MECHANICAL SPECIFICATIONS

1. GENERAL PROVISIONS

   A. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE INCLUDING REFERENCED CODES AND STANDARDS AND IN ACCORDANCE WITH MANDATES OF THE LOCAL BUILDING OFFICIALS.

   B. THE GENERAL ARRANGEMENT AND LOCATIONS OF DUCTWORK, PIPING, FIXTURES, ETC. ARE INDICATED BY THE DRAWINGS AND SHALL BE INSTALLED IN ACCORDANCE THEREWITH; WITH THE EXCEPTION OF SUCH CHANGES AS MAY BE REQUIRED ON ACCOUNT OF OTHER TRADES. CONTRACTOR SHALL COORDINATE WORK WITH INSTALLATION OF OTHER SUBCONTRACTORS.

   C. MECHANICAL WORK SHALL BE COORDINATED WITH THE CONTRACTOR AS TO SCHEDULING, DIMENSIONING AND LOCATION OF EQUIPMENT.

   D. MAJOR ITEMS ARE SHOWN ON THE PROJECT PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INCIDENTAL ITEMS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.

   E. TRADE NAMES AND CATALOG NUMBERS SHALL BE INTERPRETED AS ESTABLISHING A GENERAL DESIGN AND STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. UNLESS STATED OTHERWISE, THE CONTRACTOR MAY USE ANY ARTICLE WHICH, IN HIS JUDGEMENT, AND WITH WRITTEN COMMENT FROM THE ARCHITECT/ENGINEER INDICATING NO OBJECTION, IS EQUAL OR SUPERIOR TO THAT SPECIFIED. DRAWINGS SHOWING CHANGES OR REVISIONS REQUIRED BY THE SUBSTITUTION FOR SPECIFIED ITEMS SHALL BE SUBMITTED WITH THE SHOP DRAWING DATA, AND THE COSTS OF ALL SUCH CHANGES SHALL BE BORNE BY THE CONTRACTOR.

   F. SIMILAR ITEMS SHALL BE PROVIDED BY A SINGLE MANUFACTURER.

   G. ALL REQUIRED WALL OR FLOOR OPENINGS SHALL BE COORDINATED WITH THE CONTRACTOR.

   H. ALL PIPING SHALL BE ABOVE CEILING UNLESS INDICATED OTHERWISE.

   I. DO NOT INSTALL PVC PIPING OR ANY COMBUSTIBLE MATERIAL IN ANY AIR PLENUM.

   J. ALL EQUIPMENT SHALL BE WIPED CLEAN, REMOVING ALL TRACES OF OIL, DIRT, OR PAINT SPOTS.

   K. PROVIDE SUPPORTS TO RIGIDLY ATTACH ALL EQUIPMENT, APPURTENANCES AND PIPE AS REQUIRED FOR SUPPORT. PRIOR TO INSTALLATION OF HANGERS AND INSERTS, THE CONTRACTOR SHALL COORDINATE LOCATIONS AND REQUIREMENTS TO MINIMIZE CONFLICTS WITH OTHER BUILDING SYSTEMS. INSTALLATION OF PIPE HANGERS AND SUPPORTS SHALL BE IN STRICT ACCORDANCE WITH MSS SP-58, 69 AND 89.

   L. THE BUILDING HAS BEEN DETERMINED TO BE IN SEISMIC RISK CATEGORY II AND SEISMIC DESIGN CATEGORY B. ALL MECHANICAL SYSTEMS, COMPONENTS AND THEIR ATTACHMENTS SHALL BE DESIGNED AND CONSTRUCTED TO RESIST SEISMIC FORCES ACCORDING TO THE VIRGINIA CONSTRUCTION CODE AS REQUIRED. SHOP DRAWINGS SHALL DETAIL EACH TYPE OF SEISMIC RESTRAINT AND SHALL INCLUDE ALL SUPPORTING CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL SEISMIC ENGINEER LICENSED BY THE COMMONWEALTH OF VIRGINIA.

   M. CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL EQUIPMENT INDICATED TO BE FURNISHED BY OTHERS.

   N. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE AND CONTRACTOR SHALL MAKE GOOD, WITHOUT ADDITIONAL COST TO THE OWNER, ANY DEFECT WHICH MAY APPEAR WITHIN THAT PERIOD. MANUFACTURER'S WARRANTIES EXTENDING BEYOND ONE YEAR SHALL BE PROCESSED AND TURNED OVER TO THE OWNER.

   O. THE CONTRACTOR SHALL INVESTIGATE THE CONSTRUCTION CONDITIONS AFFECTING THE WORK, ADJUST THE LOCATION OF EQUIPMENT, PIPING AND DUCTWORK AND PROVIDE FITTINGS AND ACCESSORIES AS REQUIRED TO MEET ACTUAL CONDITIONS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR UNANTICIPATED WORK ERUPTING FROM THE INSTALLATION OF THE NEW WORK.

