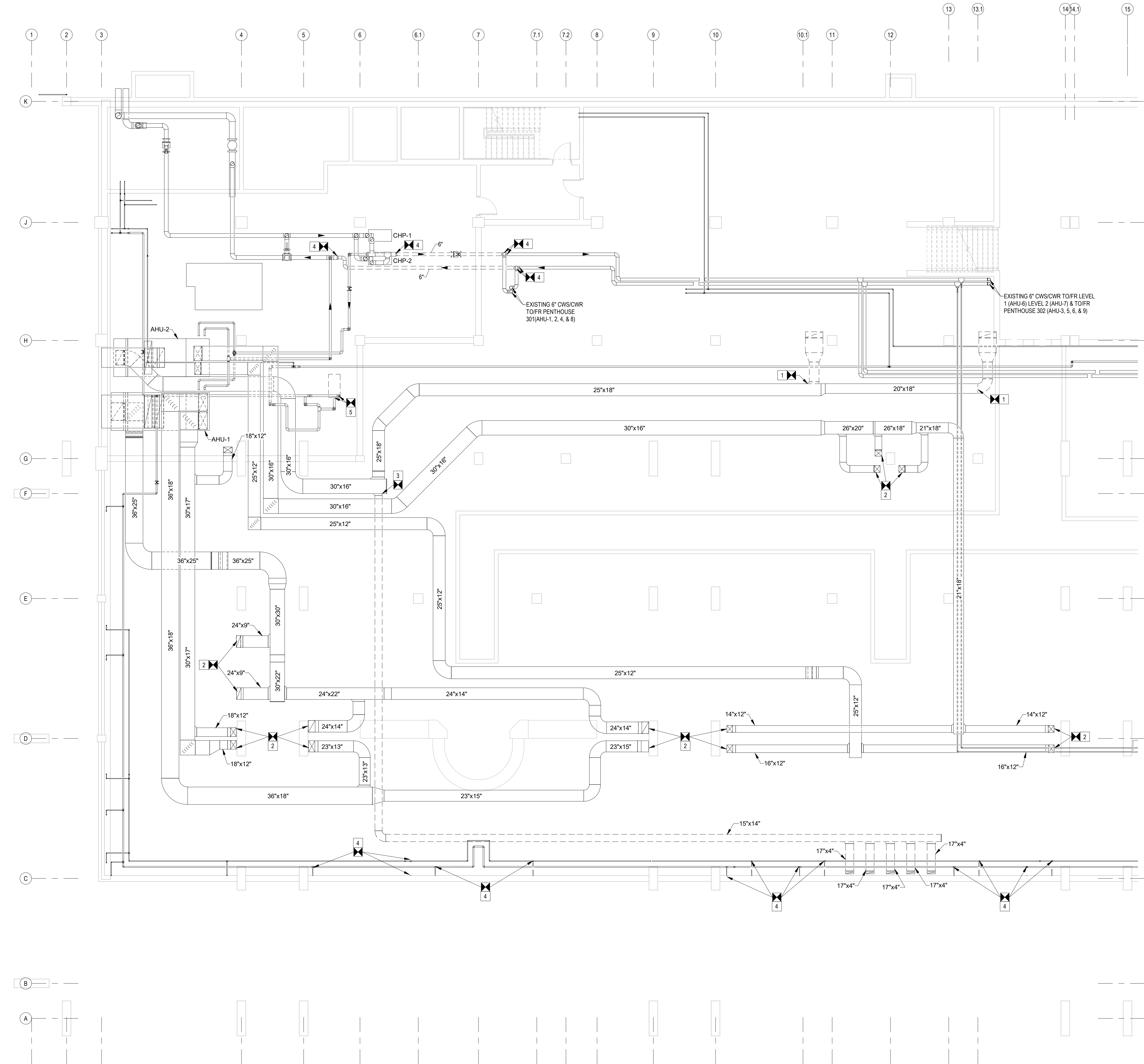


PRINTED: 10/12/2021 9:14:34 AM



PARTIAL BASEMENT PLAN - AREA A - DEMOLITION
SCALE 1/8" = 1'-0"

PLAN NOTES

1. REMOVE EXISTING VERTICAL DUCT RISER AND DUCT INSULATION JUST ABOVE THE EXISTING PRE-CAST STRUCTURAL FLOOR AND FIRE DAMPER. CLEAN AND PREPARE FOR CONNECTION TO NEW WORK. REMOVE EXISTING FIRE DAMPER AND ACCESSORIES. PREPARE OPENING FOR ACCEPTANCE OF NEW FIRE DAMPER.
2. REMOVE EXISTING DUCTWORK AND INSULATION TO THE EXTENT SHOWN. CLEAN AND PREPARE DUCTWORK AND INSULATION FOR CONNECTION TO NEW WORK.
3. REMOVE EXISTING DUCTWORK. CAP AND SEAL OPENING AIR-TIGHT. INSULATE CAP AND VAPOR SEAL TO EXISTING DUC INSULATION AS REQUIRED.
4. REMOVE EXISTING PIPING AND INSULATION TO THE EXTENT SHOWN. CLEAN AND PREPARE PIPING AND INSULATION FOR CAPPING OR CONNECTION TO NEW WORK.
5. REMOVE EXISTING PUMP, SSOCIATED PIPING, WIRING, CONTROLS, CONDUIT AND ACCESSORIES. CLEAN AND PREPARE EXISTING CONCRETE PAD FOR NEW PUMP.

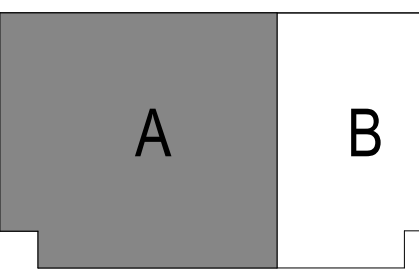
BLACKSBURG, VA



RENOVATE FIRST FLOOR OF
DIETRICK HALL AND PLAZA

208-L00050-000

KEY PLAN



MARK	DATE	DESCRIPTION
	13 OCT 2021	ISSUE FOR BID
	27 SEP 2021	UBO REVIEW

PROJECT NO: 19029.00
DATE: 13 OCTOBER 2021
DRAWN BY: MEH
CHECKED BY: RDF

COPYRIGHT © 2020
HANBURY

SHEET TITLE:
**PARTIAL BASEMENT
PLAN - AREA A-
DEMOLITION**

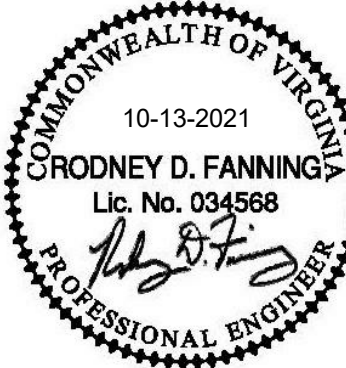
SHEET NUMBER:
MD101

CONSULTANT

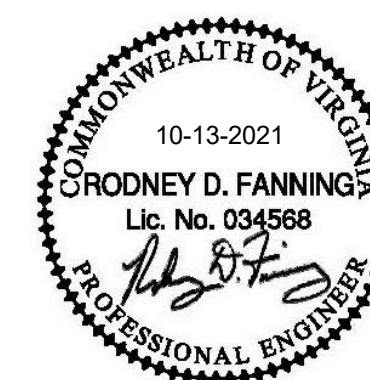
L P A

LAWRENCE PERRY & ASSOCIATES
Consulting Engineers

11 E Salem Avenue SE, Suite 101
Roanoke, Virginia 24011
Phone: (540) 343-3116
Fax: (540) 343-3110
E: lawrence@lpa-engineers.com
www.lpa-engineers.com



HANBURY



CONSULTANT

L P A

LAWRENCE PERRY & ASSOCIATES
Consulting Engineers

15 E Salem Avenue SE, Suite 101
Roanoke, Virginia 24011

PH: (540) 342-1816
FAX: (540) 344-3410

Form No.: 19113


BLACKSBURG VA



**RENOVATE FIRST FLOOR OF
DIETRICK HALL AND PLAZA**

208-L00050-000

KEYPLAN



A B

[illegible]

13 OCT 2021	ISSUE FOR BID
27 SEP 2021	UBO REVIEW

MARK	DATE	DESCRIPTION
------	------	-------------

PROJECT NO: 19029.00

DATE: 13 OCTOBER 2021

DRAWN BY: MEH

CHECKED BY: RDF

COPYRIGHT © 2020

HAMBURY

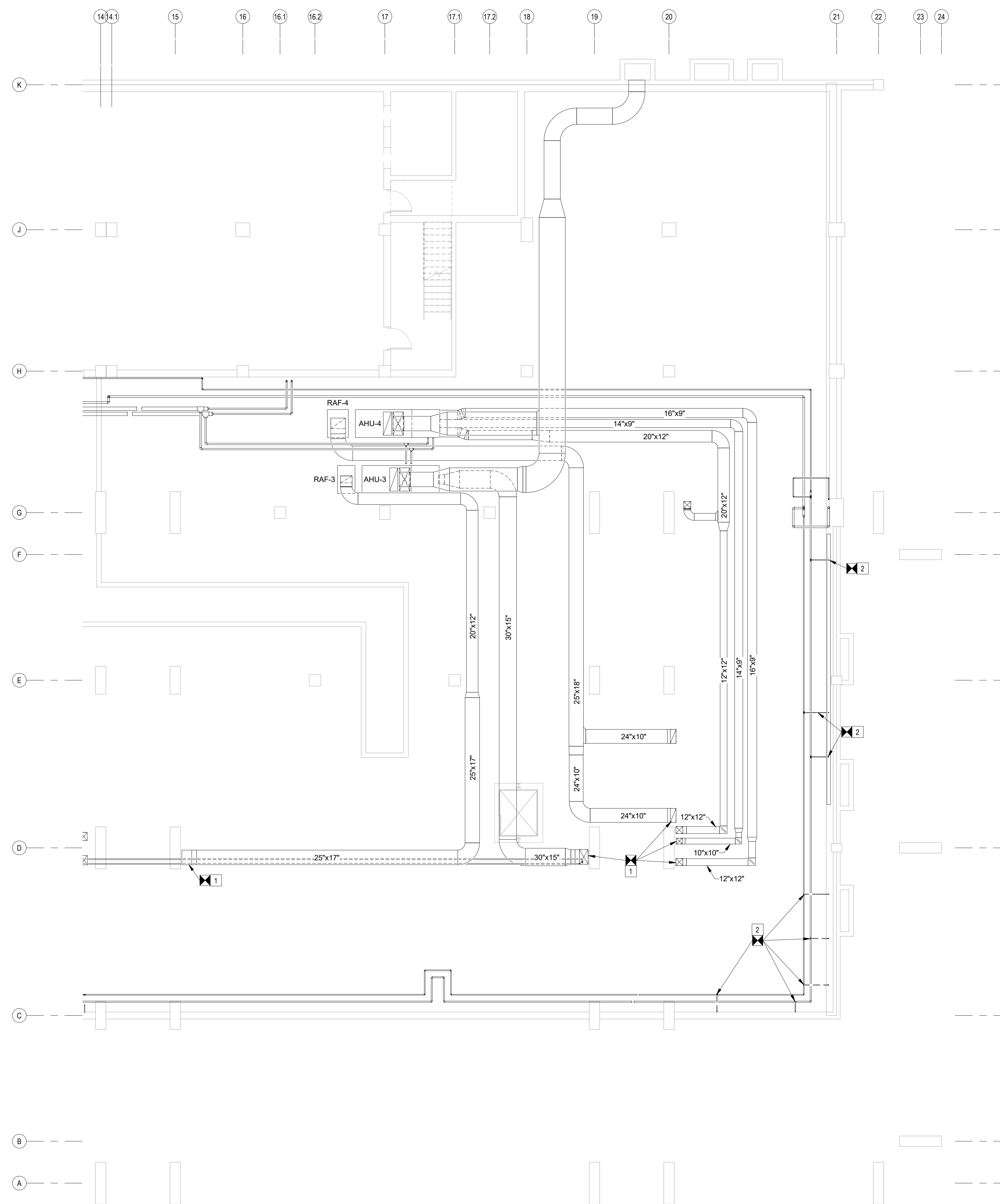
SHEET TITLE:

PARTIAL BASEMENT

PLAN - AREA B - DEMOLITION

SHEET NUMBER:

MD102

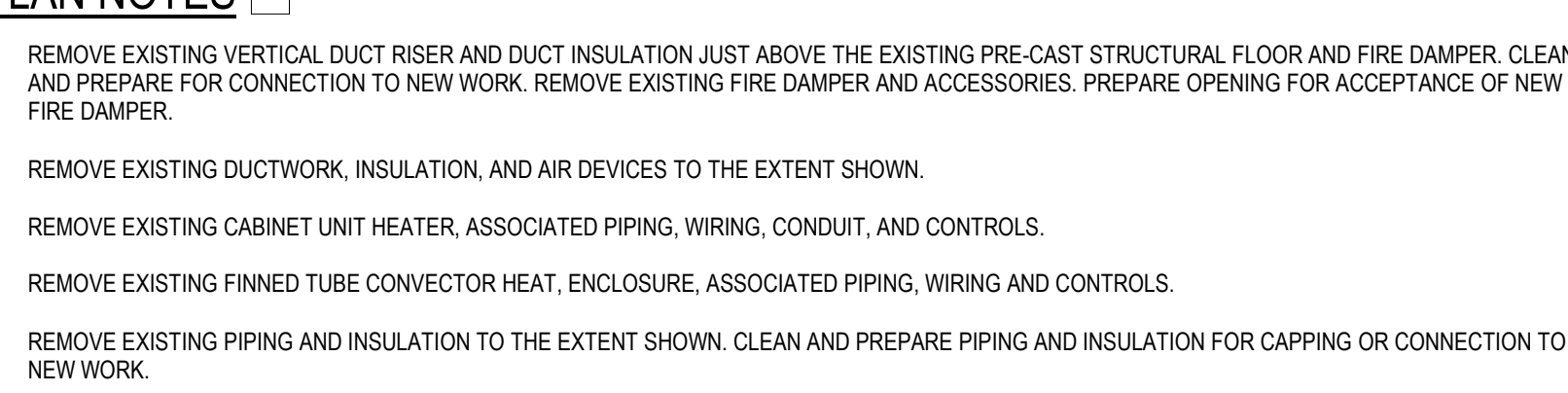


PARTIAL BASEMENT PLAN - AREA B - DEMOLITION

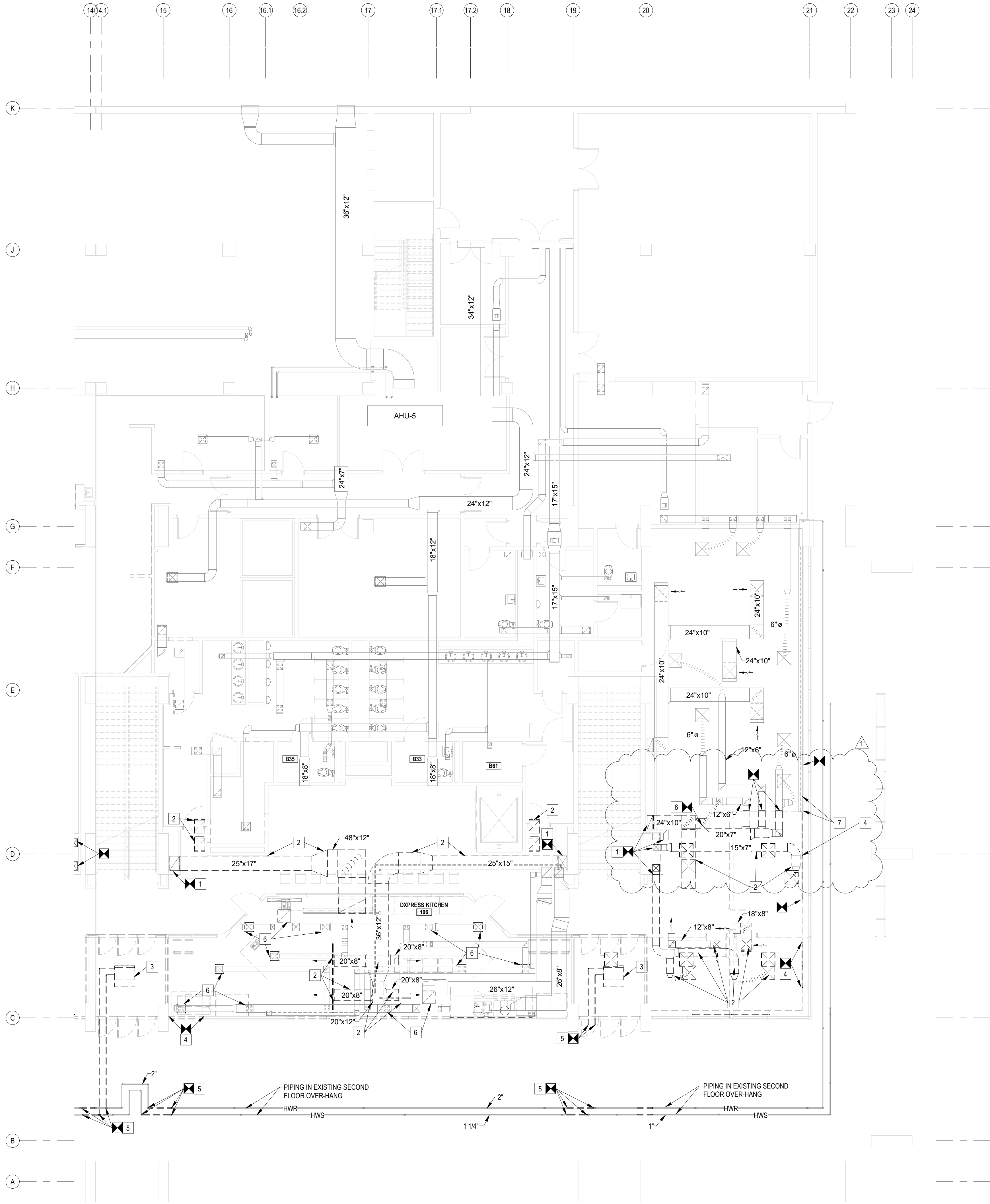
SCALE 1/8" = 1'-0"

PLAN NOTES ☐

1. REMOVE EXISTING VERTICAL DUCT RISER AND DUCT INSULATION JUST ABOVE THE EXISTING PRE-CAST STRUCTURAL FLOOR AND FIRE DAMPER. CLEAN AND PREPARE FOR CONNECTION TO NEW WORK. REMOVE EXISTING FIRE DAMPER AND ACCESSORIES. PREPARE OPENING FOR ACCEPTANCE OF NEW FIRE DAMPER.
2. REMOVE EXISTING PIPING AND INSULATION TO THE EXTENT SHOWN. CLEAN AND PREPARE PIPING AND INSULATION FOR CAPPING OR CONNECTION TO NEW WORK.



PRINTED: 11/19/2021 10:50:26 AM



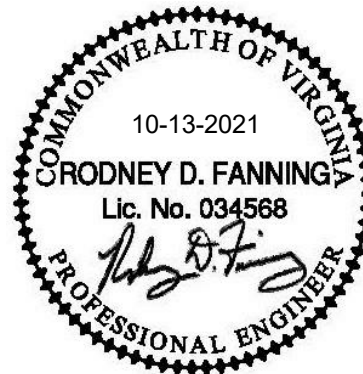
PARTIAL FIRST FLOOR PLAN - AREA B - DEMOLITION

SCALE: 1/8" = 1'-0"

PLAN NOTES

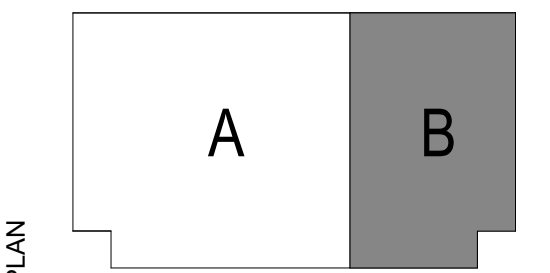
1. REMOVE EXISTING VERTICAL DUCT RISER AND DUCT INSULATION JUST ABOVE THE EXISTING PRE-CAST STRUCTURAL FLOOR AND FIRE DAMPER. CLEAN AND PREPARE FOR CONNECTION TO NEW WORK. REMOVE EXISTING FIRE DAMPER AND ACCESSORIES. PREPARE OPENING FOR ACCEPTANCE OF NEW FIRE DAMPER.
2. REMOVE EXISTING DUCTWORK, INSULATION, AND AIR DEVICES TO THE EXTENT SHOWN.
3. REMOVE EXISTING CABINET UNIT HEATER, ASSOCIATED PIPING, WIRING, CONDUIT, AND CONTROLS.
4. REMOVE EXISTING FINNED TUBE CONVECTOR HEAT, ENCLOSURE, ASSOCIATED PIPING, WIRING AND CONTROLS.
5. REMOVE EXISTING PIPING AND INSULATION TO THE EXTENT SHOWN. CLEAN AND PREPARE PIPING AND INSULATION FOR CAPPING OR CONNECTION TO NEW WORK.
6. REMOVE EXISTING CEILING DEVICE AND DUCT CONNECTION. CLEAN AND STORE FOR RELOCATION. PREPARE EXISTING DUCTWORK AND INSULATION TO ACCEPT NEW WORK.
7. EXISTING FINNED TUBE CONVECTOR ENCLOSURE TO REMAIN TO THE EXTENT SHOWN.

