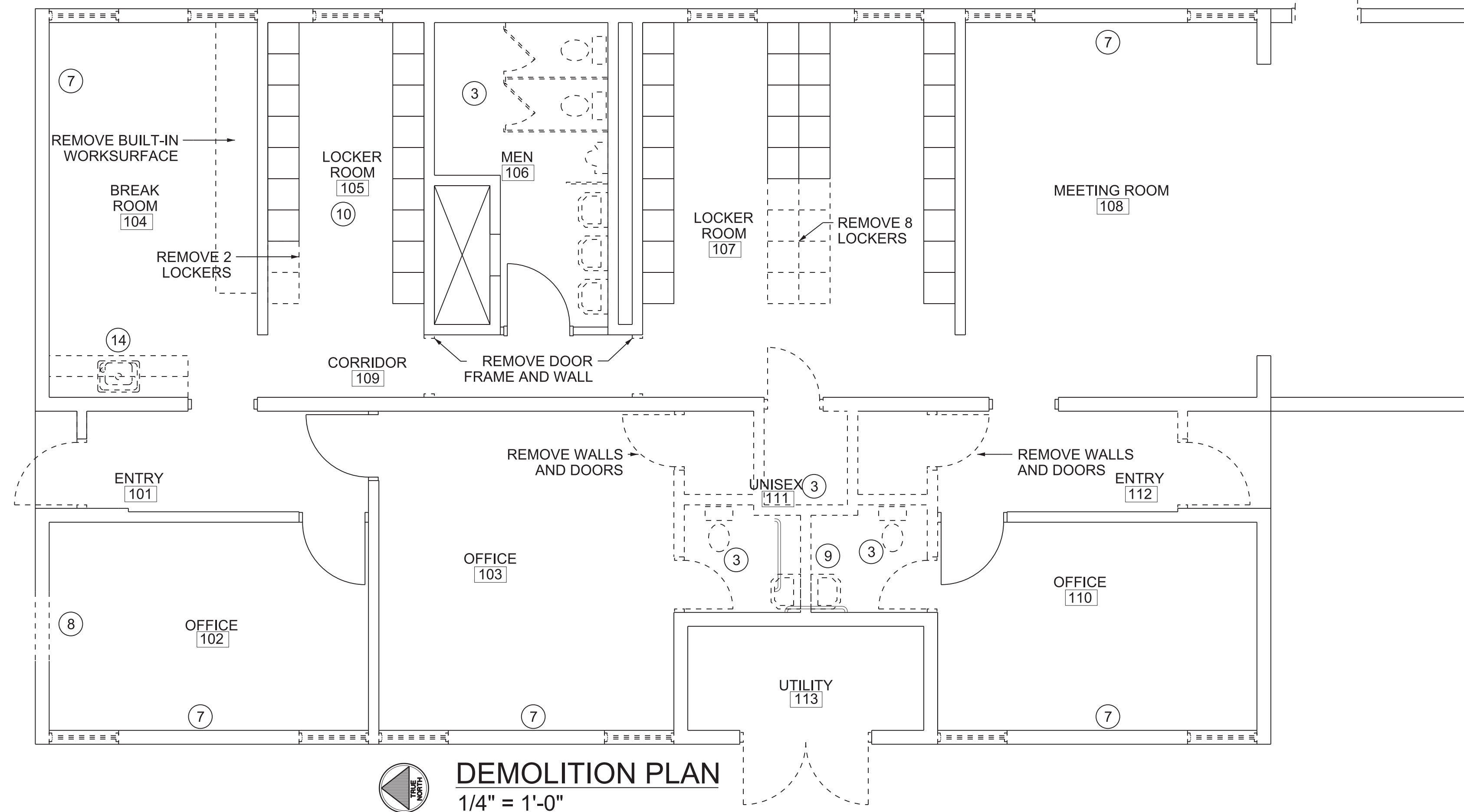


**LEGEND:**

- TO BE REMOVED
- NEW CMU WALLS  
MATCH THICKNESS OF  
EXISTING ADJACENT WALLS
- EXISTING WALLS  
TO REMAIN



**DEMOLITION PLAN**  
1/4" = 1'-0"

**DEMOLITION NOTES:**

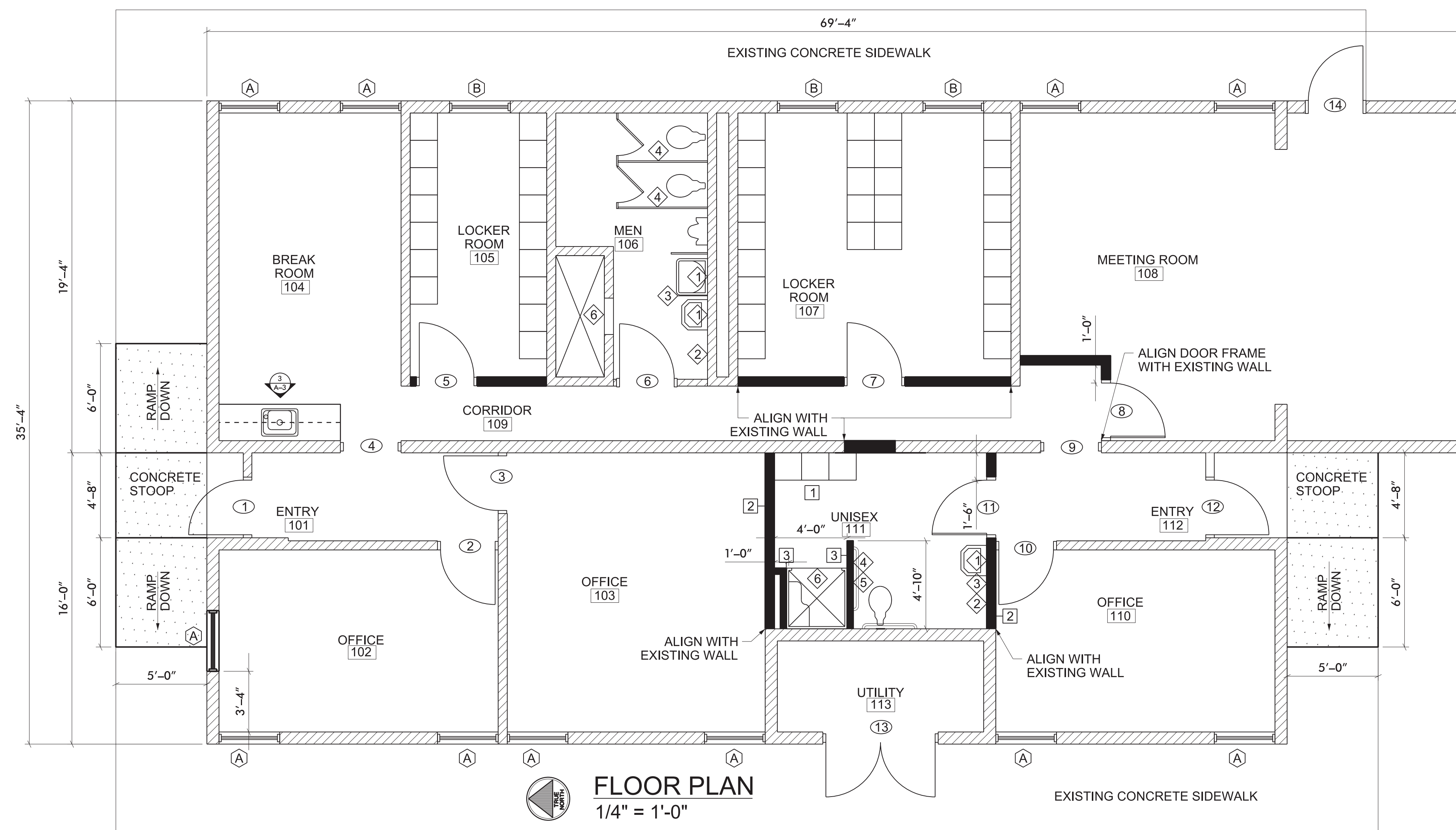
1. REMOVE ALL EXISTING WINDOWS
2. REMOVE ALL EXISTING EXTERIOR DOORS AND FRAMES
3. REMOVE ALL EXISTING PLUMBING FIXTURES, TOILET PARTITIONS, AND ACCESSORIES
4. REMOVE ALL FLOORING FINISHES AND BASE THROUGHOUT
5. REMOVE ALL ACOUSTICAL CEILING GRID, TILE, AND LIGHTING FIXTURES THROUGHOUT
6. REMOVE ALL BASEBOARD HEATERS THROUGHOUT
7. REMOVE THROUGH-WALL AIR CONDITIONER
8. SAW CUT AND REMOVE MASONRY WALL FOR NEW WINDOW
9. SAW CUT AND REMOVE FLOOR SLAB AS NECESSARY FOR NEW PLUMBING
10. RETAIN EXISTING LOCKERS UNLESS OTHERWISE NOTED
11. REMOVE ALL SWITCHES AND RECEPTACLES
12. REMOVE ALL UNUSED ELECTRICAL CIRCUITS BACK TO SOURCE
13. REMOVE ALL UNUSED MECHANICAL EQUIPMENT
14. REMOVE CABINETS AND SINK

**FLOOR PLAN NOTES:**

1. INSTALL 3 EXISTING LOCKERS REMOVED FROM LOCKER ROOM
2. EXTEND WALL TO UNDERSIDE OF ROOF DECK
3. 4" CMU WALL

**TOILET ACCESSORIES**

- 1. WALL-MOUNTED MIRROR
- 2. PAPER TOWEL DISPENSER
- 3. LIQUID SOAP DISPENSER
- 4. TOILET PAPER HOLDER
- 5. SURFACE MOUNTED SANITARY NAPKIN DISPOSAL
- 6. SHOWER CURTAIN, HOOKS, AND ROD



**FLOOR PLAN**  
1/4" = 1'-0"

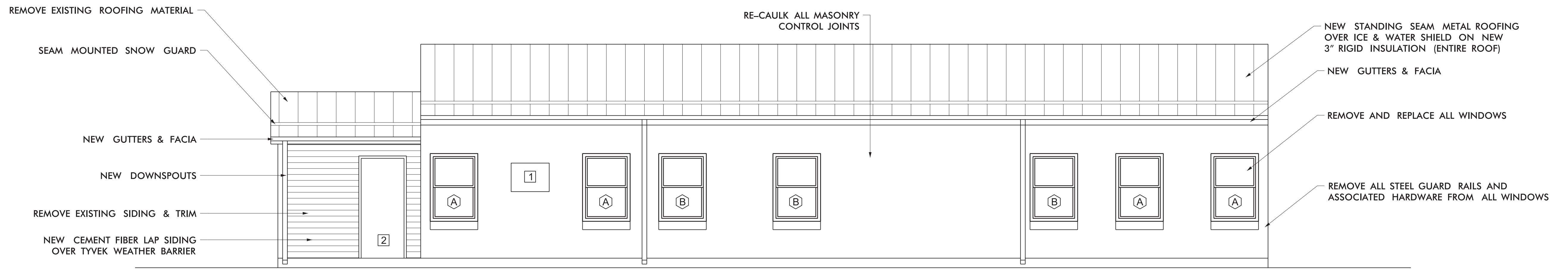
NO.	DATE	BY	REVISION

**NS NORFOLK SOUTHERN**

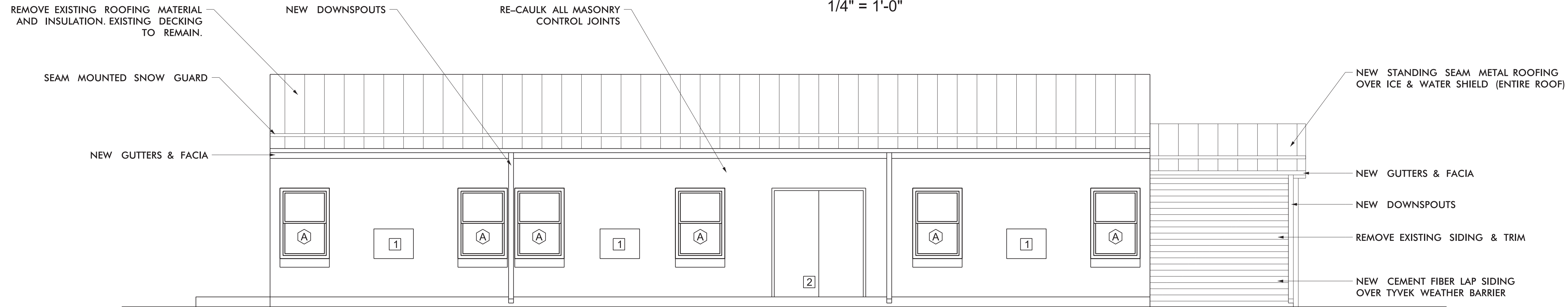
OFFICE OF ARCHITECTURAL SERVICES

HARRISBURG, PA  
RENOVATIONS FOR MECHANICAL  
DEMOLITION & FLOOR PLANS

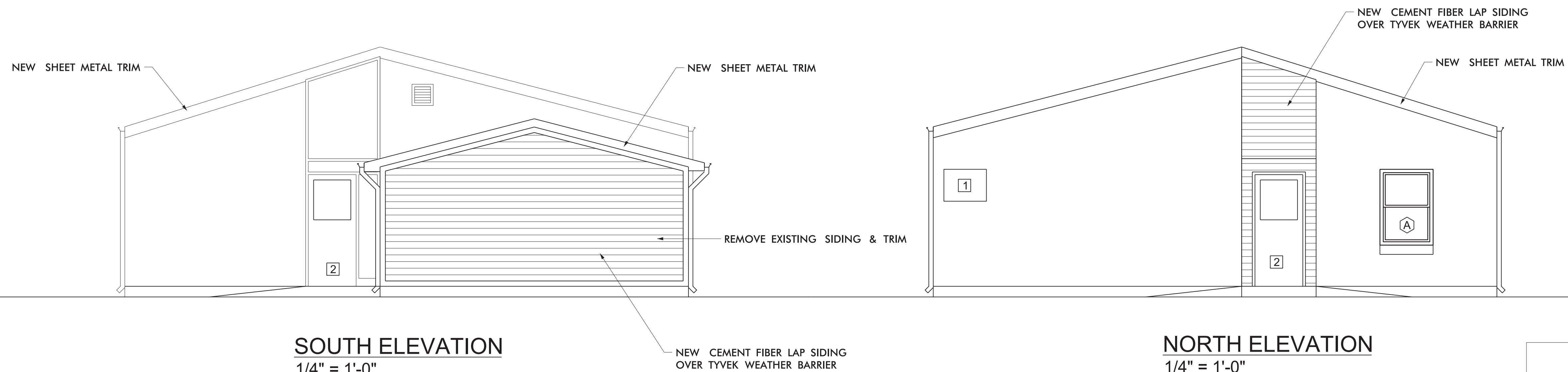
DES: WSG	FILE NO. BLD0031294	SHEET
DR: WSG	DWGNO. A-13006	A-1
CH: KDH	DATE: SEPTEMBER 16, 2013	OF



**EAST ELEVATION**  
1/4" = 1'-0"



**WEST ELEVATION**  
1/4" = 1'-0"



**SOUTH ELEVATION**  
1/4" = 1'-0"

**NORTH ELEVATION**  
1/4" = 1'-0"

**EXTERIOR NOTES:**

- 1 INFILL OPENING WITH 8" CMU
- 2 REMOVE AND REPLACE ALL EXTERIOR DOORS AND FRAMES
- 3. TUCK POINT AND REPAIR ALL VISIBLE CRACKS IN MASONRY.