   P. PENETRATIONS THROUGH FIRE RATED PARTITIONS, WALLS AND FLOORS SHALL BE SEALED IN ACCORDANCE WITH THE TERMS OF UL LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS XHEZ AS PUBLISHED IN THE UL FIRE RESISTANCE DIRECTORY. PENETRATIONS SHALL EXACTLY CONFORM TO DETAILS OF THE FIRESTOP SYSTEM INDICATED FOR THE TYPE OF PARTITION, WALL AND FLOOR CONSTRUCTION ENCOUNTERED.

2. SUBMISSION OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND PROJECT INFORMATION

   A. SHOP DRAWINGS SHALL BE SUBMITTED FOR THE FOLLOWING ITEMS:
      (1) INSULATION
      (2) ALL MECHANICAL EQUIPMENT

   B. IDENTIFY ALL MECHANICAL SHOP DRAWINGS, PRODUCT DATA AND SAMPLES WITH THE NAME OF THE PROJECT. CLEARLY MARK THE SPECIFIC ITEMS INTENDED FOR USE. SUBMIT ALL RELATED ITEMS AT ONE TIME.

   C. PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT, SUBMIT THE FOLLOWING INFORMATION FOR REVIEW AND APPROVAL.
      (1) OPERATING AND MAINTENANCE INSTRUCTIONS.
      (2) "AS BUILT" DRAWINGS.

3. GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE AND CONTRACTOR SHALL MAKE GOOD, WITHOUT ADDITIONAL COST TO THE OWNER, ANY DEFECTS WHICH MAY APPEAR WITHIN THAT PERIOD. MANUFACTURER'S WARRANTIES EXTENDING BEYOND ONE YEAR SHALL BE PROCESSED AND TURNED OVER TO THE OWNER.

4. "AS BUILT" DRAWINGS: CONTRACTOR SHALL KEEP AN ACCURATE RECORD OF THE LOCATION OF ALL CONCEALED DUCTWORK, PIPING, VALVES, CONTROLS, ETC., BOTH INTERIOR AND EXTERIOR. ON COMPLETION OF THE WORK, ONE PRINT EACH OF THE CONTRACT DRAWINGS WHICH ARE APPLICABLE SHALL BE NEATLY AND CLEARLY MARKED IN COLOR TO SHOW ALL VARIATIONS BETWEEN THE WORK ACTUALLY PROVIDED AND THAT INDICATED ON THE CONTRACT DRAWINGS.

5. OPERATING AND MAINTENANCE MANUALS

   A. GENERAL: PRIOR TO COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL PROVIDE THREE HARDBACKED LOOSELEAF RING TYPE BINDERS, IDENTIFIED WITH THE NAME OF THE PROJECT. CONTRACTOR SHALL DELIVER THESE BINDERS TO THE ENGINEER FOR REVIEW AND TRANSMITTAL TO THE OWNER.

   B. THE FOLLOWING ITEMS AND OTHER ADDITIONAL PERTINENT DATA FOR EACH ITEM OF EQUIPMENT SHALL BE INCLUDED:
      (1) NAME OF MANUFACTURER.
      (2) NAME, ADDRESS AND TELEPHONE NUMBER OF NEAREST MANUFACTURER'S REPRESENTATIVE.
      (3) COPY OF LATEST APPROVED SHOP DRAWING.
      (4) MANUFACTURER'S OPERATING AND MAINTENANCE MANUAL INCLUDING LUBRICATION DATA.
      (5) PARTS NUMBERS FOR ALL REPLACEABLE ITEMS.
      (6) SERIAL NUMBERS OF ALL PRINCIPAL ITEMS OF EQUIPMENT.
      (7) CONTROL DIAGRAMS AND SEQUENCE OF OPERATION.
      (8) MANUFACTURER'S WRITTEN GUARANTEES THAT EXTEND BEYOND THE CONTRACTOR'S ONE YEAR GUARANTEE.

   C. THE OPERATING AND MAINTENANCE MANUALS SHALL BE CONSIDERED A PART OF THE FINAL INSPECTION AND THEY SHALL BE SUBMITTED FOR APPROVAL AT LEAST THIRTY (30) DAYS PRIOR TO REQUEST FOR FINAL INSPECTION.

6. ACCESS DOORS: ACCESS DOORS SHALL BE PROVIDED FOR ALL CONCEALED VALVES, CONTROLS, AND ANY OTHER EQUIPMENT OR MATERIALS REQUIRING INSPECTION OR MAINTENANCE. ACCESS DOORS SHALL BE FURNISHED FOR FLOORS, WALLS AND CEILINGS, OF ADEQUATE SIZE SO THAT CONCEALED ITEMS WILL BE READILY ACCESSIBLE FOR SERVICING OR FOR REMOVAL AND REPLACEMENT IF NECESSARY.

