1. CEILING NOTES: THE FOLLOWING NOTES WILL BE ACCEPTABLE IN PLANS AND SPECIFICATIONS FOR CEILING SYSTEMS WHOSE TOTAL WEIGHT. INCLUDING AIR CONDITIONING/HEATING GRILLS AND LIGHT FIXTURES, DOES NOT EXCEED TWO (2) PSF HEAVIER SYSTEMS, AND THOSE SUPPORTING LATERAL LOADS FROM PARTITIONS, WILL

REQUIRE SPECIAL DESIGN DETAILS. ALSO, SEE IR 25-3 FOR HEAVIER SYSTEMS.

1.1 #12 GAGE (MIN.) HANGER WIRES MAY BE USED FOR UP TO AND INCLUDING 4 FT. BY 4 FT. GRID SPACING AND SHALL BE ATTACHED TO MAIN RUNNERS.

1.2 PROVIDE #12 GAGE HANGER WIRES AT THE ENDS OF ALL MAIN AND CROSS RUNNERS WITHIN EIGHT (8) INCHES OF THE SUPPORT OR WITHIN ONE-FOURTH (1/4) OF THE LENGTH OF THE END TEE, WHICHEVER IS LEAST, FOR THE PERIMETER OF THE CEILING AREA. END CONNECTIONS FOR RUNNERS WHICH ARE DESIGNED AND DETAILED TO RESIST THE APPLIED VERTICAL AND HORIZONTAL FORCES MAY BE USED IN LIEU OF THE #12 GAGE HANGER WIRES, SUBJECT TO DIVISION OF THE STATE ARCHITECT (DSA) REVIEW AND APPROVAL.

1.3 PROVIDE TRAPEZE OR OTHER SUPPLEMENTARY SUPPORT MEMBERS AT OBSTRUCTIONS TO TYPICAL HANGER SPACING. PROVIDE ADDITIONAL HANGERS, STRUTS OR BRACES AS REQUIRED AT ALL CEILING BREAKS, SOFFITS OR DISCONTINUOUS AREAS. HANGER WIRES THAT ARE MORE THAN 1 IN 6 OUT OF PLUMB ARE TO HAVE COUNTER-SLOPING WIRES.

1.4 CEILING GRID MEMBERS MAY BE ATTACHED TO NOT MORE THAN TWO (2) ADJACENT WALLS. CEILING GRID MEMBERS SHALL BE AT LEAST 1/2 INCH CLEAR OF OTHER WALLS. IF WALLS RUN DIAGONALLY TO CEILING GRID SYSTEM RUNNERS, ONE END OF MAIN AND CROSS RUNNERS SHOULD BE FREE, AND A MINIMUM OF 1/2 INCH CLEAR OF WALL.

1.5 AT THE PERIMETER OF THE CEILING AREA WHERE MAIN OR CROSS RUNNERS ARE NOT CONNECTED TO THE ADJACENT WALL, PROVIDE INTERCONNECTION BETWEEN THE RUNNERS AT THE FREE END TO PREVENT LATERAL SPREADING. A METAL STRUT OR A #16 GAGE WIRE WITH A POSITIVE MECHANICAL CONNECTION TO THE RUNNER MAY BE USED. WHERE THE PERPENDICULAR DISTANCE FROM THE WALL TO THE FIRST PARALLEL RUNNER IS 12 INCHES OR LESS, THIS INTERLOCK IS NOT REQUIRED.

1.6 PROVIDE BRACING ASSEMBLIES CONSISTING OF A COMPRESSION STRUT AND FOUR (4) # 12 GAGE SPLAYED BRACING WIRES ORIENTED 90 DEGREES FROM EACH OTHER (SEE FIGURE 1) AT THE FOLLOWING SPACING:

1. FOR SCHOOL BUILDINGS, PLACE BRACING ASSEMBLIES AT A SPACING NOT MORE THAN 12 FT. BY 12 FT. ON CENTER.

2. FOR ESSENTIAL SERVICES BUILDINGS, PLACE BRACING ASSEMBLIES NOT MORE THAN 8 FT. BY 12 FT. ON CENTER.

3. PROVIDE BRACING ASSEMBLIES AT LOCATIONS NOT MORE THAN ONE HALF (1/2) THE SPACINGS GIVEN ABOVE, FROM EACH PERIMETER WALL AND AT THE EDGE OF VERTICAL CEILING OFFSETS. THE SLOPE OF THESE WIRES SHALL NOT EXCEED 45 DEGREES FROM THE PLANE OF THE CEILING AND SHALL BE TAUT. SPLICES IN BRACING WIRES ARE NOT TO BE PERMITTED WITHOUT SPECIAL DSA APPROVAL.

4. SUSPENDED ACOUSTICAL CEILING SYSTEMS WITH A CEILING AREA OF 144 SQUARE FEET OR LESS. AND FIRE RATED SUSPENDED ACOUSTICAL CEILING SYSTEMS WITH A CEILING AREA OF 96 SQUARE FEET OR LESS, SURROUNDED BY WALLS WHICH CONNECT DIRECTLY TO THE STRUCTURE ABOVE, DO NOT REQUIRE BRACING ASSEMBLIES WHEN ATTACHED TO TWO ADJACENT WALLS.