HANBURY



CONSULTANT
L P A
LAWRENCE PERRY & ASSOCIATES
Consulting Engineers
11 E. Salem Avenue SE, Suite 101
Roanoke, Virginia 24011
Phone: (540) 342-1816
Fax: (540) 344-3410
E-MAIL: lperry@lpa-engineers.com
© Lawrence Perry and Associates, Inc.

BLACKSBURG, VA
VIRGINIA TECH
RENOVATE FIRST FLOOR OF
DIETRICK HALL AND PLAZA
208-L00050-000



MARK	DATE	DESCRIPTION
1	22 NOV 2021	ADDENDUM 02
13	OCT 2021	ISSUE FOR BID
27	SEP 2021	UBO REVIEW

PROJECT NO: 19029.00

DATE: 13 OCTOBER 2021

DRAWN BY: MEH

CHECKED BY: RDF

COPYRIGHT © 2020
HANBURY

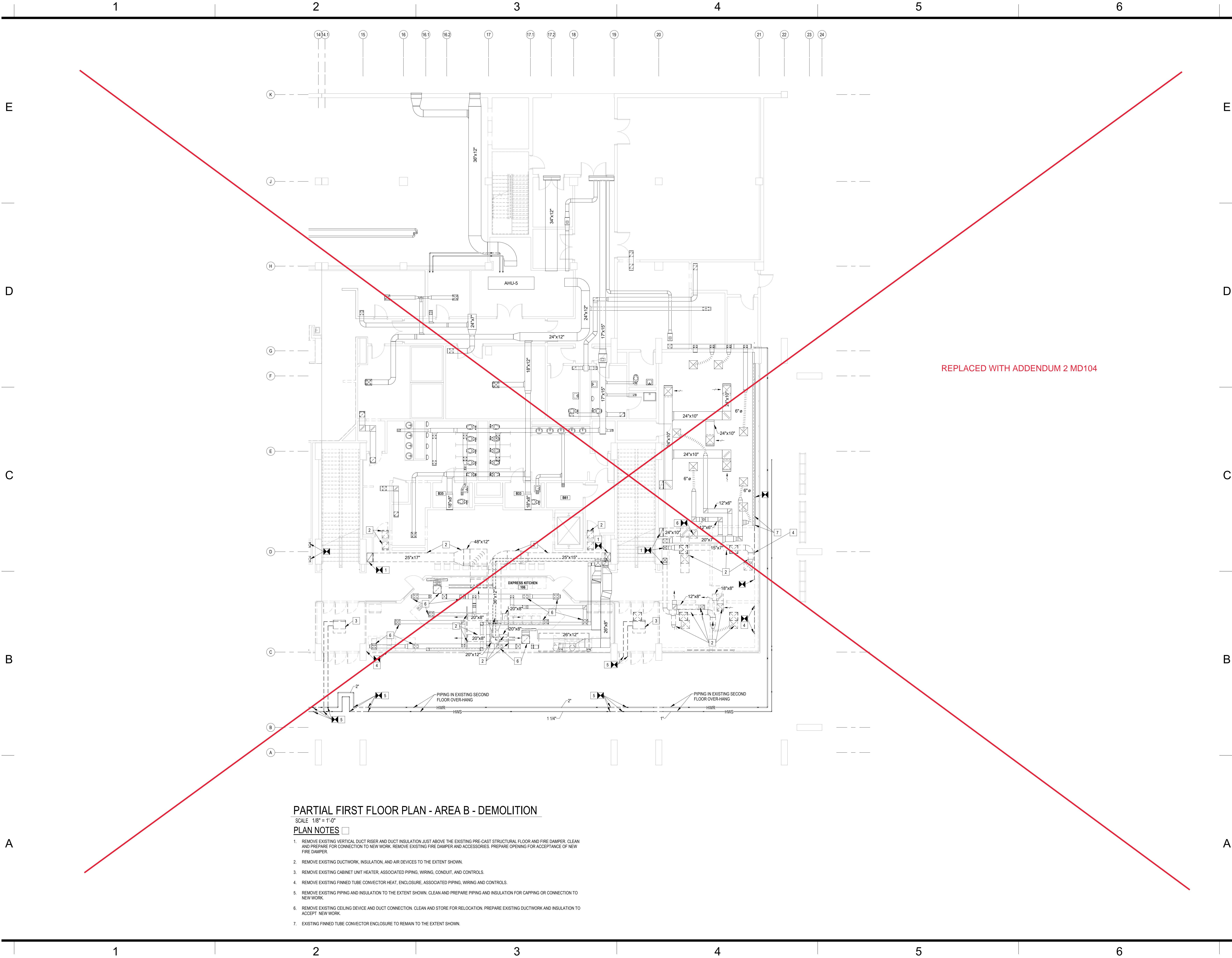
SHEET TITLE:

PARTIAL FIRST FLOOR
PLAN - AREA B -
DEMOLITION

SHEET NUMBER:

MD104

PRINTED: 10/12/2021 9:22:43 AM



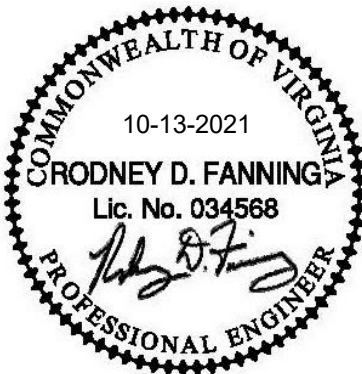
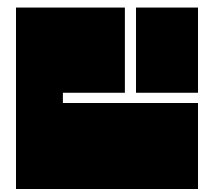
PARTIAL FIRST FLOOR PLAN - AREA B - DEMOLITION

SCALE: 1/8" = 1'-0"

PLAN NOTES

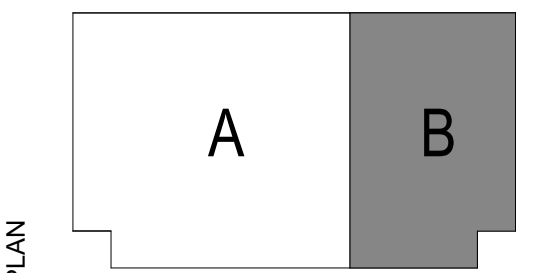
1. REMOVE EXISTING VERTICAL DUCT RISER AND DUCT INSULATION JUST ABOVE THE EXISTING PRE-CAST STRUCTURAL FLOOR AND FIRE DAMPER. CLEAN AND PREPARE FOR CONNECTION TO NEW WORK. REMOVE EXISTING FIRE DAMPER AND ACCESSORIES. PREPARE OPENING FOR ACCEPTANCE OF NEW FIRE DAMPER.
2. REMOVE EXISTING DUCTWORK, INSULATION, AND AIR DEVICES TO THE EXTENT SHOWN.
3. REMOVE EXISTING CABINET UNIT HEATER, ASSOCIATED PIPING, WIRING, CONDUIT, AND CONTROLS.
4. REMOVE EXISTING FINNED TUBE CONVECTOR HEAT, ENCLOSURE, ASSOCIATED PIPING, WIRING AND CONTROLS.
5. REMOVE EXISTING PIPING AND INSULATION TO THE EXTENT SHOWN. CLEAN AND PREPARE PIPING AND INSULATION FOR CAPPING OR CONNECTION TO NEW WORK.
6. REMOVE EXISTING CEILING DEVICE AND DUCT CONNECTION. CLEAN AND STORE FOR RELOCATION. PREPARE EXISTING DUCTWORK AND INSULATION TO ACCEPT NEW WORK.
7. EXISTING FINNED TUBE CONVECTOR ENCLOSURE TO REMAIN TO THE EXTENT SHOWN.

HANBURY



CONSULTANT
L P A
LAWRENCE PERRY & ASSOCIATES
Consulting Engineers
11 E. Salem Avenue SE, Suite 101
Roanoke, Virginia 24011
Phone: (540) 342-1816
Fax: (540) 344-3410
E-MAIL: lperry@lpa-engineers.com
www.lpa-engineers.com

BLACKSBURG, VA
VIRGINIA TECH
RENOVATE FIRST FLOOR OF
DIETRICK HALL AND PLAZA
208-L00050-000



KEY PLAN

13 OCT 2021 ISSUE FOR BID
27 SEP 2021 UBO REVIEW

MARK DATE DESCRIPTION

PROJECT NO: 19029.00

DATE: 13 OCTOBER 2021

DRAWN BY: MEH

CHECKED BY: RDF

COPYRIGHT © 2020
HANBURY

SHEET TITLE:

PARTIAL FIRST FLOOR
PLAN - AREA B -
DEMOLITION

SHEET NUMBER:

MD104

A

B

C

D

E

EXISTING INDOOR VAV AIR HANDLING SYSTEMS- TRANE						
UNIT MARK	AHU-1	AHU-2	AHU-3	AHU-4	AHU-5	AHU-6
SUPPLY FAN (CV OR VAV)	CV-MZ	CV-MZ	CV	CV-MZ	CV	CV
TOTAL AIR CFM	9601	6835	3707	2897	2992	5949
MIN. OA CFM*	1045	1005	630	1015	1575	4055
REVISED MIN. OA CFM**	2000	2900	800	1015	1575	---
EXTERNAL S.P., IN. H2O	1.0	1.14	0.87	.88	.77	.85
FAN HORSEPOWER	10.0	7.5	5.0	5.0	5.0	10.0
VOLTAGE & PHASE	480/3	480/3	480/3	480/3	480/3	480/3
CHILLED WATER COIL (45°F EWT):						
TOTAL CAP., MBH	315.6	282.0	175.2	122.4	154.8	324.0
SENSIBLE CAP., MBH	242.4	192.0	108.0	87.6	96.	195.6
ENT. AIR, DEG. F, DB	79.8	83.3	83.6	81.8	84.4	85.3
ENT. AIR, DEG. F, WB	64.5	67.4	68.7	65.1	69.0	69.9
LEAV. AIR, DEG. F, DB	55.3	55.7	55.7	52.5	54.7	54.9
LEAV. AIR, DEG. F, WB	52.1	52.2	51.6	48.9	51.3	51.5
WATER FLOW (GPM)	63.2	56.4	35.0	31.1	65	---
MAX. WATER P.D. (FT H2O)	---	---	---	---	---	---
RETURN FAN (CV OR VAV)	CV	CV	CV	CV	CV	CV
TOTAL AIR CFM	7796	3949	1507	2752	1142	1894
EXTERNAL S.P., IN. H2O	0.8	0.7	0.6	0.5	0.4	0.4
FAN HORSEPOWER	7.5	5.0	1.5	1.5	2.0	2.0
VOLTAGE & PHASE	480/3	480/3	480/3	480/3	480/3	480/3
PRE-HEAT COIL (STEAM):						
TOTAL CAP., MBH	N/A	111.5	100.3	24.1	97.6	226.1
ENT. AIR, DEG. F, DB	N/A	34.9	23.5	42.3	19.8	14.8
LEAV. AIR, DEG. F, DB	N/A	50.0	50.0	50.0	50.0	50.0
STEAM FLOWRATE, LBSHR	N/A	116.0	105.0	25.0	102.0	236.0
STEAM PRESSURE (MIN), PSI	N/A	2.0	2.0	2.0	2.0	2.0
HEATING COIL (STEAM):						
TOTAL AIR CFM	4590	3414	3507	1758	2992	5949
TOTAL CAP., MBH	282.8	232.6	132.6	106.2	113.0	224.8
ENT. AIR, DEG. F, DB	51.7	50.0	50.0	50.0	50.0	50.0
LEAV. AIR, DEG. F, DB	109.0	113.1	85.0	106.0	85.0	85.0
STEAM FLOWRATE, LBSHR	294.0	242.0	138.0	110.0	117.0	234.0
STEAM PRESSURE (MIN), PSIG	2.0	2.0	2.0	2.0	2.0	2.0
FILTERS	30% PLEATED	30% PLEATED	30% PLEATED	30% PLEATED	30% PLEATED	30% PLEATED
UNIT MODEL	---	---	---	---	---	---
NOTES:						
1. COOLING CAPACITY BASED ON 45°F EWT. 2. HEATING CAPACITY BASED ON 180°F EWT. * PER AIR BALANCE DATED 3/31/2019 OR PER PLANS DATED 03/01/99 ** REBALANCE TO THE FLOW INDICATED						

FAN COIL UNITS (HOT WATER/CHILLED WATER DUCTLESS CEILING CASSETTES)- MODINE

INDOOR FAN COIL UNIT MARK	FC-1	FC-2	FC-3	FC-4	FC-5	FC-6	FC-7	FC-8	FC-9	FC-10
AIRFLOW, CFM (H/MED/LOW)	1,080/940/850	1,080/940/850	1,080/940/850	1,080/940/850	1,080/940/850	1,080/940/850	1,080/940/850	1,080/940/850	1,080/940/850	1,080/940/850
COOLING										
TOTAL CAPACITY, MBH	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3
SENSIBLE CAPACITY, MBH	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7
ENT. AIR TEMP., ° F, DB	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
ENT. AIR TEMP., ° F, WB	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0
ENT. WATER TEMP., ° F	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
WATER FLOWRATE (GPM)	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
WATER PRESSURE DROP (FT W.G.)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
HEATING										
TOTAL CAPACITY, MBH	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
ENT. AIR TEMP., ° F, DB	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
ENT. WATER TEMP., ° F	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
WATER FLOWRATE (GPM)	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
WATER PRESSURE DROP (FT W.G.)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
FILTERS (TYPE)	MERV-10	MERV-10	MERV-10	MERV-10	MERV-10	MERV-10	MERV-10	MERV-10	MERV-10	MERV-10
UNIT ELECTRICAL (V/Hz/Ph)	277/60/1	277/60/1	277/60/1	277/60/1	277/60/1	277/60/1	277/60/1	277/60/1	277/60/1	277/60/1
MOTOR (HP)	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6
MCA (A)	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
FULL LOAD AMPS (A)	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
UNIT MODEL	SCW-36	SCW-36	SCW-36	SCW-36	SCW-36	SCW-36	SCW-36	SCW-36	SCW-36	SCW-36
CONFIGURATION	4-WAY RECESSED	4-WAY RECESSED	4-WAY RECESSED	4-WAY RECESSED	4-WAY RECESSED	4-WAY RECESSED	4-WAY RECESSED	4-WAY RECESSED	4-WAY RECESSED	4-WAY RECESSED
ESTIMATED UNIT WEIGHT (LBS)	120	120	120	120	120	120	120	120	120	120
ROOM SERVED	---	---	---	---	---	---	---	---	---	---

- NOTES:
1. COOLING CAPACITY BASED ON 45°F EWT. HEATING CAPACITY BASED ON 180°F EWT.
2. REFER TO PLANS FOR UNIT QUANTITIES.
3. ALL UNITS SHALL INCLUDE GRILLE KIT, PAINTED SHEET METAL DUCT SHROUD, AND FACTORY PROVIDED CONDENSATE PUMP WITH REMOTE DETECTION UNIT/FLOATLESS SENSOR, THERMAL PROTECTION AND ALARM CONTACT TO DISABLE THE UNIT.
4. UNIT PERFORMANCE SELECTED AT MEDIUM FAN SPEED.
5. OVERALL SOUND PRESSURE LEVEL (dBA) MEASURED AT A DISTANCE 5 FT. BELOW FAN IN FREE FIELD SHALL NOT EXCEED 45, 48, & 52 AT LOW, MEDIUM, AND HIGH SPEED RESPECTIVELY.

CONVECTORS: VULCAN (LINOVECTOR II)

MARK	CAPACITY (MBH)	FLOWRATE (GPM)	MAX. ΔP, (FT. H ₂ O)	FINNED LENGTH (FT)	FIN SIZE	FINS/FT	MODEL NO.
C-1	3.0	0.5	1.0	4'-0"	4-1/4" x 3-5/8"	40	TR
NOTES: 1. REFER TO PLANS FOR UNIT QUANTITIES AND ARRANGEMENTS. 2. PROVIDE TRIM ACCESSORIES AS REQUIRED. REFER TO DETAIL SHEET M301. 3. CAPACITIES BASED ON 180°F EWT AND 20°F ΔT. 4. UNIT IS TROUGH STYLE ALUMINUM FINNED, COPPER TUBE CONVECTOR. TUBE IS 3/4" DIAMETER.							

PUMPS: BELL & GOSSETT

MARK	CAPACITY (GPM)	HEAD (FT. H ₂ O)	MOTOR (HP)	RPM	VOLTAGE & PHASE	SERIES	MODEL NO.
CWP-1*	1015	94	30	1750	460/3	1510	5E
CWP-2*	1015	94	30	1750	460/3	1510	5E
HWP-1	100	100	7.5	1750	460/3	e-1510	1.5BC

*PUMP AND MOTOR ARE EXISTING. CHANGE PUMP IMPELLER TO 10.625" FOR EACH.

STEEL PANEL RADIATORS: STERLING

MARK	CAPACITY (MBH)	FLOWRATE (GPM)	MAX. ΔP, (FT. H ₂ O)	PANEL LENGTH (FT)	END CAP LENGTH (FT)	NUMBER OF TUBES	MODEL NO.
SPR-1	4.9	0.5	1.0	19'-0"	2'-0"	2	PR-02
SPR-2	2.0	0.2	1.0	6'-0"	1'-0"	2	PRF-01
SPR-3*	4.4 (8.8)	0.8	1.0	16'-0" (2 PNLs)	1'-0"	2	PR-02
SPR-4	1.8	0.2	1.0	3'-0"	1'-0"	2	PR2F-01
SPR-5*	4.8 (14.5)	1.5	1.0	18'-6" (3 PNLs)	1'-0"	2	PR-02
SPR-6*	3.6 (7.3)	0.8	1.0	14'-0" (2 PNLs)	1'-0"	2	PR-02

- NOTES:
1. REFER TO PLANS FOR UNIT QUANTITIES AND ARRANGEMENTS.
2. PROVIDE TRIM ACCESSORIES AS REQUIRED INCLUDING PERFORATED GRILLE, PANEL TRIM, CORNERS, PIPE TRIM, AND END TRIM TO COVER ALL EXPOSED PIPING.
3. CAPACITIES BASED ON 180°F EWT AND 20°F ΔT.
4. PIPING BETWEEN FINNED UNITS SHALL BE INSULATED AS SPECIFIED FOR HEATING WATER PIPING.
5. ENCLOSURE LENGTHS ARE APPROXIMATE. CONTRACTOR SHALL VERIFY FIELD CONDITIONS FOR ACTUAL ENCLOSURE SIZE REQUIRED.
* MULTIPLE PANEL SECTIONS REQUIRED. REFER TO TOTAL CAPACITY AND PANEL LENGTH INDICATED HERE-IN. SEE ALSO PIPING PLANS.

