BARRY L. NEWDELMAN ASSOCIATES
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Nationwide
773.425.0200

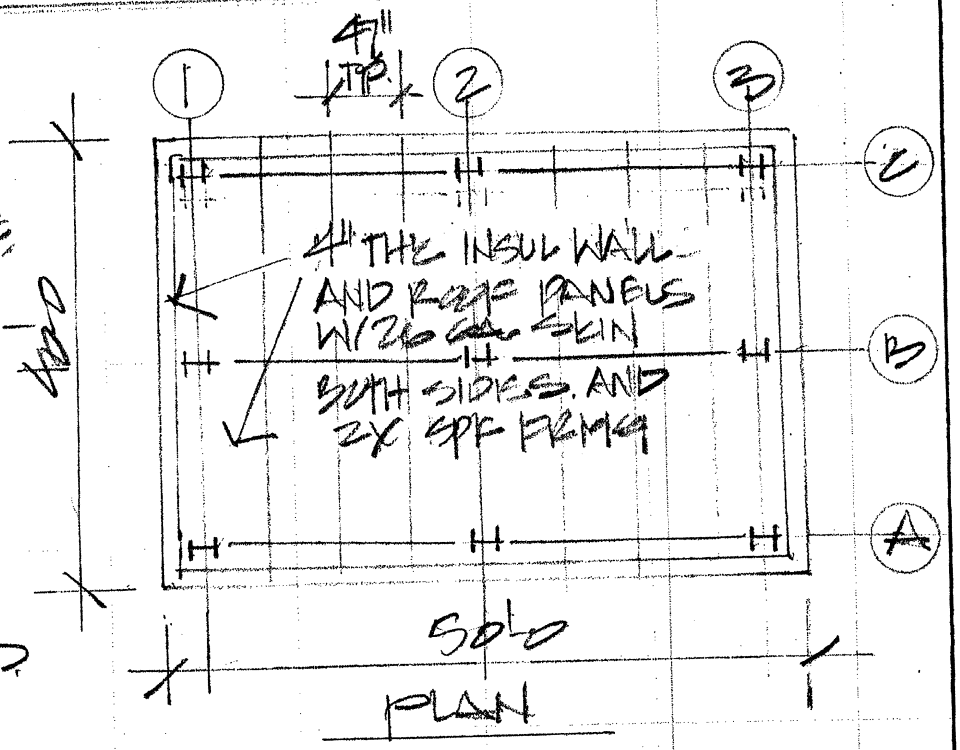
CLIENT NEWDELMAN-BOLDSCHER
PROJECT COOLER EVAL.
PROJECT NO. #22123 SHEET 1/5
PREPARED [signature] DATE 7/11/22

12730 REGISTERED ARCHITECT
Barry L. Newdelman
STATE OF WASHINGTON

THE APPROVED CONSTRUCTION PLANS AND ALL ENGINEERING MUST BE POSTED ON THE JOB AT ALL INSPECTIONS IN A VISIBLE AND READILY ACCESSIBLE LOCATION.

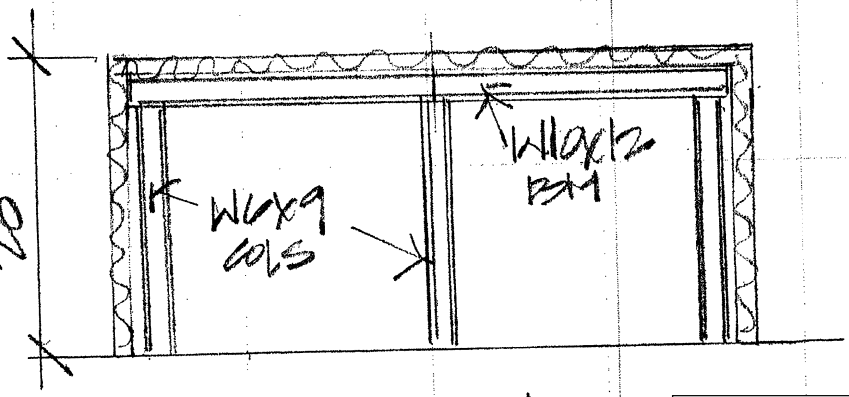
SHED NEW 40'x56'x20' HIGH
PREPARE PANEL COOLER BLDG FOR SEISMIC/LATERAL LOADS

