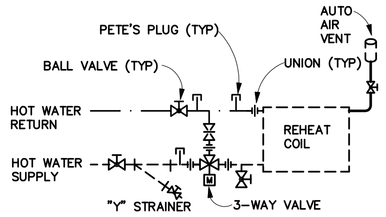
AIR DISTRIBUTION DEVICES

NOTES : 1. SYMBOL KEY – FIRST LETTER: S–SUPPLY R–RETURN E–EXHAUST
SECOND LETTER: D–DIFFUSER R–REGISTER G–GRILLE
2. CATALOG NUMBERS REFER TO TITUS AIR DEVICES EXCEPT WHERE NOTED
3. PROVIDE #DB DIRECTIONAL BLOW FOR OTHER THAN 4–WAY. SEE DETAIL "F"–MD/1.
4. DAMPERS SHALL BE OPERABLE FROM FACE
"A" OPPOSED BLADE #AG–35.
"B" RADIAL OPPOSED BLADE #AG–75.
"C" RUSKIN CFD OR CFDR FIRE DAMPER W/VOLUME CONTROL.
5. FINISH–
"A" METALESCENT ALUM. BAKED ENAMEL
"B" ETCHED FINISH WITH CLEAR FINISH OR ANODIZED
"C" BAKED OFF WHITE ENAMEL FINISH
"D" STANDARD OFF WHITE FINISH. G.C. TO FIELD PAINT TO MATCH CEILINGS OR WALLS
6. BORDER STYLE–
"1" SURFACE MOUNTED
"2" SNAP–IN
"3" LAY–IN
"4" PLASTER FRAME FOR DRYWALL CEILINGS

SYMBOL	CATALOG #	SIZE		MOUNTING			MATERIAL		FINISH	ACCESSORIES			BORDER STYLE	REMARKS
		MOD.	NECK	SIDE–WALL	CEIL–ING	DUCT	STEEL	ALUM.		DPR.	EQUAL GRID	FIRE DPR.		
SD–1	TMS	24"x24"	6"ø		●		●		D				3	
SD–2	TMS	24"x24"	8"ø		●		●		D				3	
SD–3	TMS	24"x24"	10"ø		●		●		D				3	
SR–4	301RS	16"x8"	14"x6"	●			●		D				1	
SD–5	ASSG–RR	14"x14"	12"x12"		●		●		D				1	1, 2
SD–6	ML–39	7 5/8"x60"	12"ø		●			●	D				4	1, 2
RG–1	355 RL	24"x12"	22"x10"		●		●		D				3	1
RG–2	355 RL	10"x10"	8"x8"		●		●		D				3	1
RG–3	ASSG–RR	14"x14"	12"x12"		●		●		D				1	1, 2
EG–1	355 RL	10"x10"	8"x8"		●		●		D				1	1
EG–2	355 RL	14"x14"	12"x12"		●		●		D				1	1
EG–3	355 RL	16"x16"	14"x14"		●		●		D				1	1
EG–4	ASSG–RR	8"x8"	6"x6"		●		●		D				1	1, 2

1. TRANSITION TO DUCT AS REQUIRED.
2. MANUFACTURER: ANEMOSTAT
3. CEILING MOUNTED EXCEPT WHERE NOTED



HOT WATER PIPING DETAIL

NTS

ANY REQUIRED MODIFICATION TO THE EXISTING SPRINKLER SYSTEM DUE TO HVAC WORK SHALL BE PERFORMED ACCORDING TO NFPA 13 REGULATIONS AND VA GUIDELINES. ALL NECESSARY MODIFICATION SHALL BE PART OF THE BID FOR THIS PROJECT.

ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, CONTROL DEVICES.

EXISTING CONDITION NOTES

THESE DRAWINGS ARE BASED ON INFORMATION PROVIDED TO OUR OFFICE AT THE TIME OF DESIGN. THEREFORE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS INCLUDING BUT NOT LIMITED TO, SERVICE LOCATION, SERVICE LAYOUTS, SECONDARY FEEDER LENGTH, TELEPHONE SERVICE LOCATION, ETC. AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO BID. FAILURE TO DO SO MAY CONSTITUTE THAT THE CONTRACTOR PROVIDE ANY AND ALL ADDITIONAL EQUIPMENT, LABOR, ETC. TO MEET THE INTENDED DESIGN PARAMETERS.

