

SUSPENDED CEILING SYSTEMS SHALL BE DESIGNED TO RESIST A LATERAL FORCE OF 20% OF THE WEIGHT OF THE CEILING ASSEMBLY AND ANY LOADS TRIBUTARY TO THE SYSTEM. FOR PURPOSES OF DETERMINING THE LATERAL FORCE, A MINIMUM CEILING WEIGHT OF 5 POUNDS PER SQUARE FOOT SHALL BE USED.

WHEN THE CEILING LOADS DO NOT EXCEED 5 POUNDS PER SQUARE FOOT AND WHERE PARTITIONS ARE NOT CONNECTED TO THE CEILING SYSTEM, THE FOLLOWING BRACING SYSTEM MAY BE EMPLOYED:

A. LATERAL SUPPORT MAY BE PROVIDED BY FOUR WIRES OF MAX. NO.12 GAUGE SPLAYED IN FOUR DIRECTIONS 90 DEGREES APART AND CONNECTED TO THE MAIN RUNNER WITHIN 2" OF THE CROSS RUNNER AND TO THE STRUCTURE ABOVE AT AN ANGLE NOT EXCEEDING 45 DEGREES FROM THE PLANE OF THE CEILING. THESE LATERAL SUPPORT POINTS SHALL BE PLACED 12'-0" ON CENTER IN EACH DIRECTION, WITH THE FIRST POINT WITHIN 6'-0" FROM EACH WALL.

B. ALLOWANCE SHALL BE MADE FOR LATERAL MOVEMENT OF THE SYSTEM. MAIN RUNNERS AND CROSS RUNNERS MAY BE ATTACHED AT TWO ADJACENT WALLS WITH CLEARANCE BETWEEN THE WALL AND THE RUNNERS MAINTAINED AT THE OTHER TWO WALLS.

C. VERTICAL SUPPORT SHALL BE PROVIDED AS REQUIRED IN UBC STANDARD, WITH THE ADDED REQUIREMENT THAT DISCONTINUOUS ENDS OF CROSS RUNNERS AND MAIN RUNNERS SHALL BE VERTICALLY SUPPORTED WITHIN 6" OF SUCH DISCONTINUITIES AS MAY OCCUR WHEN THE CEILING IS DISRUPTED BY A WALL.

D. LIGHTING FIXTURES AND AIR DIFFUSERS SHALL BE SUPPORTED DIRECTLY BY WIRES TO THE STRUCTURE ABOVE.

EXCEPTION: SECTION 25.213-LIGHTING FIXTURES

1. INTERMEDIATE OR HEAVY DUTY CEILING SYSTEMS AS DEFINED IN SECTION 47.1802 SHALL BE USED FOR THE SUPPORT OF LIGHT FIXTURES.

2. ALL LIGHTING FIXTURES SHALL BE POSITIVELY ATTACHED TO THE SUSPENDED CEILING SYSTEMS. THE ATTACHMENT DEVICE SHALL HAVE A CAPACITY OF 100% OF THE LIGHTING FIXTURE WEIGHT ACTING IN ANY DIRECTION.

3. WHEN INTERMEDIATE SYSTEMS ARE USED, NO. 12 GAUGE (2.7MM) HANGERS SHALL BE ATTACHED TO THE GRID MEMBERS WITHIN 3" (76MM) OF EACH CORNER OF EACH FIXTURE. TANDEM FIXTURES MAY USE COMMON WIRES.

4. WHEN HEAVY DUTY SYSTEMS ARE USED, SUPPLEMENTAL HANGERS ARE NOT REQUIRED IS A 48 INCH (1219MM) MODULAR HANGER PATTERN IS FOLLOWED. WHEN CROSS RUNNERS ARE USED WITHOUT SUPPLEMENTAL HANGERS TO SUPPORT LIGHTING FIXTURES, THESE CROSS RUNNERS SHALL PROVIDE THE SAME CARRYING CAPACITY AS THE MAIN RUNNERS.

5. LIGHTING FIXTURES WEIGHING LESS THAN 56 POUNDS (25.4KG) SHALL HAVE, IN ADDITION TO THE REQUIREMENTS ABOVE, TWO NO. 12 GAUGE (2.7MM) HANGERS CONNECTED FROM THE FIXTURE HOUSING TO THE STRUCTURE ABOVE. THESE WIRES MAY BE SLACK.