7. PAINTING

   A. SCOPE OF WORK: MECHANICAL EQUIPMENT, MATERIALS, AND RELATED PIPING DO NOT REQUIRE PAINTING EXCEPT AS INDICATED BELOW.

   B. EQUIPMENT WITH A FACTORY APPLIED FINISH WILL NOT REQUIRE ADDITIONAL PAINTING EXCEPT TOUCH-UP WITH MATCHING FINISH WHERE IT IS DAMAGED.

   C. PIPING, FABRICATED SUPPORTS, OR OTHER UNFINISHED AND UNPROTECTED MATERIALS LOCATED OUTDOORS SHALL BE PAINTED WITH A SUITABLE PRIMER AND COMPATIBLE FINISH PAINT. COLOR SHALL BE AS DIRECTED BY ENGINEER.

   D. PAINT INSIDE OF DUCTWORK WITH MATTE BLACK PAINT WHERE VISIBLE BEHIND AIR INLETS AND OUTLETS.

   E. PROTECTION OF WORK: PAINTING SHALL BE DONE WITH ALL POSSIBLE CARE TO PROTECT THIS WORK AND WORK OF OTHER TRADES. ALL DAMAGE TO THIS AND OTHER WORK CAUSED BY THE PAINTING OPERATIONS SHALL BE CORRECTED, CLEANED OR REPAIRED AS REQUIRED. HARDWARE, SPECIAL CONTROL ITEMS, GAUGES, THERMOMETERS, NAMEPLATES, INSTRUMENT GLASS AND OTHER SIMILAR ITEMS SHALL BE REMOVED OR PROPERLY PROTECTED DURING THE PAINTING OPERATIONS TO INSURE THAT THESE ITEMS ARE NOT COVERED OR SPLATTERED WITH PAINT.

8. IDENTIFICATION

   A. SUBMITTALS
      (1) SUBMIT LIST OF WORDING, SYMBOLS, LETTER SIZE, AND COLOR CODING FOR MECHANICAL IDENTIFICATION.
      (2) SUBMIT VALVE CHART AND SCHEDULE, INCLUDING VALVE TAG NUMBER, LOCATION, FUNCTION, AND VALVE MANUFACTURER'S NAME AND MODEL NUMBER.
      (3) PRODUCT DATA: PROVIDE MANUFACTURERS CATALOG LITERATURE FOR EACH PRODUCT REQUIRED.

   B. NAMEPLATES
      (1) DESCRIPTION: LAMINATED THREE-LAYER PLASTIC WITH ENGRAVED LETTERS ON LIGHT CONTRASTING BACKGROUND COLOR.

   C. TAGS
      (1) METAL TAGS: BRASS WITH STAMPED LETTERS; TAG SIZE MINIMUM 1-1/2 INCHES (40 MM) DIAMETER.
      (2) CHART: TYPEWRITTEN LETTER SIZE LIST IN ANODIZED ALUMINUM FRAME.

   D. STENCILS
      (1) STENCILS: WITH CLEAN CUT SYMBOLS AND LETTERS OF FOLLOWING SIZE:
         (A) 3/4 TO 1-1/4 INCHES (20-30 MM) OUTSIDE DIAMETER OF INSULATION OR PIPE: 8 INCHES (200 MM) LONG COLOR FIELD, 1/2 INCHES (15 MM) HIGH LETTERS.
         (B) 1-1/2 TO 2 INCHES (40-50 MM) OUTSIDE DIAMETER OF INSULATION OR PIPE: 8 INCHES (200 MM) LONG COLOR FIELD, 3/4 INCH (20 MM) HIGH LETTERS.
         (C) 2-1/2 TO 6 INCHES (65-150 MM) OUTSIDE DIAMETER OF INSULATION OR PIPE: 12 INCHES (300 MM) LONG COLOR FIELD, 1-1/4 INCHES (30 MM) HIGH LETTERS.
         (D) 8 TO 10 INCHES (200-250 MM) OUTSIDE DIAMETER OF INSULATION OR PIPE: 24 INCHES (600 MM) LONG COLOR FIELD, 2-1/2 INCHES (65 MM) HIGH LETTERS.
         (E) OVER 10 INCHES (250 MM) OUTSIDE DIAMETER OF INSULATION OR PIPE: 32 INCHES (800 MM) LONG COLOR FIELD, 3-1/2 INCHES (90 MM) HIGH LETTERS.
         (F) DUCTWORK AND EQUIPMENT: 2-1/2 INCHES (65 MM) HIGH LETTERS.
      (2) STENCIL PAINT: AS SPECIFIED IN SECTION 09900, SEMI-GLOSS ENAMEL, COLORS CONFORMING TO ASME A13.1.

