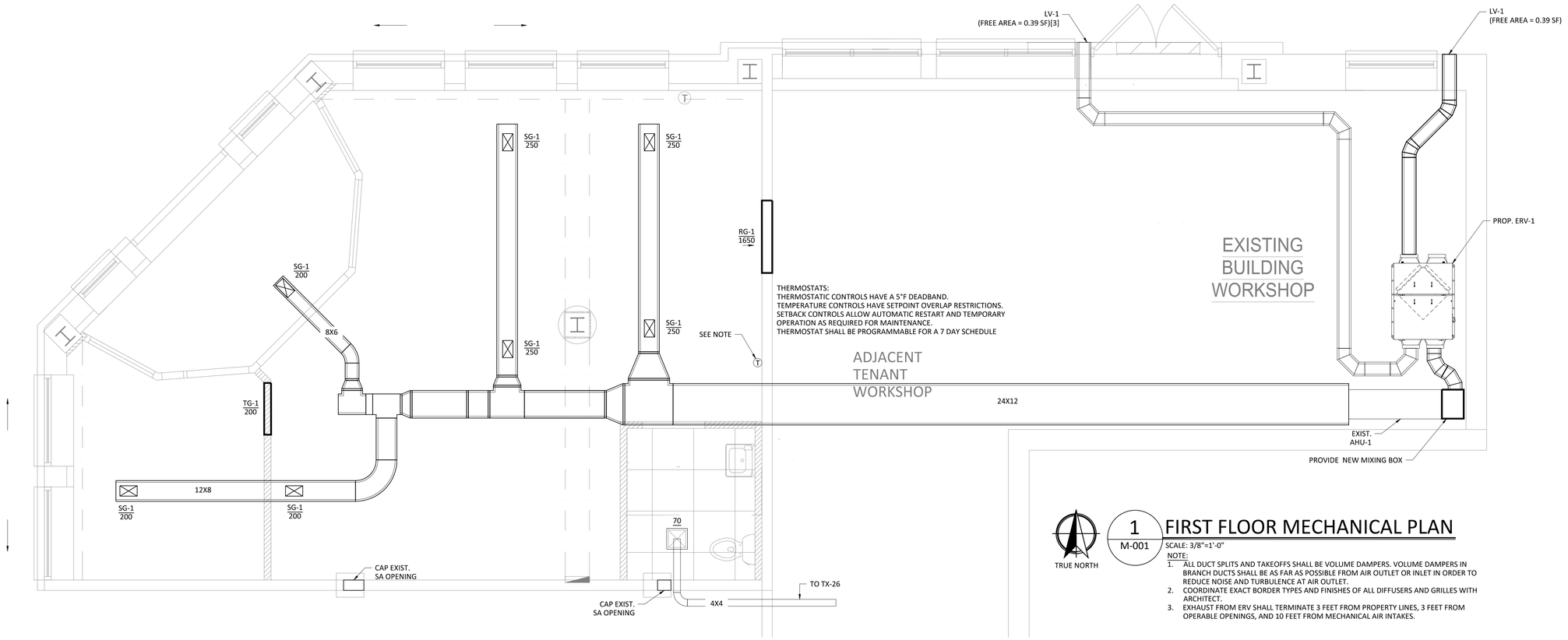


TRUE NORTH

1 / M-001 FIRST FLOOR MECHANICAL PLAN

SCALE: 3/8"=1'-0"

NOTE:

