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

OFFICE USE ONLY

APPLICATION #: OPM-0644

HCAI Preapproval of Manufacturer's Certification (OPM)

Type: [X] New [ ] Renewal/Update

Manufacturer Information

Manufacturer: STEELCASE INC.

Manufacturer's Technical Representative: CARL MIKAIL

Mailing Address: 901 - 44th Street SE, Grand Rapids, MI 49508

Telephone: (616) 328-7277 Email: cmikail@steelcase.com

Product Information

Product Name: Steelcase Convey System

Product Type: Wall-Mounted and Floor-Supported Sink and Storage Cabinets

Product Model Number: HCMBSINK,HCMBSINKCOH,HCMBDW,HCMBDWRW,HCMBPDWRW,HCMBPW,HCMBSINKDW,HCMBTW,HCMWARDDW,HCMWARDW,HCMUD,HCMUDNB,HCMUOSSDNB,HCMBDF,HCMBDWRDF,HCMBGWRF,HCMBGDF,HCMBPDWRF,HCMBPF,HCMBSINKDF,HCMBTF,HCMSCDF,HCMSCF,HCMWARDDF,HCMWARDF,

General Description: Wall-Mounted and Floor-Supported Sink and Storage Cabinets

Applicant Information

Applicant Company Name: STEELCASE INC.

Contact Person: CARL MIKAIL

Mailing Address: 901 - 44th Street SE, Grand Rapids, MI 49508

Telephone: (616) 328-7277 Email: cmikail@steelcase.com

Title: CONSULTANT, SENIOR FIELD ENGINEERING

Registered Design Professonal Preparing Engineering Recommendations

Company Name: CRITICAL STRUCTURES

Name: Eric Stovner California License Number: S4204

Mailing Address: 1350 Coronado Ave., Long Beach, CA 90804

Telephone: (310) 530-3050 Email: estovner@critical-structures.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: 2/2/2022

Name: William Staehlin Title: Senior Structural Engineer

Condition of Approval (if applicable):

SEISMIC SUPPORTS AND ATTACHMENTS PRE-APPROVAL OPM-0644

THIS PRE-APPROVAL CONFORMS TO THE 2019 CALIFORNIA BUILDING CODE (CBC)

EQUIPMENT MANUFACTURER: STEELCASE
EQUIPMENT TYPE: CONVEY SYSTEM

GENERAL NOTES:

1. THIS HCAI PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2019. THE DEMAND (DESIGN FORCES) FOR USE WITH THE OPM SHALL BE BASED ON CBC 2019 AND ASCE 7-16.
2. THE PRE-APPROVAL IS FOR THE SEISMIC SUPPORTS AND ATTACHMENTS FOR THE UNIT TO THE STRUCTURE. IT DOES NOT ADDRESS OTHER LOADS.
3. THIS REPORT IS APPLICABLE TO ANY LOCATION WHERE Sds ≤ 2.0 AND AT ANY HEIGHT WITHIN THE BUILDING.
4. THE DEMAND OR DESIGN FORCES FOR USE WITH THIS REPORT ARE IN ASD AND SHALL BE BASED ON ASCE 7-16 SECTION 13.3.1.
5. TOTAL WEIGHT INCLUDES SELF-WEIGHT AND CONTENTS NOT EXCEEDING 33LB/FT^3.

METAL BLOCKING NOTES:

1. BLOCKING SHALL BE PLACED BETWEEN METAL STUDS WITH THE FOLLOWING MINIMUM PROPERTIES:

GAGE	DEPTH	WIDTH	ASTM SPECIFICATION	Fy (PSI)
16 (54 MILS)	3 5/8"	1 5/8"	ASTM A653 GRADE 50	50,000

WOOD BLOCKING NOTES:

1. BLOCKING SHALL BE PLACED BETWEEN WOOD STUDS WITH THE FOLLOWING MINIMUM PROPERTIES:
   - LUMBER SHALL BE COAST REGION DOUGLAS FIR-LARCH GRADE WITH A MAXIMUM MOISTURE CONTENT OF 19% AND MINIMUM SPECIFIC GRAVITY G = 0.5
   - FRAMING SUCH AS STUDS, FURRING AND BLOCKING SHALL BE DF #2 OR BETTER.

RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD OF THE BUILDING:

1. VERIFY THE ADEQUACY OF THE NEW OR EXISTING STRUCTURE TO RESIST THE FORCES AND WEIGHT SPECIFIED FOR THE EQUIPMENT IN ADDITION TO ALL OTHER LOADS IMPOSED ON THE STRUCTURE.
2. VERIFY THAT THE FASTENERS ARE LOCATED AT THE ADEQUATE END AND EDGE DISTANCE OF THE METAL STUD OR WOOD BLOCKING.
3. PROVIDE DESIGN OF SUPPLEMENTAL STRUCTURE REQUIRED TO SUPPORT THE SPECIFIED WEIGHTS AND FORCES.
4. VERIFY THAT THE INSTALLATION IS IN ACCORDANCE WITH THE 2019 CALIFORNIA BUILDING CODE (CBC) AND THE DETAILS SHOWN IN THIS REPORT.
5. VERIFY THAT THE ACTUAL EQUIPMENT WEIGHT, CENTER OF GRAVITY LOCATION, ANCHOR LOCATIONS, ANCHOR DETAILS AND THE MATERIAL AND GAGE OF THE UNIT WHERE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN IN THIS REPORT.
6. VERIFY THAT THE SHEET METAL SCREWS ARE ICC-ESR APPROVED.

CRITICAL STRUCTURES
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SHEET 1 OF 17

CONVEY SYSTEM
HCAI OPM-0644

REGISTERED PROFESSIONAL ENGINEER
ERIC CHRISTIAN STOVNER
No. S 4204
STRUCTURAL
STATE OF CALIFORNIA

REVISIONS	REV. DATE
1 REVISION 01-21-2022	
DATE: 07-06-2021	
PROJECT: 20-631	
ENGINEER: NK	
DRAFTER: MC	

SEISMIC SUPPORTS AND ATTACHMENTS PRE-APPROVAL
OPM-0644

THIS PRE-APPROVAL CONFORMS TO THE 2019 CALIFORNIA BUILDING CODE (CBC)

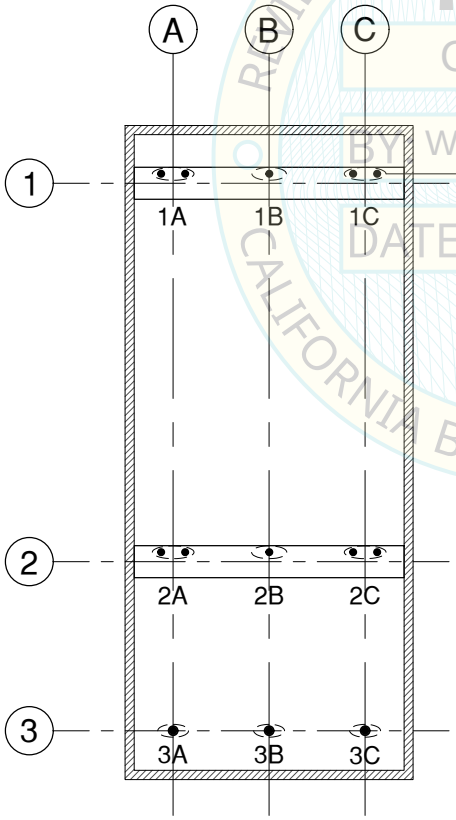
EQUIPMENT MANUFACTURER: STEELCASE
EQUIPMENT TYPE: CONVEY SYSTEM

SEISMIC ANCHORAGE AND DESIGN PARAMETERS:

1. RISK CATEGORY IV
2. IMPORTANCE FACTOR, $I_p = 1.5$
3. COMPONENT AMPLIFICATION FACTOR, $a_p = 1.0$
4. COMPONENT RESPONSE FACTORS, $R_p = 2.5$
5. $z/h < 1.0$
6. $S_{DS} < 2.0$
7. SEISMIC FORCES:

LRFD: HORIZONTAL FORCE, $E_h = 1.44W_p$
VERTICAL FORCE, $E_v = 0.4W_p$

ASD: HORIZONTAL FORCE, $E_h = 1.01W_p$
VERTICAL FORCE, $E_v = 0.28W_p$



EXAMPLE SCHEDULE			
MODEL NUMBER	# SCREWS PER REGION		
	1A, 1C, 2A, 2C	1B, 2B	3A, 3B, 3C
HCMWARDDW	2	1	1

TYPICAL ANCHORAGE REGION NOMENCLATURE

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CONVEY SYSTEM

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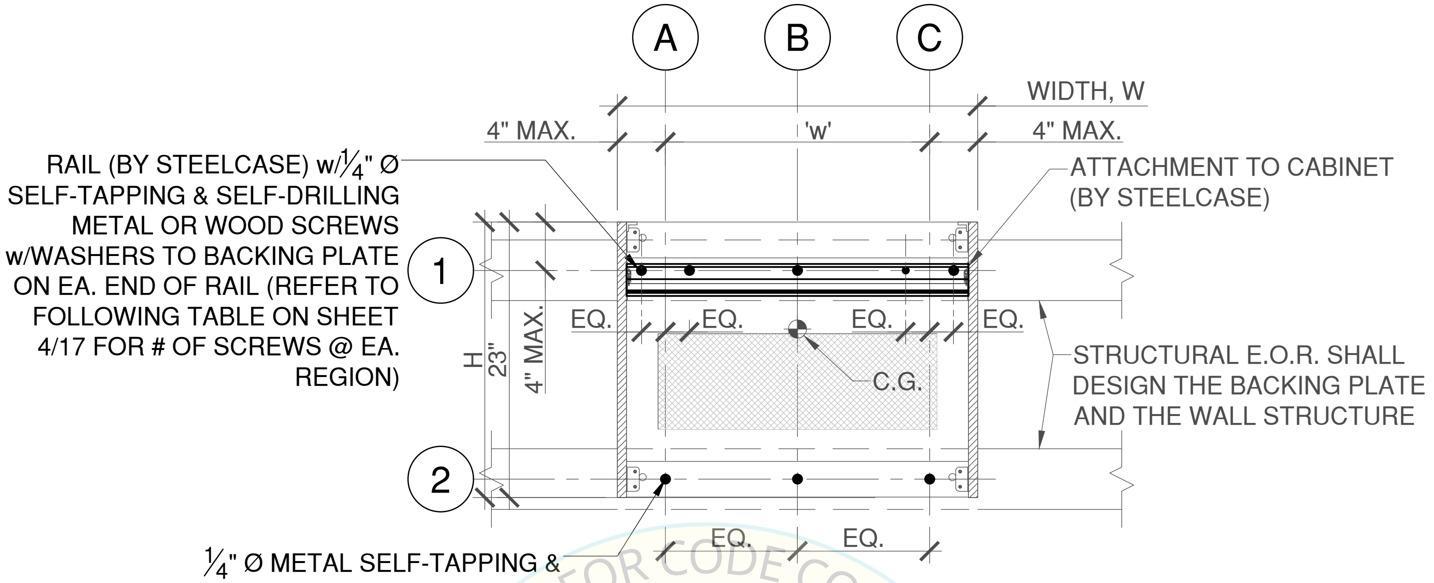
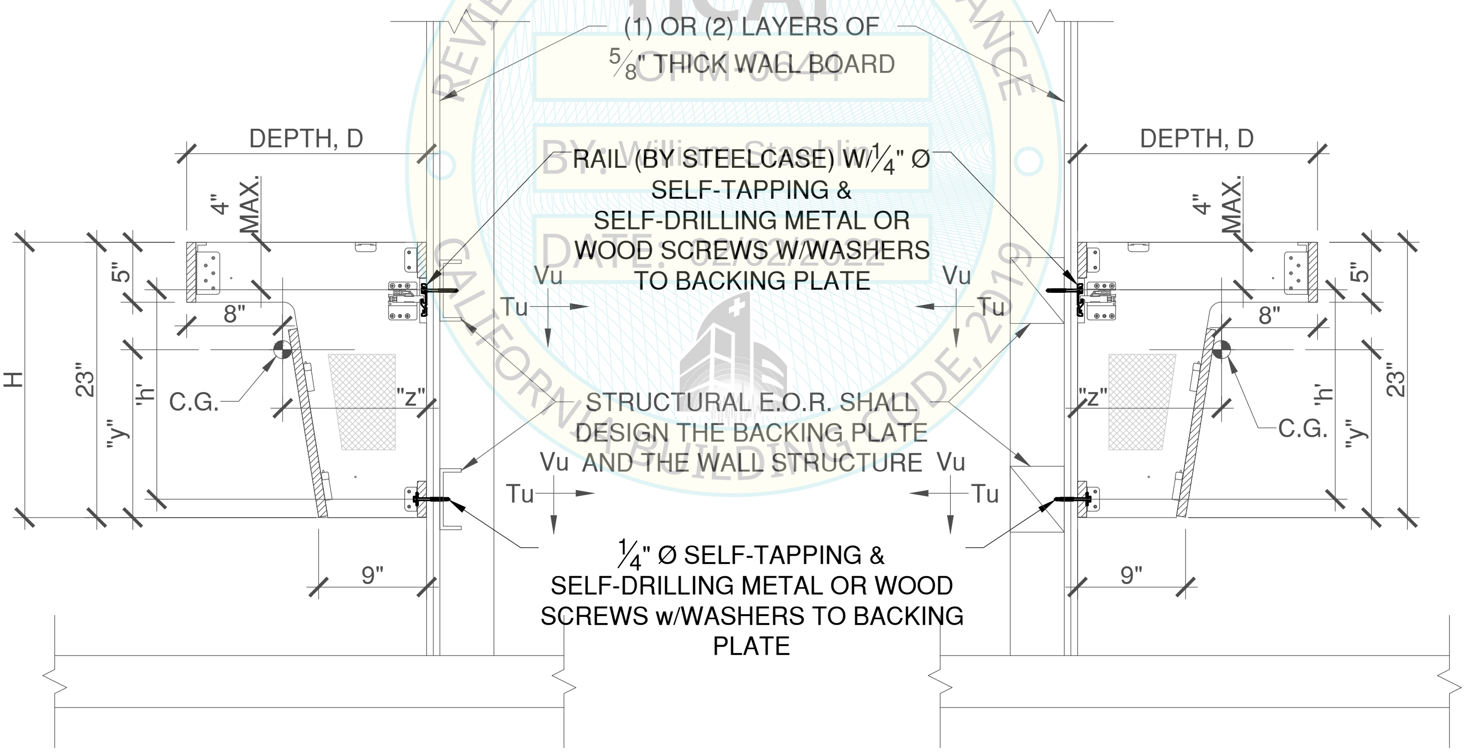


FRONT ELEVATION



SIDE ELEVATION

BASE CABINET ANGLED SINK (HCMBSINK, HCMBSINKCOH)

NOTE: MINIMUM CONNECTION SUBSTRATE PROPERTIES PER SHEET 1. CONNECTION OF INTERMEDIATE BLOCKING TO EXISTING OR NEW STUD FRAMING BY OTHERS

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SHEET 3 OF 17

CONVEY SYSTEM

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DRAFTER: MC

BASE CABINET ANGLED SINK SCHEDULE[1]

MODEL NUMBER	DEPTH	WIDTH	HEIGHT	"z"	"y"	"h"	"w"	VOLUME	WEIGHT[3]	# SCREWS PER REGION			E_h	E_v	SCREW FORCES (ASD)	
	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(FT^3)	(LB)	1A, 1C	1B	2A, 2B, 2C	(LB)	(LB)	T (LB/ SCREW)	V (LB/ SCREW)
HCMBSINK	20	30	23	12	14	15	22	8.0	264	2	1	1	266	337	117	86
	20	36	23	12	14	15	28	9.6	316	2	1	1	319	405	137	103
	20	42	23	12	14	15	34	11.2	369	2	1	1	372	472	157	120
	24	30	23	14	14	15	22	9.6	316	2	1	1	319	405	157	103
	24	36	23	14	14	15	28	11.5	380	2	1	1	383	486	183	124
	24	42	23	14	14	15	34	13.4	443	2	1	1	446	567	210	144
HCMBSINKCOH	20	30	21	12	13	13	22	7.3	241	2	1	1	243	308	117	78
	20	36	21	12	13	13	28	8.8	289	2	1	1	291	370	137	94
	20	42	21	12	13	13	34	10.2	337	2	1	1	340	431	157	110
	24	30	21	14	13	13	22	8.8	289	2	1	1	291	370	157	94
	24	36	21	14	13	13	28	10.5	347	2	1	1	349	444	184	113
	24	42	21	14	13	13	34	12.3	404	3	1	1	407	517	151	94

1. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THESE CALCULATIONS ENCOMPASS ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
2. MAXIMUM DEPTH TO CENTER OF GRAVITY NOT TO EXCEED "Z" TABULATED ABOVE. (2) LAYERS OF 5/8" THICK WALL BOARD MAXIMUM.
3. TOTAL WEIGHT INCLUDES SELF-WEIGHT AND CONTENTS NOT EXCEEDING 33LB/FT^3.