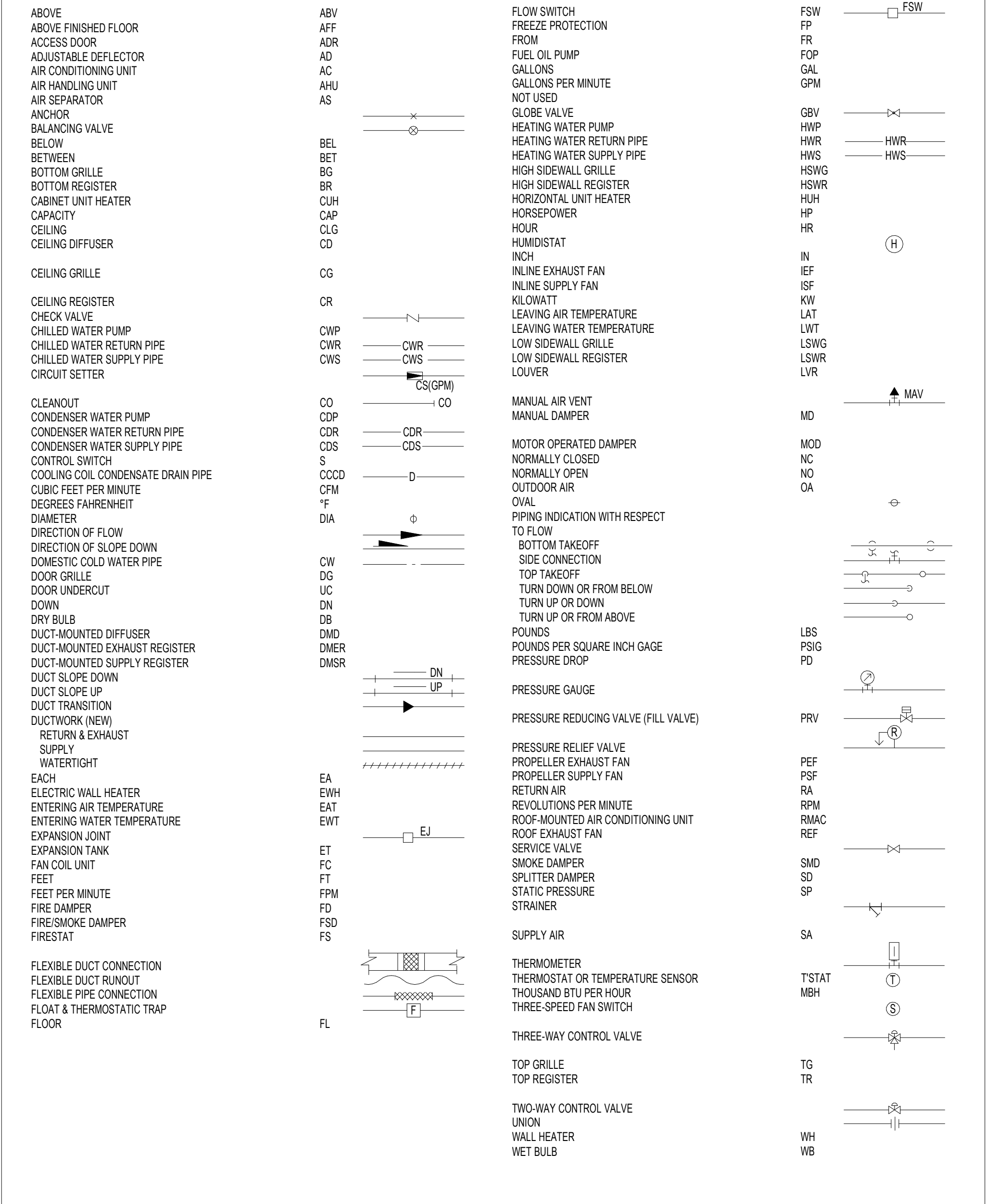
GENERAL NOTES:

- ALL DUCTWORK AND PIPES SHALL BE COORDINATED WITH OTHER NEW AND EXISTING DUCTS, PIPES, LIGHTS, STRUCTURAL SYSTEM, CEILING SUPPORTS AND FRAMING BEFORE INSTALLATION. MINOR DUCT AND PIPE OFFSETS AND MINOR DUCT TRANSITIONS SHALL BE PROVIDED AS REQUIRED. WHERE TRANSITIONS ARE REQUIRED, CROSS SECTIONAL AREA OF DUCT SHALL NOT BE REDUCED. MEASUREMENTS FOR VERTICAL CLEARANCES OF DUCTWORK SHALL BE TAKEN AT THE JOB SITE BEFORE FABRICATION OF ANY DUCTWORK.
- ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTRUCTIONS.
- MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL CODES, APPLICABLE PROVISIONS OF LATEST EDITION OF NATIONAL FIRE PROTECTION ASSOCIATION, LOCAL UTILITY REGULATIONS AND GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION.
- CONTRACTOR SHALL SEAL AND FLASH ALL PENETRATIONS IN EXISTING ROOF AND WALLS.
- VERIFY ROOF AND WALL OPENINGS WITH STRUCTURE.
- VERIFY THE LOCATION OF ALL THERMOSTATS, TEMPERATURE SENSORS, PANELS AND CONTROL INSTRUMENTS WITH THE ARCHITECT AND OWNER PRIOR TO ROUGH-IN.
- VERIFY LOCATIONS OF NEW AND EXISTING EQUIPMENT AND ROUTE OF DUCTWORK WITH EXISTING CONDITIONS.
- ALL CUTTING AND PATCHING FOR THE INSTALLATION OF NEW WORK IN EXISTING BUILDING SHALL BE DONE BY THE GENERAL CONTRACTOR.
- REFER TO ARCHITECTURAL, STRUCTURAL AND ELECTRICAL DRAWINGS TO COORDINATE THE EXACT LOCATIONS OF DIFFUSERS, REGISTERS, GRILLES, PIPING AND OTHER MECHANICAL EQUIPMENT WITH CEILING GRID, LIGHTS, BEAMS AND OTHER BUILDING COMPONENTS.
- CONTRACTOR SHALL PROVIDE ALL SUPPORTS REQUIRED TO MOUNT MECHANICAL EQUIPMENT, PIPING AND DUCTWORK.
- WHERE PIPE AND DUCT CONNECTIONS ARE SHOWN CONNECTING TO EXISTING, CONTRACTOR SHALL DETERMINE EXACT LOCATIONS AND CONNECTION SIZES PRIOR TO INSTALLATION.
- DUCTWORK SHALL BE ZINC-COATED SHEET STEEL OR ALUMINUM, CONSTRUCTED AND INSTALLED AS RECOMMENDED BY THE LATEST EDITION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS".
- ALL KITCHEN DUCTWORK SHALL BE INSTALLED ABOVE LAY-IN CEILING.
- KITCHEN FOOD SUPPLY DUCTWORK SHALL BE INSULATED WITH 1 LB. DENSITY, FLEXIBLE TYPE, 1-1/2" THICK WITH FACTORY APPLIED FACING OF 0.7 MIL FOIL-SCRIM-WHITE KRAFT PAPER JACKET EFFECTIVELY VAPOR SEALED.
- FLEXIBLE DUCTS SHALL BE FLEXIBLE METAL OR METAL AND NEOPRENE-COATED CANVAS HOSE INSULATED WITH 1" THICK FIBERGLASS WITH VINYL VAPOR BARRIER. ALL ROUND DUCT TAKE-OFFS SHALL BE MADE WITH SPIN-IN FITTINGS WITH 45 DEG. EXTRACTOR AND BALANCING DAMPER. THE DUCT DIAMETER SHALL MATCH THE AIR DIFFUSER SIZE UNLESS OTHERWISE INDICATED.
- PROVIDE AIR TIGHT SEAL BETWEEN DUCTWORK AND FLOOR OR FIRE PARTITION WITH FIRE RESISTANT MATERIAL.
- SUPPLY AND OUTDOOR AIR DUCTWORK SHALL BE INSULATED WITH 1 LB. DENSITY, FLEXIBLE TYPE, 1-1/2" THICK WITH FACTORY APPLIED FACING OF 0.7 MIL FOIL-SCRIM-WHITE KRAFT PAPER JACKET EFFECTIVELY VAPOR SEALED.
- DUCT AND PIPE INSULATION SHALL MATCH EXISTING. INSULATION THAT IS DAMAGED OR REMOVED FOR NEW WORK SHALL BE REPLACED, REPAIRED AND SEALED AS REQUIRED.
- NEW PIPING, PIPE INSULATION AND DUCT INSULATION SHALL MATCH EXISTING. INSULATION THAT IS DAMAGED OR REMOVED FOR NEW WORK SHALL BE REPLACED, REPAIRED AND SEALED AS REQUIRED.
- CONDENSATE DRAIN LINES SHALL BE TYPE L HARD DRAWN COPPER OR PVC TUBING. FITTINGS SHALL MATCH THE PIPING. INSULATE WITH 3/8" ARMAFLEX VAPOR SEALED WHERE SUBJECT TO SWEATING.
- CHILLED WATER PIPING SHALL BE ALL TYPE L HARD DRAWN COPPER TUBING OR ALL STANDARD WEIGHT BLACK STEEL.
- CONDENSATE DRAIN LINES AND CHILLED WATER LINES SHALL BE INSULATED WITH 3-1/2 LB. DENSITY FIBERGLASS FLAME-SAFE PIPE INSULATION WITH 1 MIL FOIL-SCRIM-WHITE KRAFT PAPER JACKET. INSULATION ON CONDENSATE DRAIN LINES SHALL BE A MINIMUM OF 3/4" THICK. ALL OTHER SHALL BE A MINIMUM OF 1" THICK. ALL JOINTS, VOIDS AND PUNCTURES IN JACKET SHALL BE VAPOR SEALED.
- HEATING WATER PIPING SHALL BE TYPE L COPPER OR STANDARD WEIGHT BLACK STEEL. PIPE FITTINGS SHALL MATCH PIPING.
- HEATING WATER LINES SHALL BE INSULATED WITH 2" THICK, 3-1/2 LB. DENSITY FIBERGLASS FLAME-SAFE PIPE INSULATION WITH 1 MIL FOIL-SCRIM-WHITE KRAFT PAPER JACKET. ALL JOINTS, VOIDS AND PUNCTURES IN JACKET SHALL BE SEALED.
- EXPOSED PIPING RUNOUTS SHALL BE INSTALLED IN PRACTICAL ALIGNMENT WITH THE BUILDING AND SHALL BE ADEQUATELY SECURED TO THE BUILDING STRUCTURE.
- ALL CEILING DIFFUSERS SHALL BE 4-WAY THROW TYPE UNLESS NOTED OTHERWISE.
- FOR EXACT LOCATIONS OF CEILING DEVICES, REFER TO REFLECTED CEILING PLAN.
- PROVIDE ACCESS DOORS OF SUFFICIENT SIZE FOR ALL CONCEALED CONTROLS, DAMPERS OR ANY ITEMS REQUIRING ACCESS.
- AIR DEFLECTORS SHALL BE PROVIDED IN ALL SQUARE ELBOWS.
- CEILING GRID AND OTHER ITEMS SHALL NOT BE SUPPORTED FROM OR IN CONTACT WITH FAN COIL UNITS. CONDUIT, WIRING, PIPING AND SUPPORTS SHALL NOT BE LOCATED BELOW FAN COIL ACCESS PANELS.
- DUCTWORK AND PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL PANELS. COORDINATE INSTALLATION OF DUCTWORK AND PIPING WITH ELECTRICAL PANELS WHEN SHOWN NEAR PANELS OR OVER ELECTRICAL ROOMS.
- INSTRUCT THE OWNER IN THE PROPER OPERATION AND MAINTENANCE OF THE MECHANICAL SYSTEMS UNTIL THE OWNER IS FULLY PREPARED TO OPERATE AND MAINTAIN THE MECHANICAL SYSTEM. HOWEVER, LENGTH OF INSTRUCTION TIME SHALL BE LIMITED TO ONE-HALF DAY.
- SYSTEMS SHALL OPERATE UNDER CONDITIONS OF LOAD WITHOUT UNUSUAL OR EXCESSIVE NOISE OR VIBRATION. UNUSUAL OR EXCESSIVE NOISE OR VIBRATION SHALL BE CORRECTED.
- EQUIPMENT, MATERIALS AND LABOR REQUIRED BY THESE CONTRACT DRAWINGS SHALL BE GUARANTEED TO BE FREE FROM DEFECTIVE MATERIALS OR WORKMANSHIP FOR ONE YEAR AFTER FINAL ACCEPTANCE OF THE PROJECT UNLESS SPECIFIED OTHERWISE. DEFECTIVE MATERIALS OR WORKMANSHIP OCCURRING DURING THIS PERIOD SHALL BE CORRECTED AT NO ADDITIONAL COST.
- PROVIDE 12" LONG STEEL SLEEVE, STEEL RETAINING ANGLES, AND ACCESSORIES REQUIRED BY IMC 607.5.3. EXCEPTION 3 FOR DUCTS THAT PENETRATE FIRE PARTITIONS. ANNULAR SPACE BETWEEN THE SLEEVE AND WALL OPENING SHALL BE FILLED WITH ROCK WOOL BATTING ON ALL SIDES.

DEMOLITION NOTES:

- THE CONTRACTOR SHALL REMOVE OR ALTER AS NECESSARY ALL EXISTING PIPING, EQUIPMENT, EQUIPMENT FOUNDATIONS, AND APPURTENANCES THAT ARE NOT REQUIRED FOR THE EXISTING SYSTEMS TO REMAIN. CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE SCOPE OF THIS WORK AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING BIDS.
- EXISTING EQUIPMENT SHALL BE TURNED OVER TO THE OWNER, UNLESS DIRECTED OTHERWISE AND LOCATED AS DIRECTED BY THE OWNER. ALL OTHER ITEMS TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE PREMISES.
- INSULATION ON EXISTING PIPING THAT IS DAMAGED OR REMOVED DUE TO THE DEMOLITION WORK SHALL BE REPLACED AND SEALED AS REQUIRED.

HVAC LEGEND



BLACKSBURG, VA

VIRGINIA TECH

VIRGINIA TECH
RENOVATE FIRST FLOOR OF
DIETRICK HALL AND PLAZA

KEY PLAN

13 OCT 2021 ISSUE FOR BID
27 SEP 2021 UBO REVIEW
PROJECT NO: 19029.00
DATE: 13 OCTOBER 2021
DRAWN BY: MEH
CHECKED BY: RDF
COPYRIGHT © 2020
HANBURY
SHEET TITLE:
LEGENDS, NOTES,
AND EQUIPMENT
SCHEDULES
SHEET NUMBER:

CONSULTANT

L P A
LAWRENCE PERRY & ASSOCIATES
Consulting Engineers
1115 Salem Avenue, Suite 101
Roanoke, Virginia 24011
Phone: (540) 344-3410
Fax: (540) 344-3410
E-mail: info@lpa-engineers.com
© Lawrence Perry and Associates, Inc.

10-13-2021
CRODNEY D. FANNING
Lic. No. 034558
Professional Engineer

HANBURY

E

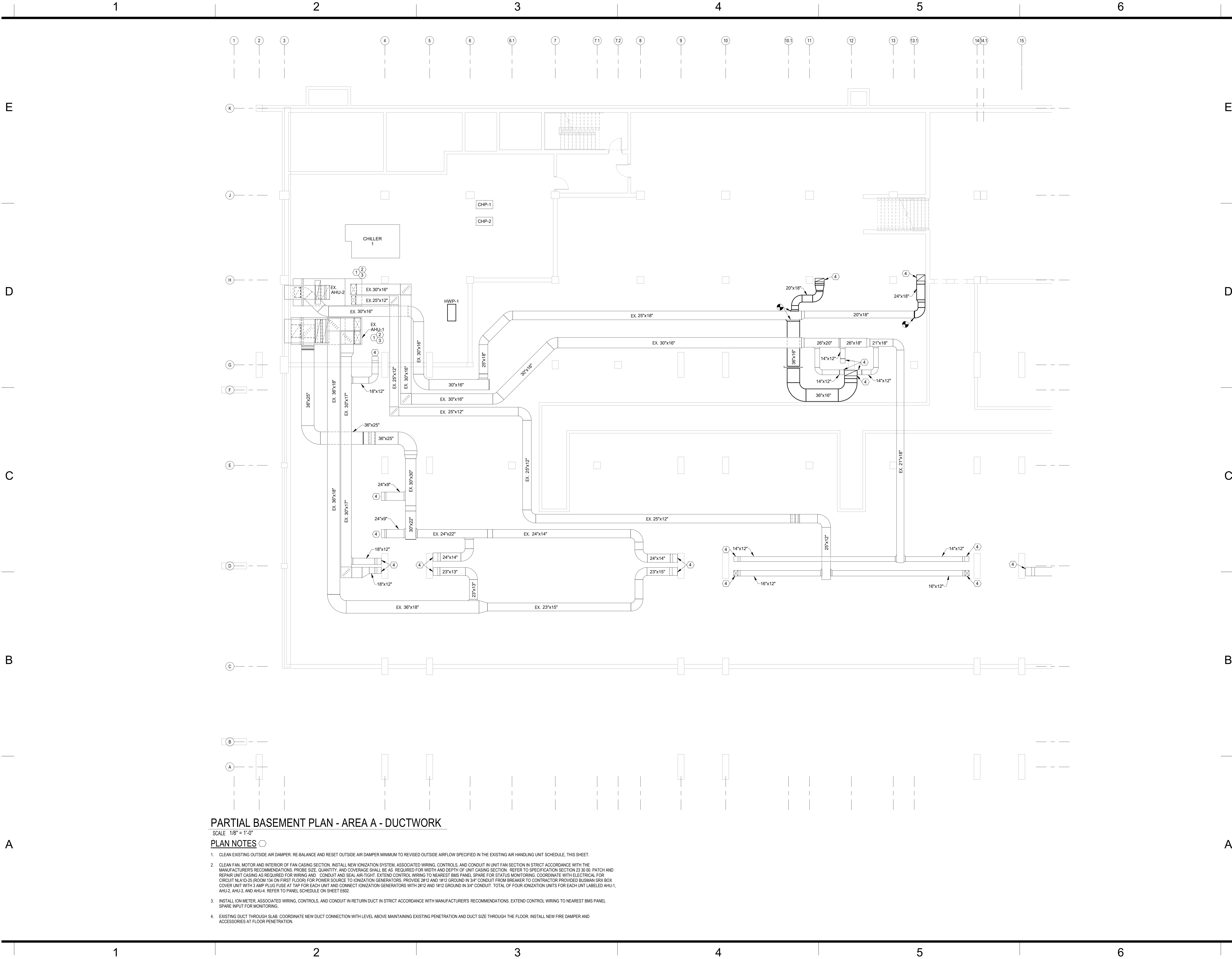
D

C

B

A

M001



PARTIAL BASEMENT PLAN - AREA A - DUCTWORK

SCALE 1/8" = 1'-0"

PLAN NOTES

- CLEAN EXISTING OUTSIDE AIR DAMPER. RE-BALANCE AND RESET OUTSIDE AIR DAMPER MINIMUM TO REVISED OUTSIDE AIRFLOW SPECIFIED IN THE EXISTING AIR HANDLING UNIT SCHEDULE. THIS SHEET.
- CLEAN FAN, MOTOR AND INTERIOR OF FAN CASING SECTION. INSTALL NEW IONIZATION SYSTEM, ASSOCIATED WIRING, CONTROLS, AND CONDUIT IN UNIT FAN SECTION IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. PROBE SIZE, QUANTITY, AND COVERAGE SHALL BE AS REQUIRED FOR WIDTH AND DEPTH OF UNIT CASING SECTION. REFER TO SPECIFICATION SECTION 23 30 00. PATCH AND REPAIR UNIT CASING AS REQUIRED FOR WIRING AND CONDUIT AND SEAL AIR-TIGHT. EXTEND CONTROL WIRING TO NEAREST BMS PANEL. SPARE FOR STATUS MONITORING. COORDINATE WITH ELECTRICAL FOR CIRCUIT NLA1D-2S (ROOM 134 ON FIRST FLOOR) FOR POWER SOURCE TO IONIZATION GENERATORS. PROVIDE 2#12 AND 1#12 GROUND IN 3/4" CONDUIT FROM BREAKER TO CONTRACTOR PROVIDED BUSMAN SRX BOX COVER UNIT WITH 3 AMP PLUG FUSE AT TAP FOR EACH UNIT AND CONNECT IONIZATION GENERATORS WITH 2#12 AND 1#12 GROUND IN 3/4" CONDUIT. TOTAL OF FOUR IONIZATION UNITS FOR EACH UNIT LABELED AHU-1, AHU-2, AHU-3, AND AHU-4. REFER TO PANEL SCHEDULE ON SHEET E602.
- INSTALL ION METER, ASSOCIATED WIRING, CONTROLS, AND CONDUIT IN RETURN DUCT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. EXTEND CONTROL WIRING TO NEAREST BMS PANEL. SPARE INPUT FOR MONITORING.
- EXISTING DUCT THROUGH SLAB. COORDINATE NEW DUCT CONNECTION WITH LEVEL ABOVE MAINTAINING EXISTING PENETRATION AND DUCT SIZE THROUGH THE FLOOR. INSTALL NEW FIRE DAMPER AND ACCESSORIES AT FLOOR PENETRATION.