   E. PIPE MARKERS
      (1) COLOR: CONFORM TO ASME A13.1.
      (2) PLASTIC PIPE MARKERS: FACTORY FABRICATED, FLEXIBLE, SEMI- RIGID PLASTIC, PREFORMED TO FIT AROUND PIPE OR PIPE COVERING; MINIMUM INFORMATION INDICATING FLOW DIRECTION ARROW AND IDENTIFICATION OF FLUID BEING CONVEYED.

   F. CEILING TACKS
      (1) DESCRIPTION: STEEL WITH 3/4 INCH (20 MM) DIAMETER COLOR CODED HEAD.
      (2) COLOR CODE AS FOLLOWS:
         (A) YELLOW - HVAC EQUIPMENT
         (B) RED - FIRE DAMPERS/SMOKE DAMPERS
         (C) GREEN - PLUMBING VALVES
         (D) BLUE - HEATING/COOLING VALVES

   G. INSTALLATION
      (1) DEGREASE AND CLEAN SURFACES TO RECEIVE ADHESIVE FOR IDENTIFICATION MATERIALS.
      (2) INSTALL PLASTIC NAMEPLATES WITH CORROSIVE-RESISTANT MECHANICAL FASTENERS, OR ADHESIVE. APPLY WITH SUFFICIENT ADHESIVE TO ENSURE PERMANENT ADHESION AND SEAL WITH CLEAR LACQUER.
      (3) INSTALL TAGS WITH CORROSION RESISTANT CHAIN.
      (4) INSTALL PLASTIC PIPE MARKERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
      (5) IDENTIFY AIR CONDITIONING UNITS AND FANS WITH PLASTIC NAMEPLATES OR STENCIL PAINTING.
      (6) IDENTIFY CONTROL PANELS AND MAJOR CONTROL COMPONENTS OUTSIDE PANELS WITH PLASTIC NAMEPLATES.
      (7) IDENTIFY DUCTWORK WITH PLASTIC NAMEPLATES OR STENCILLED PAINTING. IDENTIFY WITH AIR HANDLING UNIT OR FAN AND AREA BEING SERVED.
      (8) TAG AUTOMATIC CONTROLS, INSTRUMENTS, AND RELAYS. KEY TO CONTROL SCHEMATIC.
      (9) IDENTIFY PIPING, CONCEALED OR EXPOSED, WITH PLASTIC PIPE MARKERS OR STENCILLED PAINTING. IDENTIFY SERVICE, FLOW DIRECTION, AND PRESSURE. INSTALL IN CLEAR VIEW AND ALIGN WITH AXIS OF PIPING. LOCATE IDENTIFICATION NOT TO EXCEED 20 FEET (6 M) ON STRAIGHT RUNS INCLUDING RISERS AND DROPS, ADJACENT TO EACH VALVE AND TEE, AT EACH SIDE OF PENETRATION OF STRUCTURE OR ENCLOSURE, AND AT EACH OBSTRUCTION.
      (10) PROVIDE CEILING TACKS TO LOCATE VALVES ABOVE T-BAR TYPE PANEL CEILINGS. LOCATE IN CORNER OF PANEL CLOSEST TO EQUIPMENT.

9. DUCTWORK

   A. GALVANIZED STEEL DUCTS: ASTM A653/A653M GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY, HAVING G60 ZINC COATING IN CONFORMANCE WITH ASTM A90/90M.

   B. FLEXIBLE DUCTS: UL LABELED, BLACK POLYMER FILM SUPPORTED BY HELICAL WOUND SPRING STEEL WIRE. THE PRESSURE RATING SHALL BE 4" WG POSITIVE AND 0.5" WG NEGATIVE. THE MAXIMUM VELOCITY SHALL BE 4000 FPM AND THE TEMPERATURE RANGE SHALL BE -20°F TO 175°F. COLOR TO BE BLACK.

   C. FABRICATE AND SUPPORT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.

   D. WHERE RECTANGULAR ELBOWS ARE USED, FURNISH TURNING VANES.

   E. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15° DIVERGENCE WHEREVER POSSIBLE; MAXIMUM 30° DIVERGENCE UPSTREAM OF EQUIPMENT AND 45° CEONVERGENCE DOWNSTREAM.

   F. FLEXIBLE DUCT CONNECTIONS SHALL BE FABRICATED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.

   G. VOLUME CONTROL DAMPERS SHALL BE RUSKIN MODEL MD-35 AND SHALL BE FABRICATED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.

10. CLEANING AND TESTING

   A. CLEAN EQUIPMENT AND FIXTURES TO A SANITARY CONDITION WITH CLEANING MATERIALS APPROPRIATE TO THE SURFACE AND MATERIAL BEING CLEANED. CLEAN DUCT SYSTEMS AND FORCE AIR AT HIGH VELOCITY THROUGH DUCT TO REMOVE ACCUMULATED DUST.