VERIFY ALL CONDITIONS IN FIELD

GENERAL CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS

MECHANICAL LEGEND

	AIRFLOW DIRECTION	C	DROP
	DUCT BREAK		EXISTING DUCT
	AIR BALANCE DAMPER		NEW DUCT
#	CODED NOTE	—EX–HWS—	EXISTING HOT WATER SUPPLY PIPING
	RETURN AIR GRILLE	—EX–HWR—	EXISTING HOT WATER RETURN PIPING
	SUPPLY AIR DIFFUSER	—HWS—	NEW HOT WATER SUPPLY PIPING
S	DUCT SMOKE DETECTOR	—HWR—	NEW HOT WATER RETURN PIPING
	TURNING VANE	—CWS—	CT CHILLED WATER SUPPLY PIPING
M	MOTORIZED DAMPER	—CWR—	CT CHILLED WATER RETURN PIPING
S	SENSOR		EXISTING EQUIPMENT
T	THERMOSTAT		NEW EQUIPMENT ON ROOF

NOTE: NOT ALL SYMBOLS MAY BE USED

VAV TERMINAL SCHEDULE

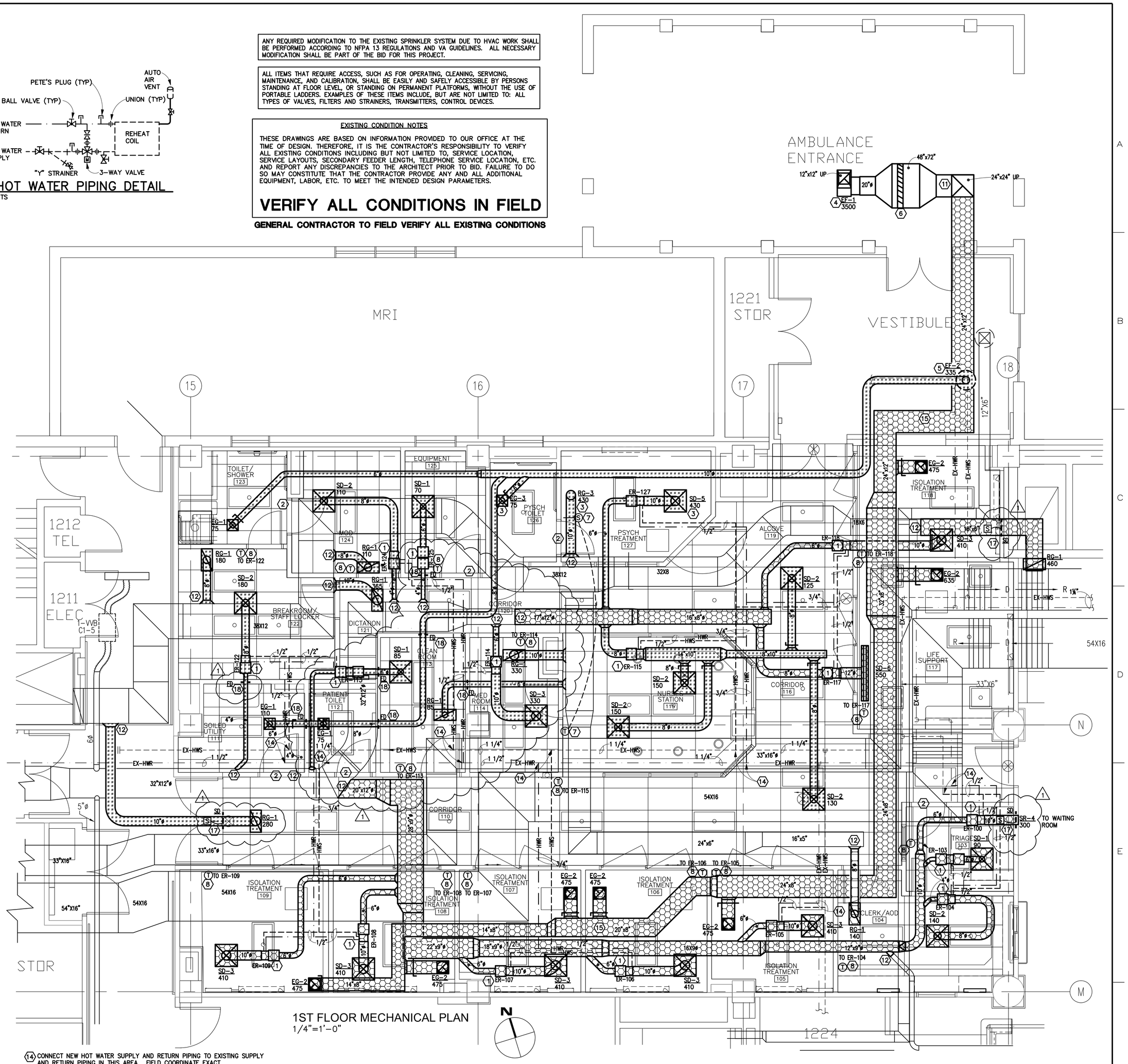
NAME	TRANE MODEL #	INLET	MAX AIRFLOW	MIN AIRFLOW	FLOW GPM	MBH	EWT °F	LWT °F
ER–100	VCWF05000C0DD03	5"ø	300 CFM	60 CFM	.6	5.8	130	110
ER–103	VCWF04000C0DD03	4"ø	90 CFM	25 CFM	.2	1.7	130	110