BLACKSBURG, VA

**VIRGINIA
TECH**TM

RENOVATE FIRST FLOOR OF
DIETRICK HALL AND PLAZA

208-L00050-000

CONSULTANT

L | P | A

LAWRENCE PERRY & ASSOCIATES
Consulting Engineers

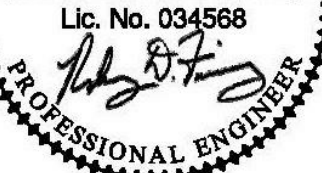
11 E Salem Avenue SE, Suite 101
Roanoke, Virginia 24011
Phone: (540) 343-1816
Fax: (540) 343-1810
E: lawrence@lpa-engineers.com
© Lawrence Perry and Associates, Inc.

COMMONWEALTH OF VIRGINIA

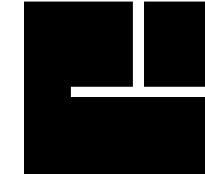
10-13-2021

CRODNEY D. FANNING

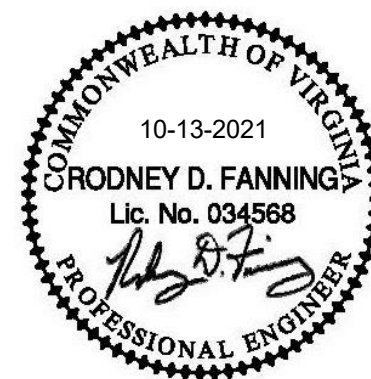
Lic. No. 034568



PROFESSIONAL ENGINEER



HANBURY



CONSULTANT

L P A

LAWRENCE PERRY & ASSOCIATES
Consulting Engineers

15 E. Salem Avenue SE, Suite 101
Roanoke, Virginia 24011

PH: (540) 342-1816
Fax: (540) 344-3410

Comm. No.: 19113

© Lawrence Perry and Associates, Inc.

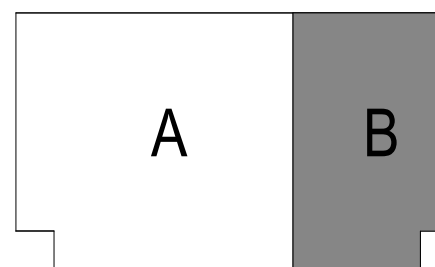
BLACKSBURG, VA



RENOVATE FIRST FLOOR OF DIETRICK HALL AND PLAZA

208-L00050-000

KEYWORDS



13 OCT 2021	ISSUE FOR BID
27 SEP 2021	UBO REVIEW

MARK	DATE	DESCRIPTION
------	------	-------------

PROJECT NO: 19029.00

DATE: 13 OCTOBER 2021

DRAWN BY: MEH

CHECKED BY: RDF

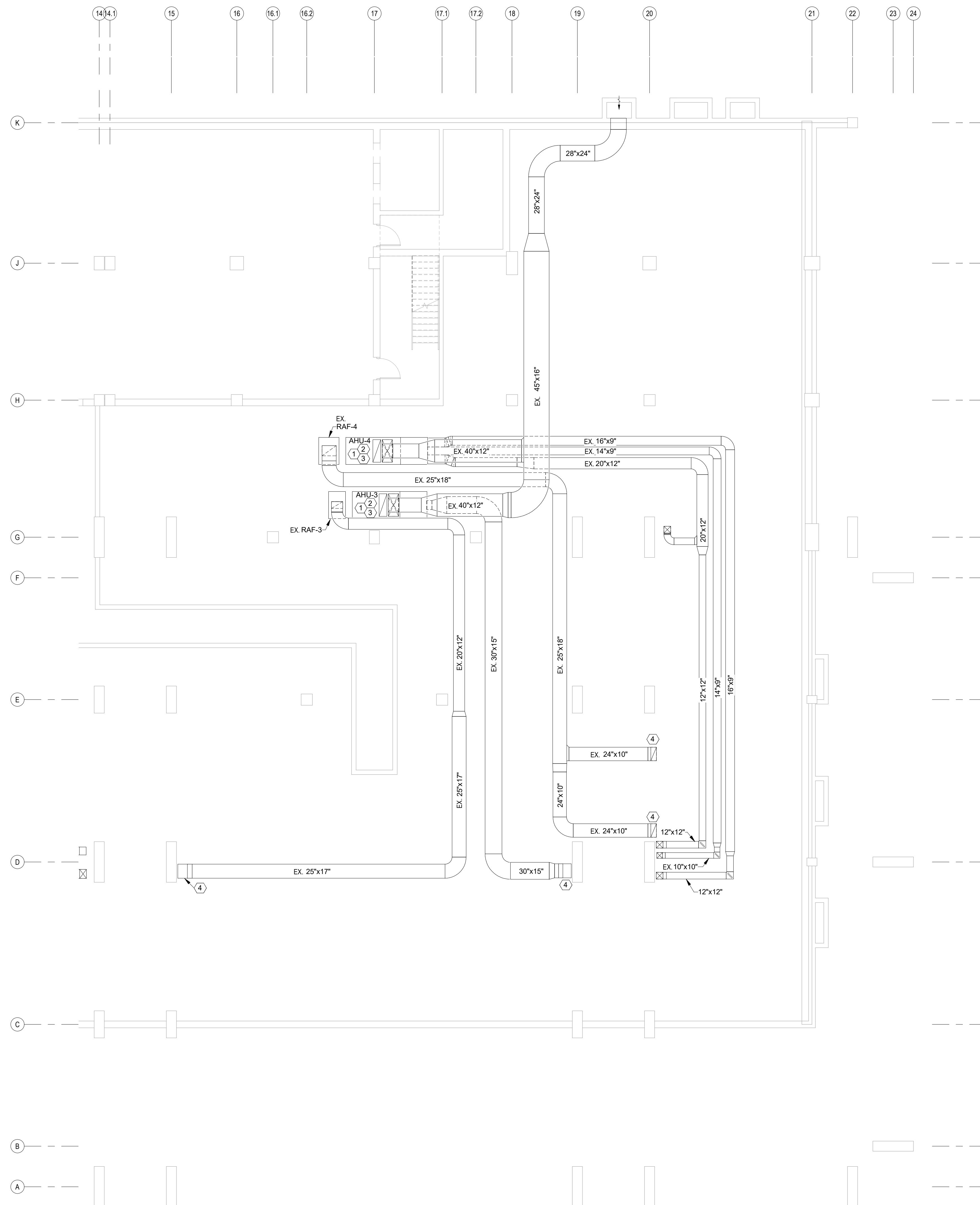
COPYRIGHT © 2020
HANBURY

SHEET TITLE:

**PARTIAL BASEMENT
PLAN - AREA B -
DUCTWORK**

SHEET NUMBER:

M102



PARTIAL BASEMENT PLAN - AREA B - DUCTWORK

SCALE 1/8" = 1'-0"

PLAN NOTES

1. CLEAN EXISTING OUTSIDE AIR DAMPER, RE-BALANCE AND RESET OUTSIDE AIR DAMPER MINIMUM TO REVISED OUTSIDE AIRFLOW SPECIFIED IN THE EXISTING AIR HANDLING UNIT SCHEDULE, THIS SHEET.
2. CLEAN FAN, MOTOR AND INTERIOR OF FAN CASING SECTION. INSTALL NEW IONIZATION SYSTEM ASSOCIATED WIRING, CONTROLS, AND CONDUIT IN FAN SECTION IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. PROBE SIZE, QUALITY, THICKNESS AND COVERAGE SHALL BE AS REQUIRED FOR WIDTH AND DEPTH OF UNIT CASING SECTION. REFER TO SPECIFICATION SECTION 23.30.03. PATCH AND REPAIR UNIT CASING AS REQUIRED FOR WIRING AND CONDUIT SLEAVE AIR-TIGHT. EXTEND CONTROL WIRING TO NEAREST MESH PANEL SPARE FOR STATUS MONITORING. COORDINATE WITH ELECTRICAL FOR CIRCUIT 2N3-20 (ROOM 134 ON FIRST FLOOR) FOR POWER TO IONIZATION GENERATORS. PROVIDE 2"X4" CONDUIT FROM BREAKER TO CONTRACTOR SPEC BOX COVER UNIT WITH 3 AMP FUSE AND 1/4" FOR FAN DAMPER AND ACCESSORIES AT FLOOR PENETRATION.
3. INSTALL ION METER, ASSOCIATED WIRING, CONTROLS, AND CONDUIT IN RETURN DUCT IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. EXTEND CONTROL WIRING TO NEAREST MESH PANEL SPARE UNIFORM FOR MONITORING.
4. EXISTING DUCT THROUGH SLAB. COORDINATE NEW DUCT CONNECTION WITH LEVEL ABOVE MAINTAINING EXISTING PENETRATION AND DUCT SIZE TO THE FLOOR. INSTALL NEW FIRE DAMPER AND ACCESSORIES AT FLOOR PENETRATION.

PRINTED: 10/12/2021 9:14:09 AM



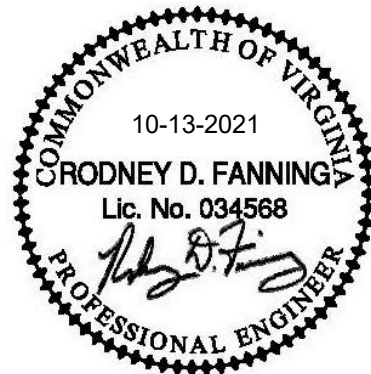
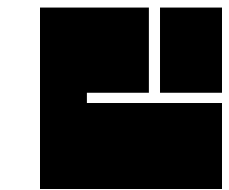
PARTIAL FIRST FLOOR PLAN - AREA A - DUCTWORK

SCALE: 1/8" = 1'-0"

PLAN NOTES

1. SET AIR DEVICE FLOW PATTERNS AS INDICATED.
2. DOUBLE WALL, INSULATED SPIRAL DUCT, PERFORATED LINER IS NOT ACCEPTABLE.
3. DUCTWORK AND AIR DEVICES EXPOSED TO VIEW IN FINISHED SPACE SHALL INCLUDE PAINT GRIP FOR FIELD PAINTING. COLOR BY ARCHITECT.
4. EXISTING DUCT THROUGH SLAB TO/FR BELOW. COORDINATE NEW DUCT CONNECTION WITH EXISTING DUCT JUST ABOVE THE FLOOR LEVEL, MAINTAINING EXISTING PENETRATION AND DUCT SIZE THROUGH THE FLOOR. INSTALL NEW FIRE DAMPER AND ACCESSORIES AT FLOOR PENETRATION.
5. COORDINATE NEW AIR DEVICE LOCATION WITH EXISTING CEILING.
6. FAN COIL UNIT SHALL BE RECESSED IN THE STRUCTURAL PRE-CAST SYSTEM WITH GRILLE KIT JUST BELOW THE LOWER BAR OF THE TEE. PROVIDE MOUNTING SUPPORT CHANNELS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. COORDINATE WITH STRUCTURAL ENGINEER FOR CONNECTION TO EXISTING STRUCTURAL PRE-CAST SYSTEM.
7. SIDEWALL AIR DEVICE MOUNTED FLUSH WITH BULKHEAD.

HANBURY

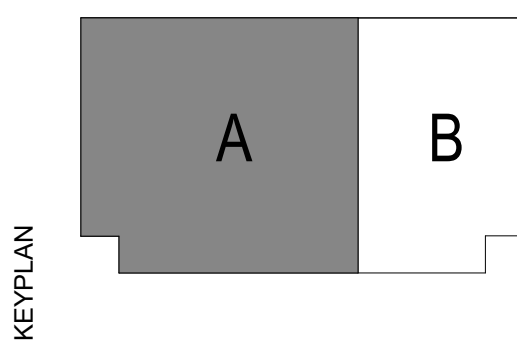


L P A
LAWRENCE PERRY & ASSOCIATES
Consulting Engineers
11 E. Salem Avenue, Suite 101
Roanoke, Virginia 24011
Phone: (540) 344-3410
Fax: (540) 344-3410
E-mail: info@lpa-engineers.com
www.lpa-engineers.com

BLACKSBURG, VA

VIRGINIA TECH
RENOVATE FIRST FLOOR OF
DIETRICK HALL AND PLAZA

VIRGINIA TECH



MARK	DATE	DESCRIPTION
13 OCT 2021	ISSUE FOR BID	
27 SEP 2021	UBO REVIEW	

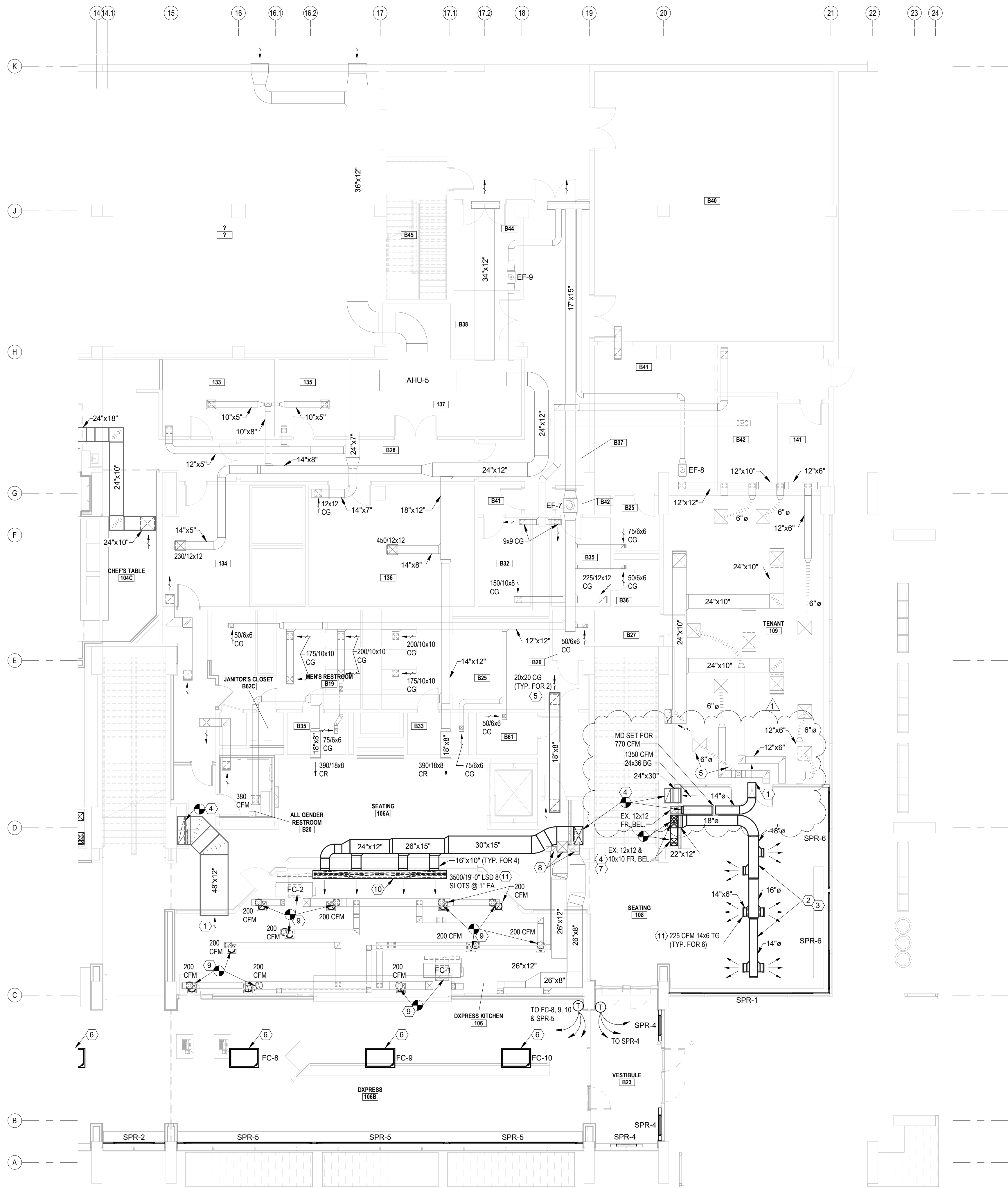
	13 OCT 2021	ISSUE FOR BID
	27 SEP 2021	UBO REVIEW
MARK	DATE	DESCRIPTION

PROJECT NO: 19029.00
DATE: 13 OCTOBER 2021
DRAWN BY: MEH
CHECKED BY: RDF
COPYRIGHT © 2020
HANBURY

SHEET TITLE:
**PARTIAL FIRST FLOOR
PLAN - AREA A -
DUCTWORK**

SHEET NUMBER:
M103

PRINTED: 11/19/2021 10:54:31 AM



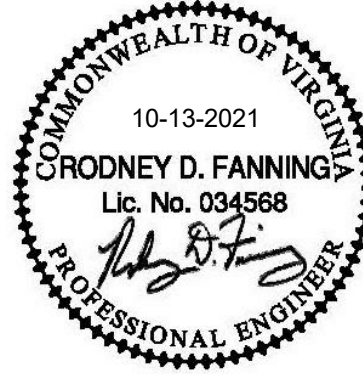
PARTIAL FIRST FLOOR PLAN - AREA B - DUCTWORK

SCALE 1/8" = 1'-0"

PLAN NOTES

1. OPEN END DUCT ABOVE CEILING. COVER WITH 1/2" x 1/2" WIRE MESH.
2. DOUBLE WALL, INSULATED SPIRAL DUCT, PERFORATED LINER IS NOT ACCEPTABLE.
3. DUCTWORK AND AIR DEVICES EXPOSED TO VIEW IN FINISHED SPACE SHALL INCLUDE PAINT GRIP FOR FIELD PAINTING. COLOR BY ARCHITECT.
4. EXISTING DUCT THROUGH SLAB TO/FR BELOW. COORDINATE NEW DUCT CONNECTION WITH EXISTING DUCT JUST ABOVE THE FLOOR LEVEL, MAINTAINING EXISTING PENETRATION AND DUCT SIZE THROUGH THE FLOOR. INSTALL NEW FIRE DAMPER AND ACCESSORIES AT FLOOR PENETRATION.
5. COORDINATE NEW AIR DEVICE LOCATION WITH EXISTING CEILING.
6. FAN COIL UNIT SHALL BE RECESSED IN THE STRUCTURAL PRE-CAST SYSTEM WITH GRILLE KIT JUST BELOW THE LOWER BAR OF THE TEE. PROVIDE MOUNTING SUPPORT CHANNELS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. COORDINATE WITH STRUCTURAL ENGINEER FOR CONNECTION TO EXISTING STRUCTURAL PRE-CAST SYSTEM.
7. COMBINE DUCTS IN VERTICAL.
8. EXISTING KITCHEN HOOD MAKE-UP AND EXHAUST DUCTS. VERIFY LOCATION. COORDINATE NEW PIPING AND DUCT ROUTES WITH EXISTING DUCTWORK.
9. RELOCATE EXISTING CEILING DEVICE AS REQUIRED TO ALIGN WITH NEW GRID. PROVIDE FLEX DUCT EXTENSIONS FULL SIZE OF EXISTING DEVICE OPENING.
10. 12" DEEP PLENUM FULL SIZE OF LINEAR DIFFUSER.
11. SET AIR DEVICE THROW PATTERN AS INDICATED.

HANBURY



L P A
LAWRENCE PERRY & ASSOCIATES
Consulting Engineers
11 E Salem Avenue SE, Suite 101
Roanoke, Virginia 24011
Phone: (540) 342-1816
Fax: (540) 344-3410
E-mail: info@lpa-engineers.com
© Lawrence Perry and Associates, Inc.

