

MECHANICAL SPECIFICATIONS

HVAC SPECIFICATIONS

1.

THE WORK SHALL INCLUDE, FURNISHING AND INSTALLING ALL HEATING, AIR CONDITIONING, VENTILATION, AND EQUIPMENT AS SHOWN ON THE FLOOR PLANS AND AS SPECIFIED HEREIN.
2.

THE GENERAL AND SPECIAL CONDITIONS AIA DOCUMENT A-201 SHALL GOVERN THIS WORK TO THE EXTENT THAT THEY APPLY. THE DRAWINGS AND THE SPECIFICATIONS ARE COMPLEMENTARY TO EACH OTHER AND WHAT IS CALLED FOR BY ONE SHALL BE BINDING AS IF CALLED FOR BY BOTH.
3.

THE CONTRACTOR SHALL EXAMINE THE DRAWINGS, SPECIFICATIONS AND JOB SITE AND FULLY INFORM HIMSELF OF ALL EXISTING CONDITIONS AND WORK REQUIRED BY THE DRAWINGS AND SPECIFICATIONS BEFORE SUBMITTING HIS BID. WAIVER OF RESPONSIBILITY OR REQUEST FOR ADDITIONAL PAYMENT BASED ON LACK OF KNOWLEDGE OF EXISTING CONDITIONS AT THE SITE WILL NOT BE ACCEPTED OR CONSIDERED.
4.

WORK SHALL BE PROTECTED AT ALL TIMES FROM DAMAGE BY PERSONS OR WEATHER AND ALL DAMAGED WORK RESTORED TO A NEW CONDITION BEFORE FINAL ACCEPTANCE.
5.

ALL THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST APPLICABLE EDITIONS OF INTERNATIONAL MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, NFPA AND ALL LOCAL CODES AND REGULATIONS. WHERE ANY PORTIONS OF THE SYSTEMS SHOWN ON THE DRAWINGS WHICH IS NOT IN ACCORDANCE WITH ALL APPLICABLE LAWS, ORDINANCES, REGULATIONS OR CODES, THIS CONTRACTOR SHALL MAKE ALL CHANGES REQUIRED BY THE ENFORCING AUTHORITIES IN A MANNER APPROVED BY THE ENGINEER.
6.

THE CONTRACTOR SHALL ORDER AND OBTAIN ALL NECESSARY TESTS, PERMITS AND CERTIFICATES OF APPROVAL AND PAY ANY REQUIRED FEES FOR SAME.
7.

THE CONTRACTOR SHALL COORDINATE ALL HIS WORK WITH THE GENERAL CONTRACTOR AND THE WORK OF THE OTHER DISCIPLINES.
8.

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, ALL EQUIPMENT SHALL BE NEW AND SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
9.

PRIOR TO FABRICATION OF DUCTWORK, THIS CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS. IF DUCTS CANNOT BE INSTALLED AS SHOWN ON THE DRAWINGS, THIS CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY. ANY EXTRA OR DEDUCT NECESSITATED BY THE ABOVE CONDITION SHALL BE SUBMITTED TO THE ARCHITECT IN WRITING PRIOR TO THE CONTINUATION OF THE WORK.
10.

EXAMINE ALL SERVICES, EQUIPMENT, SURFACES ETC., WHICH THIS WORK IS IN ANY WAY DEPENDENT UPON. SHOULD THE CONTRACTOR DISCOVER ANY CONDITIONS WHICH WILL PREVENT FOLLOWING GOOD PRACTICE OR RESULT IN LESS THAN A FIRST-CLASS INSTALLATION, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY AND SHALL NOT PROCEED WITH HIS WORK UNTIL HE HAS RECEIVED INSTRUCTIONS FROM THE ARCHITECT.
11.

THE CONTRACTOR SHALL GUARANTEE THE ENTIRE INSTALLATION TO BE FREE FROM DEFECTS FOR ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. ANY DEFECTS OCCURRING DURING THE GUARANTEE PERIOD SHALL BE CORRECTED AT NO ADDITIONAL COST TO THE OWNER.
12.