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SHEET 4 OF 17

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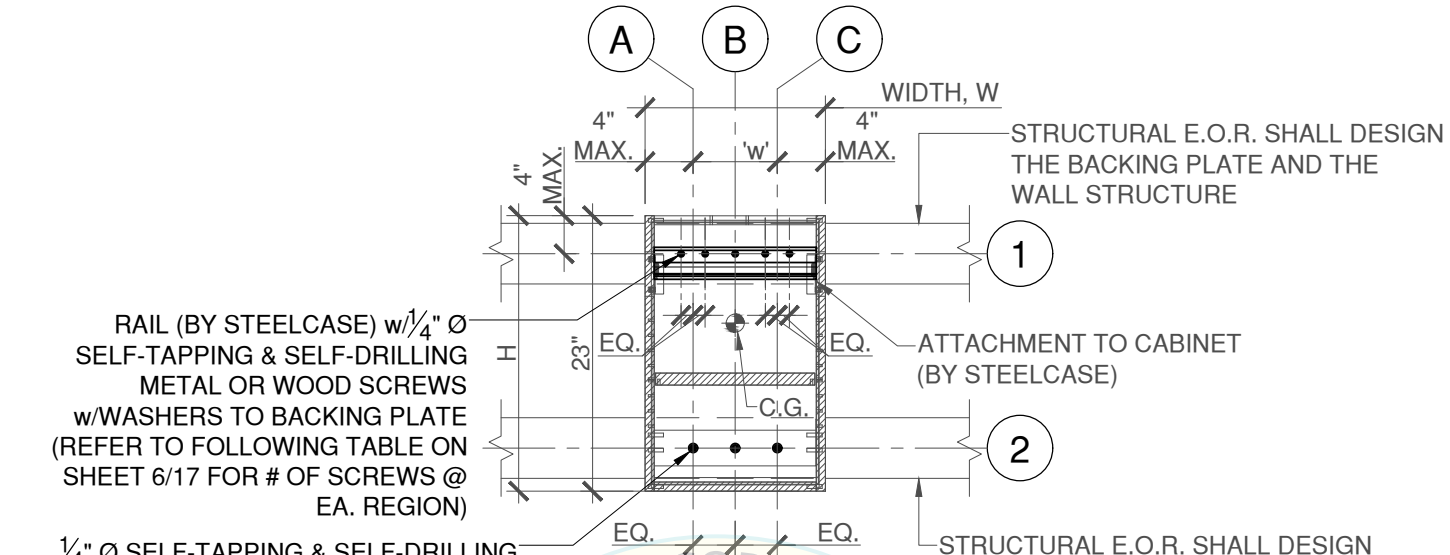
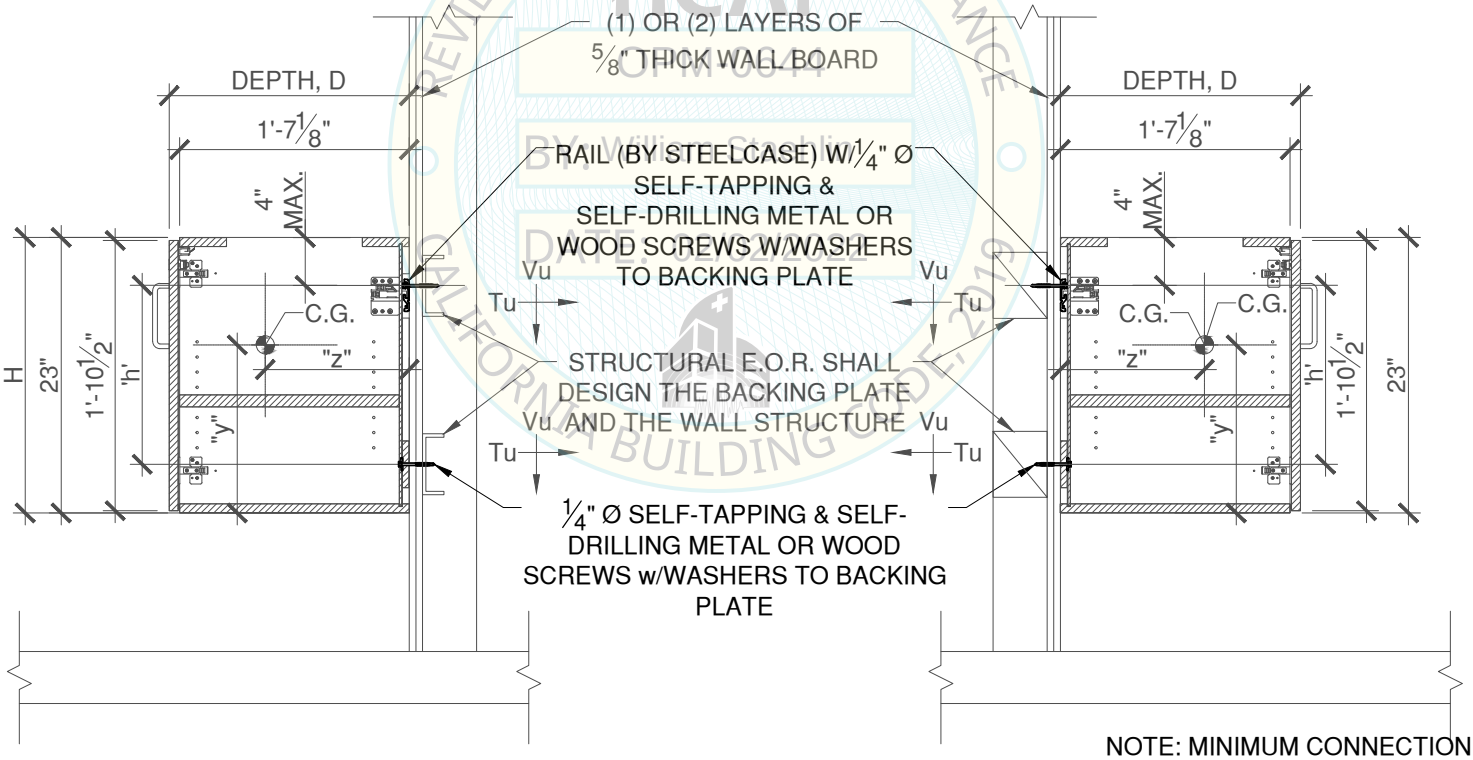


FRONT ELEVATION



SIDE ELEVATION

BASE CABINET WALL SUSPENDED
(HCMBDW, HCMBDWRW, HCMBPDWRW, HCMBPW, HCMBSINKDW, HCMBTW)

NOTE: MINIMUM CONNECTION SUBSTRATE PROPERTIES PER SHEET 1. CONNECTION OF INTERMEDIATE BLOCKING TO EXISTING OR NEW STUD FRAMING BY OTHERS

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SHEET 5 OF 17

CONVEY SYSTEM

HCAI OPM-0644

REGISTERED PROFESSIONAL ENGINEER — ERIC CHRISTIAN STOVNER — No. S 4204 — STRUCTURAL — STATE OF CALIFORNIA

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1 REVISION 01-21-2022	
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BASE CABINET WALL-SUSPENDED SCHEDULE[1]

MODEL NUMBER	DEPTH	WIDTH	HEIGHT	"z"	"y"	"h"	"w"	VOLUME	WEIGHT[3]	# SCREWS PER REGION			E_h	E_v	SCREW FORCES (ASD)	
	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(FT^3)	(LB)	1A, 1C	1B	2A, 2B, 2C	(LB)	(LB)	T (LB/ SCREW)	V (LB/ SCREW)
HCMBDW	20	15	23	12	14	15	7	4.0	132	2	1	1	133	169	91	43
	20	18	23	12	14	15	10	4.8	158	2	1	1	159	202	82	52
	20	24	23	12	14	15	16	6.4	211	2	1	1	213	270	98	69
	20	30	23	12	14	15	22	8.0	264	2	1	1	266	337	117	86
	20	36	23	12	14	15	28	9.6	316	2	1	1	319	405	137	103
	20	42	23	12	14	15	34	11.2	369	2	1	1	372	472	157	120
HCMBDWRW	20	15	23	12	14	15	7	4.0	132	2	1	1	133	169	91	43
	20	18	23	12	14	15	10	4.8	158	2	1	1	159	202	82	52
	20	24	23	12	14	15	16	6.4	211	2	1	1	213	270	98	69
HCMBPDWRW	20	24	23	12	14	15	16	6.4	211	2	1	1	213	270	98	69
	20	30	23	12	14	15	22	8.0	264	2	1	1	266	337	117	86
	20	36	23	12	14	15	28	9.6	316	2	1	1	319	405	137	103
HCMBPW	20	24	23	12	14	15	16	6.4	211	2	1	1	213	270	98	69
	20	30	23	12	14	15	22	8.0	264	2	1	1	266	337	117	86
	20	36	23	12	14	15	28	9.6	316	2	1	1	319	405	137	103
HCMBSINKDW	20	15	23	12	14	15	7	4.0	132	2	1	1	133	169	91	43
	20	18	23	12	14	15	10	4.8	158	2	1	1	159	202	82	52
	20	24	23	12	14	15	16	6.4	211	2	1	1	213	270	98	69
	20	30	23	12	14	15	22	8.0	264	2	1	1	266	337	117	86
	20	36	23	12	14	15	28	9.6	316	2	1	1	319	405	137	103
HCMBTW	20	15	23	12	14	15	7	4.0	132	2	1	1	133	169	91	43
	20	18	23	12	14	15	10	4.8	158	2	1	1	159	202	82	52
	20	24	23	12	14	15	16	6.4	211	2	1	1	213	270	98	69

1. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THESE CALCULATIONS ENCOMPASS ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
2. MAXIMUM DEPTH TO CENTER OF GRAVITY NOT TO EXCEED "Z" TABULATED ABOVE. (2) LAYERS OF 5/8" THICK WALL BOARD MAXIMUM.
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SHEET 6 OF 17