1.7 FASTEN HANGER WIRES WITH NOT LESS THAN THREE (3) TIGHT TURNS. FASTEN BRACING WIRES WITH FOUR (4) TIGHT TURNS. MAKE ALL TIGHT TURNS WITHIN A DISTANCE OF 1-1/2 INCHES. HANGER OR BRACING WIRE ANCHORS TO THE STRUCTURE SHOULD BE INSTALLED IN SUCH A MANNER THAT THE DIRECTION OF THE ANCHOR ALIGNS AS CLOSELY AS POSSIBLE WITH THE DIRECTION OF THE WIRE.

NOTE: WIRE TURNS MADE BY MACHINE WHERE BOTH STRANDS HAVE BEEN DEFORMED OR BENT IN WRAPPING CAN WAIVE THE 1-1/2 INCH REQUIREMENT, BUT THE NUMBER OF TURNS SHOULD BE MAINTAINED, AND BE AS TIGHT AS POSSIBLE.

1.8 SEPARATE ALL CEILING HANGER AND BRACING WIRES AT LEAST SIX (6) INCHES FROM ALL UNBRACED DUCTS, PIPES, CONDUIT, ETC.

1.9 WHEN DRILLED-IN CONCRETE ANCHORS OR SHOT-IN ANCHORS ARE USED IN REINFORCED CONCRETE FOR HANGER WIRES. 1 OUT OF 10 MUST BE FIELD TESTED FOR 200 LBS. IN TENSION. WHEN DRILLED-IN CONCRETE ANCHORS ARE USED FOR BRACING WIRES, 1 OUT OF 2 MUST BE FIELD TESTED FOR 440 LBS. IN TENSION. SHOT-IN ANCHORS IN CONCRETE ARE NOT PERMITTED FOR BRACING WIRES. IF ANY SHOT-IN OR DRILLED-IN ANCHOR FAILS, SEE

NOTE: DRILLED-IN OR SHOT-IN ANCHORS REQUIRE SPECIAL DSA APPROVAL PRIOR TO USE IN PRESTRESSED CONCRETE.

1.10 ATTACH ALL LIGHT FIXTURES AND CEILING MOUNTED AIR TERMINALS. TO THE CEILING GRID RUNNERS TO RESIST A HORIZONTAL FORCE EQUAL TO THE WEIGHT OF THE FIXTURES SCREWS OR APPROVED FASTENERS ARE REQUIRED.

1.11 FLUSH OR RECESSED LIGHT FIXTURES AND AIR TERMINALS, WEIGHING LESS THAN 56 LBS., MAY BE SUPPORTED DIRECTLY ON THE RUNNERS OF A HEAVY DUTY GRID SYSTEM BUT, IN ADDITION, THEY MUST HAVE A MINIMUM OF TWO (2) #12 GAGE SLACK SAFETY WIRES ATTACHED TO THE FIXTURE AT DIAGONAL CORNERS AND ANCHORED TO THE STRUCTURE ABOVE. ALL 4 FT. X 4 FT. LIGHT FIXTURES MUST HAVE SLACK SAFETY WIRES AT EACH CORNER. ALL FLUSH OR RECESSED LIGHT FIXTURES AND AIR TERMINALS WEIGHING 56 LBS. OR MORE MUST BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN FOUR (4) TAUT #12 GAGE WIRES, EACH ATTACHED TO THE FIXTURE AND TO THE STRUCTURE ABOVE REGARDLESS OF THE TYPE OF CEILING GRID SYSTEM USED.

THE FOUR (4) TAUT #12 GAGE WIRES, INCLUDING THEIR ATTACHMENT TO THE STRUCTURE ABOVE, MUST BE CAPABLE OF SUPPORTING FOUR (4) TIMES THE WEIGHT OF THE UNIT.

1.12 ALL FIXTURES AND AIR TERMINALS SUPPORTED ON INTERMEDIATE DUTY GRID SYSTEMS MUST BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN FOUR (4) TAUT #12 GAGE WIRES EACH ATTACHED TO THE FIXTURE OR TERMINAL, AND TO THE STRUCTURE

1.13 SUPPORT SURFACE MOUNTED LIGHT FIXTURES BY AT LEAST TWO POSITIVE DEVICES WHICH SURROUND THE CEILING RUNNER AND WHICH ARE EACH SUPPORTED FROM THE STRUCTURE ABOVE BY A #12 GAGE WIRE. SPRING CLIPS OR CLAMPS THAT CONNECT ONLY TO THE RUNNER ARE NOT ACCEPTABLE. PROVIDE ADDITIONAL SUPPORTS WHEN LIGHT FIXTURES ARE 8 FT. OR LONGER.

