

USC SOM CRF DM SOM Clinical Education Bldg VAV Replacement COLUMBIA, SC H27-6094-L

A/E Project #14016.01

July 31, 2014
ISSUED FOR CONSTRUCTION

Prepared by:



ASSOCIATES, INC.

Architects/Engineers/Planners 1201 Main Street Columbia, South Carolina 29201-3299 tel. 803-256-0000 fax 803-255-7243

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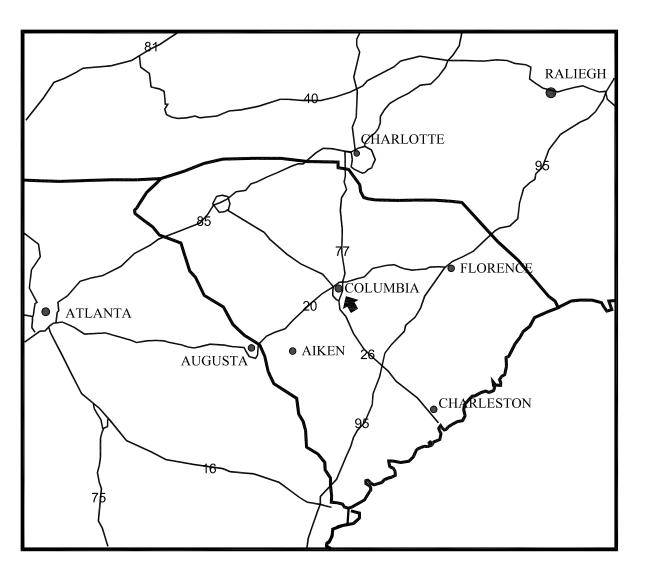
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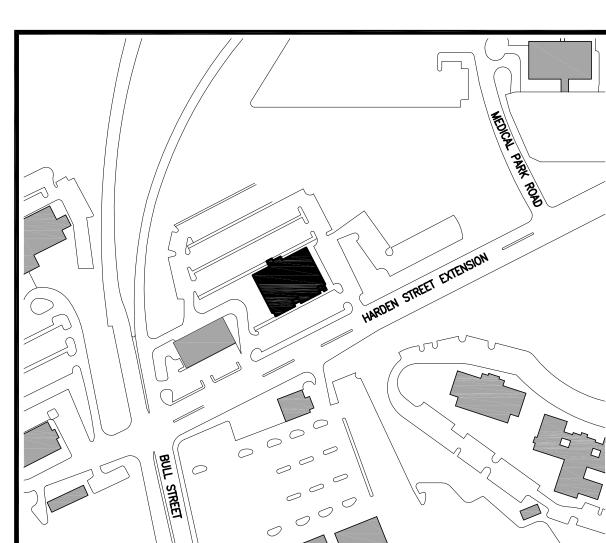
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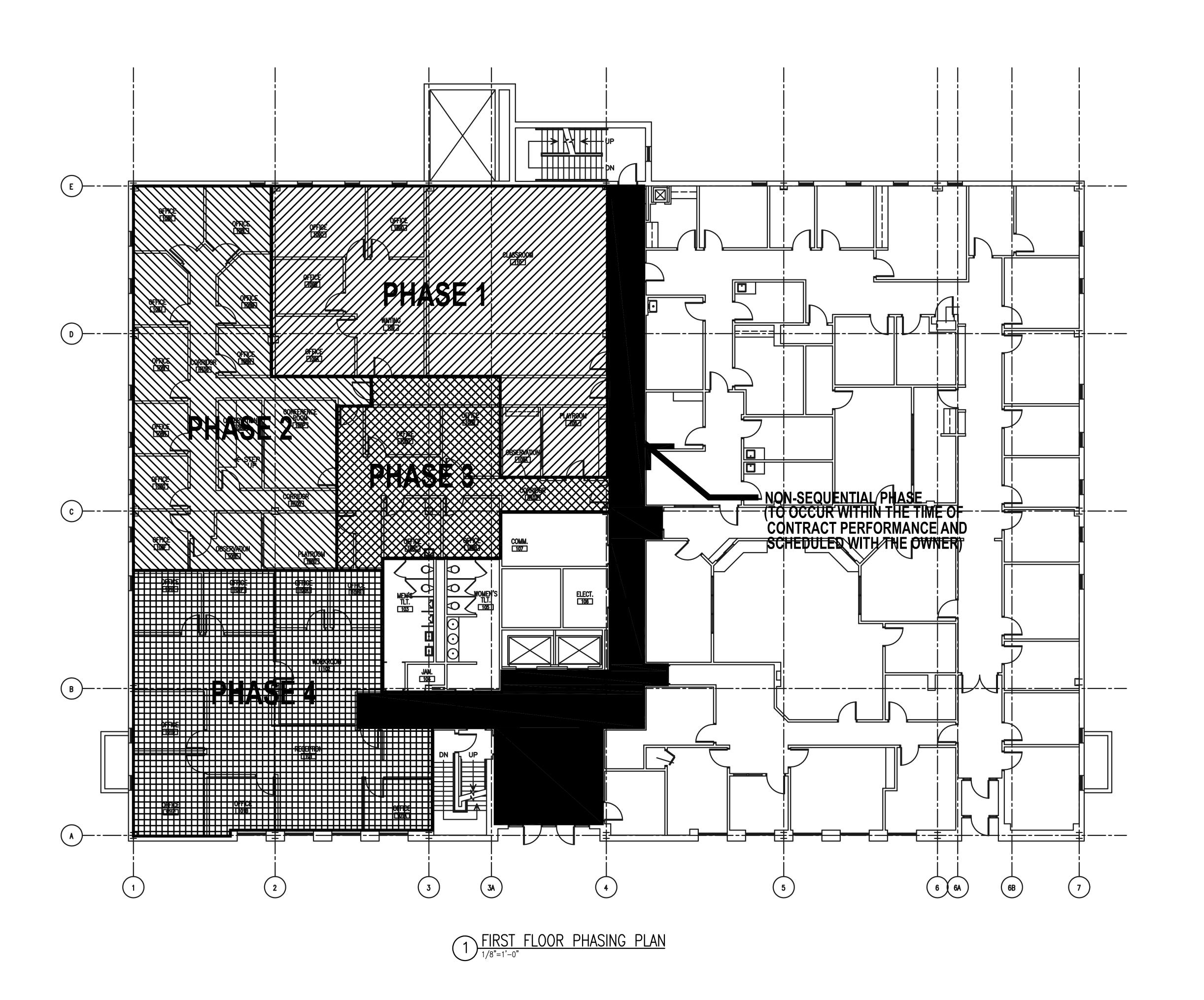
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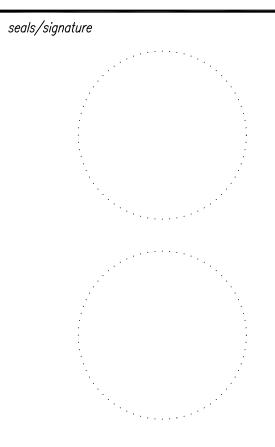
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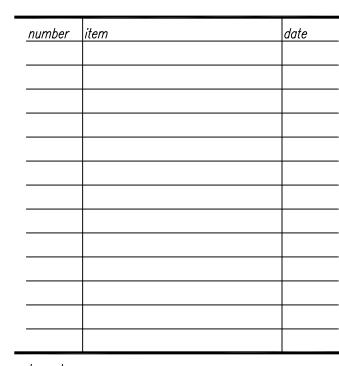
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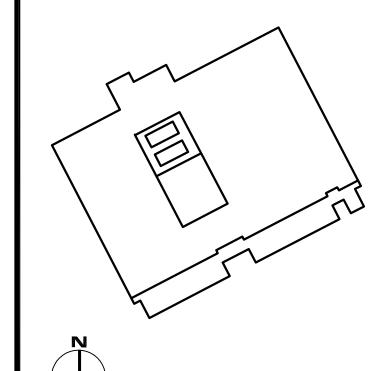
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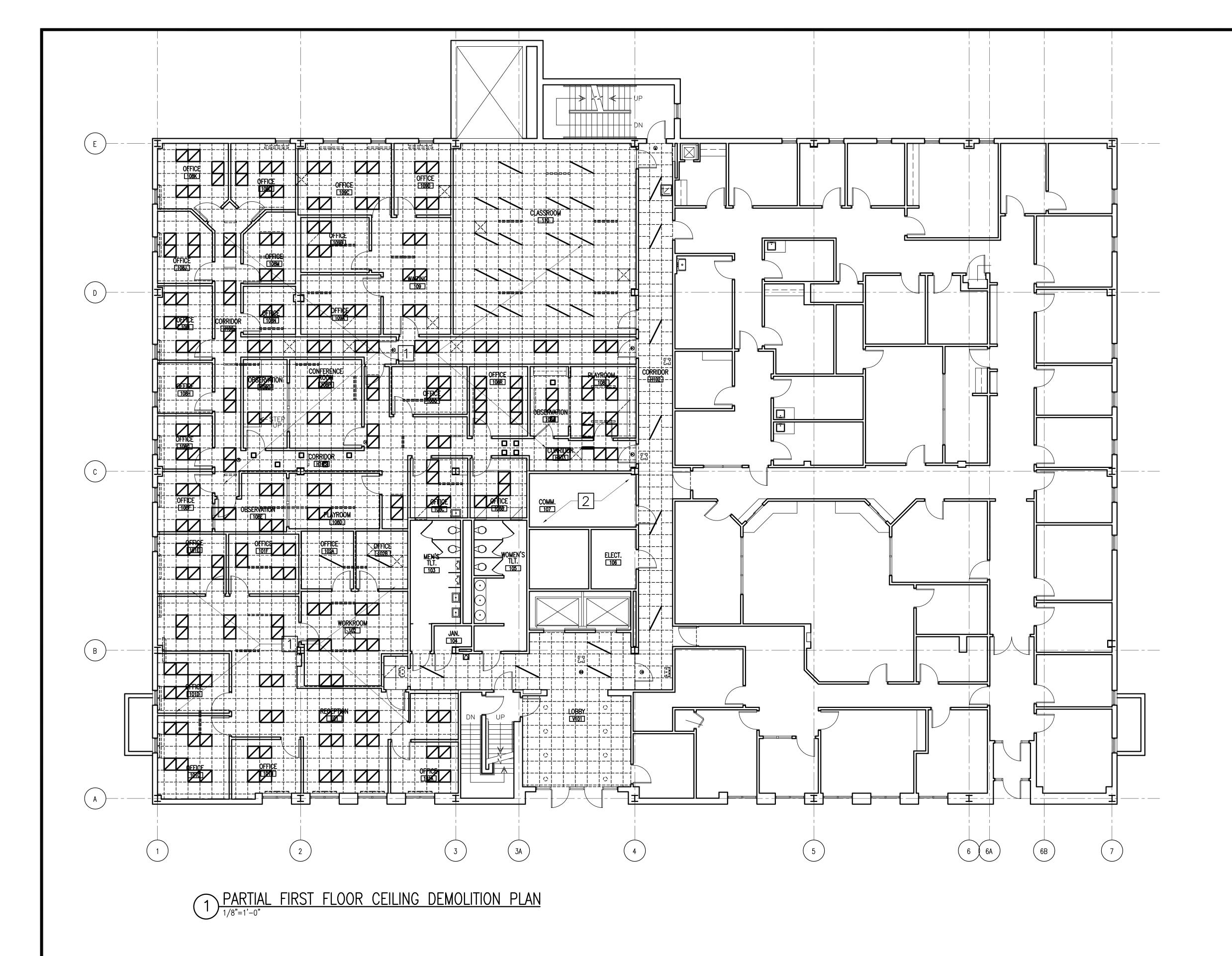




