

1. WHERE BRACE ELEMENTS ARE THROUGH-BOLTED, THE MOUNTING HOLE IN THE ELEMENT IS TO BE NO MORE THAN 1/16" IN DIAMETER LARGER THAN THE BOLT OR THREADED ROD.
2. AVOID BRACING TO STRUCTURAL ELEMENTS WHICH MAY RESPOND DIFFERENTLY IN A SEISMIC EVENT.
3. THE ENGINEER OF RECORD FOR THE BUILDING SHALL REVIEW THE ISAT ATTACHMENT DETAILS AND LOADS TO DETERMINE THE SUITABILITY OF THE STRUCTURE TO ACCEPT SUCH LOADS PRIOR TO INSTALLATION OF THE SEISMIC BRACING SYSTEM. THE ENGINEER OF RECORD IS TO PROVIDE A GENERAL COMPLIANCE SUBMITTAL STAMP PRIOR TO SUBMITTING TO OSHPD.
4. WHEN UTILIZING CABLE BRACING FOR OTHER THAN VIBRATION ISOLATED SYSTEMS, TENSION THE CABLE TO REMOVE SLACK WITHOUT INDUCING UPLIFT OF THE SUSPENDED ELEMENT. CABLE INSTALLATION IS TO BE SYMMETRICAL.
5. AS A GENERAL RULE, DO NOT MIX RIGID BRACING AND CABLE BRACING IN THE SAME RUN. HOWEVER, ONCE BRACING HAS MADE A 90 DEGREE CHANGE IN RUN DIRECTION, THE BRACING TYPE MAY SWITCH FROM RIGID TO CABLE OR VICE VERSA.
6. BRACING TABLES IN THE ISAT MANUAL ARE BASED ON A NOMINAL BRACE ANGLE OF 45 DEGREES FROM HORIZONTAL +2.5 DEGREES. BRACE ANGLES LESS THAN 45 DEGREES ARE ACCEPTABLE WITHOUT MODIFICATION. BRACE ANGLES GREATER THAN 47.5 DEGREES AND LESS THAN 60 DEGREES FROM HORIZONTAL ARE ACCEPTABLE; HOWEVER, THE TABULATED BRACE SPACING AND ANCHORAGE LOADS WILL REQUIRE MODIFICATION BY ISAT TECHNICAL SUPPORT.
7. BRACING MAY BE INSTALLED WITH UP TO +/- 7.5 DEGREES VARIATION FROM "TRUE" TRANSVERSE OR "TRUE" LONGITUDINAL ALIGNMENT WITHOUT THE NEED FOR ADDITIONAL ENGINEERING. REFER TO INSTALLATION DETAILS.
8. UN-BRACED SUSPENDED UTILITIES ARE TO HAVE A 6" MINIMUM CLEARANCE TO CEILING SUPPORT WIRES. ACoustICAL CONTRACTORS NEED TO RESPECT THIS RULE WHEN THEY INSTALL, OR PREFERABLY IN THE MODEL.
9. SEISMIC BRACING MAY NOT PASS THROUGH A STRUCTURAL SEISMIC SEPARATION JOINT. UTILITY SYSTEMS THAT PASS THROUGH A SEISMIC SEPARATION JOINT MUST BE SEISMICALLY RESTRAINED WITHIN 5 FEET OF BOTH SIDES OF THE SEPARATION OR WITHIN 5 FEET OF POINT OF CONNECTION OF ANY HARDWARE DESIGNED TO ACCOMMODATE SEISMIC MOVEMENT ACROSS THE SPAN OF THE SEPARATION JOINT.
10. WITH THE APPROVAL OF THE ENGINEER OF RECORD, UTILITY SYSTEMS THAT ARE SUSPENDED FROM THE OVERHEAD DECK MAY BE BRACED TO CONCRETE SHEAR WALLS PROVIDED THAT THE WALLS AND THE OVERHEAD DECK WILL RESPOND SIMILARLY DURING A SEISMIC EVENT. CONSULT WITH STRUCTURAL ENGINEER OF RECORD FOR APPROVAL. OVERHEAD CONCRETE DECK ANCHOR DETAILS MAY BE UTILIZED FOR WALL ATTACHMENT.
11. UTILITIES SMALLER THAN THE SEISMIC SUSPENSION THRESHOLD ARE ASSUMED TO BE A NEGLIGIBLE RISK TO OTHER COMPONENTS AND STRUCTURAL ELEMENTS.
12. BRACE LOCATIONS MAY BE RELOCATED TO AN ALTERNATE SUPPORT LOCATION WITHIN THE SAME UTILITY RUN WHEN THE LENGTH OF THE UTILITY BETWEEN THE BRACE DOES NOT EXCEED THE BRACE SPACING TABULATED IN THE ISAT RESTRAINT LEGEND. ANCHORAGE AND SUPPORT ROD DETAILS ARE TO BE TAKEN FROM THE BRACING LEGENDS.
13. WHEN USED TO CONSTRUCT A RIGID BRACE ARM ASSEMBLY, MINIMUM 12 GAUGE STEEL CHANNEL SHALL BE SOLID. PUNCHED OR SHORT SLOT CHANNEL MAY BY USED PROVIDED THE REDUCED BRACE ARM DESIGN VALUES ON PAGE 1E ARE USED.
14. ANY DEVIATION FROM THE ISAT BRACING TABLES OR ISAT INSTALLATION DETAILS SHALL ONLY BE MADE USING SOUND DESIGN PRACTICES BY A QUALIFIED ENGINEER WITH THE APPROVAL OF THE ENGINEER OF RECORD AND THE CODE AUTHORITY HAVING JURISDICTION, SUBJECT TO LOCAL CODE REQUIREMENTS.
15. WHERE SPECIFICATION OR JOB REQUIREMENTS DEViate FROM THOSE SHOWN IN THE ISAT MANUAL, THE MORE STRINGENT REQUIREMENT SHALL PREVAIL.
16. HOUSEKEEPING PADS ARE TO BE CONSIDERED AS PART OF THE MAIN BUILDING SLAB; DETAILS FOR DOWELED CONNECTION ARE TO BE BY THE SEIOR.
17. PATCH AND REPAIR ROOFING AS REQUIRED FOR WATER TIGHT CONDITION.