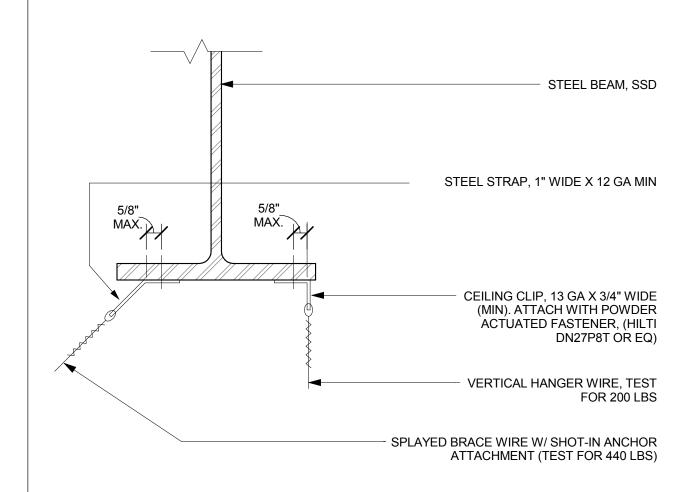
1.14 SUPPORT PENDANT MOUNTED LIGHT FIXTURES DIRECTLY FROM THE STRUCTURE ABOVE WITH HANGER WIRES OR CABLES PASSING THROUGH EACH PENDANT HANGER AND CAPABLE OF SUPPORTING FOUR (4) TIMES THE WEIGHT OF THE FIXTURE. A BRACING ASSEMBLY, PER DETAIL 2/ SHEET A CDET9.8, IS REQUIRED WHERE THE PENDANT HANGER PENETRATES THE CEILING. SPECIAL DETAILS ARE REQUIRED TO ATTACH THE PENDANT HANGER TO THE BRACING ASSEMBLY TO TRANSMIT HORIZONTAL FORCES.

1.15 REQUIRED NOTES ON CONSTRUCTION DOCUMENTS:

CLASSIFICATION OF CEILING GRID IS HEAVY DUTY.

MANUFACTURER'S CATALOG NUMBER: USG DGLW-26. MANUFACTURER'S CATALOG NUMBER: USG.DGLW-424 MANUFACTURER'S CATALOG NUMBER OF DETAIL FOR RUNNER SPLICE: USG DGSC-180

18 SUSP ACT CLG NOTES



WIRE CONNECTION AT BEAM

3.2 VERTICAL SUPPORT SYSTEM.

1. MATERIALS: MATERIALS ARE TO COMPLY WITH APPLICABLE UBC STANDARDS. GYPSUM BOARD IS EITHER 1/2 INCH OR 5/8 INCH IN THICKNESS.

2. DESIGN: FOR LATERAL LOAD, REFER TO CBC, SECTION 1632A. THE WEIGHT OF THE SUSPENDED CEILING SHALL NOT BE LESS THAN FOUR (4) POUNDS PER SQUARE FOOT FOR DESIGNPURPOSES.

3. DETAILS OF CONSTRUCTION. 3.1 GENERAL: GYPBOARD CEILINGS SHOULD NOT SUPPORT BUILDING COMPONENTS OTHER THAN AIR CONDITIONING/HEATING GRILLS OR LIGHT FIXTURES. ALL SUCH COMPONENTS SHALL BE SUPPORTED EITHER DIRECTLY FROM MAIN RUNNERS, OR BY SUPPLEMENTAL FRAMING WHICH IS SUPPORTED BY MAIN NO VERTICAL LOADS OTHER THAN GYPSUM BOARD DEAD LOAD SHALL BE APPLIED TO CROSS-

3.2.1 THERE ARE MANY POSSIBLE VARIATIONS OF HANGER AND MAIN RUNNER SIZES AND SPACINGS LISTED IN CBC. TABLE NO. 25A-A. AND ALL OF THE COMBINATIONS ARE ACCEPTABLE. HOWEVER. THE MAIN RUNNERS THAT ARE MOST FREQUENTLY USED ARE 1-1/2 INCH COLD ROLLED CHANNELS, 0.475 LBS/FT. THIS IS ACCEPTABLE PROVIDED THE FOLLOWING REQUIREMENTS ARE MET:

1. VERTICAL HANGER WIRES ARE #9 GAGE AND GALVANIZED SOFT-ANNEALED STEEL 2. CROSS-FURRING MAY BE 7/8 INCH, 25 GAGE GALVANIZED HAT SECTIONS AT 24 INCHES O.C. MAX. 3. IF MAIN RUNNERS ARE SPACED AT 4'-0" O.C., HANGER WIRES SHALL BE SPACED AT 3'-0" O.C. MAX. IF MAIN RUNNERS ARE SPACED AT 3'-6" O.C., HANGER WIRES SHALL BE SPACED AT 3'-6" O.C. MAX.

IF MAIN RUNNERS ARE SPACED AT 3'-0" O.C., HANGER WIRES SHALL BE SPACED AT 4'-0" O.C. MAX. TO USE A MAIN RUNNER SPACING OF 4'-0" O.C. WITH A HANGER SPACING OF 4'-0" O.C., MAIN RUNNERS MUST BE 1-1/2 INCH HOT ROLLED CHANNELS WEIGHING 1.12 LBS/FT. ALSO, #8 GAGE GALVANIZED HANGER WIRES WOULD BE REQUIRED.