ALL EQUIPMENT REQUIRING ELECTRIC POWER SHALL BE SUITED FOR USE WITH THE POWER TO BE SUPPLIED. ALL ELECTRICAL REQUIREMENTS SHALL BE COORDINATED WITH THE ELECTRICAL CONTRACTOR.
13.

PRIOR TO PURCHASING OF ANY EQUIPMENT, FIXTURES, ETC., SUBMIT SHOP DRAWINGS (6 COPIES) FOR APPROVAL OF THE FOLLOWING ITEMS:

a.

HVAC EQUIPMENT

b.

FANS

c.

CEILING DIFFUSERS

d.

DUCTWORK

e.

INSULATION

f.

BALANCING CONTRACTOR QUALIFICATIONS
14.

THE CONTRACTOR SHALL INSTRUCT THE OWNER IN THE OPERATION AND MAINTENANCE OF ALL COMPONENTS OF THE INSTALLATION.
15.

THREE MAINTENANCE AND INFORMATION MANUAL SHALL BE PREPARED, SUBJECT TO THE ARCHITECT'S APPROVAL, FOR THE OWNER. THE MANUAL SHALL INCLUDE COPIES OF ALL SHOP DRAWINGS, WRITTEN OPERATING INSTRUCTIONS, PARTS LISTS, VENDOR LIST, SERVICES AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT.
16.

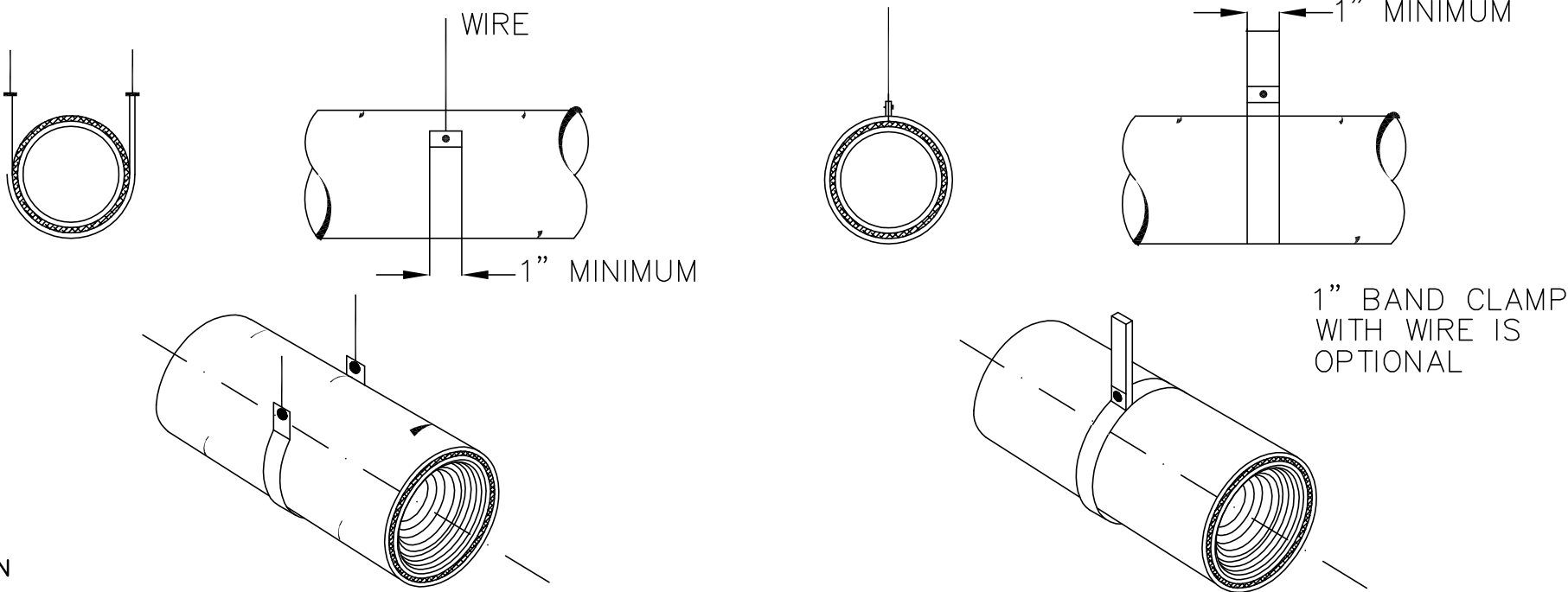
ALL EQUIPMENT SHALL BE TESTED FOR PROPER OPERATION AND CORRECTED AS NECESSARY.
17.

