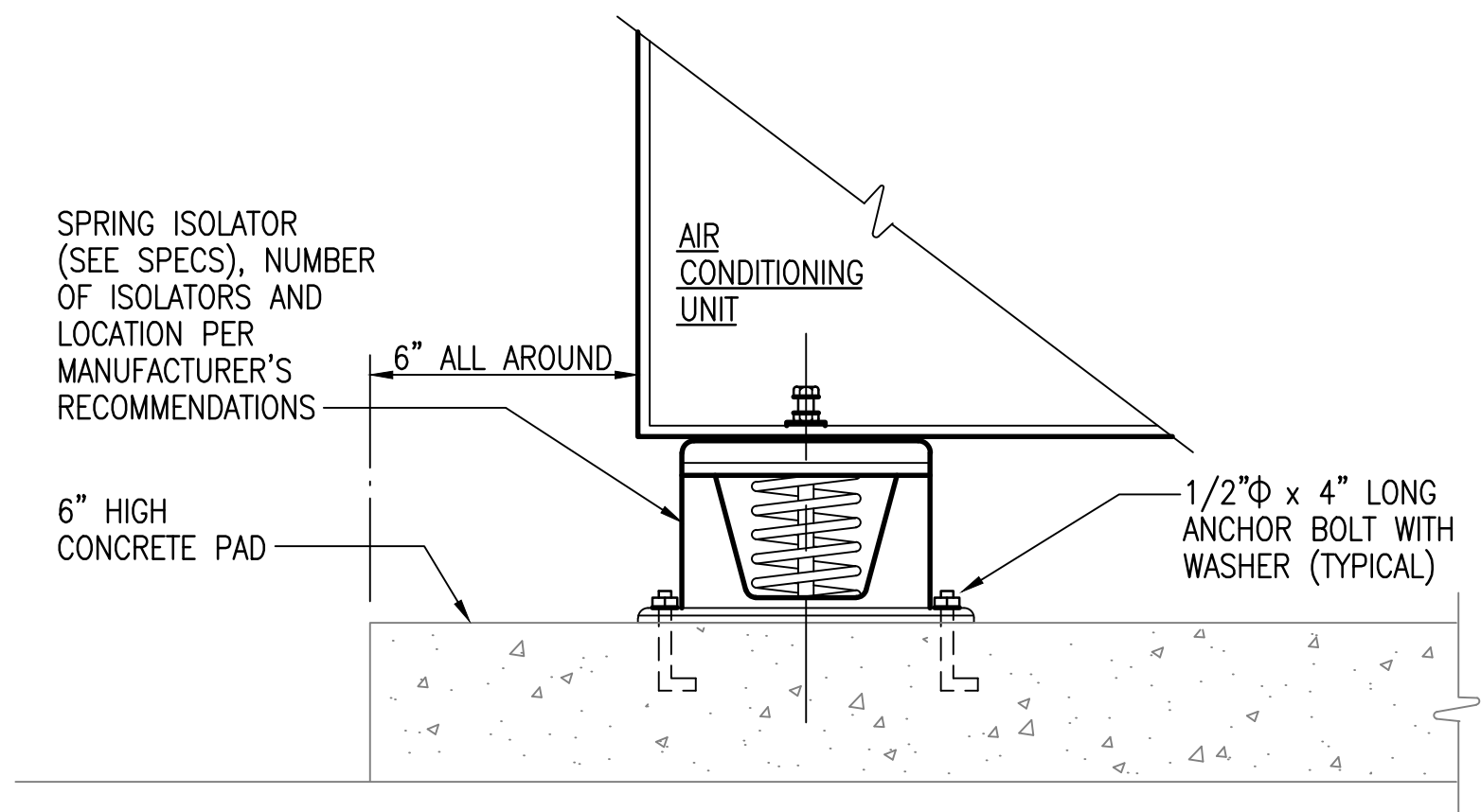
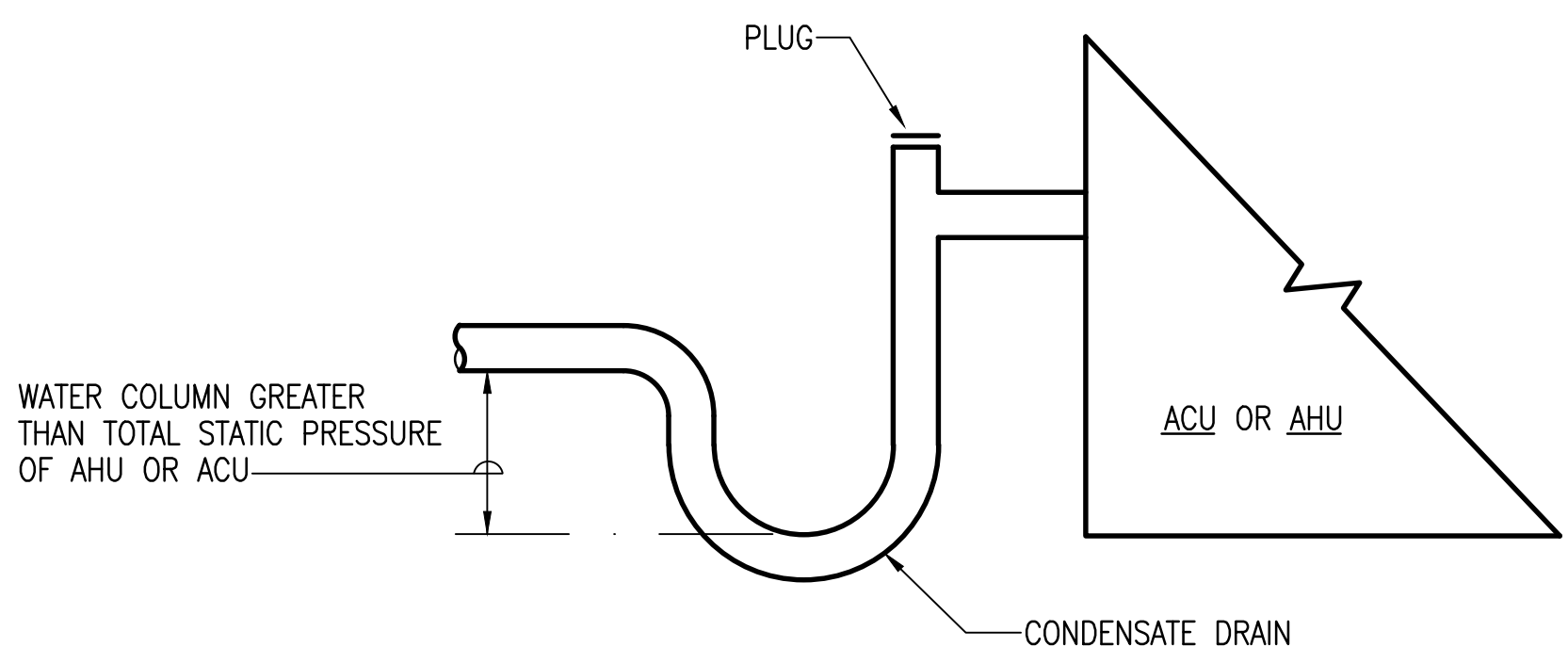