NO.	DATE	BY	REVISION

**NS NORFOLK SOUTHERN**

OFFICE OF ARCHITECTURAL SERVICES

HARRISBURG, PA  
RENOVATIONS FOR MECHANICAL  
ELEVATIONS

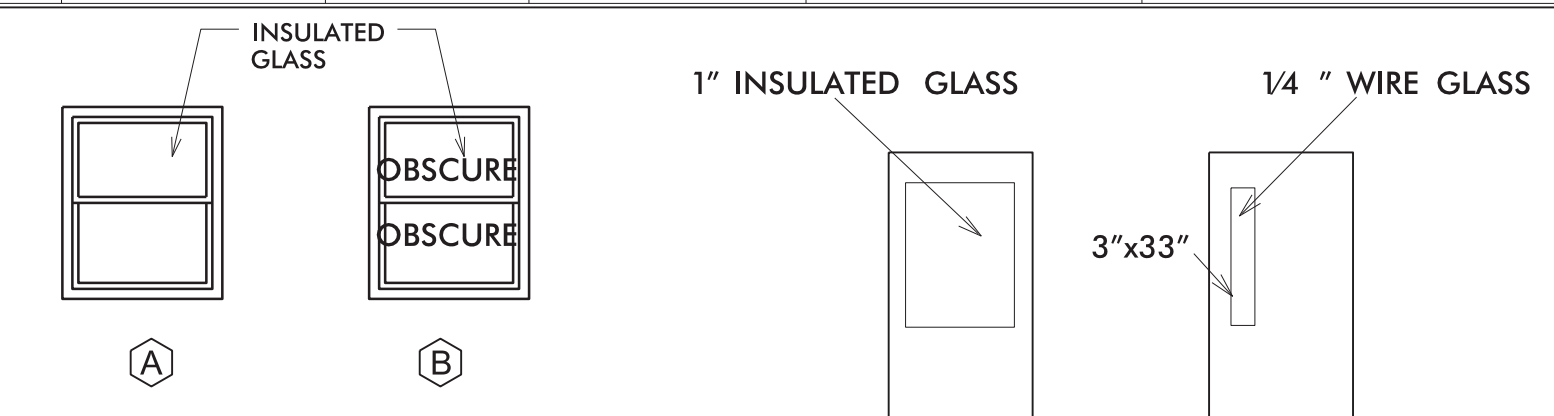
DES: WSG	FILE NO. BLD0031294	SHEET
DR: WSG	DWGNO. A-13006	A-2
CH: KDH	DATE: SEPTEMBER 16, 2013	OF



ROOM FINISH SCHEDULE								REMARKS
NO	NAME	FLOOR TREATMENT FLOOR	BASE	WALL TREATMENT MATERIAL	FINISH	CEILING TREATMENT MATERIAL	HEIGHT	
101	ENTRY	V.C.T.	VINYL	C.M.U.	PAINT	ACT. PANEL	8'-0"	
102	OFFICE	V.C.T.	VINYL	C.M.U.	PAINT	ACT. PANEL	8'-0"	
103	OFFICE	V.C.T.	VINYL	C.M.U.	PAINT	ACT. PANEL	8'-0"	
104	BREAK ROOM	V.C.T.	VINYL	C.M.U.	PAINT	ACT. PANEL	8'-0"	
105	LOCKER ROOM	V.C.T.	VINYL	C.M.U.	PAINT	ACT. PANEL	8'-0"	
106	MEN	CERAMIC	CERAMIC	CER./CMU	PAINT	GYP.BD.	8'-0"	CERAMIC TILE WAINSCOT TO 6'-4" AFF
107	LOCKER ROOM	V.C.T.	VINYL	C.M.U.	PAINT	ACT. PANEL	8'-0"	
108	MEETING ROOM	V.C.T.	VINYL	C.M.U.	PAINT	ACT. PANEL	8'-0"	
109	CORRIDOR	V.C.T.	VINYL	C.M.U.	PAINT	ACT. PANEL	8'-0"	
110	OFFICE	V.C.T.	VINYL	C.M.U.	PAINT	ACT. PANEL	8'-0"	
111	UNISEX RESTROOM	CERAMIC	CERAMIC	CER./CMU	PAINT	GYP.BD.	8'-0"	CERAMIC TILE WAINSCOT TO 6'-4" AFF
112	ENTRY	V.C.T.	VINYL	C.M.U.	PAINT	ACT. PANEL	8'-0"	
113	UTILITY							EXISTING FINISHES TO REMAIN

NOTES:  
INSTALL R-19 UNFACED BATT INSULATION OVER ALL CEILINGS  
ALL SCHEDULED FINISHES TO BE NEW

WINDOW SCHEDULE							REMARKS
NO	SIZE	STYLE	DETAIL	MATERIAL	FINISH		
A	3'-4" x 4'-9"	DOUBLE HUNG	-	ALUMINUM	BRONZE ANOD.	1" ARCH BLINDS, SCREEN	
B	3'-4" x 4'-9"	DOUBLE HUNG	-	ALUMINUM	BRONZE ANOD.	1" ARCH BLINDS OBSCURE GLASS	



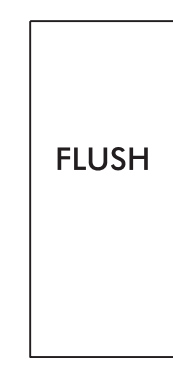
**WINDOWS TYPES**  
NO SCALE

DOOR SCHEDULE										REMARKS
NO	SIZE	TYPE	DOOR MATERIAL	FINISH	DETAIL	FRAME MATERIAL	FINISH	HARDWARE SET		
1	3'-0" x 7'-0"	A	H.M.	PAINT		H.M.	PAINT	1		EXISTING DOOR AND HARDWARE TO REMAIN
2				PAINT			PAINT			EXISTING DOOR AND HARDWARE TO REMAIN
3				PAINT			PAINT			EXISTING DOOR AND HARDWARE TO REMAIN
4				PAINT			PAINT			EXISTING CASED OPENING TO REMAIN
5	3'-0" x 6'-8"	C	H.M.	PAINT		H.M.	PAINT	3		EXISTING DOOR AND HARDWARE TO REMAIN
6				PAINT			PAINT			EXISTING DOOR AND HARDWARE TO REMAIN
7	3'-0" x 6'-8"	C	H.M.	PAINT		H.M.	PAINT	3		OVERHEAD STOP REQUIRED
8	3'-0" x 6'-8"	B	H.M.	PAINT		H.M.	PAINT	2		
9				PAINT			PAINT			EXISTING CASED OPENING TO REMAIN
10				PAINT			PAINT			EXISTING DOOR AND HARDWARE TO REMAIN
11	3'-0" x 6'-8"	C	H.M.	PAINT		H.M.	PAINT	4		UNISEX RESTROOM SIGN
12	3'-0" x 7'-0"	A	H.M.	PAINT		H.M.	PAINT	1		WITH SIDELIGHT, TRANSOM, & INS. PANELS
13	6'-0" x 7'-0"	C	H.M.	PAINT		H.M.	PAINT	5		
14	3'-0" x 7'-0"	C	H.M.	PAINT		H.M.	PAINT	1		

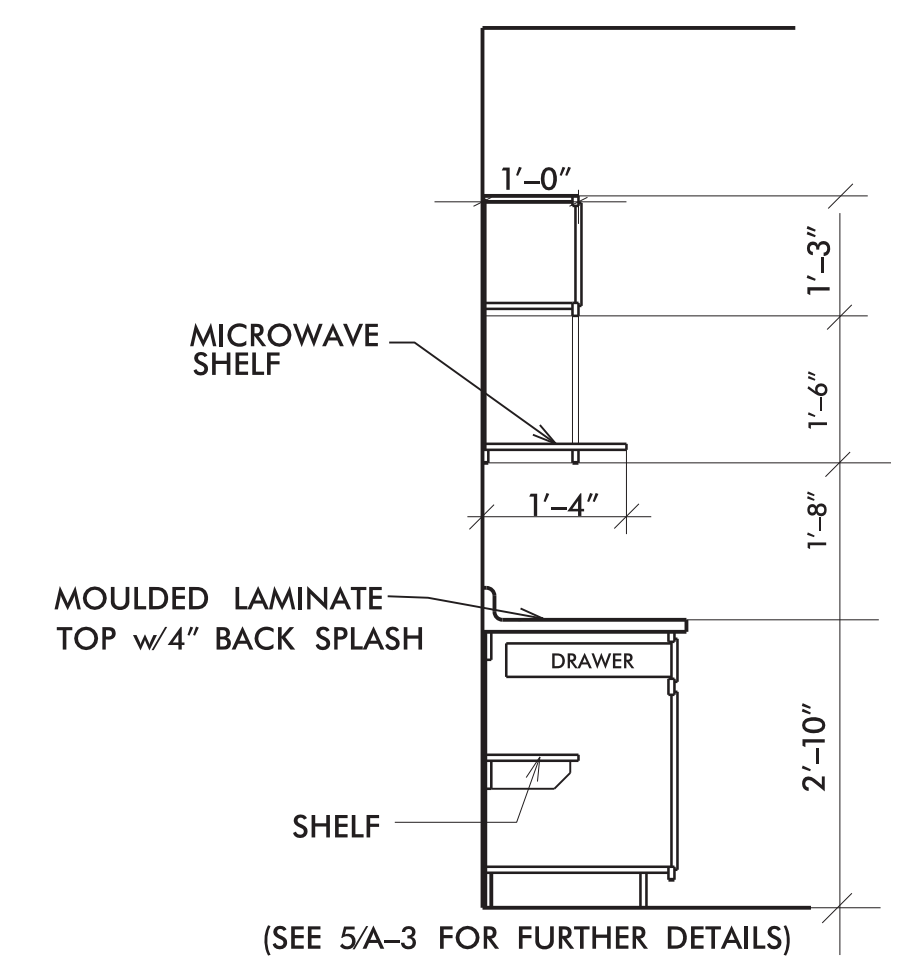
NOTE: ALL DOORS TO HAVE MUTES IN FRAMES

**HARDWARE SETS**

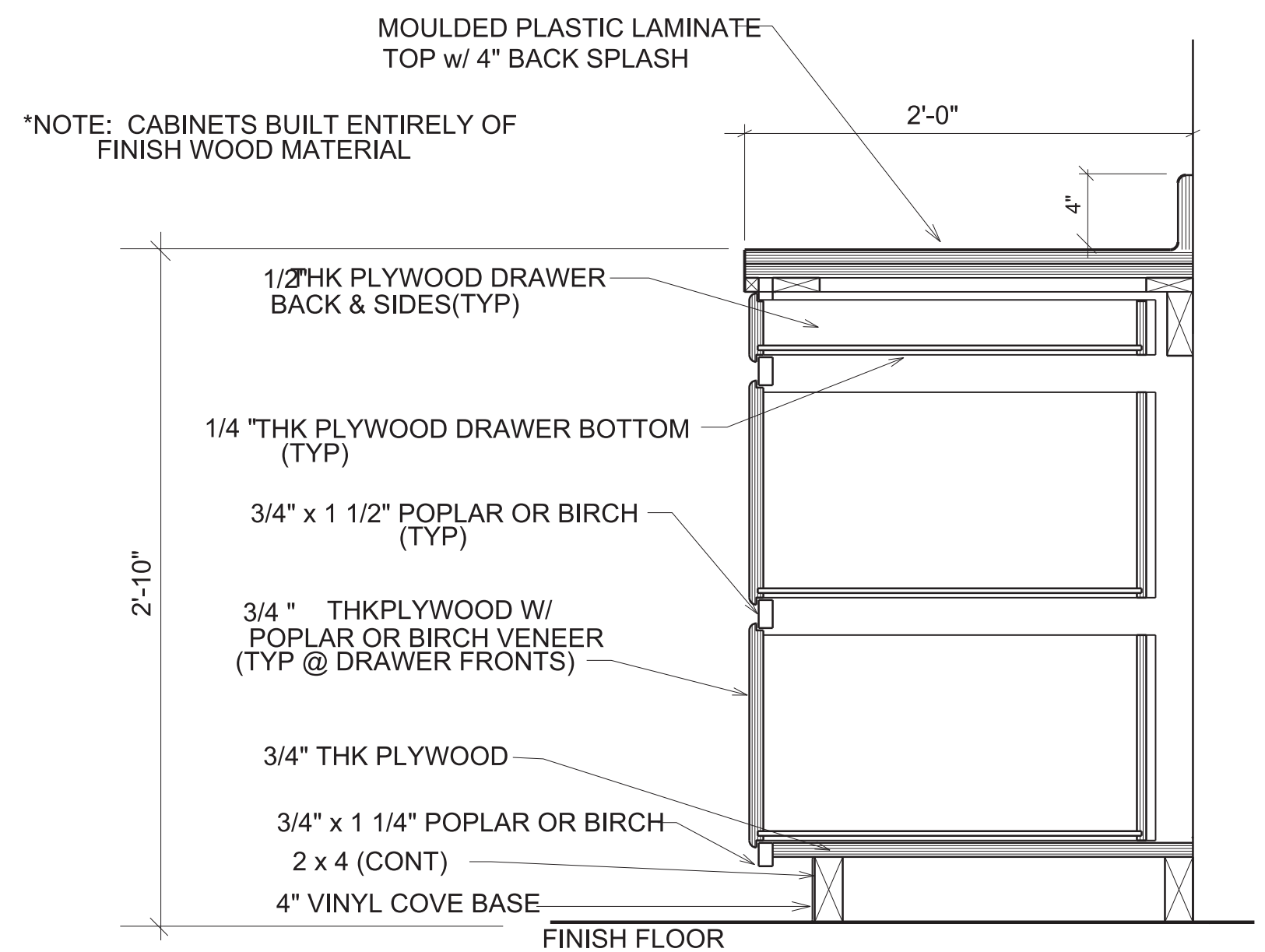
- SET 1**  
PAIR & HALF BUTTS  
CLOSER  
MORTISE LOCKSET  
PANIC DEVICE  
1 KICKPLATE  
THRESHOLD  
WEATHERSTRIPPING
- SET 2**  
PAIR & HALF BUTTS  
CYLINDER LOCKSET-  
OFFICE LOCKSET FUNCTION  
WALL/FLOOR STOP  
1 KICKPLATE
- SET 3**  
PAIR & HALF BUTTS  
WALL/FLOOR STOP  
PUSH PLATE  
PULL HANDLE  
1 KICKPLATE  
CLOSER
- SET 4**  
PAIR & HALF BUTTS  
CYLINDER LOCKSET-  
PRIVACY FUNCTION  
WALL/FLOOR STOP  
1 KICKPLATE  
CLOSER
- SET 5**  
3 PAIR BUTTS  
MORTISE LOCKSET  
2 KICKPLATES  
HEAD & FOOT BOLTS  
T ASTRIGAL  
THRESHOLD  
WEATHERSTRIPPING  
CLOSER