sheet title
FIRST FLOOR PHASING PLAN

sheet number

drawn by RTC checked by TMW



(2) GENERAL DEMOLITION NOTES

- 1. NOTIFY THE ARCHITECT IF DISCREPANCIES ARE DISCOVERED IN THE FIELD BETWEEN WHAT IS EXISTING AND WHAT IS SHOWN ON THE DRAWINGS. DO NOT PROCEED WITH DEMOLITION UNTIL THE DISCREPANCY IS RESOLVED BY THE ARCHITECT.
- CONTRACTOR SHALL CLOSELY COORDINATE DEMOLITION WITH NEW CONSTRUCTION PLANS.
- 3. NOT ALL DEMOLITION REQUIRED BY THE INSTALLATION OF NEW MECHANICAL AND ELECTRICAL SYSTEMS IS NECESSARILY INDICATED ON ARCHITECTURAL PLANS. COORDINATE ADDITIONAL DEMOLITION WORK ON MECHANICAL, ELECTRICAL, AND PLUMBING SHEETS.
- 4. WHEREVER DEMOLITION DAMAGES EXISTING CONSTRUCTION TO REMAIN, THE CONTRACTOR SHALL REPAIR THOSE SURFACES TO THE FINISH AND QUALITY OF ADJACENT SURFACES OR THE ORIGINAL
- 5. THE CONTRACTOR SHALL TAKE ALL NECESSARY PROVISIONS TO PROTECT THE EXISTING CONSTRUCTION TO REMAIN. CONSTRUCT DUST BARRIERS AS REQUIRED TO PREVENT THE PASSAGE OF DUST INTO OCCUPIED AREAS.
- 6. PROTECT EXISTING SPRAYED—ON FIREPROOFING DURING DEMOLITION AND RENOVATION WORK. REPAIR ANY DAMAGED FIREPROOFING WITH LIKE MATERIAL MATCHING REQUIRED FIRE RATING, U.L. APPROVED.
- 7. INSTALL TEMPORARY BRACING PRIOR TO REMOVAL OF EXISTING CEILING GRID AS NECESSARY TO INSURE PLUMBNESS AND INTEGRITY OF EXISTING PARTITIONS TERMINATING AT CEILING GRID.

(3) KEYED DEMOLITION NOTES

- REMOVE EXISTING CEILING IN ITS ENTIRITY, INCLUSIVE OF LIGHT FIXTURES, SUPPLY AND RETURN GRILLES AND DIFFUSERS, AND ALL OTHER DEVICES ATTACHED TO CEILING GRID OR CEILING TILES. PROVIDE TEMPORARY HANGERS AS NECESSARY TO MAINTAIN INTEGRITY AND OPERATION OF DEVICES TO BE RE—INSTALLED.
- REMOVE EXISTING GWB CEILING IN ITS ENTIRITY, INCLUSIVE OF LIGHT FIXTURES, SUPPLY AND RETURN GRILLES AND DIFFUSERS, SUPPORT FRAMING AND ALL OTHER DEVICES ATTACHED TO CEILING GRID OR CEILING TILES. PROVIDE TEMPORARY HANGERS AS NECESSARY TO MAINTAIN INTEGRITY AND OPERATION OF DEVICES TO BE RE—INSTALLED.

---- DASHED LINES INDICATE WORK TO BE DEMOLISHED.



Architects/Engineers/Planners 1201 Main Street, Suite 2100 Columbia, S.C. 29201 tel. 803-256-0000 fax 803-255-7243

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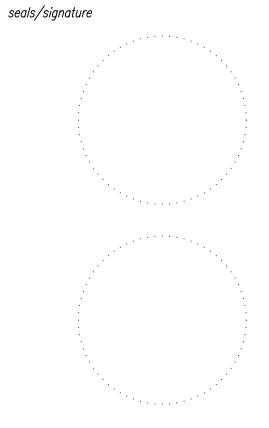
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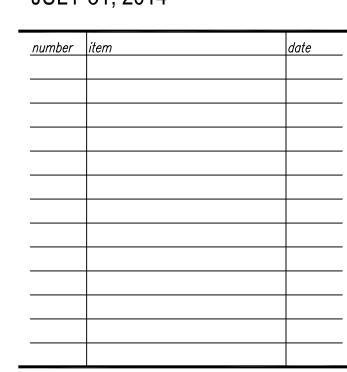
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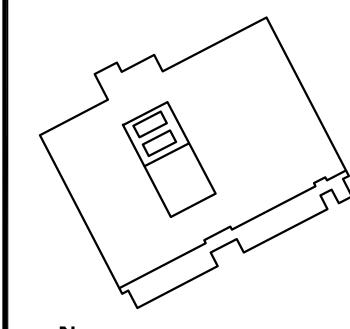
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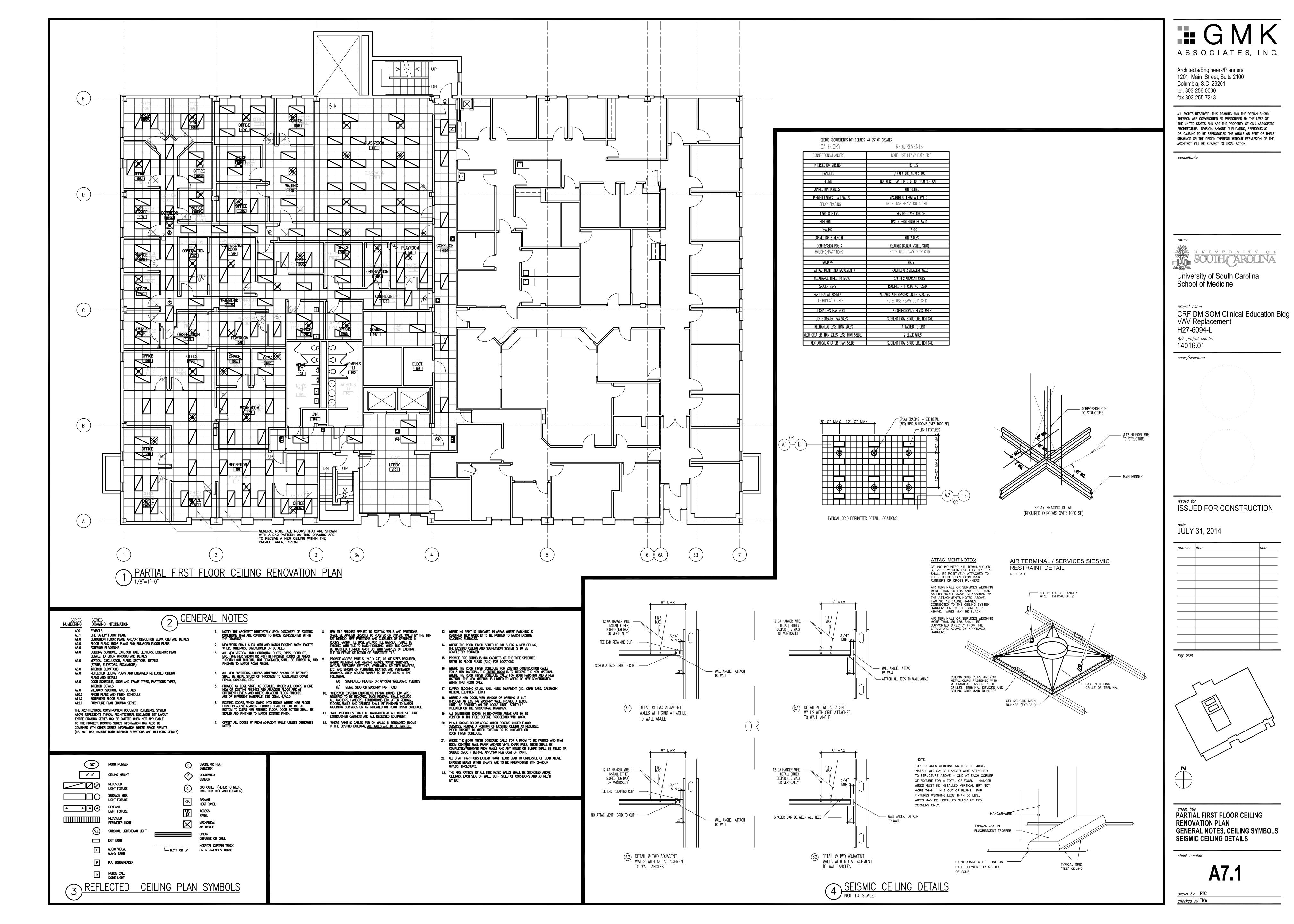