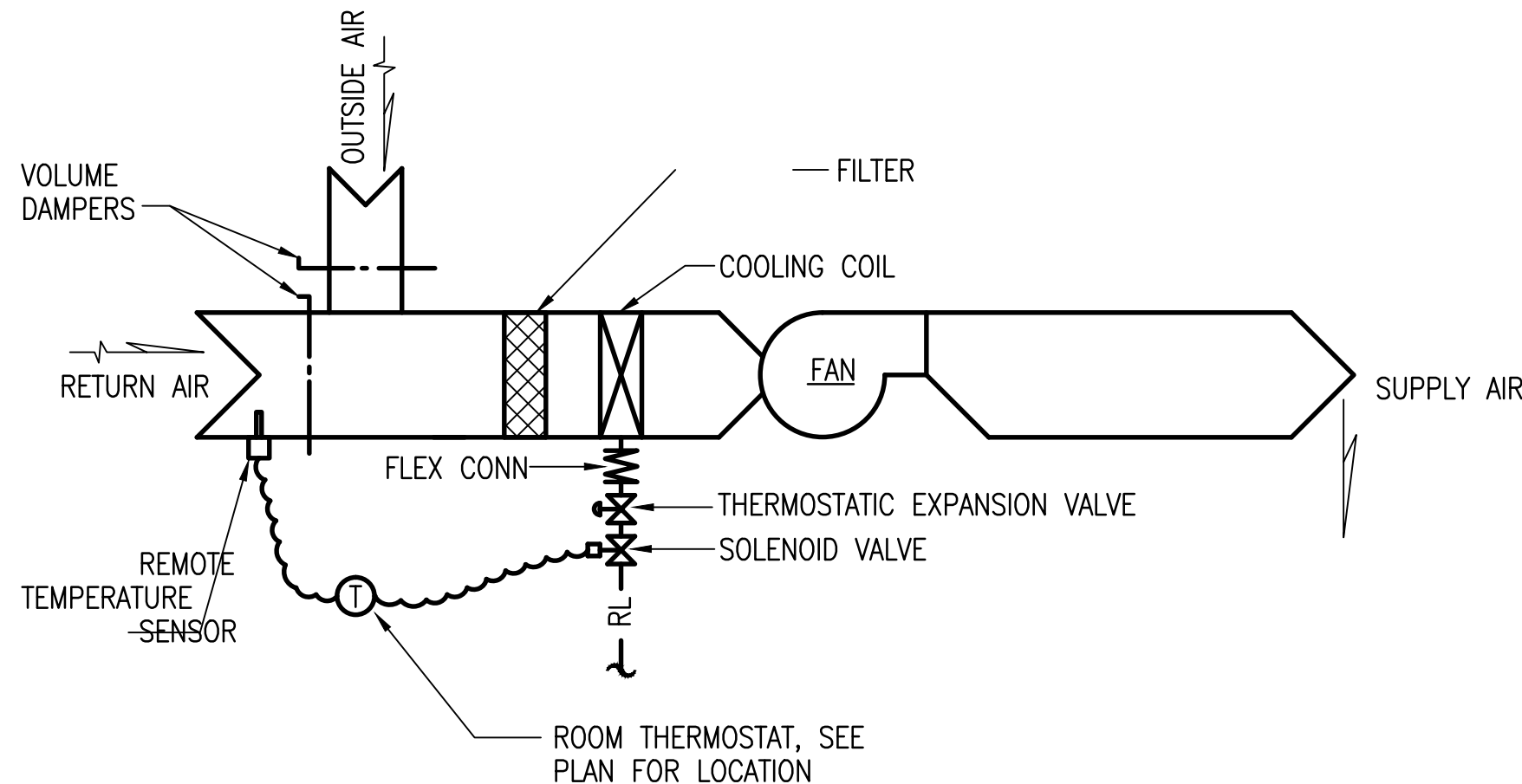
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-ART18-01	2022	47	79