**DOOR TYPES**  
NO SCALE



**4 CABINET SECTION**  
1/2" = 1'-0"



\*NOTE: CABINETS BUILT ENTIRELY OF FINISH WOOD MATERIAL

**5 CABINET SECTION**  
1 1/2" = 1'-0"

NO:	DATE	BY	REVISION
<b>NORFOLK SOUTHERN</b>			
OFFICE OF ARCHITECTURAL SERVICES			
HARRISBURG, PA RENOVATIONS FOR MECHANICAL SCHEDULES & DETAILS			
DES:	WSG	FILE NO.	BLD0031294
DR:	WSG	DWGNO.	A-13006
CH:	KDH	DATE:	SEPTEMBER 16, 2013



## DIVISION 1 - GENERAL CONDITIONS

### 1. GENERAL CONDITIONS

These General Conditions apply to each section of these Specifications and Specifications on other sheets of this set of contract documents.

### 2. DEFINITIONS

A. The Contract Documents consist of the Request for Quotation, the Project Contract (Contract), the Drawings, the Specifications, and the Proposal Form, including all modifications thereof incorporated in the documents before their execution and all approved Change Orders.

B. The term Company, Work, Project, and Contractor are those mentioned as such in the Construction Contract, NS Form 11133, 10/87. The successful bidder will be required to execute the Construction Contract.

C. Except where it is clear by the context that another meaning is intended, the following words and expressions shall be construed as follows:

1. "Architect or Project Manager" shall mean the Manager Architectural Services or his responsible duly authorized with respect to the work. (404) 529-1230 Kendall D. Hearn, AIA

2. "Approved" shall mean approved by the Manager Architectural Services, Norfolk Southern Corporation, 1200 Peachtree St, NE, Atlanta, GA 30309.

3. The "Owner" where stated in the Contract Documents shall refer to the Norfolk Southern Railway Company.

### 3. CORRELATION AND INTENT OF DOCUMENTS

A. The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include all work, which includes all labor, equipment, tools, material, temporary construction, transportation, supervision, shop drawings, services and permits, fees, taxes, overhead and profit necessary for, or incidental to, the Project. It shall be the Contractor's responsibility to produce a complete installation, including such appurtenant facilities as are normally a part of such work. It is not intended, however, that materials or labor not covered by or properly inferable from the heading, branch, class or trade of the specifications shall be supplied unless distinctly so noted on the drawings. Material or labor described in words which so applied have a well-known technical or trade meaning and shall be held to render to such recognized standards.

B. The drawings are drawn accurately to scale as noted, but, where figures are given, they are to be followed in preference to measurement by scale, and larger scale detail drawings shall take precedence over smaller scale drawings.

C. The Contractor shall cause each Subcontractor to carefully examine the drawings and specifications and verify the provisions are adequate for a proper installation of each item. Conditions noted which will prevent a thoroughly satisfactory installation shall be brought to the attention on the Project Manager five (5) days prior to the bid opening date. Failure to so notify the Project Manager will constitute acceptance of the conditions shown, and the Contractor shall make necessary changes to properly accommodate each item at his expense.

### 4. OWNERSHIP OF DRAWINGS

During the time of bidding, copies of Plans and Specifications may be secured by a qualified bidder upon request from the Manager Architectural Services, 1200 Peachtree St NE, Atlanta, GA 30309

### 5. EXAMINATION OF PREMISES AND CONSTRUCTION DOCUMENTS

A. In Submitting a proposal for this project, the Contractor warrants that he is expert in the type of construction involved and that he had made a thorough inspection of the site and its limitations, as well as the drawings and specifications, so as to arrive at a clear understanding of the work to be performed and the conditions and limitations under which the work is to be done; and has made due allowance for same. No allowance shall subsequently be made on behalf of the Contractor by reason of any error on the Contractor's part or unfamiliarity with the site or construction documents.

B. In submitting a proposal for this project, the Contractor affirms that, based on his thorough examination of the drawings and specifications, there are no obvious errors, omissions, or inconsistencies therein, other than those (if any) to which he has called to the owner's attention on the Proposal Form. No allowance shall be subsequently made in behalf of the Contractor by reason of such obvious errors, omissions, or inconsistencies.

### 6. TRADE NAMES & CATALOG NUM., "OR EQUAL"

A. It is not the intent of the specifications to exclude or omit the products of any responsible manufacturer if said products are equal in every respect to those mentioned herein.

B. Where trade names, catalog numbers, or detailed descriptions indicate the products of a particular manufacturer appear herein, they are used only to indicate standards of design and quality and are not to be construed in such manner as to exclude other manufacturer's products of equal or better quality, design, and efficiency.

C. The provisions of this paragraph are applicable only where the specifications permit an "or equal." Where "or equal" does not appear in the specifications, the material must be furnished as specified.

D. All substitute materials must be approved in writing by the Manager Architectural Services.

### 7. SUBMISSION OF BIDS

A. All bids shall be submitted as set out in the Request for Quotation.

B. The owner reserves rights to reject any or all proposals, to solicit new proposals, the waive technicalities, and to award on any proposal considered most advantageous to the owner.

C. Promptly after award of contract, the Contractor will furnish the Manager Architectural Services a breakdown of his bid by trades.

### 8. SEPERATE CONTRACTS

The owner reserves the right to let other contracts in connection with the project. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly control and coordinate his work with others.

### 9. INSURANCE- CONTRACTOR'S COVERAGE

A. The Contractor shall furnish the owner with satisfactory proof of carriage of the insurance required.

B. The Contractor shall not commence work under this contract until he has obtained all insurance required and such insurance has been approved nor shall the Contractor allow any subcontractor to commence work on his subcontract until identical insurance has been so obtained. Subcontractor insurance requirements shall be the same as required of Contractor.

C. Required levels of coverage are specified in the Construction Contract.

### 10. BONDS

Contractor shall, at the time of the execution and delivery of the Contract and before taking effect of same in other respects, furnish and deliver to owner a Performance and Labor and Material Payment Bond or Bonds in the amount(s) of one hundred percent (100%) of the estimated Contractor price of the total estimated cost resulting from estimated quantities and unit bid prices, with surety thereon, to insure the faithful performance by Contractor of all the covenants and agreements on the part of Contractor contained in the contract. Said bond(s) and surety shall be subject to the approval of owner and Contractor shall pay the premium of said bond(s). Said bond(s) shall remain in force and effect for the full amount or in a lesser or increased amount as may at any time be specified by the Director Service Contracts during the life of the contract and any extensions thereof and during any period of warranty or guaranty as to workmanship, material and/or equipment elsewhere provided in the contract.

### 11. PAYMENT

A. Payment for work completed and accepted by the Architect, will be made at the contract unit lump-sum price for the items defined on the Proposal Form.

B. Payment in accordance with the Proposal Form will constitute full and complete payment for all work defined herein and no other payment will be made. Unit prices for items, if requested, shall be in-place prices, full and complete, including profit and overhead.

C. No extra or force account work will be performed without the prior written approval of the Manager Architectural Services or his duly authorized representative. No payment will be made for claims without this prior approval.

D. Except as herein or otherwise provided, invoices for work done under this contract shall be submitted monthly as the work progresses. So long as the work is prosecuted in accordance with the provision of this contract, and with such progress as may be satisfactory to the Project Manager, Contractor will, on or about the first day of each month, submit an invoice to the Manager Architectural Services covering the value of the work done up to such time. The approved amount of the invoice, less a retainer amount of 10% and less previous payments, shall be paid to Contractor as soon thereafter as possible. Work included in such monthly estimates shall be the property of owner, but it is expressly agreed to by parties hereto that no invoices approved or payments made under this order, except the final payment, shall be conclusive evidence of the performance of the order, either wholly or in part, and that no payment shall be construed to be an acceptance of defective construction or improper materials. The retained amount herein provided for will not become payable until all the work had been completed to the satisfaction and approval of the Architect, and until the payment of all labor, material, and other costs of construction are proven to his satisfaction.

E. Upon the completion and acceptance of the work, Contractor will submit final invoice, and the Architect will make a final approval of the value of the work completed to his satisfaction and the balance due Contractor, including the retained percentage and less previous payments. The balance so determined shall be paid to Contractor as soon thereafter as practicable, provided, however, before such final payment shall be made, Contractor shall furnish, if requested by Architect, satisfactory evidence that all payrolls, bills for material, and other indebtedness in connection with the work have been paid and that all liens, claims or suits for labor performed or material furnished in connection with the work covered by this contract have been made. Contractor expressly agrees to reimburse owner for any amounts that the latter may be compelled to pay in satisfying such actions.

### 12. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the Contractor of the final payment shall be and operate as a release to the owner of all claims and of all liability to the Contractor for all things done or furnished in connection with this work. However, no payment, final or otherwise, nor partial or entire use or occupancy of the work by the owner shall be an acceptance of any work not in accordance with the Contract Documents nor shall the same relieve the Contractor of responsibility for faulty materials or workmanship or operate to release the Contractor and his surety (if applicable) from any obligation under the contract.

### 13. GUARANTEE

The following shall be furnished by the Contractor covering his work:

A. When the work is completed and accepted by the owner, the owner shall be furnished a written statement, signed by the Contractor, guaranteeing the work against defective materials and workmanship for a period of one (1) year from date of acceptance, unless a greater amount of time is specified for a certain product herein.

B. Upon receipt of written notice from the owner, the Contractor shall, at no expense to the owner, promptly make good all defective workmanship and replace all defective material during the one (1) year period mentioned above.

C. Provide all other guarantees not specified herein but which are available to be furnished with products incorporated into the work.

### 14. PERIOD FOR COMPLETION

A. The Contractor must provide an adequate plan and organization and prosecute the work with the utmost dispatch to completion. Attention is called to the fact that time of completion is a most essential item in connection with the contract.

B. Date for starting work shall be fixed in a written notice from the Manager Architectural Services, to Contractor, which notice shall be mailed to or served upon Contractor not less than ten (10) days before starting date fixed therein. Contractor shall commence work on or before starting date fixed in said notice and complete work as herein described within the time period designated on the proposal.

C. If Contractor fails to complete the work within the period herein fixed, Contractor shall pay, or owner may deduct from any sums due or to become due Contractor, the owner's expenses, incurred during the additional period required to complete the work, for engineering and inspection service employed directly on the work.

D. The Owner reserves the right to suspend the work during a portion or all of the months of December, January, February and March. If the work is so suspended, the Contractor's time of completion will be extended an equivalent period. However, Contractor will not be eligible for shut-down or remodeling charges as a result of such suspension.

15. MATERIALS, APPLIANCES, EMPLOYEES  
A. Unless otherwise stipulated or required by Code, all workmanship and materials shall comply with the manufacturer's recommendations in order to effect all guarantees. Unless otherwise specified, all materials shall be new.

B. All labor is to be performed in the best and most acceptable manner known to the trade by skilled and experienced workmen under expert supervision. All work shall conform to all applicable laws, regulations, and building codes in force in the community, notwithstanding anything that may be shown or specified that may be construed otherwise.

C. All materials and workmanship shall be subject to approval by the Manager Architectural Services, or his authorized representative, under whose supervision the work is to be performed. The Architect or Project Manager shall have access to the work at all times and authority to reject any work not in accordance with the drawings or specifications.

### 16. SUBCONTRACTORS AND SUPPLIERS OF MAIN MATERIALS

A. The Contractor is to be as fully responsible to the owner for the acts and omissions of his subcontractor and of persons either directly or indirectly employed by them as he is for acts and omissions of persons directly employed by him.

B. Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the owner.

### 17. SUPERVISION

The Contractor shall assign a full-time Field Supervisor with authority to act for the Contractor. His sole responsibility shall be supervising the work encompassed by the Contract Documents.

### 18. QUALITY CONTROL AND TESTING

The Contractor shall provide inspection, tests and similar quality control services, specified in individual specification sections and required by governing authorities, except where they are specifically indicated to be the owner's responsibility, or are provided by another identified entity; these services include those specified to be performed by an independent agency and not by the Contractor. Costs for these services shall be included in the contract sum.

### 19. PERMITS AND REGULATIONS

A. This project is exempt from local land use regulations which does not require building permits. The Contractor shall give all necessary notices to the proper authorities relative to the work in charge. He shall be responsible for any violation of local law or ordinances. He shall be liable for any and all accidents to persons or damage to property, traceable to negligence of himself or his subordinates. He shall duly and adequately protect his work at all times during its progress. He shall provide all necessary night lights, guards, rails, etc., for the protection of persons not engaged in the construction work.

B. The Contractor shall pay all State and City taxes where applicable and as required by law.

### 20. SHOP DRAWINGS

A. Before actual construction begins, the Contractor must receive approval of the Manager Architectural Services on complete shop drawings covering the work.