CONSULTANT

BLACKSBURG, VA

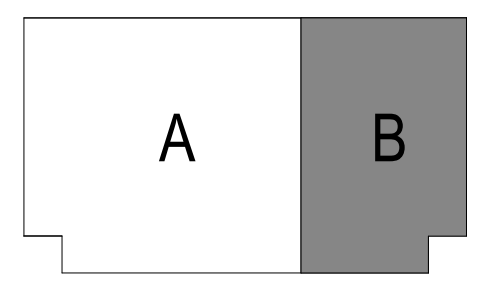
VIRGINIA TECH



RENOVATE FIRST FLOOR OF
DIETRICK HALL AND PLAZA

208-L00050-000

KEY PLAN



MARK	DATE	DESCRIPTION
1	22 NOV 2021	ADDENDUM 02
13	OCT 2021	ISSUE FOR BID
27	SEP 2021	UBO REVIEW

PROJECT NO: 19029.00

DATE: 13 OCTOBER 2021

DRAWN BY: MEH

CHECKED BY: RDF

COPYRIGHT © 2020 HANBURY

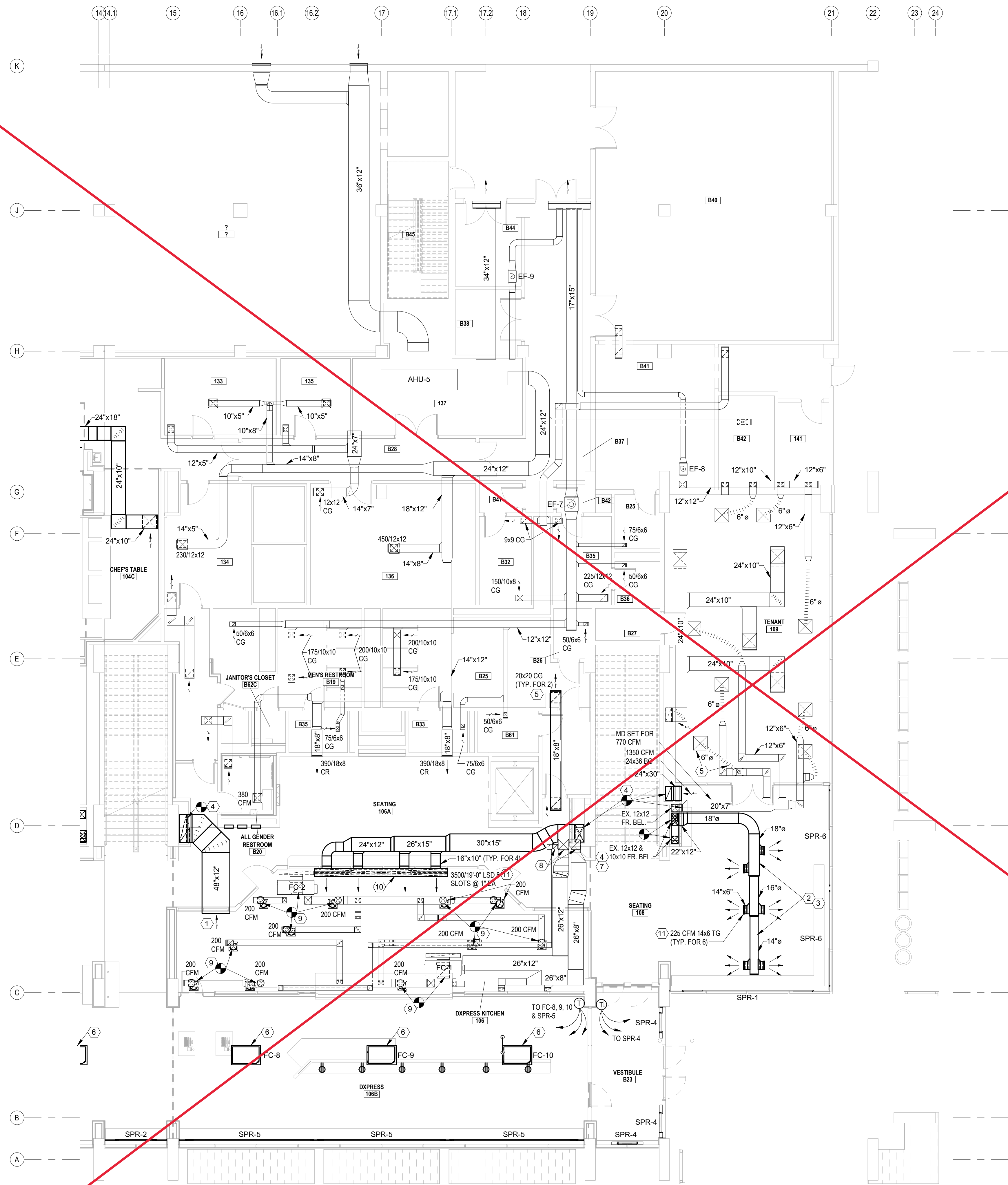
SHEET TITLE:

**PARTIAL FIRST FLOOR
PLAN - AREA B -
DUCTWORK**

SHEET NUMBER:

M104

PRINTED: 10/12/2021 9:14:12 AM



PARTIAL FIRST FLOOR PLAN - AREA B - DUCTWORK

SCALE 1/8" = 1'-0"

PLAN NOTES

1. OPEN END DUCT ABOVE CEILING. COVER WITH 1/2" x 1/2" WIRE MESH.
2. DOUBLE WALL, INSULATED SPIRAL DUCT, PERFORATED LINER IS NOT ACCEPTABLE.
3. DUCTWORK AND AIR DEVICES EXPOSED TO VIEW IN FINISHED SPACE SHALL INCLUDE PAINT GRIP FOR FIELD PAINTING. COLOR BY ARCHITECT.
4. EXISTING DUCT THROUGH SLAB TO FR BELOW. COORDINATE NEW DUCT CONNECTION WITH EXISTING DUCT JUST ABOVE THE FLOOR LEVEL, MAINTAINING EXISTING PENETRATION AND DUCT SIZE THROUGH THE FLOOR. INSTALL NEW FIRE DAMPER AND ACCESSORIES AT FLOOR PENETRATION.
5. COORDINATE NEW AIR DEVICE LOCATION WITH EXISTING CEILING.
6. FAN COIL UNIT SHALL BE RECESSED IN THE STRUCTURAL PRE-CAST SYSTEM WITH GRILLE KIT JUST BELOW THE LOWER BAR OF THE TEE. PROVIDE MOUNTING SUPPORT CHANNELS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. COORDINATE WITH STRUCTURAL ENGINEER FOR CONNECTION TO EXISTING STRUCTURAL PRE-CAST SYSTEM.
7. COMBINE DUCTS IN VERTICAL.
8. EXISTING KITCHEN HOOD MAKE-UP AND EXHAUST DUCTS. VERIFY LOCATION. COORDINATE NEW PIPING AND DUCT ROUTES WITH EXISTING DUCTWORK.
9. RELOCATE EXISTING CEILING DEVICE AS REQUIRED TO ALIGN WITH NEW GRID. PROVIDE FLEX DUCT EXTENSIONS FULL SIZE OF EXISTING DEVICE OPENING.
10. 12" DEEP PLENUM FULL SIZE OF LINEAR DIFFUSER.
11. SET AIR DEVICE THROW PATTERN AS INDICATED.

MARK	DATE	DESCRIPTION
13 OCT 2021	ISSUE FOR BID	
27 SEP 2021	UBO REVIEW	

PROJECT NO:	19029.00
DATE:	13 OCTOBER 2021
DRAWN BY:	MEH
CHECKED BY:	RDF
COPYRIGHT © 2020	HANBURY

SHEET TITLE:
PARTIAL FIRST FLOOR
PLAN - AREA B -
DUCTWORK

SHEET NUMBER:

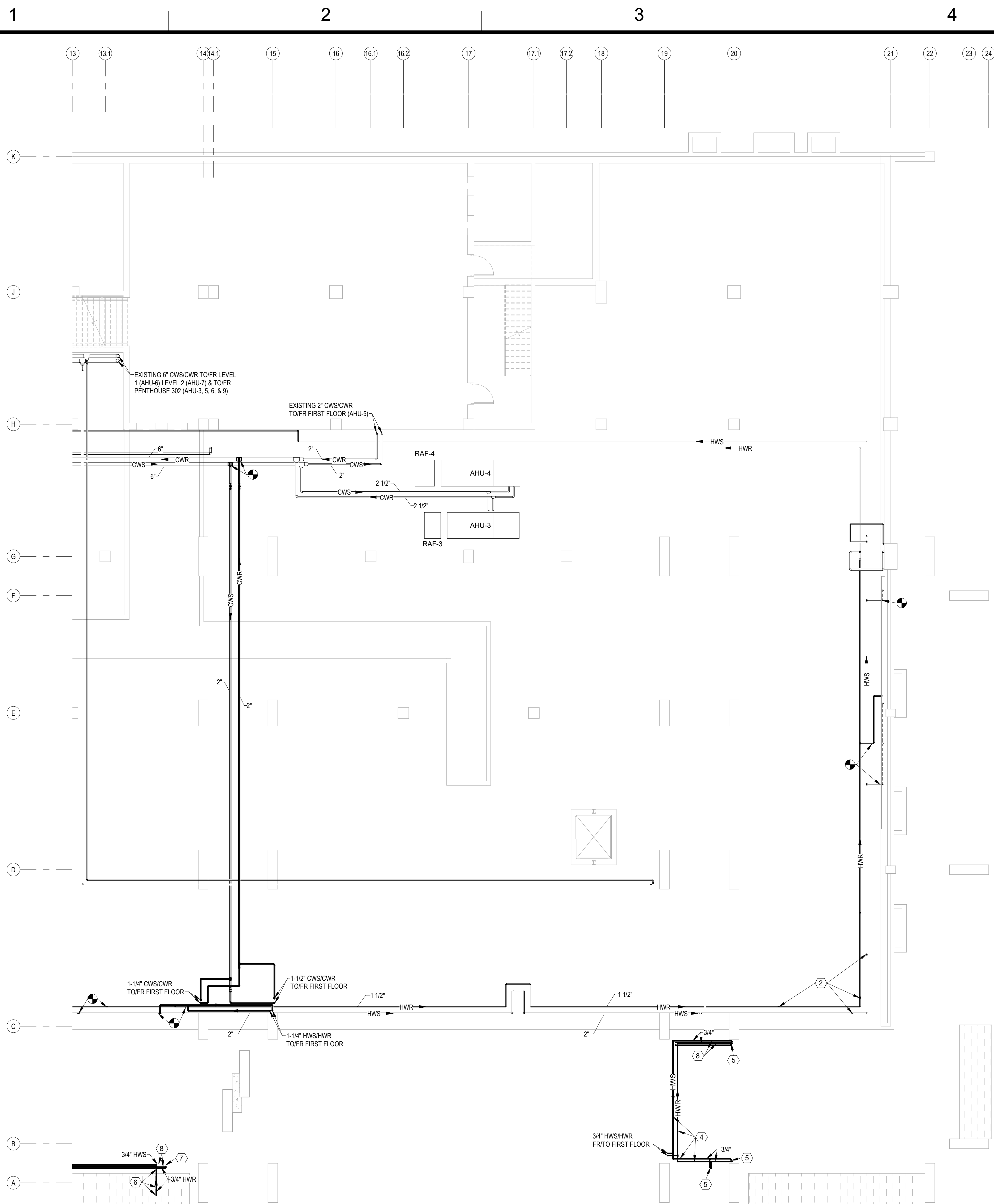
M104



1. HWS/HWR TO/FROM EXISTING FIRST FLOOR BASEBOARD HEAT.
2. CAP AND SEAL EXISTING PIPE BRANCH TAP. PATCH AND SEAL PIPE INSULATION AS REQUIRED.
3. HWS/HWR PIPING THROUGH BASEMENT WALL. SLEEVE AND SEAL WATER-TIGHT.
4. PIPING IN THIS AREA IN ACCESSIBLE VESTIBULE PIPING TRENCH IN CONCRETE SLAB.
5. HWS/HWR TO/FROM NEW STEEL PANEL RADIATION (SPR.) IN FIRST FLOOR VESTIBULE. COORDINATE LOCATION WITH PANEL ENCLOSURE AND PIPING CONNECTIONS. PROVIDE ESCUTCHEON FOR PIPE PENETRATION AT FLOOR ABOVE.
6. REPLACE EXISTING PUMP IMPELLER IN STRICT ACCORDANCE WITH THE PUMP MANUFACTURER'S RECOMMENDATIONS; SIZE AS INDICATED ON THE PUMP SCHEDULE. SHEET M001. ALIGN COUPLING, LEVEL AND RE-GROUT AS REQUIRED. REPLACE EXISTING INSULATED PUMP BOX WITH NEW INSULATED PUMP BOX AS SPECIFIED.
7. INSTALL NEW BASE MOUNTED HEATING WATER PUMP, ASSOCIATED PIPING, ACCESSORIES, CONTROLS, AND CONDUIT. ALIGN, LEVEL, AND GROUT IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
8. INSTALL NEW PIPING AS SHOWN. PATCH AND VAPOR SEAL NEW PIPING INSULATION TO EXISTING INSULATION.
9. HWS/HWR TO/FROM NEW FINNED TUBE CONVECTOR IN ACCESSIBLE VESTIBULE PIPING TRENCH. COORDINATE LOCATION WITH CONVECTOR CONNECTIONS.
10. HWS/HWR TO/FROM FIRST FLOOR. PROVIDE ESCUTCHEON FOR PIPE PENETRATION AT FLOOR ABOVE.
11. THIS PIPING SECTION ENCASED IN CONCRETE. PROVIDE SECONDARY SUPPLY AND RETURN LINES AND CAP FOR FUTURE. TERMINATE SECONDARY LINES 3" ABOVE FINISH FLOOR. SLOPE PIPE FOR AIR REMOVAL.

SHEET NUMBER:

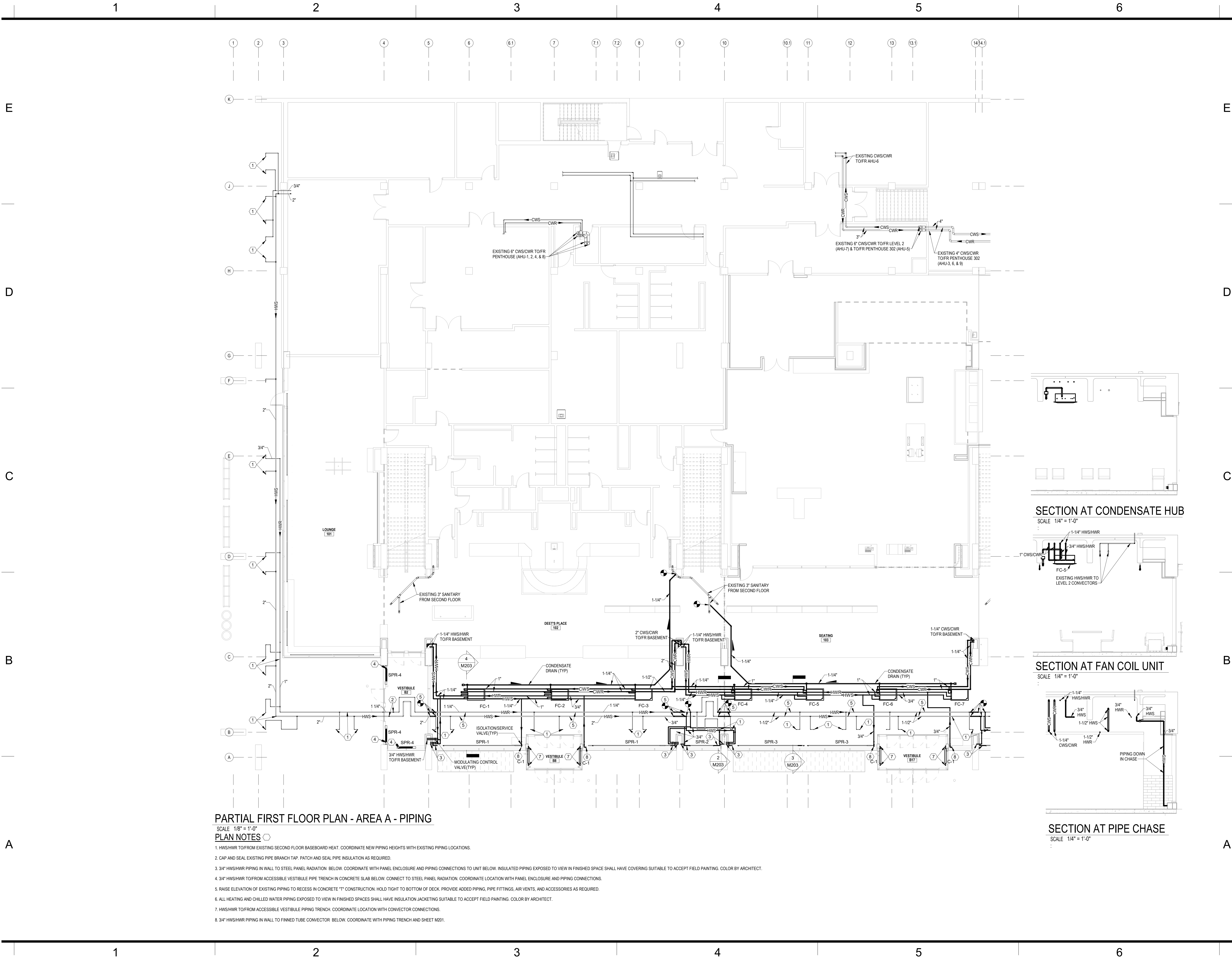
M201



SCALE 1/8" = 1'-0"

1. HWSHWR TOFROM EXISTING FIRST FLOOR BASEBOARD HEAT.
2. CAP AND SEAL EXISTING PIPE BRANCH TAP. PATCH AND SEAL PIPE INSULATION AS REQUIRED.
3. HWSHWR PIPING THROUGH BASEMENT WALL. SLEEVE AND SEAL WATER-TIGHT.
4. PIPING IN THIS AREA IN ACCESSIBLE VESTIBULE PIPING TRENCH IN CONCRETE SLAB.
5. HWSHWR TOFROM NEW STEEL PANEL RADIATION (SPR) IN FIRST FLOOR VESTIBULE. COORDINATE LOCATION WITH PANEL ENCLOSURE AND PIPING CONNECTIONS. PROVIDE ESCUTCHEON FOR PIPE PENETRATION AT FLOOR ABOVE.
6. HWSHWR TOFROM NEW FINNED TUBE CONVECTOR IN ACCESSIBLE VESTIBULE PIPING TRENCH. COORDINATE LOCATION WITH CONVECTOR CONNECTIONS.
7. HWSHWR TOFROM FIRST FLOOR. PROVIDE ESCUTCHEON FOR PIPE PENETRATION AT FLOOR ABOVE.
8. THIS PIPING SECTION ENCASED IN CONCRETE. PROVIDE SECONDARY SUPPLY AND RETURN LINES AND CAP FOR FUTURE. TERMINATE SECONDARY LINES 3" ABOVE FINISHED FLOOR. SLOPE PIPE FOR AIR REMOVAL.

