



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION  
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR HCAI PREAPPROVAL OF  
MANUFACTURER'S CERTIFICATION (OPM)**

OFFICE USE ONLY

**APPLICATION #: OPM-0071**

**HCAI Preapproval of Manufacturer's Certification (OPM)**

Type:  New  Renewal/Update

**Manufacturer Information**

Manufacturer: KNOLL INC.

Manufacturer's Technical Representative: Michael Kraynak

Mailing Address: 1235 Water St., EAST GREENVILLE, PA 18041

Telephone: (215) 679-1217

Email: mkraynak@knoll.com

**Product Information**

Product Name: Knoll Morrison Wall Cabinets

OPM-0071

Product Type: Metal cabinets hung on wall.

Product Model Number: Morrison Wall Cabinet: MO8 (30,36,42,48,60); Rail: MO8WMR; Brackets, pair: MO8WMB

General Description: Metal wall cabinets that are hung on metal stud framed walls with a metal bracket and sheet metal

**Applicant Information**

Applicant Company Name: RSG Structural Engineers

Contact Person: Bob Glasgow

Mailing Address: 4516 Wyman Drive, Sacramento, CA 95821

Telephone: (916) 716-5286

Email: pontonbob@gmail.com

Title: Principal Structural Engineer

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY





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FACILITIES DEVELOPMENT DIVISION

Registered Design Professional Preparing Engineering Recommendations

Company Name: RSG STRUCTURAL ENGINEERS
Name: Robert Glasgow California License Number: S4567
Mailing Address: P.O. Box 980893, West Sacramento, CA 95798
Telephone: (916) 716-5286 Email: pontonbob@gmail.com

HCAI Special Seismic Certification Preapproval (OSP)

Special Seismic Certification is preapproved under OSP OSP Number:

Certification Method

Testing in accordance with: ICC-ES AC156 FM 1950-16
Other(s) (Please Specify):

\*Use of criteria other than those adopted by the California Building Standards Code, 2019 (CBSC 2019) for component supports and attachments are not permitted. For distribution system, interior partition wall, and suspended ceiling seismic bracings, test criteria other than those adopted in the CBSC 2019 may be used when approved by HCAI prior to testing.

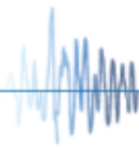
- Analysis
Experience Data
Combination of Testing, Analysis, and/or Experience Data (Please Specify):

HCAI Approval

Date: 9/13/2022
Name: Jeffrey Kikumoto Title: Senior Structural Engineer
Condition of Approval (if applicable):

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# OPM-0071

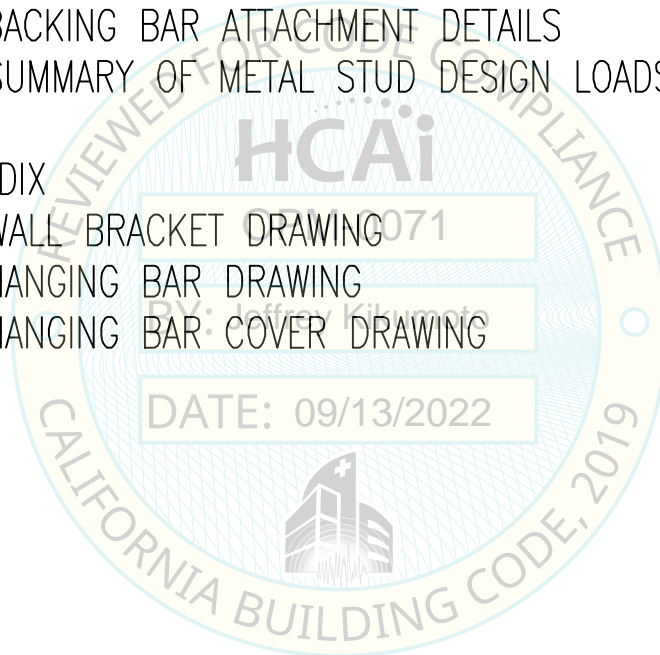
## KNOLL MORRISON WALL CABINETS

### SHEET

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KNOLL MORRISON OVERHEAD WALL CABINET ANCHORAGE  
MODELS: M08-N30, M08-N36, M08-N42, M08-N48, M08-N60

SHEET 1 OF 13

# GENERAL NOTES:

1. THIS HCAI PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE 2019 CALIFORNIA BUILDING CODE (CBC). THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2019.
2. EQUIPMENT TYPE: OVERHEAD SHELVES (MORRISON™)
3. EQUIPMENT MANUFACTURER: KNOLL, INC EAST GREENVILLE, PA
4. FORCES ARE PER ASCE 7-16. SECTION 13.3.1:

$$S_{Ds} = 2.5 \quad A_p = 1.0 \quad R_p = 2.5 \quad I_p = 1.5$$

SEE PAGE 3 FOR DESIGN FORCES

5. MINIMUM REQUIREMENTS FOR ATTACHMENTS ARE AS FOLLOWS:  
METAL STUD (SSMA SPECS, NO SUBSTITUTIONS):

GAGE	DEPTH	WIDTH	AREA	$I_x$	$S_x$
18 (43 MILS)	3 5/8"	1 3/8"	0.236 in <sup>2</sup>	0.479 in <sup>4</sup>	0.264 in <sup>3</sup>

SHEET METAL SCREW: ICC APPROVED

COLD FORMED STEEL GRADE TO BE ASTM A1003.  $F_y = 33$  KSI FOR 18GA (43 MIL) AND THINNER SECTIONS AND  $F_y = 50$  KSI FOR 16GA (54 MIL) AND THICKER SECTIONS.

6. WALL STUDS TO BE SPACED AT 16"OC, MAX.
7. THIS PRE-APPROVAL IS APPLICABLE TO ANY LOCATION IN THE STATE OF CALIFORNIA WHERE  $S_{Ds} \leq 2.5$  AND AT ANY HEIGHT WITHIN THE BUILDING.
8. THIS PRE-APPROVAL COVERS THE SUPPORTS AND ATTACHMENTS OF THE UNIT TO THE STRUCTURE.
9. ANCHOR FORCES SHOWN ON DRAWINGS ARE ALLOWABLE STRESS DESIGN LEVEL.

## RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD:

1. FOR SITE SPECIFIC INSTALLATION, VERIFY: Jeffrey Kikumoto
  - a. THE ADEQUACY OF NEW OR EXISTING STRUCTURE (METAL STUDS, ETC) TO RESIST THE FORCES AND WEIGHT SPECIFIED FOR EACH EQUIPMENT IN ADDITION TO ALL OTHER LOADS.
  - b. THE ATTACHMENTS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY END OR EDGE OF METAL STUD.
  - c. PROVIDE AND DESIGN ANY SUPPLEMENTARY MEMBERS AS REQUIRED.
  - d. THE INSTALLATION IS IN CONFORMANCE WITH THE 2019 CBC AND WITH DETAILS SHOWN ON THIS PRE-APPROVAL.
  - e. THE EQUIPMENT'S ACTUAL WEIGHT, CENTER OF GRAVITY (C.G.) LOCATION, ATTACHMENT LOCATIONS, ATTACHMENT DETAILS AND MATERIAL AND GAGE OF UNIT WHERE ATTACHMENTS ARE MADE TO AGREE WITH INFORMATION SHOWN ON THIS PRE-APPROVAL.
  - f. SHEET METAL SCREWS ARE TO BE IN COMPLIANCE WITH "SSMA" STANDARDS, ARE ICC APPROVED, & HAVE MINIMUM LOAD CAPACITIES PER OPD-0001-13, SHOWN ON PAGE 13.



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KNOLL MORRISON OVERHEAD WALL CABINET ANCHORAGE  
 MODELS: M08-N30, M08-N36, M08-N42, M08-N48, M08-N60

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# SUMMARY OF WEIGHTS & LOADS:

KNOLL MORRISON OVERHEAD CABINETS						
	ITEM	DL (LBS)	LL (LBS) <sup>1</sup>	W <sub>p</sub> (LBS)	F <sub>PH</sub> (LBS) <sup>2</sup>	F <sub>PV</sub> (LBS) <sup>2</sup>
OVERHEAD CABINETS	M08-N30	42.0	103	145	186	52
	M08-N36	47.5	123	171	220	61
	M08-N42	53.0	144	197	253	70
	M08-N48	58.5	164	223	287	80
	M08-N60	69.5	205	275	354	98

- GOVERNING LL BASED ON 41 PLF PER 2019 CBC, TABLE 1607A.1, FOOTNOTE P.
- SEE PAGE 2 FOR SEISMIC DESIGN CRITERIA. SEISMIC LOADS (F<sub>PH</sub> & F<sub>PV</sub>) ARE ALLOWABLE STRESS DESIGN LEVEL FORCES.

FOR  $z/h \leq 1.0$ :

STRENGTH LEVEL:

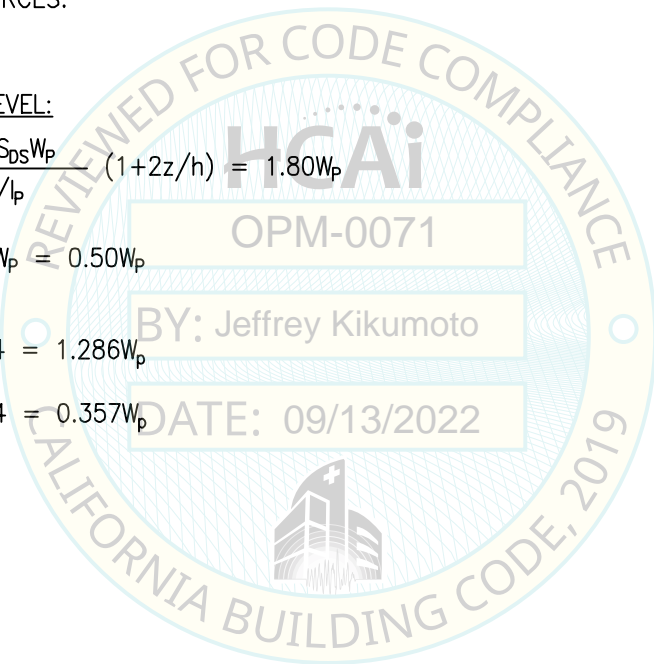
$$F_P = \frac{0.4a_p S_{DS} W_p}{R_p / I_p} (1 + 2z/h) = 1.80W_p$$

$$E_v = 0.2S_{DS}W_p = 0.50W_p$$

ASD LEVEL:

$$F_{PH} = F_P / 1.4 = 1.286W_p$$

$$F_{PV} = E_v / 1.4 = 0.357W_p$$



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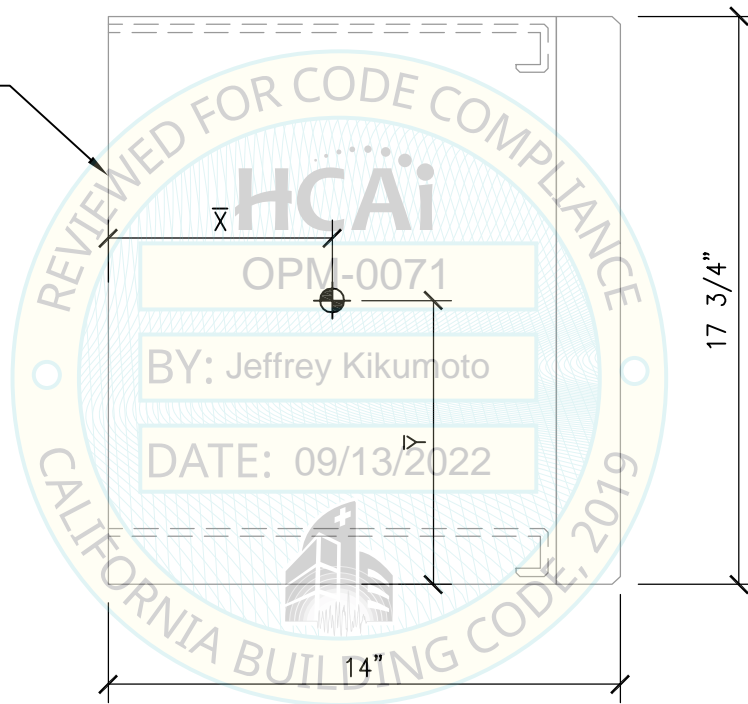
KNOLL MORRISON OVERHEAD WALL CABINET ANCHORAGE