TECHNICALLY A NONHABITABLE, NON-ESSENTIAL STRUCTURE
BUT ASSUME SITE CLASS D (NO SOIL INFO)
IMPORTANCE I=1.0
DESIGN CAT. D
ZONE 5



PLAN

NOTE:
INTERNAL STEEL SUPPORT FRAME IS "SIMPLE" OR PINNED NOT MOMENT RESISTANT.
SO THEREFORE WALLS ARE SHEAR PANELS



SECTION

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

PRCTI20220829

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PROJECT

PROJECT NO. #12213 SHEET 2/5

PREPARED DATE

1) DETERMINE LATERAL FORCES/FACTOR

CURRENT METHOD (ASCE 7) V = CsW.

OLD METHOD (CONSI ASSE 1) V = ZIKCSW

ZONE 3, Z = 3/4

K = 1.0 (SHEAR PANEL)

$C = \frac{1}{15\sqrt{T}} = 0.05$

$T = \frac{0.05(20)}{\sqrt{20}} = 1.58 \geq 0.10$ MIN.

S = 1.2 SOIL TYPE 2

W = 2x20(8) = 0.75x2 = 1.5
+ 4x12(2.5 PSF) = 0.92

Σ 2.23 x 1.20 MCE WOOD FRAME

= 2.67

USE SDC CONSV.

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PROJECT
PROJECT NO. #12212 SHEET 3/5
PREPARED DATE

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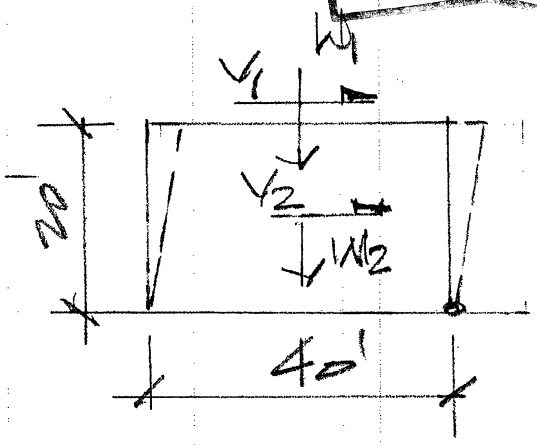
STATE OF WASHINGTON

2) CHECK "40' DIRECTION



$W_1 = 40 \times 50 \times 5/2$
$= 5000\ \#$

$V_1 = (R_a)(1.0)(1.0)(0.05)(1.2)(3000)$
$= 0.645(3000)$
$= 225\ \# \rightarrow$

$W_2 = 20 \times 40 \times 5$
$= 4000\ \#$

$V_2 = 0.045 \times 4000$
$= 180\ \#$

$\Sigma V = 225 + 180 = 405\ \#$ { COULEE TO BE ANCHORED TO FLOOR

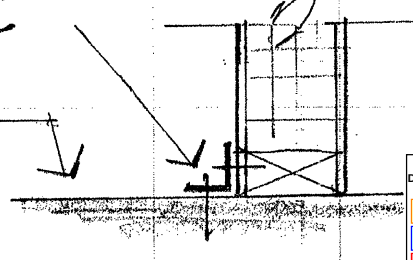
CHECK OVERTURNING AT

$M_{\circlearrowright} = 20(225) + \frac{20'}{2}(180)$
$= 6300$ ft-lbs $\leq (5000 + 4000)\frac{20'}{2}$
$= 90{,}000$ ft-lbs

FASTEN TO PANELS W/ #14 x 1½" SS SCREWS @ 2'0" oc + ¼" ø x 2¼" (EMBED ½" MIN) TYP ON @ 4'0" TO CONC

L 2½ x 2 x 16GA SS ANGLE

EXIST. CONC SLAB (V.I.F.)



