

0

6

three inches = one foot

1

0

one and one-half inches = one foot

2

0

one-half inch = one foot

3

0

three-quarter inch = one foot

4

0

one-half inch = one foot

5

0

three-eighths inch = one foot

6

0

one-eighth inch = one foot

7

0

one-eighth inch = one foot

8

0

one-eighth inch = one foot

9

0

one-eighth inch = one foot

10

0

one-eighth inch = one foot

MECHANICAL SYMBOL LEGEND

DUCTWORK SYMBOLS

FLEXIBLE DUCT

ACOUSTICAL DUCT LINING

MANUAL BALANCING DAMPER

MANUAL BALANCING DAMPER
HIDDEN FROM VIEW

FIRE DAMPER

COMBINATION FIRE/SMOKE DAMPER

1 HR. FIRE WALL

2 HR. FIRE WALL

SMOKE WALL

2 HR. SMOKE WALL

CONNECT NEW DUCT TO EXISTING DUCT

EXISTING DUCT TO BE REMOVED

15° RISE IN DIRECTION OF ARROW

VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES EXCEPT TRANSFER AIR SOUND ELBOW)

STANDARD LONG RADIUS ELBOW

NEW DUCT - WIDTH X DEPTH

SUPPLY DUCT

EXHAUST OR RETURN DUCT

CEILING DIFFUSERS

CEILING EXHAUST REGISTER

CEILING RETURN AIR REGISTER OR GRILLE

SIDEWALL EXHAUST OR RETURN AIR GRILLE
OR REGISTER

SIDEWALL SUPPLY REGISTER

DUCT TRANSITION

DUCT TRANSITION FROM RECTANGULAR TO ROUND

INDICATES A 24"X12" RECTANGULAR DUCT

INDICATES A 12" ROUND DUCT

INDICATES A 24"X12" FLAT OVAL DUCT

ACCESS DOOR

ROOM THERMOSTAT/TEMP. TRANSMITTER LOCATION ONLY
SEE CONTROL DRAWINGS FOR TYPE

ROOM HUMIDISTAT/HUMIDITY TRANSMITTER LOCATION ONLY
SEE CONTROL DRAWINGS FOR TYPE

DUCT MOUNTED SMOKE DETECTOR

DRAWING SYMBOLS

DETAIL NUMBER

DRAWING NUMBER WHERE DRAWN

SECTION LETTER

DRAWING NUMBER WHERE SHOWN

BUILDING NO. WHERE EQUIPMENT IS LOCATED.

EQUIPMENT ABBREVIATION (SUPPLY FAN)

SUPPLY FAN NO. 3 IN BUILDING NO. 26

TYPICAL UNIT NO.

SYMBOL INDICATES GRILLE OR
DIFFUSER IDENTIFIED EQUIPMENT
SCHEDULE

CFM

VALVE SYMBOLS SCHEMATIC

VALVE - BALL LEVER

VALVE - BALL MOTORIZED

VALVE - BALL SOLENOID

VALVE - GATE MANUAL

VALVE - GATE SOLENOID

VALVE - BUTTERFLY LEVER

VALVE - BUTTERFLY MOTORIZED

VALVE - BUTTERFLY SOLENOID

VALVE - GLOBE MANUAL

VALVE - GLOBE LEVER

VALVE - GLOBE GEAR ACTUATED

VALVE - GLOBE SOLENOID

VALVE - PLUG LEVER

VALVE - PLUG MANUAL

VALVE - PLUG OS&Y

VALVE - PRESSURE REGULATING

VALVE - CHECK

VALVE - PRESSURE RELIEF

PIPE SYMBOLS

MECHANICAL PIPING

CD

CONDENSATE DRAIN

RS

REFRIGERATION SUCTION

RL

REFRIGERATION LIQUID

CH

CHILLED WATER SUPPLY

CHR

CHILLED WATER RETURN

CH(OR)

SPECIAL (OR) CHILLED WATER SUPPLY

CHR(OR)

SPECIAL (OR) CHILLED WATER RETURN

HPS

HIGH PRESSURE STEAM

HPR

HIGH PRESSURE STEAM RETURN

LPS

LOW PRESSURE STEAM

LPS (CLEAN)

