












MECHANICAL LEGEND		
SYMBOL	ABBREVIATION	DESCRIPTION
ABC		ABOVE CEILING
BTU(H)		BRITISH THERMAL UNITS (PER HOUR)
CEF		CEILING EXHAUST FAN
CD		CONDENSATE DRAIN
CONN.		CONNECT OR CONNECTION
CONT.		CONTINUATION
CP	CEM	CUBIC FEET OF AIR FLOW PER MINUTE
CTE		CHILLER PUMP
DB		CONNECT TO EXISTING
		DRY BULB (DEGREES FAHRENHEIT)
DIA.		DIAMETER, PHASE
EDB		ENTERING DRY BULB
EWT		ENTERING WATER TEMPERATURE
EWB		ENTERING WET BULB
EA		EXHAUST AIR
EAD		EXHAUST AIR DAMPER
EF		EXHAUST FAN
EF		EXISTING
(E), EXIST.		EXTERNAL STATIC PRESSURE
ESP		DEGREES FAHRENHEIT
*F		FLEXIBLE CONNECTION
FC		FULL LOAD AMPS
FLA		FLAT OVAL
F.O.		GALLONS PER HOUR
G.P.H.		GALLONS PER MINUTE
GPM		GALVANIZED
GALV.		GALVANIZED IRON
G.I.		GAUGE
GA		HEATING
HTG		POUNDS
LBS		LEAVING DRY BULB IN DEGREES FAHRENHEIT
LDB		LEAVING WET BULB IN DEGREES FAHRENHEIT
LWB		LOCKED ROTOR AMPERES
LRA		MANUAL AIR DAMPER
MAD, MD		MAXIMUM
MA		THOUSAND BRITISH THERMAL UNITS PER HOUR
MBH		MINIMUM
MIN.		NEW
(N)		OUTSIDE AIR
OA		OUTSIDE AIR DAMPER
OAD		POINT OF CONNECTION
POC		RETURN AIR
RA		RETURN AIR DAMPER
RAD		RUNNING LOAD AMPERES
RLA		SQUARE FEET
SA		SUPPLY AIR
SFDR		COMBINATION
		SMOKE/FIRE DAMPER
TU		TERMINAL UNIT
Typ.		TYPICAL
UCD		UNDER CUT DOOR
VFD		VARIABLE FREQUENCY DRIVE
WT.		WEIGHT
---	MAD, MD	THERMOSTAT, "X" INDICATES DEVICE CONTROLLED
⊗ X	T	CONDENSER WATER SUPPLY PIPING
---	CWS	CONDENSER WATER RETURN PIPING
---	CWR	CHILLED WATER SUPPLY PIPING
---	CHWS	CHILLED WATER RETURN PIPING
---	CHWR	CONDENSATE DRAIN, DRAIN
---	CD	HEATING HOT WATER SUPPLY PIPING
---	CHWS	HEATING HOT WATER RETURN PIPING
---	HHWR	

MECHANICAL LEGEND	
SYMBOL	DESCRIPTION
AC	AIR CONDITIONING
CFM	CUBIC FEET OF AIR FLOW PER MINUTE
DB	DRY BULB IN DEGREES FAHRENHEIT
DIA., Ø	DIAMETER
(E), EXIST.	EXISTING TO BE FIELD VERIFIED BY CONTRACTOR
°F	DEGREES FAHRENHEIT
MB	THOUSAND BRITISH THERMAL UNITS PER HOUR
SP	STATIC PRESSURE
TCP	TEMPERATURE CONTROL PANEL
	MANUAL AIR DAMPER
	THERMOSTAT
 , 	RETURN AND OUTSIDE AIR DUCT, SUPPLY AIR DUCT,
	EXHAUST AIR DUCT
 , 	EXHAUST AIR DUCT (IN SECTION)
	FLOW DIRECTION, SUPPLY AIR
 , SA	FLOW DIRECTION, RETURN AIR OR OUTSIDE AIR
 , RA	FLOW DIRECTION, EXHAUST AIR OR RELIEF AIR
 , EA	

DUCT LEGEND	
SYMBOL	DESCRIPTION
	DUCT - WIDTH x DEPTH ROUND DUCT
	FLEXIBLE DUCT
	45 DEGREE FITTING AT ALL SUPPLY BRANCH TAKE-OFFS ROUND DUCTS
	FLEX DUCT OR ROUND DUCT SPIN-IN DAMPER AND EXTRACTOR AT ALL ROUND TO RECTANGULAR DUCT TAKE-OFFS.
	MAD, MANUAL AIR DAMPER
	TRANSITION
	TURNING VANES ON ALL SUPPLY & RETURN DUCTS.
	MAD IN DROP TO RETURN GRILLE
	TURNING VANES DIFFUSER
	45 DEGREE FITTING DIFFUSER
	RECTANGULAR DUCTWORK WITH INTERNAL INSULATION, DIMENSIONS SHOWN ARE NET INSIDE DIMENSIONS.