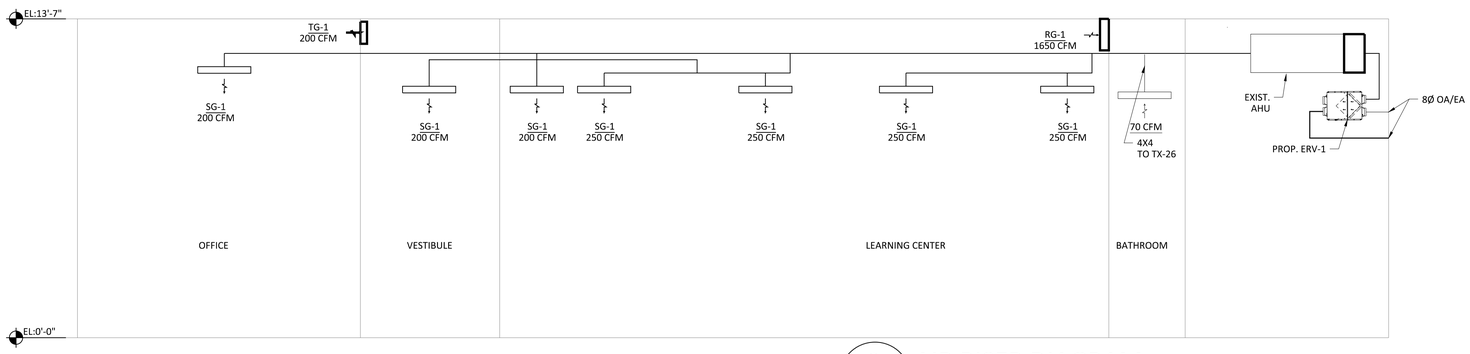
1. ALL DUCT SPLITS AND TAKEOFFS SHALL BE VOLUME DAMPERS. VOLUME DAMPERS IN BRANCH DUCTS SHALL BE AS FAR AS POSSIBLE FROM AIR OUTLET OR INLET IN ORDER TO REDUCE NOISE AND TURBULENCE AT AIR OUTLET.
2. COORDINATE EXACT BORDER TYPES AND FINISHES OF ALL DIFFUSERS AND GRILLES WITH ARCHITECT.
3. EXHAUST FROM ERV SHALL TERMINATE 3 FEET FROM PROPERTY LINES, 3 FEET FROM OPERABLE OPENINGS, AND 10 FEET FROM MECHANICAL AIR INTAKES.

HVAC LEGEND

SYMBOL	DESCRIPTION
	SINGLE LINE DUCTWORK, NEW
	SINGLE LINE DUCTWORK WITH A.L., NEW
	DUCTWORK WITH EXTERIOR R-5 INSULATION
	DUCTWORK WITH ACOUSTIC LINING
	DUCT UNDER PRESSURE (SUPPLY AIR OR FAN DISCHARGE)
	DUCT UNDER NEGATIVE PRESSURE (RETURN OR EXHAUST)
SD	SMOKE DAMPER AND ACCESS DOOR
R	RISE IN DUCTWORK
D	DROP IN DUCTWORK
	FIRE/SMOKE DAMPER
	MANUAL VOLUME DAMPER AND ACCESS DOOR
(100)	NEW CEILING DIFFUSER, 4-WAY THROW, 100 CFM
	FIRE-STOPPING
ø W.O.	TRANSFER AIR WALL OPENING. (SQ. FT.)
T	THERMOSTAT, TEMPERATURE SENSOR
C	CARBON DIOXIDE SENSOR
	CONNECTION TO EXISTING
	POINT OF DISCONNECTION

HVAC ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
SG	SUPPLY GRILLE
VD	VOLUME DAMPER
RG	RETURN GRILLE
CFM	CUBIC FEET PER MINUTE
FD	FIRE DAMPER



2 / M-001 AIR RISER DIAGRAM

SCALE:N.T.S

BRANCH DUCT SCHEDULE

DUCT SIZE	CFM RANGE
12 X 6, 7Ø	UP TO 175
14 X 6, 8Ø	180 - 245
16 X 6, 12 X 8	250 - 285
18 X 6, 9Ø	290 - 335
20 X 6, 14 X 8	340 - 375
16 X 8, 10Ø	380 - 435
18 X 8, 14 X 10	440 - 515
20 X 8, 16 X 10, 11Ø	520 - 585
22 X 8	590 - 645
24 X 8, 18 X 10, 12Ø	650 - 715
26 X 8, 20 X 10	720 - 825
28 X 8, 22 X 10, 13Ø	830 - 895
32 X 8, 24 X 10, 20 X 12	900 - 1005
32 X 12, 24 X 15, 20 X 18, 16Ø	1010 - 1500
32 X 16, 24 X 20, 18Ø	1510 - 2000

REMARKS: THIS SCHEDULE APPLIES TO BRANCH DUCTS TO INDIVIDUAL DIFFUSERS THAT ARE NOT SIZED ON PLANS.

