

NOTE:

1. SEE SHEET M-001 FOR LEGEND AND ABBREVIATIONS.

SPECIFICATIONS:

GENERAL

- INTENT OF PROJECT IS FOR NEW MATERIALS AND COMPONENTS TO MATCH EXISTING. ALL MATERIALS SHALL BE APPROVED BY MAINE MEDICAL CENTER.
- REVIEW PROTOCOL AND PROCEDURES WITH MAINE MEDICAL CENTER PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING OWNER'S PROTOCOL AND PROCEDURES BY ITS EMPLOYEES AND SUB-CONTRACTORS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS IN THE FIELD PRIOR TO ANY DEMOLITION OR NEW INSTALLATION.
- ALL WORK SHALL BE IN ACCORDANCE WITH THE 2009 EDITION OF THE INTERNATIONAL BUILDING CODE AND ANY AND ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL ORDINANCES.
- THE CONTRACTOR SHALL VERIFY SHUTDOWN AND ISOLATION VALVE LOCATIONS. THE CONTRACTOR SHALL COORDINATE ALL SHUTDOWN WORK WITH THE PROJECT COORDINATOR FOR MAINE MEDICAL CENTER.
- THE CONTRACTOR SHALL VISIT THE SITE, BECOME FAMILIAR WITH THE EXISTING FIELD CONDITIONS, AND MAKE HIS OWN ESTIMATE OF THE DIFFICULTIES IN EXECUTING THE WORK PRIOR TO SUBMITTING ITS BID. NO COMPENSATION WILL BE AWARDED TO THE CONTRACTOR BASED ON A CLAIM OF LACK OF KNOWLEDGE OF EXISTING FIELD CONDITIONS.
- PIPING, DUCTWORK AND EQUIPMENT ARE NOT COMPLETELY DETAILED ON THE DIAGRAMS AND ELEVATIONS PROVIDED ON THE DRAWINGS ARE APPROXIMATE. THE DISTRIBUTION IS INTENDED AS A GENERAL ROUTING ONLY, BUT DOES ILLUSTRATE THE DESIRED LOCATION. THE CONTRACTOR SHALL AVOID INTERFERENCES WITH OTHER EQUIPMENT AND THE WORK OF OTHER DISCIPLINES.
- NOT ALL VALVES, INSTRUMENTS AND CONTROLS ARE SHOWN IN THE PLAN VIEWS. INSTALL PIPING AND VALVES AS SHOWN ON PIPING DIAGRAMS AND DETAILS.
- DUCTWORK, PIPING AND SUPPORTS SHALL NOT INTERFERE WITH EQUIPMENT MAINTENANCE ACCESS OR PULL SPACE.
- DRAWINGS OF REVISED DUCTWORK OR PIPING ARRANGEMENTS SHALL BE SUBMITTED IF ITEMS ARE NOT SHOWN ON THE DRAWINGS. REVISIONS SHALL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO COMMENCEMENT OF THE CHANGES.
- MECHANICAL CONTRACTOR SHALL PROVIDE ALL SUPPLEMENTARY STRUCTURAL SUPPORTS, ANGLE IRON, PLATES, ROD, ETC. AS NECESSARY FOR PROPER INSTALLATION OF PIPING, EQUIPMENT, AND ACCESSORIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING SUPPORTS, STRUT RACKS, TRAPEZE STEEL, PIPE SUPPORT COMPONENTS, ETC.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE MADE BY ITS FIRM ON NEW OR EXISTING EQUIPMENT INSTALLED OR RELOCATED BY HIM/HER UNDER THIS CONTRACT. THIS SHALL INCLUDE ALL TOUCH-UP PAINTING.
- THE CONTRACTOR SHALL RETURN AS-BUILT DRAWINGS TO MAINE MEDICAL CENTER.
- CONTRACTOR TO PROVIDE ALL MATERIALS NEEDED FOR CONSTRUCTION UNLESS OTHERWISE NOTED OR DIRECTED.
- DIELECTRIC UNIONS SHALL BE INSTALLED BETWEEN DISSIMILAR METALS IN SOLDERED AND THREADED PIPING SYSTEMS AND INSULATED FLANGES FOR WELDING SYSTEMS.
- CONTRACTOR TO LABEL ALL NEW PIPING AND DUCTWORK EVERY 10 FEET. LABELING TO INCLUDE DIRECTION OF FLOW AS WELL AS DESCRIPTION OF CONTENTS. LABELING SHALL BE COLOR/SIZE ACCORDING TO OSHA SPECIFICATIONS.
- PRIOR TO CONNECTING TO ANY EXISTING PIPING, CONFIRM TIE-IN LOCATIONS WITH MAINE MEDICAL CENTER PROJECT MANAGER.
 - PROVIDE HANGERS, SUPPORTS, AND INSERTS CONFORMING TO:
 - MSS SP-58
 - MSS SP-69
 - ANSI B31.9
 - PROVIDE PIPE HANGERS, SUPPORTS, AND ACCESSORIES WHICH:
 - PERMIT VERTICAL ADJUSTMENT AFTER INSTALLATION OF PIPING.
 - ARE DESIGNED FOR SUPPORT OF PIPING AND CONTENTS UNDER ALL CONDITIONS OF OPERATION INCLUDING TESTING.
 - WILL NOT CRUSH, INDENT, OR OTHERWISE DAMAGE PIPE, PIPE INSULATION, OR JACKETING.
 - PROVIDE COMPLETE HANGER AND SUPPORT ASSEMBLIES, INCLUDING CLAMPS, RODS, WASHERS, NUTS, TURNBUCKLES, AND LOCKING DEVICES, CONSTRUCTED FOR COMPATIBILITY WITH ITEMS SUPPORTED AND SUPPORTING STRUCTURE.
 - PROVIDE ALL SIMILAR SUPPORT COMPONENTS BY SAME MANUFACTURER.
 - PROVIDE OVERSIZED CLEVIS AND/OR ROLLER HANGERS TO FIT ON OUTSIDE OF INSULATED PIPING.
 - PROVIDE INSULATION PROTECTORS AT SUPPORT POINTS FOR ALL INSULATED UNJACKETED PIPING.
 - SPECIAL REQUIREMENTS: ALL COMPONENTS SHALL BE SUITABLY SIZED FOR THE LOAD SUPPORTED.
- CONTROLS, BALANCING AND CERTIFICATION:
 - CONTROLS: CONTRACTOR SHALL PROVIDE CONTROL DEVICES AND MATERIALS.
 - CONTROLS CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED DEVICES AND SENSORS, AND PERFORM TIE-INS TO EXISTING FACILITY SYSTEM.