CERTIFICATION OF BUILDING ENERGY PERFORMANCE


LOCATION: MATHER, CA.
PROJECT TITLE: AIR HANDLER REPLACEMENT
PROJECT NO.:
PROJECT MANAGER:
I CERTIFY THAT THE ENERGY PERFORMANCE
SATISFIES THE ENERGY EFFICIENT REQUIREMENT
FOR PAR 433, ENERGY CONSERVATION VO
FOR COMMERCIAL AND MULTI-FAMILY HIGH
MANDATORY ENERGY EFFICIENT BUILDING,
OF SPECIAL REQUIREMENTS LISTED IN THE
HOSPITAL PROJECTS DATED JUNE 2006.
NAME & TITLE: KENT LAWS, ENGINEER
TITLE/POSITION: ENGINEER
PROFESSIONAL REGISTRATION NO.: M26762
STATE WHERE REGISTERED (USE SEAL):

CONSTRUCTION PHASING NOTES

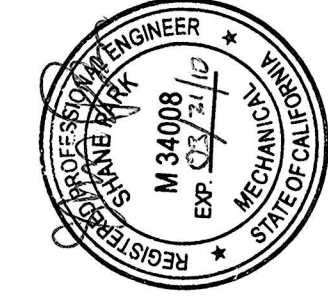
1. THE SCOPE OF THIS PROJECT INVOLVES AREAS OF AN OPERATIONAL MEDICAL CENTER. THEREFORE THE CONTRACTOR SHALL AT NO TIME INTERRUPT UTILITIES (SUCH AS HVAC, ELECTRICAL, PLUMBING, ETC.) WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE CONTRACTING OFFICER.
2. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TEMPORARY UTILITIES INCLUDING, BUT NOT LIMITED TO, ELECTRICAL SERVICES, AND HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS AS REQUIRED TO MEET THE MINIMUM SETPOINT TEMPERATURES REQUIRED BY THE VA AND THESE DOCUMENTS. CONTRACTOR MAY CONNECT TO EXISTING HEATING HOT WATER, CHILLED WATER AND ELECTRICAL POWER, IF APPROVED BY THE CONTRACTING OFFICER. CONTRACTOR MUST VERIFY POINTS OF CONNECTION PRIOR TO INTERRUPTION OF UTILITIES. CONTRACTOR SHALL PROVIDE ALL REQUIRED AIR HANDLING EQUIPMENT, DUCTWORK, PIPING AND CONTROLS AS NECESSARY TO MAINTAIN THE ENVIRONMENTAL CONDITIONS IN THE PROJECT AREA.
3. THE CONTRACTOR WILL COORDINATE CLOSELY WITH THE VA FACILITIES MANAGEMENT TO DETERMINE THE OPTIMAL TIME FOR SHUT-DOWNS AND SYSTEM SWITCH-OVER.

SEISMIC BRACING AND ANCHORAGE NOTES

1. CONTRACTOR SHALL INSTALL ALL MECHANICAL SYSTEMS AND EQUIPMENT SO AS TO COMPLY WITH CHAPTER 23 AND RELATED CHAPTERS OF THE 2001 UNIFORM BUILDING CODE (UBC) WITH ACCUMULATIVE SUPPLEMENTS, WITH EXCEPTIONS (WHERE NOTED). CONTRACTOR SHALL SUBMIT CALCULATIONS AND DETAILS PREPARED BY A LICENSED REGISTERED PROFESSIONAL STRUCTURAL ENGINEER DEMONSTRATING COMPLIANCE WITH THE ABOVE REFERENCED CODE. ALL CALCULATIONS AND DETAILS SHALL BE REVIEWED AND APPROVED BY THE RESIDENT ENGINEER PRIOR TO INSTALLATION BY THE CONTRACTOR.
2. THE CONTRACTOR SHALL USE THE FOLLOWING VALUES IN EQUATION 36-1 OF SECTION 2336 OF THE ABOVE CODE:
Z=0-40
 $I-P^2=1.50$
 $C-P^2=0.75$ (MINIMUM)
3. MECHANICAL SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO: PIPING, CONDUIT, DUCTWORK AND COMPONENTS.
4. EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO: PANELS, PUMPS, WATER HEATERS, TANKS, VESSELS, AIR HANDLING UNITS, TANKS AND COMPONENTS.
5. PIPING INCLUDES HVAC AND PLUMBING PIPING AND COMPONENTS.
6. FOOTNOTE 8 OF TABLE 23-P OF THE ABOVE REFERENCED CODE SHALL BE AMENDED TO READ AS FOLLOWS; MACHINERY AND EQUIPMENT INCLUDE, BUT ARE NOT LIMITED TO: BOILERS, CHILLERS, SWITCH-GEAR, TRANSFORMERS, AIR-HANDLING UNITS, COOLING TOWERS, CONTROL PANELS, MOTORS, DUCTING AND PIPING SERVING SUCH MACHINERY AND EQUIPMENT AND FIRE SPRINKLER SYSTEMS. SEE SECTION 2336(b) FOR ADDITIONAL REQUIREMENTS FOR DETERMINING C-P* FOR NONRIGID OR FLEXIBLY MOUNTED EQUIPMENT.
7. ALL PIPE AND CONDUIT RUNS SHALL HAVE A MINIMUM OF TWO TRANSVERSE BRACES AND ONE LONGITUDINAL BRACE.
8. PIPING SYSTEM SEISMIC BRACING DESIGN SHALL INCLUDE AND TAKE INTO ACCOUNT PIPE MATERIAL AND JOINING METHODS AND VIBRATION ISOLATION DEVICES.
9. SEE SPECIFICATION SECTION DIVISION 23 AND STRUCTURAL DRAWINGS AND SPECIFICATIONS.



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Revisions: △ DATED 11/10/08	Drawing Title: GENERAL NOTES, LEGEND AND ABBREVIATIONS	Project Title: BLDG 650 REPLACE AIR HANDLERS 1 THRU 4, 7 AND 9 - 15	Order: 08/25/08 Project No.: 61244-07-342
Approved:	Drawn: Approved: Medical Center Director	Building Number: H1.1	DRAWING No. H1.1 Des. of
Approved:	Checkered: Approved: Chief Engineering Service	Location: MATHER VAMC MATHER CALIFORNIA	

Department of
Veterans Affairs