ERV SCHEDULE

TAG	MODEL	AIRFLOW (CFM)	DIMENSIONS	ELECTRICAL DATA	MCA/MOCP	WEIGHT (LBS)
ERV-1	TERV045	200-540	48X41X18	208/1/60	4.9/15	141
PROVIDE ECM MOTOR						

SMACNA DUCT SEAL AND LEAKAGE CLASS CLASSIFICATION SCHEDULE FOR SHEET METAL DUCTS

DUCT PRESSURE CLASS, IN. W.G.	1/2 TO 3
SEAL CLASS	B
SEALING	ALL JOINTS & SEAMS ALL DUCT WALL PENETRATIONS

LEAKAGE CLASS, CFM/100 SQ.FT. DUCT SURFACE

RECTANGULAR	6
ROUND	3

FIRE DAMPER RATINGS

TYPE OF PENETRATION	MINIMUM DAMPER RATING (HOURS)
LESS THAN 3 HOUR FIRE-RESISTANCE RATED ASSEMBLIES	1.5
3 HOUR OR GREATER FIRE-RESISTANCE RATED ASSEMBLIES	3

ONLY FIRE DAMPERS LABELED FOR USE IN DYNAMIC SYSTEMS SHALL BE INSTALLED IN HEATING, VENTILATION, AND AIR CONDITIONING DESIGNED TO OPERATE WITH FANS ON DURING A FIRE AND MUST BE UL555 LISTED.

FIRE AND SMOKE DAMPERS SHALL BE PROVIDED WITH AN APPROVED MEANS OF ACCESS, WHICH IS LARGE ENOUGH TO PERMIT INSPECTION AND MAINTENANCE OF THE DAMPERS AND ITS OPERATING PARTS.

AIR TERMINAL SCHEDULE

ID TAG	NECK SIZE	DEFLECTION	AIRFLOW (CFM)	THROW	NC
SG-1	12X8	0	171-285	14-21-31	-
TG-1	30X10	-	200-400	-	17
RG-1					

SUPPLY GRILLES BASED ON TITUS 271, RETURN GRILL 23R, TRANSFER GRILLE ATGH (PRICE INDUSTRIES)

MAXIMUM NC LEVELS ARE <=25 FOR ALL SUPPLY AND RETURNS GRILLES

ARCHITECT/OWNER SHALL PERFORM ALL FINAL COORDINATION OF AIR TERMINALS INCLUDING LOCATION AND FINISH TYPE

PREPARED BY:

CLIENT:

NO.	DATE	DESCRIPTION
1	10/9/19	BID DOCUMENTS

PROJECT:

DESIGN BY:		
DRAWN BY:		
CHECKED BY		
FINAL CK BY:		

PROJECT NO.:

DRAWING TITLE:

FIRST FLOOR MECHANICAL PLAN, AIR RISER DIAGRAM & MECHANICAL SCHEDULES

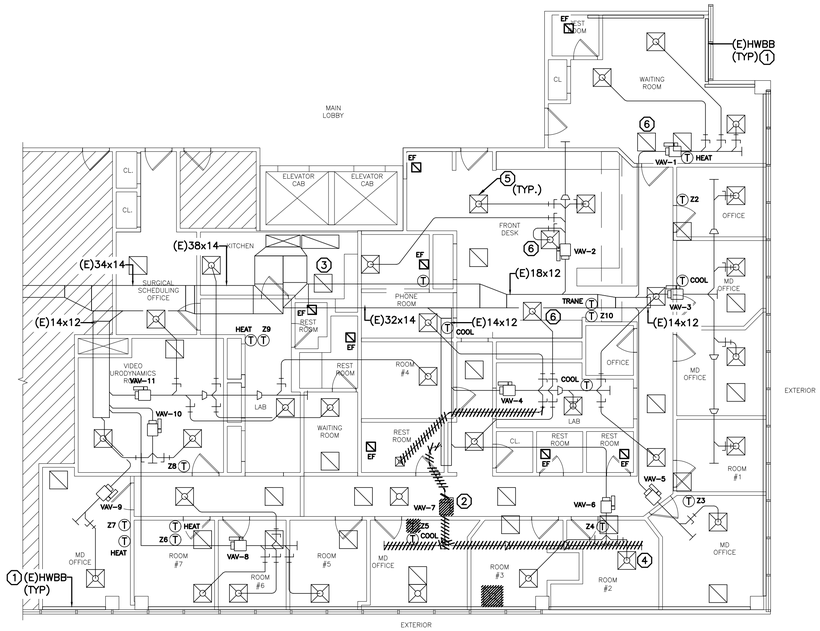
DRAWING NO.:

M-001.00

ENGINEER STAMP:

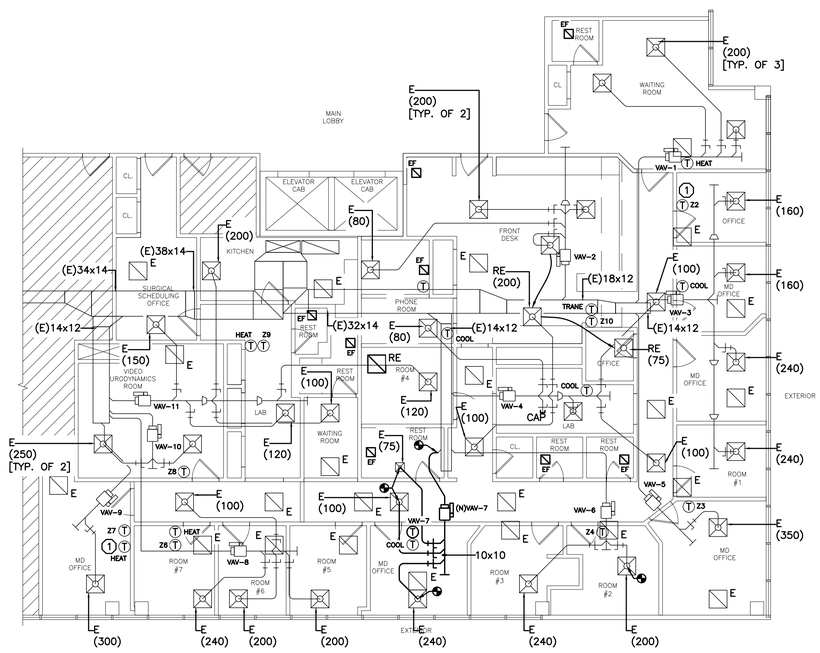
B-SCAN:

DOB STAMP:



DEMOLITION PLAN – MECHANICAL

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



NEW WORK PLAN – MECHANICAL

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

REFURBISHING NOTES:

1. INTENT IS TO BRING ALL EXISTING TO REMAIN EQUIPMENT TO LIKE NEW CONDITION.
2. CONTRACTOR SHALL VACUUM CLEAN ALL DUCTWORK AND FIX, REPAIR AND REPLACE ANY SECTIONS WITH CRACKS, LEAKS OR UNLESS OTHERWISE NOT ACCEPTABLE.
3. ALL EXISTING TO REMAIN HEATING HOT WATER SUPPLY & RETURN SHALL BE PROVIDED WITH INSULATION IN ACCORDANCE WITH LOCAL ENERGY CODES
4. THE HEATING HOT WATER BASEBOARD SHALL BE BROUGHT TO LIKE NEW CONDITION. CONTRACTOR SHALL
   - CLEAN AND VACUUM ELEMENT. TEST AND REPLACE ANY VALVES OR PIPING SPECIALITIES AS REQUIRED.
   - CLEAN AND REFURBISH ENCLOSURE. REPLACE AS REQUIRED. COORDINATE FINISH WITH ARCHITECTURAL DRAWINGS.
   - CHECK ALL CONTROL CONNECTIONS TO UNIT AND TIGHTEN OR REPLACE AS REQUIRED.
5. PATCH, REPAIR OR REPLACE ANY DUCTWORK INSULATION THAT IS RIPPED, TORN, SAGGING, MISSING, ETC.

GENERAL NOTES:

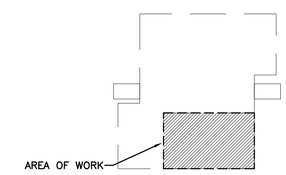
1. PRIOR TO START OF WORK, CONTRACTOR SHALL FIELD VERIFY EXTENT OF AIR DISTRIBUTION FROM EXISTING AIR HANDLING UNIT INCLUDING DISTRIBUTION TO ADJACENT TENANT SPACE. CONTRACTOR SHALL DOCUMENT EXISTING CONDITIONS INCLUDING BUT NOT LIMITED TO DUCT SIZES, ROUTING, AIR DEVICE SIZES, NECK SIZE, ETC. COORDINATE SURVEY WITH TENANT'S REPRESENTATIVE AND BUILDING OWNER'S REPRESENTATIVE. SUBMIT TO ENGINEER FOR REVIEW.
2. AIR HANDLING UNIT SHALL REMAIN IN OPERATION WITH MINIMAL NORMAL OFFICE HOUR DISRUPTION (MON–FRI 7AM–6PM, CONFIRM) DURING CONSTRUCTION TO ENSURE TENANT SPACE BEING SERVED BY AIR HANDLER MAINTAINS CONDITIONED ENVIRONMENT. SEAL ALL OPENINGS AIR TIGHT
3. CONTRACTOR SHALL TAKE AIRFLOW MEASUREMENTS OF EXISTING AIR HANDLING UNIT SUPPLY AND RETURN AS WELL AS DUCTWORK AND AIR DEVICES LOCATED IN ADJACENT TENANT SPACE AND COMMON CORRIDOR. BALANCE AIR TO ADJACENT TENANT SPACES TO PRE–CONSTRUCTION CFM. SUBMIT TO ARCHITECT AS SHOP DRAWING FOR REVIEW.
4. CONTRACTOR SHALL WRAP, ENCASE OR REMOVE ALL COMBUSTIBLES ABOVE THE CEILING. MAINTAIN APPROPRIATE FIRE RATINGS AS REQUIRED. FIELD VERIFY.
5. CONTRACTOR SHALL TEST THE OPERATION OF EXISTING VAV BOX AND ASSOCIATED CONTROLS AND PROVIDE A WRITTEN REPORT OF THE CONDITION AND OPERATION AND ITEMS THAT NEED REPAIR.

DEMOLITION KEYNOTES:

1. EXISTING HYDRONIC BASEBOARD TO REMAIN. CONTRACTOR TO VERIFY SYSTEM IS IN PROPER WORKING CONDITION. V.I.F.
2. EXISTING ABANDONED VAV BOX TO BE REMOVED AND REPLACED WITH NEW. REFER TO NEW WORK PLAN FOR ADDITIONAL INFORMATION.
3. CONTRACTOR TO REMOVE ANY/ALL EXISTING OBSTRUCTIONS ON EXISTING RETURN GRILLES. (TYP.)
4. EXISTING DISCONNECTED SUPPLY REGISTER. CONTRACTOR TO VERIFY ALL HVAC SYSTEM CONNECTIONS AND REPAIR ANY/ALL DISCONNECTED FLEX DUCTWORK THROUGHOUT. (TYP.).
5. CONTRACTOR TO REBALANCE EXISTING SUPPLY REGISTERS TO CFM'S INDICATED ON NEW WORK PLAN.
6. CONTRACTOR TO RELOCATE EXISTING SUPPLY/RETURN DIFFUSER TO NEW LOCATION AS INDICATED ON NEW WORK PLAN.

NEW WORK KEYNOTES:

1. CONTRACTOR TO RELABEL EXISTING T–STATS.



KEY PLAN

SCALE: NOT TO SCALE

No.	Date	Description
-	07/06/2020	FOR OWNER'S REVIEW

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Project Name

NOTES, SYMBOLS & ABBREVIATIONS MECHANICAL

Seal & Signature

Date: 06/15/2020

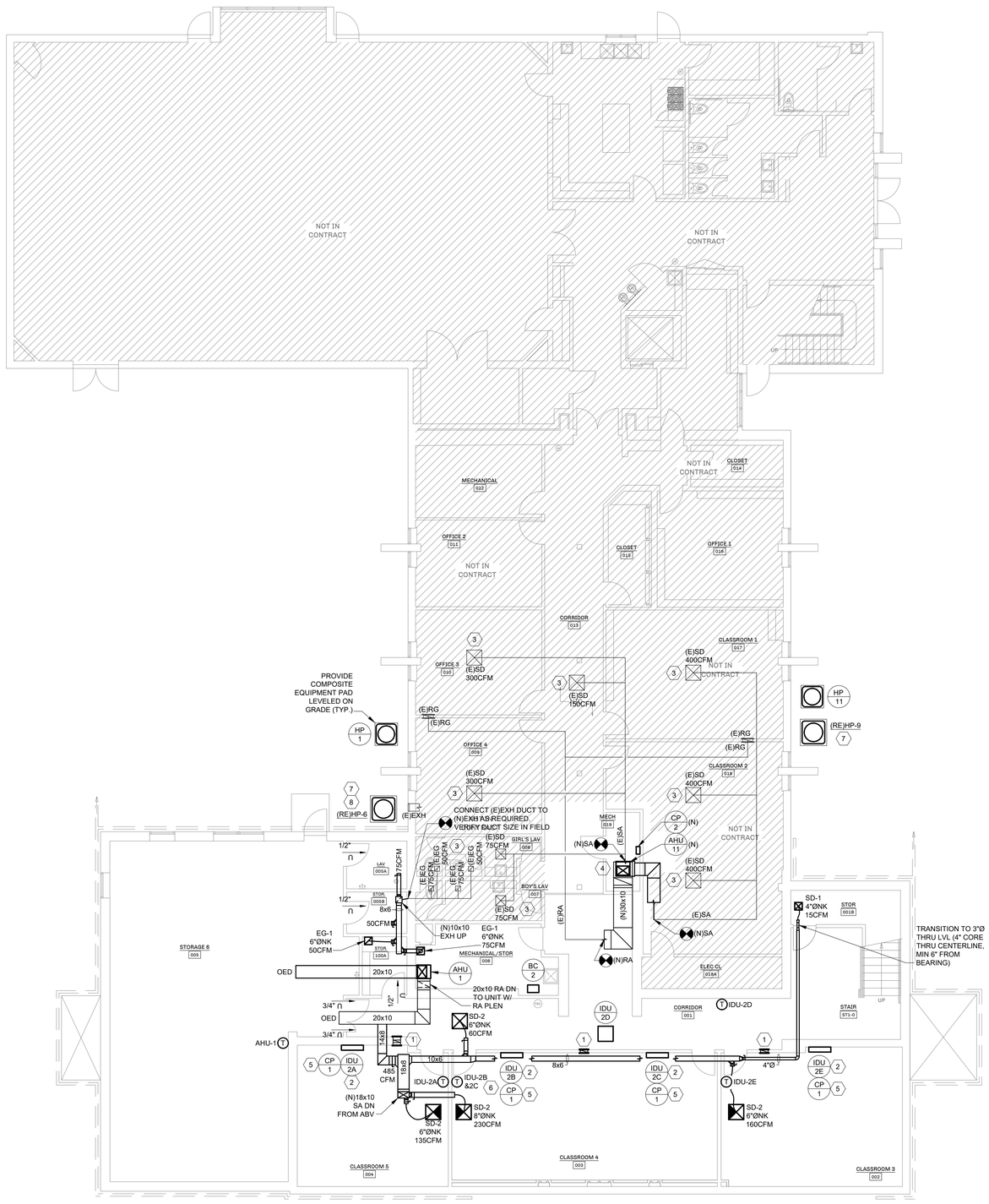
Job No.:

Drawn:

Checked:

Drawing No. M-201

CAD File: 20054 MECHANICAL.DWG



1
H3.0

LOWER LEVEL HVAC NEW WORK PLAN

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

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE 2015 INTERNATIONAL BUILDING CODE (IBC), THE 2015 INTERNATIONAL MECHANICAL CODE (IMC), THE 2015 INTERNATIONAL PLUMBING CODE (IPC), THE 2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC), THE 2015 INTERNATIONAL FUEL GAS CODE (IFGC), THE 2014 NATIONAL ELECTRICAL CODE (NEC) AS WELL AS ALL APPLICABLE STATE AND LOCAL CODES, AMENDMENTS & ORDINANCES.
2. FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES, REFER TO THE HVAC LEAD SHEET.
3. CONTRACTOR SHALL VERIFY EXACT SIZE, LOCATION AND CONFIGURATION OF ALL EXISTING CONDITIONS IN FIELD. CONFIRM ALL EXISTING CONDITIONS PRIOR TO STARTING WORK.
4. COORDINATE ALL WORK WITH LANDLORD/OWNER.
5. REFER TO SINGLE LINE DIAGRAM FOR ALL MULTI-SPLIT REFRIGERANT LINE SIZES.