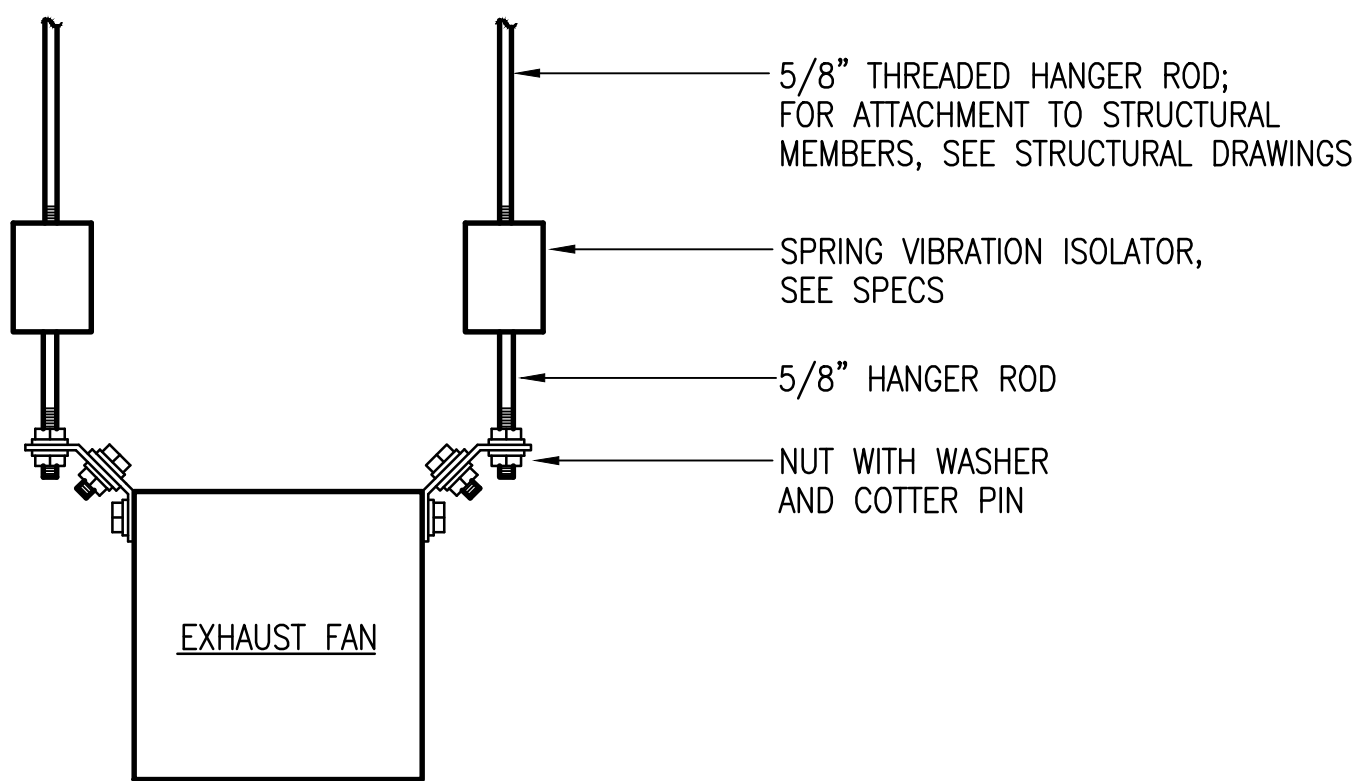
1 TYPICAL AIR CONDITIONING UNIT MOUNTING DETAIL  
M2 NOT TO SCALE