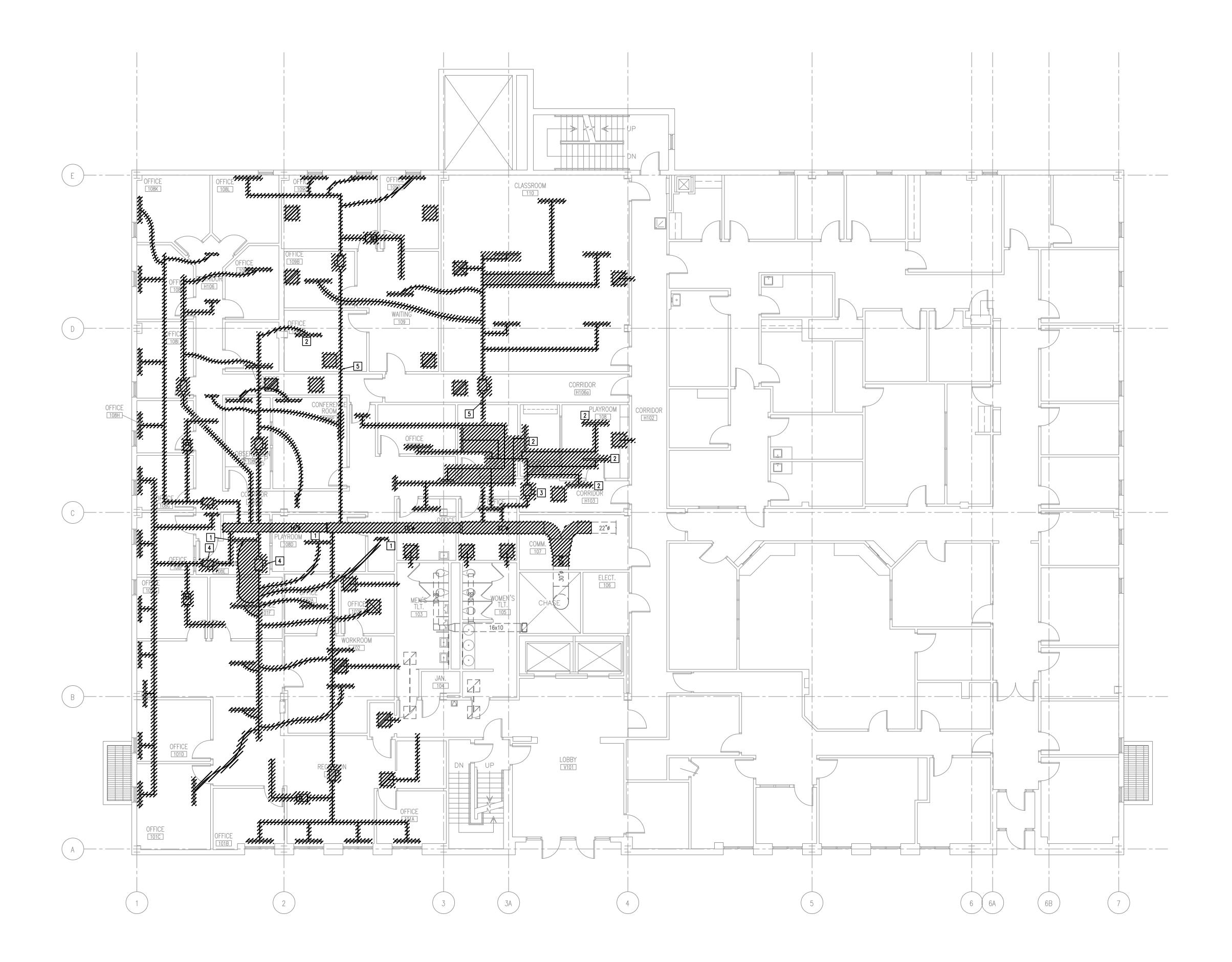


sheet title
PARTIAL FIRST FLOOR CEILING **DEMOLITION PLAN GENERAL AND KEYED DEMOLITION**

sheet number

drawn by RTC checked by TMW





DEMOLITION NOTES:

- 1 REMOVE GRILLE AND FLEX BACK TO DUCT MAIN PATCH DUCT IN PHASE 2 OF CONSTRUCTION. CAP AND INSULATE EXISTING TAKE-OFF AT DUCT MAIN.
- 2 REMOVE GRILLE AND FLEX BACK TO DUCT MAIN PATCH DUCT IN PHASE 1 OF CONSTRUCTION. CAP AND INSULATE EXISTING TAKE-OFF AT DUCT MAIN.
- 3 EXISTING VAV BOX SHALL REMAIN IN OPERATION UNTIL PHASE 3 OF CONSTRUCTION. DEMOLISH VAV BOX AND REMAIN DUCTWORK IN PHASE 3.
- REMOVE EXISTING VAV BOXES IN PHASE 4 OF CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH THE OWNER WHEN TO REMOVE EXISTING VAV BOXES.
- REMOVE EXISTING DUCT UP TO PHASE BOUNDARY AND CAP. CONTINUE REMOVAL OF EXISTING DUCT IN THE CORRESPONDING PHASE.

A S S O C I A T E S, I N C.

Architects/Engineers/Planners
1201 Main Street, Suite 2100
Columbia S C 20201

Columbia, S.C. 29201 tel. 803-256-0000 fax 803-255-7243

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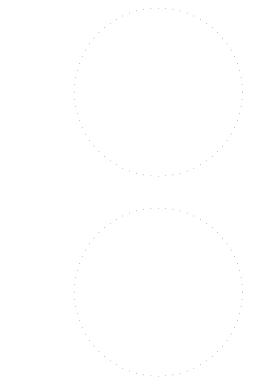


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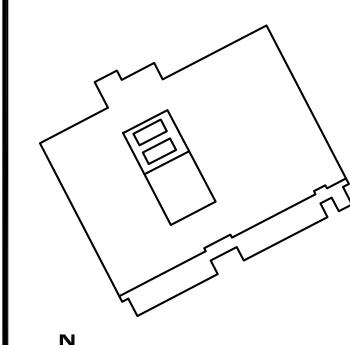


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PARTIAL FIRST FLOOR PLAN HVAC DEMOLITION PLAN

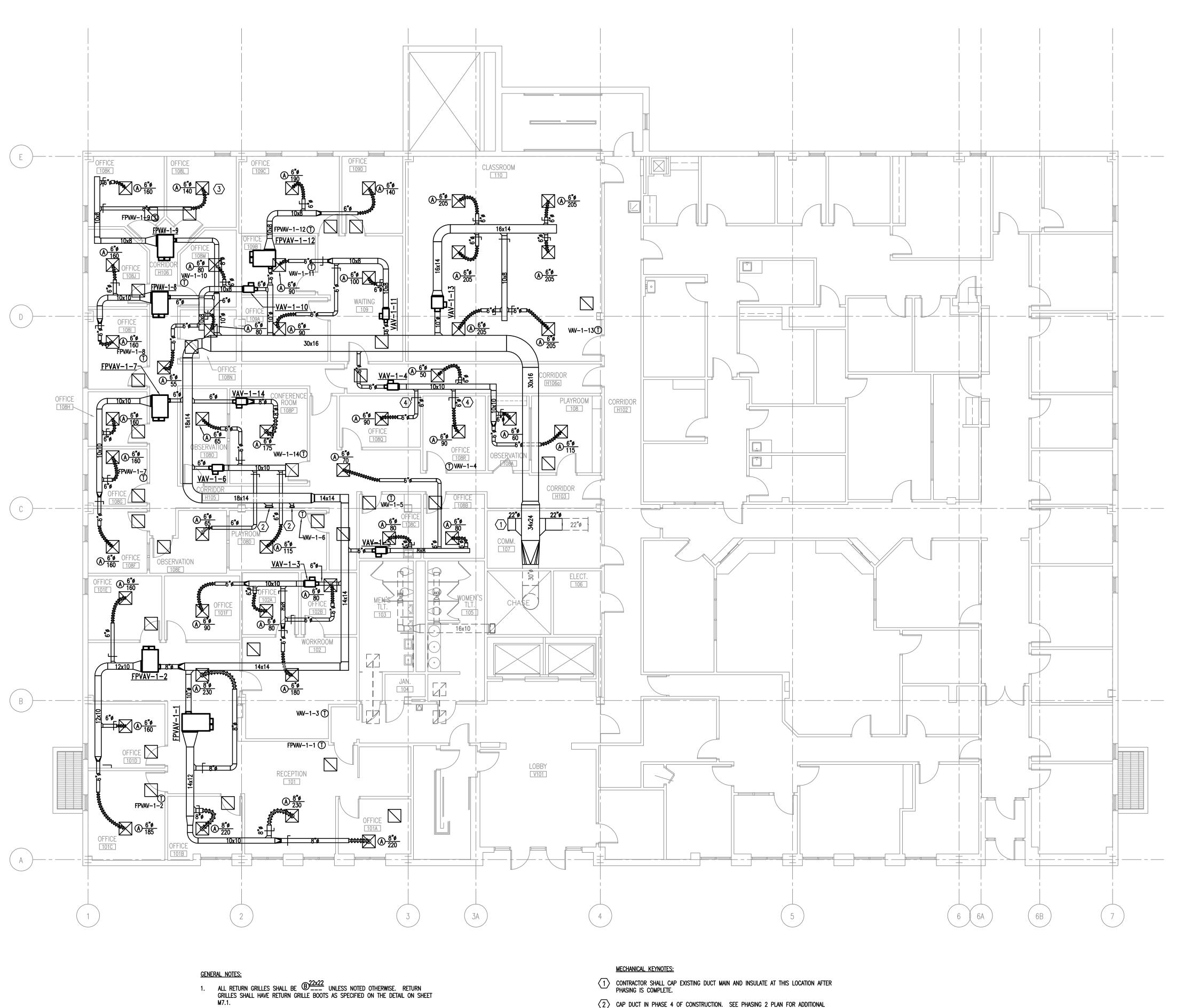
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M1.1

drawn by JDR
checked by JWB

DRAWING IS INTENDED TO SHOW EXTENT OF DEMOLITION REQUIRED. EXISTING AIR DISTRIBUTION SYSTEM SHALL REMAIN IN OPERATION. CONTRACTOR SHALL DEMOLISH EXISTING AIR DISTRIBUTION SYSTEM IN EACH PHASE. SEE PHASING DRAWINGS FOR ADDITIONAL INFORMATION.