1. 2007 CALIFORNIA BUILDING CODE (CBC) - TITLE 24, PART 2, VOLUME 2, CHAPTER 16A.
2. ASCE 7-05, CHAPTER 13, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE).
3. ACI 318-05, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, AMERICAN CONCRETE INSTITUTE (ACI)
4. COMPONENT IMPORTANCE FACTOR: 1.5

ARCHITECT OR ENGINEER OF RECORD IS TO PROVIDE A "STATEMENT OF SPECIAL INSPECTIONS" IN CONFORMANCE WITH 2007 CBC, SECTION 1705A. CODE REQUIREMENT TO BE FULFILLED BY DESIGN TEAM.

EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A "DESIGNATED SEISMIC SYSTEM" OR A SEISMIC RESIST COMPONENT LISTED IN THE "STATEMENT OF SPECIAL INSPECTIONS" SHALL SUBMIT TO THE BUILDING OFFICIAL AND OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OF COMPONENT A WRITTEN "STATEMENT OF RESPONSIBILITY" PER CBC SECTION 1706A. CODE REQUIREMENT TO BE FULFILLED BY SUBCONTRACTORS.

CONSULT ISAT TECHNICAL SERVICE WHEN FIELD CONDITIONS PROHIBIT COMPLIANCE WITH THE SUPPLIED INSTALLATION DETAILS.

WHERE SEISMIC BRACING IS ALLOWED TO BE OMITTED DUE TO COMPONENT SIZE OR PROXIMITY TO OVERHEAD DECK, AIR CONDITIONING TO FIXED EQUIPMENT, PANELS, ETC. OR TO OTHER PORTIONS OF THE SYSTEM REQUIRING SEISMIC RESTRAINT ARE TO UTILIZED FLEXIBLE CONNECTIONS. FLEXIBLE CONNECTIONS SHOULD BE PART OF THE APPROVED DESIGN BY THE MECHANICAL ENGINEER OF RECORD WHO IS DESIGNING THE PIPING SYSTEMS.