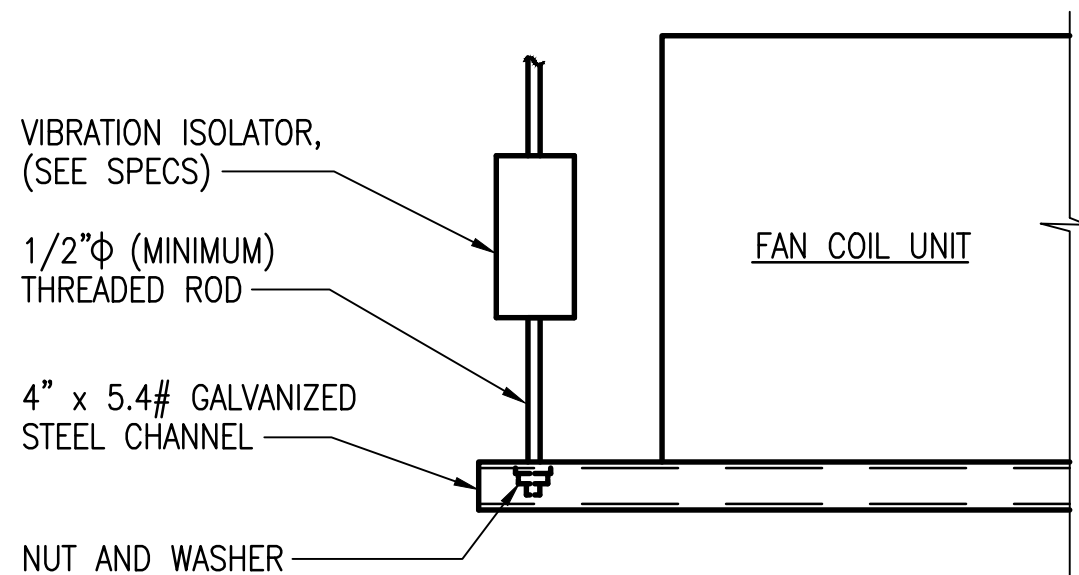
2 CONDENSATE DRAIN CONNECTION DETAIL  
M2 NOT TO SCALE



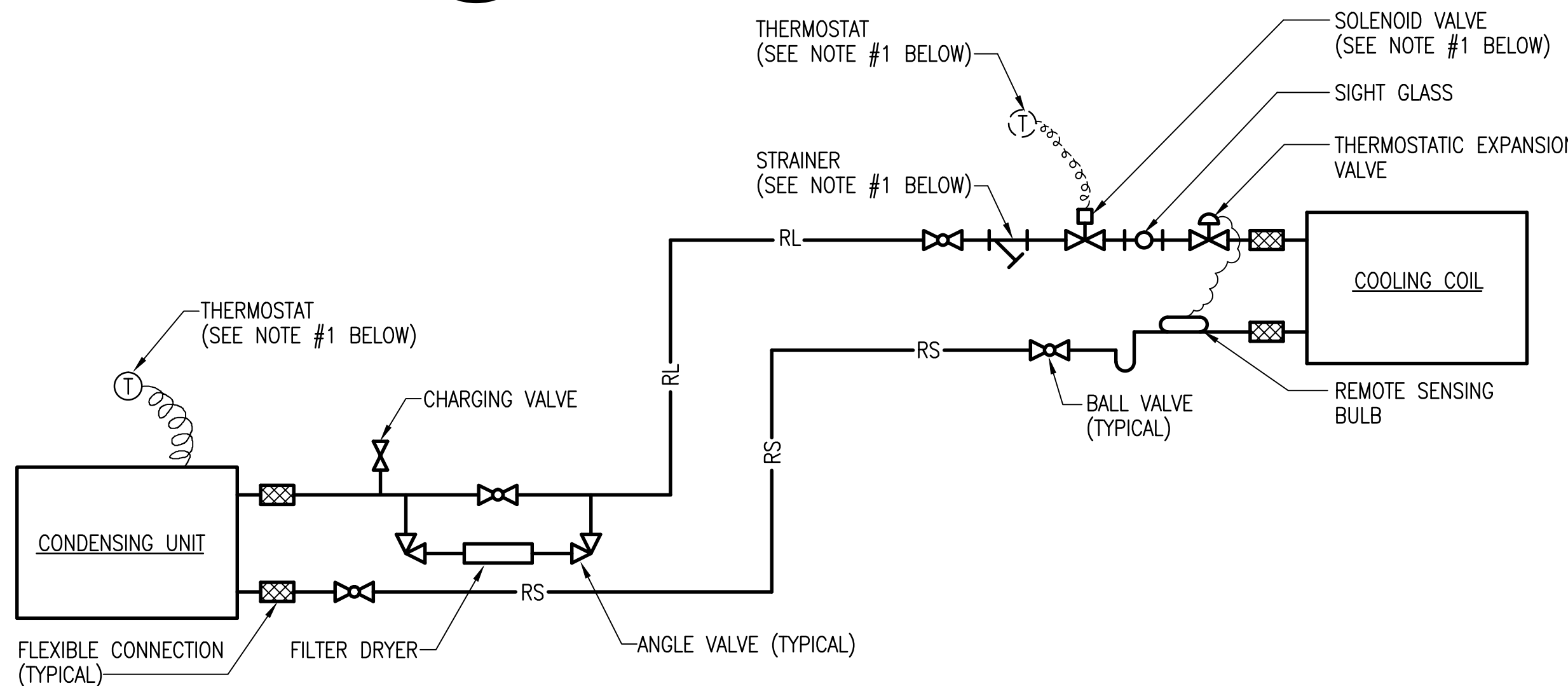
3 TYPICAL FAN COIL UNIT CONTROL DIAGRAM  
M2 NOT TO SCALE