MODELS: M08-N30, M08-N36, M08-N42, M08-N48, M08-N60

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CABINET SCHEDULE						
MODEL #	LENGTH, L (IN)	WEIGHT (LBS)	$\bar{X}$ (IN)	$\bar{Y}$ (IN)	$\bar{Z}$ (IN)	MATERIAL GAUGE (MILS)
M08-N30	30	42.0	7	9 7/8	15	20
M08-N36	36	47.5	7	9 7/8	18	20
M08-N42	42	53.0	7	9 7/8	21	18
M08-N48	48	58.5	7	9 7/8	24	18
M08-N60	60	69.5	7	9 7/8	30	18

CABINET MATERIAL @  
ATTACHMENT LOCATIONS:  
SAE1010, Fy=44.2 KSI  
SEE TABLE FOR GAUGE



**OVERHEAD CABINET – SIDE VIEW**

CABINET LENGTH PER  
SCHEDULE ABOVE



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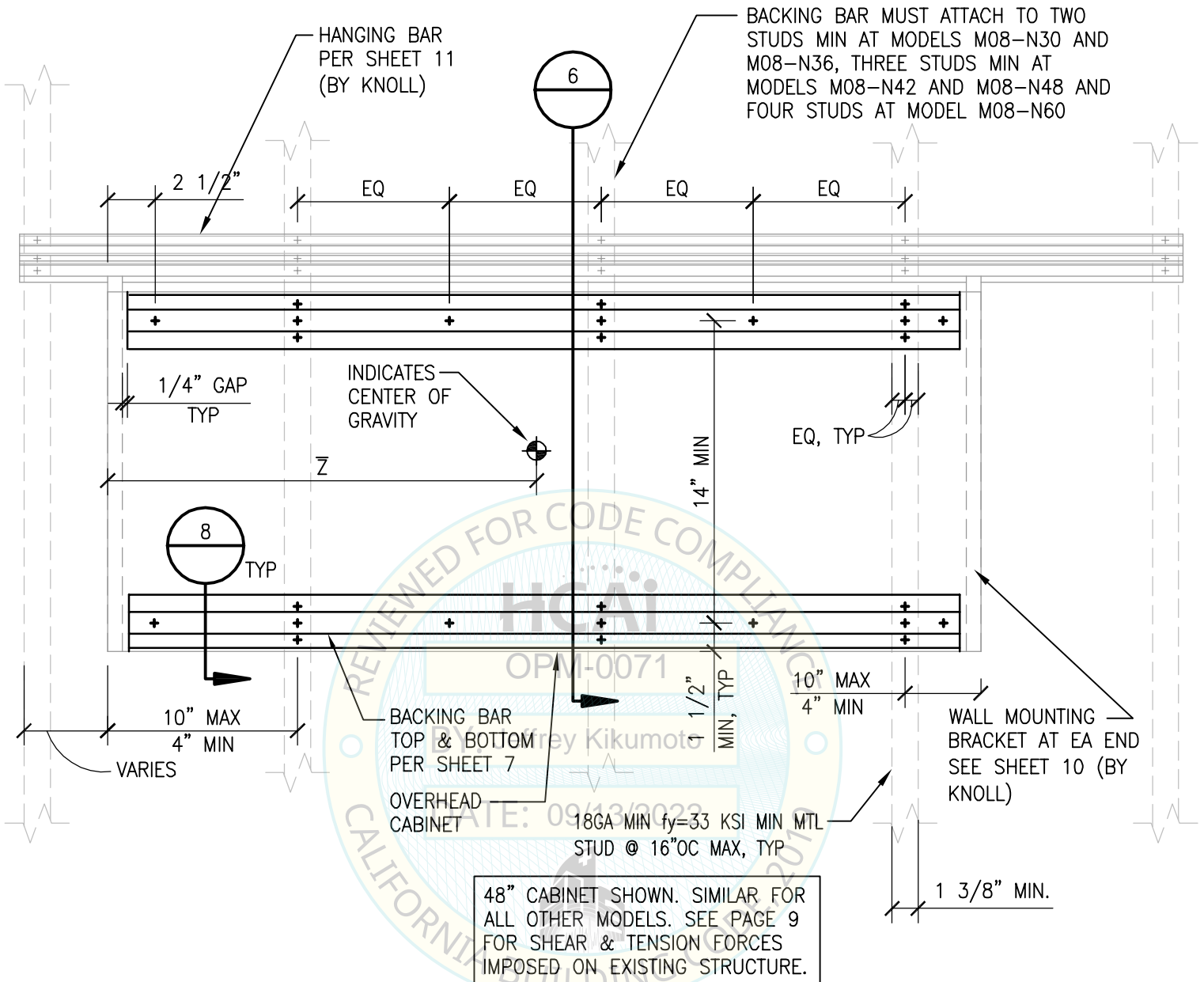
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**KNOLL MORRISON OVERHEAD WALL CABINET ANCHORAGE**

MODELS: M08-N30, M08-N36, M08-N42, M08-N48, M08-N60

SHEET 4 OF 13





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## TYPICAL CABINET LAYOUT – ELEVATION