ALL HVAC DUCT WORK AND DEVICES ARE EXISTING UON.
18.

BALANCE AIR QUANTITIES SHOWN AT EXISTING & NEW SA DIFFUSERS.
19.

CONTRACTOR SHALL WASH, CLEAN AND PAINT SUPPLY DIFFUSERS AND RETURN AIR GRILLES TO MATCH NEW ONES.
20.

NEW RETURN AIR GRILLES SHALL BE BUILDING STANDARD. TITUS 10"Ø NECK AND 12"Ø NECK.



1 DUCTWORK SUPPORT DETAIL (TYP.)
SCALE: 1/4" = 1'-0"

Project Name: Doctor's Office		Unit Total Supply Air: 1400													
Date: 10-22-18		Unit Total Outdoor Air: 240													
Unit Designation: (E)FCU-1															
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
Room Number	Description	Area (ft²) (Az)	Area Outdoor Air Rate per IMC Table 403.3 (Ra)	Area Outdoor Air (RaAz)	Occupant Load Rate per IMC Table 403.3 (People/1000 ft²)	Occupancy C x F/1000 (Pz)	Occupant Outdoor Air Rate per IMC Table 403.3 (Rp)	Occupant Outdoor Air (RpPz)	Breathing Zone Outdoor Air (Vbz = RpPz + RaAz)	Zone Air Distribution Effectiveness (Ez)	Zone Outdoor Air (Voz = Vbz / Ez)	Supply Air Design (Vpz)	Secondary Recirculated Air	Outdoor Air Fraction (Zp = Voz / Vpz)	
	Waiting Room	91	0.06	5	50	5	7.5	37.5	42.5	0.8	54	230	0	0.235	
	Office	54	0.06	3	5	1	5	5	8	0.8	10	100	0	0.100	
	Hallway	240	0.06	14	0	0	0	0	14	0.8	18	120	0	0.150	
Lower Level	Galley	253	0.06	15	5	2	5	10	25	0.8	32	150	0	0.213	
Lower Level	Storage Room	151	0.12	18	0	0	0	0	18	0.8	23	110	0	0.209	
Lower Level	Corridor	60	0.06	4	0	0	0	0	4	0.8	5	30	0	0.167	
	Reception	64	0.06	4	30	2	5	10	14	0.8	18	120	0	0.150	
1	Exam. Room	52	0	0	20	2	15	30	30	0.8	38	155	0	0.245	
2	Exam. Room	52	0	0	20	2	15	30	30	0.8	38	155	0	0.245	
	Lab Room	55	0.06	3	5	1	5	5	8	0.8	10	80	0	0.125	
	Staff	43	0.06	3	5	1	5	5	8	0.8	10	80	0	0.125	
Lower Level	Record Room	115	0.06	7	5	1	5	5	12	0.8	15	70	0	0.214	
			0	0	0	0	0	0	0	0.8	0	0	0	0.000	
Totals		1228.6		76		17		137.5	213.5		271	1400	0	0.245	
VENTILATION SCHEDULE PER IMC 2015 403.3					Occupant Diversity D = Ps/Σall zones Pz					Total Required Outdoor Air					Ez 0.900
Do not utilize Occupant Diversity without specific approval from the Authority Having Jurisdiction					1.000					238					
					Uncorrected O.A. Vou = D Σall zones RpPz + Σall zones RaAz										
System Population (Ps)										Percentage of Outdoor Air					Method
Diversity →					214					17%					IMC Chart