SUBMITTALS

- PRODUCT DATA: SUBMIT MANUFACTURERS PRODUCT DATA AND INSTALLATION INSTRUCTIONS FOR EACH MATERIAL AND PRODUCT USED.
- OPERATION AND MAINTENANCE DATA: SUBMIT MANUFACTURERS OPERATION AND MAINTENANCE DATA, INCLUDING OPERATION INSTRUCTIONS, LIST OF SPARE PARTS AND MAINTENANCE SCHEDULE.

OPERATION AND MAINTENANCE DATA

- COMMENCE PREPARATION OF THE OPERATING AND MAINTENANCE (O&M) MANUALS IMMEDIATELY UPON RECEIPT OF "APPROVED" OR "APPROVED AS NOTED" SHOP DRAWINGS AND SUBMIT EACH SECTION WITHIN ONE MONTH. THE FINAL SUBMISSION SHALL BE NO LATER THAN TWO MONTHS PRIOR TO THE PROJECTED DATE OF SUBSTANTIAL COMPLETION OF THE PROJECT.
- THE MANUAL SHALL CONSIST OF (3) SETS OF MANUALS AND INCLUDE (3) SETS OF CDS, WHICH SHALL CONTAIN THE SCANNED CONTENT OF THE ENTIRE MANUAL. THE MANUAL SHALL HIGHLIGHT THE ACTUAL EQUIPMENT USED AND NOT BE A MASTER CATALOG OF ALL SIMILAR PRODUCTS OF THE MANUFACTURER.