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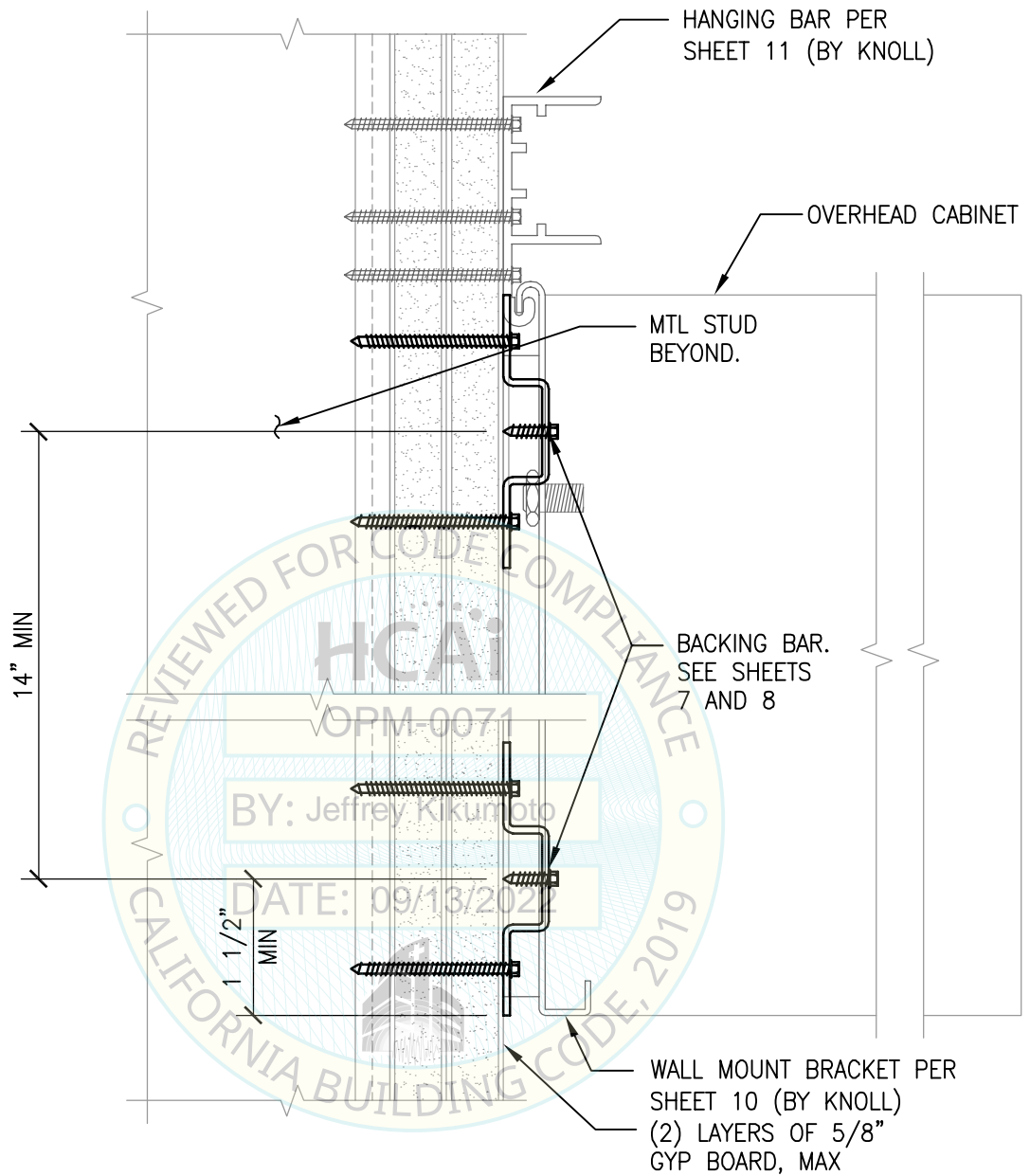
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KNOLL MORRISON OVERHEAD WALL CABINET ANCHORAGE

MODELS: M08-N30, M08-N36, M08-N42, M08-N48, M08-N60

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## 6 WALL MOUNT BRACKET & HANGING BAR

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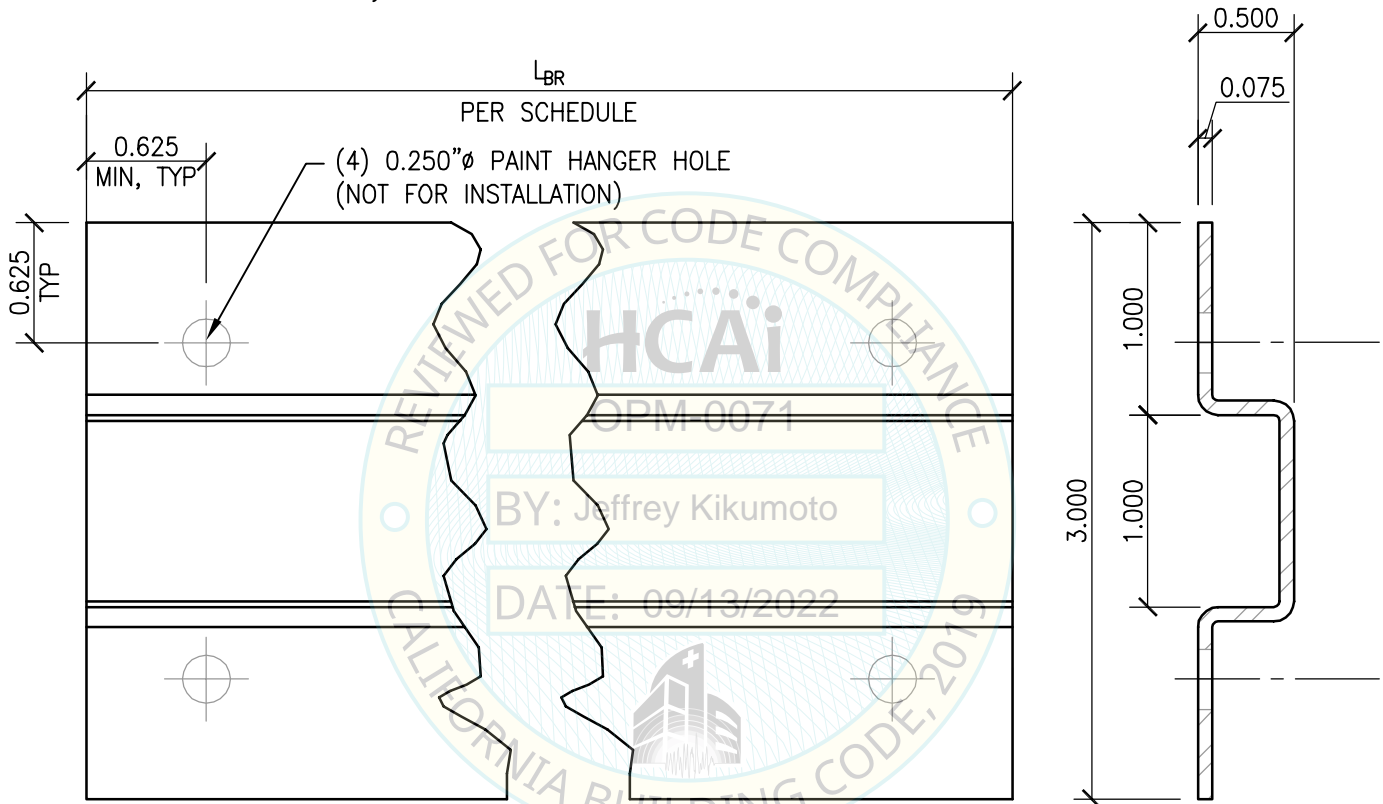
MODELS: M08-N30, M08-N36, M08-N42, M08-N48, M08-N60

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KNOLL PART NO.	L <sub>BR</sub>	CABINET WIDTH	ITEM
1C5967501	26.375"	30"	M08-N30
1C5967502	32.375"	36"	M08-N36
1C5967503	38.375"	42"	M08-N42
1C5967504	44.375"	48"	M08-N48
1C5967505	56.375"	60"	M08-N60