ISAT TO PROVIDE A LETTER AFTER FINAL JOBLWAK FOR GENERAL COMPLIANCE.

ISAT MATERIALS AND DESIGN WORK ARE PRODUCED WITH A DEGREE OF CARE AND SKILL ORDINARILY EXERCISED BY OTHER REPUTABLE MEMBERS OF OUR PROFESSION. NO OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

1. SPECIAL INSPECTION REQUIREMENTS: ALL DESIGNATED SEISMIC SYSTEMS ARE SUBJECT TO SPECIAL INSPECTION PER CBC CHAPTER 17A SECTION 1707A. ISAT WILL PROVIDE A SPECIAL INSPECTION PLAN TO THE CONTRACTOR FOR SUBMITTAL TO THE OWNER AND DESIGN TEAM FOR USE BY THE PROJECTS SPECIAL INSPECTORS. THE PLAN WILL INCLUDE THE FOLLOWING:
 - A. A LIST OF ALL COMPONENTS OF THE SEISMIC SYSTEM THAT REQUIRE INSPECTION OR TESTING.
 - B. THE REQUIRED FREQUENCY OF TESTING AND INSPECTION.
 - C. TYPE AND NATURE OF TESTING REQUIRED.
2. SPECIAL INSPECTION FOR MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE PROVIDED AS FOLLOWS:
 - A. FOR ALL DESIGNATED SEISMIC SYSTEMS WITHIN SEISMIC DESIGN CATEGORIES D, E OR F.
 - B. PERIODIC SPECIAL INSPECTION DURING THE ANCHORAGE OF ELECTRICAL EQUIPMENT FOR EMERGENCY OR STANDBY POWER SYSTEMS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORIES C, D, E OR F.
 - C. PERIODIC SPECIAL INSPECTION DURING THE INSTALLATION OF ANCHORAGE OF ALL OTHER ELECTRICAL EQUIPMENT IN SEISMIC DESIGN CATEGORIES C, D, E OR F.
 - D. PERIODIC SPECIAL INSPECTION DURING THE INSTALLATION FOR FLAMMABLE, COMBUSTIBLE OR HIGHLY TOXIC PIPING SYSTEMS AND THEIR ASSOCIATED MECHANICAL UNITS IN SEISMIC DESIGN CATEGORIES C, D, E OR F.
 - E. PERIODIC SPECIAL INSPECTION DURING THE INSTALLATION OF HVAC DUCTWORK THAT WILL CONTAIN FLAMMABLE MATERIAL IN SEISMIC DESIGN CATEGORY F.
 - F. PERIODIC SPECIAL INSPECTION DURING THE INSTALLATION OF VIBRATION ISOLATION SYSTEMS WHERE THE CONSTRUCTION DOCUMENTS INDICATE A MAXIMUM CLEARANCE (AIR GAP) BETWEEN THE EQUIPMENT SUPPORT FRAME AND RESTRAINT LESS THAN OR EQUAL TO 1/4 INCH.
3. UPON COMPLETION OF CONSTRUCTION A QUALITY ASSURANCE REPRESENTATIVE OF ISAT SHALL REVIEW THE INSTALLATION OF THE SEISMIC-FOR-RESISTING SYSTEM AND PROVIDE DOCUMENTATION INDICATING GENERAL CONFORMANCE TO THE DESIGN DRAWINGS. DRAWING REVISIONS OCCURRING AFTER INSTALLATION IS COMPLETE AND PRIOR TO IOR FORMAL SIGN-OFF INSPECTION. THIS IS A COURTESY REVIEW ONLY, AND NOT CODE REQUIRED.