WARRANTIES

- SUBMIT MANUFACTURER'S STANDARD REPLACEMENT WARRANTIES FOR MATERIAL AND EQUIPMENT FURNISHED UNDER THIS SECTION. SUCH WARRANTIES SHALL BE IN ADDITION TO AND NOT IN LIEU OF ALL LIABILITIES WHICH THE MANUFACTURER AND THE HVAC SUBCONTRACTOR MAY HAVE BY LAW OR BY PROVISIONS OF THE CONTRACT DOCUMENTS.
- ALL MATERIALS, EQUIPMENT AND WORK FURNISHED UNDER THIS SECTION SHALL BE GUARANTEED AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP FOR A MINIMUM PERIOD OF ONE YEAR COMMENCING WITH THE DATE OF SUBSTANTIAL COMPLETION. WHERE INDIVIDUAL EQUIPMENT SECTIONS SPECIFY LONGER WARRANTIES, PROVIDE THE LONGER WARRANTY. ANY FAILURE DUE TO DEFECTIVE MATERIAL, EQUIPMENT OR WORKMANSHIP WHICH MAY DEVELOP, SHALL BE CORRECTED AT NO EXPENSE TO THE OWNER INCLUDING ALL DAMAGE TO AREAS, MATERIALS AND OTHER SYSTEMS RESULTING FROM SUCH FAILURES.

INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

- IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO CALL FOR COMPLETE, FINISHED WORK, TESTED AND READY FOR CONTINUOUS OPERATION. ANY APPARATUS, APPLIANCE, MATERIAL OR WORK NOT SHOWN ON THE DRAWINGS, BUT MENTIONED IN THE SPECIFICATIONS OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE IN ALL RESPECTS AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SPECIFIED, SHALL BE PROVIDED BY THE CONTRACTOR OR HIS/HER SUB CONTRACTORS, WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
- THE DRAWINGS ARE GENERALLY DIAGRAMMATIC. THE LOCATIONS OF ALL ITEMS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS MUST BE DETERMINED AT THE SITE AND SHALL HAVE THE APPROVAL OF THE ARCHITECT BEFORE BEING INSTALLED. THE HVAC CONTRACTOR SHALL FOLLOW DRAWINGS, INCLUDING SHOP DRAWINGS, IN LAYING OUT WORK AND SHALL CHECK THE DRAWINGS OF OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS. WHERE SPACE CONDITIONS APPEAR INADEQUATE, NOTIFY THE ARCHITECT BEFORE PROCEEDING WITH THE INSTALLATION. THE HVAC CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LAYOUT AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES OR FOR PROPER EXECUTION OF THE WORK.
- SIZES OF DUCTS AND PIPES AND ROUTING ARE SHOWN, BUT IT IS NOT INTENDED TO SHOW EVERY OFFSET AND FITTING, NOR EVERY STRUCTURAL DIFFICULTY THAT MAY BE ENCOUNTERED. TO CARRY OUT THE INTENT AND PURPOSE OF THE DRAWINGS, ALL NECESSARY PARTS TO MAKE COMPLETE APPROVED WORKING SYSTEMS READY FOR USE, SHALL BE FURNISHED WITHOUT EXTRA CHARGE.

DUCTWORK

- GALVANIZED STEEL DUCTWORK: ASTM A653 GALVANIZED STEEL SHEETS, LOCK FORMING QUALITY, G90 ZINC COATING.
- FLEXIBLE DUCTWORK: UL 181 CLASS 1 AIR DUCT, INSULATED, ATCO, OR APPROVED EQUAL. FLEXIBLE DUCTWORK INNER CORE SHALL CONSIST OF A DOUBLE LAMINATION OF POLYESTER ENCAPSULATING A STEEL WIRE HELIX.
- ALL DUCTWORK SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS. SEAL ALL DUCT JOINTS AND SEAMS (CLASS "A", 2 INCH PRESSURE CLASS).
- DUCT SEALANT SHALL BE HARDCAST, INC."IRON GRIP", WATER-BASED, VINYL ACRYLIC SEALANT.
- INSTALL DIFFUSERS TO DUCTWORK WITH AIRTIGHT CONNECTION. SEAL GAPS BETWEEN SURFACE MOUNTED AIR INLETS AND OUTLETS AIRTIGHT.
- INSULATE SUPPLY AIR DUCTWORK WITH 1-1/2" THICK FIBERGLASS INSULATION BLANKET W/VAPOR BARRIER, 25 FLAME SPREAD, 50 SMOKE DEVELOPED.
- PROVIDE DUCT ACCESS DOORS AT ALL COMPONENTS THAT REQUIRE SERVICING; INCLUDING BUT NOT LIMITED TO CONTROL DAMPERS, TEMPERATURE CONTROL DEVICES, AND FIRE DAMPERS. PROVIDE SHEET-ROCK CEILING ACCESS PANELS WHERE REQUIRED.