BACKING BAR MATERIAL:  
 COLD ROLLED STEEL ASTM A653 EQUIVALENT OR BETTER  
 F<sub>y</sub> = 50 KSI MIN



**ELEVATION**


**SECTION**

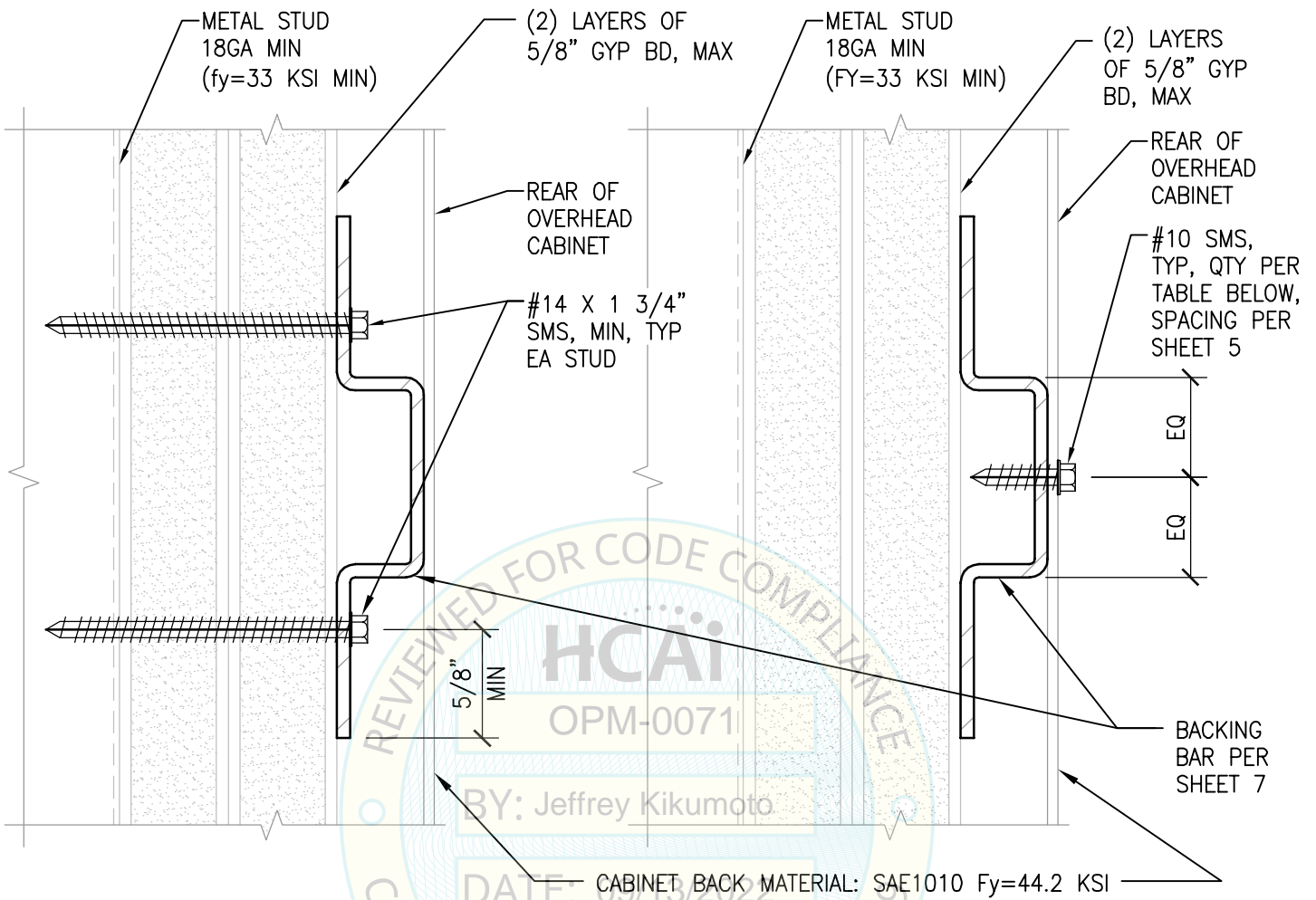
**BACKING BAR**

NTS

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**ATTACHMENT TO MTL STUD**

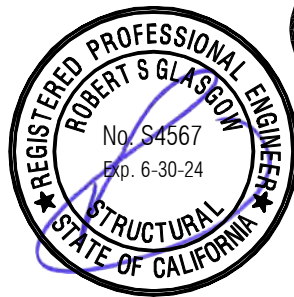
**ATTACHMENT TO BACKING BAR**

MODEL	QTY #10 SMS
M08-N30, M08-N36	5
M08-N42, M08-N48	7
M08-N60	9

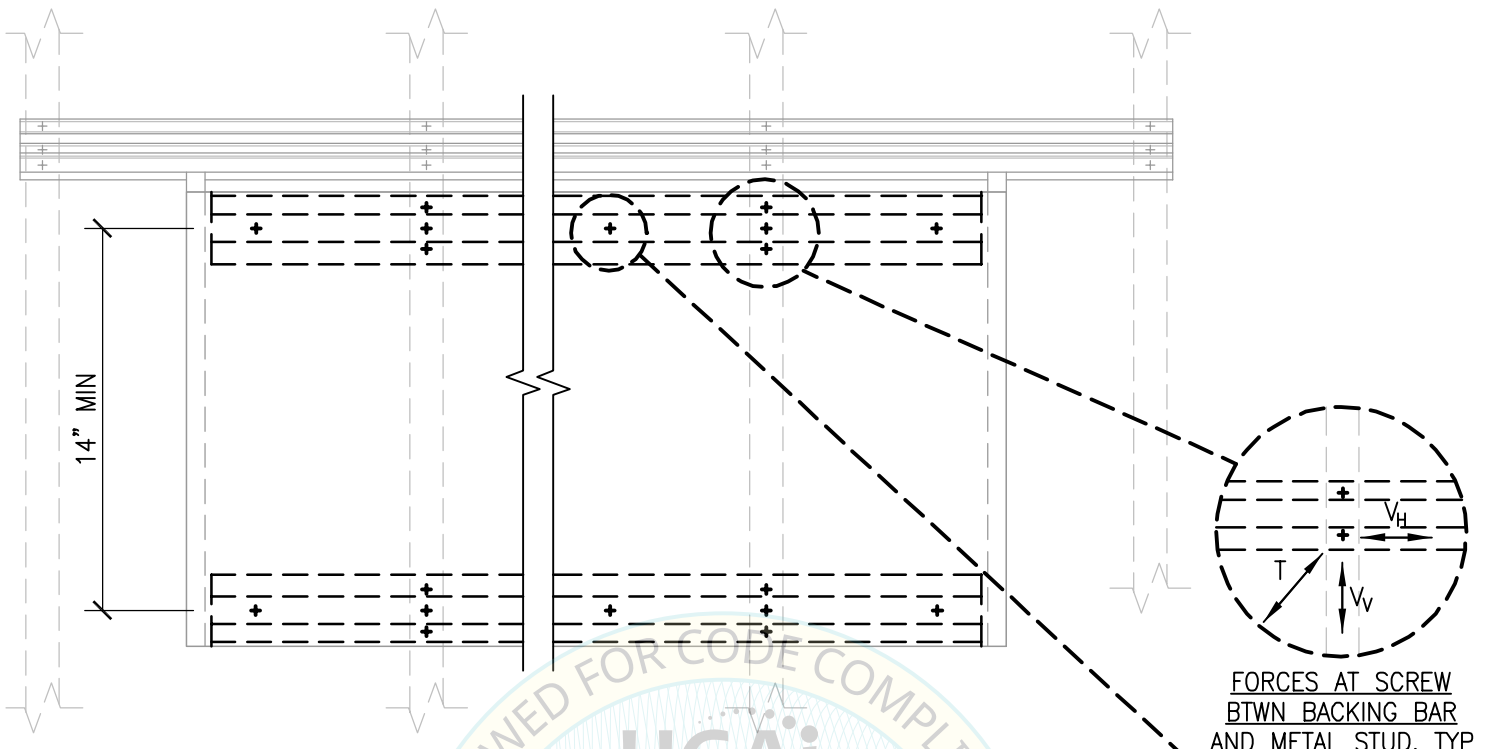
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**BACKING BAR ATTACHMENT DETAILS**

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FORCES AT SCREW  