3.2.2 THE FOLLOWING REQUIREMENTS APPLY TO ALL WIRE HANGER/RUNNER COMBINATIONS: 1. HANGERS SHOULD BE SADDLE-TIED AROUND MAIN RUNNERS TO DEVELOP THE FULL STRENGTH OF THE

2. CROSS-FURRING SHOULD BE SADDLE-TIED TO THE MAIN RUNNERS WITH ONE STRAND OF #16 GAGE, OR TWO STRANDS OF #18 GAGE TIE WIRE.

3. MAIN RUNNERS SHOULD BE SPLICED BY LAPPING AND INTERLOCKING FLANGES 12 INCHES MINIMUM AND TYING NEAR EACH END WITH DOUBLE LOOPS OF #16 GAGE WIRE. 4. CROSS-FURRING SHOULD BE SPLICED BY LAPPING AND INTERLOCKING THE PIECES EIGHT (8) INCHES

MINIMUM AND TYING NEAR EACH END WITH DOUBLE LOOPS OF #16 GAGE WIRE. 3.2.3 FASTEN HANGER WIRES WITH NOT LESS THAN THREE (3) TIGHT TURNS. FASTEN BRACING WIRES WITH FOUR (4) TIGHT TURNS. MAKE ALL TIGHT TURNS WITHIN A DISTANCE OF 1-1/2 INCHES. HANGER OR BRACING WIRE ANCHORS TO THE STRUCTURE SHOULD BE INSTALLED IN SUCH A MANNER THAT THE DIRECTION OF THE ANCHOR ALIGNS AS CLOSELY AS POSSIBLE WITH THE DIRECTION OF THE WIRE.

NOTE: WIRE TURNS MADE BY MACHINE WHERE BOTH STRANDS HAVE BEEN DEFORMED OR BENT IN WRAPPING CAN WAIVE THE 1-1/2 INCH REQUIREMENT, BUT THE NUMBER OF TURNS SHOULD BE MAINTAINED, AND BE AS TIGHT AS POSSIBLE.

SEPARATE ALL CEILING HANGER AND BRACING WIRES AT LEAST SIX (6) INCHES FROM ALL UNBRACED DUCTS, PIPES, CONDUIT, ETC.

WHEN DRILLED-IN CONCRETE ANCHORS OR SHOT-IN ANCHORS ARE USED IN REINFORCED CONCRETE FOR HANGER WIRES, 1 OUT OF 10 MUST BE FIELD TESTED FOR 200 LBS. IN TENSION.

WHEN DRILLED-IN CONCRETE ANCHORS ARE USED FOR BRACING WIRES, 1 OUT OF 2 MUST BE FIELD TESTED FOR 440 LBS IN TENSION. SHOT-IN ANCHORS IN CONCRETE ARE NOT PERMITTED FOR BRACING WIRES. IF ANY SHOT-IN OR DRILLED-IN ANCHOR FAILS, SEE SECTION 1923A.3.5, TITLE 24.

PROVIDE TRAPEZE OR OTHER SUPPLEMENTARY SUPPORT MEMBERS AT OBSTRUCTIONS TO TYPICAL HANGER SPACING. PROVIDE ADDITIONAL HANGERS, STRUTS OR BRACES AS REQUIRED AT ALL CEILING BREAKS, SOFFITS OR DISCONTINUOUS AREAS. HANGER WIRES THAT ARE MORE THAN 1 IN 6 OUT OF PLUMB

NOTE: DRILLED-IN OR SHOT-IN ANCHORS REQUIRE SPECIAL DSA APPROVAL WHEN USED IN PRESTRESSED

4. SUPPORT AND ANCHORAGE OF LIGHT FIXTURES AND MECHANICAL

ARE TO HAVE COUNTER-SLOPING WIRES.

4.1 ALL RECESSED OR DROP-IN LIGHT FIXTURES, AS WELL AS CEILING MOUNTED MECHANICAL AIR TERMINALS AND SERVICES, SHALL BE SUPPORTED DIRECTLY BY MAIN RUNNERS OR BY SUPPLEMENTAL FRAMING WHICH IS SUPPORTED BY MAIN RUNNERS AND POSITIVELY ATTACHED WITH SCREWS OR OTHER APPROVED CONNECTORS.

4.2 SURFACE MOUNTED FIXTURES SHALL BE ATTACHED TO A MAIN RUNNER WITH A POSITIVE CLAMPING DEVICE MADE OF MATERIAL WITH A MINIMUM OF 14 GAGE. ROTATIONAL SPRING CLAMPS DO NOT COMPLY. 5. LATERAL SYSTEM:

5.1 WIRE BRACE SYSTEM. PROVIDE BRACING ASSEMBLIES, PER FIGURE 1 OF IR 25-2, AS DETERMINED BY CALCULATIONS, WITH THE FOLLOWING LIMITATIONS:

1. FOR SCHOOL BUILDINGS. PLACE BRACING ASSEMBLIES AT A SPACING NOT MORE THAN 12 FT. BY 12 FT. 2. FOR ESSENTIAL SERVICES BUILDINGS. PLACE BRACING ASSEMBLIES NOT MORE THAN 8 FT. BY 12 FT.