6. LIGHTING FIXTURES WEIGHING 56 POUNDS (25.4KG) OR MORE SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE ABOVE BY APPROVED HANGERS.

7. PENDANT HUNG LIGHTING FIXTURES SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE ABOVE WITH NO. 9 GAUGE (3.8MM) WIRE OR APPROVED ALTERNATE SUPPORT WITHOUT USING THE CEILING SYSTEM FOR DIRECT SUPPORT.

8. AIR DIFFUSERS WHICH WEIGH NOT MORE THAN 20 POUNDS AND WHICH RECEIVE NO TRIBUTARY LOADING FROM DUCTWORK MAY BE POSITIVELY ATTACHED TO AND SUPPORTED BY THE CEILING.

9. WHERE THE CEILING SYSTEM PROVIDES LATERAL SUPPORT FOR NON-BEARING PARTITIONS, IT SHALL BE DESIGNED FOR THE SPECIFIED LATERAL FORCES IN ACCORDANCE WITH THE UBC STANDARDS.

10. OTHER METHODS MAY BE USED PROVIDED THEY ARE SUBSTANTIATED BY DESIGN CALCULATION. THE APPROVED BUILDING PLANS SHALL IDENTIFY ALL ELEMENTS AND SHAW ALL DETAILS OF THE PROPOSED ASSEMBLY.

11. RIGID VERTICAL SUPPORT, AS SHOWN IN THE SECTION, SHALL BE FASTENED TO THE MAIN RUNNER AND SHALL EXTEND TO THE STRUCTURAL MEMBERS SUPPORTING THE ROOF OR FLOOR ABOVE. THE STRUT SHALL BE ADEQUATE TO RESIST THE VERTICAL COMPONENT INDUCED BY THE BRACING WIRES AND SHALL HAVE AN L/R RATIO OF LESS THAN 200. THESE RESTRAINT POINTS SHALL BE PLACED AT 12'-0" ON CENTER IN BOTH DIRECTIONS WITH THE FIRST POINT WITHIN 6'-0" FROM EACH WALL.

COMPRESSION PIPE STRUT SIZE SCHEDULE (BASED ON L/R<200)	
SIZE	MAX. HEIGHT
1/2" x 22 GA.	3'-0"
3/4" x 22 GA.	4'-0"
1" x 20 GA.	6'-0"
1-1/4" x 20 GA.	7'-0"
1 1/2" x 20 GA.	8'-6"
2" x 20 GA.	11'-6"
2 1/2" x 18 GA.	14'-6"
3" x 18 GA.	17'-3"
3 1/2" x 16 GA.	23'-3"

NOTE:  
ALL 24"x48" CEILING LIGHT FIXTURES & 24"x24" HVAC AIR REGISTERS SHALL BE SUPPORTED BY A MIN OF (2) TWO HANGERS AT OPPOSITE CORNERS. CEILING SYSTEM SHALL NOT SUPPORT OTHER ITEMS.

12 GA. WIRE SPLAYED IN FOUR DIRECTION 90° APART AT 12'-0" O.C. EACH WAY

12 GA. VERTICAL WIRE HANGERS AT 4'-0" O.C. EACH WAY TYP.

MAIN RUNNER

CROSS RUNNER

RIGID VERTICAL STRUT (MAY BE STEEL STUD, BLACK IRON, EMT OR WOOD STUD (IN COMBUSTIBLE CONSTRUCTION TYPES ONLY) OR OTHER APPROVED EQUAL)

MAX. TYP.

12" TYP.

MAX. TYP.

DISTANCE FROM BRACING WIRES TO CROSS RUNNERS

MAX. FROM WALL

WALL AT ACCESS FLOOR

SCALE: 1/4"=1'-0"

8

FIN.FLR.