1. SEISMIC RESTRAINTS ARE NOT REQUIRED FOR UTILITIES SUPPORTED BY ROD HANGERS IF THE FOLLOWING CONDITIONS ARE MET FOR THE FULL LENGTH OF THE RUN:
 - A) THE ROD HANGERS ARE 12" OR LESS IN LENGTH FROM THE TOP OF THE DUCT OR COMPONENT TO THE BOTTOM STRUCTURAL SUPPORT. HANGERS ARE TO BE DETAILED TO AVOID SIGNIFICANT BENDING OF THE HANGERS AND THEIR ATTACHMENTS. CONTRACTORS MUST INSTALL A HANGER SIZE TO ACCOMMODATE THE BENDING FORCES OF A PIPE WHEN EXPRESSED THIS 12" RULE.
 - B) PROVISIONS ARE MADE FOR PIPING TO ACCOMMODATE UNEXPECTED DEFLECTIONS.
2. IN ORDER TO SATISFY ASCE 7-05, SECTION 13.1.4 REQUIREMENTS - WHERE BRACING IS ALLOWED TO BE USED TO REDUCE THE REQUIRED BRACING FOR MEMBERS, THE BRACING IS TO BE PROVIDED IN EQUIPMENT TO BE DETAILED BY MECHANICAL ENGINEER OF RECORD IN APPROVED DRAWINGS.
3. UN-BRACED PIPING ATTACHED TO IN-LINE EQUIPMENT SHALL BE PROVIDED WITH FLEXIBLE CONNECTIONS. FLEX CONNECTIONS TO BE DETAILED BY MECHANICAL ENGINEER OF RECORD IN APPROVED DRAWINGS.
4. ALL SEISMIC BRACING ASSEMBLIES SHALL UTILIZE ISAT SEISMIC BRACKETS UNLESS NOTED OTHERWISE. **NO SUBSTITUTIONS ALLOWED.** USE OF ANY SUBSTITUTE BRACKET VOIDS ALL ENGINEERING.
5. EVERY UTILITY RUN WHICH REQUIRES BRACING SHALL HAVE A MINIMUM OF TWO TRANSVERSE BRACES AND ONE LONGITUDINAL BRACE. FOR THE PURPOSES OF THESE DRAWINGS, A RUN IS DEFINED AS A SUSPENDED ELEMENT OF 10 FOOT MINIMUM STRAIGHT LENGTH.
6. A TRANSVERSE BRACE SHALL BE INSTALLED ON ONE SIDE OF A HORIZONTAL 90 DEGREE CHANGE IN ANY UTILITY DIRECTION.
7. A LONGITUDINAL BRACE AT A 90 DEGREE CHANGE IN DIRECTION MAY ACT AS A TRANSVERSE BRACE IF IT WITHIN 2 FEET OR DUCT WIDTHS OF THE CHANGE IN DIRECTION AND LOCATED WITHIN PRESCRIBED DISTANCES FROM THE CHANGE IN DIRECTION AS SEEN ON A4.1, A5.1 AND A6.1 OF THE ISAT SB DETAIL. THE REASON FOR THIS IS THAT THE BRACE ARM AND ANCHORAGE MUST BE SIZED TO RESIST THE EQUIVALENT OF THE TABULATED BRACE REACTION, AT LOCATIONS GREATER THAN 2 FEET, CHECK KIT ID AND ASSOCIATED MAXIMUM LOAD ON ISAT BRACING LEGEND VS LOADS ON A4.1, A5.1, AND A6.1.
8. A TRANSVERSE BRACE MAY ACT AS A LONGITUDINAL BRACE IF IT IS LOCATED WITHIN 2 FEET OF THE CHANGE IN DIRECTION OR LOCATED WITHIN PRESCRIBED DISTANCES FROM THE CHANGE IN DIRECTION AS SHOWN ON A4.1, A5.1 AND A6.1. THE BRACE ARM AND ANCHORAGE MUST BE SIZED TO MEET OR EXCEED THE EQUIVALENT OF THE TABULATED BRACE REACTION, AT LOCATIONS GREATER THAN 2 FEET, CHECK KIT ID AND ASSOCIATED MAXIMUM LOAD ON ISAT BRACING LEGEND VS LOADS ON A4.1, A5.1, AND A6.1.