REGISTERS & DIFFUSERS (SEE SCHEDULE ON PLANS)

- SUPPLY DIFFUSERS: PRICE MODEL SPS, SQUARE PLAQUE DIFFUSER, WHITE FINISH.
- SUPPLY GRILLES: PRICE MODEL 520, GRILLE WITH 3/4" SPACING LOUVERED FACE, DOUBLE DEFLECTION, WHITE FINISH.
- EXHAUST GRILLES: PRICE MODEL 535, GRILLE WITH 1/2" SPACING LOUVERED FACE, WHITE FINISH.
- RETURN GRILLES: PRICE MODEL 535, GRILLE WITH 1/2" SPACING LOUVERED FACE, WHITE FINISH.
- PROVIDE DAMPERS IN BRANCH DUCTWORK FOR ALL REGISTERS AND DIFFUSERS.

HYDRONIC PIPING

- HYDRONIC PIPING SHALL TYPE "L" COPPER TUBING WITH SOLDERED JOINTS AND WROUGHT-COPPER FITTINGS.
- INSTALL SHUTOFF DUTY VALVES AT EACH BRANCH CONNECTION TO SUPPLY MAINS, AT SUPPLY CONNECTION TO EACH PIECE OF EQUIPMENT, UNLESS ONLY ONE PIECE OF EQUIPMENT IS CONNECTED IN THE BRANCH LINE. INSTALL THROTTLING DUTY VALVES AT EACH BRANCH CONNECTION TO RETURN MAINS, AT RETURN CONNECTIONS TO EACH PIECE OF EQUIPMENT, AND ELSEWHERE AS INDICATED.
- INSTALL AUTOMATIC FLOW CONTROL VALVES TO SERVE EACH TERMINAL UNIT (FLOW DESIGN INC. OR EQUAL).

IDENTIFICATION

- LABELING SHALL APPEAR AT INTERVALS OF NOT MORE THAN 20 FEET AND AT LEAST ONCE IN EACH ROOM AND EACH STORY TRAVERSED BY THE PIPING SYSTEM. ALL PIPING SHALL BE CLEARLY IDENTIFIED SPECIFICALLY FOR TYPE OF SERVICE WITH COILED PLASTIC PIPE MARKERS AND FLOW DIRECTION ARROWS.