CLEAN LOW PRESSURE STEAM RETURN

LPR

LOW PRESSURE STEAM RETURN

HHW

HEATING HOT WATER SUPPLY

HHWR

HEATING HOT WATER RETURN

GH

GLYCOL HEATING HOT WATER SUPPLY

GHR

GLYCOL HEATING HOT WATER RETURN

PIPE SYMBOLS

HHW

HEATING HOT WATER SUPPLY

HHWR

HEATING HOT WATER RETURN

CHS

CHILLED WATER SUPPLY

CHR

CHILLED WATER RETURN

CD

CONDENSATE DRAIN

D

DRAIN

V

VENT

MU

MAKE-UP WATER

RS

REFRIGERATION SUCTION

RL

REFRIGERATION LIQUID

R

REFRIGERATION

TWS

TOWER WATER SUPPLY

TWR

TOWER WATER RETURN

TWB

TOWER WATER BYPASS

HPS

STEAM - HIGH PRESSURE

MPS

STEAM - MEDIUM PRESSURE

LPS

STEAM - LOW PRESSURE

HPR

STEAM - HIGH PRESSURE RETURN

LPR

STEAM - LOW PRESSURE RETURN

CND

STEAM - CONDENSATE RETURN

PC

STEAM - PUMPED CONDENSATE

DOWN

DIRECTION OF PIPE PITCH (DOWN)

DOWN

DIRECTION OF FLOW

EXISTING PIPE TO REMAIN

EXISTING PIPE TO REMAIN

EXISTING PIPE TO BE REMOVED

EXISTING PIPE TO BE REMOVED

FITTING SYMBOLS

ELBOW - DOWN

ELBOW - UP

PIPE RISE - DROP

ELBOW - DOWN TO TEE

TEE - DOWN

TEE - UP

ELBOW - UP TO TEE

TEE - WITH SIDE OUTLET

END CAP

FLEX CONNECTION

PIPE REDUCER - CONCENTRIC

PIPE REDUCER - ECCENTRIC

PIPE STRAINER

TEE - 45 DEG

CLEAN OUT - END OF LINE

CLEAN OUT - TO GRADE

CROSS TEE - 45 DEG

CROSS TEE - 90 DEG

CROSS TEE - DOUBLE SWEEP

CROSS TEE - LONG TURN

CROSS TEE - LONG TURN DOUBLE SWEEP

ELBOW - WITH HEEL

HOSE BIB

HOSE BIB - FROST FREE

INSULATION

UNION - SCREWED

WYE - STRAINER

AIR VENT - AUTOMATIC

AIR VENT - MANUAL

GAUGE - DIFFERENTIAL

GAUGE - PRESSURE

GAUGE - PRESSURE WITH COCK

GAUGE - TEMPERATURE

METER - TOTALIZING BTU

METER - TOTALIZING FLOW

PIPE - CAPPED WITH SHUT-OFF VALVE

PIPE ANCHOR

PIPE EXPANSION JOINT

PIPE GUIDE

SENSOR - FLOW

SWITCH - FLOW

SWITCH - PRESSURE

SWITCH - TEMPERATURE

TEMPERATURE - PRESSURE TEST FITTING

THERMOMETER

THERMOMETER WELL

ABBREVIATIONS

AC

AIR CONDITIONING UNIT

°F

DEGREES FAHRENHEIT

KW

KILOWATT

R.A.

RETURN AIR

AD

ACCESS DOOR

FCO

FLOOR CLEANOUT

KWH

KILOWATT HOUR

RF

RETURN AIR FAN

AFF

ABOVE FINISHED FLOOR

FCU

FAN COIL UNIT

MA

MAIN AIR (CONTROLS)

RH

RELATIVE HUMIDITY

AHU

AIR HANDLING UNIT

FD

FLOOR DRAIN

MCC

MOTOR CONTROL CENTER

RPM

REVOLUTIONS PER MINUTE

AL

ACOUSTIC LINING

F.DPR.