3. PROVIDE BRACING ASSEMBLIES AT NOT MORE THAN SIX (6) FEET FROM EACH PERIMETER WALL AND AT THE EDGE OF VERTICAL CEILING OFFSETS. THE SLOPE OF BRACING WIRES SHALL NOT EXCEED 45 DEGREES FROM THE PLANE OF THE CEILING AND

SHALL BE TAUT. SPLICES IN BRACING WIRES ARE NOT TO BE PERMITTED WITHOUT SPECIAL DSA

4. CEILING GRID MEMBERS MAY BE ATTACHED TO NOT MORE THAN TWO (2) ADJACENT WALLS. CEILING GRID MEMBERS SHALL BE AT LEAST 1/2" INCH FREE OF OTHER WALLS. IF WALLS RUN DIAGONALLY TO CEILING

GRID SYSTEM RUNNERS, ONE END OF MAIN AND CROSS RUNNERS SHOULD BE FREE, AND A MINIMUM OF 1/2" INCH CLEAR OF WALL. 5. SUSPENDED CEILING SYSTEMS WITH AN AREA OF 144 SQUARE FEET OR LESS, AND FIRE RATED CEILING SYSTEMS WITH AN AREA OF 96 SQUARE FEET OR LESS, SURROUNDED BY WALLS WHICH CONNECT

LEAST TWO ADJACENT WALLS. 5.2 ALTERNATE SYSTEM: DESIGN AS A DIAPHRAGM, SIMILAR TO PLYWOOD DIAPHRAGM CONCEPT, SUBJECT TO ACCEPTANCE BY THE DSA REGIONAL OFFICE.

DIRECTLY TO THE STRUCTURE ABOVE, DO NOT REQUIRE BRACING ASSEMBLIES WHEN ATTACHED TO AT

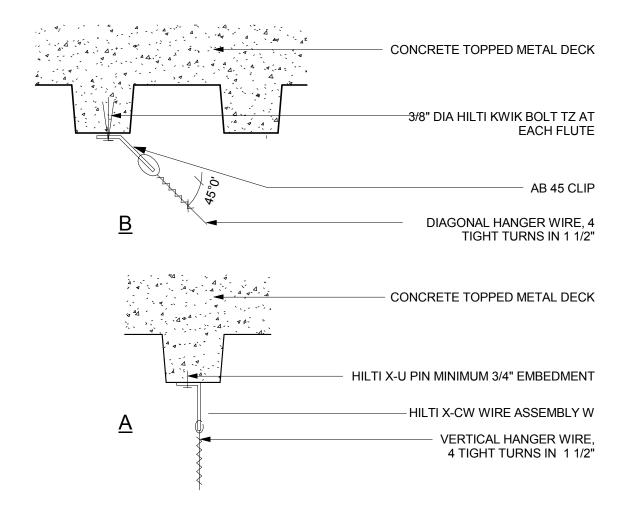
HORIZONTAL 2:1 MAXIMUM VERTICAL 1:1 MAXIMUM

5.2.1 DIAPHRAGM RATIOS:

5.2.2 A MAXIMUM DIAPHRAGM SHEAR EQUAL TO 50 LBS./FT. IS ALLOWED WITH 1 INCH OR 1-1/4 INCH HI-LO TYPE S, OR S-12, BUGLE HEAD SCREWS AT 12 INCHES O.C. AT ALL GYPSUM BOARD EDGES (3/8 INCH SCREW EDGE DISTANCE) AND AT ALL INTERMEDIATE SUPPORTS. A WALL CONSTRUCTED SIMILARLY CAN RESIST THE SAME SHEAR FORCE PROVIDED THE GYPSUM BOARD IS ON THE SAME SIDE OF THE STUDS AS THE CEILING IS, AND A POSITIVE CONNECTION BETWEEN THE CEILING AND THE WALL IS DETAILED. THE GYPSUM BOARD DIAPHRAGMS ARE TO RESIST LATERAL LOADS DUE TO THEIR OWN WEIGHT AND/OR THE CEILING DIAPHRAGM

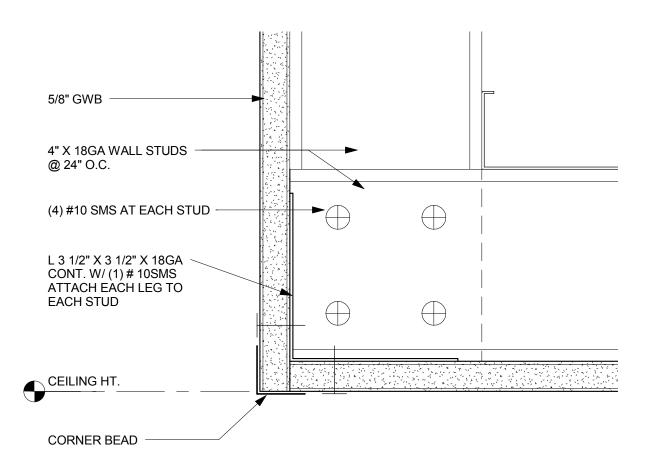
5.2.3 DETAILS ARE REQUIRED PROVIDING FOR LATERAL LOAD TRANSFER FROM THE GYPSUM BOARD TO SHEAR WALLS, OR OTHER LATERAL LOAD RESISTING ELEMENTS, ON ALL FOUR SIDES OF THE DIAPHRAGM.