1) FIRST FLOOR HVAC DEMOLITION PLAN



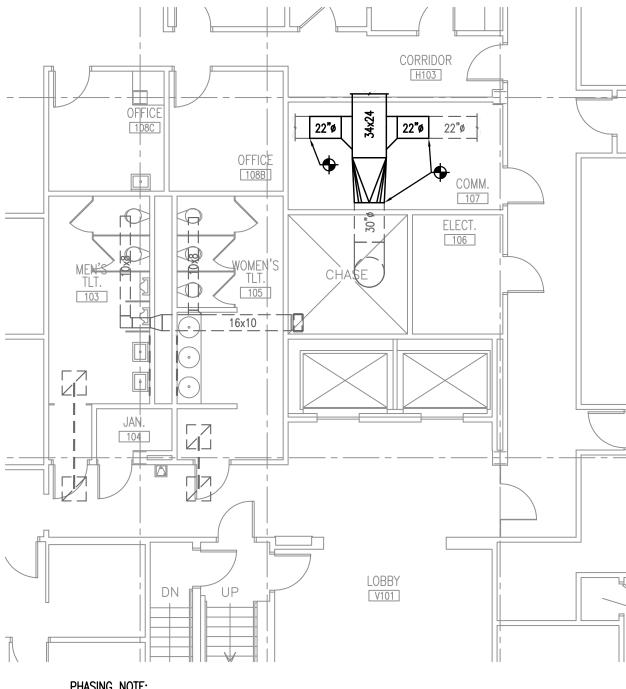
- (2) CAP DUCT IN PHASE 4 OF CONSTRUCTION. SEE PHASING 2 PLAN FOR ADDITIONAL INFORMATION.
 - CONTRACTOR SHALL PROVIDE SPOT COOLER IN OFFICE 108L DURING PHASE 1 OF
 - TEMPORARY CAP NEW DUCT DURING PHASE 1 OF CONSTRUCTION. REMOVE CAP AND CONNECT NEW GRILLES IN PHASE 3 OF CONSTRUCTION. REBALANCE BOX TO FINAL CFM

1) FIRST FLOOR — HVAC RENOVATION PLAN

CONTRACTOR SHALL TEST AND BALANCE NEW VAV BOXES IN EACH PHASE OF CONSTRUCTION.

3. CONTRACTOR SHALL DEMOLISH AND INSTALL NEW DUCTWORK, BOXES, AND CONTROLS PER PHASING PLAN. SEE ARCHITECTURAL DRAWINGS FOR PHASING PLANS.

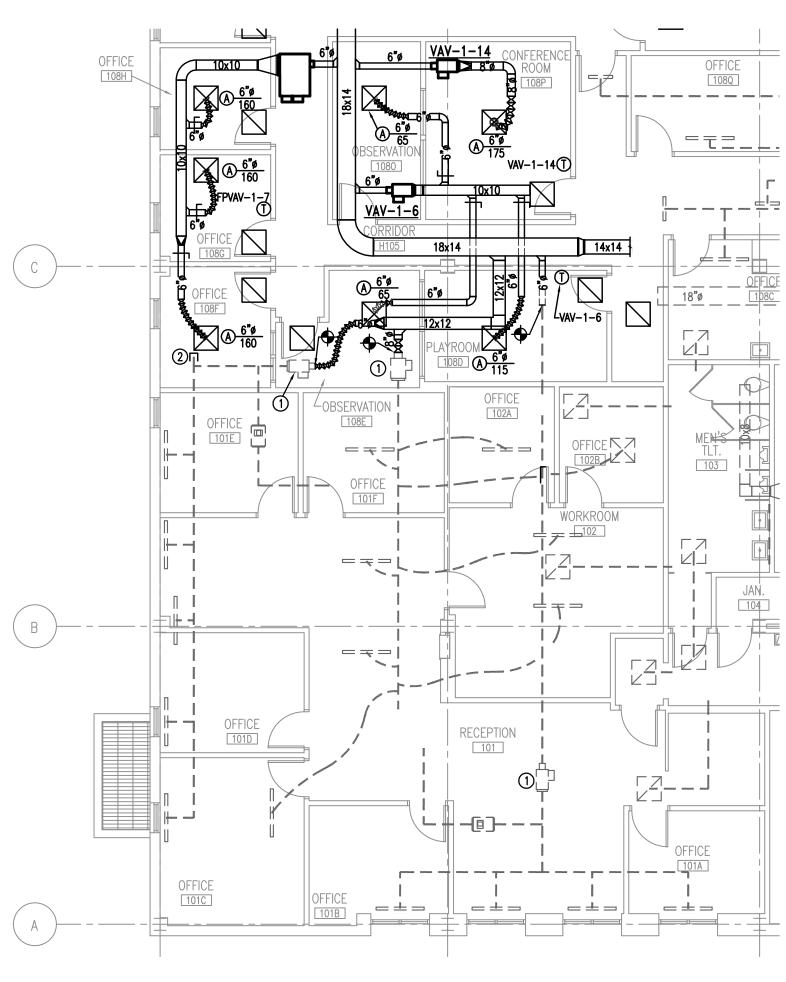
> DRAWING IS INTENDED TO SHOW EXTENT OF RENOVATION REQUIRED. EXISTING AIR DISTRIBUTION SYSTEM SHALL REMAIN IN OPERATION. SEE PHASING DRAWINGS FOR ADDITIONAL INFORMATION.



PHASING NOTE:

EXISTING DUCT DISTRIBUTION SYSTEM SHALL REMAIN IN OPERATION AND REMOVED AS EACH PHASE IS COMPLETED. REFER TO PHASING DRAWINGS FOR ORDER OF PHASING SO EXISTING AIR DISTRIBUTION SYSTEM CAN REMAIN IN OPERATION. CONTRACTOR SHALL REMOVE EXISTING DUCT AS REQUIRED TO INSTALL NEW DUCTWORK AS INDICATED ABOVE. THIS WORK SHALL OCCUR WHEN BUILDING IS UNOCCUPIED.

2 EXISTING DUCT TIE-IN ON FIRST FLOOR



PHASEING NOTES:

- 1 TEMPORARY CONNECT EXISTING VAV BOXES SERVING PHASE 4 DURING PHASE 2 OF CONSTRUCTION TO DEMOLISH EXISTING DUCT MAIN.
- 2 CAP EXISTING LOW PRESSURE DUCT IN PHASE 2 AT LOCATION SPECIFIED.

TEMPORARY VAV BOX CONNECTIONS — PHASE 2

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Architects/Engineers/Planners 1201 Main Street, Suite 2100 Columbia, S.C. 29201 tel. 803-256-0000 fax 803-255-7243

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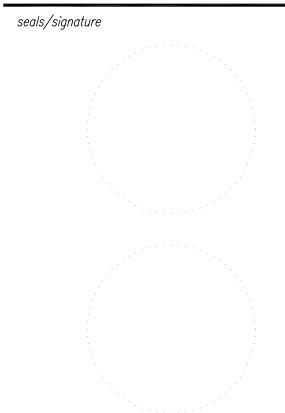
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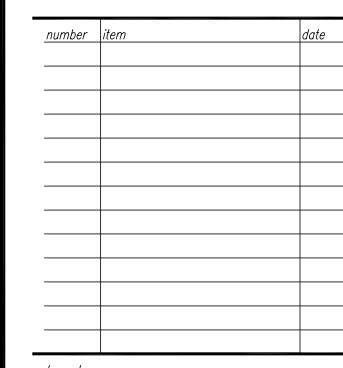
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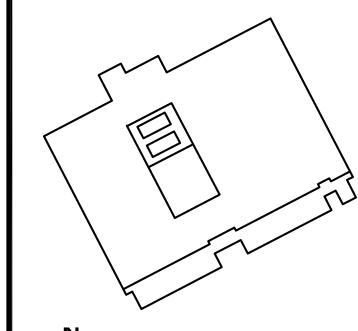
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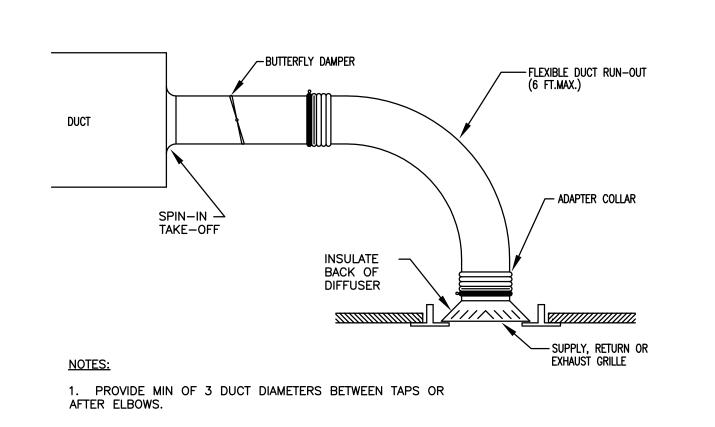


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PARTIAL FIRST FLOOR PLAN HVAC RENOVATION PLAN

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M2.1

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FLEXIBLE DUCT CONNECTION TO GRIL NTS