ER–104	VCWF04000C0DD03	4"ø	140 CFM	30 CFM	.27	2.7	130	110
ER–105	VCWF06000C0DD03	6"ø	410 CFM	410 CFM	1.15	11.5	130	110
ER–106	VCWF06000C0DD03	6"ø	410 CFM	410 CFM	1.15	11.5	130	110
ER–107	VCWF06000C0DD03	6"ø	410 CFM	410 CFM	1.15	11.5	130	110
ER–108	VCWF06000C0DD03	6"ø	410 CFM	410 CFM	1.15	11.5	130	110
ER–109	VCWF06000C0DD03	6"ø	410 CFM	410 CFM	1.15	11.5	130	110
ER–113	VCWF04000C0DD03	4"ø	85 CFM	25 CFM	.2	1.7	130	110
ER–114	VCWF06000C0DD03	6"ø	330 CFM	60 CFM	.65	6.4	130	110
ER–115	VCWF08000C0DD03	8"ø	555 CFM	120 CFM	1.1	10.8	130	110
ER–117	VCWF08000C0DD03	8"ø	550 CFM	550 CFM	1.5	15.4	130	110
ER–118	VCWF06000C0DD03	6"ø	410 CFM	80 CFM	1.15	11.5	130	110
ER–122	VCWF04000C0DD03	4"ø	180 CFM	40 CFM	.35	3.5	130	110
ER–124	VCWF04000C0DD03	4"ø	110 CFM	30 CFM	.2	2.1	130	110
ER–125	VCCF04000C0DD01	4"ø	70 CFM	0 CFM	–	–	–	–
ER–127	VCWF06000C0DD03	6"ø	430 CFM	80 CFM	.84	8.4	130	110

GENERAL NOTES:

1. IT IS THE INTENTION OF THE CONTRACT DOCUMENTS TO CALL FOR FINISHED WORK, ALL TESTED AND READY FOR OPERATION. ALL WORK SHALL BE PERFORMED IN A PROFESSIONAL MANNER, AND SITE KEPT CLEAN OF DEBRIS.
2. THE MECHANICAL DRAWINGS SHALL BE CONSIDERED AS BEING DIAGRAMMATIC. ALL DIMENSIONS SHALL BE DETERMINED IN THE FIELD BY THE MECHANICAL CONTR. MECHANICAL DRAWINGS ARE NOT TO BE CONSIDERED AS ERECTION DRAWINGS. THEY DO NOT NECESSARILY INDICATE EVERY FITTING, OFFSET, VALVE, ETC., WHICH MAY BE REQUIRED FOR A PROPER INSTALLATION. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT DRAWINGS AND THE MANUFACTURER'S RECOMMENDATIONS.
3. FOR EXACT LOCATION OF HVAC EQUIPMENT, COORDINATE WITH PROPER MANUFACTURER'S OPERATING CLEARANCE AND ROOM CONDITIONS.
4. THE MANUFACTURER NAME AND MODEL NUMBER APPEARING ON THE PROJECT DRAWINGS ARE TO ESTABLISH A QUALITY. IF CONTRACTOR WISHES TO SUBSTITUTE EQUIPMENT HE MUST OBTAIN CONSTRUCTION MANAGER'S APPROVAL. IF EQUIPMENT IS CHANGED CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL CHANGES REQUIRED FOR PROPER INSTALLATION, INCLUDING BUT NOT LIMITED TO WIRING, DUCT, STRUCTURAL, PIPING, AND CLEARANCE CHANGES.
5. UNLESS OTHERWISE NOTED, ALL DUCTWORK SHALL BE GALVANIZED SHEET STEEL, FABRICATED AND INSTALLED IN ACCORDANCE WITH "SMACNA HVAC DUCT CONSTRUCTION STANDARDS". UNLESS OTHERWISE NOTED, ALL DUCTWORK UPSTREAM OF VAV TERMINAL UNITS SHALL CONFORM TO 4" WATER GAUGE PRESSURE CLASSIFICATION, AND ALL DUCTWORK DOWNSTREAM OF VAV TERMINAL UNITS SHALL CONFORM TO 2" WATER GAUGE PRESSURE CLASSIFICATION.
6. ALL INDICATED DUCT SIZES ARE NOMINAL, INSIDE CLEAR DIMENSIONS.
7. RECTANGULAR, FLAT OVAL, AND ROUND SUPPLY INTERIOR DUCT SHALL BE WRAPPED WITH 1" FIBERGLASS DUCT WRAP WITH VAPOR BARRIER. ALL 90 DEGREE ELBOWS ARE TO HAVE TURNING VANES INSTALLED.
8. ALL RECTANGULAR BRANCH DUCTS SHALL HAVE A 45 DEGREE ENTRY. ALL ROUND BRANCH DUCT TAKEOFFS SHALL HAVE CONICAL OR BELLMOUTH SPIN–IN FITTINGS.
9. PROVIDE A VOLUME DAMPER ON THE SUPPLY, RETURN AND EXHAUST DUCTWORK ABOVE LAY–IN CEILING OR AS INDICATED AND AS REQUIRED FOR PROPER BALANCING OF THE SUPPLY AND EXHAUST SYSTEMS.
10. DUCTWORK FEEDS TO THE DIFFUSERS ARE THE SAME SIZE AS THEIR CORRESPONDING DIFFUSER NECK SIZE UNLESS NOTED OTHERWISE.
11. THE MECHANICAL CONTRACTOR IS TO COORDINATE ALL WORK WITH OTHER TRADES AND VA PERSONNEL TO ELIMINATE CONFLICTS.
12. THE MECHANICAL CONTRACTOR IS TO PROVIDE A ONE YEAR WARRANTY ON ALL PARTS AND LABOR FOR ALL HVAC EQUIPMENT, A 5 YEAR WARRANTY ON COMPRESSORS, AND A 10 YEAR WARRANTY ON HEAT EXCHANGERS, UNLESS NOTED OTHERWISE.
13. ALL MECHANICAL SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH VA REQUIREMENTS. ALL HEATING/COOLING EQUIPMENT SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE UNDERWRITERS APPROVAL, THE MANUFACTURER'S RECOMMENDATIONS, AND GOOD ENGINEERING PRACTICE.
14. MAINTAIN A 10' SEPARATION BETWEEN ALL FRESH AIR INTAKES AND ALL EXHAUST FANS AND VENTS.
15. VERIFY EXISTING HVAC PIPING SIZES. IF PIPING DOES NOT MEET SIZE AS MARKED ON THIS PLAN, REPLACE PIPING WITH APPROPRIATE SIZE.