B. In checking over shop drawings for Contractor and approving same, the Manager Architectural Services does not relieve the Contractor from responsibility for errors or omissions which may exist, even though in accordance with approved drawings. Checking of drawings is to be regarded as gratuitously assisting the Contractor, and the Manager Architectural Services does not thereby assume responsibility for errors, dimensions, or omissions. Where such errors or omissions are discovered later, they must accordingly be made good by the Contractor, irrespective of any approval of the Manager Architectural Services.

C. Before submittal of the shop drawing by the General Contractor to the Manager Architectural Services for approval the General Contractor or his subcontractor having the detailed responsibility for the work covered by the particular shop drawing shall:

1) Check drawings in detail for compliance with drawings and specifications and shall not submit the drawings to the Manager Architectural Services until he is reasonably sure that it does conform.

2) Indicate on the drawings all required field measurements.

3) Indicate by stamp or signed statement on shop drawings that the General Contractor or his subcontractor having the detailed responsibility has checked and approved the drawings.

D. For initial approval, three (3) checked prints of all shop drawings shall be submitted to the Manager Architectural Services, and two (2) corrected or approved prints shall be returned to the Contractor.

### 21. MEASUREMENTS

Before ordering any materials or providing labor, each subcontractor shall verify all measurements at the location and shall be responsible for the correctness of same. No extra charges or compensation will be allowed on account of difference between actual dimensions and the measurements indicated on the drawings.

### 22. CUTTING AND PATCHING

Each subcontractor shall leave all preparatory work, holes or openings straight, true, and of proper size in his own work as may be necessary for the proper installation of another subcontractor's work, consulting with the subcontractors concerned regarding proper location and size of same. No excessive cutting will be permitted nor shall any structural members be cut without the consent of the Architect. After such work has been installed, he shall carefully fit around, close up, repair, patch, and point up same as directed to the entire satisfaction of the Architect. All this work shall be done with proper tools and by careful workmen of the particular trade to which such work belongs and shall be done without extra charge to the owner.

### 23. PROTECTION OF SERVICES AND FACILITIES

A. Contractor shall use special care and vigilance to avoid damage to existing structures, equipment, trains, tracks or other facilities of owner and shall conduct his work so as not to interfere with the operations of the owner. Contractor shall not proceed with any work which might endanger or interfere with train movements or operations of other facilities until protection satisfactory to the Architect has been provided. If, in the opinion of the Architect, operations of other facilities are or may become endangered by the work of the Contractor, he shall immediately do such work as may be ordered by the Architect to restore safety and, upon failure of the Contractor to carry out such orders immediately, owner may take whatever steps are necessary to restore safe conditions. The cost and expense to the owner of restoring safe conditions or of any damages to structures, equipment, trains, tracks or other facilities caused by the Contractor's operations shall be charged against the Contractor and paid by him or may be deducted from any amounts due, or which become due him under the order. The cost of furnishing trainmen or flagmen deemed necessary by the owner for continuity and safety of train operations shall be borne by the Owner.

B. If in the conduct of the work any temporary changes or alterations in pipelines, drains, conduits, fences, tracks, power or communication lines, or the facilities of others are necessary, either for the convenience of the Contractor or for the performance of the work, the responsibility of making such changes will rest with the Contractor unless otherwise provided elsewhere in the contract and he shall arrange for changes to be made at his own expense.

C. All removed materials and such other materials as may be designated as not reusable by the Architect shall be legally disposed off site by the Contractor at his sole cost and expense. Materials shall be disposed of on a timely and periodic basis to preclude interference with the normal operation of the Company. While awaiting disposal, they shall be neatly stockpiled, and any materials scattered by wind or other causes shall be promptly retrieved and properly stockpiled or disposed of.

D. Upon completion of the contract work, the Contractor shall promptly remove from the site all debris and unused materials, except those materials specifically designated for storage at the site by the Architect.

E. The work area shall be policed and kept neat and orderly during the progress of the work.

### 24. OFFICE AND SHEDS

A. The Contractor shall provide, as soon as possible, an office approved by the Architect. Windows and a door shall be provided, all fitted with secure locks. The office shall be provided with suitable means of heating.

B. The Contractor shall, where directed by the Architect, erect a suitable storage shed upon the premises in which he shall keep all his materials which would be damaged by the weather.

### 25. TELEPHONE

Contractor shall have access to a telephone on the premises. Contractor shall install and pay for use of this phone if a cell phone is not available, or if there is a lack of cellular service.

### 26. WATER AND POWER

The Contractor shall provide all water and electricity required during the construction. The Contractor shall make his own connections to the water supply and power services.

### 27. TEMPORARY HEAT

The Contractor shall provide and pay for all such temporary heat as is necessary for the proper protection of all phases of the work.

### 28. COMPRESSED AIR

The Contractor shall furnish compressed air, as may be needed, for all phases of the work.

### 29. SANITARY ARRANGEMENTS

The Contractor shall, at the beginning of the work, provide on the premises, as directed by the Architect, a suitable temporary convenience and enclosure for the use of all workmen on the job and shall maintain same in a sanitary condition.

### 30. RECEIVING AND STORAGE OF MATERIALS

The Contractor shall be responsible for all receiving and storage of materials. Contractor shall confine storage of materials on the job site to the limits approved by the Project Manager. All materials delivered to the job site shall be in the original, sealed, cartons, crates or containers bearing: Manufacturer's name, product name, or number and appropriate UL labels.

The Contractor shall store no materials or park any vehicles, trailers or equipment within 25 feet of any track without written permission from the Project Manager.

### 31. HOISTING


All required hoisting of new material, equipment, debris, etc., shall be the responsibility of the Contractor. Contractor shall schedule all hoisting operations with the Project Manager.

### 32. REMOVAL OF DEBRIS

Contractor shall remove all debris as fast as it accumulates, keeping the building and premises clear during the progress of the work. The Owner's trash container shall not be used to dump debris resulting from this project. No burial or burning of debris shall be permitted on the job site.

### 33. PHOTOS

Contractor shall provide in stages a Photo Journal of the entire construction process. Photos shall include but not limited to items that are roughed in, concealed, or to be inspected. Photo's shall also include structural details, P.M.E. installations, and site conditions. All photo's shall be "digital" type and shall be e-mailed to the project manager periodically as the project progresses.

NO.	DATE	BY	REVISION
			
OFFICE OF ARCHITECTURAL SERVICES			
HARRISBURG, PA			
RENOVATIONS FOR MECHANICAL			
SPECIFICATIONS			
DES:	WSG	FILE NO.	BLD0031294
DR:	WSG	DWGNO.	A-13006
CH:	KDH	DATE:	SEPTEMBER 16, 2013
			SHEET <b>A-4</b> OF



## DIVISION 2 - SITE WORK

NOT USED

## DIVISION 3 - CONCRETE

### 1. GENERAL

Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete", and as herein specified.

All concrete, unless noted otherwise, shall be a minimum of 3,000 psi at 28 days. Concrete shall not be placed in freezing weather unless some means of heating is provided for a minimum of three days.

All exposed horizontal corners shall be chamfered or finished with an edging tool. All vertical exposed surfaces such as above grade foundation walls, slab edges, etc. shall be filled, grouted, and rubbed immediately after forms are removed.

### Materials for Concrete

Concrete shall conform to the ACI 318-89 Portland cement shall conform to ASTM C-150, type 1.

Aggregate for concrete shall conform to ASTM C-33.

Reinforcing steel shall conform to ASTM A-615 grade 60.

Reinforcing shall be welded wire mesh, meeting ASTM-A-185, sized as shown on drawings. Minimum cement content shall be 564 lbs/cu.yd.

### Verification of Mix Design

Mix design may be based on previous field experience. Mix design will be verified by trial mix for water/cement ratio, slump compressive strength and flexural strength. Concrete quality shall be verified in the field by compressive strength tests.

### Curing

Curing shall be done by continuous wetting for a period of three days and by covering with polyethylene film for moisture retention for four additional days.

### Expansion Joint Material

Premolded expansion joint material shall be bitumen saturated fiberboard. Exposed joints shall be sealed with continuous flexible sealant.

### 2. CONCRETE SLABS

Concrete shall be 3000 psi at twenty-eight days. Slab finish shall be steel trowled unless otherwise noted on the drawings. Concrete shall be screeded level and floated to bring cement to the surface prior to finishing.

### 3. STOOPS, STEPS & RAMPS

Design and locations as shown on the drawings. Concrete shall be 3,000 psi, air entrained with sealer. Stoops shall be sloped to provide positive drainage and to prevent ponding. Finish shall be light broom.

## DIVISION 4 - MASONRY

### 1. MATERIALS

Concrete masonry units shall be standard size, light weight conforming to ASTM-C-90 for hollow load bearing units. Units shall be dry when delivered and protected from wetting prior to laying. Furnish units in sizes required, including all special shapes for corners, piers, sills, lintels, bond beams, etc. All units that are chipped, cracked, not of uniform texture, or otherwise defective in the opinion of the Project Manager will be replaced.

### Mortar

Masonry cement shall meet ASTM C-91, type II. All mortar shall comply with ASTM 270. Mortar mix shall be type "S", minimum 1,800 psi at twenty-eight days. Store materials in a dry place and job mix each day. Air entrainment shall not exceed 12%. Color shall be selected by the Project Manager.

### 2. EXECUTION

All units shall be laid plumb, level and true to line. All units shall be properly jointed with other connecting work. Installation shall be running bond, coursed 8" vertically with uniform 3/8" wide joints. Exposed face joints shall be compressed with a 10: metal tool to form a concave joint and to close all hair line cracks and crevices. Toothing out of unfinished work will not be allowed. Unfinished work shall be stepped back and mortar cut clean. Unfinished work shall be protected from the elements at the end of each day by covering at least the top two feet with building paper properly secured.

Where cutting is necessary, make all cuts with a motor driven masonry saw. Units with chips or irregular cuts will not be accepted and shall be replaced at the expense of the Contractor.

Do not wet concrete masonry units (CMU). Lay CMU with full-face shell mortar beds. Fill vertical head joints solidly with mortar. Solidly bed cross-webs of starting courses in mortar.

Lay CMU in running bond with vertical joints in each course centered in courses above and below. Use special shapes where shown or as required. Maintain vertical continuity of core or cell cavities, which are to be reinforced and grouted, to provide minimum clear dimension indicated and to provide minimum clearance and grout coverage for vertical reinforcement bars. Keep cavities free of mortar. Solidly bed webs in mortar where adjacent to reinforced cores. Where horizontal reinforced beams are shown, use special units to allow for placement of continuous horizontal reinforcement bars. Place small mesh, expanded metal lath or wire screening in mortar joints under bond beam courses over cores of non-reinforced vertical cells, or provide units with solid bottoms.

Masonry shall not be erected in freezing weather or when a freeze is impending unless suitable means are provided to heat the materials. Protect the installed work from cold and frost and insure that the mortar will harden without freezing. Heating method shall be approved by the Project Manager before same is done. No antifreeze ingredient shall be used without written permission from the Project Manager.

Consult other trades in advance and make provisions for the installation of their work in order to avoid cutting and patching. Items specified in other sections shall be built-in as the masonry work progresses.

### 3. CLEANING

Upon completion, all exposed work shall be thoroughly cleaned. Clean new masonry according to the recommendations by the Brick Institute of America Technical Note No. 20 and NCMA TEK 8-2. Cleaning shall be done in strict accordance with the recommendations and instructions of the cleaner manufacturer. Adjacent work shall be protected from harm by the cleaning solutions.

## DIVISION 5 - METALS

### 1. MISCELLANEOUS

Furnish all lintels, bolts, plates, anchors, and miscellaneous items needed and/or detailed for the completion of the project. The Contractor shall review the work of all trades to determine the requirements for miscellaneous steel shapes required for support of ceiling, ducts, mechanical and electrical equipment, etc.

## DIVISION 6 - CARPENTRY

### 3. LAMINATED PLASTIC

Provide laminated plastic Formica or WilsonArt for countertops and other surfaces as detailed on the drawings. Color(s) and pattern(s) shall be selected by the Project Manager from samples provided by the Contractor.

### 4. CASEWORK

Cabinets shall be shop built, job site finished as specified. Cabinet work shall have white pine stiles and rails with stain grade birch veneer, flush plywood doors and drawer fronts. Wall hung shelves shall be 3/4" birch veneer plywood with 1/2" x 3/4" white pine edge banding, drawer slides model 328 by Grant, hinges No.1535 and pulls No. 4484 by Stanley. Provide complete shop drawings for approval prior to fabricating any casework.

### 5. SOLID POLYMER WINDOW STOOLS

Solid polymer shall be 'window stool grade' Gibraltar series by Wilsonart International. Provide 1/2" thick material with edge condition detail. All Fabrications must use matching color seam joint adhesive. Provide matte finish on all window stools. Project Manager to select color. Submittal required.

## DIVISION 7 - THERMAL & MOISTURE PROTECTION

### 1. CAULKING AND SEALANT

The following spaces shall be caulked: all masonry including openings between metal and masonry including doors, windows, pipe sleeves, control joints, door saddles and window sills. Caulking shall be applied by gun without sags or wrinkles. Joints shall be primed and backed with compressible backer rod. Sealant shall be Dow Corning No. 780 or an approved equal. Interior caulking materials shall be acrylic latex.

Caulking exposed and unpainted shall be colored to match the adjacent material finished color.

### 2. VAPOR BARRIER

Cover base under slab with reinforced 6 MIL polyethylene sheet. Seal all joints and protect from puncture before and during the pouring operation.

### 3. RIGID INSULATION

Insulation shall be closed cell, expanded polystyrene extruded, smooth skin surface, have 22 lb. per cubic foot minimum density, 30 psi compressive strength, installed in accordance with the details on the drawing. Insulation shall be Amoco, Dow Styrofoam, or approved equal.

### 4. METAL ROOFING, FACIA, SOFFIT AND GUTTERS Scope

Furnish and install preformed metal roofing, fascia, and soffit as shown on the drawings, including all accessories such as trims, flashings, ridge caps, rake mold, closures, clips, etc., as shall be required.

### Materials

Shall be prefinished, .032" aluminum, snap lock, standing seam style metal roof. Finish shall be smooth, Kynar 500 fluoropolymer coating. Color shall be selected by the Project Manager, from standard colors offered by the Manufacturer. A twenty (20) year limited warranty against finish failure shall be provided.

Metal gutters shall be as shown, .04" aluminum. Downspouts shall be .040" prefinished aluminum.

Prefinished fascia panels and soffit shall be installed complete with all light framing, trim accessories, and concealed fasteners as required. Color shall be selected by the Architect by samples provided by the Contractor.