CONVEY SYSTEM

HCAI OPM-0644

REGISTERED PROFESSIONAL ENGINEER — ERIC CHRISTIAN STOVNER — No. S 4204 — STRUCTURAL — STATE OF CALIFORNIA

REVISIONS	REV. DATE
1 REVISION 01-21-2022	
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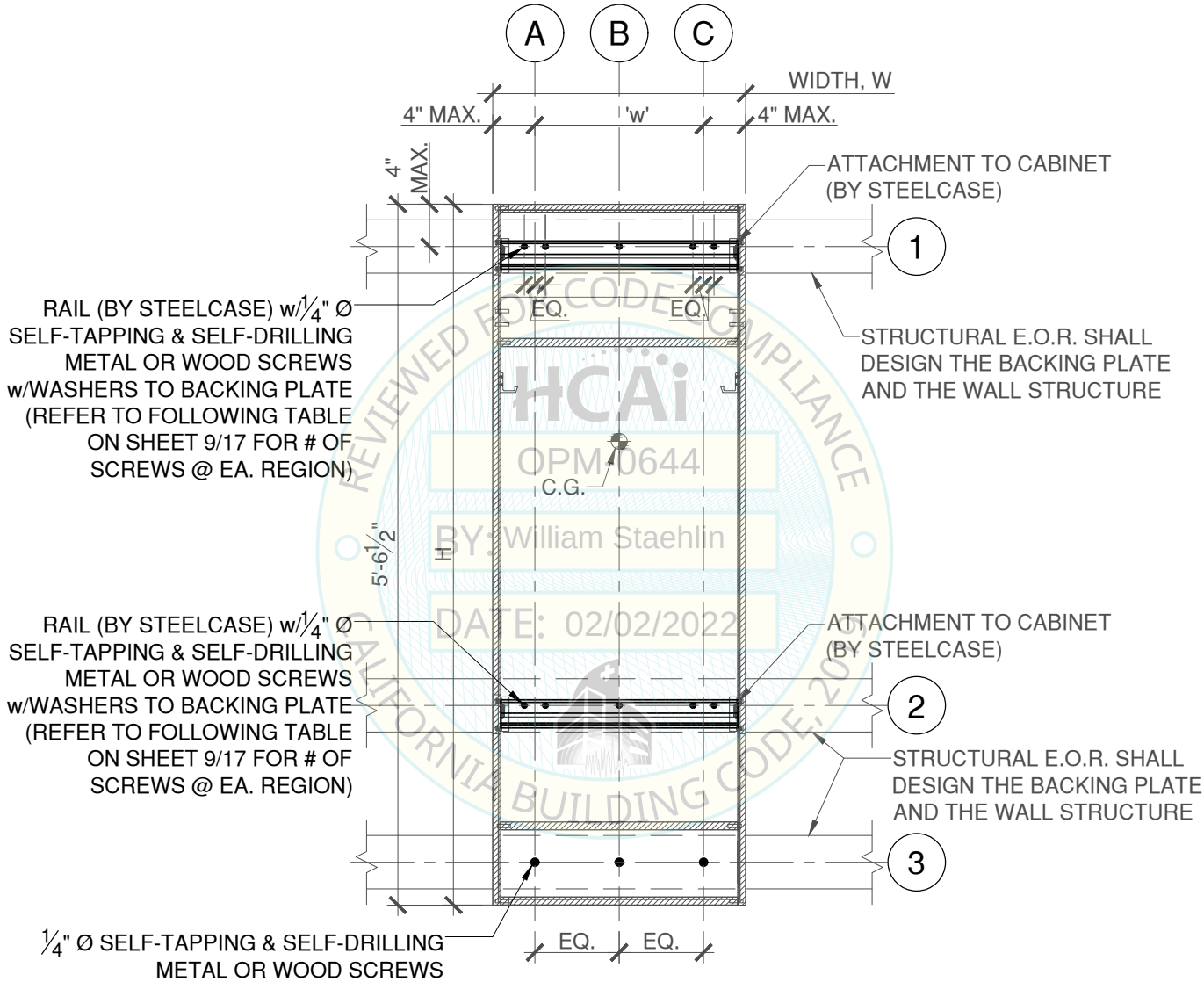

FRONT ELEVATION

NOTE: MINIMUM CONNECTION SUBSTRATE PROPERTIES PER SHEET 1. CONNECTION OF INTERMEDIATE BLOCKING TO EXISTING OR NEW STUD FRAMING BY OTHERS

TALL STORAGE WALL SUSPENDED (HCMWARDDW, HCMWARDW)

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SHEET 7 OF 17

CONVEY SYSTEM

HCAI OPM-0644

REGISTERED PROFESSIONAL ENGINEER
ERIC CHRISTIAN STOVNER
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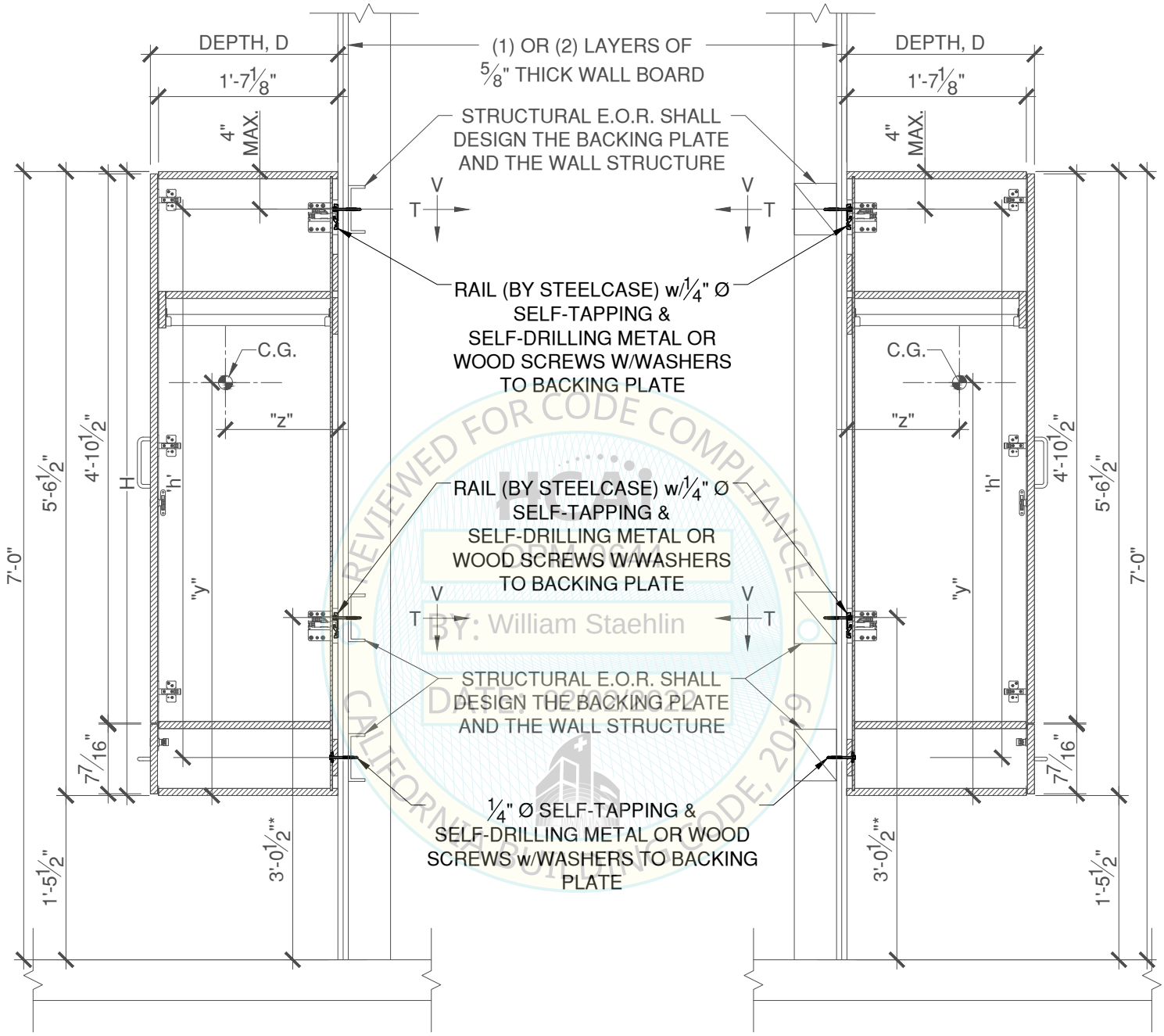

SIDE ELEVATION

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TALL STORAGE WALL SUSPENDED (HCMWARDDW, HCMWARDW)

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SHEET 8 OF 17

CONVEY SYSTEM

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TALL STORAGE WALL-SUSPENDED SCHEDULE[1]

MODEL NUMBER	DEPTH	WIDTH	HEIGHT	"z"	"y"	"h"	"w"	VOLUME	WEIGHT[3]	# SCREWS PER REGION			E_h	E_v	SCREW FORCES (ASD)	
	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(FT^3)	(LB)	1A, 1C, 2A, 2C	1A, 2B	3A, 3B, 3C	(LB)	(LB)	T (LB/ SCREW)	V (LB/ SCREW)
HCMWARDDW	20	15	66.5	12	40	59	7	11.5	381	2	1	1	384	488	153	62
	20	18	66.5	12	40	59	10	13.9	457	2	1	1	461	585	137	74
	20	24	66.5	12	40	59	16	18.5	610	2	1	1	614	780	143	99
	20	15	72.5	12	44	65	7	12.6	415	2	1	1	419	532	166	68
	20	18	72.5	12	44	65	10	15.1	498	2	1	1	502	638	148	81
	20	24	72.5	12	44	65	16	20.1	665	2	1	1	670	851	152	108
	20	15	74.5	12	45	67	7	12.9	427	2	1	1	430	546	171	70
	20	18	74.5	12	45	67	10	15.5	512	2	1	1	516	656	152	83
	20	24	74.5	12	45	67	16	20.7	683	2	1	1	688	874	155	111
HCMWARDW	19.13	15	66.5	11	40	59	7	11.0	364	2	1	1	367	466	141	59
	19.13	18	66.5	11	40	59	10	13.2	437	2	1	1	441	560	126	71
	19.13	15	72.5	11	44	65	7	12.0	397	2	1	1	400	508	153	65
	19.13	18	72.5	11	44	65	10	14.4	477	2	1	1	480	610	136	78
	19.13	15	74.5	11	45	67	7	12.4	408	2	1	1	411	522	157	66
	19.13	18	74.5	11	45	67	10	14.8	490	2	1	1	494	627	140	80

1. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THESE CALCULATIONS ENCOMPASS ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
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SHEET 9 OF 17