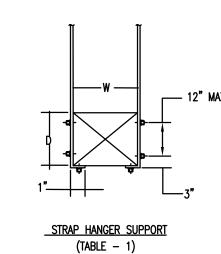
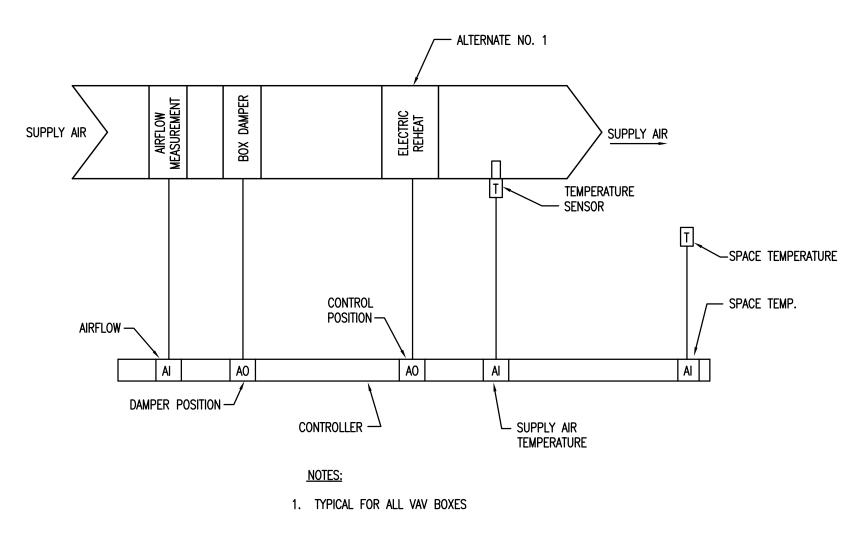
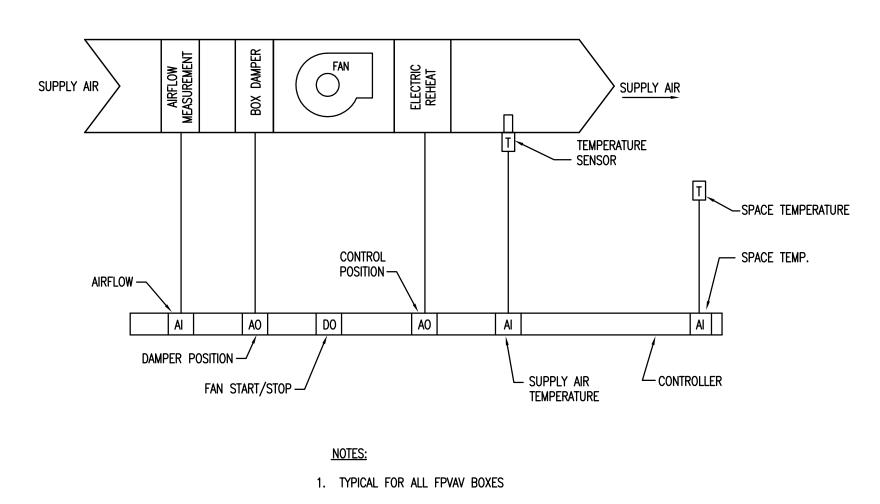


TABLE-	<u>-1</u> Strap han	NGERS (PAIR) S	SPACED
W + D MAX.	10'-0" MAX.	8'-0" MAX.	5'-0" OR LESS
72"	1" x 22Ga.	1" x 22Ga.	1" x 22Ga.
96"		1" x 20Ga.	1" x 22Ga.
120"		1" x 18Ga.	1" x 22Ga.
168"			1" x 18Ga.
192"			1" x 16Ga.

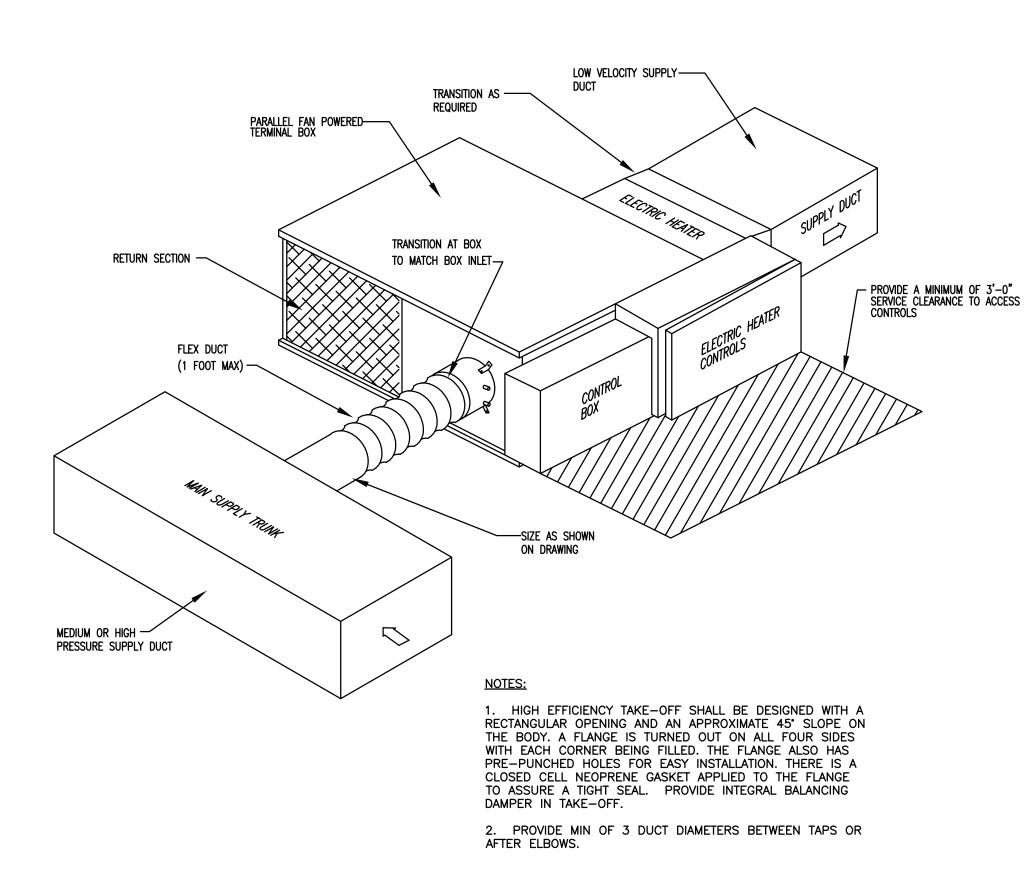
2 DUCT AND EQUIPMENT SUPPORT DETAILS



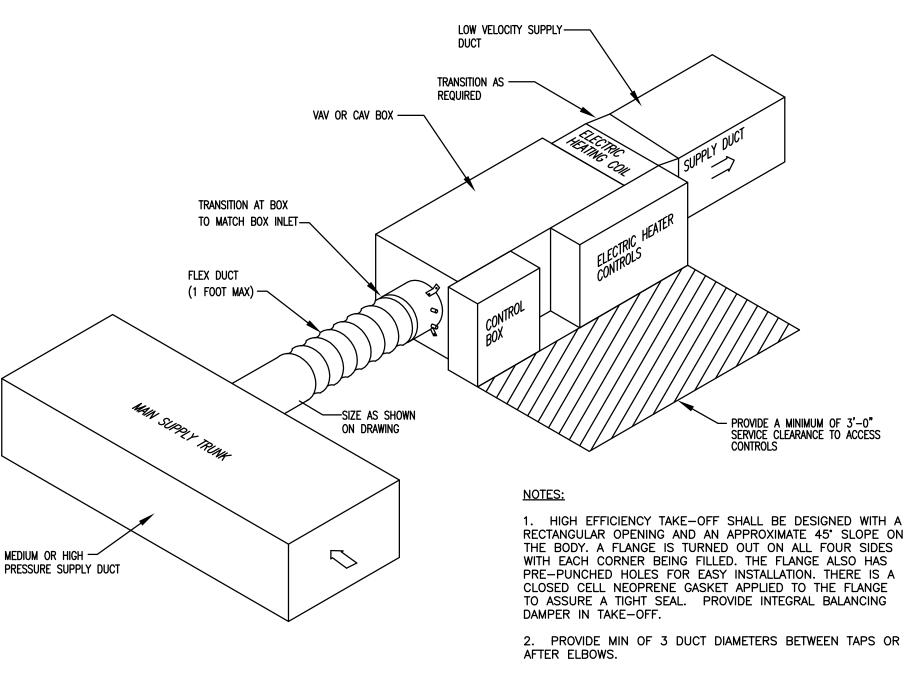
4 TERMINAL BOX CONTROL DIAGRAM



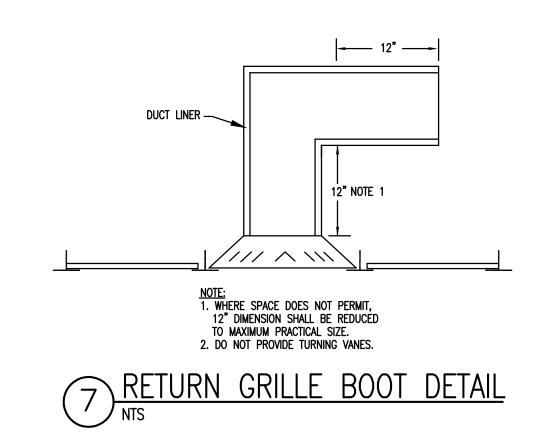
6 FAN POWERED TERMINAL BOX CONTROL DIAGRAM



3 PARALLEL FAN POWERED BOX



5 SHUT OFF TYPE VAV OR CAV DETAIL



TAG	DESCRIPTION	NECK	MODULE SIZE	MOUNT	CONSTR.	MFGR	MODEL	NOTES
Α	SQUARE PLAQUE CEILING SUPPLY	AS SHOWN	24x24	Lay-In	ALUMINUM	PRICE	SERIES ASPD	2,3,5
В	PERFORATED CEILING RETURN/EXHAUST	AS SHOWN	24x24	LAY-IN	ALUMINUM	PRICE	APDDR	3

TAG NO.	MAXIMUM	MINIMUM	MIN. INLET	ELECT	RIC HEAT	PRIMARY NC @ 1.0" SP	iņlet size	ELECTRICAL	MANUFACTURER	MODEL NO.	NOTE
	BOX CFM	DX CFM BOX CFM	S.P. (W.C.)	KW	STEPS	DISCH/RAD.	(INCHES)	(VOLTS/PHASE)	WINDINGIONEN	MODEL NO.	NOIL
VAV-1-3	430	150	1.0	-	-		6	120/1	TRANE	VCCF	1.2
VAV-1-4	405	120	1.0	-	-		6	120/1	TRANE	VCCF	1.2
VAV-1-5	230	70	1.0	-	-		6	120/1	TRANE	VCCF	1.2
VAV-1-6	420	125	1.0	-	-		6	120/1	TRANE	VCCF	1.2
VAV-1-10	215	65	1.0	-	-		6	120/1	TRANE	VCCF	1.2
VAV-1-11	280	85	1.0	-	-		6	120/1	TRANE	VCCF	1.2
VAV-1-13	1230	370	1.0	-	-		10	120/1	TRANE	VCCF	1.2
VAV-1-14	175	150	1.0	-	-		6	120/1	TRANE	VCCF	1.2