HVAC SYMBOLS

- MANUAL VOLUME DAMPER
- FIRE DAMPER
- MOTORIZED OA DAMPER
- DUCT SMOKE DETECTOR
- NEW AIR DUCTWORK
- DUCT SIZE TRANSITION (HORIZONTAL)
- CONNECT TO EXISTING
- THERMOSTAT
- AIR QUANTITY (CFM)
- RETURN AIR GRILLE
- SUPPLY AIR DIFFUSER
- RETURN AIR GRILLE WITH VOLUME DAMPER
- SUPPLY AIR DIFFUSER WITH VOLUME DAMPER
- 3/4" UNDER CUT

ABBREVIATIONS

- AFF

ABOVE FINISHED FLOOR
- CFM

CUBIC FEET PER MINUTE
- E

EXISTING
- R

RELOCATED
- D

DEMOLITION
- N

NEW
- OA

OUTSIDE AIR
- RA

RETURN AIR
- SA

SUPPLY AIR
- T

THERMOSTAT
- EX.A.

EXHAUST AIR
- UTR

UP THRU ROOF
- EF

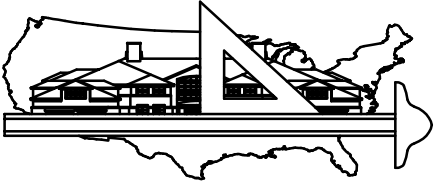
EXHAUST FAN
- FCU

FAN COIL UNIT

EXISTING HVAC UNIT

FCU-1

NOMINAL CAPACITY = 3.5 TONS
HEATING CAPACITY = 76 MBH
NOMINAL AIRFLOW = 1400 CFM
OUTSIDE AIR SUPPLY = 240 CFM



Design America Engineering, Inc.

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FE Project Number: 18-012

ITEM	DESCRIPTION	DATE
	FOR PERMIT	10-26-18

Project/Location:

PROPOSED
DOCTOR'S OFFICE
208 Main Street
Gaithersburg MD

Owner:

DR. RUPINDER SINGH

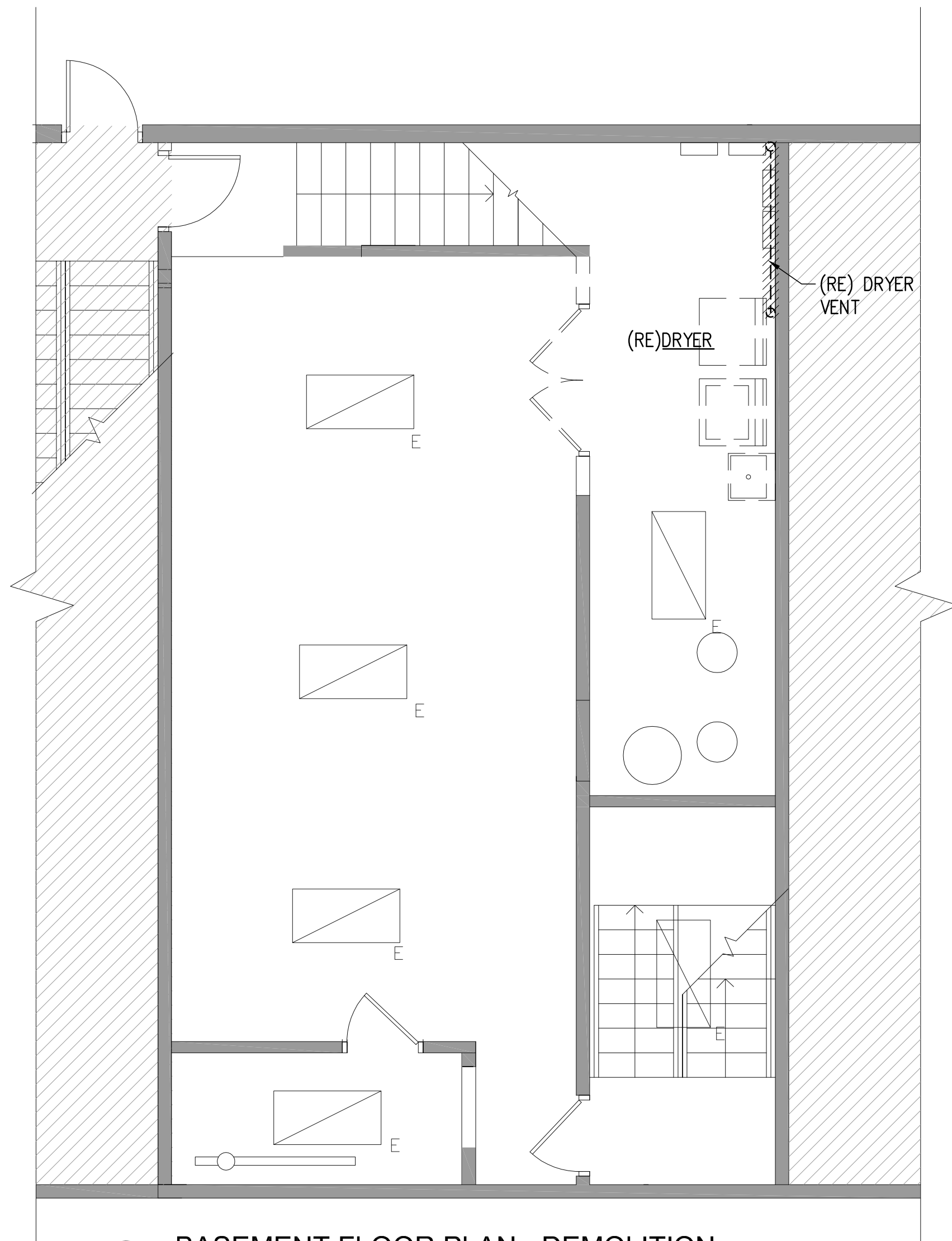


PROFESSIONAL CERTIFICATION:
I, RAFAEL COELHO, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE # 44287
EXPIRATION DATE: AUGUST 08, 2019

Sheet Title:

MECHANICAL NOTES
AND SYMBOLS

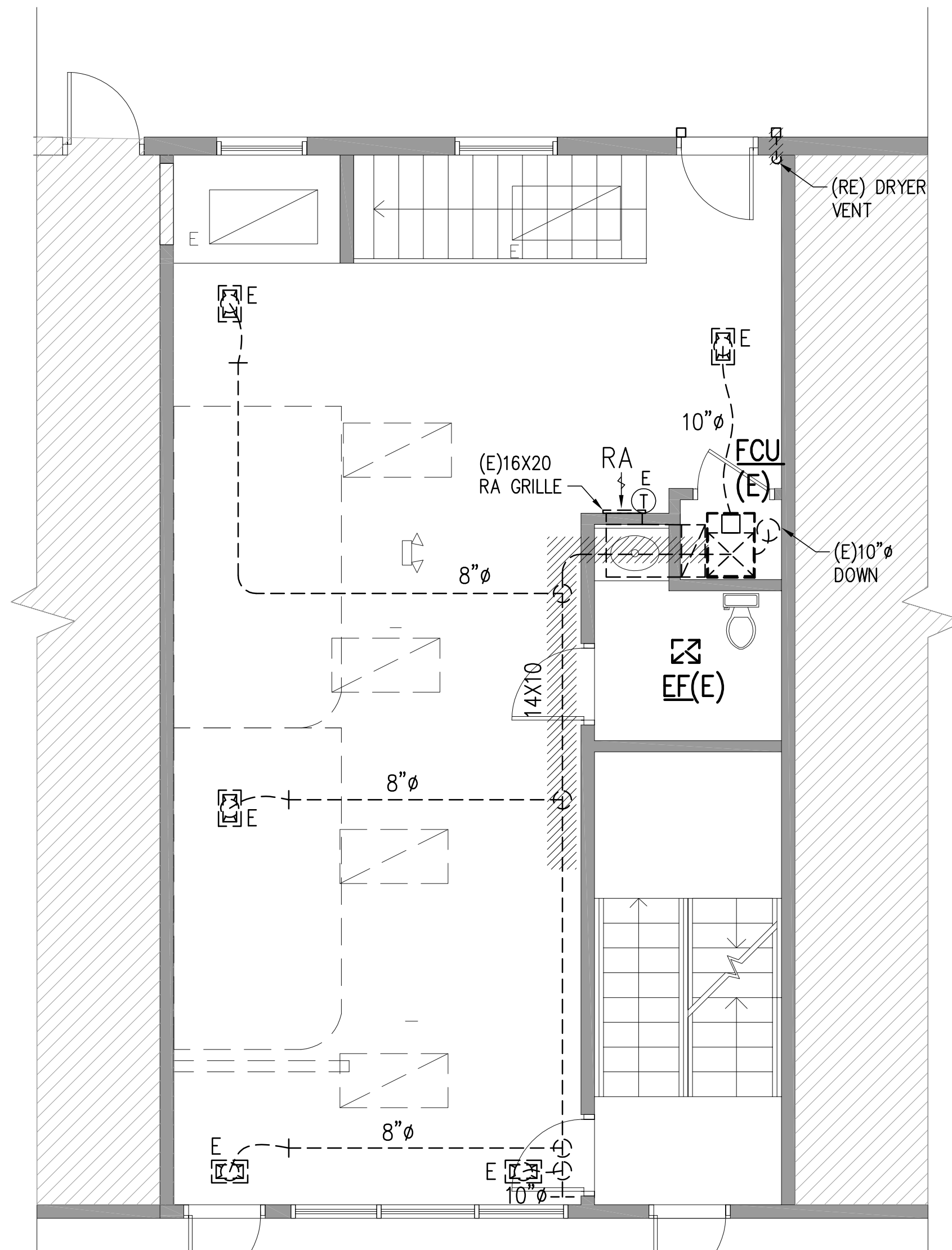
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1