BTWN BACKING BAR  
AND METAL STUD, TYP

FORCES AT SCREW  
BTWN CABINET &  
BACKING BAR, TYP

## SUMMARY OF METAL STUD DESIGN LOADS:

ITEM	MAX LOADS FROM CABINET TO BACKING BAR <sup>1,2</sup>			MAX LOADS FROM BACKING BAR TO METAL STUDS <sup>1,2</sup>		
	V <sub>v</sub> (lb)	V <sub>h</sub> (lb)	T (lb)	V <sub>v</sub> (lb)	V <sub>h</sub> (lb)	T (lb)
M08-N30	26	22	60	35	28	84
M08-N36	27	26	62	34	26	84
M08-N42	25	22	54	34	22	79
M08-N48	27	25	60	33	25	79
M08-N60	25	24	53	33	24	77

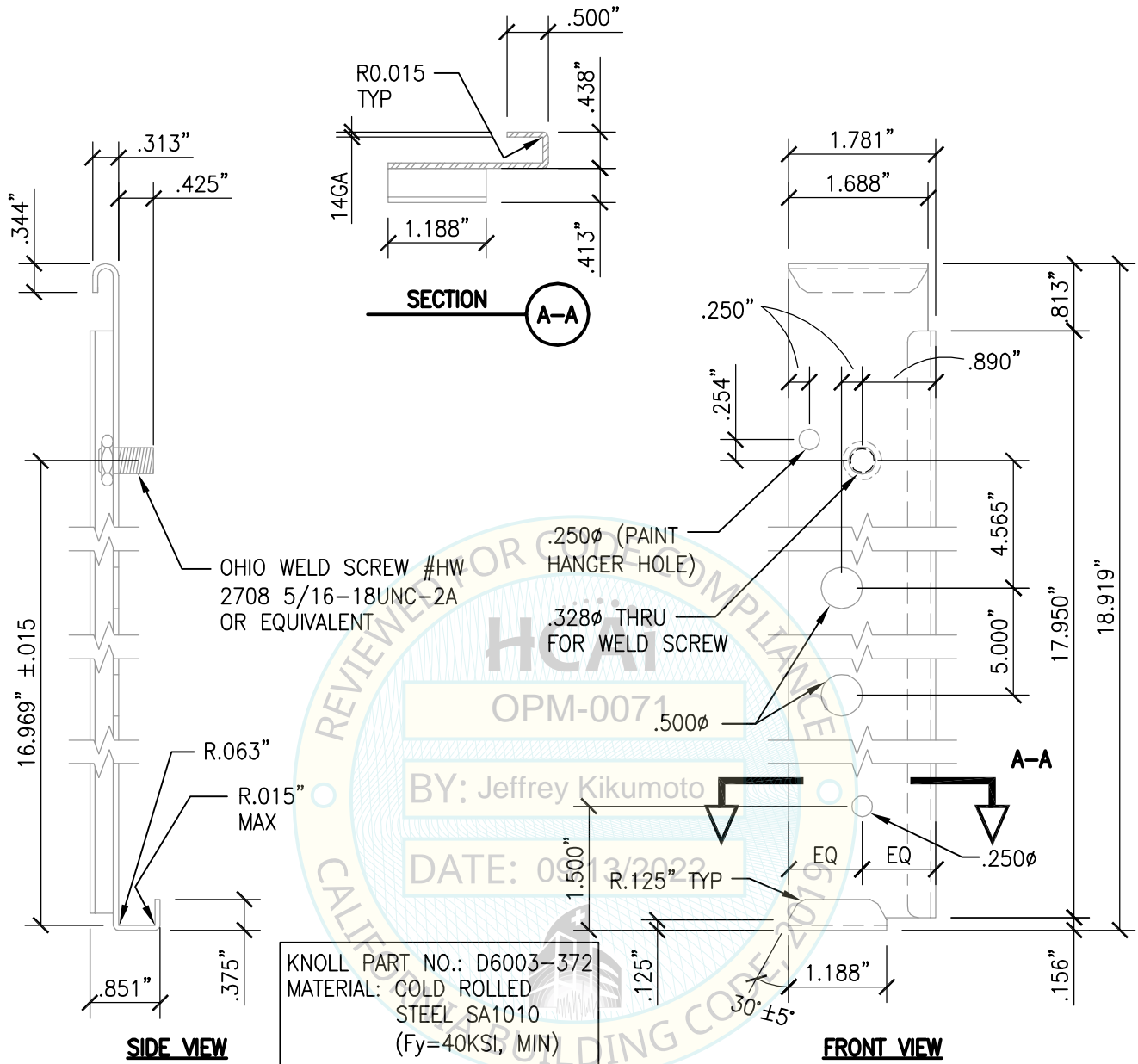
- LOADS ARE ALLOWABLE STRESS DESIGN LEVEL FORCES.
- LOADS ARE PER SCREW.