TAO NO	MAXIMUM	MINIMUM	MIN. INLET	ELECTI	RIC HEAT	PRIMARY NC @ 1.0" SP	inlet size	ELECTRICAL	MANUFACTURED	MODEL NO	NOTE				
IAG NO.	TAG NO.	BOX CFM	BOX CFM	DX CFM BOX CFM	BOX CFM	OX CFM BOX CFM	S.P. (W.C.)	KW	STEPS	DISCH/RAD.	(INCHES)	(VOLTS/PHASE)	MANUFACTURER	MODEL NO.	NOTE
VAV-1-3	430	180	1.0	2.0	2		6	120/1	TRANE	VCEF	1.2				
VAV-1-4	405	150	1.0	1.5	2		6	120/1	TRANE	VCEF	1.2				
VAV-1-5	230	150	1.0	1.5	2		6	120/1	TRANE	VCEF	1.2				
VAV-1-6	420	150	1.0	1.5	2		6	120/1	TRANE	VCEF	1.2				
VAV-1-10	215	150	1.0	1.5	2		6	120/1	TRANE	VCEF	1.2				
VAV-1-11	280	150	1.0	1.5	2		6	120/1	TRANE	VCEF	1.2				
VAV-1-13	1230	370	1.0	4.5	3		10	208/3	TRANE	VCEF	1.2				
VAV-1-14	175	150	1.0	1.5	2		6	120/1	TRANE	VCEF	1.2				

TAG NO.	MAXIMUM	HEATING	MIN. INLET	1	FAN	,	ELECTF	RIC HEAT	INLET SIZE ELECTRICAL		MANUFACTURER	MODEL NO.	NOTE
IAG NU.	BOX CFM	VALVE CFM	S.P. (W.C.)	CFM	ESP	HP	KW	STEPS	(INCHES)	(VOLTS/PHASE)	MANOLACIONEN	MODEL NO.	NOTE
FPVAV-1-1	900	270	1.0	630	0.5	1	7.5	2	10	277/1	TRANE	VPEF	1,2,4,5,6
FPVAV-1-2	595	180	1.0	415	0.5	1/3	5.0	2	8	277/1	TRANE	VPEF	1,2,4,5,6
FPVAV-1-7	480	145	1.0	335	0.5	1/3	4.0	2	6	277/1	Trane	VPEF	1,2,4,5,6
FPVAV-1-8	320	95	1.0	225	0.5	1/3	2.5	2	6	277/1	TRANE	VPEF	1,2,4,5,6
FPVAV-1-9	300	90	1.0	210	0.5	1/3	2.5	2	6	277/1	TRANE	VPEF	1,2,4,5,6
FPVAV-1-12	330	100	1.0	230	0.5	1/3	3.0	2	6	277/1	TRANE	VPEF	1,2,4,5,6

	MECHANICAL DEMOLITION NOTES
1.	DRAWINGS SHOW GENERAL INTENT OF DEMOLITION. QUANTITIES, LOCATIONS, SIZES AND EQUIPMENT ARE SHOWN TO INDICATE TYPE OF SYSTEM INSTALLED AND DOES NOT NECESSARILY REPRESENT EXACT CONDITIONS. CONTRACTOR SHALL FIELD VERIFY BEFORE BIDDING.
^	DEMONITION OF FOURDMENT CYCTEMS AND COMPONENTS CHAIL INCLUDE ALL

- DEMOLITION OF EQUIPMENT, SYSTEMS, AND COMPONENTS SHALL INCLUDE ALL SUPPORTS, PADS, HANGERS, INSULATION, CONTROLS, STARTERS, ACCESSORIES, AND APPURTENANCES NOT REQUIRED FOR THE INSTALLATION OF THE NEW SYSTEM.
 WHEN PARTIAL DEMOLITION OF A SYSTEM IS INDICATED, THE PART OF THE SYSTEM
- 3. WHEN PARTIAL DEMOLITION OF A SYSTEM IS INDICATED, THE PART OF THE SYSTEM SHOWN TO REMOVED SHALL BE REMOVED TO THE ACTIVE MAIN OR BRANCH IF NOT REQUIRED FOR THE INSTALLATION OF THE NEW SYSTEM. THE ACTIVE MAIN OR BRANCH SHALL BE REPAIRED TO MATCH NEW INSTALLATION AS MUCH AS PRACTICAL. IF SYSTEM IS INSULATED, INSULATION SHALL BE PATCHED AND FINISHED REPAIR (IE: VAPOR BARRIER, COATING, ETC.)
- 4. PATCHING OF BUILDING STRUCTURES AND FINISHES SHALL PERTAIN TO ALL WALLS, FLOORS, SLABS, ROOFS, STRUCTURES, AND FINISHES. PATCHES SHALL MATCH EXISTING STRUCTURE, FIRE RATING AND FINISH.
- 5, ALL OPENINGS CREATED BY THE ABANDONMENT OR REMOVAL OF EXISTING SYSTEMS SHALL BE PATCHED.
- 6. ALL WALLS, ROOFS, SLABS, STRUCTURES, AND FINISHES WHOSE FINISH IS IRREGULAR DUE TO THE REMOVAL OF SYSTEMS, SUPPORTS, PADS, ACCESSORIES, AND APPURTENANCES SHALL BE PATCHED.

 7. ALL EINISHES SHALL MATCH EXISTING FINISH. WHEN FINISH ORMOUSLY DOES NOT.
- ALL FINISHES SHALL MATCH EXISTING FINISH. WHEN FINISH OBVIOUSLY DOES NOT MATCH EXISTING FINISH SUCH AS SHADE OF PAINT, AGE OF FINISH, ETC., THE FINISH SHALL BE APPLIED TO THE PATCH AND THE SURFACE IN ALL DIRECTIONS UNTIL A SURFACE CHANGE OF A MINIMUM OF 45 DEGREES.
 REMOVAL OF SYSTEMS SHALL INCLUDE COMPLETE SYSTEM WHENEVER PRACTICAL. IF NOT, SYSTEM (IE: PIPE, CONDUIT, ETC.) SHALL BE REMOVED TO 1 INCH BELOW SURFACE.

MECHANICAL GENERAL NOTES

DO NOT SCALE DRAWINGS; SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DOORS, WINDOWS, CEILING, DIFFUSERS, ETC.
 ALL DUCTWORK INSULATION SHALL BE RUN CONTINUOUSLY THROUGH FLOORS, ROOFS AND PARTITIONS EXCEPT WHERE PROHIBITED BY FIRE CODES.

3. LOCATE ALL THERMOSTATS 4'-0" ABOVE FINISH FLOOR; ALIGN WITH LIGHT SWITCHES.

ALL DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS TO AVOID INTERFERENCE.
 CORRECT SETTINGS ON ALL BALANCING FITTINGS SHALL BE PERMANENTLY MARKED.
 AIR DISTRIBUTION SYSTEMS WITH MORE THAN ONE BRANCH, OR MULTIPLE OUTLETS ON A BRANCH, SHALL HAVE VOLUME DAMPERS TO BALANCE AIR FLOWS. SPIN-IN FITTINGS ARE PERMITTED FOR CONNECTING FLEX DUCT TO BRANCH OR TRUNK DUCTS WHERE FLEX DUCTS ARE INDICATED. IF FLEX DUCT CANNOT BE CONNECTED WITH A SPIN-IN, A HARD DUCTED TAKEOFF MUST BE PROVIDED.

7. HIGH EFFICIENCY TAKEOFFS SHALL BE USED ON ALL HARD DUCTED SUPPLY BRANCHES

8. PROVIDE ALL TRANSITIONS REQUIRED FOR INSTALLATION OF DUCT, EXHAUST FANS, AND ALL OTHER EQUIPMENT AND APPURTENANCES.

9. ALL DUCT IS GALVANIZED SHEET METAL EXCEPT AS NOTED.10. DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.

11. AIR DISTRIBUTION UNITS SHALL HAVE TRIM REQUIRED FOR FINISHED SERVICE.

	ABBF	REVIATION	S
A/C ABV AFF BHP CFM DD DB EAT ELEC EWB EXH FD FL HP LAT LWB MAX	Air Conditioning Above Above Finished Floor Brake Horsepower Cubic Feet Per Minute Duct Smoke Detector Dry Bulb Temperature Entering Air Temperature Electric or Electrical Entering Air Wet Bulb Exhaust Fire Damper Floor Horsepower Leaving Air Temperature Leaving Air Wet Bulb Maximum	N/A NIC NTS OBD OD PD RA RET RH SA SHT SP SPEC SPL T TEMP TSTAT TYP	Not Applicable Not in Contract Not To Scale Opposed Blade Damper Outside Diameter Pressure Drop Return Air Return Relative Humidity Supply Air Sheet Static Pressure Specifications Supply Thermostat Temperature Thermostat Typical

HVAC LEGEND SUPPLY DIFFUSER RETURN DIFFUSER EXHAUST DIFFUSER
RETURN DIFFUSER
FYHALIST DIFFLISER
EXTROST DITTOSEN
FIRE DAMPER IN FIRE—RATED WALL
FIRE/SMOKE DAMPER IN FIRE-RATED WALL
DUCT SMOKE DETECTOR
THERMOSTAT
PRESSURE SENSOR
KEY SWITCH
RUN-OUT/FLEXIBLE DUCT
CHANGE IN DUCT ELEVATION (DUCT RISE UNLESS SPECIFIED)
DUCT TURNING DOWN
DUCT TURNING UP
GRILLE, LOUVER——(A) 6"Ø 100 PEAK LOAD CFM

WB Wet Bulb Temperature



ASSOCIATES, INC.