BASEMENT FLOOR PLAN - DEMOLITION

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



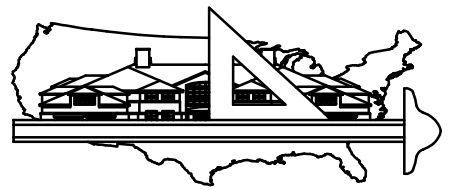
2

GROUND FLOOR PLAN - DEMOLITION

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

DEMOLITION NOTES

1. COORDINATE DEMOLITION WITH NEW CONSTRUCTION PLANS.
2. CONTRACTOR SHALL FIELD VERIFY EXISTING CLEARANCE ABOVE CEILING FOR NEW DUCT ROUTING.
3. REMOVE EXISTING DRYER VENT ENTIRELY. PATCH AND SEAL WEATHER TIGHT EXTERIOR WALL PENETRATION TO MATCH EXISTING.



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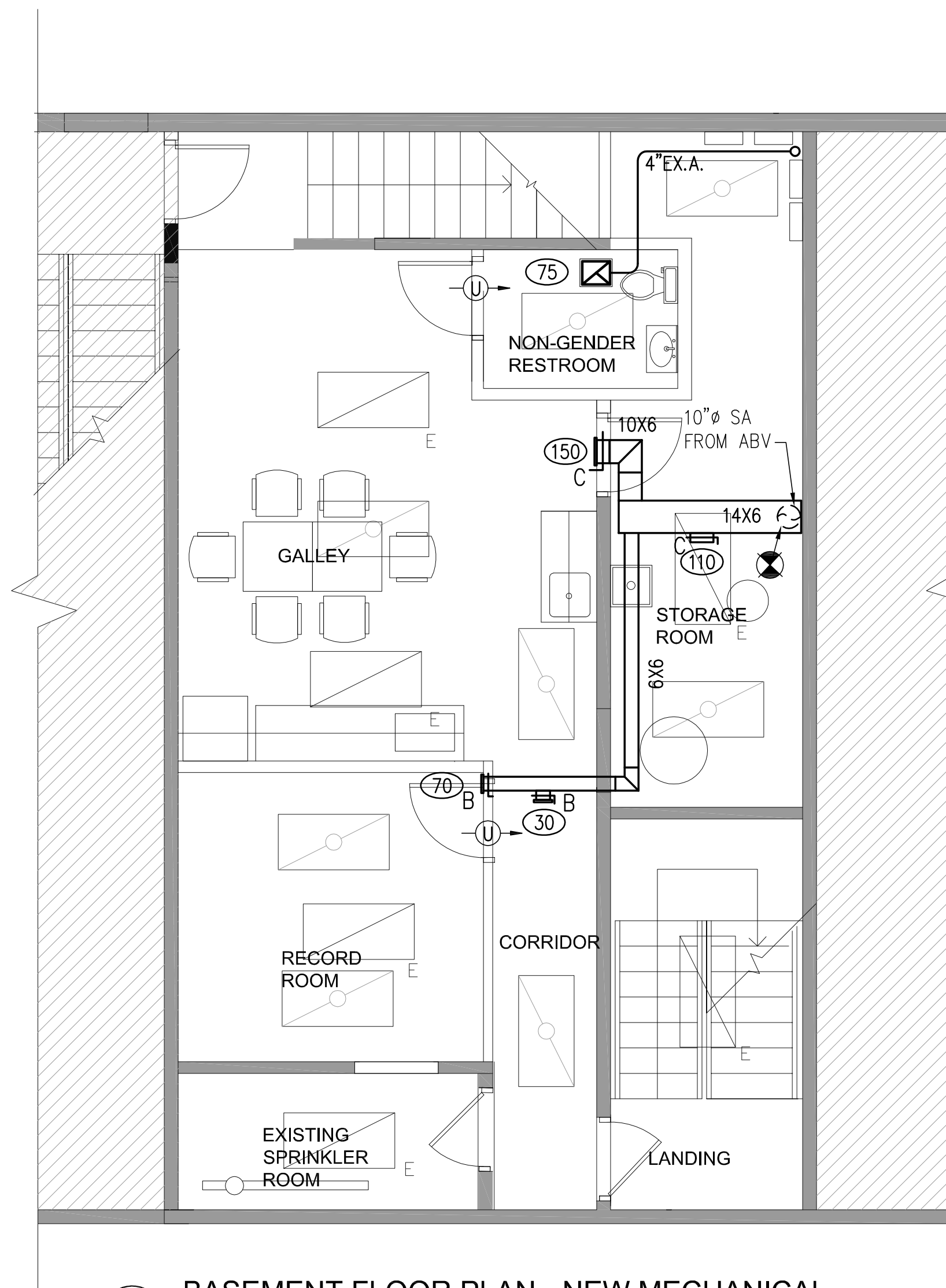
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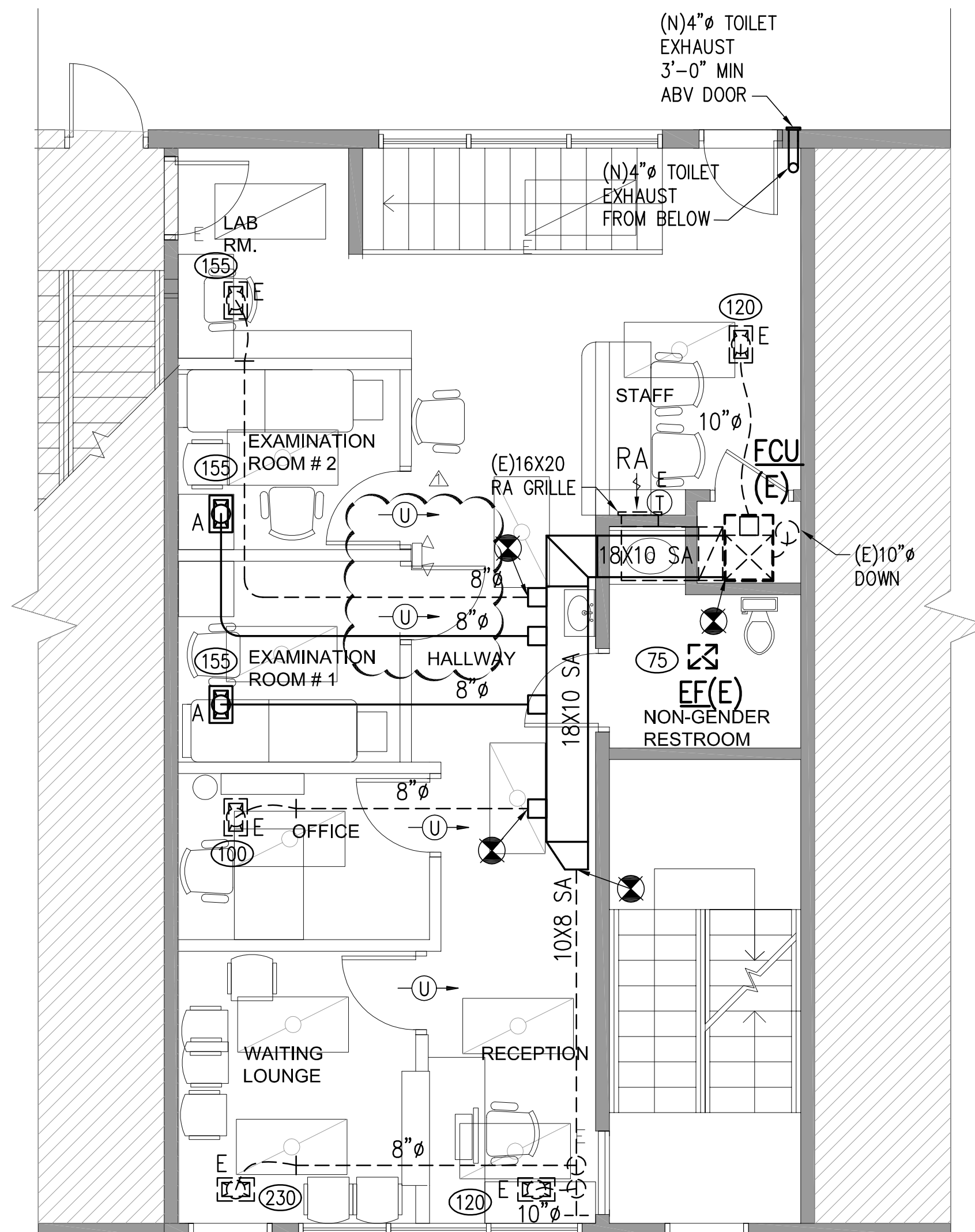
**MECHANICAL
DEMOLITION PLANS**