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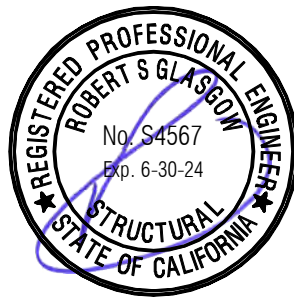
SHEET 9 OF 13



**10** **WALL BRACKET (FOR REFERENCE ONLY)**

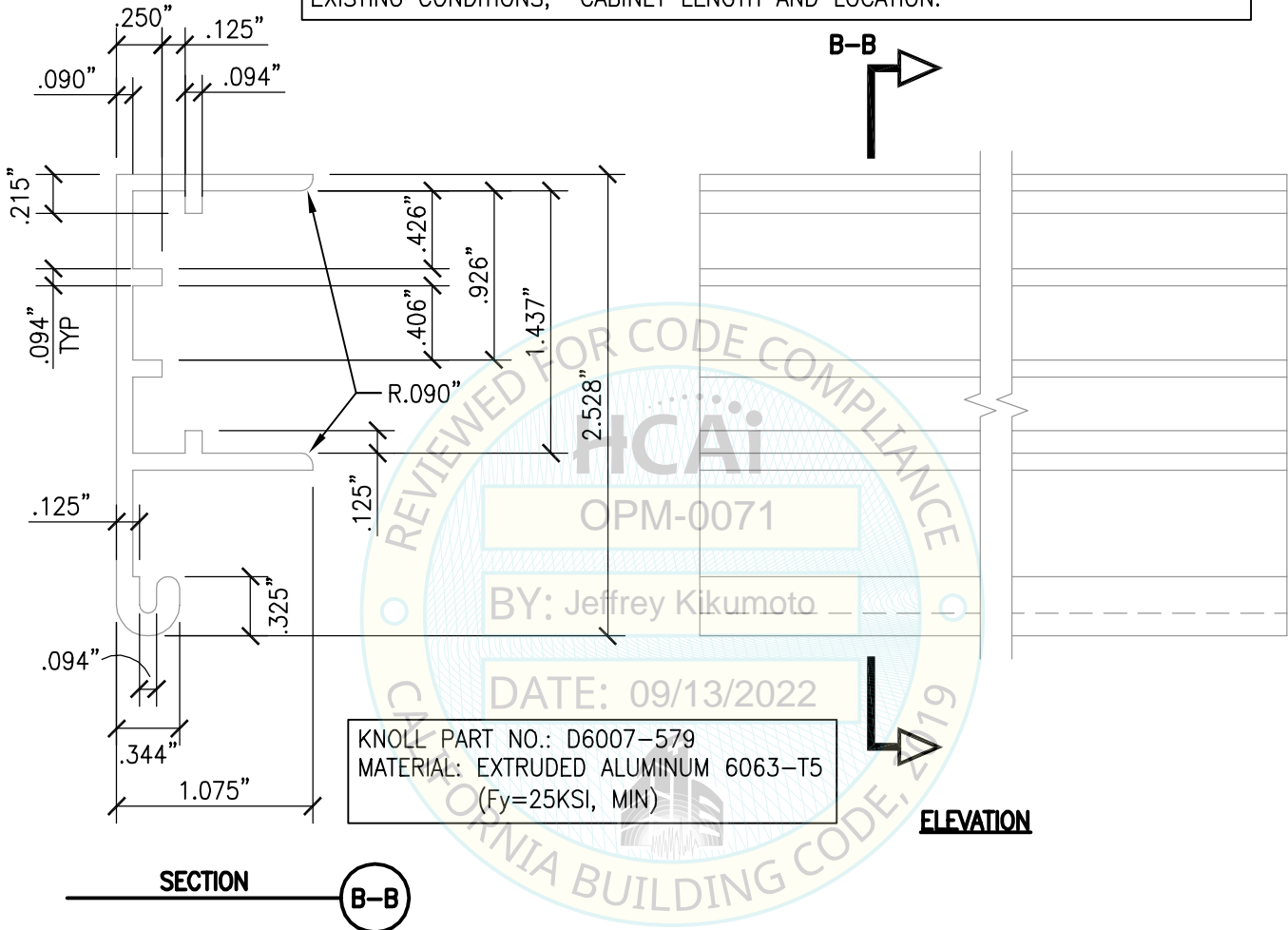
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**APPENDIX**



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THE LENGTH OF THE HANGING BAR TO BE SUFFICIENT TO REACH ADJACENT STUD BEYOND THE END OF THE CABINET. ALL ENDS OF HANGING BAR TO BE ATTACHED DIRECTLY TO A STUD PER DETAIL SHEET 12. LENGTH WILL VARY BASED ON EXISTING CONDITIONS, CABINET LENGTH AND LOCATION.