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PROJECT
PROJECT NO. #12212 SHEET 4/5
PREPARED DATE

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3) CHECK ANCHORAGE TO FLOOR

$\frac{1}{4}$" x 2$\frac{1}{4}$" TAPCON @ 40 o.c.

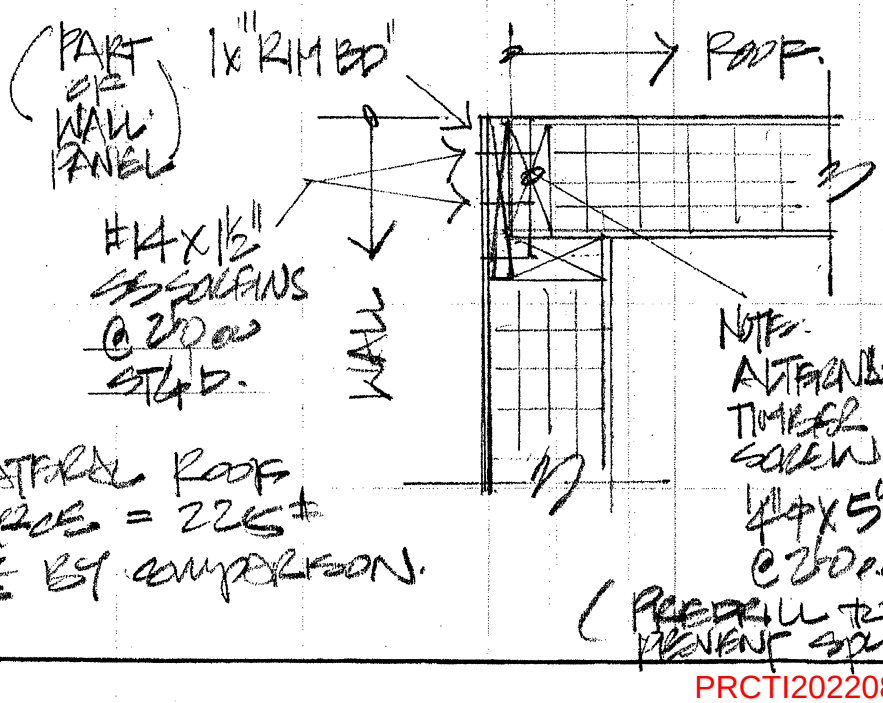
$f'_c \geq 2000$ psi
EMBED $\geq 1\frac{1}{2}$"

$V = \frac{405\#}{(40'/4')} = 40.5\# \ll \frac{860\#}{F.S.=4.0} = 215.\#$

#14 x 1$\frac{1}{2}$" SS SCREWS @ 20 o.c.

$V = \frac{405\#}{(40'/2)} = 20.3\# \ll 190\#$

4) CHECK ROOF TO WALL CONNECTION



NOTE: LATERAL ROOF FORCE = 22$\frac{k}{ft}$ BY COMPARISON.

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PROJECT

PROJECT NO. #122112 SHEET 5/5

PREPARED DATE

5) INTERCONNECTION OF PANELS

ACCORDING TO MFR LITERATURE PANELS CONNECTED W/ "CAMLOCKS"
1 PER PANEL > 12', 4 PER SIDE

MIN. CAMLOCK SHEAR CAPACITY AGAIN PER MFG DATA
= 139# x 4 = 556# > 225# OK

NOTE: SHEAR, FLEXURE, ETC OF INDIVIDUAL PANELS IS NOT PART OF THIS ANALYSIS BUT REFER TO MFR DATA

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Tapcon Screw Anchor - Technical Data