### Flashings

All breakformed flashings/trims shall be factory or field formed in .032" aluminum in the same color as roof panels.

### Submittals

Submit complete shop drawings including elevations and sections of each condition for approval prior to fabrication. Drawings shall also include material type, metal thickness, finish, methods of installation and anchorage to accommodate thermal movement.

### Delivery, Storage and Handling

Deliver materials properly packaged and adequately protected from damage during shipment. Protect materials from adverse job conditions prior to installation and from damage by other trades after installation.

### Installation

The installer shall inspect all delivered material within ten (10) days and notify the Manufacturer of damaged materials. Installation shall not begin until damaged material has been corrected. The installer shall inspect substrate and verify tolerances and dimensions with approved shop drawings. Installation shall not begin until unsatisfactory conditions have been corrected. The roofing, fascia, soffit system shall be installed plumb, straight, and true to adjacent work. Ribs shall be equidistant from accordance with design concept as shown on the drawings. Transitions at ridge, sloped roof to fascia, to soffit, etc., shall be made in a continuous manner without flashings, closure, etc. Horizontal lap joints are not acceptable. No perforations shall be made by fasteners except as shown on approved shop drawings. The installer shall bear sole responsibility for properly providing for roof penetrations of all other trades. Proper boots and flashings shall be provided and installed to insure weather tight integrity.

Metal shall be installed without deformations or other imperfections and any visible flaws shall be corrected to the satisfaction of the Architect.

### 5. ICE & WATER SHIELD

Ice and Water Shield shall be by Grace Construction Products. Install as shown on plans and in strict accordance with manufacturer's installation instructions. Submittal required.

### 6. FIBER CEMENT SIDING

Horizontal siding shall be fiber cement board, "Hardiplank" Lap siding as manufactured by James Hardie Building Products. Boards shall be 5/16" thick by 6 1/4" high, factory primed, smooth finish, installed with a 5" exposure in accordance with manufacturer's written instructions.

### 7. FIBER CEMENT TRIM

Trim shall be "HardiTrim" fiber cement boards in sizes as shown on the drawings. 1" thick trim shall be type XLD smooth boards and 3/4" trim shall be type HLD smooth boards. Both shall have a factory primed smooth finish.

### 8. BATT INSULATION

Batt type insulation shall be thickness and "R" value as called for on the drawings. Insulation shall be Owens Corning Fiberglass Corp., or approved equal.

## DIVISION 8 - DOORS, WINDOWS & FINISH HARDWARE

### 1. GENERAL

Contractor shall submit shop drawings showing: elevations of each door and/or window type, details and methods of anchorage, details of construction, methods of assembly, location, and installation of hardware, size, shape, and thickness of materials, joints, and connections.

Contractor shall verify measurements at the building site and be responsible for dimensions fitting and attachments of items connected with door and/or window installation. After installation of doors and/or windows the Contractor shall check each door and/or window and its hardware for proper operation. Work shall be left in complete operating condition.

Contractor shall remove and replace any defective work, including but not limited to, doors, windows and/or frames that are warped, bowed, or damaged.

### 2. WINDOW UNITS

General Window units shall be of types and styles as shown on the drawings. Coordinate installation with exterior completion so that aluminum materials will not be subject to stain or damage during or after installation and so that weathertight sealant application may be installed as windows are set. Provide screens on all operable windows.

The Window Contractor shall bear sole responsibility for fit, function, and weathertightness of window installation.

Double hung windows shall be 1" insulated, Low-glass with alum. thermal break frames Model 8450 by Kawneer.

Frame finish shall be dark bronze anodized.

All handling, cleaning, etc. of the window units shall be as per manufacturer's instructions. Submittal required.

### 3. Hollow Metal Doors

Provide stock hollow metal doors of the type and styles indicated on the door schedule and complying with SDI 100 for minimum materials & construction requirements. Construct doors of 18 gage, electro-zinc coated bonderized steel, factory primed with 16 gage steel stiffeners.

Door voids shall be filled with fire retardant, sound deadening and insulating material, on doors called for to be insulated. Doors shall be 1-3/4" thick, mortised to receive 1-1/2" pair of 4-1/2" x 4-1/2" butt hinges and the lockset specified. Edges and face shall be free of visible seams. Door tops shall have closure strips. Where half glass doors are called for, units shall have one wire glass lite. Allied, Ceco, or Republic shall be acceptable manufacturers.

Fit hollow metal doors in their respective frames, within clearances specified in SDI 100.

After installation, the Contractor shall check each door and its hardware for proper operation. Work shall be left in complete operating condition. Contractor shall remove and replace any defective work, including but not limited to, doors and frames that are warped, bowed, or damaged.

### 4. FRAMES (Masonry)

Provide hollow metal frames of the type and styles indicated on the drawings. Exterior frames shall be 14 gage and interior frames shall be 16 gage cold rolled steel, one piece welded construction, factory primed and mortised for the hinge and lock configuration specified on the drawings. All frames shall be prepared for 1-1/2" pair of 4-1/2" x 4-1/2" template hinges and have at least three (3) anchors per jamb plus floor anchorage. Provide mortar boxes at all hardware cutouts. Frames shall have spacers at floor and keeper locations to prevent misalignment or deflection during the masonry work and shall be filled with mortar. Drill stops to receive three (3) rubber silencers. Set frames prior to construction of enclosing walls. Set frames in position, plumbed, aligned, and braced until permanent anchors are set.

Exterior doors shall be insulated metal with 1" clear insulating safety glass, sized as shown on the plans. Doors shall be hung plumb with uniform clearances.

### 6. FINISH HARDWARE

Finish hardware shall be Corbin 400 Series, Sargent 7-Line Series, Yale 5400 Series for handicapped access. Finish to be US26D. Closers shall be LCN 1260 Series.

Hardware shall be as scheduled on the drawings. Submit complete hardware schedules referenced as numbered on the drawings. Submittal shall include manufacturer's type, name, number, finish, keying, and location of each item. Contractor shall provide two keys for each door lockset and mount them on a key board with tags to identify locksets to keys. Contractor shall also provide two master keys that will open all doors in the building.

All door hardware shall be handicap and ADA accessible. Door hardware to conform to BOCA 1996, section 1017.4, and ANSI 117.1-1992 section 4.13

## DIVISION 9 - FINISHES

### 1. RESILIENT FLOORING

Resilient floor covering shall be 12"x 12"x 1/8" Excelon Stonetex vinyl composition tile by Armstrong. Color to be 'Pebble Gray'. Base shall be 4" vinyl cove base, with color selected by the Project Manager from samples provided by the Contractor.

### 2. CERAMIC TILE

Ceramic tile shall be 2" x 2" x 1/4" ceramic mosaics. Floor installations shall be set in latex-portland cement mortar; dry set grout over concrete floor which has been prepared in accordance with manufacturer's instructions to receive tile. All necessary standard trim shapes shall be supplied and installed to meet job requirements. Doors or junctures with other materials shall receive 2" marble threshold strip. Acceptable manufacturer's are American Olean, Dal-Tile, and Summitville. Colors and patterns shall be selected by the Project Manager from samples provided by the Contractor. Floor tile shall be unglazed, wall tile shall be glazed.

### 3. SUSPENDED CEILING

Ceiling grid shall be "T" bar system with gypsum board or acoustical lay-in panels, 2'x 2' as shown on the plans. Main runners shall be installed on 4' centers, securely tied at 4' intervals with No. 12 galvanized, soft annealed, steel wire. Main runners and cross tees shall have prefinished white enamel finish. Tiles shall be 5/8" mineral surface, fissured board. System shall be as manufactured by Armstrong, Celotex, or U.S. Gypsum, or an approved equal. Submittal required.

Following installation, clean all soiled or discolored surfaces of units. Remove and replace any units which are discolored, soiled, damaged or improperly installed.

Contractor shall leave two (2) additional boxes of ceiling tile for Owner's use.

### 4. PAINTING

No painting shall be done unless the air is free of dust and dirt. Floors must be broom clean before painting is started. The materials specified are Sherwin-Williams. Equivalent materials by Benjamin Moore, Devoe, DuPont, Glidden, Pittsburgh, or Pratt & Lambert are acceptable. Approved Manufacturer's current specifications and recommendations for surface preparation and application of product are hereby made a part of this specification.

### PAINT SCHEDULE

Drywall- Remove all foreign material, surface shall be smooth and blemish free.

Prime: All joints and fastener heads with Fast-Dri Latex Primer.

1 Coat: Fast-Dri Latex wall primer  
2 Coats: Pro-Mar 200, Latex Semi-Gloss Enamel

Interior Wood (Stained)- All surfaces shall be sanded smooth, with the grain, and surface blemishes corrected. Wipe surface to remove all dust. Samples of stain shall be prepared for approval on each species of wood used with the stain color selected by the Project Manager.

1 Coat: S-W Interior wood stain  
1 Coat: Mar-Not, gloss varnish  
1 Coat: Mar-Not, satin varnish

Interior Masonry Units - Shall be free of dust, dirt, loose or excess mortar and shall be dry.

1 Coat: Pro-Mar interior block filler  
2 Coats: Pro-Mar 200, semi-gloss enamel

Ferrous Metals (Exposed) - Remove dirt, grease, rust and mill scale.

1 Coat: Kromik metal primer (spray applied)  
2 Coats: Pro-Mar 200 alkyd semi-gloss enamel (spray applied)

Galvanized Metals (Exposed) - Remove dirt, grease, and oils.

1 Coat: Galvite primer (spray applied)  
2 Coats: Pro-Mar 200 alkyd semi-gloss enamel (spray applied)

Factory Primed Metals (including all doors, door frames, exposed steel structure, etc.) - Remove dirt, grease, and oils, Sand scratched, chipped, and uneven or rusted areas to smooth, clean surface. Spot prime with galvanized iron primer.

2 Coats: Pro-Mar 200 alkyd semi-gloss enamel (spray applied)

Exterior Fiber Cement Board (siding and trim)

Caulk all joints and fastener heads and remove any foreign material.

2 Coats: S-W Exterior Latex Paint, Satin Finish

Exterior Masonry Units- Shall be free of dust, dirt, loose or excess mortar and shall be dry.

1 Coat: Loxon Acrylic Primer  
Tint to match finish color

2 Coats: SherLastic Elastomeric Coating

## DIVISION 10 - SPECIALTIES

### 1. TOILET PARTITIONS

Toilet partitions shall be fabricated from solid polymer panels based on "Standard Series S200" as manufactured by Comtec. Partitions shall be floor anchored and wall mounted. Hinges and fittings shall be type 302 stainless steel. Compartments shall be provided complete with lath, coat hook, and dual paper holder. Urinal screens to have floor brace. Furnish shop drawings including anchorage details and submittal data for approval. Colors to be selected by the Project Manager.

### 2. ACCESSORIES

Models specified are "Bobbick", full submittal shall be required for approval or for alternate. Provide per lavatory, one liquid soap dispenser model B-4112, one stainless steel surface mounted paper towel dispenser model B-262, one 18" x30" stainless steel 3/8" framed mirror B-165/1830. Provide per water closet, one heavy duty surface mounted toilet tissue dispenser for two rolls model B-2740. Provide per each shower, one vinyl curtain (model 204-2), rod (model B-207), and hooks (model 204-1). Submittal required.

### 3. GRAB BARS

Provide grab bars as shown on the drawings. Grab bars shall be 1-1/2" OD Type 304 stainless steel with peened finish as supplied by Bobrick B-6806.99 Series. All fasteners shall be chrome plated, have a pull/shear capacity of 250# and have 1-1/2" clear space to wall.

### 4. FIRE EXTINGUISHERS & CABINETS

Fire extinguishers & cabinets shall be as manufactured by Larsen No. 2409-6R, semi-recessed, steel with solid door. Paint to be manufacturer's standard white color. The words "FIRE EXTINGUISHER" in a vertical format shall be on the door of the cabinet and be painted red color. Extinguisher to be Larsen No. MP-10, 10 lb. Submittal required. Provide brackets for wall hung.

### 5. SIGNAGE

Provide ADA approved "MEN", "WOMEN", "RESTROOM", and "UNI-SEX" signs at each required door. Allowable manufacturers are Best and Leed.

## DIVISION 11 - EQUIPMENT

NOT USED

## DIVISION 12 - FURNISHINGS

### 1. VENETIAN BLINDS

Furnish and install 1" architectural venetian blinds equal to "Flazalum" by Hunter Douglas Co., "Rivers" by Levelor, or "Basil-Architect" by Marathon Carey-McFall Company at all windows. Owner's to be selected by Project Manager.