4 IN-LINE EXHAUST FAN MOUNTING DETAIL  
M2 NOT TO SCALE



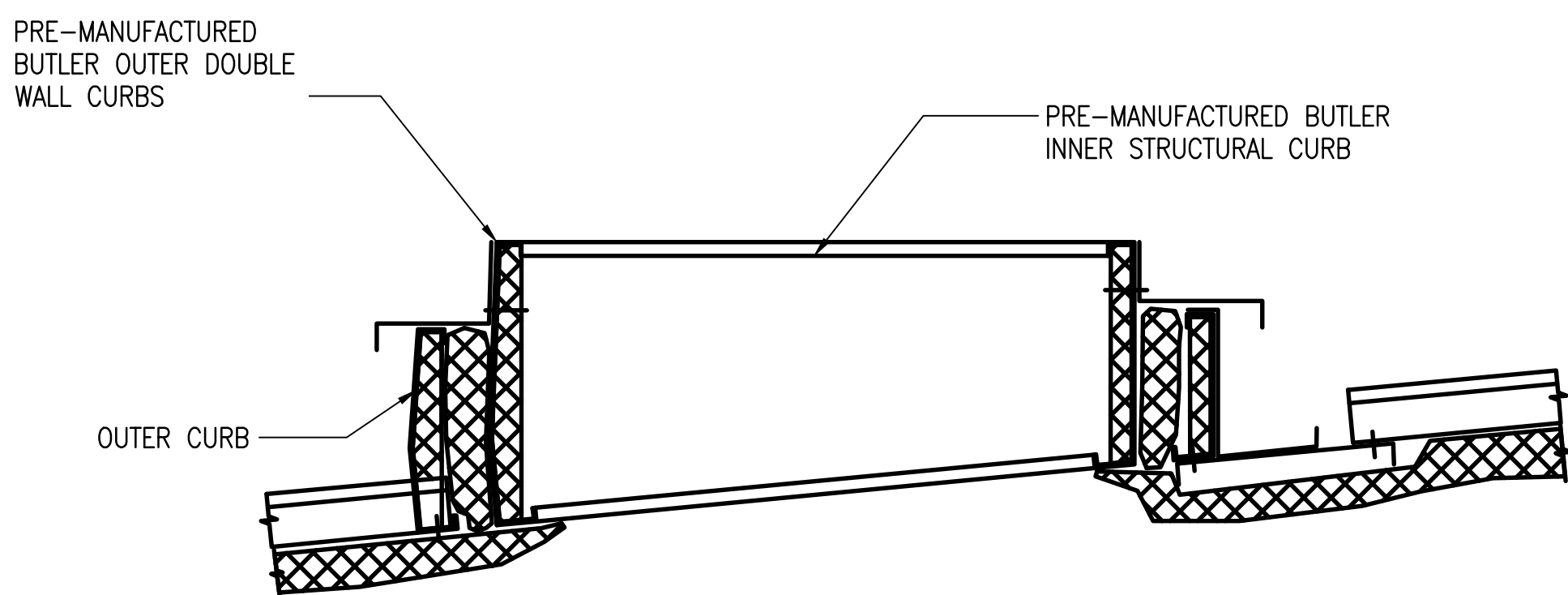
5 TYPICAL FCU HANGER DETAIL  
M2 NOT TO SCALE



NOTES:

- PROVIDE SOLENOID VALVE AND STRAINER IF RECOMMENDED BY MANUFACTURER.
- LONG LINE RUN PIPING RECOMMENDATIONS:
  - INSTALL LIQUID LINE SOLENOID VALVE AT FAN COIL UNIT WIRED FOR SOLENOID DROP PROTECTION.
  - CHARGE UNIT PER MANUFACTURER'S "SUBCOOLING CHARGING METHOD".
  - ADD ADDITIONAL OIL PER MANUFACTURER'S RECOMMENDATION.
  - SLOPE UNDERGROUND REFRIGERANT PIPING TOWARDS FAN COIL UNIT, NOT ACCU.

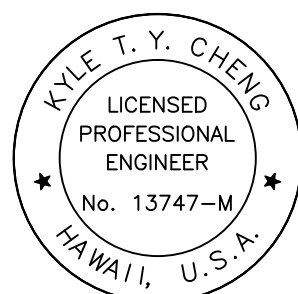
6 SCHEMATIC REFRIGERANT PIPING DIAGRAM  
M2 NOT TO SCALE



NOTE: SUPPORT FRAMING FOR INNER CURB IS BY OTHERS

7 ROOF AIR CAP DETAIL  
M3 NOT TO SCALE

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
ORIGINAL	
NOTE BOOK	
No.	