PERFORMANCE TABLE

Tapcon® Anchors — Ultimate Tension and Shear Values (Lbs/kN) in Concrete

ANCHOR DIA. In. (mm)	MIN. DEPTH OF EMBEDMENT In. (mm)	f'c = 2000 PSI (13.8 MPa)		f'c = 3000 PSI (20.7 MPa)		f'c = 4000 PSI (27.6 MPa)		f'c = 5000 PSI (34.5 MPa)	
		TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)
3/16 (4.8)	1 (25.4)	600 (2.7)	720 (3.2)	625 (2.8)	720 (3.2)	650 (2.9)	720 (3.2)	800 (3.6)	860 (3.8)
	1-1/4 (31.8)	845 (3.7)	720 (3.2)	858 (3.8)	720 (3.2)	870 (3.9)	720 (3.2)	1,010 (4.5)	860 (3.8)
	1-1/2 (38.1)	1,090 (4.8)	860 (3.8)	1,090 (4.8)	860 (3.8)	1,090 (4.8)	860 (3.8)	1,220 (5.4)	860 (3.8)
	1-3/4 (44.5)	1,450 (6.5)	870 (3.9)	1,455 (6.5)	870 (3.9)	1,460 (6.5)	990 (4.4)	1,730 (7.7)	990 (4.4)
1/4 (6.4)	1 (25.4)	750 (3.3)	900 (4.0)	775 (3.4)	900 (4.0)	800 (3.6)	1,360 (6.1)	950 (4.2)	1,440 (6.4)
	1-1/4 (31.8)	1,050 (4.7)	900 (4.0)	1,160 (5.2)	900 (4.0)	1,270 (5.6)	1,360 (6.1)	1,515 (6.7)	1,440 (6.4)
	1-1/2 (38.1)	1,380 (6.1)	1,200 (5.3)	1,600 (7.2)	1,200 (5.3)	1,820 (8.1)	1,380 (6.1)	2,170 (9.7)	1,670 (7.4)
	1-3/4 (44.5)	2,020 (9.0)	1,670 (7.4)	2,200 (9.8)	1,670 (7.4)	2,380 (10.6)	1,670 (7.4)	2,770 (12.3)	1,670 (7.4)

Safe working loads for single installation under static loading should not exceed 25% of the ultimate load capacity.

PERFORMANCE TABLES

Tapcon® Anchors — Ultimate Tension and Shear Values (Lbs/kN) in Hollow Block

ANCHOR DIA. In. (mm)	ANCHOR EMBEDMENT In. (mm)	LIGHTWEIGHT BLOCK		MEDIUM WEIGHT BLOCK	
		TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs (kN)	SHEAR Lbs. (kN)
3/16 (4.8)	1 (25.4)	220 (1.0)	400 (1.8)	340 (1.5)	730 (3.2)
1/4 (6.4)	1 (25.4)	250 (1.1)	620 (2.8)	500 (2.2)	1,000 (4.4)

Safe working loads for single installation under static loading should not exceed 25% of the ultimate load capacity.

NOTE: 3/16" Tapcon requires 5/32" bit, 1/4" Tapcon requires 3/16" bit.

Tapcon® Anchors — Allowable Edge and Spacing Distances

PARAMETER	ANCHOR DIA. In. (mm)	NORMAL WEIGHT CONCRETE			CONCRETE MASONRY UNITS (CMU)		
		FULL CAPACITY (Critical Distance Inches)	REDUCED CAPACITY (Minimal Distance Inches)	LOAD REDUCTION FACTOR	FULL CAPACITY (Critical Distance Inches)	REDUCED CAPACITY (Minimal Distance Inches)	LOAD REDUCTION FACTOR
Spacing Between Anchors - Tension	3/16	3	1-1/2	0.73	3	1-1/2	1.00
	1/4	4	2	0.66	4	2	0.84
Spacing Between Anchors - Shear	3/16	3	1-1/2	0.83	3	1-1/2	1.00
	1/4	4	2	0.82	4	2	0.81
Edge Distance - Tension	3/16	1-7/8	1	0.83	4	2	0.91
	1/4	2-1/2	1-1/4	0.82	4	2	0.88
Edge Distance -Shear	3/16	2-1/4	1-1/8	0.70	4	2	0.93
	1/4	3	1-1/2	0.59	4	2	0.80