## DIVISION 13 - SPECIAL CONSTRUCTION

NOT USED

## DIVISION 14 - CONVEYING SYSTEMS

NOT USED

NO.	DATE	BY	REVISION
<b>NORFOLK SOUTHERN</b>			
<b>OFFICE OF ARCHITECTURAL SERVICES</b>			
<b>HARRISBURG, PA</b>			
<b>RENOVATIONS FOR MECHANICAL SPECIFICATIONS</b>			
<b>DES:</b>	WSG	<b>FILE NO.</b>	BLD0031294
<b>DR:</b>	WSG	<b>DWGNO.</b>	A-13006
<b>CH:</b>	KDH	<b>DATE:</b>	SEPTEMBER 16, 2013
			<b>SHEET</b> <b>A-5</b> OF

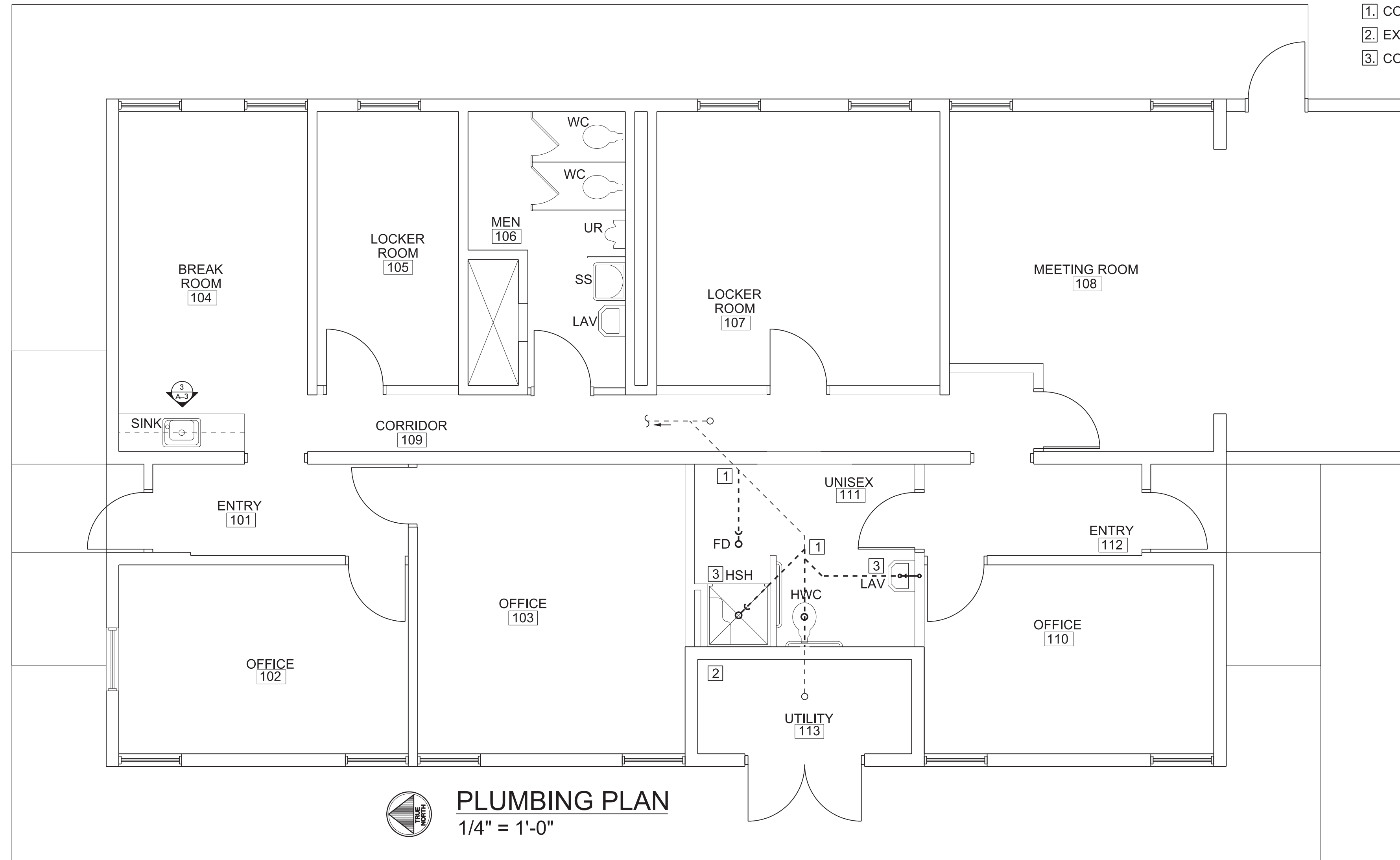


**PLUMBING NOTES:**

- 1] CONNECT TO EXISTING PLUMBING BELOW FLOOR
- 2] EXISTING WATER HEATER TO REMAIN
- 3] CONNECT TO EXISTING HOT AND COLD WATER SUPPLY IN UTILITY ROOM

**LEGEND**

- WC STANDARD WATER CLOSET
- HWC HANDICAP WATER CLOSET
- UR URINAL
- LAV LAVATORY, WALL-HUNG
- SINK SINK, TOP MOUNT  
19" x 18" x 8" deep, Stainless steel
- SS SERVICE SINK  
24" x 20" x 11" deep, Cast Iron
- HSH HANDICAP SHOWER
- FD FLOOR DRAIN
- FCO FLOOR CLEAN OUT
- SOIL / WASTE PIPING, BELOW GRADE
- SOIL / WASTE PIPING, ABOVE GRADE
- ..... VENT PIPING
- COLD WATER PIPING
- HOT WATER PIPING



**PLUMBING PLAN**  
1/4" = 1'-0"

**REGULATIONS**

All work shall be installed in accordance with State and Local codes having jurisdiction at the location of the building. In the event such codes do not exist in the area the current edition of the National Plumbing Code shall be used. If there is any question as to the method of venting or installing any work under this contract the Project Manager shall be consulted prior to proceeding with the work.

**SCOPE OF WORK**

It is the intent of these specifications and the drawings to provide for a complete plumbing system. Items such as pipe hangers, fittings, flashings, clamps, etc. that are not shown on the drawings, but are necessary and required to provide a complete plumbing system shall be considered to be a part of this specification and shall be provided and installed by the Contractor.

**ARRANGEMENT OF SYSTEM**

Arrangement of the system shall be as direct as possible, avoiding all unnecessary bends and offsets. Changes in direction of soil and waste piping shall be made with 1/8" bends, "Y" branches or combination fittings. All exposed piping shall be run straight and true, parallel or at right angles with walls, floors or

**EXCAVATION AND BACKFILL**

The plumbing contractor shall be responsible for all excavating, trenching and tunneling necessary for the installation of piping and drainage structures under this contract. Slope sides of excavations to comply with local codes and ordinances. Shore and brace excavations as required for stability. Stockpile satisfactory excavated materials away from edge of excavation until required for backfill or fill. Place, grade and shape stockpiles for proper drainage. Remove and legally dispose of excess excavated materials and materials not acceptable for use as backfill or fill.

Where rock is encountered, carry excavation below required elevation and backfill with a layer of crushed stone or gravel prior to installation of pipe. Provide a minimum of 6-inches of stone or gravel cushion between rock bearing surface and pipe.

**SOIL, WASTE AND VENT PIPING**

Soil, waste and vent piping within the building, and to its connection with the building sewer shall be one, or a combination, of the following; provided material complies with local codes:  
 o Service Weight Cast-Iron Soil Pipe complying to ASTM A74, with compression gasket joints complying to ASTM C564.  
 o No-Hub Cast-Iron Soil Pipe complying to FS WW-P-401, with neoprene gasket joints complying to ASTM C564 and stainless steel clamp holding bands.  
 o Copper Tube, Type DWV complying to ASTM B306, with wrought copper solder-joint drainage fittings complying to ANSI B16.29.  
 o Polyvinyl Chloride (PVC) DWV Pipe, Schedule 40, complying to ASTM D2665, with PVC Schedule 40 fittings complying to ASTM D2665 and solvent-cement joints complying to ASTM D2664.

Install piping as indicated and in accordance with State and Local Codes. Lay underground drainage piping beginning at low point of system, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install required fittings and gaskets in accordance with manufacturer's recommendations for use of lubricants, cements, and other special installation requirements. Make joints between different types of piping with standard manufactured adapters and fittings intended for that purpose. Clean interior of piping of dirt and other superfluous material as work progresses. Maintain swab or drag in line and pull past each joint as it is completed. Place plugs in ends of uncompleted piping at end of each day or whenever work stops.

Install soil, waste and vent piping pitched to drain at minimum slope of 1/4 inch per foot (2%) for piping 3-inches and smaller, and 1/8 inch per foot (1%) for piping 4-inches and larger.

**WATER PIPING**

All water piping shall be copper water tube manufactured in accordance with ASTM B88. Type "K", Annealed Temper Copper Tubing shall be used for all underground or under slab water piping. Type "L", Drawn Temper Copper Tubing shall be used for all above ground water piping.

Fittings shall be Wrought-Copper, solder type pressure fittings complying to ANSI B16.22, streamlined pattern. Solder shall be 95-5 tin/antimony complying to ASTM B32.

**TESTING OF PIPING**

The plumbing contractor shall furnish all material and labor required for conducting tests. No covering shall be applied to any piping, nor shall any piping be covered up or concealed, until pipes have been tested, all leaks stopped, retested and approved by the Project Manager.

**INTERIOR SANITARY WASTE AND VENT PIPING:**

Before pipes are concealed, plug all openings and fill with water to the top, under an equivalent pressure of a minimum 10-foot head. The water shall remain in the system for 30 minutes and show no leaks or lowering of the water level.

**INTERIOR HOT AND COLD WATER PIPING:**  
Test with water for 15 minutes at 125 PSI, without leaks or loss in pressure.

**GATE VALVES**  
Gate valves shall be bronze, solid wedge disc, inside screw pattern, rated 125 lb. W.S.P. and 200 lb. W.O.G. Screw-over union bonnet for 2-inch size or less and screwed in bonnet for larger sizes.

**GLOBE AND/OR ANGLE VALVES**  
Globe and/or angle valves shall be bronze, rising stem, inserted bonnet and swivel type metal disc. Rated 125 W.S.P. and 200 lb. W.O.G.

**PIPE INSULATION**

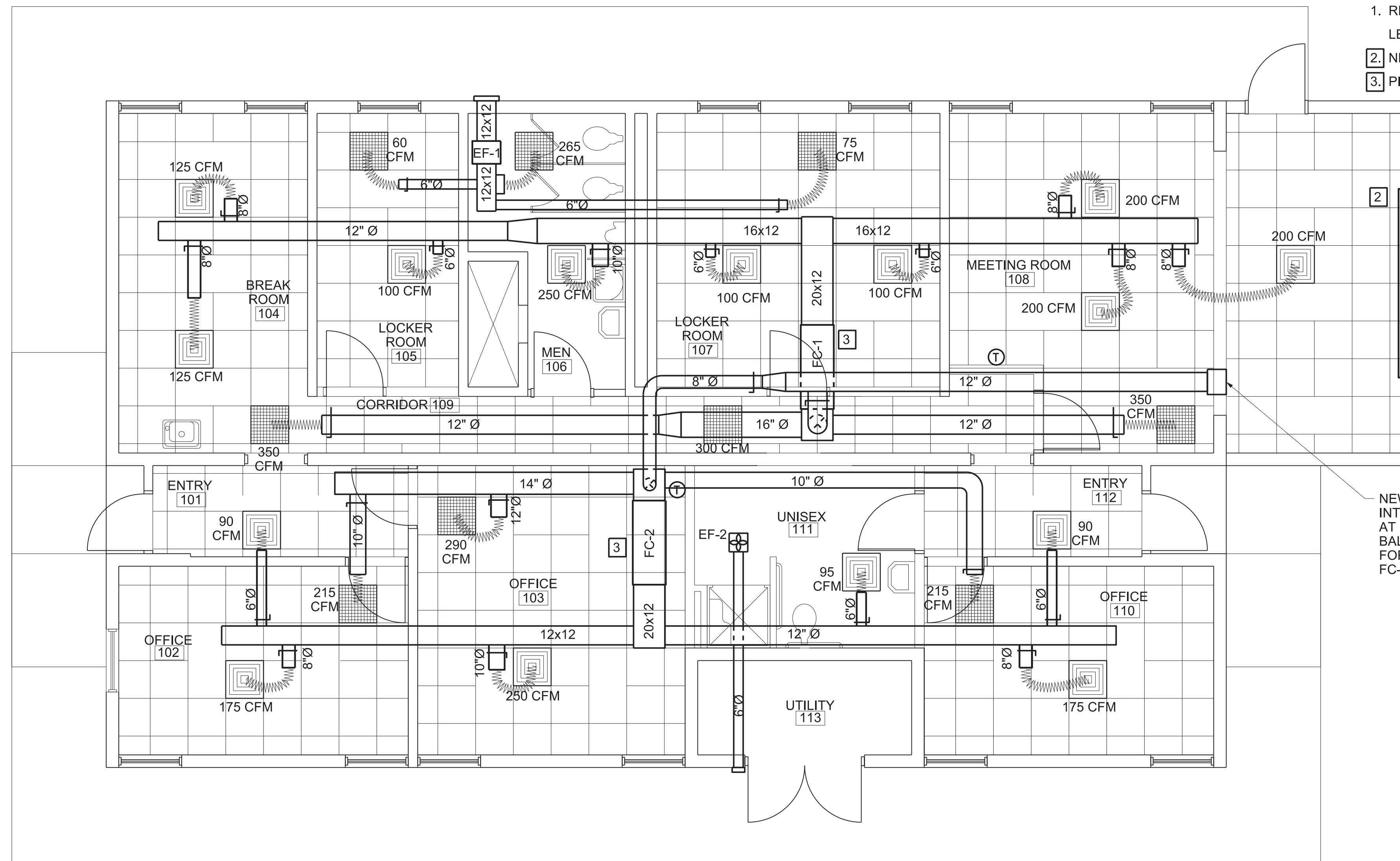
Pipe insulation shall be fiberglass with all service jacket and a minimum R-value of 4. All piping and fittings located in interior chases shall have a minimum of 1/2" thick insulation. Piping and fittings located in unheated attics or chases on outside walls shall have a minimum of 1-1/2" thick insulation. Additionally, all exposed pipe and fittings at sinks and handicapped lavatories shall be insulated with prefabricated kits as manufactured by Brocar Products, or approved equal.

**"P" TRAPS**  
Adjustable cast brass "P" trap with tubing drain to wall, swivel joint, cleanout plug, slip inlet, chrome plate escutcheon with set screw.