WHERE A DUCT PASSES THROUGH A WALL MAY BE CONSIDERED A TRANSVERSE BRACE LOCATION PROVIDED THE DUCT IS TIGHTLY CONSTRAINED BY THE WALL. THE STRUCTURAL ENGINEER OF RECORD OR THE ARCHITECT OF RECORD SHALL VERIFY THE ABILITY OF THE WALL TO ACCOMMODATE THE TRANSVERSE SEISMIC LOAD. THIS CANNOT OCCUR AT SHAFT WALLS. NEITHER A BREAKAWAY SMOKE DAMPER, NOR A FLEXIBLE CONNECTION AT A WALL PENETRATION IS ALLOWED TO BE UTILIZED AS A TRANSVERSE BRACE LOCATION.

10. VERTICAL SUPPORT SPACING FOR SUSPENDED UTILITIES IS TO BE THE LESSER OF 10 FOOT MAXIMUM, OR THE MINIMUM AS DICTATED BY THE CALIFORNIA MECHANICAL, ELECTRICAL AND PLUMBING CODES, AS LISTED IN THE PROJECT SPECIFICATIONS, OR AS ALLOWED BY THE LOCAL CODE AUTHORITY. VERTICAL SUPPORTS DETAILED ON SB DETAIL PAGES. SEE VERTICAL SUPPORT ENGINEER LEGEND AND ASSOCIATED DETAILS.

11. EACH LAYER OF A MULTI-LAYER TRAPEZOID BRACE SHALL BE BRACED INDIVIDUALLY BASED ON THE WEIGHT OF EACH INDIVIDUAL LAYER. IF MULTI-LAYER TRAPEZOID BRACE RACKS ARE UTILIZED, THE SB DETAIL PAGES WILL ACCOUNT THE NECESSARY DETAILS.

12. ALL VERTICAL RISER UTILITIES SHALL INCLUDE LATERAL RESTRAINT AT THE TOP AND BOTTOM OF THE RISER. THE RISER SHALL BE BRACED TO THE RISER LATERAL RESTRAINT. SEE FLAT, RACK, AND RISER SUPPORT DETAILS AND RISER CLAMP ANCHORAGE DETAILS ON SB DETAIL SHEETS.

13. VERTICAL RISERS WHICH ARE MECHANICALLY ATTACHED TO FLOORS AT POINT OF PENETRATION ARE CONSIDERED A TRANSVERSE AND LONGITUDINAL BRACE LOCATION WHEN THE ANCHORAGES AND THE DUCT FRAMING ARE SIZED TO ACCOMMODATE THE LATERAL LOAD.

14. CONDUIT OR PIPE CONSTRUCTED OF NON-DUCTILE MATERIALS (E.G., GLASS, NON-HUB CAST IRON, PLASTIC), SHALL HAVE THE BRACE SPACING REDUCED TO ONE-HALF OF THE SPACING ALLOWED FOR DUCTILE MATERIALS AND SHALL BE BRACED ON BOTH SIDES OF A HORIZONTAL, 90 DEGREE CHANGE IN DIRECTION. SEE SPECIFIC ISAT BRACING LEGENDS FOR NON-DUCTILE MATERIAL (REF: SECTION 13.6.11, ASCE 7-05).

15. ALL LONGITUDINAL BRACE LOCATIONS FOR INDIVIDUALLY SUPPORTED PIPE AND CONDUIT SHALL EMPLOY AN ISAT LONGITUDINAL RESTRAINT DEVICE (LRD) AND INSTALLED PER THE INDIVIDUAL DETAIL DRAWINGS WITHIN THESE SHEETS.

16. WHEN USING BACK-TO-BACK 12 GAUGE STEEL CHANNEL AS A TRAPEZOID ASSEMBLY FOR GRAVITY LOADS, PIPE AND CONDUIT MAY BE MOUNTED TO BOTH THE TOP AND THE UNDERSIDE OF THE CHANNEL PROVIDED THE LOAD LIMITATIONS ON PAGE G2 ARE NOT EXCEEDED.

17. FOR THE PURPOSE OF CALCULATING WEIGHT, ALL PIPING AND CONDUIT IS TO BE TREATED AS FULL OF WATER.

18. PIPING SYSTEMS EMPLOYING GROOVED COUPLING CONNECTIONS WHICH ARE TESTED AND LISTED ASSEMBLIES PER UL STANDARD 215 MAY EMPLOY THE SAME BRACE SPACING AS WELDED STEEL CONNECTIONS. SUBSTITUTION OF THE LIMITS OF THE ISAT BRACING TABLES FOR THE SPECIFIC PIPE SIZE AND HORIZONTAL ACCELERATION, GROOVED PIPE COUPLINGS THAT ARE NON-UL LISTED MUST BE BRACED AT A MAXIMUM SPACING NOT TO EXCEED ONE-HALF THAT ALLOWED FOR WELDED STEEL.