PRINTED: 10/12/2021 9:14:25 AM

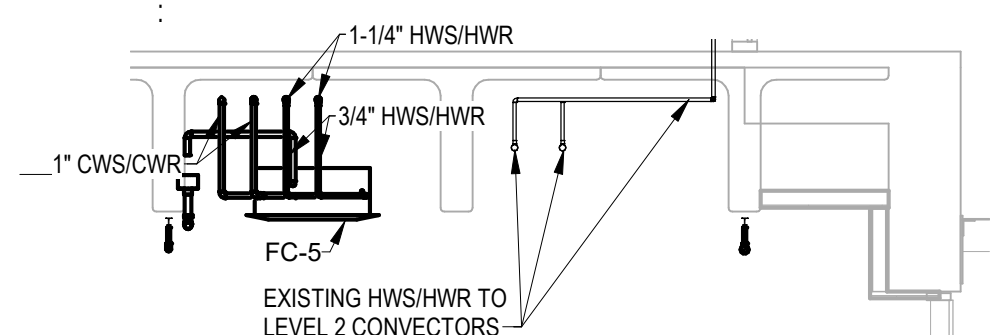


PARTIAL FIRST FLOOR PLAN - AREA A - PIPING

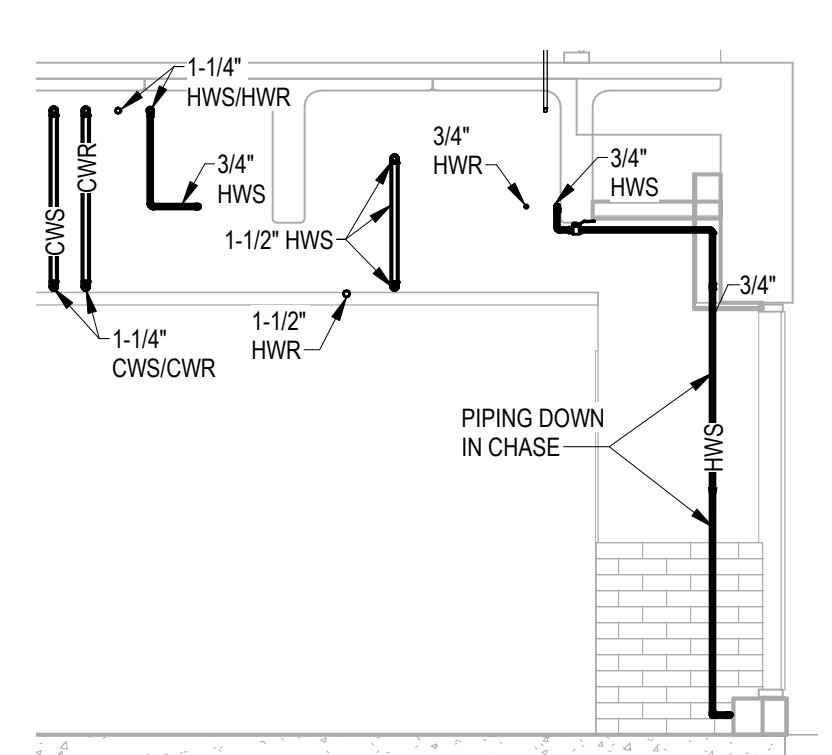
SCALE: 1/8" = 1'-0"
PLAN NOTES

1. HWS/HWR TO/FROM EXISTING SECOND FLOOR BASEBOARD HEAT. COORDINATE NEW PIPING HEIGHTS WITH EXISTING PIPING LOCATIONS.
2. CAP AND SEAL EXISTING PIPE BRANCH TAP. PATCH AND SEAL PIPE INSULATION AS REQUIRED.
3. 3/4" HWS/HWR PIPING IN WALL TO STEEL PANEL RADIATION. BELOW. COORDINATE WITH PANEL ENCLOSURE AND PIPING CONNECTIONS TO UNIT BELOW. INSULATED PIPING EXPOSED TO VIEW IN FINISHED SPACE SHALL HAVE COVERING SUITABLE TO ACCEPT FIELD PAINTING. COLOR BY ARCHITECT.
4. 3/4" HWS/HWR TO/FROM ACCESSIBLE VESTIBULE PIPE TRENCH IN CONCRETE SLAB BELOW. CONNECT TO STEEL PANEL RADIATION. COORDINATE LOCATION WITH PANEL ENCLOSURE AND PIPING CONNECTIONS.
5. RAISE ELEVATION OF EXISTING PIPING TO RECESS IN CONCRETE 1" CONSTRUCTION. HOLD TIGHT TO BOTTOM OF DECK. PROVIDE ADDED PIPING, PIPE FITTINGS, AIR VENTS, AND ACCESSORIES AS REQUIRED.
6. ALL HEATING AND CHILLED WATER PIPING EXPOSED TO VIEW IN FINISHED SPACES SHALL HAVE INSULATION JACKETING SUITABLE TO ACCEPT FIELD PAINTING. COLOR BY ARCHITECT.
7. HWS/HWR TO/FROM ACCESSIBLE VESTIBULE PIPING TRENCH. COORDINATE LOCATION WITH CONNECTOR CONNECTIONS.
8. 3/4" HWS/HWR PIPING IN WALL TO FINNED TUBE CONNECTOR. BELOW. COORDINATE WITH PIPING TRENCH AND SHEET M201.

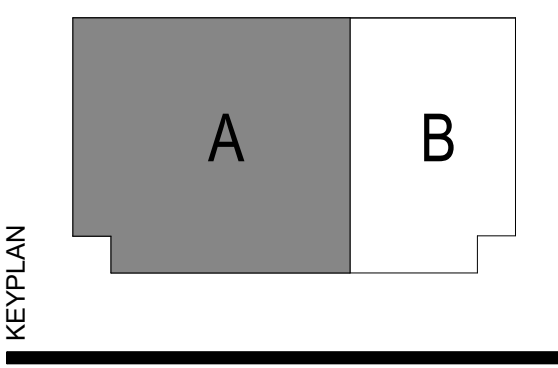
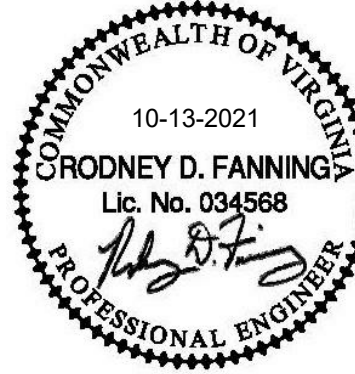
SECTION AT CONDENSATE HUB
SCALE: 1/4" = 1'-0"



SECTION AT FAN COIL UNIT
SCALE: 1/4" = 1'-0"

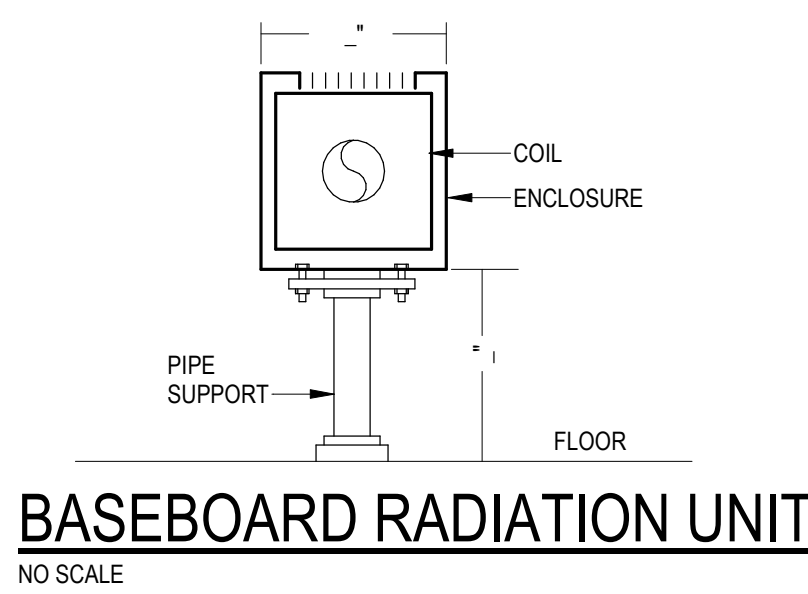


SECTION AT PIPE CHASE
SCALE: 1/4" = 1'-0"



13 OCT 2021		ISSUE FOR BID
27 SEP 2021		UBO REVIEW
MARK	DATE	DESCRIPTION
PROJECT NO: 19029.00		
DATE:		13 OCTOBER 2021
DRAWN BY:		MEH
CHECKED BY:		RDF
COPYRIGHT © 2020 HANBURY		
SHEET TITLE:		
PARTIAL FIRST FLOOR PLAN - AREA A - PIPING		
SHEET NUMBER:		

E

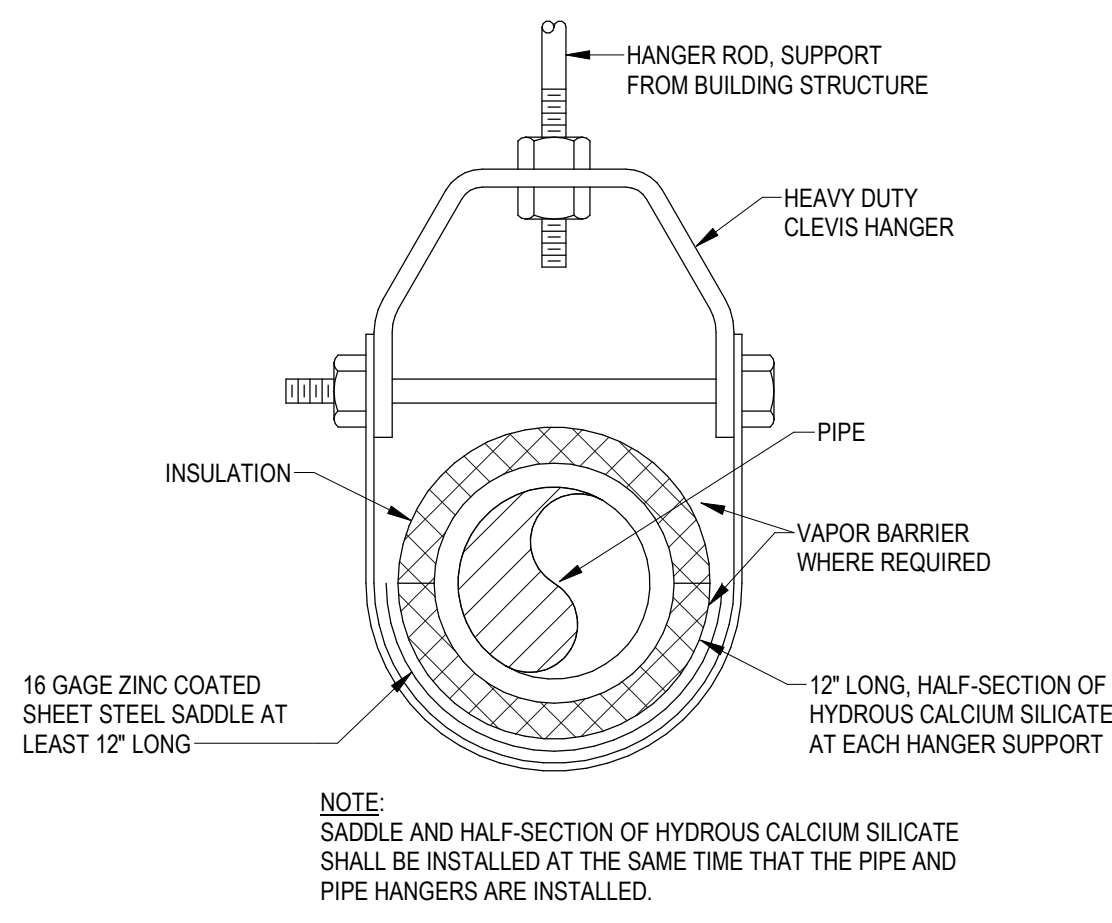


BASEBOARD RADIATION UNIT
NO SCALE

NOTE:
1. THERE SHALL BE UNINTERRUPTED STRAIGHT PIPE 5 DIAMETERS OF PIPE DOWNSTREAM AND 5 DIAMETERS OF PIPE UPSTREAM FROM EACH CIRCUIT SENSOR. BALANCE VALVE SHALL BE ADJUSTED TO PROVIDE GPM INDICATED AT EACH C.S.
2. THE ENTIRE CIRCUIT SETTER SHALL BE INSULATED WITH REMOVABLE SECTIONS OF PIPE INSULATION SIZED TO OVERLAP THE CONNECTED PIPE INSULATION. INSULATION SHALL OVERLAP 3 INCHES. CHILLED WATER SYSTEMS SHALL BE VAPOR SEALED AS SPECIFIED.

CIRCUIT SETTER DETAIL
SCHEMATIC

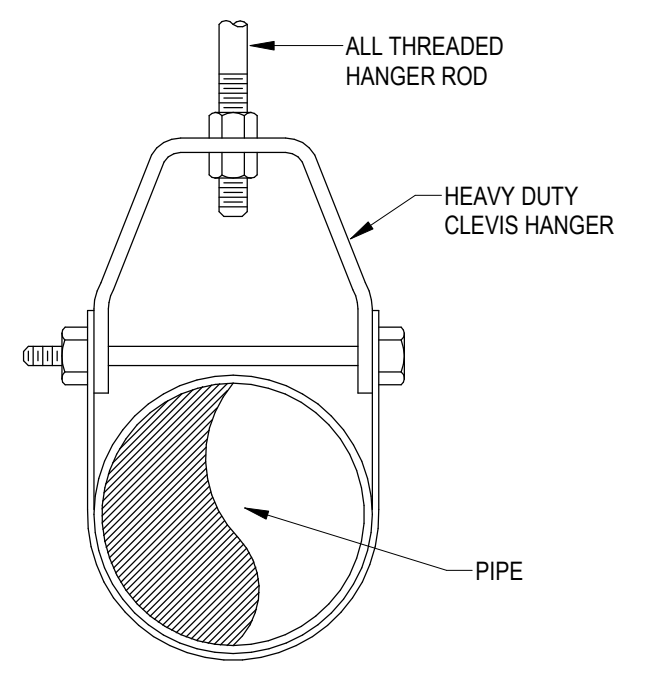
D



NOTE:
SADDLE AND HALF-SECTION OF HYDROUS CALCIUM SILICATE SHALL BE INSTALLED AT THE SAME TIME THAT THE PIPE AND PIPE HANGERS ARE INSTALLED.
SEE SPECIFICATIONS FOR LOCATIONS WHERE HYDROUS CALCIUM SILICATE IS REQUIRED.

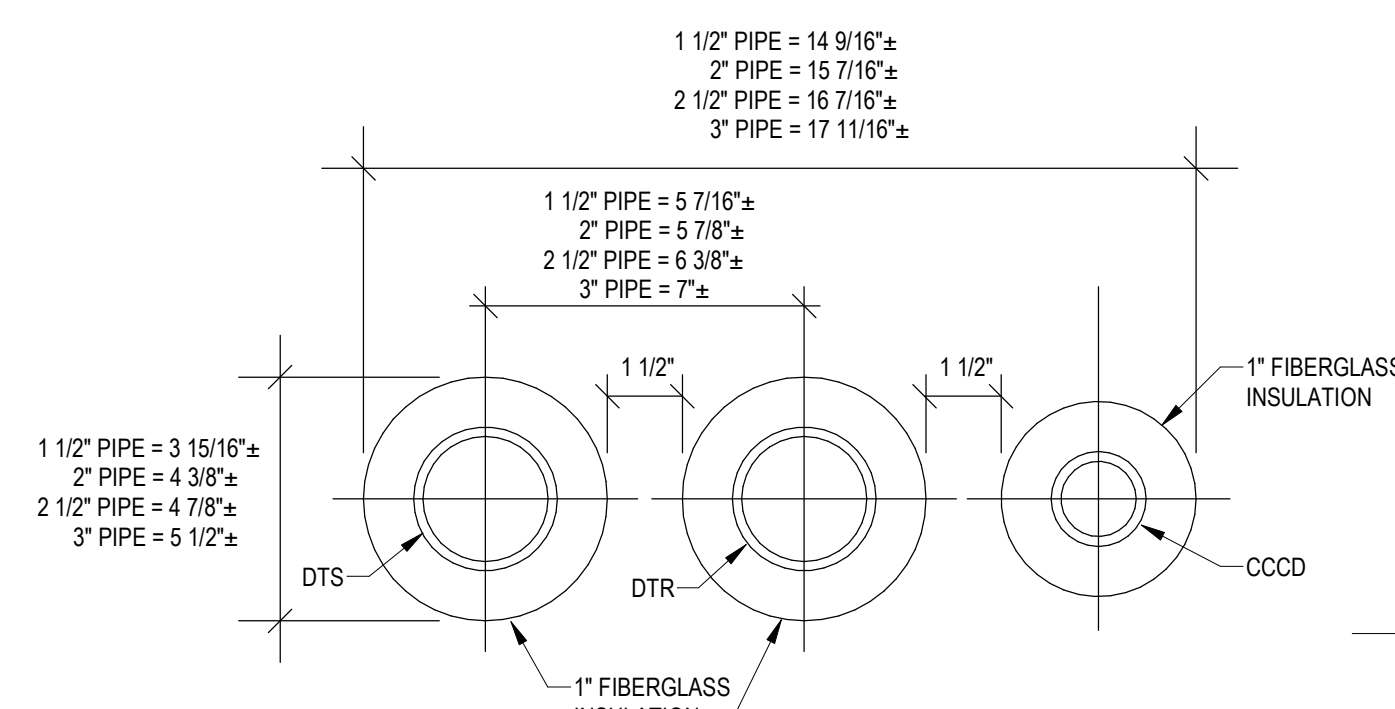
PIPE SUPPORT DETAIL
NO SCALE

C



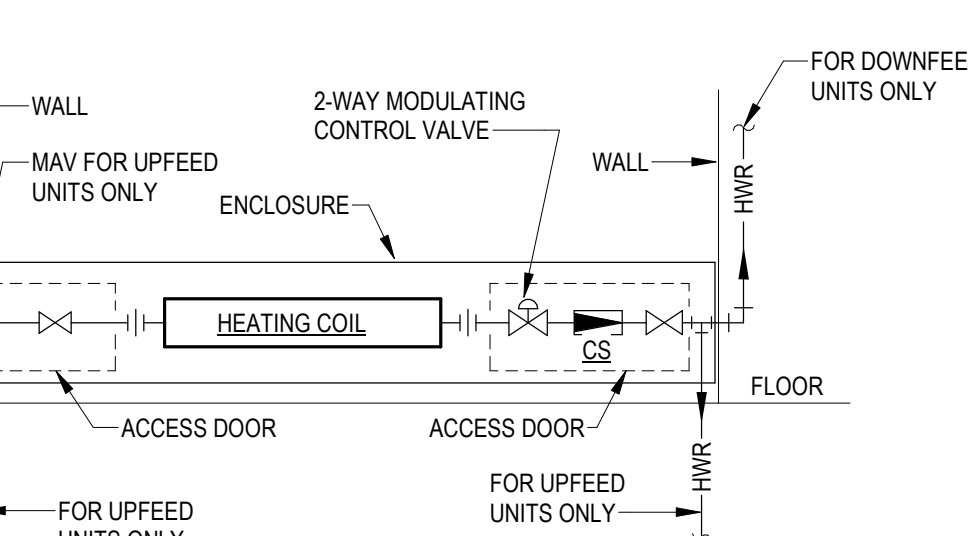
WATER PIPE SUPPORT (NON-INSULATED) DETAIL
NO SCALE