CODED NOTES

1. PROVIDE AND INSTALL NEW VAV TERMINAL UNITS WHERE SHOWN. BALANCE MAXIMUM AND MINIMUM AIRFLOWS ACCORDING TO VAV TERMINAL SCHEDULE ON THIS SHEET. ENSURE COMPATIBILITY WITH EXISTING DDC CONTROL SYSTEM.
2. UNDERCUT DOOR 3/4" FOR TRANSFER AIR.
3. ENSURE ANEMOSTAT SECURITY GRILLES AND DIFFUSERS ARE PROPERLY INSTALLED AND ARE SECURED FLUSH TO THE CEILING WITH TAMPER PROOF FASTENERS. GRILLES AND DIFFUSERS SHOULD NOT BE ABLE TO BE REMOVED OR USED FOR SELF–HARM.
4. EF–1 PROVIDE AND INSTALL NEW ROOF MOUNTED EXHAUST FAN, COOK MODEL # 150CPS, 3500 CFM, 5 HP, 3.75" S.P. 208V/3ø. PROVIDE WITH 10 FOOT DISCHARGE STACK, 12"x12" ON FAN OUTLET. FIELD COORDINATE EXACT LOCATION OF EXHAUST FAN WITH EXISTING ROOF EQUIPMENT AND VA.
5. EF–2 PROVIDE AND INSTALL NEW ROOF MOUNTED EXHAUST FAN, COOK MODEL # 80C3B (ACE–8), 335 CFM, 1/6 HP, 0.5" S.P. FIELD COORDINATE EXACT LOCATION OF EXHAUST FAN WITH EXISTING ROOF EQUIPMENT.
6. PROVIDE AND INSTALL TWO 24"x72"x5–7/8" HEPA FILTERS SIDE BY SIDE IN 48"x72" DUCT ON ROOF. FABRICATE WEATHERTIGHT FILTER HOLDER WITH WEATHERTIGHT ACCESS PANEL TO ALLOW FOR EASY ACCESS TO CHANGE FILTERS.
7. PROVIDE AND INSTALL DUCT MOUNTED ZONE TEMPERATURE SENSOR FOR PSYCHIATRIC SUITE WITH REMOTE THERMOSTAT LOCATED IN NURSE'S STATION. COORDINATE WITH VA FOR EXACT PLACEMENT OF REMOTE THERMOSTAT. ENSURE COMPATIBILITY WITH VAV TERMINAL UNIT AND EXISTING DDC CONTROL SYSTEM. CONNECT TO CENTRAL CONTROL CENTER. COORDINATE WITH VA REPRESENTATIVE PRIOR TO ORDERING CONTROLS.
8. PROVIDE AND INSTALL ZONE THERMOSTAT AT 5'–0" A.F.F. FIELD COORDINATE EXACT LOCATION WITH VA. ENSURE COMPATIBILITY WITH VAV UNITS AND EXISTING DDC CONTROL SYSTEM. COORDINATE WITH VA REPRESENTATIVE PRIOR TO ORDERING CONTROLS.
9. REMOVE EXISTING AIR HANDLER 1–AH–27, PRESERVING EXISTING DUCTWORK AND CHILLED AND HOT WATER PIPING. EXISTING SOUND ATTENUATOR AND STEAM HUMIDIFIER SECTIONS ARE TO REMAIN. REPLACE WITH NEW TRANE CUSTOM AIR HANDLER AS SCHEDULED ON SHEET MH3. CONNECT NEW AIR HANDLER TO EXISTING SOUND ATTENUATOR SECTION. FIELD COORDINATE EXACT CONNECTION REQUIREMENTS, AND ENSURE OLD AND NEW ENCLOSURES ARE CONNECTED TO PROVIDE A CONTINUOUS ENCLOSURE. PROVIDE DDC CONTROL SYSTEM COMPATIBLE WITH EXISTING HOSPITAL DDC SYSTEM. CONTROLS MUST OPERATE SUPPLY FAN, ALL COILS, STEAM HUMIDIFIER, EXISTING RETURN–AIR FAN, AND ANY OTHER CONTROL MECHANISMS REQUIRED TO ENSURE PROPER OPERATION AS PER SEQUENCE OF OPERATIONS ON SHEET M3. PROVIDE CONTROL SWITCH IN EMERGENCY ROOM AT NURSE'S STATION TO ENABLE EMERGENCY CONDITION OPERATION. COORDINATE EXACT LOCATION WITH VA. FIELD VERIFY ALL REQUIREMENTS.
10. PROVIDE AND INSTALL NEW OPPOSED BLADE MOTORIZED DAMPERS TO CONTROL OUTSIDE AIR INTAKE AND RELIEF / EXHAUST AIR. SEE SCHEDULE OF OPERATIONS ON SHEET MH3 FOR DAMPER OPERATION. CONNECT TO EXISTING DDC CONTROL SYSTEM AND NEW AHU–27.
11. ALL DUCT EXPOSED TO THE ELEMENTS SHALL BE 0.1" ALUMINUM DUCT SEALED WEATHER TIGHT. ENSURE DUCT MEETS 4" WATER GAUGE PRESSURE CLASSIFICATION.
12. CONNECT NEW DUCTWORK TO EXISTING DUCT WHERE SHOWN. FABRICATE ANY TRANSITIONS REQUIRED TO CONNECT NEW DUCT TO EXISTING DUCT. ENSURE JOINTS MEET 4"W.G. PRESSURE CLASSIFICATION.
13. EXTEND EXISTING 2" CHILLED WATER AND 1" GLYCOL HOT WATER SUPPLY PIPING TO HOT WATER PRE–HEAT AND CHILLED WATER COOLING COILS IN NEW AIR HANDLER. FIELD COORDINATE EXACT CONNECTION POINT AND REQUIREMENTS.