19. UNLESS OTHERWISE NOTED, STANDARD ISAT BRACING DOES NOT INCLUDE ALLOWANCES FOR PIPING SYSTEMS DESIGNED TO ACCOMMODATE THERMAL EXPANSION AND CONTRACTION. THERMAL PIPE STRESS ANALYSIS SHALL BE UNDERTAKEN SEPARATELY BY A LICENSED ENGINEER TRAINED AND AUTHORIZED TO PERFORM SUCH CALCULATIONS.

THE RESULTS OF THE THERMAL PIPE STRESS ANALYSIS SHALL BE USED TO DETERMINE THE NEED FOR PIPE ANCHORS AND GUIDES. UNLESS THE HORIZONTAL SEISMIC REACTION HAS BEEN SPECIFICALLY INCLUDED IN THE THERMAL PIPE STRESS ANALYSIS AND THE "ANCHORS AND GUIDES" SIZED TO ACCOMMODATE THE THERMAL AND SEISMIC REACTION, SEISMIC BRACING SHALL BE INSTALLED PER ISA GUIDELINES EXCLUSIVE OF THE "ANCHORS AND GUIDES".

20. ON PIPE RIGS DESIGNED TO ALLOW FOR THERMAL EXPANSION AND CONTRACTION, LONGITUDINAL CABLE RESTRAINTS SHALL BE INSTALLED IN THE FIRST 10' OF A PIPE RUN WHERE A SPECIFIED AMOUNT OF SLACK IS REQUIRED TO ALLOW FOR THERMAL MOVEMENT. CONSULT THE PROJECT MECHANICAL ENGINEER OF RECORD FOR THE LIMITS OF THERMAL MOVEMENT, UNLESS OTHERWISE NOTED.

INSTALL VIBRATION ISOLATION HARDWARE PER MANUFACTURER'S INSTRUCTIONS TO ACHIEVE THE REQUIRED DEGREE OF ISOLATION AND/OR DEFLECTION.

UNLESS SHOWN ON THE PLANS OR WITHIN THE PROJECT DOCUMENTS, SPRING ISOLATED HANGER SUPPORTS SHALL BE USED AT THE FIRST THREE HANGER SUPPORTS ON THE DISCHARGE AND/OR THE INLET OF THE UTILITY CONNECTED TO ISOLATED FANS, PUMPS, AIR HANDLER UNITS OR OTHER EQUIPMENT.

VIBRATION ISOLATED HANGERS THAT ALSO REQUIRE SEISMIC BRACING SHALL BE BRACED USING GALVANIZED STEEL CABLE OR MINIMUM 12 GAGE HANGING WIRE TIED TO ISOLATED AND TESTED SEISMIC BRACKETS.

CABLE TO BE INSTALLED WITH SUFFICIENT SLACK TO ACCOMMODATE, BUT NOT EXCEED, THE VIBRATION ISOLATORS CALCULATED DEFLECTION. SEE MANUFACTURER'S VIBRATION ISOLATOR SPECIFICATIONS. DO NOT EXCEED DEFLECTIONS TO THE EXTENT THAT THEY SUPPORT GRAVITY LOADS. CABLE INSTALLATION IS TO BE SYMMETRICAL.

BOLT AND STRUT NUT TORQUE:

3/8" DIAMETER BOLT 19 FT-LBS
1/2" DIAMETER BOLT 50 FT-LBS
5/8" DIAMETER BOLT 100 FT-LBS

POST INSTALLED MECHANICAL EXPANSION ANCHOR HOLE DEPTH IS SHOWN ON ISAT DETAILS. THE OBSERVED ANCHOR PROJECTION AFTER THE PROPER TORQUE IS APPLIED MAY INCREASE BY A MAXIMUM OF ONE BOLT DIAMETER. INSTALLATION TORQUE SHALL BE AS SHOWN ON THESE DETAILS.