CONVEY SYSTEM

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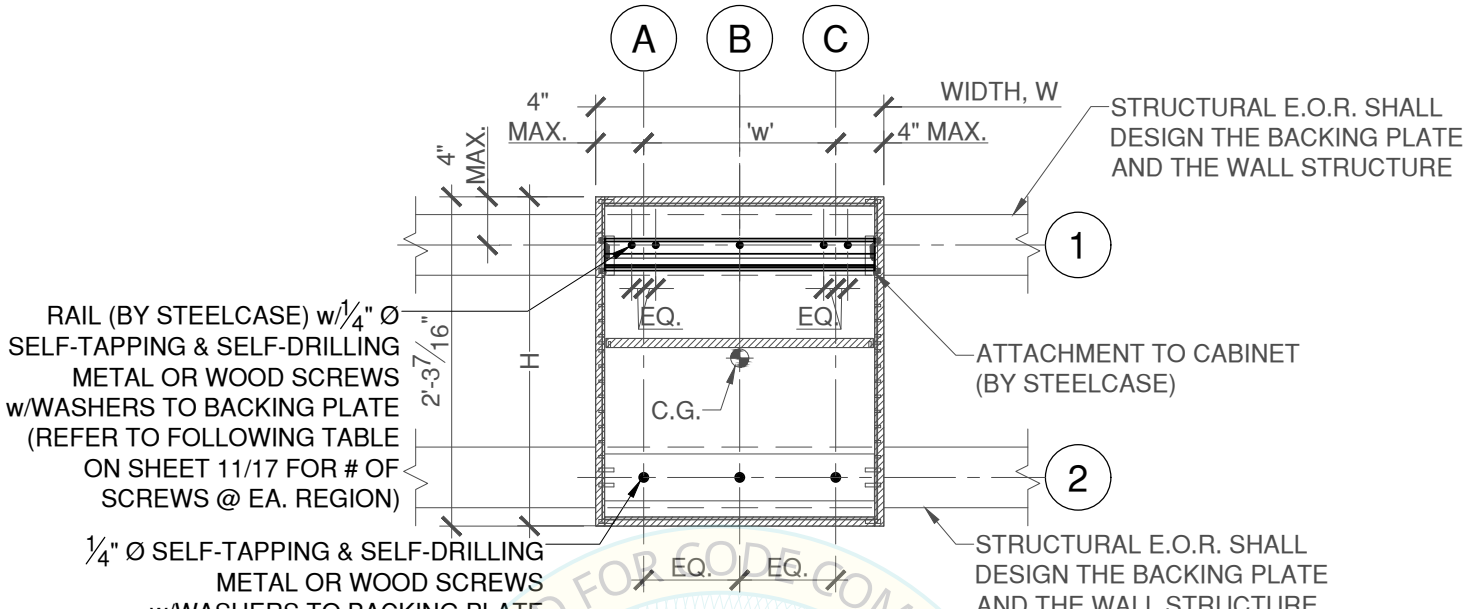
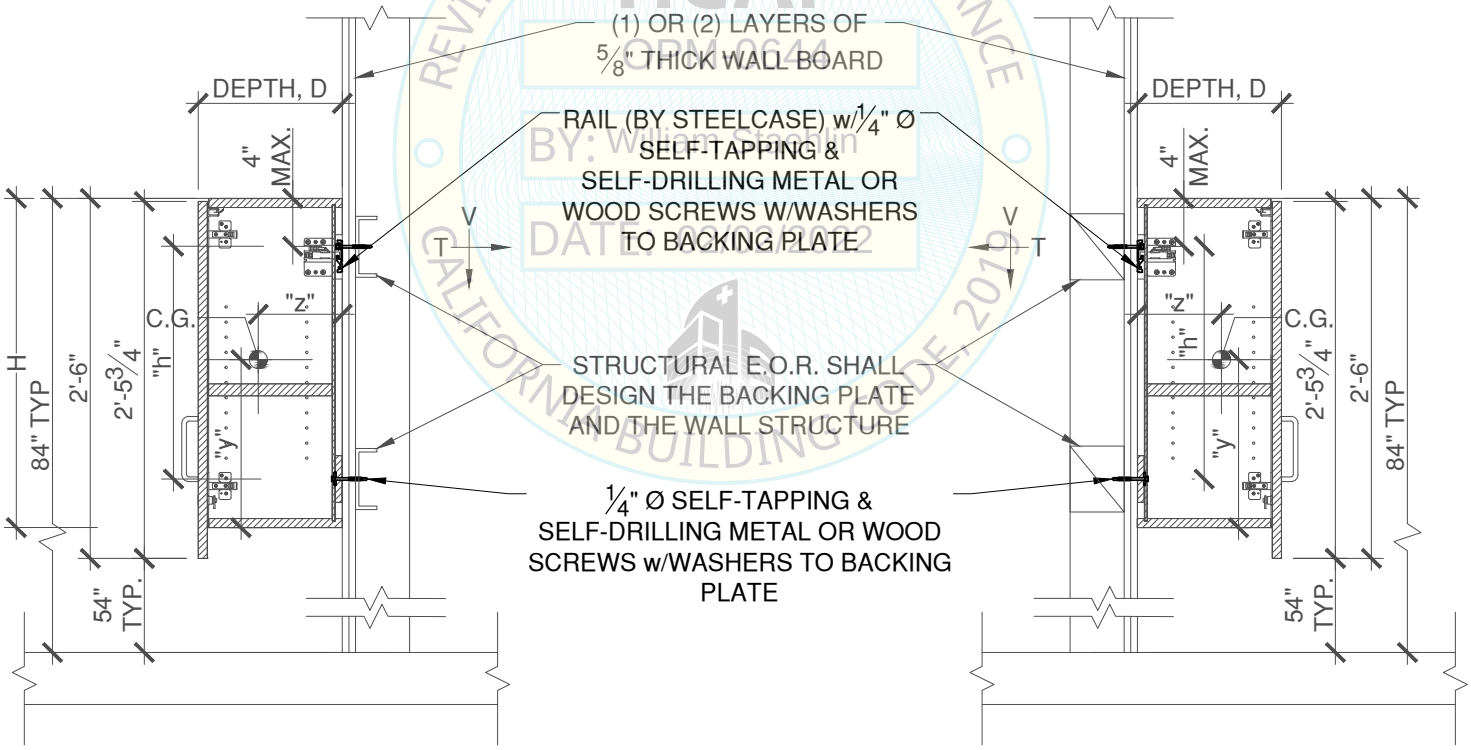


FRONT ELEVATION



SIDE ELEVATION

UPPER STORAGE CABINET
(HCMUD, HCMUDNB, HCMUOSSDNB)

NOTE: MINIMUM CONNECTION SUBSTRATE PROPERTIES PER SHEET 1. CONNECTION OF INTERMEDIATE BLOCKING TO EXISTING OR NEW STUD FRAMING BY OTHERS

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SHEET 10 OF 17

CONVEY SYSTEM

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DRAFTER: MC	

UPPER STORAGE CABINET SCHEDULE[1]

MODEL NUMBER	DEPTH	WIDTH	HEIGHT	"z"	"y"	"h"	"w"	VOLUME	WEIGHT[3]	# SCREWS PER REGION			E_h	E_v	SCREW FORCES (ASD)	
	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(FT^3)	(LB)	1A, 1C	1B	2A, 2B, 2C	(LB)	(LB)	T (LB/ SCREW)	V (LB/ SCREW)
HCMUD & HCMUDNB	12	15	24	7	14	16	7	2.5	83	2	2	1	83	106	36	27
	12	18	24	7	14	16	10	3.0	99	2	2	1	100	127	37	32
	12	24	24	7	14	16	16	4.0	132	2	2	1	133	169	45	43
	12	30	24	7	14	16	22	5.0	165	2	2	1	166	211	54	54
	12	36	24	7	14	16	28	6.0	198	2	2	1	200	253	64	65
	15	15	24	9	14	16	7	3.1	103	2	2	1	104	132	55	34
	15	18	24	9	14	16	10	3.8	124	2	2	1	125	158	51	40
	15	24	24	9	14	16	16	5.0	165	2	2	1	166	211	63	54
	15	30	24	9	14	16	22	6.3	206	2	2	1	208	264	76	67
	15	36	24	9	14	16	28	7.5	248	2	2	1	249	317	89	81
	12	15	30	7	18	22	7	3.1	103	2	2	1	104	132	43	34
	12	18	30	7	18	22	10	3.8	124	2	2	1	125	158	40	40
	12	24	30	7	18	22	16	5.0	165	2	2	1	166	211	49	54
	12	30	30	7	18	22	22	6.3	206	2	2	1	208	264	58	67
	12	36	30	7	18	22	28	7.5	248	2	2	1	249	317	68	81
	15	15	30	9	18	22	7	3.9	129	2	2	1	130	165	66	42
	15	18	30	9	18	22	10	4.7	155	2	2	1	156	198	59	50
	15	24	30	9	18	22	16	6.3	206	2	2	1	208	264	67	67
	15	30	30	9	18	22	22	7.8	258	2	2	1	260	330	80	84
	15	36	30	9	18	22	28	9.4	309	2	2	1	312	396	93	101
HCMUOSSDNB	9	15	24	5	14	16	7	1.9	62	2	2	1	62	79	21	20
	9	18	24	5	14	16	101	2.3	74	2	2	1	75	95	24	24
	9	24	24	5	14	16	6	3.0	99	2	2	1	100	127	30	32
	9	30	24	5	14	16	22	3.8	124	2	2	1	125	158	36	40
	9	36	24	5	14	16	28	4.5	149	2	2	1	150	190	43	48
	9	15	30	5	18	22	7	2.3	77	2	2	1	78	99	25	25
	9	18	30	5	18	22	101	2.8	93	2	2	1	94	119	26	30
	9	24	30	5	18	22	6	3.8	124	2	2	1	125	158	32	40
	9	30	30	5	18	22	22	4.7	155	2	2	1	156	198	39	50
	9	36	30	5	18	22	28	5.6	186	2	2	1	187	238	46	60

1. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THESE CALCULATIONS ENCOMPASS ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
2. MAXIMUM DEPTH TO CENTER OF GRAVITY NOT TO EXCEED "Z" TABULATED ABOVE. (2) LAYERS OF 5/8" THICK WALL BOARD MAXIMUM.
3. TOTAL WEIGHT INCLUDES SELF-WEIGHT AND CONTENTS NOT EXCEEDING 33LB/FT^3.