SHEET NOTES

1. PROVIDE WALL TRANSFER FOR CLASSROOM RELIEF AIR. PROVIDE 12x6 RG-4 HIGH ON CLASSROOM SIDE AND 12x6 RG-4 LOW ON CORRIDOR SIDE, WITH 12x4 WALL STACK DUCT CONNECTING EACH GRILLE.
2. MOUNT HIGH ON WALL. COORDINATE WITH EXISTING FF&E. INSTALL ALL INFRASTRUCTURE FULLY CONCEALED BEYOND FINISHED SURFACES. EXPOSED PIPING, CONDUITS, ETC ARE NOT ACCEPTABLE.
3. CONTRACTOR SHALL REBALANCE EXISTING GRDs TO CFM INDICATED.
4. PROVIDE NEW THERMOSTAT FOR AHU-11. REPLACE EXISTING THERMOSTAT IN SAME LOCATION.
5. INSTALL CONDENSATE PUMP COMPLETELY CONCEALED FROM VIEW, INSIDE DUCTLESS SPLIT, OR ABOVE CEILING.
6. TWIN BOTH INDOOR UNITS ON A SINGLE THERMOSTAT.
7. RELOCATE EXISTING HEAT PUMP UNIT AS INDICATED. SET LEVEL ON GRADE WITH COMPOSITE EQUIPMENT PAD. MODIFY EXISTING DX LINESET AND CONTROL AS REQUIRED AND PROVIDE FULL REFRIGERANT CHARGE.
8. ADD ALTERNATE #4 - REPLACE EXISTING AHU/HP-6 (5T HEAT PUMP) EQUIPMENT IN KIND WITH EQUIVALENT R410 UNIT SYSTEM WITH SUPPLEMENTAL ELECTRIC HEAT (VERIFY EXACT CAPACITY IN FIELD). PROVIDE NEW LINESET, DISCONNECT AND RECONNECT DUCTWORK, POWER, CONTROL AND CONDENSATE.

ARCHITECT:

STRUCTURAL ENGINEER:

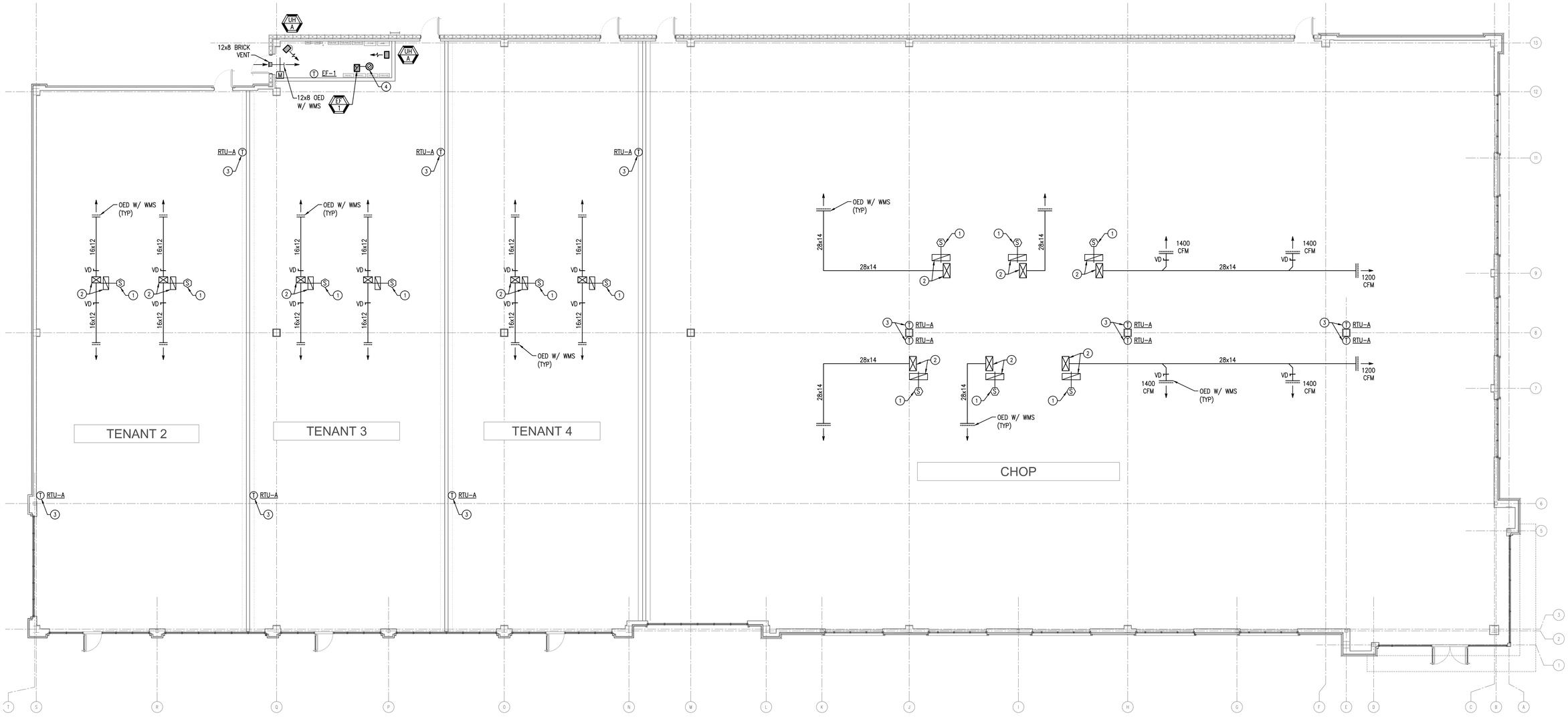
MEP ENGINEER:

DATE:

REVISIONS:
0 - PERMIT SET - 09.02.20

SHEET NAME:
LOWER LEVEL HVAC NEW WORK PLAN

SHEET NUMBER:
H3.0



01 MECHANICAL FLOOR PLAN

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

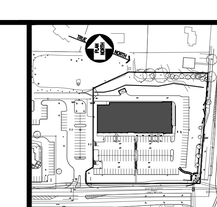
DRAWING NOTES:

1. DRAWINGS ARE DIAGRAMMATIC. PROVIDE ADDITIONAL OFFSETS, TRANSITIONS, ETC. AS REQUIRED TO AVOID INTERFERENCES ENCOUNTERED.
2. CONTRACTOR SHALL PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AND ACCESS TO ALL EQUIPMENT. COORDINATE LOCATIONS WITH OTHER TRADES TO AVOID CONFLICTS.
3. THERMOSTATS AND SENSORS SHALL BE LOCATED GENERALLY AS SHOWN. FIELD COORDINATE EXACT LOCATIONS TO AVOID INTERFERENCE WITH WALL MOUNTED ARTWORK AND FINISHES.
4. ALL DUCTWORK SHALL BE ROUTED AS HIGH AS POSSIBLE UNLESS OTHERWISE NOTED.
5. CONTRACTOR TO PROVIDE DUST PROTECTION TO SATISFACTION OF THE BUILDING OWNER.

KEY NOTES:

1. PROVIDE DUCT MOUNTED SMOKE DETECTOR IN RETURN AIR DUCTWORK. COORDINATE WITH E.C., SEE DETAIL 4/M-200.
2. PROVIDE FLEX CONNECTORS ON THE SUPPLY AND RETURN AIR DUCT CONNECTIONS. DROP SUPPLY AND RETURN LINED DUCTWORK FULL SIZE THROUGH ROOF CURB INTO SPACE ENDING 6-FEET BELOW ROOF DECK. PROVIDE FULL SIZE RECTANGULAR PLENUM BOX WITH 90° ELBOW AND TURNING VANES, THEN TRANSITION TO HORIZONTAL DUCT. LEAVE OPEN ENDED DUCTWORK FOR FUTURE CONNECTION BY OTHERS. FIELD VERIFY DUCT DIMENSIONS AND CLEARANCES PRIOR TO MOUNTING, SEE DETAIL 04/M-200.
3. PROVIDE THERMOSTAT MOUNTED AT 7'-0" A.F.F. FOR EACH RTU.
4. ROUTE 10"ø EA DUCT THROUGH ROOF AND TERMINATE WITH A WEATHERPROOF CAP. SEE DETAIL ON 5/M-200.

DATE SIGNATURE



ISSUE OR REVISIONS

#	DATE	DESCRIPTION	BY	CHK
–	05/01/20	ISSUED FOR PERMIT	PM	PM

MECHANICAL FLOOR PLAN

PROJECT No. 17141.00	DWG NO. M-□00
SCALE AS NOTED	
DATE 06/01/20	

ISSUE□ FOR FINAL REVIEW NOT FOR CONSTRUCTION OR BI□ 06□19□2020