For SI: 1 inch = 25.4 mm

TABLE 8.9A—WOOD SCREWS — WITHDRAWAL DESIGN VALUES

Normal load duration

Design values in withdrawal in pounds per inch of penetration of threaded part into side grain of member holding point.

g = gauge of screw. D = shank diameter in inches. G = specific gravity of the wood, based on weight and volume when oven-dry.

Specific gravity G	Screw size										
	g =	6	7	8	9	10	12	14	16	18	20	24
	D =	0.138	0.151	0.164	0.177	0.190	0.216	0.242	0.268	0.294	0.320	0.372
0.75		220	241	262	283	304	345	387	428	470	511	594
0.68		181	198	215	232	250	284	318	352	386	420	489
0.67		176	193	209	226	242	275	309	342	375	408	474
0.66		171	187	203	219	235	267	299	332	364	396	460
0.62		151	165	179	193	207	236	264	293	321	349	406
0.55		119	130	141	152	163	186	208	230	253	275	320
0.54		114	125	136	147	157	179	200	222	243	265	308
0.51		102	112	121	131	140	160	179	198	217	236	275
0.49		94	103	112	121	130	147	165	183	200	218	254
0.48		90	99	107	116	124	141	158	175	192	209	243
0.47		87	95	103	111	119	136	152	168	184	201	233
0.46		83	91	99	106	114	130	145	161	177	192	224
0.45		79	87	94	102	109	124	139	154	169	184	214
0.44		76	83	90	97	104	119	133	147	162	176	205
0.43		72	79	86	93	100	113	127	141	154	168	195
0.42		69	76	82	89	95	108	121	134	147	160	186
0.41		66	72	78	85	91	103	116	128	140	153	178
0.40		63	69	75	80	86	98	110	122	134	145	169
0.39		60	65	71	76	82	93	105	116	127	138	161
0.38		57	62	67	73	78	89	99	110	121	131	153
0.37		54	59	64	69	74	84	94	104	114	124	145
0.36		51	56	60	65	70	80	89	99	108	118	137
0.35		48	53	57	62	66	75	84	93	102	111	129
0.33		43	47	51	55	59	67	75	83	91	99	115
0.31		38	41	45	48	52	59	66	73	80	87	102

Approximately two-thirds of the length of a standard wood screw is threaded.

TABLE 8.9B—WOOD SCREWS — LATERAL LOAD DESIGN VALUES

Normal load duration

Design values for lateral loads (shear) in pounds for screws embedded to approximately 7 times the shank diameter into the member holding the point. For less penetration, reduce loads in proportion. Penetration should not be less than 4 times the shank diameter

Species group	SIZE OF SCREW										
g =	6	7	8	9	10	12	14	16	18	20	24
D =	0.138	0.151	0.164	0.177	0.190	0.216	0.242	0.268	0.294	0.320	0.372
$7D$ =	0.966	1.057	1.148	1.239	1.330	1.512	1.694	1.876	2.058	2.240	2.604
$4D$ =	0.552	0.604	0.656	0.708	0.760	0.864	0.968	1.072	1.176	1.280	1.488
Group I . . . . =	91	109	129	150	173	224	281	345	415	492	664
Group II . . . =	75	90	106	124	143	185	232	284	342	406	548
Group III . . =	62	74	87	101	117	151	190	233	280	332	448
Group IV . . =	48	58	68	79	91	118	148	181	218	258	349