This work was prepared by me or under my supervision and construction of the project will be under my observation. Expiration date 04/30/24.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
MECHANICAL DETAILS
MAUI DISTRICT BASEYARD Project No. HWY-M-ART18.01
Scale: N.T.S. Date: MAY 2022
SHEET No. M3 OF 79 SHEETS

GENERAL NOTES:

- CONCENTRATED LOADS GREATER THAN 500LBS ON ANY SINGLE PURLIN MUST BE EXPLICITLY LOCATED AND DESIGNED FOR DURING DESIGN OF BUILDING SYSTEM.
- SPECIFIED COLLATERAL LOADS MAY BE CONVERTED TO SAFE CONCENTRATED LOADS AS FOLLOWS, WHERE P = MAX CONCENTRATED LOAD(LBS); W = UNIFORM COLLATERAL LOAD (PSF) X PURLIN SPACING (FT) = LBS/FT; L = PURLIN SPAN (FT). HANGERS SHOULD BE SPACED APPROX. EQUAL.

$P \text{ MAX} = 0.5 \text{ WL}$

$P \text{ MAX} = 0.4 \text{ WL}$

$P \text{ MAX} = 0.25 \text{ WL}$

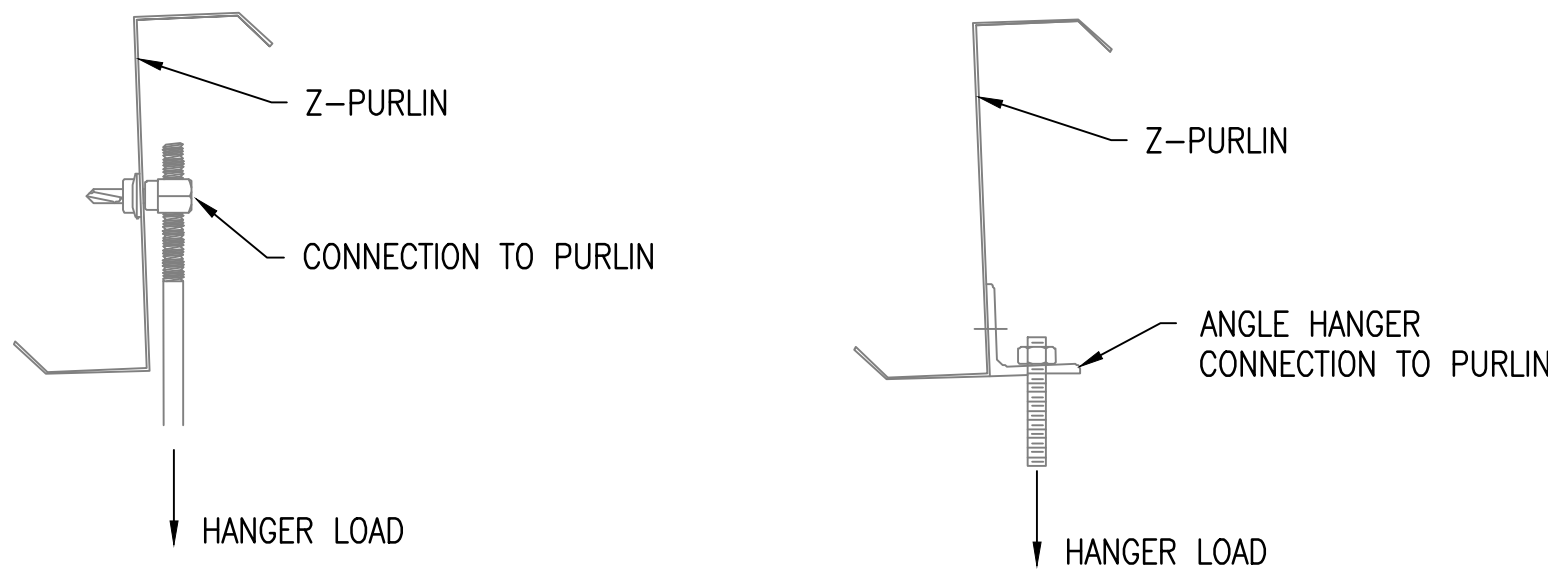
$P \text{ MAX} = 0.2 \text{ WL}$

$P \text{ MAX} = 0.15 \text{ WL}$

6 OR MORE HANGERS PER PURLIN  
 $P \text{ MAX} = W \times \text{HANGER SPACING}$

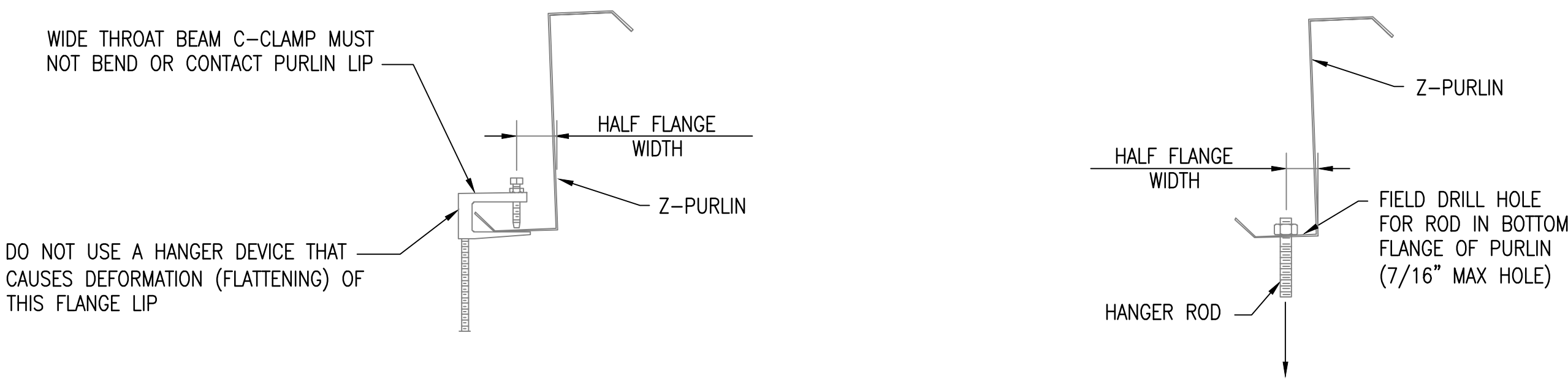
EXAMPLE: A PIPE IS SUSPENDED FROM A PURLIN AT 3 LOCATIONS EQUALLY SPACED  
BAY SPACING = 24'-0" PURLIN SPACING = 5'-0"  
SPECIFIED COLLATERAL LOAD = 5 PSF  
W = 5 PSF X 5 FT = 25 PSF L = 24'-0"  
P MAX = 0.25 X 25 PLF X 24'-0" = 150 LBS AT EACH LOCATION  
THE PURLIN CAN SUPPORT 3 LOADS UP TO 150 LBS EACH. PICK A HANGER CONNECTION CAPABLE OF SUPPORTING ACTUAL APPLIED LOADS.

- FOR LOADS GREATER THAN 250 LBS. PURLINS MUST BE "BLOCKED" AT LOCATION OF LOAD TO PREVENT PURLIN ROTATION.
- EQUIPMENT LOADS SHOULD BE OBTAINED FROM CERTIFIED EQUIPMENT DRAWINGS AND MANUFACTURER'S DATA.
- Z-PURLINS WILL DEFLECT UNDER SNOW AND WIND LOADS. ITEMS THAT MAY BE DAMAGED DUE TO DEFLECTIONS, (EX. GAS LINES). VERIFY THAT PIPES OR SUSPENDED EQUIPMENT ARE COMPATIBLE WITH EXPECTED DEFLECTION RANGES ( $\pm L/180$ ).
- THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) REQUIRES SPRINKLER HANGERS TO BE DESIGNED FOR A MINIMUM LOAD OF FIVE TIMES THE WEIGHT OF THE WATER FILLED PIPE PLUS 250 POUNDS. THE HANGER ITSELF MUST BE ABLE TO SUPPORT THIS LOADING. IT IS NOT NECESSARY TO DESIGN THE SUPPORTING MEMBER FOR THIS LOAD IN COMBINATION WITH THE DESIGN LOADS.
- SUSPENDED LOADS WILL NEED TO BE BRACED (TO THE THE PRIMARY FORCE RESISTING SYSTEM) FOR LATERAL STABILITY DUE TO EARTHQUAKES.
- HANGER DESIGN IS NOT THE RESPONSIBILITY OF BLUESCOPE.
- TOP FLANGE HANGERS SHOULD BE AVOIDED ON BUILDING WITHOUT INSULATION SPACER BLOCKS ON TOP OF THE TOP FLANGE. IF TOP FLANGE HANGERS ARE REQUIRED, PLACE THE HANGERS AT THE ROOF PANEL MAJOR CORRUGATION LOCATION TO AVOID DAMAGING THE ROOF PANEL WITH THE HANGER WHEN THE ROOF PANEL IS LOADED OR WALKED ON.
- WHEN BEAM C-CLAMPS OR OTHER ROD HANGERS ARE USED ON THE TOP FLANGE, THE ROD SHOULD NOT EXTEND ABOVE THE TOP OF THE CLAMP TO AVOID DAMAGING THE ROOF PANEL WITH THE ROD WHEN THE ROOF PANEL IS LOADED OR WALKED ON.
- DO NOT HANG ANY TYPE OF CRANE, HOIST, CONVEYOR OR ANY MOVING LOADS FROM THE Z-PURLINS.
- DO NOT HANG ANY LOAD FROM BBNA SUPPLIED PURLIN BRACES OR BRIDGING.
- DO NOT WELD ANY PART OF THE Z-PURLIN.
- HOLES MUST NOT EXCEED 9/16" DIAMETER UNLESS AUTHORIZED BY BBNA ENGINEER. DRILL OR REAM HOLES WHEN REQUIRED- DO NOT FLAME CUT
- C-CLAMP
  - MATERIAL: DUCTILE IRON, HARDENED STEEL CUP POINT SET SCREW AND LOCKNUT
  - FINISH: GALVANIZED
  - PROVIDES FOR VERTICAL HANGER ROD INSTALLED OFFSET FROM THE EDGE OF THE BEAM FLANGE
  - COMPLIES WITH FEDERAL SPECIFICATION A-A-1192A (TYPE 19), WW-H-171-E (TYPE 19), ANSI/MSS SP-69 AND MSS SP-58 (TYPE 19). UL LISTED AND FM APPROVED.