   B. REPLACE FILTERS OF OPERATING EQUIPMENT.

   C. HEATING AND COOLING SYSTEMS AND EXHAUST SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED (TAB). AIR HANDLING SYSTEMS SHALL BE ADJUSTED TO WITHIN +/- 10% OF DESIGN. THE TOTAL OF AIR OUTLETS AND INLETS SHALL BE ADJUSTED TO WITHIN PLUS 10% AND MINUS 5% OF DESIGN TO SPACE. ADJUST OUTLETS AND INLETS IN SPACE TO WITHIN +/- 10% OF DESIGN. A TAB REPORT SHALL BE PROVIDED.

IDG INTERACTIVE DESIGN GROUP

INTERACTIVE DESIGN GROUP
301 6TH STREET SW
ROANOKE, VA 24016
P. 540.342.7534 F. 540.342.7536

COMMONWEALTH OF VIRGINIA
MELINDA D. RUBLE
No. 028163
06.13.2025
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE

RENOVATIONS TO

Positiviteeth PEDIATRIC DENTISTRY

NEW DENTAL OFFICE

65 SHENANDOAH AVENUE
DALEVILLE, VA 24083

DATE	JUNE 13, 2025
DRAWN	MDR
CHECKED	MDR
JOB	25-014

MECHANICAL SPECIFICATIONS

SHEET
M-001

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER & MODEL NO.	CFM	SP. WG	MOTOR WATTS	MOTOR VOLTS #	TYPE	CONTROL
EF-1	GREENHECK CSP-A200	200	0.25	116	120/1	CABINET	NOTE 1

NOTES:
1. FAN TO BE PROVIDED WITH INTEGRAL DISCONNECT, SPEED CONTROLLER AND WALL CAP. FAN TO RUN CONTINUOUSLY.

GENERAL MECHANICAL NOTES

1. ALL PIPING AND DUCTWORK SHALL BE ABOVE CEILING UNLESS OTHERWISE INDICATED.
2. INSTALL THERMOSTATS, HUMIDISTATS AND TEMPERATURE AND HUMIDITY SENSORS WITH OPERABLE BUTTONS AT 48" MAX ABOVE FLOOR. WHERE THERMOSTATS AND SNAP SWITCHES (SEE ELECTRICAL DRAWINGS) ARE INDICATED IN CLOSE PROXIMITY ON THE SAME WALL, THE LOCATIONS SHALL BE COORDINATED SO THAT THE THERMOSTAT IS CENTERED DIRECTLY OVER THE SNAP SWITCH OR GROUP OF SNAP SWITCHES.
3. DUCT DIMENSIONS INDICATED ARE SHEET METAL DIMENSIONS.
4. COORDINATE LOCATIONS OF CEILING MOUNTED DIFFUSERS, REGISTERS AND GRILLES WITH LIGHT FIXTURES AND CEILING GRID. REFER TO ELECTRICAL DRAWINGS.
5. FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF SIDE SHOWN OR INDICATED.
6. ACCESS SHALL BE MAINTAINED TO ALL CONTROL DEVICES. ACCESS PANEL SIZES AND LOCATIONS SHALL BE DETERMINED PRIOR TO BIDDING AND SHALL BE INCLUDED IN THE BID PRICE FOR CONTRACT WORK. ACCESS PANELS SHALL BE INSTALLED WHERE REQUIRED.
7. PIPING AND DUCTWORK SHALL BE SUPPORTED FROM, OR ANCHORED TO, THE BUILDING STRUCTURE; CEILING CONSTRUCTION SHALL NOT BE USED FOR SUPPORT OR ANCHORING OF WORK.
8. TEMPERATURE CONTROL WIRING WIRING LESS THAN 100 VOLTS SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. WIRING 100 VOLTS AND GREATER SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.
9. MAINTAIN ACCESS BELOW EQUIPMENT INSTALLED ABOVE CEILINGS. DO NOT OBSTRUCT ACCESS WITH PIPING OR DUCTWORK.
10. PROVIDE MANUAL VOLUME DAMPERS AS REQUIRED TO PROPERLY BALANCE THE SYSTEM.
11. CONTRACTOR SHALL CLOSELY COORDINATE LOCATIONS OF ALL PANELBOARDS WITH LOCATIONS OF ALL DUCTWORK AND PLUMBING PIPING. DUCTWORK AND PLUMBING PIPING SHALL NOT BE INSTALLED OVER TOP OF ANY PANELBOARD. DUCTWORK AND PLUMBING PIPING SHALL NOT BE INSTALLED OVER ANY OF THE CODE REQUIRED CLEAR SPACES AT ANY PANELBOARD LOCATION.