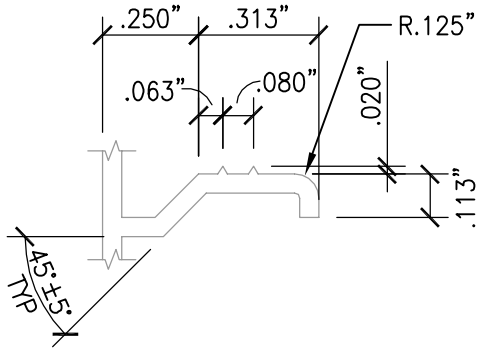


**11** **HANGING BAR** (FOR REFERENCE ONLY)  
NTS

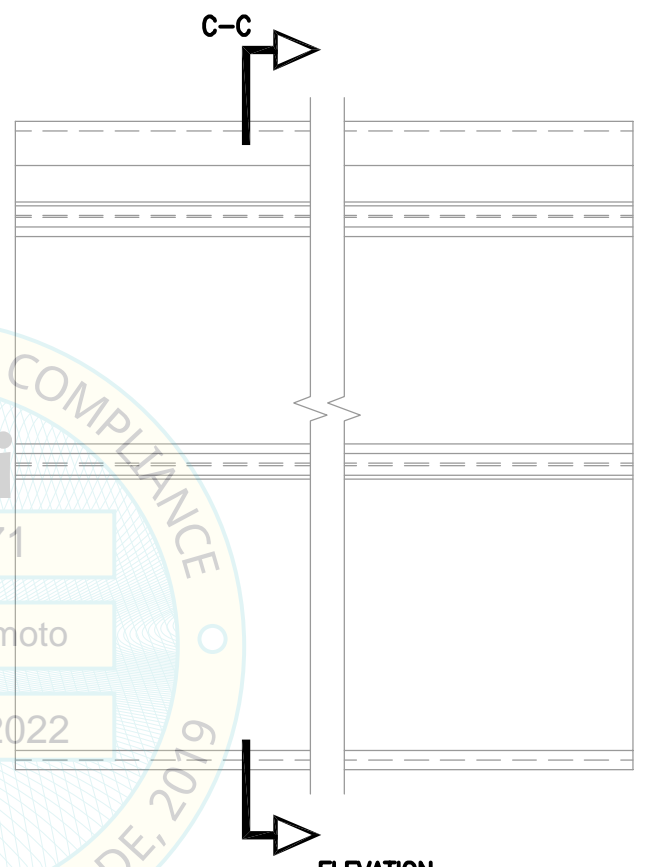
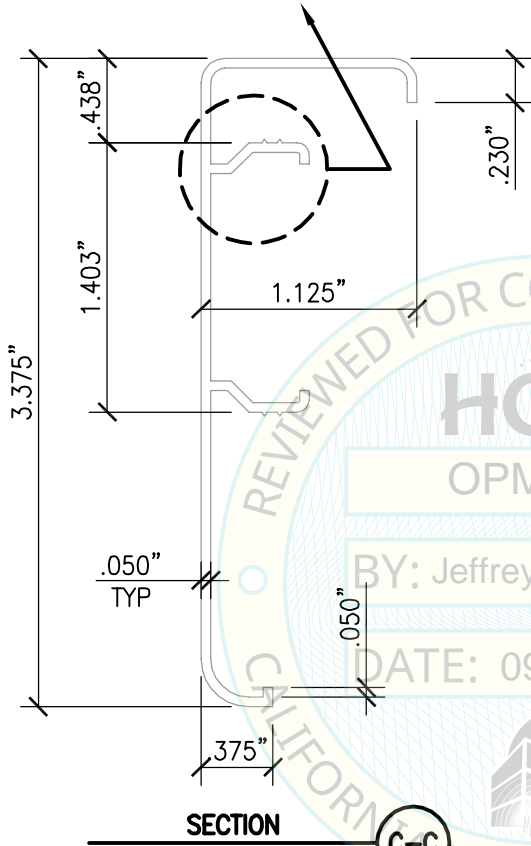
**APPENDIX**



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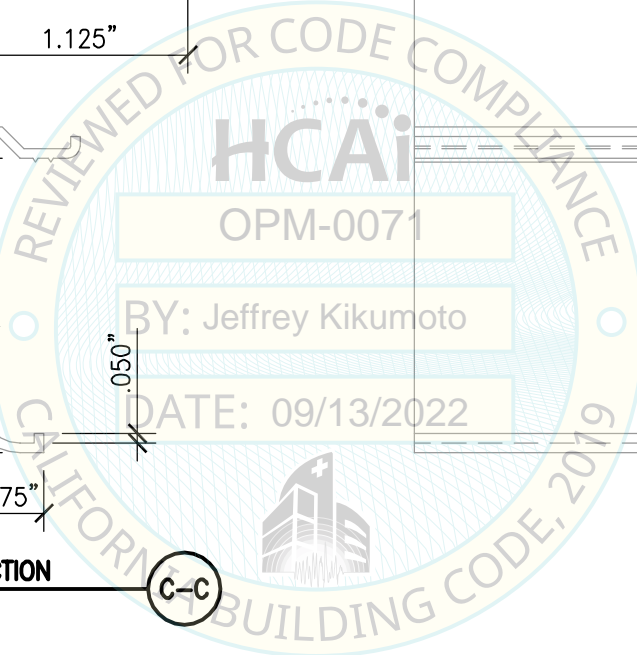


KNOLL PART NO.: D6007-577  
 MATERIAL: EXTRUDED ALUMINUM 6063-T5  
 (Fy=25KSI, MIN)



SECTION

ELEVATION

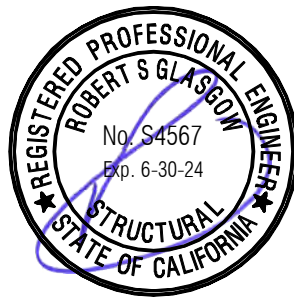


**HANGING BAR  
 COVER (FOR REFERENCE ONLY)**

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**APPENDIX**



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SHEET METAL SCREW (SMS) ALLOWABLE  
STRENGTH TABLES, OPD-0001-13

SHEET METAL SCREW (SMS) ALLOWABLE STRENGTHS

**TABLE 1**  
SHEET METAL SCREW ALLOWABLE STRENGTHS FOR STEEL TO STEEL CONNECTIONS.

		FASTENER SIZE									
F <sub>y</sub> (KSI)	MIL (STEEL GA)	NO. 14		NO. 12		NO. 10		NO. 8		NO. 6	
		0.250 IN		0.216 IN		0.190 IN		0.164 IN		0.138 IN	
		SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)
50	97 (12)	704	275	525	205						
	68 (14)	704	275	525	205	405	159				
	54 (16)	613	261	525	205	405	159	303	118		
33	43 (18)	302	144	280	124	263	109	244	94	165	79
	33 (20)					177	84	164	72	151	61

**TABLE 3**  
SHEET METAL SCREW ALLOWABLE STRENGTHS FOR STEEL TO STEEL CONNECTIONS  
WITH TWO LAYERS OF 5/8" GYP BOARD BETWEEN STEEL SURFACES.

		FASTENER SIZE									
F <sub>y</sub> (KSI)	MIL (STEEL GA)	NO. 14		NO. 12		NO. 10		NO. 8		NO. 6	
		0.250 IN		0.216 IN		0.190 IN		0.164 IN		0.138 IN	
		SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)	SHEAR (LB)	TENSION (LB)
50	97 (12)	166	275	130	205						
	68 (14)	166	275	130	205	100	159				
	54 (16)	166	261	130	205	100	159	80	118		
33	43 (18)	166	144	130	124	100	109	80	94	50	79
	33 (20)					70	84	50	72	40	61



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