FIRE DAMPER

NA

NOT APPLICABLE

SAD

SOUND ATTENUATION DEVICE

BHP

BRAKE HORSEPOWER

FLEX

FLEXIBLE

NIC

NOT IN CONTRACT

SCD

SMOKE CONTROL DAMPER

BOD

BOTTOM OF DUCT

FPM

FEET PER MINUTE

NO.

NUMBER (QUANTITY)

S.DPR.

SMOKE DAMPER

BOP

BOTTOM OF PIPE

FMS

FACILITY MANAGEMENT SYSTEM

QA

OUTSIDE AIR

SF

SUPPLY AIR FAN

BTU

BRITISH THERMAL UNIT

FS

FLOOR SINK

OBD

OPPSODE BLAD DAMPER

SP

STATIC PRESSURE (INCHES OF WATER)

BTUH

BTU PER HOUR

FT

FEET

PRV

PRESSURE REDUCING VALVE

SDW

SINGLE DUCT VARIABLE VOLUME

CFM

CUBIC FEET PER MINUTE

GPH

GALLON PER HOUR

PSIG

POUNDS PER SQUARE INCH

ST

STEAM TRAP

CO

CLEANOUT

GPM

GALLONS PER MINUTE

QTY

QUANTITY

TOPT

TOP OF PIPE TRAPEZE

COR

CONTRACTING OFFICER REPRESENTATIVE

HB

HOSE BIBB

QUAD

QUADRANT

TP

TOTAL PRESSURE (INCHES OF WATER)

D

DRAIN

HD

HAND DAMPER (VOLUME DAMPER)

V

VOLTS

EF

EXHAUST AIR FAN

HEPA

HIGH EFFICIENCY PARTICULATE AIR

VAC

VOLTS, ALTERNATEING CURRENT

ENT

ENTERING

IN

INCHES

VEL

VARIABLE VOLUME

EXH

EXHAUST

WCO

WALL CLEANOUT

VTR

VENT THRU ROOF

WH

WALL HYDRANT

GENERAL DEMO NOTES (FOR ALL SHEETS)

1.

THE DEMOLITION DRAWINGS REFLECT INFORMATION ON EXISTING BUILDING SERVICES GATHERED BY SITE INSPECTION, DISCUSSIONS WITH MAINTENANCE PERSONNEL AND PREVIOUS CONSTRUCTION DRAWINGS. THE EXACT LOCATION, ARRANGEMENT, AND SIZES OF PIPE LINES AND DUCTWORK IN THE EXISTING BUILDING MAY BE DIFFERENT FROM THAT SHOWN ON THESE DRAWINGS.

2.

THE CONTRACTOR SHALL COORDINATE THE SHUTDOWN OF EXISTING BUILDING SERVICES WITH THE COR AND SHALL CONFORM TO THEIR REQUIREMENTS.

3.

DISRUPTION OF NORMAL HOSPITAL ACTIVITIES ARE TO BE KEPT TO AN ABSOLUTE MINIMUM. DUST, DEBRIS, AND FUMES SHALL BE CONTROLLED SO AS NOT TO AFFECT THE HEALTH AND SAFETY OF OCCUPIED AREAS WITHIN THE MEDICAL CENTER WHICH ARE OUTSIDE THE AREA OF WORK. COORDINATE WITH THE ARCHITECT AND THE COR WITH REGARD TO ALL ACTIVITIES TO BE CONDUCTED OUTSIDE OF THE SUITE REMODEL AREA WHICH MAY AFFECT THE OPERATION OF THE MEDICAL CENTER. THE CONTRACTOR SHALL PROVIDE TEMPORARY VENTILATION (MAINTAIN WORK ZONE AT NEGATIVE PRESSURE), FILTRATION, AIR PURIFIERS, DUST SCREENS, ETC. FOR ALL WORK AREAS AFFECTED BY DEMOLITION FOR NEW INSTALLATION TO MINIMIZE DUST AND FUMES. SEE SPECIFICATIONS.

4.