LEGEND

R	REFRIGERANT
12 x 6	RECTANGULAR DUCT
	FLEXIBLE CONNECTION
VD	VOLUME DAMPER
D	DROP IN DIRECTION OF AIRFLOW
R	RISE IN DIRECTION OF AIRFLOW
	SUPPLY DUCT UP (OR FROM ABOVE)
	SUPPLY DUCT DOWN (OR FROM BELOW)
	RETURN OR EXHAUST DUCT UP
	RETURN OR EXHAUST DUCT DOWN
	FLEXIBLE DUCT
MOD	MOTOR OPERATED DAMPER
	REDUCER
SDR	SMOKE DETECTOR, DUCT MOUNTED
T	THERMOSTAT OR TEMPERATURE SENSOR
	CONNECT TO EXISTING

ABBREVIATIONS

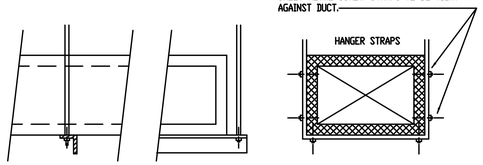
BTU	BRITISH THERMAL UNIT
CD	CEILING DIFFUSER
CFD	CEILING FIRE DAMPER
CFM	CUBIC FEET PER MINUTE
CG	CEILING GRILLE
COP	COEFFICIENT OF PERFORMANCE
CR	CEILING REGISTER
DB	DRY BULB TEMPERATURE
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
ETR	EXISTING TO REMAIN
EXT	EXTERNAL
F	DEGREES FAHRENHEIT
FPM	FEET PER MINUTE
FT	FEET
HP	HORSEPOWER
IN	INCH, INCHES
LAT	LEAVING AIR TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
VD	VOLUME DAMPER
MH	MOUNTING HEIGHT
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
OA	OUTSIDE AIR
PD	PRESSURE DROP
PS	PRESSURE SENSOR
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAGE
RA	RETURN AIR
SP	STATIC PRESSURE
TEMP	TEMPERATURE
TG	TOP GRILLE
TR	TOP REGISTER
TYP	TYPICAL
WB	WET BULB TEMPERATURE
WC, WG	WATER COLUMN
AFF	ABOVE FINISHED FLOOR
ABV	ABOVE
AD	ACCESS DOOR
BEL	BELOW
BET	BETWEEN
CLG	CEILING
CONN	CONNECT, CONNECTION
CONT	CONTINUED
DN	DOWN
EA	EACH
FL	FLOOR
FLEX	FLEXIBLE
FR	FROM
GALV	GALVANIZED
REQD	REQUIRED
SH	SHEET

HANGER SIZES FOR RECTANGULAR DUCT			
MAX. SIDE	HANGER	HORIZONTAL SUPPORT ANGLE	MAXIMUM SPACING
30"	1"X18" GAGE STRAP	NONE REQUIRED	10'-0"

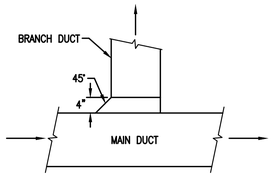
NOTE:
ALL SUPPLY AIR DUCT SHALL BE WRAPPED EXTERNALLY AS PER SPECIFICATIONS

NO POP RIVETS ALLOWED

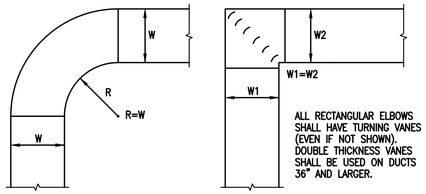
SELF TAPPING CADMIUM PLATED HEX HEAD SHEET METAL SCREW STRAPS TO BE TIGHT AGAINST DUCT.



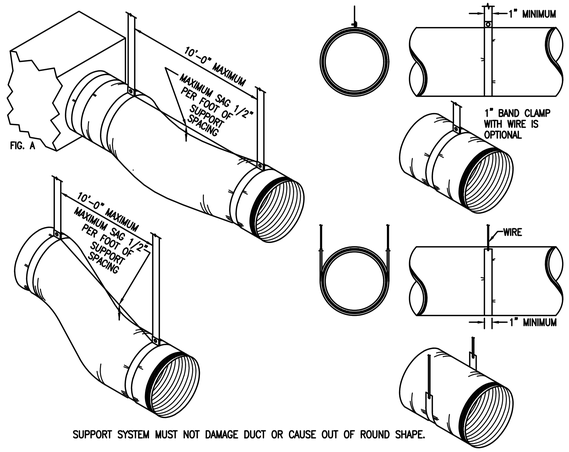
DUCT STRAP HANGER DETAIL
NOT TO SCALE



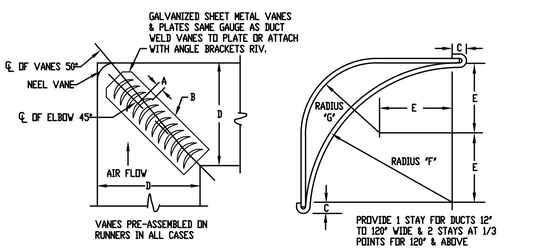
DETAIL – BRANCH DUCT CONNECTION
NO SCALE