ALL STRUCTURAL STEEL AND ANCHORS EXPOSED TO WEATHER, MOIST CONDITIONS, OR CHEMICAL ATTACK SHALL BE TREATED FOR CORROSION RESISTANCE PER PROJECT SPECIFICATIONS. STAINLESS STEEL ANCHORS RECOMMENDED.

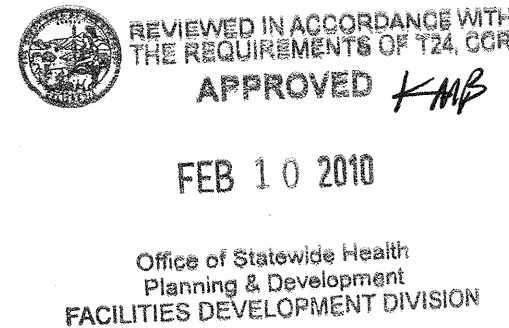
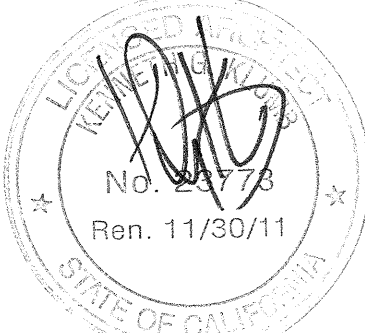
RC-1 AND RC-2 ROD STIFFENER TIGHTENING REQUIREMENTS - ROD STIFFENING REQUIRED ONLY FOR HANGER RODS IN WHICH SEISMIC BRACING HAS BEEN INSTALLED. TIGHTEN STIFFENER NUT TO FINGER TIGHT PLUS 2 FULL TURNS OF THE NUT.

THE DESIGN, FABRICATION AND ERECTION OF STEEL SHALL BE IN ACCORDANCE WITH AISC 360.		
STEEL SHALL CONFORM TO THE FOLLOWING, UNO,		
STEEL PRODUCT	ASTM SPECIFICATION, UNO	COMMENTS
W &WT SHAPES	A992	FY = 50 KSI
M, MT, S, ST, & HP SHAPES	A36	FY = 36 KSI
CHANNELS	A36	FY = 36 KSI
ANGLES	A36	FY = 36 KSI
PLATES & BARS	A36, UNO	FY = 36 KSI
RODS, PLAIN & ALL-THREADED	A36	FY = 36 KSI
BOLTS	A307, GRADE A	FU = 60 KSI
WASHERS	F44	
PLATE WASHERS	A36	FY = 36 KSI
ANCHOR BOLTS & RODS	F1554, CLASS 2A	
(HEADED OR THREADED & NUTTED)	GRADE 36 TYP. UNO	FY = 36 KSI
WELDED HEADED STUDS	A108, GRADES 1010 - 1020	FY = 50 KSI
SHEAR STUDS, &		
WELDED THREADED STUDS		
WELD FILLER METAL	PER AWS D1.1	FU = 70 KSI
EYE NUTS & EYEBOLTS	AISI C1030	
SLEEVE NUTS	AISI C1018, GRADE 2	
RECESSED NUTS AND PINS	A36	
WELDING MATERIALS & PROCEDURES SHALL CONFORM WITH AWS D1.1 FOR STRUCTURAL STEEL AND AWS D1.3 FOR SHEET STEEL.		