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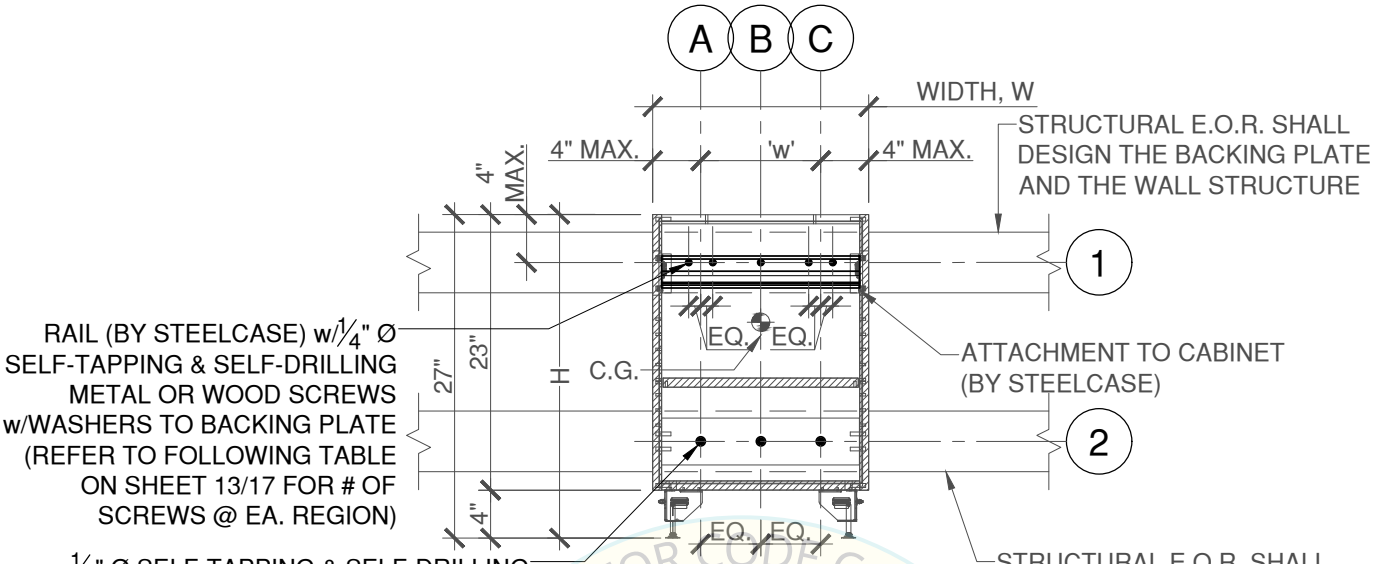
SHEET 11 OF 17

CONVEY SYSTEM

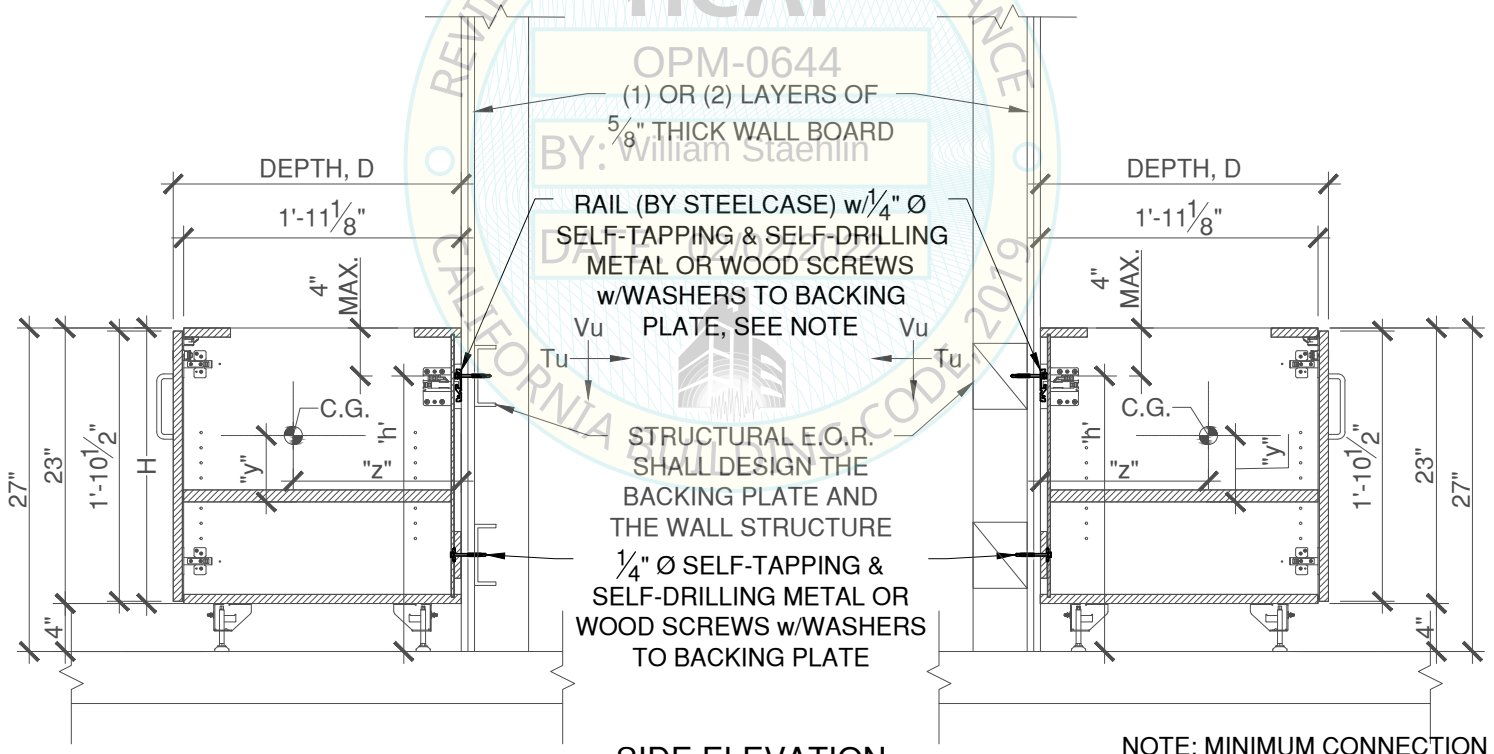
HCAI OPM-0644

REGISTERED PROFESSIONAL ENGINEER ERIC CHRISTIAN STOVNER No. S 4204 STRUCTURAL STATE OF CALIFORNIA

REVISIONS	REV. DATE
1 REVISION 01-21-2022	
DATE: 07-06-2021	
PROJECT: 20-631	
ENGINEER: NK	
DRAFTER: MC	



FRONT ELEVATION



SIDE ELEVATION
BASE CABINET FLOOR EXTENDED
(HCMBDF, HCMBDWRDF, HCMBGWRF, HCMBGDF, HCMBGF, HCMBPDWRF, HCMBPF, HCMBSINKDF, HCMBTF)

NOTE: MINIMUM CONNECTION SUBSTRATE PROPERTIES PER SHEET 1. CONNECTION OF INTERMEDIATE BLOCKING TO EXISTING OR NEW STUD FRAMING BY OTHERS

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SHEET 12 OF 17

CONVEY SYSTEM

HCAI OPM-0644

REGISTERED PROFESSIONAL ENGINEER
ERIC CHRISTIAN STOVNER
No. S 4204
STRUCTURAL
STATE OF CALIFORNIA

REVISIONS	REV. DATE
1 REVISION 01-21-2022	
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DRAFTER: MC	

BASE CABINET FLOOR EXTENDED SCHEDULE[1]

MODEL NUMBER	DEPTH	WIDTH	HEIGHT	"z"	"y"	"h"	"w"	VOLUME	WEIGHT[3]	# SCREWS PER REGION			E_h	E_v	SCREW FORCES (ASD)	
	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(FT^3)	(LB)	1A, 1C	1B	2A, 2B, 2C	(LB)	(LB)	T (LB/ SCREW)	V (LB/ SCREW)
HCMBDF	24	15	23.0	14	14	23	7	4.8	158	2	1	1	159	51	116	32
	24	15	28.5	14	17	29	7	5.9	196	2	1	1	198	63	143	40
	24	15	30.5	14	18	31	7	6.4	210	2	1	1	211	67	153	42
	24	15	36.5	14	22	37	7	7.6	251	2	1	1	253	80	183	51
	24	18	23.0	14	14	23	10	5.8	190	2	1	1	191	61	100	38
	24	18	28.5	14	17	29	10	7.1	235	2	1	1	237	75	123	47
	24	18	30.5	14	18	31	10	7.6	252	2	1	1	254	81	132	51
	24	18	36.5	14	22	37	10	9.1	301	2	1	1	304	96	158	61
	24	24	23.0	14	14	23	16	7.7	253	2	1	1	255	81	87	51
	24	24	28.5	14	17	29	16	9.5	314	2	1	1	316	100	108	63
	24	24	30.5	14	18	31	16	10.2	336	2	1	1	338	107	115	68
	24	24	36.5	14	22	37	16	12.2	402	2	1	1	405	128	137	81
	24	30	23.0	14	14	23	22	9.6	316	2	1	1	319	101	83	64
	24	30	28.5	14	17	29	22	11.9	392	2	1	1	395	125	102	79
	24	30	30.5	14	18	31	22	12.7	419	2	1	1	423	134	109	85
	24	30	36.5	14	22	37	22	15.2	502	2	1	1	506	161	130	101
	24	36	23.0	14	14	23	28	11.5	380	2	1	1	383	121	82	77
	24	36	28.5	14	17	29	28	14.3	470	2	1	1	474	150	101	95
	24	36	30.5	14	18	31	28	15.3	503	2	1	1	507	161	107	101
	24	36	36.5	14	22	37	28	18.3	602	2	1	1	607	193	128	121
	24	42	23.0	14	14	23	34	13.4	443	2	1	1	446	142	82	89
	24	42	28.5	14	17	29	34	16.6	549	2	1	1	553	176	101	111
	24	42	30.5	14	18	31	34	17.8	587	2	1	1	592	188	107	118
	24	42	36.5	14	22	37	34	21.3	703	2	1	1	708	225	128	142
HCMBDWRDF	24	15	23.0	14	14	23	7	4.8	158	2	1	1	159	51	116	32
	24	15	28.5	14	17	29	7	5.9	196	2	1	1	198	63	143	40
	24	15	30.5	14	18	31	7	6.4	210	2	1	1	211	67	153	42
	24	18	23.0	14	14	23	10	5.8	190	2	1	1	191	61	100	38
	24	18	28.5	14	17	29	10	7.1	235	2	1	1	237	75	123	47
	24	18	30.5	14	18	31	10	7.6	252	2	1	1	254	81	132	51
	24	24	23.0	14	14	23	16	7.7	253	2	1	1	255	81	87	51
	24	24	28.5	14	17	29	16	9.5	314	2	1	1	316	100	108	63
	24	24	30.5	14	18	31	16	10.2	336	2	1	1	338	107	115	68
	24	36	23.0	14	14	23	28	11.5	380	2	1	1	383	121	82	77
	24	36	28.5	14	17	29	28	14.3	470	2	1	1	474	150	101	95
	24	36	30.5	14	18	31	28	15.3	503	2	1	1	507	161	107	101
HCMBDWRF	24	15	23.0	14	14	23	7	4.8	158	2	1	1	159	51	116	32
	24	15	28.5	14	17	29	7	5.9	196	2	1	1	198	63	143	40
	24	15	30.5	14	18	31	7	6.4	210	2	1	1	211	67	153	42
	24	18	23.0	14	14	23	10	5.8	190	2	1	1	191	61	100	38
	24	18	28.5	14	17	29	10	7.1	235	2	1	1	237	75	123	47
	24	18	30.5	14	18	31	10	7.6	252	2	1	1	254	81	132	51
	24	24	23.0	14	14	23	16	7.7	253	2	1	1	255	81	87	51
	24	24	28.5	14	17	29	16	9.5	314	2	1	1	316	100	108	63
	24	24	30.5	14	18	31	16	10.2	336	2	1	1	338	107	115	68