Architects/Engineers/Planners 1201 Main Street, Suite 2100 Columbia, S.C. 29201 tel. 803-256-0000 fax 803-255-7243

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UNIVERSITY OF SOUTH CAROLINA

University of South Carolina
School of Medicine

CRF DM SOM Clinical Education Bldg VAV Replacement H27-6094-L

A/E project number 14016.01

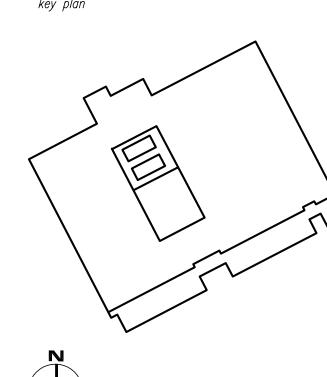
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HVAC LEGENDS, NOTES, ABBREVIATIONS, & DETAILS

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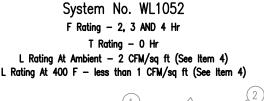
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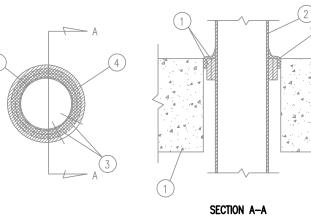
System No. W-L-1001 F Rating - 1, 2, 3 and 4 Hr (See items 2 and 3) T Rating - 0, 1, 2, 3, and 4 Hr (See item 3) L Rating at Ambient — less than 1 CFM/sq. ft. L Rating at 400° F — less than 1 CFM/sq. ft. SECTION A-A

- Wall Assembly The 1, 2, 3, or 4 hour fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features: A Studs — Wall framing may consist of either wood or steel channel studs. Wood studs (max 2 hour fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. 0C with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min
- 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC. B. Wallboard, Gypsum* — Nom 1/2 or 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam
- of opening is 13-1/2 in. 2. Pipe or conduit - Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe, nom 12 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) Class 50 (or heavier) ductile iron pressure pipe, nom 6 in. (or smaller) steel conduit, nom 4 in. diam (or smaller) steel electrical metallic tubing, nom 6 in. diam (or smaller) Type L or (or heavier) copper tubing or nom 1 in. diam (or smaller) flexible steel conduit. When copper pipe is used, max F Rating of firestop system (Item 3) is 2 hr. Steel pipes or conduits larger than nom 4 in. diam may only be used in walls constructed using steel channel studs. A max of one pipe or conduit is permitted in the firestop system. Pipe or conduit to be installed near center of stud cavity width and to be rigidly supported on both sides of wall assembly.
- 3. Fill, Void or Cavity Material* Caulk Caulk fill material installed to completely fill annular space between 3. Fill, void or Cavity Material* — Caulk — Caulk fill material installed to completely fill annular space between pipe or conduit and gypsum wallboard and with a min 1/4 in. diam bead of caulk applied to perimeter of pipe or conduit at its egress from the wall. Caulk installed symmetrically on both sides of wall assembly. The hourly F Rating of the firestop system is DEPENDENT upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

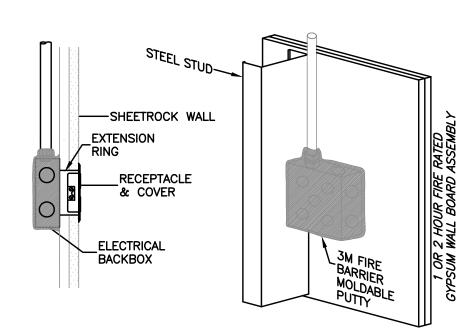
Max Pipe or conduit Diam, In.	Annular Space, In	F Rating, Hr	T Rating, Hr
1	0 to 3/16 1/4 to 1/2	1 or 2 3 or 4	0+, 1 or 2 3 or 4
6 12	0 to 1-1/2 1/4 to 1/2 3/16 to 3/8	1 or 2 3 or 4 1 or 2	0

+When copper pipe is used, T Rating is 0 hr. Minnesota Mining & Mfg. Co. — CP 25WB+. *Bearing the UL Classification Marking.





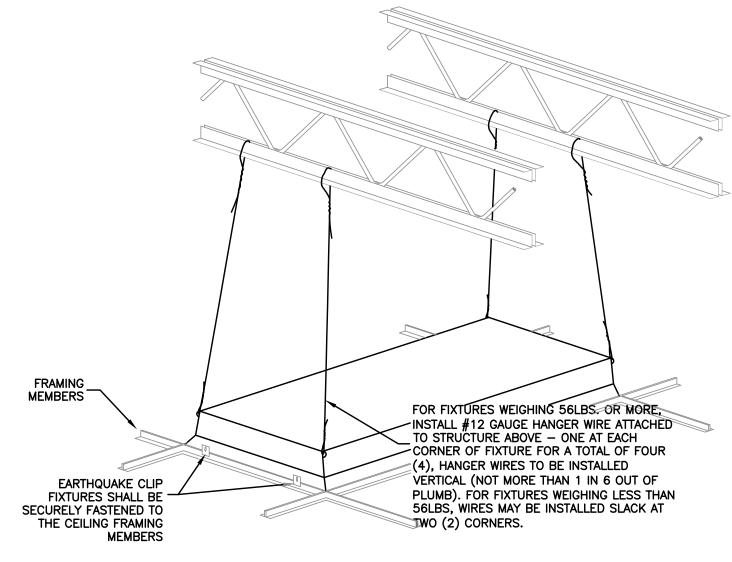
- 1. Floor or Wall Assembly Lightweight or normal weight (100-150 pcf) concrete. Min. thickness of concrete floor or wall assembly is 4-1/2 in. for 2 and 3 hr F Ratings and 5-1/2 in. for 4 hr F Rating. Wall
- may also be constructed of any UL Classified Concrete Blocks*. Max diam of circular opening is 13-1/2 in. See Concrete Blocks (CAZT category in the Fire Resistance Directory for names of manufacturers. 2. Steel Pipe or Conduit - Nom 12 in. diam (or smaller) Schedule 10 or heavier steel pipe, nom 6 in. diam (or smaller) steel conduit or nom 4 in. diam (or smaller) steel EMT. Max one pipe or conduit per opening, centered in opening. Min clearance between pipe or conduit and sides of through opening is 1/4 in. Max clearance between pipe or conduit and sides of through opening is 1-3/4 in for 2 hr F rating and 3/4 in. for 3 and 4 hr F ratings. Pipe or conduit to be rigidly supported on both sides of floor or
- 3. Fill, Void or Cavity Material* Wrap Strip Nom 1/4 in. thick intumescent elastomeric material faced on one side with aluminum foil, supplied in 2 in. wide strips. For the 2 and 3 hr F Ratings, min 1 in. wide strip(s) wrapped around pipe/conduit (foil side exposed) until OD of wrap strip is equal to or max 3/16 in. less than ID of circular through opening. Wrap strip tightly bound with steel tie wire or pressure sensitive tape and slid into through opening such that the top edge of the wrap strip(s) is recessed 1/4 in from the top surface of floor or, in wall assemblies, such that the wrap strip(s) is centered in the wall thickness. For the 4 hr F Rating, nom 2 in. wide strip(s) wrapped around pipe/conduit (foil side exposed) on each side of the floor or wall assembly until OD of wrap strip is equal to or max 3/16 in. less than ID of circular through opening. Wrap strip tightly bound with steel tie wire or pressure sensitive tape and slid into through opening on each side of floor or wall assembly such that the exposed edges are recessed 1/4 in. from the floor or wall surfaces.
- Minnesota Mining & Mfg. Co. Types FS—195, FS—195+
 4. Fill, Void or Cavity Material* Caulk Nom 1/4 in. thickness of caulk to be applied to the exposed edges of the wrap strip and to fill all voids between the pipe/conduit and the periphery of the through opening. For 2 or 3 hour F rating in floor assemblies, caulk to be installed flush with top surface of floor. For wall assemblies and for the 4 hour F Rating in floor assemblies, caulk to be applied on both
- Minnesota Mining & Mfg. Co. Types CP—25 S/L, CP—25 N/S, CP—25 WB, CP—25 WB+. (Note: L Ratings apply only when Type CP—25 WB+ caulk is used.) *Bearing the UL Classification Marking.



WALL OPENING PROTECTION DETAIL NTS - UL SECTION CLIV

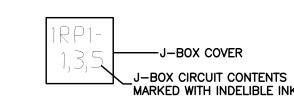
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. 5400 S 122ND EAST AVE, TULSA OK 74146 FS Pads, for use with max 4 by 4 in. flush device UL Listed Metallic Outlet Boxes in 1 and 2 hr. fire rated gypsum wallboard wall assemblies framed with min 3-5/8 in. wide steel studs and constructed as specified in the individual U400 Series Wall and Partition Designs in the Fire Resistance Directory. Min 1/8 in. thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and completely seal against the stud within the stud cavity. When moldable putty pad outlet box protective material is used on boxes on both sides of wall as directed, the horizontal seperation between outlet boxes on opposite sides of the wall may be less than 24 in. provided that the boxes are not installed back to back. MINNESOTA MINING & MFG CO 3M CENTER, ST PAUL MN 55144 Type MPP-4S+ moldable putty pads for use with max 4-11/16 by 4-11/16 in. flush device UL listed Metallic Outlet Boxes in fire rated gypsum wallboard wall assemblies framed with min 3-1/2 in. wide wood

or steel studs and constructed as specified in the individual U300 or U400 Series Wall and Partition Designs in the Fire Resistance Directory. Outlet boxes secured to wood studs by means of two nailing tabs in conjunction with nails supplied with the outlet box.



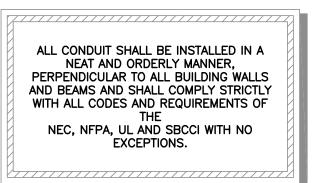
2 RECESSED LIGHTING FIXTURE DETAIL
NTS

WHERE FIXTURES ARE HUNG IN A FIRE RATED CEILING, THE CEILING CONTRACTOR SHALL PROVIDE FIRE PROTECTION AS SHOWN IN UL FIRE RESISTANCE BOOK AS DESIGN NOTE P230 OR P510.