GYP BD CEILING SUSPENSION NOTES $10^{3'' = 1'-0''}$ SUSPENDED GYP. BD. CLG 3'' = 1'-0''

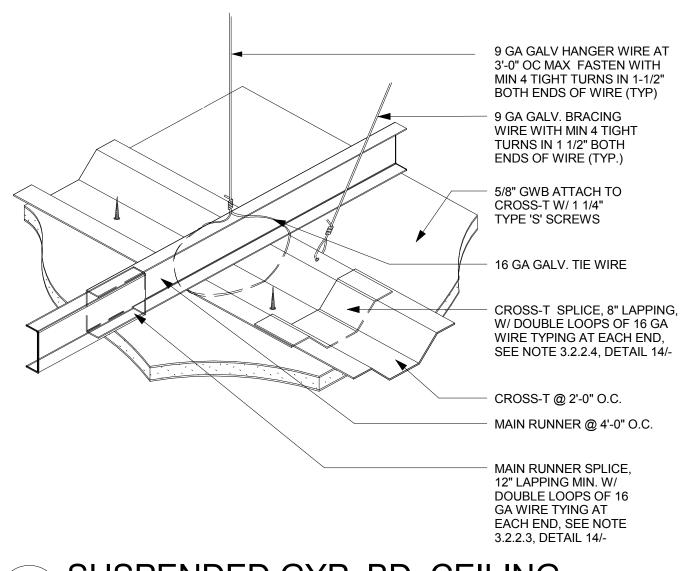


NOTE: SEE 18/- ITEM 1.9 FOR TESTING REQUIREMENTS

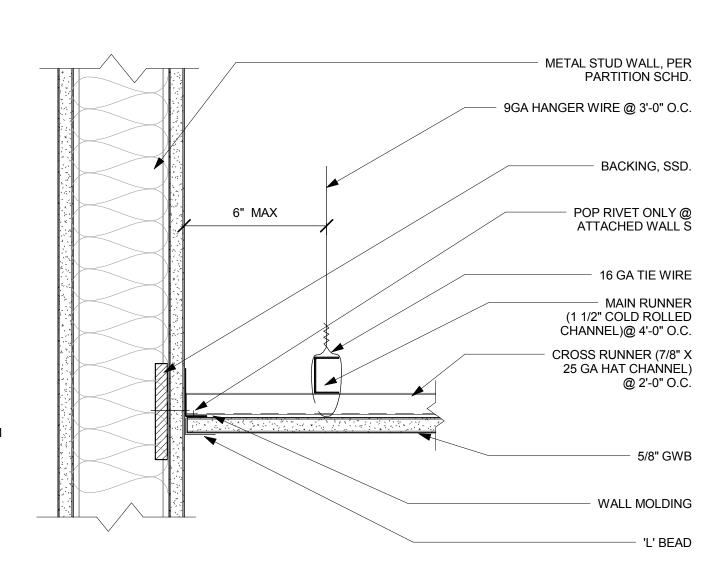
WIRE CONNECTION AT CONC. DECK

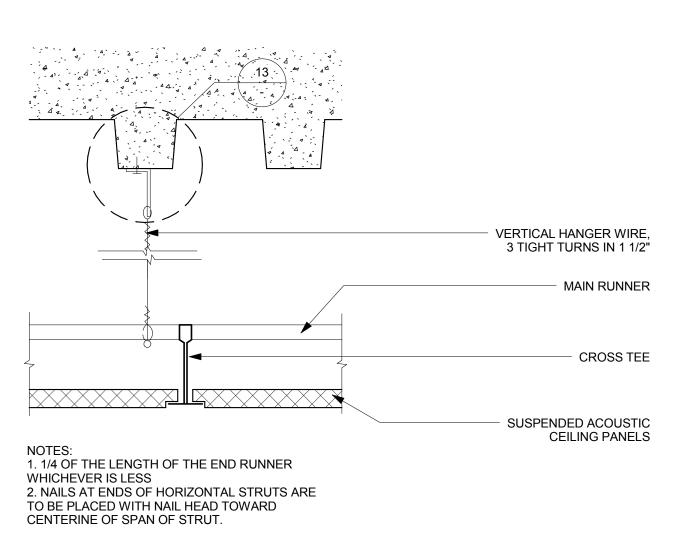


BRACING IS NOT SHOWN FOR CLARIFICATION

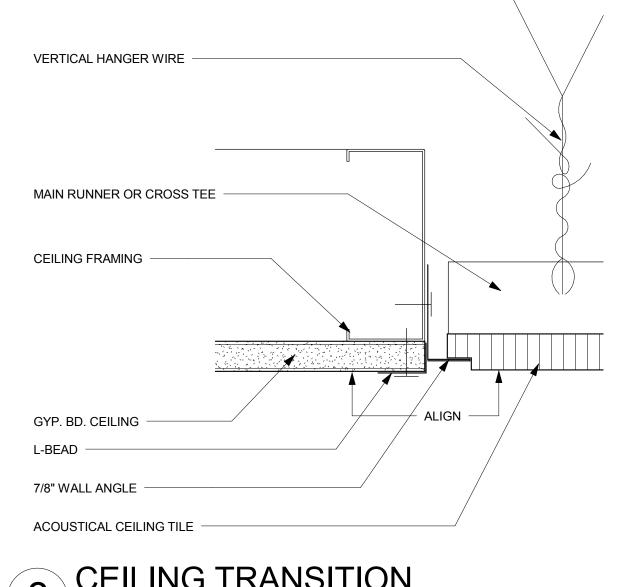


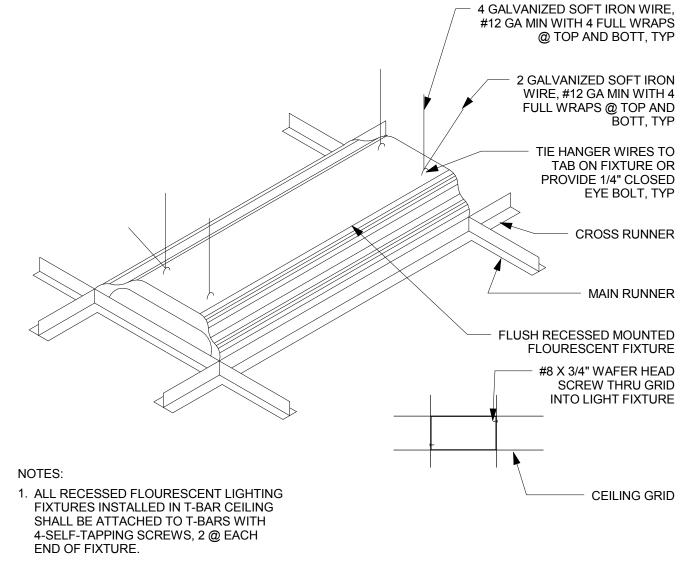
SUSPENDED GYP. BD. CEILING