AUTOMATIC TEMPERATURE CONTROLS

- THE CONTROLS FOR THIS PROJECT WILL BE AN EXTENSION OF THE EXISTING CONTROL SYSTEM. EXISTING CONTROLS SYSTEM SHALL BE MODIFIED AS REQUIRED TO SERVE THE RENOVATED AREAS.
- THE EXISTING VAV SEQUENCE OF OPERATIONS SHALL BE MAINTAINED.
- THERMOSTAT: ZONE THERMOSTAT SHALL BE SIMILAR TO EXISTING WITH SETPOINT ADJUSTMENT, NIGHT SETBACK OVERRIDE AND CANCEL BUTTONS, AND A COMMUNICATIONS JACK.
 - THERMOSTAT IN PATIENT ACCESS AREA. USE STAINLESS STEEL FLUSH-MOUNT TEMPERATURE SENSOR SIMILAR TO PRECON STS SERIES.
- CONTROLS TESTING SHALL BE ACCOMPLISHED ON EACH CONTROL DEVICE. ACTUATORS SHOULD BE CHECKED AND ADJUSTED FOR START AND EXTENT OF TRAVEL. ALL RELAYS AND ADAPTERS SHOULD BE CHECKED SHOULD FOR PROPER OPERATION. CONTROLLERS SHOULD BE CHECKED FOR PROPER ACTION. ALL SYSTEM INTERLOCKS, INTERCONNECTIONS, AND SAFETY DEVICES SHOULD BE CHECKED FOR PROPER FUNCTION.
- ALL CONTROL DEVICES SHALL BE ADJUSTED AND CALIBRATED. ALL CONTROL SETTINGS SHOULD BE VERIFIED BY COMPARING ACTUAL INPUT AND OUTPUT VALUES TO CALIBRATED VALUES.
- FURNISH ALL COMPONENTS AS REQUIRED FOR COMPLETE AND FUNCTIONING SYSTEM. PROVIDE DDC CONTROL WITH FULLY MODULATING ACTUATORS.
- COORDINATE SENSOR LOCATIONS.
- START-UP: PROVIDE ALL REQUIRED SOFTWARE MODIFICATIONS AND DE-BUGGING. ALLOW SUFFICIENT TIME FOR START-UP PRIOR TO PLACING CONTROL SYSTEMS IN PERMANENT OPERATION. ALLOW FOR COORDINATION WITH THE TESTING, ADJUSTING, AND BALANCING CONTRACTOR. ASSISTANCE SHALL BE PROVIDED AS REQUIRED FOR REPROGRAMMING, COORDINATION, AND PROBLEM RESOLUTION.

REGISTER, DIFFUSER & GRILLE SCHEDULE

TAG	CFM	NECK SIZE	TYPE	DP	MAX NC	TYPICAL UNIT MODEL NO.	MFG &	NOTES
S-1	0-100	6"x6"	LOUVERED FACE DIFFUSER	0.08	<20	TITUS TDV		1
S-2	105-400	12"x12"	LOUVERED FACE DIFFUSER	0.08	<25	TITUS TDV		1
S-3	405-625	15"x15"	LOUVERED FACE DIFFUSER	0.08	<25	TITUS TDV		1
S-4	0-1100	36"x12"	LOUVERED WALL GRILLE	0.05	<20	TITUS 300RS-HD		2
R-1	0-400	14"x14"	LOUVERED RETURN GRILLE	0.09	<25	TITUS 23RL		
R-2	405-1500	22"x22"	LOUVERED RETURN GRILLE	0.08	<25	TITUS 25RL		

NOTES: 1. SQUARE DIFFUSER W/ INDUCTION VANES, PROVIDE WITH 24"x24" LAY-IN MODULE.
2. DOUBLE DEFLECTION WALL GRILLE.

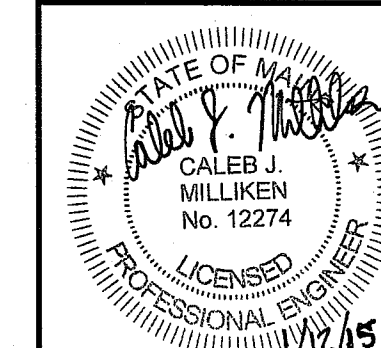
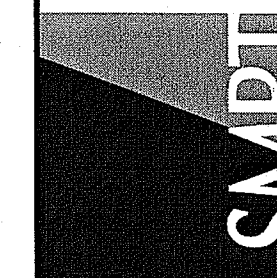
EXISTING VAV BOX BALANCING SCHEDULE

TAG	MIN CFM	MAX CFM	NOTES:
TB-B7	410	410	
TB-B48	2200	660	
TB-B49	1120	360	
TB-B52	520	160	
TB-B53	300	90	

NOTES: 1.

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MAINE MEDICAL CENTER
ED CT FIT-UP AND READING RENOVATIONS
PORTLAND, MAINE
ISSUED FOR PERMITTING
1-12-15
CURRENT ISSUE STATUS:

REV	DESCRIPTION	DATE

GRAPHIC SCALE:
0" 1"

SCALE: 1/4"=1'-0"
PROJECT MANAGER: DJV
JC/DRAWN BY: MDR/BGG
A/E OF RECORD: CJM
CAD FILE: M-002-14150
PROJECT NO: 14150
DATE:

SHEET TITLE:
MECHANICAL SPECIFICATIONS AND SCHEDULES

SHEET No.
M-002
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