PLUMBING FIXTURE SCHEDULE						FIXTURE CONNECTIONS			
UNIT NO.	MANUFACTURER MODEL NO.	MOUNTING HEIGHT	FINISH	ACCESSORIES	REMARKS	SUPPLIES		WASTE	VENT
						HW	CW		
WC	AMERICAN STANDARD MADERA	FLOOR SET	WHITE VITREOUS CHINA	SLOAN ROYAL 111 FLUSH VALVE KOHLER WHITE OPEN FRONT SEAT W/ CHECK HINGE, BOLT CAPS	SIPHON JET, ELONGATED BOWL, 1-1/2" TOP SPUD, 1.6 GALLON FLUSH	-	1-1/4"	4"	2"
HWC	AMERICAN STANDARD MADERA	FLOOR SET	WHITE VITREOUS CHINA	SLOAN ROYAL 111 FLUSH VALVE KOHLER WHITE OPEN FRONT SEAT W/ CHECK HINGE, BOLT CAPS	ADA-COMPLIANT SIPHON JET, ELONGATED BOWL, 1-1/2" TOP SPUD, 1.6 GALLON FLUSH	-	1-1/4"	4"	2"
UR	AMERICAN STANDARD WASHBROOK	24" ABOVE FLOOR	WHITE VITREOUS CHINA	SLOAN ROYAL 180-1 FLUSH VALVE	WASH-OUT, WALL HUNG, INTEGRAL TRAP, 2" IPS OUTLET, 1-1/4" TOP SPUD, 1 GALLON FLUSH	-	1"	2"	1-1/2"
LAV	AMERICAN STANDARD LUCERNE WALL-HUNG LAVATORY	34" ABOVE FINISH FLOOR	WHITE VITREOUS CHINA	DELTA 520-HFD 4" CENTER, WASHERLESS SINGLE HANDLE FAUCET WITH POP-UP. PREFABRICATED INSULATION KIT FOR EXPOSED TRAPS, WASTE PIPING AND WATER SUPPLY, MANUFACTURED BY BROCAR PRODUCTS OR EQUAL.	20" x 18", 4" CENTERS, ADA COMPLIANT, WITH INTEGRAL BACK SPLASH AND WALL HANGER.	1/2"	1/2"	2"	1-1/2"
SINK	ELKAY LUSTERTONE LR1918 SINK	LAY-IN COUNTER TOP	#18 GAUGE, TYPE 304 STAINLESS STEEL	CHICAGO 895-317CP SINK MOUNTED FAUCET, 4" WRISTBLADE HANDLES, RIGID/SWING PLAIN END GOOSENECK SPOUT, CERAMIC MIXING CARTRIDGE, MAX. MIXING ANGLE 120°, SOFTFLO AERATOR, PROVIDE CHROME PLATED CRUMB CUP, REMOVABLE BASKET.	19"x18" OUTSIDE DIMENSIONS, 16"x11-1/2"x7-1/2" BOWL, SELF-RIMMING SOUND DEADENED, 2 HOLE 4" CENTERS, MR2 HOLE DRILLING CONFIGURATION	1/2"	1/2"	2"	1-1/2"
SS	AMERICAN STANDARD AKRON SERVICE SINK	26-1/4" ABOVE FINISH FLOOR	ENAMELED CAST IRON	AMERICAN STANDARD 8350.235 EXPOSED YOKE WALL-MOUNT UTILITY FAUCET WITH POLISHED CHROME FINISH		1/2"	1/2"	2"	1-1/2"
HSH	CRANE PLUMBING A3636.09F ADA SHOWER	FLOOR SET	ONE PIECE, OPEN TOP ACRYLIC WHITE	FACTORY EQUIPPED 19" VERTICAL S.S. GRAB BAR, S.S. HARDWARE AND BRACKETS, 1" DIA. S.S. CURTAIN ROD, THREE WALL SUPPORT BRACKETS, RIBBED FLOOR, STEEL REINFORCED THRESHOLD, ANTIBACTERIAL WHITE SHOWER CURTAIN WITH HOOKS, SELF CAULKING BRASS DRAIN WITH S. S. STRAINER, SYMMONS 1-25-FSB-VB SHOWER SYSTEM: PRESSURE-BALANCING MIXING VALVE, TEMPERATURE LIMIT STOPS, SET TO MAX TEMP OF 110°, INTEGRAL STOPS, 2 GPM FLOW RESTRICTOR W/ 30" CHROME COMBINATION SLIDE AND GRAB BAR, HAND SPRAY, 60" CHROME PLATED LINED SUPPLY HOSE, ELEVATED VACUUM BREAKER WITH UNIONS AND WALL FLANGES.	36"W. x 36"D. x 75"H. INSIDE DIMENSIONS, INSTALLED WITH ACCESSORIES SEALED WATERPROOF AND THRESHOLD SHALL NOT EXCEED 1/2" ABOVE FINISHED FLOOR MATERIAL.	1/2"	1/2"	2"	1-1/2"
FD	JOSAM 30000-S-2 FLOOR DRAIN	FLUSH WITH FINISHED FLOOR	CAST IRON WITH BRONZE TOP	SQUARE BRONZE TOP	SUITABLE FOR PEDESTRIAN TRAFFIC AREAS	-	-	3"	-

NO.	DATE	BY	REVISION
OFFICE OF ARCHITECTURAL SERVICES			
HARRISBURG, PA			
RENOVATIONS FOR MECHANICAL			
PLUMBING PLAN			
DES:	WSG	FILE NO.	BLD0031294
DR:	WSG	DWGNO.	A-13006
CH:	KDH	DATE:	SEPTEMBER 16, 2013
			SHEET <b>P-1</b> OF





**MECHANICAL PLAN**  
1/4" = 1'-0"

**MECHANICAL NOTES:**

1. REPLACE ALL ELECTRIC BASEBOARD HEATERS THROUGHOUT.  
LENGTH OF NEW HEATERS TO MATCH EXISTING UNITS BEING REMOVED.
2. NEW 10" BASEBOARD HEATER.
3. PIPE CONDENSATE TO FLOOR DRAIN IN UTILITY ROOM

**LEGEND**

- EF EXHAUST FAN - CEILING MOUNT
- EF-1 EXHAUST FAN - DUCT MOUNT
- T THERMOSTAT
- Supply Register
- Return/Exhaust Grille
- Flexible Duct
- Control Damper

**FAN COIL UNITS**  
Furnish and install a horizontal fan coil unit with a CFM range of 875-1400 with a 1/2 HP, 240V/1PH/60 motor. Unit shall include a 3 row coil with 4 ton TXV designed to operate on R-410A refrigerant and 10kW supplemental electric heater. Unit shall include condensate drain pan. Unit shall be designed to operate on 240V/1PH/60Hz electrical feed, and shall be factory matched to operate with air conditioner and thermostat specified above. Unit shall be Carrier model FV4BNF005010 or approved equal.

**HVAC - REFRIGERATION PIPING**  
Refrigeration lines have not been routed or sized in detail on the drawings. Contractor shall size line sets in accordance with the Manufacturer's recommendations for the particular size and capacity equipment. Line sets shall be full size through entire run.

Refrigeration piping materials shall be hard drawn type "L" copper with low temperature (1100 deg. F.) solder for joints within the building structure, soft drawn type for chase and exterior installation.

Insulate cold equipment suction line and all surfaces subject to sweating with 3/4" foamed plastic by Armaflex II or an approved equal.

**LOUVERS**  
Louvers shall be drainable blade louver type OAL4-C as manufactured by Metal-Air. Louvers shall be 4" deep, .081 thickness extruded aluminum fitted with 16 gauge aluminum bird screen finished in color selected by project manager and field measured to fit opening.

**THERMOSTAT**  
Provide and install, where shown on the plans, factory-supplied thermostats. Thermostats shall be recommended for use with specified equipment by equipment manufacturer, and shall be 7-day programmable, with LCD temperature display. Submittal required for approval.

**AIR CONDITIONERS**  
Furnish and install an outdoor mounted, air-cooled air conditioner unit having a total cooling capacity of 48,000 BTUH for AC-1 and 30,000 BTUH for AC-2 at 95 deg. F OAT. Unit shall have hermetic compressor, air-cooled coil, forward-swept blade propeller-type condenser fan, and control box. Unit shall have 15 SEER rating when paired with fan coil unit specified below. Unit shall be designed to operate on 240V/1PH/60Hz electrical feed. AC-1 shall be Carrier model 24APA548 and AC-2 shall be Carrier model 24APA530 or approved equal.

Full submittal shall be required for approval of alternate equipment.  
Unit shall be set on concrete slab extending a minimum of 2" beyond unit on all sides.

**EXHAUST FANS**  
Duct-mounted exhaust, supply or return air fans shall be of the centrifugal direct drive type. The fan housing shall be constructed of heavy-gauge galvanized steel. The housing interior shall be lined with 1/2 inch (13 mm) acoustical insulation. The outlet duct collar shall include an aluminum backdraft damper and shall be adaptable for horizontal or vertical discharge. The access for wiring shall be external. The motor disconnect shall be internal and of the plug-in type. The motor shall be mounted on vibration isolators. The fan wheel shall be of the forward-curved centrifugal type and dynamically balanced. All fans shall bear the AMCA Certified Ratings program AMCA Air Performance seal and shall be UL/cUL Listed. Ceiling or wall mount fans shall be model CSP as manufactured by Greenheck Fan Corporation, Schofield, Wisconsin.

Fan CFM Model EF-1 400 CSP-A410  
Ceiling mounted exhaust fans shall be of the centrifugal direct drive type. The fan housing shall be constructed of heavy-gauge galvanized steel. The housing interior shall be lined with 1/2 inch (13 mm) acoustical insulation. The outlet duct collar shall include an aluminum backdraft damper and shall be spring loaded. Outlet shall be adaptable for horizontal or vertical discharge. Fans shall include the following accessories: round outlet duct connector, hooded wall cap with round duct connection, and designer grille with motion detector. The wall cap shall be painted to match the adjacent wall finish. The designer grille shall be constructed of high-impact polystyrene and shall be non-yellowing. The access for wiring shall be external. The motor disconnect shall be internal and of the plug-in type. The motor shall be mounted on vibration isolators. The fan wheel shall be of the forward-curved centrifugal type and dynamically balanced. All fans shall bear the AMCA Certified Ratings program AMCA Sound and Air Performance seal and shall be UL/cUL Listed. Ceiling mount fans shall be model SP as manufactured by Greenheck Fan Corporation, Schofield, Wisconsin, of the capacities and models listed below.

Fan CFM Model EF-2 110 SP-A110

NO.	DATE	BY	REVISION
<b>NS NORFOLK SOUTHERN</b>			
<b>OFFICE OF ARCHITECTURAL SERVICES</b>			
<b>HARRISBURG, PA</b>			
<b>RENOVATIONS FOR MECHANICAL</b>			
<b>MECHANICAL PLAN</b>			
<b>DES:</b> WSG	<b>FILE NO.</b> BLD0031294	<b>SHEET</b>	
<b>DR:</b> WSG	<b>DWGNO.</b> A-13006	<b>M-1</b>	
<b>CH:</b> KDH	<b>DATE:</b> SEPTEMBER 16, 2013		

**DIVISION 15 B - HVAC**

**GENERAL**

"General Specifications" applies to this section, and the Contractor shall consult them in detail for instructions pertaining to his work unless from the wording or contents of any particular paragraph(s) it is clearly discernible that they are not applicable to this division of work.

**CODES, STANDARDS AND ORDINANCES**

All material and workmanship shall be in accordance with NFPA 90A, SMACNA Standards, Local & State Mechanical Code, ASME Piping Code, and comply with all other State, local and federal laws and ordinances, as well as other criteria which normally apply to work of this type.

The Contractor shall notify the Project Manager when a discrepancy occurs between code requirements and work shown on the drawings and shall obtain clarification before proceeding with the work.

Each contractor shall be deemed fully familiar with applicable codes pertaining to his work.

**SCOPE OF WORK**

It is the intent of this specification and the accompanying drawings to provide for a complete heating, ventilation and air-conditioning system. Items of minor importance necessary to complete the installation of the system(s) shall be included with the project weather shown herein or on the drawings.

Contractor shall furnish and install all equipment shown on drawings and herein specified. Equipment shall be certified to deliver heating, cooling, and/or exhaust capacities as shown on the equipment schedule and/or attached drawings. All installation shall be in full accordance with the manufacturer's instructions and recommendations. All equipment installed shall be UL listed.

**GUARANTEE**

The Contractor shall submit, prior to final payment, a letter of warranty covering all equipment, materials and workmanship for a period of not less than one year. An additional warranty period of four (4) years shall be required on all compressors installed as part of this contract. If during the warranty period, the equipment becomes defective through normal use and wear, it shall be replaced (labor and material) free of charge by the Contractor.

Contractor shall guarantee the air distribution system shall operate without aerodynamic noise generated from faulty installation of ductwork or any other component of the air distribution system. If such a condition exists the Contractor shall correct it at no additional expense to the Owner.

**BALANCING WORK**

The Contractor shall balance the air distribution systems supply, return, exhaust and outside air for proper flow to or from the areas served using pitot traverses. The proportion of actual CFM at each outlet to the design CFM at each outlet shall be the same as the proportion of actual total CFM to the design total CFM of the system. Balancing reports shall be completed and submitted to the Project Manager for review and approval prior to final payment.

**ADJUSTMENT & CALIBRATION**

- (1) Adjust and calibrate all air distribution devices.
- (2) Adjust and calibrate automatic control system.
- (3) Perform initial adjusting work during either heating or cooling season, then recheck and readjust as necessary during the alternate season.

**MAINTENANCE DATA**

Contractor shall submit three manuals covering details of operation and maintenance for all apparatus requiring service including:

- (1) Service telephone number of the installing contractor.
- (2) Manufacturer's operating and maintenance manuals to include: parts lists for all pieces of equipment and accessories requiring service or maintenance, and the name address and telephone number of the nearest sales and service organization for each piece of equipment.
- (3) Step-by-step procedure for starting and stopping each system.
- (4) Copies of inspection certificates provided by the city, county or state.

**DUCTWORK**

Provide and install all rigid ductwork as shown on the drawings and as herein specified.

Construct ductwork and apparatus casings of galvanized steel conforming to SMACNA "Low Pressure Duct Construction Standards 1976".

Provide offsets, elbows, and transformations to coordinate with other work. Changes in shape or dimension shall be made with a maximum slope of one to seven wherever possible.

Provide flexible connections as shown on the drawings. (Both sides of all air handling equipment if not shown.) Install with a minimum of 1" slack in the flexible material. Material shall be heavy glass fabric, double coated with neoprene. Ducts over 12" in either dimension, shall have all sides cross-broken or machine formed transverse beads spaced not over 12" on center.

Elbows shall be provided with turning vanes as manufactured by Tuttle and Bailey, Barber-Coleman or shop fabricated using runners and double vanes.

**FLEXIBLE DUCTWORK**

Provide low pressure, Class 1, flexible duct as shown on the drawings. Duct shall be full size of connection, have a flame spread rating not over 25 and a smoke develop rating not over 50. Acceptable manufacturers of flexible duct are; Atco, Fiberglass, Genflex, Thermaflex or Wiremold

**DUCT INSULATION**

All ducts shall be insulated with 1-1/2" foil faced inorganic fiberglass insulation blanket. The insulation shall be applied with all necessary mechanical fasteners, mastic, and pressure sensitive tape in accordance with the manufacturers written instructions. Insulation material shall be equal to "Duct Wrap" by Knauf Fiber Glass.

**REGISTERS**

Supply registers shall be sized as shown on the plans. Registers shall have steel frames with foam gaskets, two sets of adjustable louvers. Finish of frame and louvers shall be white baked-on enamel.

**CEILING RETURN GRILLES**

Ceiling return grilles shall be perforated face style with integral filter frame, sized as shown on the drawings. Finish shall be white, baked enamel.

Return grilles shall be as manufactured by Barber-Coleman, Titus Metalaire, or an approved equal.