SEE SPECIFICATION SECTION 230593, TESTING, ADJUSTING, & BALANCING OR MECHANICAL SYSTEMS FOR ADDITIONAL DESCRIPTION AND REQUIREMENTS.

GENERAL NOTES (FOR ALL SHEETS)

A.

ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN FURRED CHASES OR SUSPENDED CEILINGS, UNLESS OTHERWISE NOTED.

B.

PROVIDE ACCESS PANELS OR DOORS IN INACCESSIBLE CEILINGS AND/OR CHASES FOR ALL VALVES, TRAPS, DAMPERS, CLEANOUTS, COILS, FANS, CONTROLS, ETC. THEY SHALL BE FURNISHED UNDER DIVISION 23 AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATION. ACCESS DOOR RATING SHALL MATCH CLASSIFICATION OF WALL AND CEILING FIRE RATING.

C.

WATER PIPE CONNECTIONS TO WATER COILS SHALL BE MADE SO THERE WILL BE COUNTER FLOW BETWEEN WATER AND AIR.

D.

COORDINATE THE LOCATION OF ALL DIFFUSERS, GRILLES, REGISTERS, ACCESS DOORS, ETC., WITH THE ARCHITECTURAL REFLECTED CEILING PLAN(S).

E.

ALL ROUND RUNOUTS AND DROPS TO DIFFUSERS SHALL BE MINIMUM 8" Ø UNLESS OTHERWISE SPECIFIED.

F.

THE FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED. ALL DUCT SIZES SHOWN ON DRAWINGS ARE NET INSIDE DIMENSIONS.

G.

PROVIDE 1/2" AUTOMATIC AIR VENTS WITH DRAIN LINES TO FLOOR DRAINS AT ALL HIGH POINTS OF CLOSED SYSTEM PIPING AND 1/2" MANUAL DRAIN VALVES WITH HOSE CONNECTION AT LOW POINTS AS REQUIRED TO PROVIDE COMPLETE SYSTEM DRAINAGE. WHERE DRAIN VALVES OCCUR ABOVE CEILING AREAS AND IN AREAS OUTSIDE MECHANICAL ROOMS PROVIDE HOSE CONNECTION ON VALVE. SEE SPECS FOR ALL REQUIREMENTS.

H.

PROVIDE TURNING VANES IN ALL SQUARE ELBOWS, EXCEPT TRANSFER AIR SOUND ELBOWS.

I.

THE CFM OF EACH DIFFUSER, REGISTER, ETC., IS INDICATED AS A NUMBER NEXT TO THE SYMBOL DESIGNATION ON THE DRAWINGS.

J.

REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ALL FIRE RATED AND/OR SMOKE RATED WALLS AND ASSEMBLIES. PROVIDE APPROVED FIRE DAMPERS IN ALL REQUIRED PENETRATIONS FOR DUCTWORK, GRILLES, REGISTERS AND DIFFUSERS. ALL PIPE AND DUCTWORK PENETRATIONS OF FIRE, SMOKE AND FULL HEIGHT WALLS SHALL BE CAULKED AIRTIGHT TO THE ADJACENT STRUCTURE BY MEANS OF U.I. APPROVED FIRE PROOF CAULKING MATERIAL.

K.

CONTRACTOR SHALL COORDINATE ALL DUCTWORK AND PIPING WITH PLUMBING, FIRE PROTECTION, ELECTRICAL SYSTEMS, PROVIDE NECESSARY OFFSETS TO AVOID CONFLICTS AND TO MAINTAIN EQUIPMENT ACCESS AND SERVICEABILITY.

L.

CONTRACTOR SHALL FURNISH ALL NECESSARY STRUCTURES, INSERTS, SLEEVES, AND HANGING DEVICES FOR INSTALLATION OF EQUIPMENT, DUCTWORK AND PIPING, ETC. CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR AND ALL BUILDING TRADES TO AVOID CONFLICTS AND TO MAINTAIN EQUIPMENT ACCESS AND SERVICEABILITY.

M.

CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY MISCELLANEOUS ANGLES, CHANNELS, UNISTRUT, ETC., AS MAY BE REQUIRED TO ADEQUATELY SUPPORT THE MECHANICAL PIPING, DUCTWORK, AND EQUIPMENT IN A MANNER APPROVED BY THE ARCHITECT, WHICH WILL NOT OVERLOAD THE BUILDING STRUCTURAL SYSTEM.

N.

NOT USED.

O.

SEAL ALL TRANSVERSE JOINTS, LONGITUDINAL SEAMS, DUCT WALL PENETRATIONS AND FITTING CONNECTIONS ON ALL DUCT SYSTEMS.

P.

MECHANICAL ITEMS SHOWN ON THE ARCHITECTURAL DRAWINGS BUT NOT SHOWN ON THE MECHANICAL DRAWINGS SHALL BE INCLUDED IN THE PROJECT.

Q.

ATTACHMENTS TO STRUCTURE:

I.

ROOF JOISTS

II.

ROOF DECK: SUPPORTS FROM ROOF DECK NOT PERMITTED.

III.

BLOCK WALLS: MIN. 5/8" EXPANSION ANCHOR INTO GROUTED CELLS WITH MIN. 4" EMBEDMENT. MAXIMUM 1000 LBS. PER ANCHOR, SHEAR OR TENSION. MINIMUM 2 ANCHORS PER ATTACHMENT.

IV.

FRAME WALLS: MINIMUM NO.10 TEK SCREWS INTO STUDS.
1. 25 GA. STUDS: MAXIMUM 30 LB. SHEAR OR TENSION PER SCREW
2. 30 GA. STUDS: MAXIMUM 50 LB. SHEAR OR TENSION PER SCREW

V.

CONCRETE WALLS AND FLOORS: MIN. 5/8" EXPANSION ANCHOR WITH MIN. 3-1/2" EMBEDMENT. SIZE FOR SAFETY FACTOR OF 4.

R.

WHERE EXISTING CONDITIONS WOULD ADVERSELY AFFECT THE INSTALLATION OR PERFORMANCE OF NEW WORK SHOWN HERE, IDENTIFY AND DOCUMENT SUCH EXISTING CONDITIONS IN NEED OF REPAIR DURING DEMO PHASE. PRESENT TO COR FOR DIRECTION PRIOR TO STARTING NEW WORK.

S.

DO NOT DISTURB EXISTING STRUCTURE FIREPROOFING, IF IT IS ACCIDENTALLY REMOVED, IT SHALL BE REPAIRED TO RESTORE INTEGRITY.

T.

THE CONTRACTOR SHALL COORDINATE THE SHUTDOWN OF EXISTING BUILDING SERVICES WITH COR (CONTRACT OWNERS REPRESENTATIVE) AND SHALL CONFORM TO THEIR REQUIREMENTS.

U.

DISRUPTION OF NORMAL HOSPITAL ACTIVITIES ARE TO BE KEPT TO AN ABSOLUTE MINIMUM. DUST, DEBRIS, AND FUMES SHALL BE CONTROLLED SO AS NOT TO AFFECT THE HEALTH AND SAFETY OF OCCUPIED AREAS WITHIN THE MEDICAL CENTER WHICH ARE OUTSIDE THE AREA OF WORK. COORDINATE WITH THE ARCHITECT AND THE COR WITH REGARD TO ALL ACTIVITIES TO BE CONDUCTED OUTSIDE OF THE PROJECT AREA WHICH MAY AFFECT THE OPERATION OF THE MEDICAL CENTER. THE CONTRACTOR SHALL PROVIDE TEMPORARY VENTILATION (MAINTAIN WORK ZONE AT NEGATIVE PRESSURE), FILTRATION, AIR PURIFIERS, DUST SCREENS, ETC. FOR NEW INSTALLATION TO MINIMIZE DUST AND FUMES AS REQUIRED BY SPECIFICATIONS.

V.

THE CONTRACTOR SHALL COORDINATE WITH THE COR TO ESTABLISH ACCEPTABLE ROUTING AND ACCESS WITHIN THE MEDICAL CENTER FOR MATERIALS REQUIRED FOR NEW INSTALLATION.

COMPLETION ITEM NO. FULLY SPRINKLERED