WEB HANGERS

FOR 1/2" DIAM. BOLT TO PURLIN CONNECTION-- MAX HANGER LOAD = 1500LBS  
PURLIN MUST BE SPECIFICALLY DESIGNED FOR LOADS GREATER THAN 500 LB. SEE NOTE #2.



VERIFY OVERALL PURLIN DESIGN CAN TAKE APPLIED LOADS, SEE NOTE #2

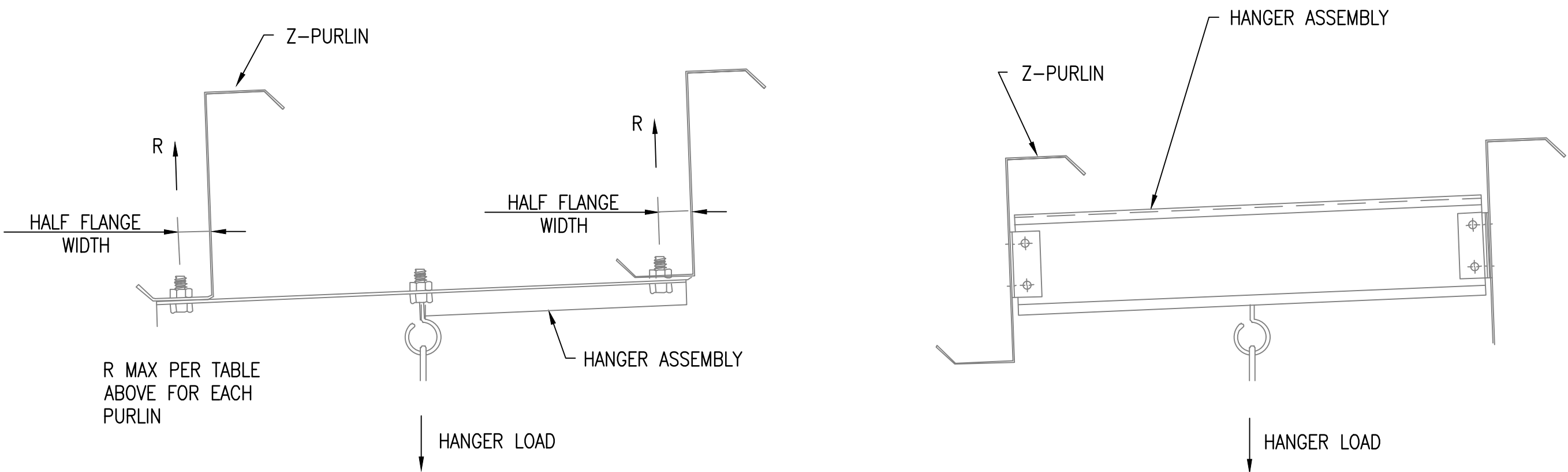
MAXIMUM LOAD SUSPENDED FROM BOTTOM FLANGE (LOCATED AT HALF-FLANGE WIDTH)			
THICKNESS	MAX LOAD	THICKNESS	MAX LOAD
0.060"	110 LBS	0.088"	200 LBS
0.068"	120 LBS	0.098"	250 LBS
0.073"	140 LBS	0.113"	250 LBS
0.079"	180 LBS		

FOR LOADS LOCATED MORE THAN HALF FLANGE WIDTH  
FROM WEB, USE HALF OF THE LOADS SHOWN ABOVE.

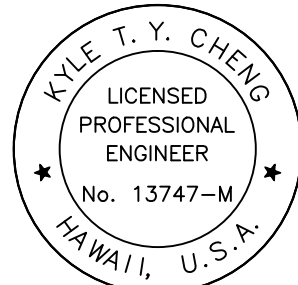
BOTTOM FLANGE CLAMP HANGER  
(TOP FLANGE SIMILAR)

BOTTOM FLANGE ROD HANGER  
(TOP FLANGE SIMILAR)

DO NOT USE ANY OF THE DETAILS ABOVE IF ROOF SLOPE IS GREATER THAN 4:12



DOUBLE PURLIN HANGERS  
VERIFY OVERALL PURLIN DESIGN CAN SUPPORT APPLIED LOADS.



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under my supervision and construction  
of the project will be under my  
observation. Expiration date 04/30/24.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

MECHANICAL DETAILS

MAUI DISTRICT BASEYARD  
Project No. HWY-M-ART18.01

Scale: N.T.S. Date: MAY 2022

SHEET No. M4 OF 79 SHEETS