**CEILING EXHAUST GRILLES**

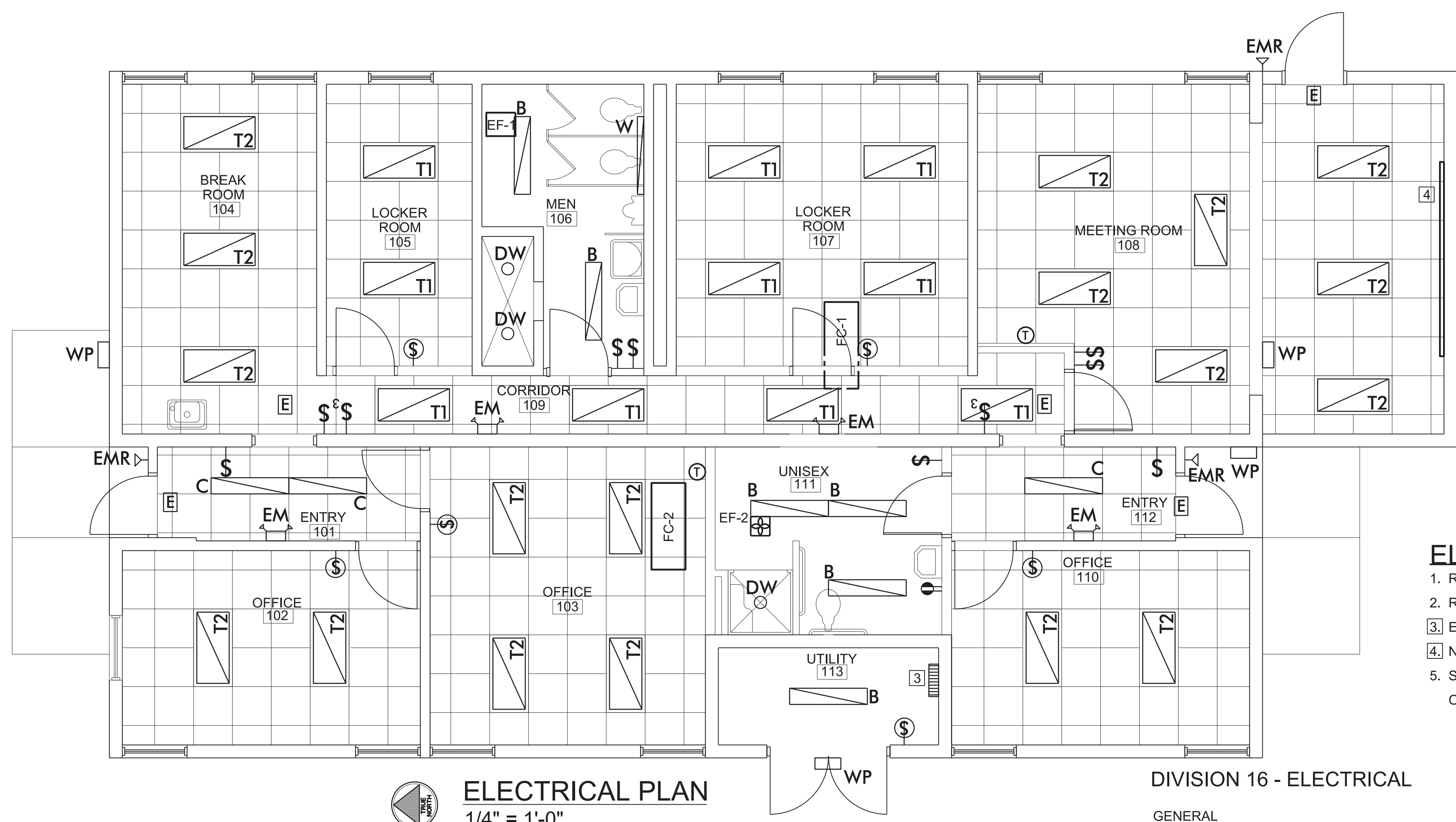
Ceiling exhaust grilles shall be perforated face style, sized as shown on the drawings. Finish shall be white, baked enamel.

Exhaust grilles shall be as manufactured by Barber-Coleman, Titus Metalaire, or an approved equal.

**BASEBOARD HEATER**

Baseboard heater shall be electric, rated at 250W/ft with integral, tamper-proof thermostat. Unit shall be 6" high, and 2.5" deep and securely mounted to the wall. Unit shall be manufactured by Dimplex, series AF-6, or an approved equal. Full submittal shall be required for approval of alternate equipment.





**ELECTRICAL PLAN**  
1/4" = 1'-0"

**LEGEND**

- PANEL
- SAFETY SWITCH
- SWITCH, SINGLE
- SWITCH, 3-WAY
- OCCUPANCY SENSOR
- WALL SWITCH
- FLUORESCENT TROFFER  
2 TUBE, 2 X 4, STANDARD LENS
- FLUORESCENT TROFFER  
2 TUBE, 2 X 4, INDIRECT
- FLUORESCENT TROFFER  
2 TUBE, 1 X 4, STANDARD LENS
- SURFACE MOUNT FLUORESCENT  
2 TUBE, 1 X 4, STANDARD LENS
- WALL MOUNT FLUORESCENT  
2 TUBE, STANDARD LENS
- DOWNLIGHT - WET LOCATION
- EXTERIOR WALL PACK  
100 W, METAL HALIDE
- LIGHTED EXIT SIGN
- EMERGENCY LIGHTING  
SURFACE MOUNT, 2 HEAD
- EMERGENCY LIGHTING  
SINGLE REMOTE HEAD
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE GFCI
- DUPLEX RECEPTACLE GFCI/  
WEATHERPROOF
- COMMUNICATIONS OUTLET
- ELECTRIC WATER HEATER
- EXHAUST FAN

**ELECTRICAL NOTES:**

1. REPLACE ALL SWITCHES, RECEPTACLES, AND DEVICE PLATES THROUGHOUT WITH NEW EQUIPMENT
2. REPLACE ALL ELECTRIC BASEBOARD HEATERS THROUGHOUT
3. EXISTING PANEL TO REMAIN
4. NEW 10' BASEBOARD HEATER
5. SWITCH LOCATIONS SHOWN ARE THE DESIRED FINAL LOCATIONS. INSTALL NEW SWITCHES, RELOCATE OR REMOVE EXISTING SWITCHES AS NECESSARY TO PROVIDE THE SWITCHING SHOWN ON THE PLAN.

**RACEWAYS**

All wiring shall be installed in concealed metallic raceways. PVC conduit shall be provided for service, feeders, power circuits and conduits buried in earth or installed in slab-on-grade.

Electrical metallic tubing (EMT), intermediate metal conduit (IMC), or rigid metal conduit (RMC) may be used for applications not restricted to PVC conduit as required above. Connectors and couplings shall be compression, tap-on, or set screw type with insulated throats and code approved for each specific application.

**UNDERGROUND RACEWAYS**

Buried raceways shall be installed as per the latest edition of the NEC Article 300-5. All buried conduit shall be surrounded by 6" of sand before backfilling. Installation shall meet all state and local codes.

**PANELS AND CIRCUIT BREAKERS**

The ampacity, voltage, and phase characteristics of the main breaker, sub-feed breakers, and branch breakers shall be as shown on the panel diagram.

Panels shall be of the factory assembled type with plug in branch breakers (unless specified elsewhere to use bolt-on type) arranged as shown on the panel diagram and/or as corrected on approved shop drawings. Breakers shall have A.I.C. rating as shown on the panel diagram. A typewritten card indicating the circuits controlled shall be installed in the cabinet. Equipment shall be manufactured by GE, Westinghouse or Square D.

**CONDUCTORS**

All conductors shall be copper. Minimum size shall be 12 AWG. Conductors size 12 through 4/0 shall be type THHN. Size 250 MCM and larger shall be type THW. Where code requires special conductors, such as in continuous rows of fluorescent fixtures, the type of conductors shall be as approved by the local inspector for the specific application. No wires shall be pulled until the raceway system is complete.

**SPLICES, TAPS AND TERMINATIONS**

In conductors sizes #12 and #10 shall be made with mechanical pressure connectors, Ideal "Wing Nut", 3-M "Scotchlock", spring connectors, or Thomas and Betts "Piggies". In conductors sized #8 through 4/0 shall be made with split bolt type connectors. Reliable or approved equal.

**SWITCHES**

Flush type, specification grade, back wired, quiet mechanical action, toggle type, 120/277 VAC, 20 amp rated as indicated on electrical plans. Switches shall be white with white phenolic plates. Where two or more switches are shown adjacent to each other, they shall be arranged in gangs and covered with one plate. Mount switches on top of sixth block course or at 48" from floor on other type construction.

**DUPLEX RECEPTACLES**

All receptacles shall be specification grade, back wired, 15 amp, 125 VAC rated, grounding type receptacles. Receptacles shall be white with white phenolic plates. The location of any outlet may be moved ten feet, before being installed, without additional expense to the Owner. Mount receptacles on top of second block course or at 16" from floor on other construction unless otherwise specified or shown on drawings.

**DUPLEX RECEPTACLES - GFCI**

Ground Fault Circuit Interrupter type receptacles shall be 20 amp, 125 VAC rated and shall meet ANSI Standard C73.12 and shall be UL listed under 498 receptacle requirements and under 943 Class A requirements. GFCI receptacles shall be white in color and shall have a feed through feature that allows for protection of all downstream receptacles. Receptacles shall be Hubbell Model # GF-53621 or approved equal.

**OCCUPANCY SENSORS**

Occupancy sensor lighting controls shall be the passive infrared or ultrasonic sensing type, U.L. Listed commercial specification grade. Units shall have an adjustable delayed-off time setting between 30 seconds and 30 minutes. Finish color shall be white. Sensors shall be compatible with fluorescent lighting with electronic ballasts. Units shall be one or more of the following, as indicated and called for on the drawings:

- Wall switch occupancy sensor - Leviton ODS10-IDW
- Ceiling mount occupancy sensor - Leviton OSC10-U

Wide view wall mount and ceiling mount occupancy sensors shall be complete with Leviton OSP20-RD0 Occupancy sensor control unit. Equal units by other manufacturers may be acceptable. Submittal required.

**SAFETY AND DISCONNECT SWITCHES**

Fusible safety switches and unfused disconnect switches shall be installed where required by code and in full accordance with equipment manufacturer's specifications. Enclosures shall be NEMA 1 for indoor use in office areas, and NEMA 3RS for exterior use. Switches shall be manufactured by G.E., I.T.E., Westinghouse, or Square D.

LUMINAIRE SCHEDULE									
TYPE	FIXTURE TYPE	INC.	FLU OR.	HID	MOUNTING	(QUANTITY) LAMPS	DIFFUSER	DESCRIPTION	REMARKS
B	WRAPAROUND		X		SURFACE	(2) 32W T8	PRISMATIC	LITHONIA LB SERIES	NOTE 2
C	TROFFER 1X4		X		RECESSED	(2) 32W T8	PRISMATIC	LITHONIA SP SERIES	NOTES 2 & 3
DW	DOWNLIGHT			X	RECESSED	(2) 26W DTT	FRESNEL GLASS LENS	LITHONIA LF6N SERIES	WET LOCATION NOTES 2 & 3
E	EXIT	X			UNIVERSAL		LED WHITE PANEL RED LETTERS	LITHONIA LQM SERIES	NOTE 1
EM	EMERGENCY	X			SURFACE	(2) 12W MR24	NONE	LITHONIA ELM2 SERIES	NOTE 1
EMR	EMERGENCY	X			SURFACE	(1) 12W MR24	NONE	LITHONIA ELA-MR24 HEAD	NOTE 1 WET LOCATION
T1	TROFFER 2X4		X		RECESSED	(2) 32W T8	PRISMATIC	LITHONIA SP SERIES	NOTES 2 & 3
T2	TROFFER 2X4		X		RECESSED	(2) 32W T8	INDIRECT	LITHONIA 2RT8B SERIES	NOTES 2 & 3
W	WALL BRACKET		X		WALL	(2) 32W T8	PRISMATIC	LITHONIA WP SERIES	NOTE 2
WP	WALLPACK			X	SURFACE	(1) 100W MH	GLASS	LITHONIA TWH SERIES	DARK BRONZE FINISH INCLUDE BUTTON-TYPE PHOTOCELL

**NOTES:**

1. EMERGENCY BATTERY PACK WITH CHARGER, INDICATOR LIGHT AND TEST BUTTON.
2. ELECTRONIC BALLAST
3. INSULATED CEILING (IC) RATING REQUIRED

**DIVISION 16 - ELECTRICAL**

**GENERAL**

Any work or items reasonably implied, or items of minor importance necessary to complete the work in a proper manner, although not shown on drawings, shall be furnished and installed as if they were both shown and specified.

The Contractor in undertaking the work under this contract is assumed to have visited the premises. No consideration will be given to any claim based on lack of knowledge of existing conditions except where they cannot be readily ascertained.

**SCOPE OF WORK**

The electrical Contractor shall furnish all labor and materials necessary to install a complete wiring system as shown on the drawings. The Contractor shall connect certain items of equipment as covered herein and by other sections of the specifications and as indicated on the drawings.

**RULES AND REGULATIONS**

The Contractor for electrical work must be fully acquainted with all parts of this contract.

All work specified or required herein, shall be executed in full accordance with the rules and regulations of the National Electric Code, which shall be considered as included in these specifications and any special local or state requirements.

**GROUNDING**

The interior electrical system neutrals, raceways, and electrical equipment frames shall be completely and effectively grounded as required by the N.E.C., local codes, and as indicated and as specified. Green ground wires shall be interconnected for each receptacle in the circuit and then ultimately be connected to the appropriate panelboard. Grounding to conduit is prohibited. This conductor shall be sized in accordance with table 250-95 of the N.E.C.

**CODES**

All electrical work shall be done in accordance with local and state codes and the National Electrical Code, Latest Edition.

NO.	DATE	BY	REVISION

**NORFOLK SOUTHERN**

**OFFICE OF ARCHITECTURAL SERVICES**

**HARRISBURG, PA**  
**RENOVATIONS FOR MECHANICAL**  
**ELECTRICAL PLAN**

<b>DES:</b> WSG	<b>FILE NO.</b> BLD0031294	<b>SHEET</b>
<b>DR:</b> WSG	<b>DWGNO.</b> A-13006	<b>E-1</b>
<b>CH:</b> KDH	<b>DATE:</b> SEPTEMBER 16, 2013	