(CONTINUED ON SHEET 14)

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CONVEY SYSTEM
HCAI OPM-0644

REGISTERED PROFESSIONAL ENGINEER ERIC CHRISTIAN STOVNER No. S 4204 STRUCTURAL STATE OF CALIFORNIA

REVISIONS	REV. DATE
1 REVISION 01-21-2022	
DATE: 07-06-2021	
PROJECT: 20-631	
ENGINEER: NK	
DRAFTER: MC	

BASE CABINET FLOOR EXTENDED SCHEDULE[1]

MODEL NUMBER	DEPTH	WIDTH	HEIGHT	"z"	"y"	"h"	"w"	VOLUME	WEIGHT[3]	# SCREWS PER REGION			E_h	E_v	SCREW FORCES (ASD)	
	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(FT^3)	(LB)	1A, 1C	1B	2A, 2B, 2C	(LB)	(LB)	T (LB/ SCREW)	V (LB/ SCREW)
HCMBGDF	24	24	28.5	14	17	29	16	9.5	314.0	2	1	1	316	100	108	63
	24	24	30.5	14	18	31	16	10.2	336.0	2	1	1	338	107	115	68
	24	24	36.5	14	22	37	16	12.2	402.0	2	1	1	405	128	137	81
	24	30	28.5	14	17	29	22	11.9	392.0	2	1	1	395	125	102	79
	24	30	30.5	14	18	31	22	12.7	419.0	2	1	1	423	134	109	85
	24	30	36.5	14	22	37	22	15.2	502.0	2	1	1	506	161	130	101
	24	36	28.5	14	17	29	28	14.3	470.0	2	1	1	474	150	101	95
	24	36	30.5	14	18	31	28	15.3	503.0	2	1	1	507	161	107	101
	24	36	36.5	14	22	37	28	18.3	602.0	2	1	1	607	193	128	121
HCMBGF	23.13	24	32.5	14	20	33	16	10.4	344.0	2	1	1	347	110	114	69
	23.13	24	34.5	14	21	35	16	11.1	366.0	2	1	1	369	117	121	74
	23.13	24	40.5	14	24	41	16	13.0	429.0	2	1	1	433	137	142	87
	23.13	30	32.5	14	20	33	22	13.0	431.0	2	1	1	434	138	109	87
	23.13	30	34.5	14	21	35	22	13.9	457.0	2	1	1	461	146	115	92
	23.13	30	40.5	14	24	41	22	16.3	537.0	2	1	1	541	172	135	108
	23.13	36	32.5	14	20	33	28	15.7	517.0	2	1	1	521	165	107	104
	23.13	36	34.5	14	21	35	28	16.6	548.0	2	1	1	553	176	113	111
	23.13	36	40.5	14	24	41	28	19.5	644.0	2	1	1	649	206	133	130
HCMBPDWRF & HCMBPF	24	24	23.0	14	14	23	16	7.7	253	2	1	1	255	81	87	51
	24	24	28.5	14	17	29	16	9.5	314	2	1	1	316	100	108	63
	24	24	30.5	14	18	31	16	10.2	336	2	1	1	338	107	115	68
	24	30	23.0	14	14	23	22	9.6	316	2	1	1	319	101	83	64
	24	30	28.5	14	17	29	22	11.9	392	2	1	1	395	125	102	79
	24	30	30.5	14	18	31	22	12.7	419	2	1	1	423	134	109	85
	24	36	23.0	14	14	23	28	11.5	380	2	1	1	383	121	82	77
	24	36	28.5	14	17	29	28	14.3	470	2	1	1	474	150	101	95
	24	36	30.5	14	18	31	28	15.3	503	2	1	1	507	161	107	101
HCMBSINKDF	24	15	28.5	14	17	29	7	5.9	196	2	1	1	198	63	143	40
	24	15	30.5	14	18	31	7	6.4	210	2	1	1	211	67	153	42
	24	18	28.5	14	17	29	10	7.1	235	2	1	1	237	75	123	47
	24	18	30.5	14	18	31	10	7.6	252	2	1	1	254	81	132	51
	24	24	28.5	14	17	29	16	9.5	314	2	1	1	316	100	108	63
	24	24	30.5	14	18	31	16	10.2	336	2	1	1	338	107	115	68
	24	30	28.5	14	17	29	22	11.9	392	2	1	1	395	125	102	79
	24	30	30.5	14	18	31	22	12.7	419	2	1	1	423	134	109	85
	24	36	28.5	14	17	29	28	14.3	470	2	1	1	474	150	101	95
	24	36	30.5	14	18	31	28	15.3	503	2	1	1	507	161	107	101
HCMBTF	24	15	28.5	14	17	29	7	9.6	196	2	1	1	198	63	143	40
	24	15	30.5	14	18	31	7	11.9	210	2	1	1	211	67	153	42
	24	18	28.5	14	17	29	10	12.7	235	2	1	1	237	75	123	47
	24	18	30.5	14	18	31	10	11.5	252	2	1	1	254	81	132	51
	24	24	28.5	14	17	29	16	14.3	314	2	1	1	316	100	108	63
	24	24	30.5	14	18	31	16	15.3	336	2	1	1	338	107	115	68

1. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THESE CALCULATIONS ENCOMPASS ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
2. MAXIMUM DEPTH TO CENTER OF GRAVITY NOT TO EXCEED "Z" TABULATED ABOVE. (2) LAYERS OF 5/8" THICK WALL BOARD MAXIMUM.
3. TOTAL WEIGHT INCLUDES SELF-WEIGHT AND CONTENTS NOT EXCEEDING 33LB/FT^3.

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SHEET 14 OF 17

CONVEY SYSTEM

HCAI OPM-0644

REGISTERED PROFESSIONAL ENGINEER ERIC CHRISTIAN STOVNER No. S 4204 STRUCTURAL STATE OF CALIFORNIA

REVISIONS	REV. DATE
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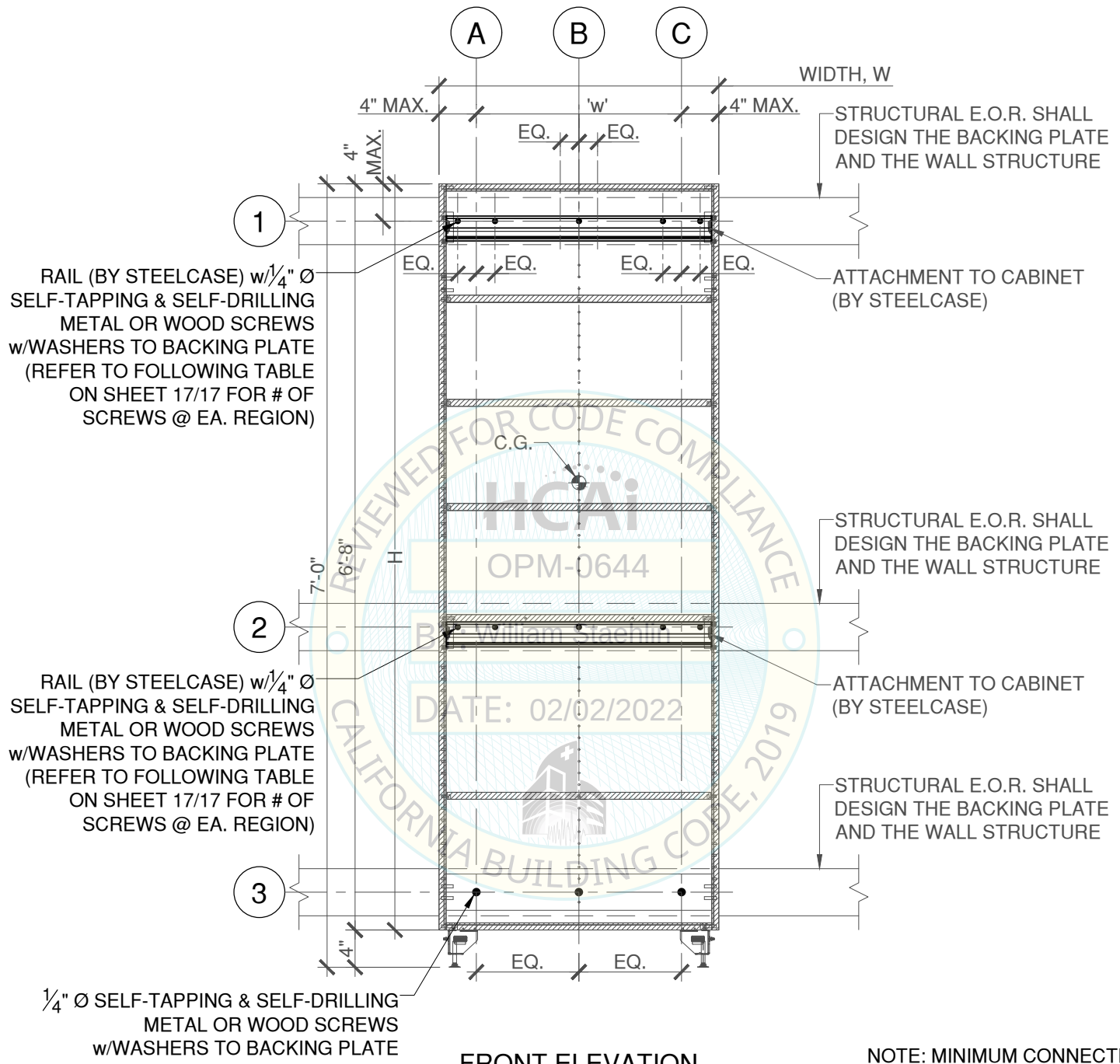
ENGINEER: NK	
DRAFTER: MC	