DETAIL – DUCT ELBOWS
NO SCALE

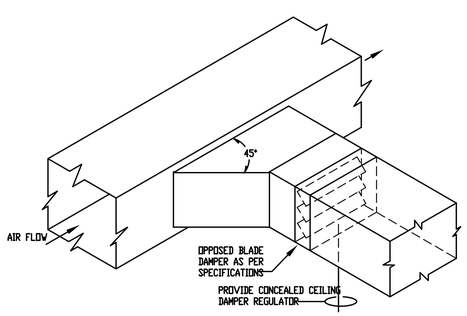


DETAIL – FLEXIBLE DUCT SUPPORTS
NO SCALE

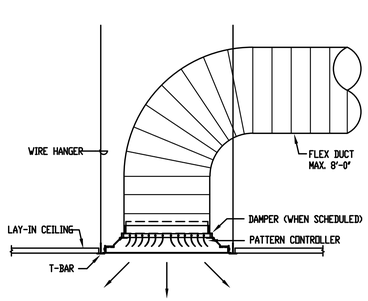


D & D UP TO 24"	A = 1-1/2"	B = 5"	TYPE "B" VANES
D & D OVER 24"	A = 3-1/4"	B = 9"	TYPE "A" VANES
TYPE "A" VANES	C = 1/2"	E = 2-1/4"	RADIUS "F" = 4-1/2" RADIUS "G" = 2-1/4"
TYPE "B" VANES	C = 1/4"	E = 1"	RADIUS "F" = 2" RADIUS "G" = 1"

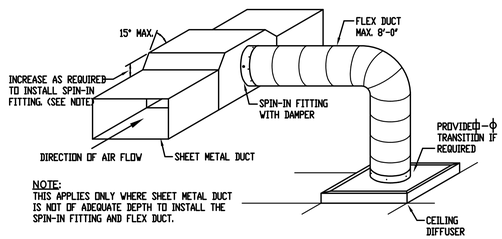
SQUARE ELBOW DETAIL
NOT TO SCALE



BRANCH DUCT TAKE-OFF @ SUPPLY MAIN
NOT TO SCALE



LAY-IN CEILING DIFFUSER DETAIL
NOT TO SCALE



FLEX DUCT TAKE-OFF @ SHEET METAL DUCT DETAIL
NOT TO SCALE

INTERACTIVE DESIGN GROUP
301 6TH STREET SW
ROANOKE, VA 24016
P. 540.342.7534 F. 540.342.7536

COMMONWEALTH OF VIRGINIA
MELINDA D. RUBLE
No. 028163
06.13.2025
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE

RENOVATIONS TO

Positiviteeth PEDIATRIC DENTISTRY

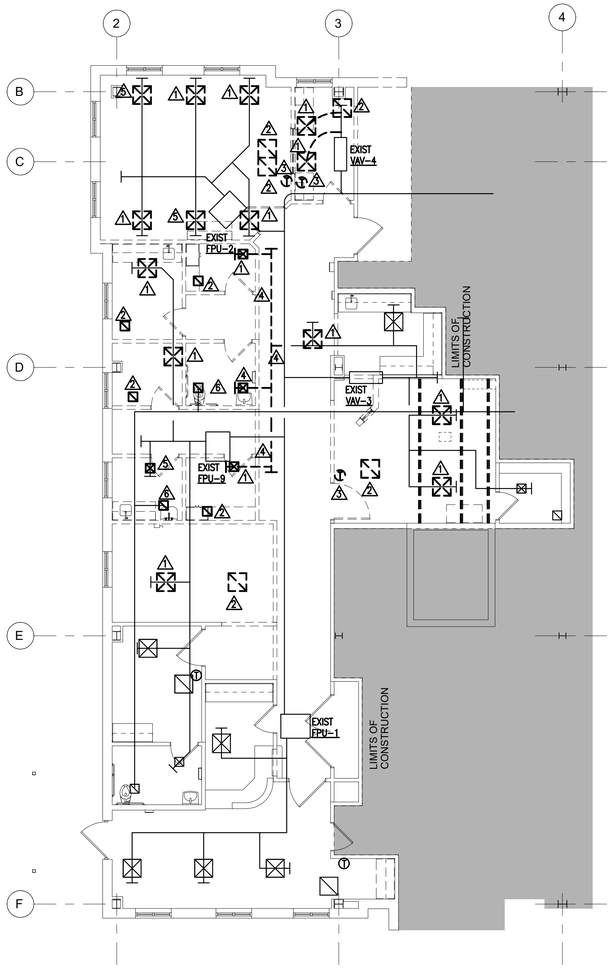
NEW DENTAL OFFICE

65 SHENANDOAH AVENUE
DALEVILLE, VA 24083

DATE	JUNE 13, 2025
DRAWN	MDR
CHECKED	MDR
JOB	25-014

MECHANICAL LEGEND, SCHEDULES, NOTES, DETAILS

SHEET
M-101

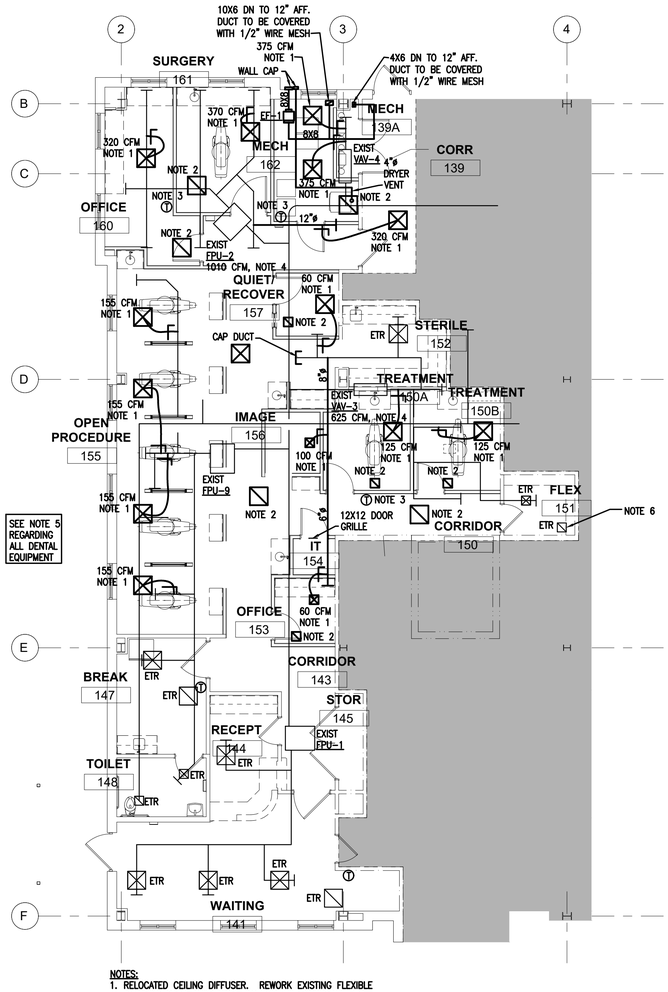


DEMOLITION NOTES:

1. RELOCATE EXISTING CEILING DIFFUSER. SEE NEW WORK PLAN.
2. RELOCATE EXISTING CEILING RETURN GRILLE. SEE NEW WORK PLAN.
3. RELOCATE EXISTING TEMPERATURE SENSOR/THERMOSTAT. SEE NEW WORK PLAN.
4. REMOVE EXISTING DUCTWORK AND CEILING DIFFUSER AS INDICATED.
5. REMOVE EXISTING CEILING DIFFUSER. CAP CONNECTED DUCTWORK AIRTIGHT.
6. REMOVE EXISTING CEILING EXHAUST REGISTER. CAP CONNECTED DUCTWORK AIRTIGHT.

1 M-201 FIRST FLOOR DEMOLITION PLAN - MECHANICAL

1/8" = 1'-0"



NOTES:

1. RELOCATED CEILING DIFFUSER. REWORK EXISTING FLEXIBLE DUCT WORK AS REQUIRED. BALANCE TO LISTED AIRFLOW.
2. RELOCATED CEILING RETURN GRILLE. GRILLE TO BE OPEN TO RETURN PLENUM.
3. RELOCATED TEMPERATURE SENSOR/THERMOSTAT. REWORK CONTROL WIRING, ETC AS REQUIRED TO SUIT NEW LOCATION.
4. RESET VAV BOX MAX AIRFLOW TO LISTED AIRFLOW.
5. GENERAL CONTRACTOR TO COORDINATE WITH DENTAL EQUIPMENT SUPPLIER ON ALL MECHANICAL, ELECTRICAL, AND PLUMBING ROUGH-INS FOR EQUIPMENT PRIOR TO START OF CONSTRUCTION.
6. CEILING AIR DEVICES NOTED AS ETR ARE EXISTING TO REMAIN DEVICES IN ORIGINAL LOCATION.

2 M-201 FIRST FLOOR PLAN - MECHANICAL

1/8" = 1'-0"

IDG INTERACTIVE DESIGN GROUP

INTERACTIVE DESIGN GROUP
301 6TH STREET SW
ROANOKE, VA 24016
P. 540.342.7534 F. 540.342.7536

COMMONWEALTH OF VIRGINIA
MELINDA D. RUBLE
No. 028163
06.13.2025
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE

RENOVATIONS TO

Positiviteeth PEDIATRIC DENTISTRY

NEW DENTAL OFFICE

65 SHENANDOAH AVENUE
DALEVILLE, VA 24083

DATE	JUNE 13, 2025
DRAWN	MDR
CHECKED	MDR
JOB	25-014

MECHANICAL FLOOR PLANS

SHEET
M-201