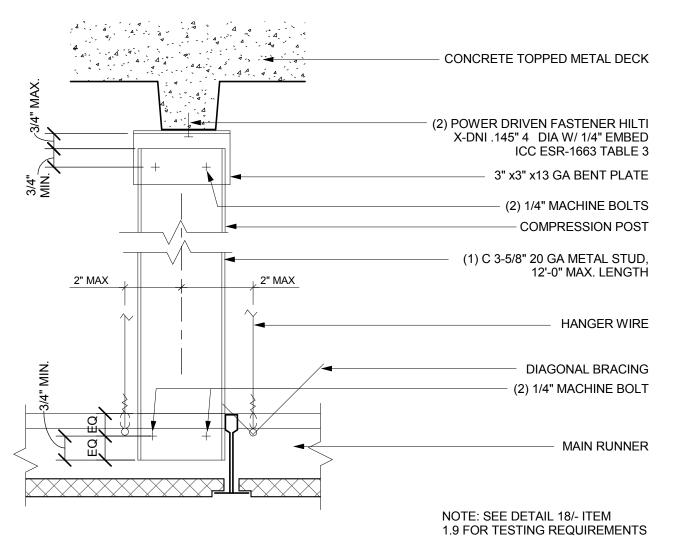


9 SUSP CLG CONNECTION
3" = 1'-0"

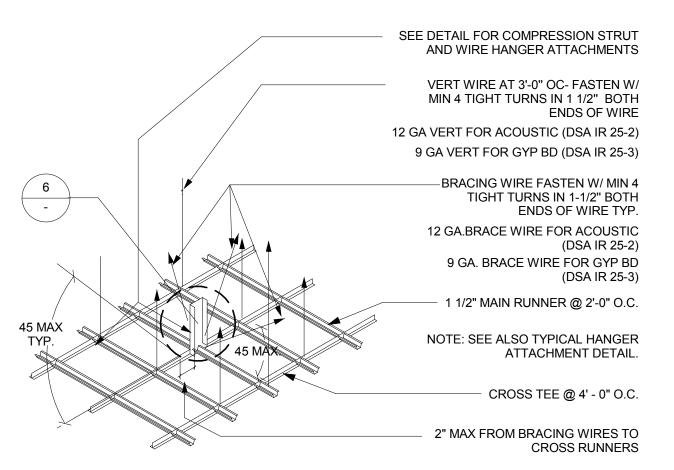




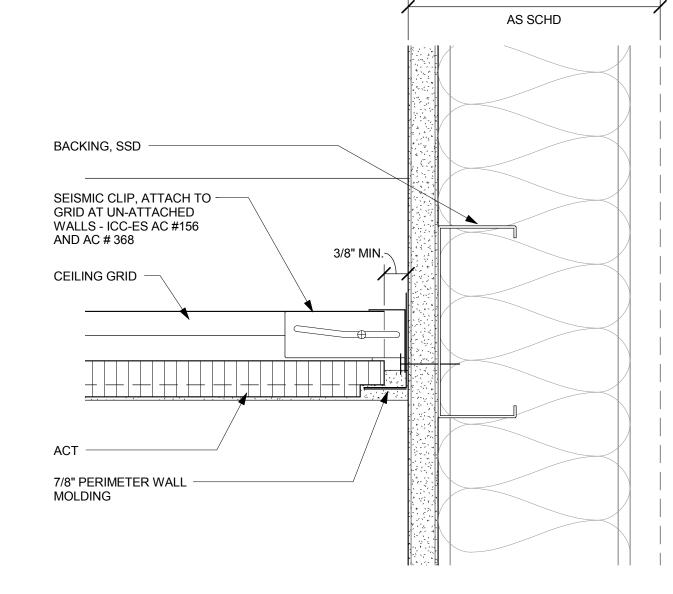
SUSP LIGHT FIXTURE



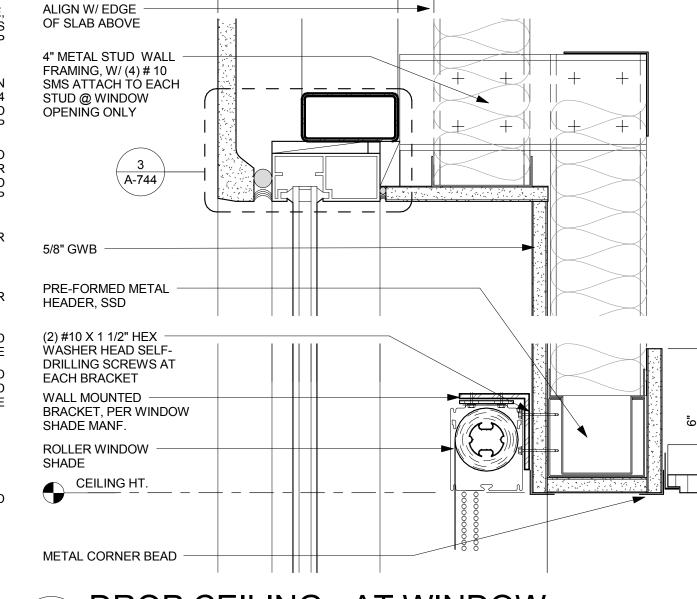
COMPRESSION STRUT



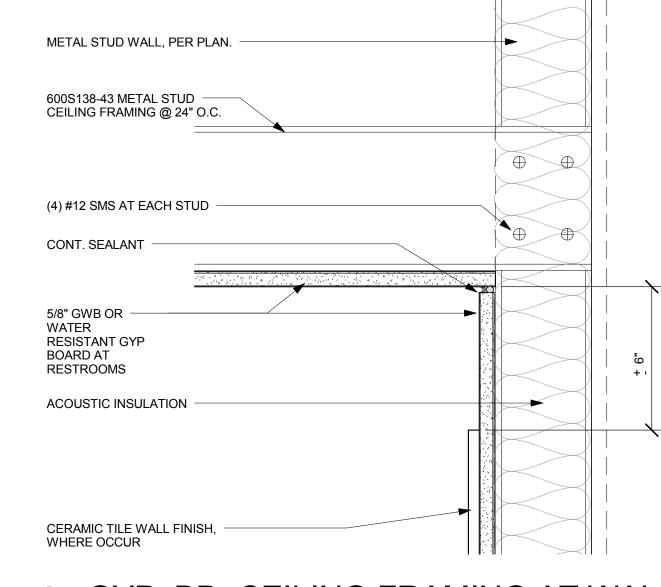
5 SUSP CLG DIAGONAL BRACING



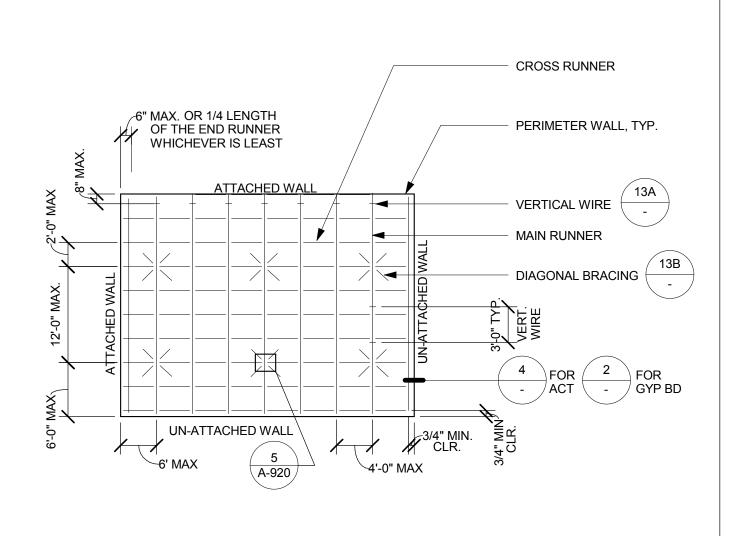
INT. PTN.



DROP CEILING - AT WINDOW



GYP. BD. CEILING FRAMING AT WALL



SUSP CLG DIAGRAMATIC BRACING 3" = 1'-0"

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ISSUES/REVISIONS

PROJECT RECORD SET

BUILDING 4 SKYLINE COLLEGE SAN MATEO COUNTY COMMUNITY COLLEGE DISTRICT

CIP2 DESIGN-BUILD **PROJECT BUILDING 4**

PROJECT NO.: 07012.00 DATE: 11/11/08 SCALE: As indicated

CEILING DETAILS

SHEET TITLE:

SHEET NO:

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

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