1ST FLOOR MECHANICAL PLAN

1/4"=1'–0"

14. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING TO EXISTING SUPPLY AND RETURN PIPING IN THIS AREA. FIELD COORDINATE EXACT REQUIREMENTS.
15. EXHAUST DUCT TO CONFORM TO 4" WATER GAUGE PRESSURE CLASSIFICATION.
16. REMOVE EXISTING 42"x16" RETURN AIR DUCT DROP TO AIR HANDLER AND PATCH OPENING AIR TIGHT. PROVIDE NEW 42"x16" DUCT TO NEW AIR HANDLER WHERE INDICATED.
17. PROVIDE AND INSTALL SMOKE DAMPER COMPLETE WITH SMOKE DETECTOR. SMOKE DAMPER TO COMPLY WITH UL 555S. FIELD COORDINATE ELECTRICAL REQUIRE WITH ELECTRICAL CONTRACTOR.
18. POVIDE AND INSTALL ONE HOUR FIRE DAMPER. DAMPER TO COMPLY WITH UL 555.

REVISION 1	5/21/09
Revisions:	Date

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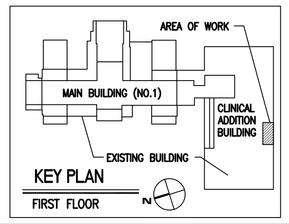
FULLY SPRINKLERED

CDL Project Number: 07060



Drawing Title	Project Title	Project Number	
MECHANICAL PLAN	EMERGENCY ROOM RENOVATION	540-07-115	Office of Facilities Management
Approved: Project Director	Location: VAMC - CLARKSBURG, WV	Building Number: ONE	
	Date: 6/20/2008 · Checked: LL · Drawn: JS	Drawing Number: MH1 Dwg. of --	Department of Veterans Affairs