ABW ANGLE BRACKET, FIXED
ABWV ANCHOR BRACKET, HINGED WELDED
ABWV ANGLE BRACKET, 45 DEGREE (W/ FACTORY TIED WIRE)
AB90 ANGLE BRACKET, 90 DEGREE (W/ FACTORY TIED WIRE)
ACI AMERICAN CONCRETE INSTITUTE
ASJ ALL SERVICE JACKET
ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS
ASCE ALLOWABLE STRESS DESIGN
ASHRAE AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS
ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM AMERICAN SOCIETY FOR TESTING AND MATERIALS
Anc ANCHOR
ANSI AMERICAN NATIONAL STANDARDS INSTITUTE
NATR ALL THREAD ROD
AWG AMERICAN WIRE GAGE
C CABLE BRACE ARM
CBC CALIFORNIA BUILDING CODE
CBS CROSS BOLT SLEEVE
D DIAMETER
DSA DIVISION OF THE STATE ARCHITECT, CA
Fp COMPONENT SEISMIC DESIGN FORCE
FSB FLUTE SPAN BRACKET
Fl, ft FEET
Fp-fts FOOT-POUNDS, TORQUE OR MOMENT
Fv VERTICAL SEISMIC ACCELERATION
G GRAVITATION FORCE
Ga, ga GAGE
HVAC HEATING, VENTILATION AND AIR CONDITIONING
CBC INTERNATIONAL BUILDING CODE
ICC INTERNATIONAL CODE COUNCIL
ip COMPONENT IMPORTANCE FACTOR
SAT INTERNATIONAL SEISMIC APPLICATION TECHNOLOGY
L LONGITUDINAL
Lbs POUNDS FORCE
m LINEAR FOOT
LRD LONGITUDINAL RESTRAINT DEVICE
LRFD LOAD AND RESISTANCE FACTOR DESIGN
LVWC LIGHT WEIGHT CONCRETE
m METER
mm MILLIMETER
Max MAXIMUM
MEP MECHANICAL, ELECTRICAL AND PLUMBING
Mfg MANUFACTURER
Min MINIMUM
MMS MANUFACTURERS STANDARDIZATION SOCIETY
NFWC NORMAL WEIGHT CONCRETE
NPFA NATIONAL FIRE PROTECTION ASSOCIATION
OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
PBRACE BRACE REACTION
BRACE REACTION, HORIZONTAL COMPONENT
POUNDS PER LINEAR FOOT
PBRACE BRACE REACTION, VERTICAL COMPONENT
POURED-IN-PLACE INSERT
PIP
Pl PLATE
PSI POUNDS PER SQUARE INCH
R RIGID BRACE ARM
ROD ROD CAPTURE CABLE BRACKET
RCC ROD CAPTURE, HINGE BRACKET
RSD SEISMIC DESIGN FORCE (Fp)
SDI STEEL DECK INSERT
SDS SHEET METAL
SMACNA SHEET METAL AND AIR-CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
T TRANSVERSE
TL LONGITUDINAL
TRAPEZE
TVL TOTAL VERTICAL LOAD
Wp COMPONENT OPERATING WEIGHT

[illegible]

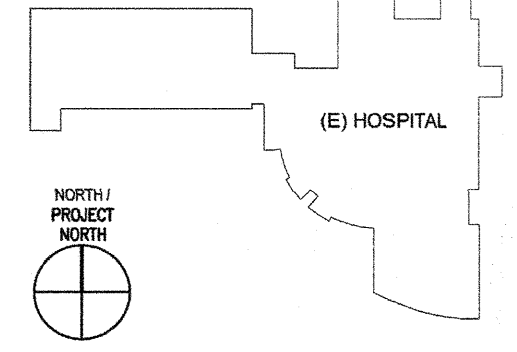
NO.	ISSUES/REVISIONS	DATE
1	OSHPD SUBMITTAL	03/03/10
	OSHPD RESUBMITTAL	05/04/10
2	OSHPD 1ST ROUND BACK CHECK RESPONSES	10/15/10
3	OSHPD 2ND ROUND BACK CHECK RESPONSES	01/07/11



VACAVALLEY HOSPITAL
EXPANSION PROJECT
PACKAGE 2 - CENTRAL PLANT

OSHPD No. HS100469-48

KEY PLAN



PROJECT NO.: 07024.02 DRAWN BY:
DATE: 05/04/10 CHECKED BY:
SCALE:

SHEET TITLE:

SEISMIC BRACING GENERAL NOTES

SHEET NO.

SB-0.0

All drawings and written material appearing herein constitute original and unpublished work of the Architect/Engineer and may not be duplicated, used or disclosed without consent of Architect/Engineer.

If this drawing is not 30"x42", then the drawing has been revised from its original size. Noted scales must be adjusted. This line should be equal to one inch.