PER STRUCTURAL

WALL PER LEGEND

COMPUTER FLOORING PER FINISH SCHEDULE AND SPECIFICATIONS

STEEL ANGLE BY ACCESS FLOOR MANUFACTURER, ATTACH TO STUDS

INVERTED TRACK, INSTALL BETWEEN STUDS, ATTACH TO BOTTOM TRACK WITH #8's @ 8" O.C., EACH SIDE

EXTEND STUD TO BOTTOM OF RECESSED SLAB

BOTTOM TRACK

PIPE PENETRATION

SCALE: 1 1/2"=1'-0"

7

STEEL STUDS TO BE MINIMUM 2 1/2" WIDE

MINIMUM 1/2" DEPTH HILTI CP 606 FLEXIBLE FIRESTOP SEALANT

GYPSUM WALL ASSEMBLY (UL/ULC CLASSIFIED U300 OR U400 SERIES) (1 HOUR OR 2 HOUR FIRE RATING-2 HOUR SHOWN)

MINIMUM 1/4" BEAD HILTI CP 606 FLEXIBLE FIRESTOP SEALANT AT POINT OF CONTACT OR WHERE ANNULAR SPACE IS 1/8" OR LESS

PENETRATING ITEM TO BE ONE OF THE FOLLOWING:  
A. MAX. 4" DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER)  
B. MAX. 4" DIAMETER CAST IRON PIPE  
C. MAX. 4" NOMINAL DIAMETER STEEL CONDUIT  
D. MAX. 4" NOMINAL DIAMETER EMT

NOTES  
1. MAXIMUM DIAMETER OF OPENING 5"  
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1/2"

INSTALLATION SHALL CONFORM TO UL W-L-1290 OR W-L-1304

WALL TYPES

SCALE: 1 1/2"=1'-0"

3

NEW

5 1/4"

EXTERIOR

(E) VERTICAL RIBBED METAL WALL PANEL

(E) GIRT PER PEMB

FINISH PER SCHEDULE

2 LAYERS 1/2" FIRECORE GYPSUM BOARD

R-11 INSULATION

1" SHEETROCK LINER PANELS

4" C-T METAL STUDS @ 16" O.C.

RATING- 2 HOUR  
UL DESIGN NO.- U415

PEMB WALL

SCALE: 1 1/2"=1'-0"

1

EXTERIOR

RIBBED METAL WALL PANEL PER PEMB

GIRT PER PEMB

5/8" GYPSUM BOARD

~~R-11 INSULATION~~

VERTICAL HAT CHANNELS @ 24" O.C.

6" VINYL FACED BATT INSULATION R-19

PEMB PLUMBING WALL

SCALE: 1 1/2"=1'-0"

4

EXTERIOR

1'-0"

VERTICAL RIBBED METAL WALL PANEL PER PEMB

GIRT PER PEMB

FINISH PER SCHEDULE

5/8" WATER RESISTANT GYPSUM BOARD

~~R-11 INSULATION~~

400S162-33 METAL STUDS @ 16" O.C.

ACCESS FLOOR DETAIL

SCALE: N.T.S.

5

WALL PER LEGEND

FURRED WALL PER LEGEND

FIELD CUT TO FIT ACCESS FLOOR OPENING

STEEL ANGLE BY ACCESS FLOOR MANUFACTURER

ACCESS FLOOR FINISH PER FINISH SCHEDULE AND SPECIFICATIONS

CONCRETE FOUNDATION PER STRUCTURAL

PER PLAN

ACCESS FLOOR SUPPORT SYSTEM PER SPECIFICATIONS

SEISMIC BRACES AS REQUIRED

NOT LIKE THIS

LIKE THIS

SUSPENDED CEILING DETAIL

SCALE: 1/4"=1'-0"

8

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MAIN RUNNER

CROSS RUNNER

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MAX. TYP.

12" TYP.


MAX. TYP.

DISTANCE FROM BRACING WIRES TO CROSS RUNNERS

MAX. FROM WALL

LOS ANGELES  
DEPARTMENT OF WATER AND POWER

HAYNES GENERATING STATION  
UNITS 11-16



Kiewit Power  
3401 Harper Boulevard  
Lawrence, Kansas 66044

STRUCTURAL ENGINEERS:  
**J. MILCZEWSKY  
and ASSOCIATES**

3275 E. DATE ST.  
BREA, CA. 92823

(714) 335-1289 BUS  
(714) 494-8012 FAX

JOB NUMBER 10-048

CONTROL BUILDING  
DETAILS

DESIGNED —  
DRAWN BAP  
CHECKED JAM  
APPROVED —

DRAWING NUMBER  
**AD1.2**

DWP DRAWING NUMBER

REGISTERED PROFESSIONAL ENGINEER  
J. MILCZEWSKY  
No. 53450  
Exp. 3-31-13  
STATE OF CALIFORNIA

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