Sheet Number:

M101



1 BASEMENT FLOOR PLAN - NEW MECHANICAL
SCALE: 1/4" = 1'-0"



2 GROUND FLOOR PLAN - NEW MECHANICAL
SCALE: 1/4" = 1'-0"

DIFFUSER AND GRILLE SCHEDULE				
TAG	CFM	SIZE	BUILT-IN DAMPER	MANUFACTURER/MODEL NO.
A	230-290	12X6	YES	BUILDING STANDARD
B	80-225	10X6	YES	BUILDING STANDARD
C	30-110	6X6	YES	BUILDING STANDARD

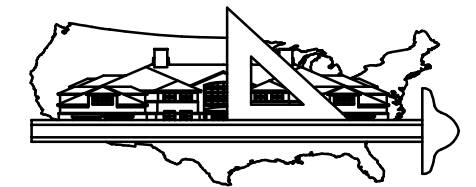
NEW CONSTRUCTION NOTES

1. FIELD VERIFY EXISTING DUCT ROUTING CLEARANCE ABOVE CEILING.
2. PROVIDE FIRESTOP ON CEILING PENETRATIONS WHERE REQUIRED.
3. PROVIDE RADIATION DAMPERS ON CEILING AS REQUIRED.

EXHAUST FAN SCHEDULE

TAG	CFM	TOTAL SP (IN WG)	FAN TYPE	RPM	DRIVE TYPE	MOTOR				GREEN HECK PROTOTYPE
						WATTS	VOLTS	PH	CYCLE	
EF-1	75	425	CABINET	1050	DIRECT	40	115	1	60	GN220

NOTE: ALL EXHAUST FANS SHALL BE CONTROLLED BY WALL SWITCH.
ALL EXHAUST FANS SHALL BE PROVIDED WITH BACKDRAFT DAMPER.
EXHAUST TERMINATION SHALL BE 10'-0" MINIMUM AWAY FROM OUTSIDE AIR INTAKE FIELD COORDINATE.



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ITEM	DESCRIPTION	DATE
1	REV.1 - C.O.G.COMMENTS	11.15.18

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**NEW MECHANICAL
PLANS**

Sheet Number:

M102