B

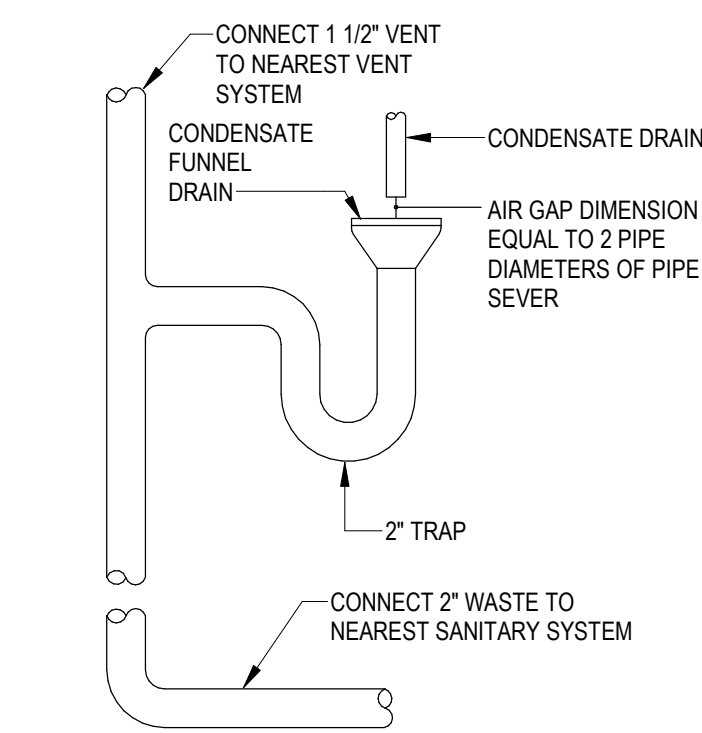


PIPE RISER DETAIL
NO SCALE

A

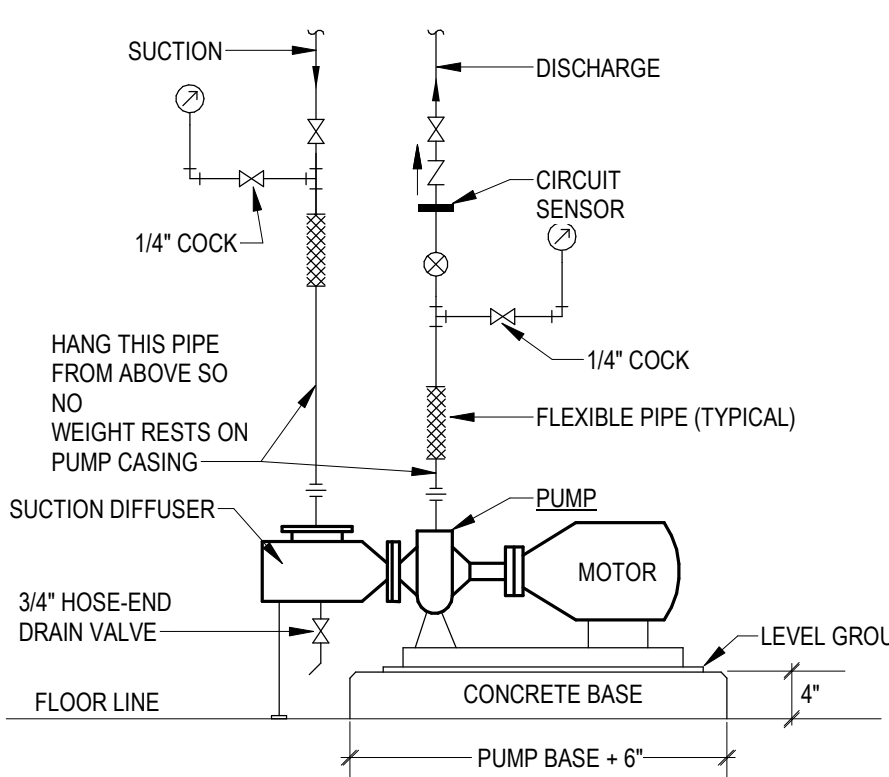


FIN TUBE RADIATORS (BBH) COIL CONNECTION DETAIL
NO SCALE

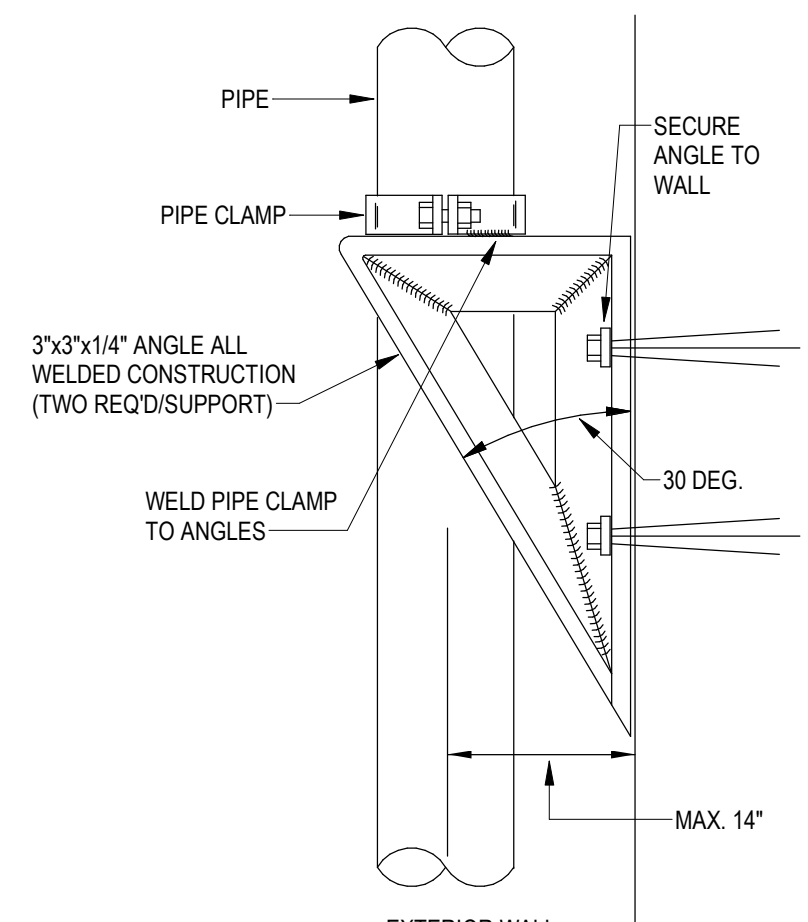


(COORD. WITH MECHANICAL PLANS TO DETERMINE LOCATIONS)

