPING, FITTINGS, CONDUITS, ETC SHOWN ARE DIAGRAMMATIC IN NATURE. PROVIDE ALL PIPING, FITTINGS, CONDUITS, WIRE, ETC AS NECESSARY FOR A COMPLETE, CODE COMPLIANT, INSTALLATION OF VAPORIZER SYSTEM AS SPECIFIED.

# VAPORIZER SYSTEM DETAIL

SCALE : N.T.S.

7



## ADDENDUM DRAWING



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|  |  |                             |
|--|--|-----------------------------|
| REV. BY:<br>MEI  | DWG. DESCRIPTION:<br>VAPORIZER SYSTEM DETAIL | DWG. NO:<br>AD-011 1 OF 1   |
| DWG. BY:<br>RTL  |  | PBI NO:<br>--               |
| DATE:<br>03-03-2009  |  | SHEET REF:<br>P-5.1 & E-5.1 |
| PROJECT NAME: ALTERATIONS & UPGRADES TO THE BERKELEY SPRING BATH HOUSE |  | PROJECT NO:<br>0408097.02   |