FRONT ELEVATION

NOTE: MINIMUM CONNECTION SUBSTRATE PROPERTIES PER SHEET 1. CONNECTION OF INTERMEDIATE BLOCKING TO EXISTING OR NEW STUD FRAMING BY OTHERS

TALL STORAGE FLOOR EXTENDED
(HCMSCDF, HCMSCF, HCMWARDDF, HCMWARDF)

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SHEET 15 OF 17

CONVEY SYSTEM

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REGISTERED PROFESSIONAL ENGINEER
ERIC CHRISTIAN STOVNER
No. S 4204
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STATE OF CALIFORNIA

REVISIONS	REV. DATE
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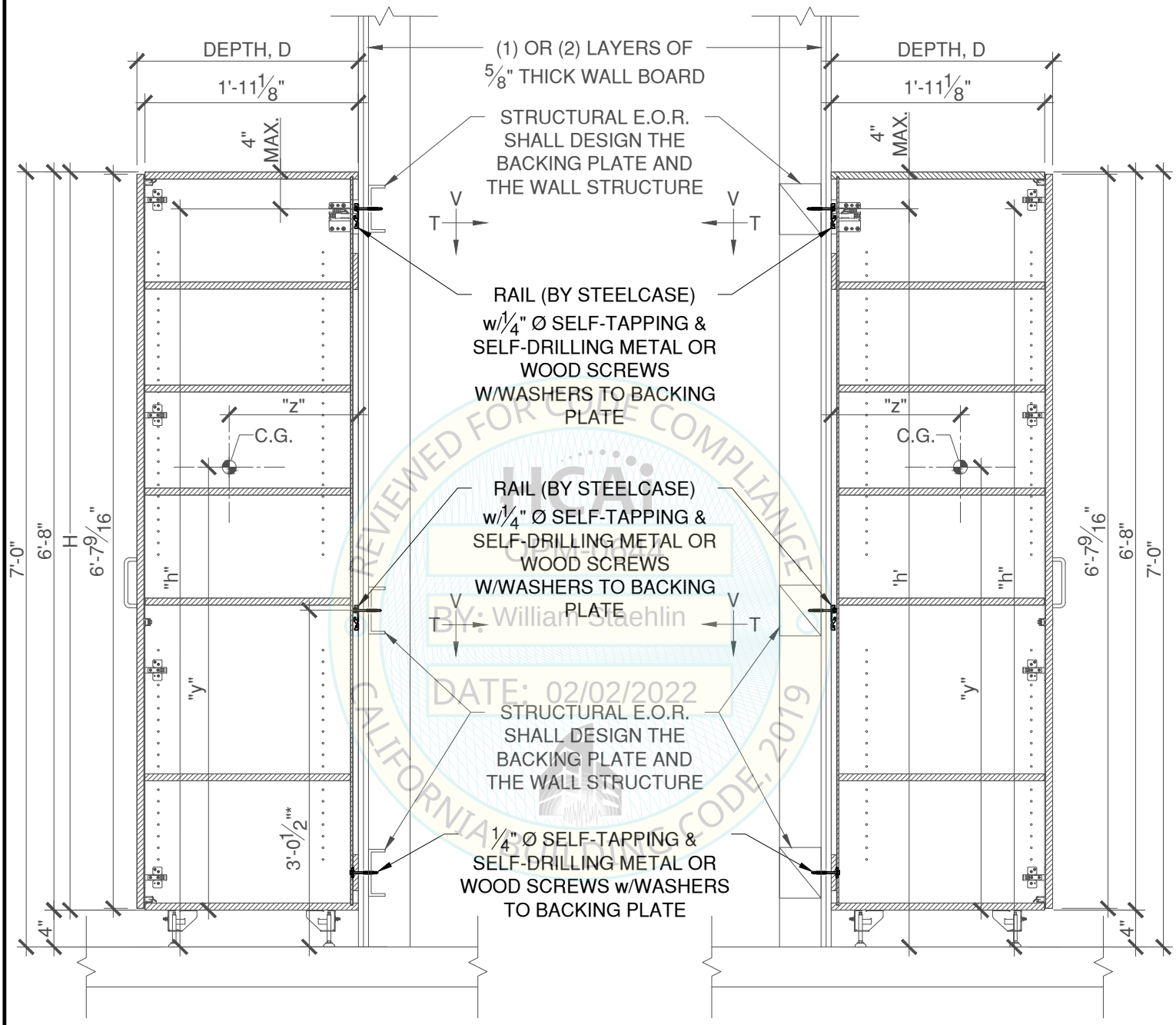
DRAFTER: MC	



SIDE ELEVATION

NOTE: MINIMUM CONNECTION SUBSTRATE PROPERTIES PER SHEET 1. CONNECTION OF INTERMEDIATE BLOCKING TO EXISTING OR NEW STUD FRAMING BY OTHERS

TALL STORAGE FLOOR EXTENDED
(HCMSCDF, HCMSCF, HCMWARDDF, HCMWARDF)

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SHEET 16 OF 17

CONVEY SYSTEM

HCAI OPM-0644

REGISTERED PROFESSIONAL ENGINEER
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No. S 4204
STRUCTURAL
STATE OF CALIFORNIA

REVISIONS	REV. DATE
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DATE: 07-06-2021	
PROJECT: 20-631	
ENGINEER: NK	
DRAFTER: MC	

TALL STORAGE FLOOR EXTENDED SCHEDULE[1]

MODEL NUMBER	DEPTH	WIDTH	HEIGHT	"z"	"y"	"h"	"w"	VOLUME	WEIGHT[3]	# SCREWS PER REGION			E_h	E_v	SCREW FORCES (ASD)	
	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(FT^3)	(LB)	1A, 1C, 2A, 2C	1B, 2B	3A, 3B, 3C	(LB)	(LB)	T (LB/ SCREW)	V (LB/ SCREW)
HCMSCDF	24	24	80.0	14	48	80	16	26.7	880	2	1	1	887	282	193	89
	24	30	80.0	14	48	80	22	33.3	1100	2	1	1	1109	352	187	111
	24	36	80.0	14	48	80	28	40.0	1320	2	1	1	1331	422	208	133
HCMSCF	23.13	24	80.0	14	48	80	16	25.7	848	2	1	1	855	271	181	85
	23.13	30	80.0	14	48	80	22	32.1	1060	2	1	1	1068	339	175	107
	23.13	36	80.0	14	48	80	28	38.5	1272	2	1	1	1282	407	199	128
HCMWARDDF	24	151	80.0	14	48	80	7	16.7	550	3	1	1	554	176	178	40
	24	8	80.0	14	48	80	10	20.0	665	3	1	1	665	211	155	48
	24	24	80.0	14	48	80	16	26.7	887	2	1	1	887	282	193	89
	24	30	80.0	14	48	80	22	33.3	1109	2	1	1	1109	352	187	111
HCMWARDF	23.13	15	80.0	14	48	80	7	16.1	530	3	1	1	534	170	166	38
	23.13	18	80.0	14	48	80	10	19.3	636	2	1	1	641	204	202	64

1. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THESE CALCULATIONS ENCOMPASS ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
2. MAXIMUM DEPTH TO CENTER OF GRAVITY NOT TO EXCEED "Z" TABULATED ABOVE. (2) LAYERS OF 5/8" THICK WALL BOARD MAXIMUM.
3. TOTAL WEIGHT INCLUDES SELF-WEIGHT AND CONTENTS NOT EXCEEDING 33LB/FT^3.

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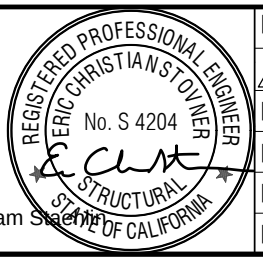
CONVEY SYSTEM

HCAI OPM-0644



REVISIONS	REV. DATE
1 REVISION 01-21-2022	
DATE: 07-06-2021	
PROJECT: 20-631	
ENGINEER: NK	
DRAFTER: MC	