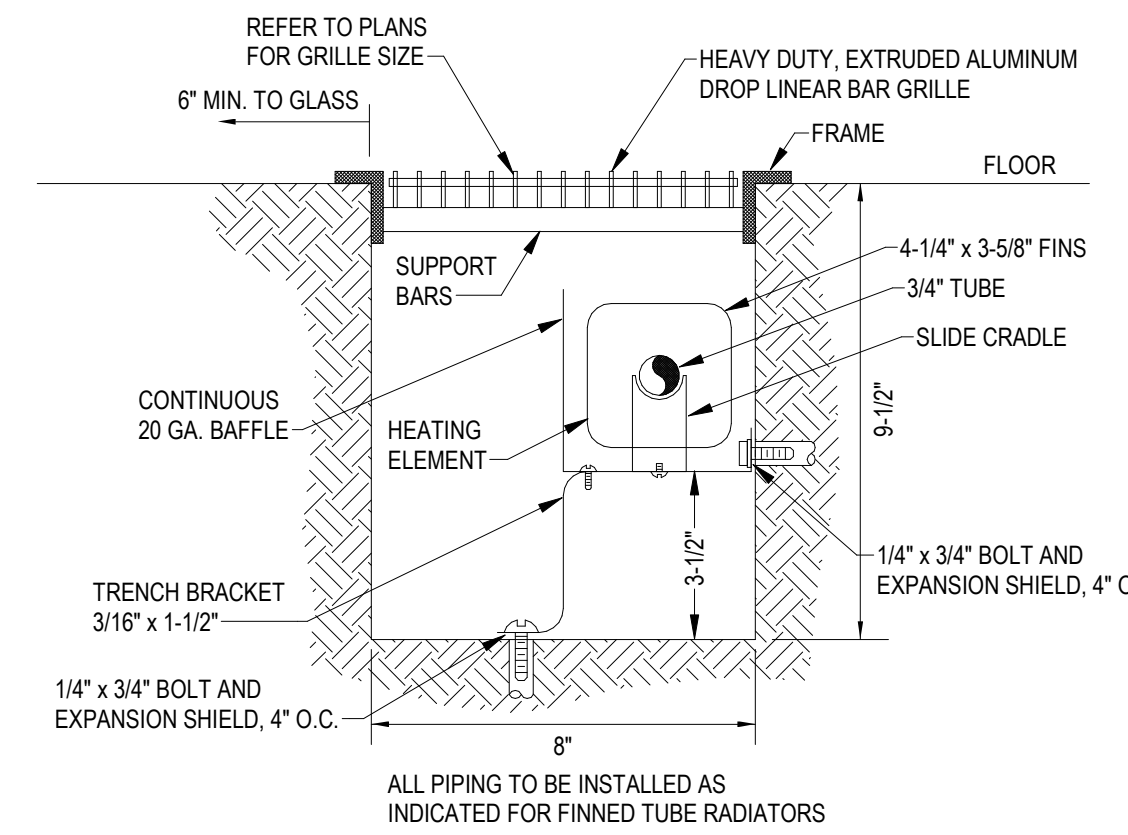
CONDENSATE DRAIN DETAIL
NO SCALE



BASE MOUNTED PUMP DETAIL
SCHEMATIC

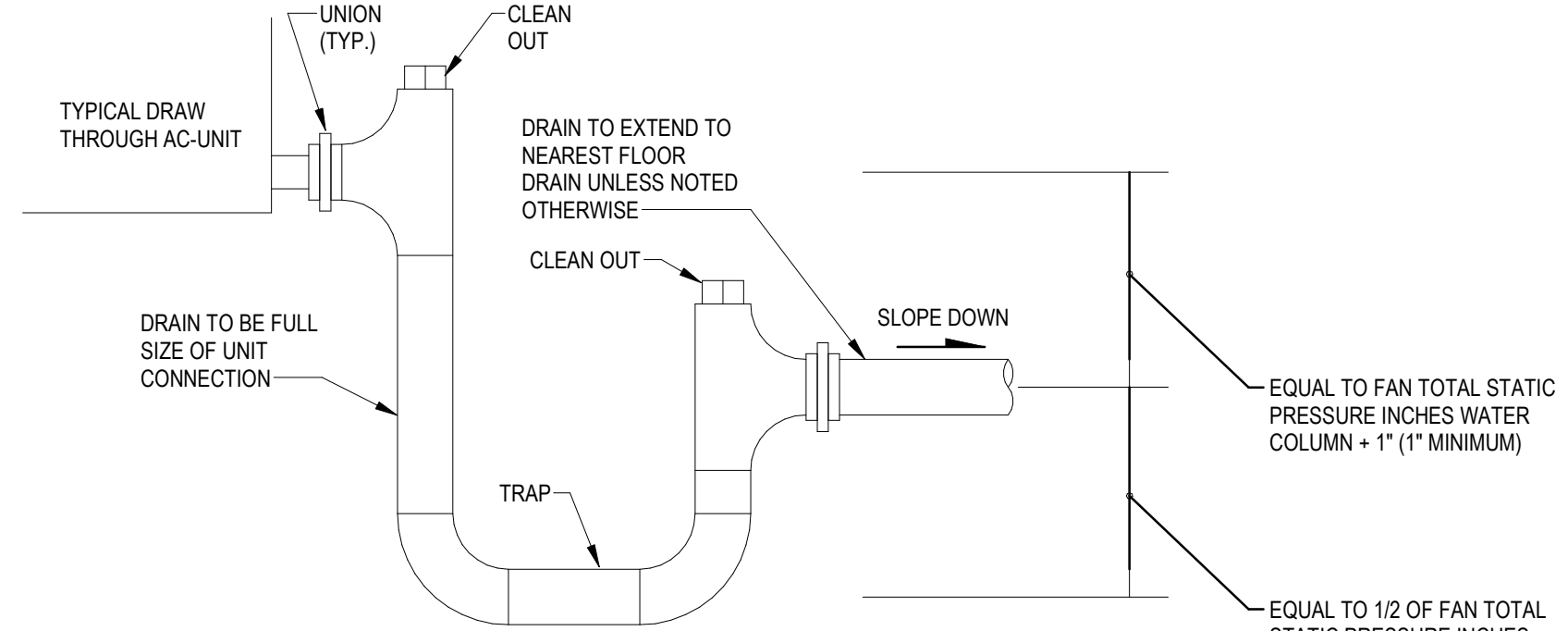


EXTERIOR PIPE SUPPORT DETAIL
NO SCALE

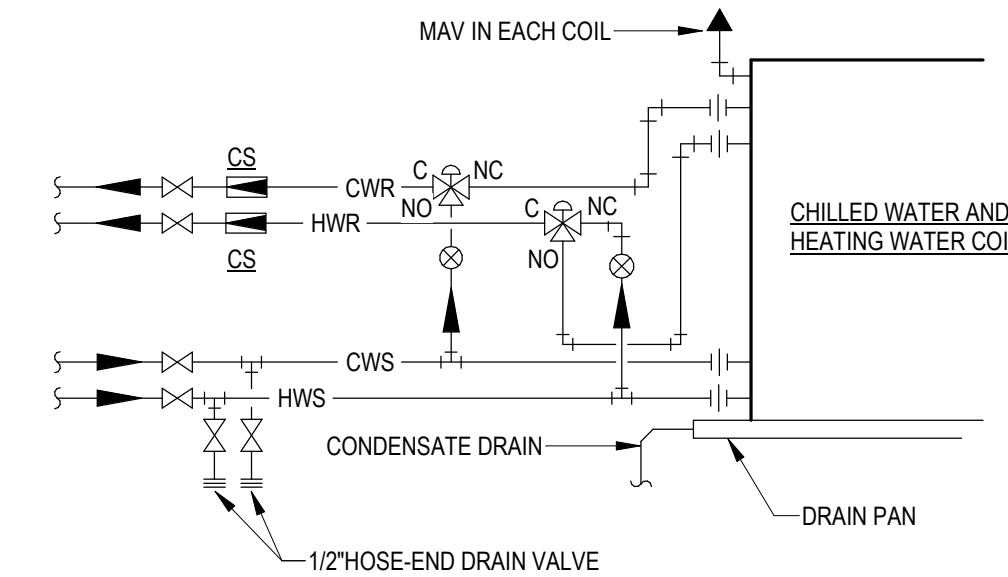


FINNED TUBE CONVECTOR CUSTOM ENCLOSURE
NO SCALE

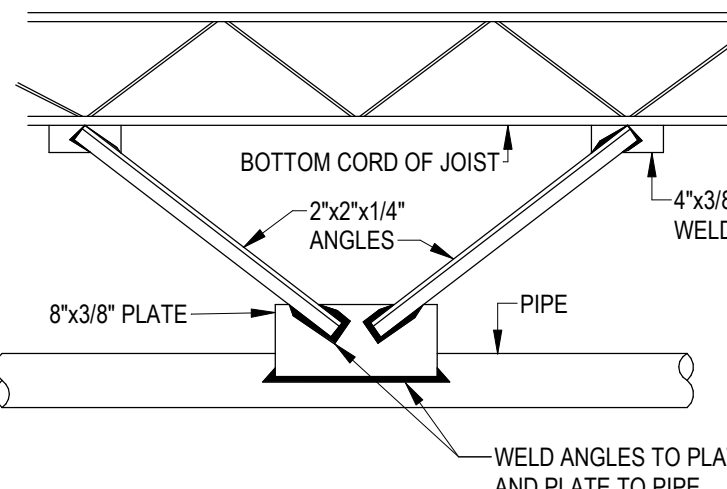
3



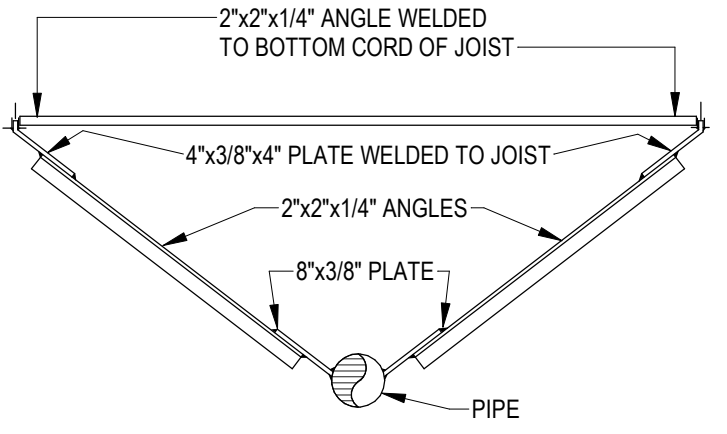
COOLING COIL CONDENSATE DRAIN
NO SCALE



FAN COIL UNIT COIL CONNECTION DETAIL
SCHEMATIC



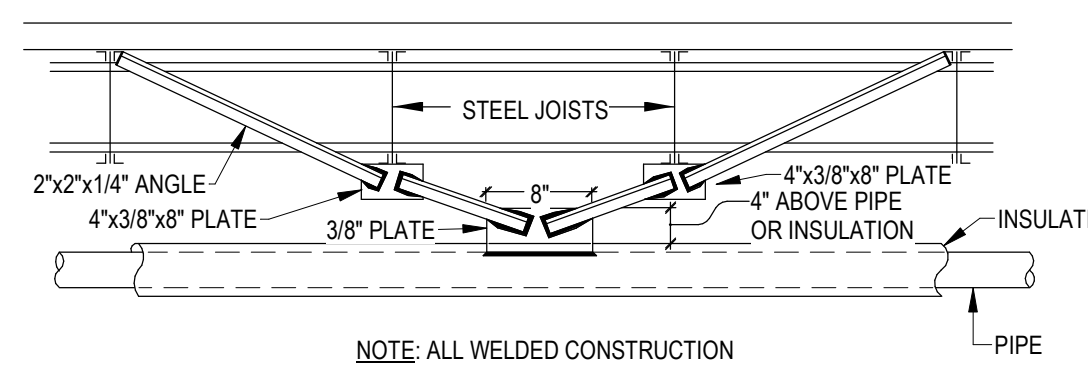
ELEVATION



NOTE: PROVIDE ONLY TWO STRUTS WHERE ONE JOIST IS DIRECTLY ABOVE PIPING

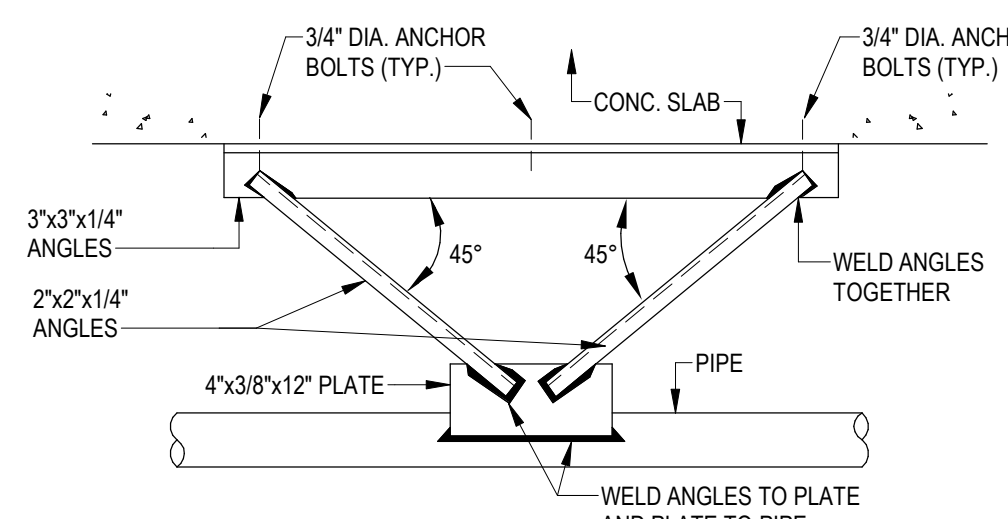
SECTION

PIPE ANCHOR WITH JOISTS & PIPE PARALLEL DETAIL
SCHEMATIC



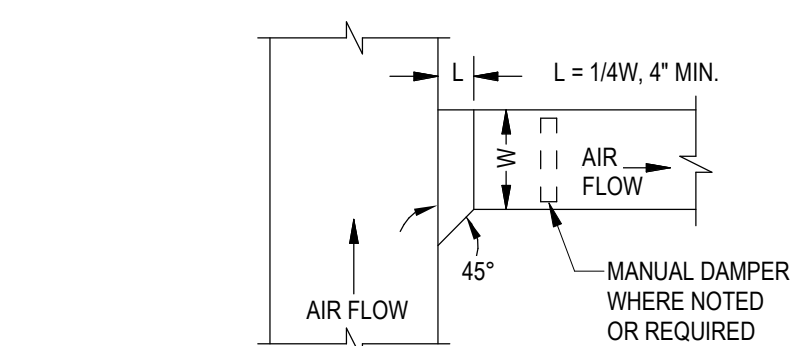
NOTE: ALL WELDED CONSTRUCTION

PIPE ANCHOR WITH JOISTS & PIPE PERPENDICULAR DETAIL
SCHEMATIC

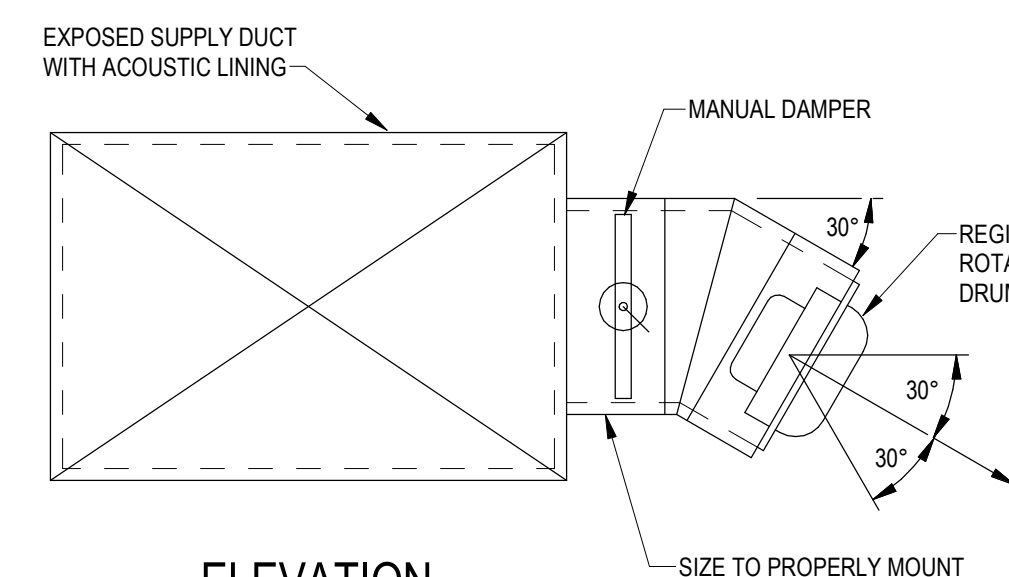


PIPE ANCHOR TO CONCRETE SLAB DETAIL
NO SCALE

4

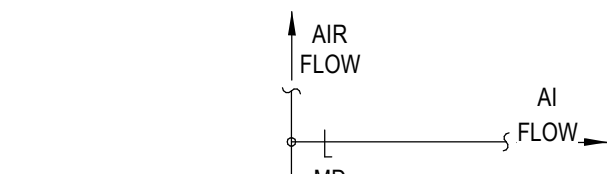


BRANCH DUCT CONNECTION DETAIL
SCHEMATIC

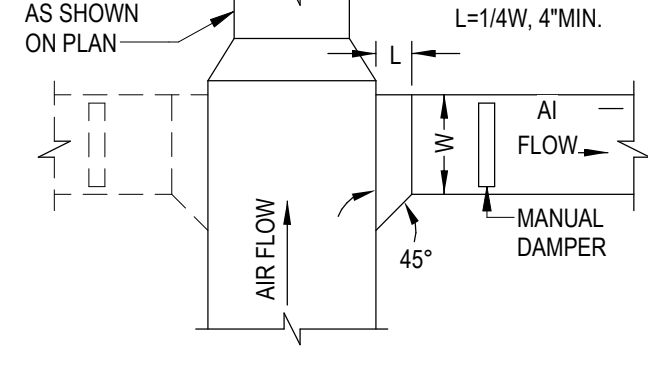


ELEVATION

DUCT MOUNTED TOP REGISTER DETAIL
NO SCALE

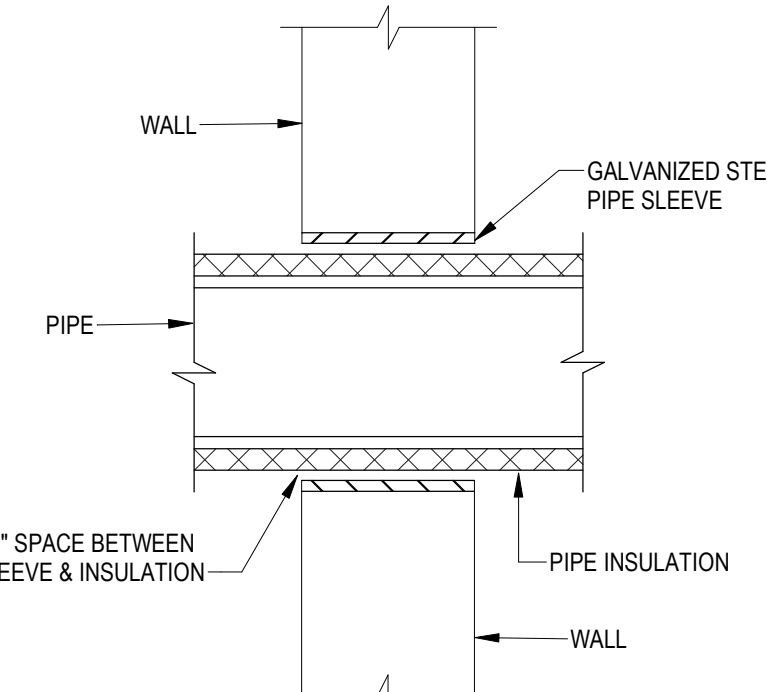


SINGLE LINE REPRESENTATION



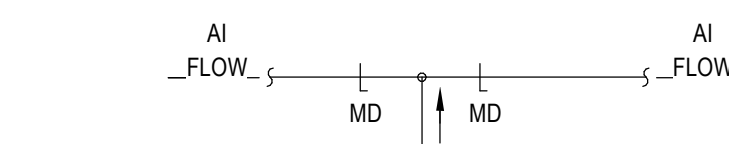
NOTE: PROVIDE MD ONLY WHERE INDICATED ON DRAWINGS.

LATERAL BRANCH DUCT DETAIL
SCHEMATIC

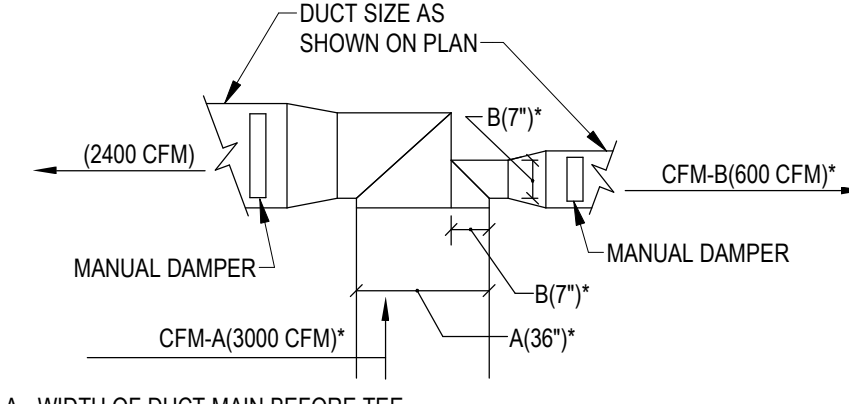


NOTE: WHERE PIPES PENETRATE FIRE-RATED WALLS, FILL SPACE BETWEEN PIPE & SLEEVE WITH A FIRE-RESISTANT MATERIAL WITH SUFFICIENT RATING TO MAINTAIN THE FIRE RATING OF THE WALL. WHERE PIPES PENETRATE EXTERIOR WALLS, FILL SPACE BETWEEN PIPE & SLEEVE WITH FIBERGLASS INSULATION.

WALL PIPE SLEEVE DETAIL
NO SCALE



SINGLE LINE REPRESENTATION



A - WIDTH OF DUCT MAIN BEFORE TEE.
B - WIDTH OF GIVEN BRANCH.
CFM-A - TOTAL AIR QUANTITY PASSING THRU DUCT AT A.
CFM-B - AIR QUANTITY REMOVED AT BRANCH B.

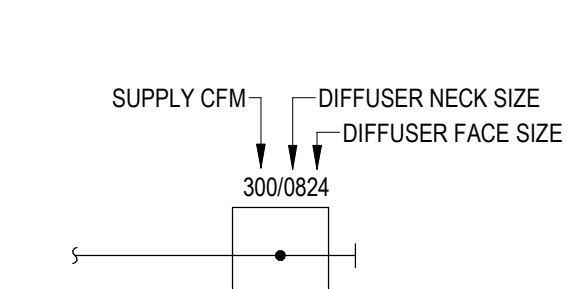
B = CFM-B X A
CFM-A = 3000 CFM
CFM-B = 600 CFM
A = 36"
B = 600 CFM / 3000 CFM X 36" = 7.2"

SAY B = 7 1/2" ROUNDED OFF TO THE NEAREST 1/2"

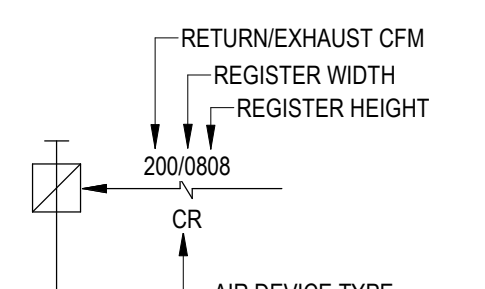
NOTE: PROVIDE MD ONLY WHERE INDICATED ON DRAWINGS.

TEE-BRANCH DUCT DETAIL
NO SCALE

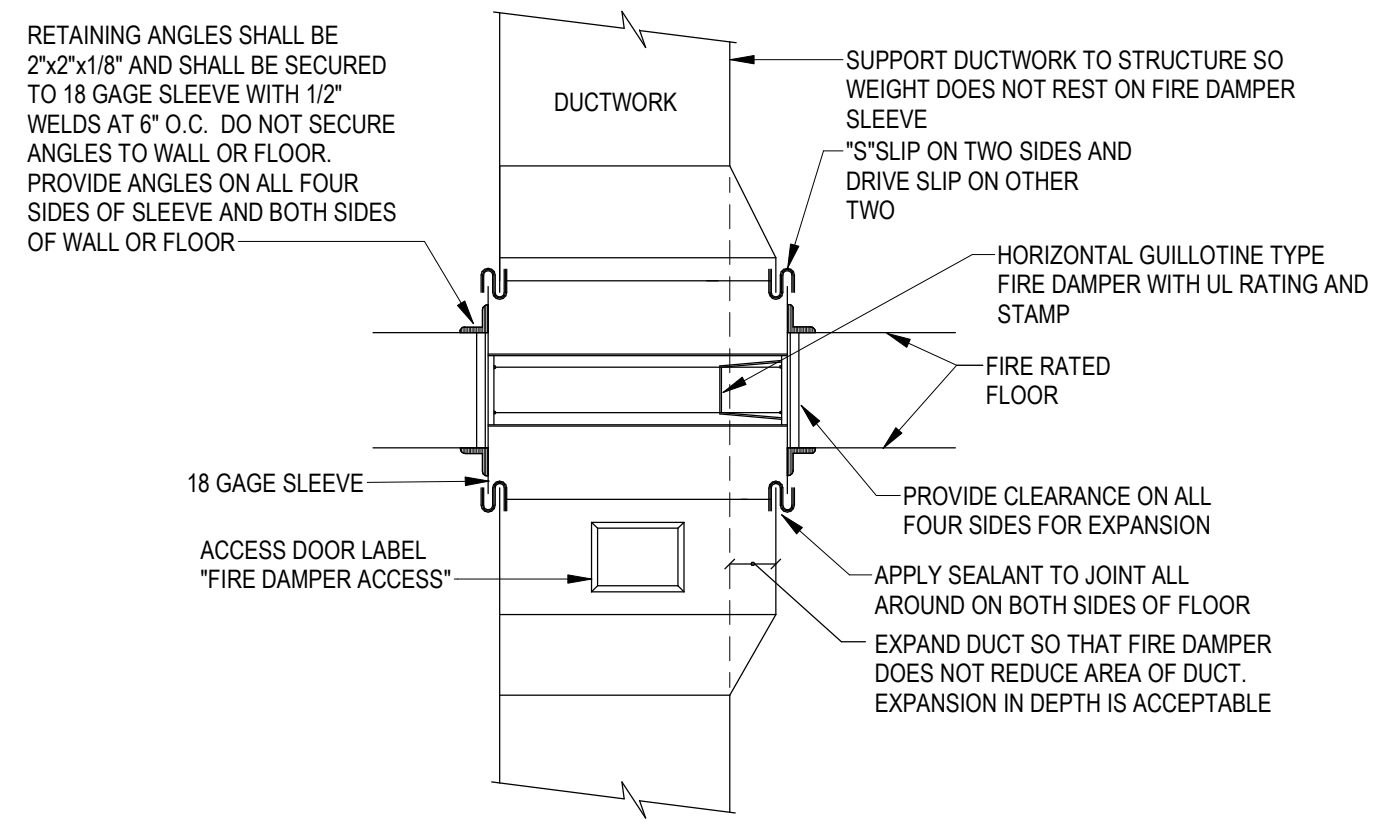
5



DIFFUSER SIZING
NO SCALE

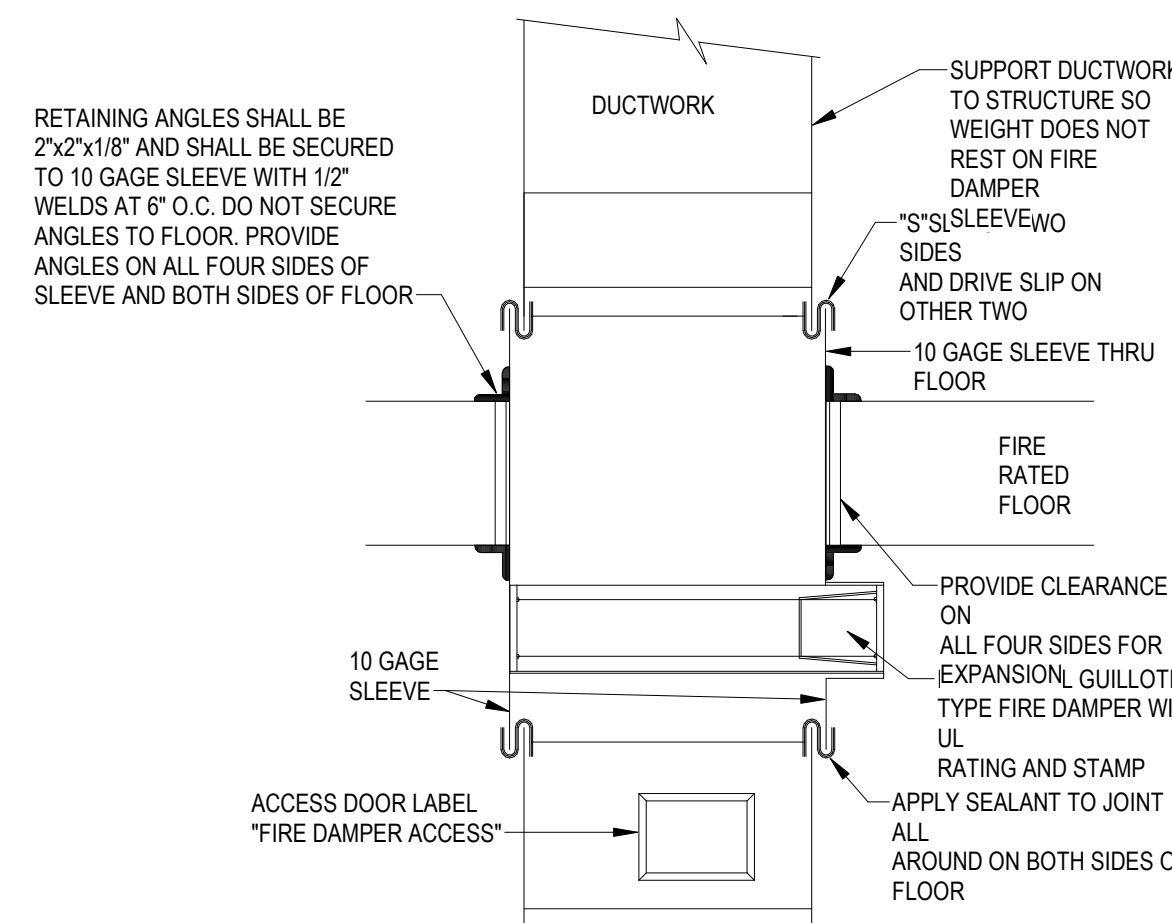


REGISTER SIZING
NO SCALE



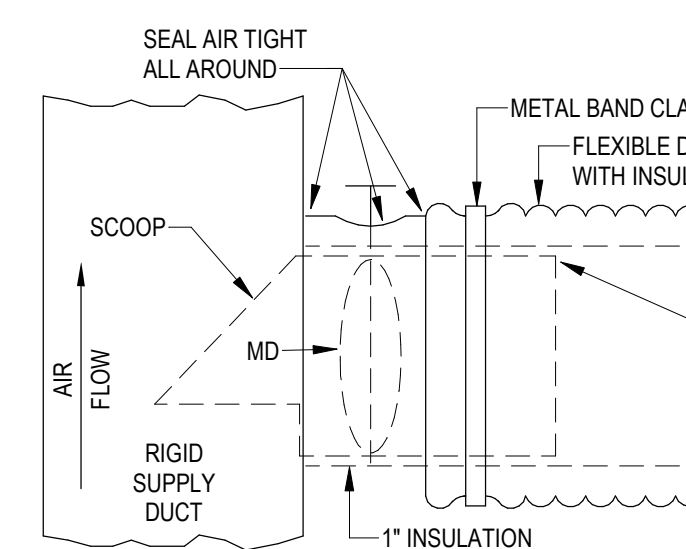
NOTE:
1. INSTALL ALL FIRE DAMPERS IN ACCORDANCE WITH THE N.F.P.A. PAMPHLET NO. 90A AND LOCAL CODES.
2. FASTEN FIRE DAMPER FRAME TO SLEEVE WITH 1/2" WELDS AT 6" O.C.

FIRE DAMPER AT FIRE RATED FLOOR DETAIL
NO SCALE

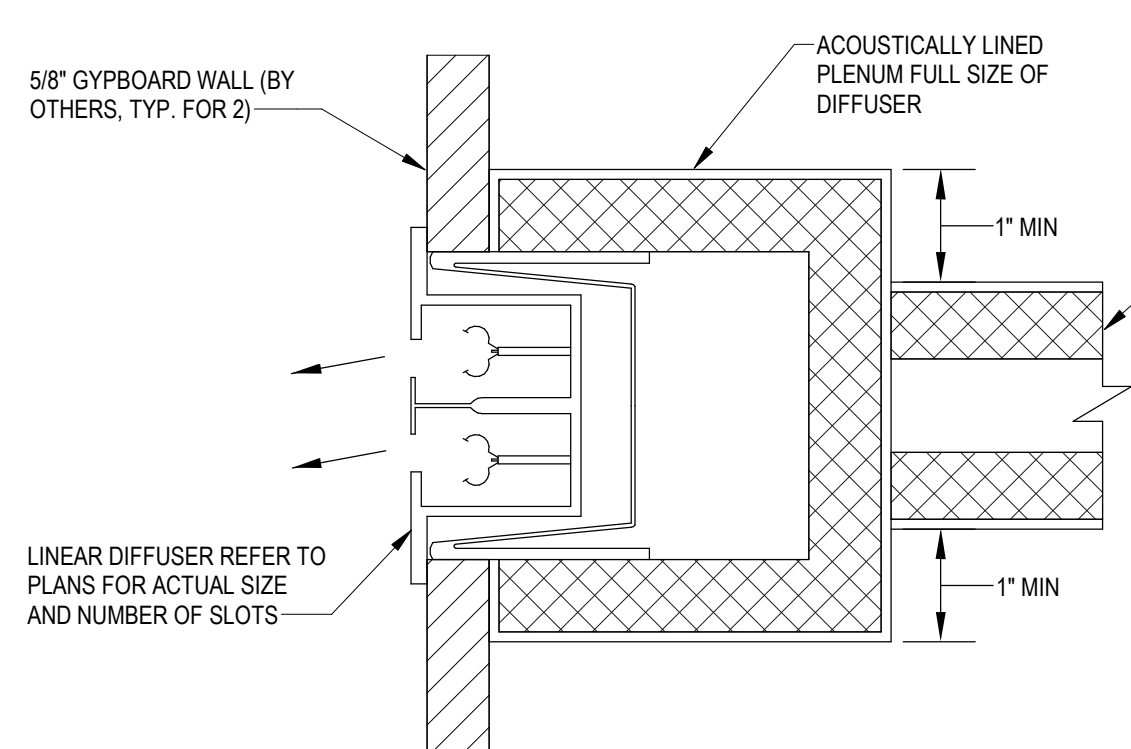


NOTE:
1. INSTALL ALL FIRE DAMPERS IN ACCORDANCE WITH THE N.F.P.A. PAMPHLET NO. 90A AND LOCAL CODES.
2. FASTEN FIRE DAMPER FRAME TO SLEEVE WITH 1/2" WELDS AT 6" O.C.

FIRE DAMPER AT FIRE RATED FLOOR DETAIL
NO SCALE



SPIN-IN FITTING DETAIL
NO SCALE



LINEAR DIFFUSER DETAIL
NO SCALE

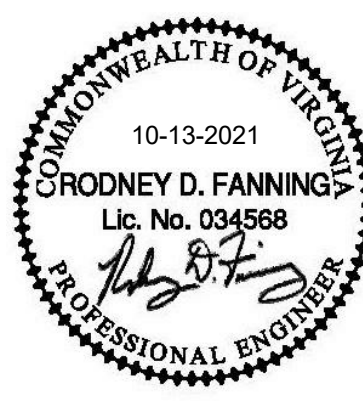
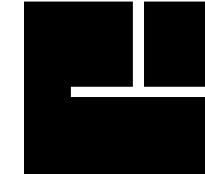
E

D

C

B

A



L P A
LAWRENCE PERRY & ASSOCIATES
Consulting Engineers
11 E. Salem Avenue, Suite 101
Roanoke, Virginia 24011
Phone: (540) 342-1916
Fax: (540) 344-3410
E-mail: info@lpa-engineers.com
www.lpa-engineers.com

VIRGINIA TECH
BLACKSBURG, VA
RENOVATE FIRST FLOOR OF
DIETRICK HALL AND PLAZA
208-L00050-000

MARK	DATE	DESCRIPTION
13 OCT 2021	27 SEP 2021	ISSUE FOR BID UBO REVIEW

PROJECT NO:	19029.00
DATE:	13 OCTOBER 2021
DRAWN BY:	MEH
CHECKED BY:	RDF
COPYRIGHT © 2020	HANBURY
SHEET TITLE:	MECHANICAL DETAILS