ALL EXPOSED J-BOXES, NOT INCLUDING ELECTRICAL OR MECHANICAL ROOMS, SHALL BE MARKED ON THE INSIDE COVER. ALL OTHERS SHALL BE MARKED ON THE OUTSIDE. ALL J-BOXES CONTAINING FIRE ALARM CIRCUITS SHALL BE PAINTED RED. ALL J-BOXES CONTAINING SOUND CIRCUITS SHALL BE J-BOX COVER DETAIL

NTS



ELECTRICAL CYMROL COHERILE

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
LP1-2,4 LP1-2,4 ESSPOT STORAGE 1188	BRANCH CIRCUIT RACEWAY. RUN CONCEALED IN CEILING OR WALLS. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MAORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE. BRANCH CIRCUIT RACEWAY. RUN IN AND/OR UNDER SLAB. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE. FLEXIBLE CONDUIT. WEATHERPROOF TYPE WHEN CONNECTED TO MOTORS. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE INSTALLED. INSTALL GROUND WIRE WIRE #12 AWG MINIMUM. SPACE NAME AND NUMBER. COORDINATE WITH ARCHITECTURAL SPACE NUMBER.	© □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	ELECTRICAL CIRCUIT BREAKER PANELBOARD. CEILING MOUNTED CAMERA. CEILING MOUNTED MOTORIZED SCREEN CEILING MOUNTED SMOKE DETECTOR. IONIZATION. WALL MOUNTED FIRE ALARM HORN WITH FLASHING LIGHT. NUMBER DENOTES LIGHT LEVEL OF STROBE. FIRE ALARM VISUAL UNIT WITH STROBE LIGHT, MOUNTED 80" AFF OR 12" BELOW CEILING, WHICHEVER IS LOWER. NUMBER DENOTES LIGHT LEVEL OF STROBE. ABbreviations
X \$D -⊗ 4 	CEILING MOUNTED FLOURESCENT LIGHT FIXTURE. LETTER DENOTES TYPE OF FIXTURE IS EXISTING. SEE LIGHTING PLAN. DIIMER SWITCH. 1500 WATTS, SLIDER TYPE. 20A. EXIT SIGN. REFER TO FIXTURE SCHEDULE. DARKENED AREA DENOTES SIGN FACE. NUMBER DENOTES CIRCUIT NUMBER. STEM DESIGNATES WALL MOUNTING. NO STEM DENOTES CEILING MOUNTED. DOUBLE FACED EXIT SIGN. NOTATION SAME AS ABOVE. ARROWS DENOTE EXIT DIRECTION. CONDUIT FLOOR STUB—UP. DENOTES THAT ELECTRICAL DEVICE IS SURFACE MOUNTED. AIR HANDLING DEVICE SUCH AS AN AIR HANDLING UNIT, VAV BOX ETC. FURNISHED AND INSTALLED BY THE MC, WIRED BY THE EC. ELECTRICAL HEATING COIL. FURNISH AND INSTALLED BY THE HVAC CONTRACTOR. WIRED BY THE ELECTRICAL CONTRACTOR. CEILING MOUNTED FLOURESCENT LIGHT FIXTURE.	A AFF ATS BKR C CKT EC EF FCU GC GF JB or J-BOX KVA KW MAX MC MDP MIN VFD NEC SWBD TYP	AMPERE. ABOVE FINISHED FLOOR. AUTOMATIC TRANSFER SWITCH BREAKER. CONDUIT. CIRCUIT. ELECTRICAL CONTRACTOR, DIVISION 16. EXHAUST FAN. FAN COIL UNIT. GENERAL CONTRACTOR, DIVISION 00 THROUGH 14. GROUND FAULT CIRCUIT INTERRUPTER. JUNCTION BOX. KILOVOLT AMPERES. KILOWATT. MAXIMUM. MECHANICAL CONTRACTOR, DIVISION 15. MAIN DISTRIBUTION PANEL. MINIMUM. VOLT. VARIABLE FREQUENCY DRIVE 2011 NATIONAL ELECTRICAL CODE. (NFPA 70). SWITCHBOARD. TYPICAL. WATER COOLER.

		LIGHT FIXTURE SCH	IEDULE	
	TYPE	DESCRIPTION	CATALOG NO.	LAMPS
	A2	FLUORESCENT, 2' x 4', 2 LAMP RECESSED TROFFER NO PRE PAINT. 277 VOLT.	COLUMBIA 4PS24-232G-FSA12-EU-PAF 277 VOLT	2-F32T8/SPP41/EC0
	A3	FLUORESCENT, 2' x 4', 3 LAMP RECESSED TROFFER NO PRE PAINT. 277 VOLT.	COLUMBIA 4PS24-332G-FSA12-EU-PAF 277 VOLT	3-F32T8/SPP41/EC0
А	A3E	FLUORESCENT, 2' x 4', 3 LAMP RECESSED TROFFER NO PRE PAINT. 1-2 LAMP BALLAST. 1-1 LAMP BALLAST ON EMERGENCY CIRCUIT. 277 VOLT.	COLUMBIA 4PS24-332G-FSA12-EU-PAF-1/2,1/1 277 VOLT	3-F32T8/SPP41/EC0
	⊗ ⊗	EXIT LIGHT. SEE PLANS TO DETERMINE WHICH UNITS ARE SINGLE / DOUBLE FACED WALL OR CEILING MOUNTED. WALL MOUNTED EXIT LIGHTS SHALL BE MOUNTED AT 6" ABOVE TOP OF DOOR FRAME. LED.	MCPHILBEN #CXL-3-R-W 277 VOLT INPUT	LED
	NOTE #1:	ALL RECESSED LIGHT FIXTURES SHALL BE HUNG WITH 4 HANGE ALL RECESSED FIXTURES SHALL BE INSTALLED WITH EARTHQUAK WITH T8 LAMPS AND ELECTRONIC BALLASTS, UNLESS OTHERWISE CEILING PLAN AND THE HVAC PLAN.	E CLIPS. ALL 2' AND 4' FLUORESCENT FIXTURES SI	HALL BE EQUIPPED
	NOTE #2:	THE NUMBER AFTER THE FIXTURE CATALOG NUMBER DENOTES N	UMBER OF BALLASTS (EXAMPLE: 1/4 DENOTES 1 -	4 LAMP BALLAST).



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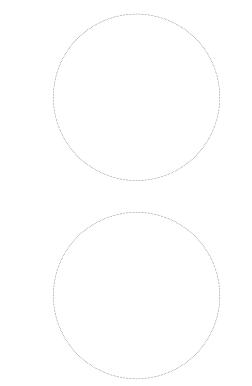


University of South Carolina School of Medicine

CRF DM SOM Clinical Education Bldg **VAV** Replacement

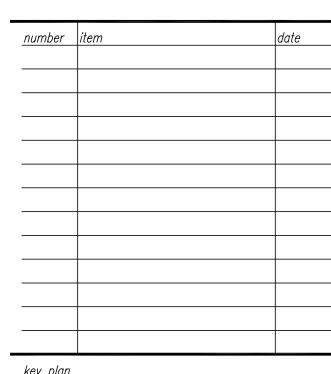
H27-6094-L A/E project number 14016.01

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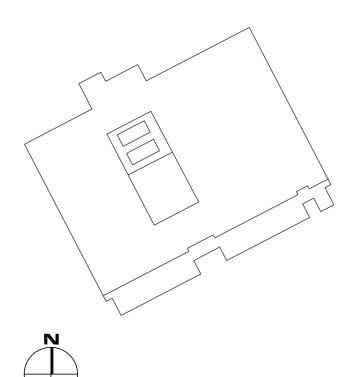


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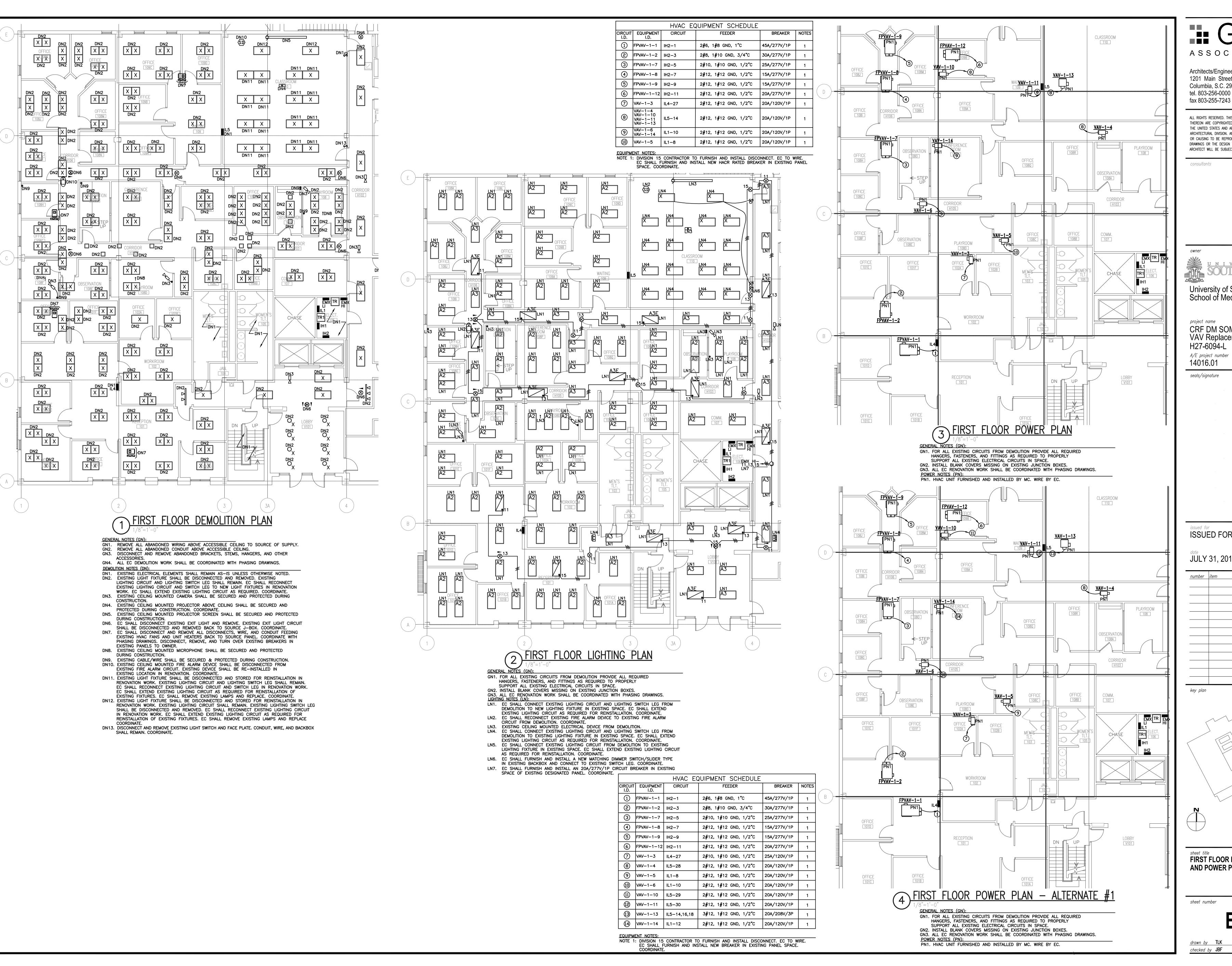
key plan



ELECTRICAL SYMBOLS, SCHEDULES, AND DETAILS

sheet number

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FIRST FLOOR DEMOLITION, LIGHTING, AND POWER PLAN

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