DESIGN SUMMARY

1 - THE SKYLIGHT CURB [redacted] IS ADEQUATE FOR SEISMIC AND WIND LOAD.

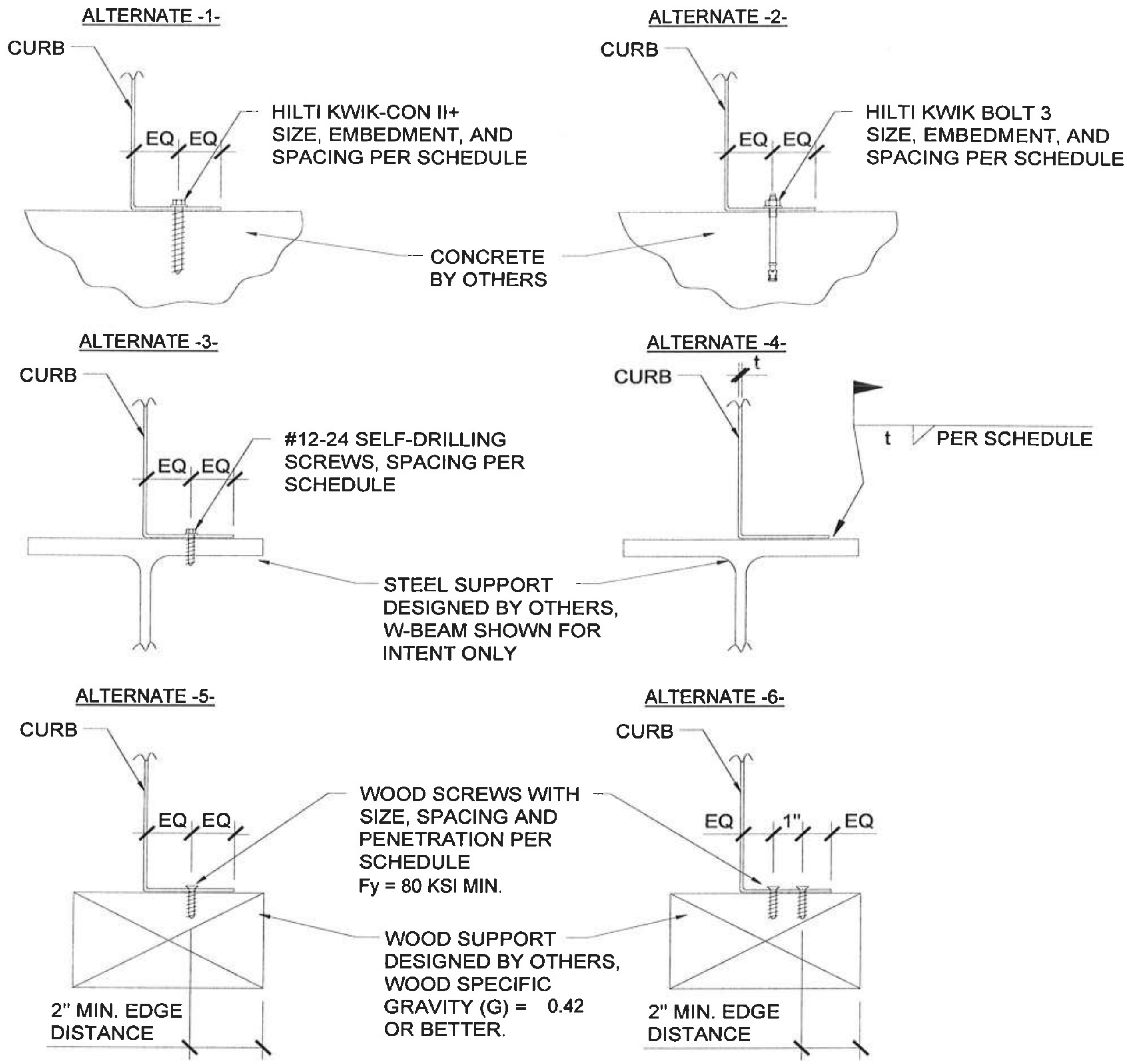
2 - THE ATTACHED SKYLIGHT CURB TO SPAN BETWEEN ADJACENT JOISTS.

[redacted]

4 - FASTEN CURB TO THE SUPPORTING STEEL JOISTS USING #12 INTERCORP SELF-DRILLING SCREWS AT 6" O.C. MAXIMUM SPACING ALONG EDGES CONTINUOUSLY SUPPORTED ON STEEL JOISTS. ALONG EDGE WHERE THE CURB CANTILEVERS OVER THE JOIST USE A MINIMUM OF (4)-#12 INTERCORP SELF-DRILLING SCREWS AT EACH SUPPORT LOCATION, FOR A TOTAL OF (16) SCREWS. ALTERNATIVELY, WELD CURB TO THE STEEL JOIST A MINIMUM OF 2" OF WELD LENGTH OF 1/8" FILLET WELDS AT EACH SUPPORT LOCATION. SEE BELOW FOR ALTERNATES.

5 - ATTACHMENT OF THE SKYLIGHT TO THE CURB IS THE RESPONSIBILITY OF OTHERS.

CURB TO SUPPORT CONNECTION DETAILS



NOTE:
CONNECTION DETAILS ARE ONLY A SUGGESTION FOR INSTALLATION. IT IS THE RESPONSIBILITY OF THE INSTALLER TO INSTALL PER LOCAL/MUNICIPAL BUILDING CODES AND/OR ARCHITECT/ENGINEER REQUIREMENTS.

Pullout Values for INTERCORP Self-Drilling Screws
One Piece Metal

SIZE	POINT	GAUGE (lbs.) 22	20	18	16	14	12	1/8	3/16	1/4
6-20	2	149	277	462	571	855	1043			
8-18	2	260	292	479	685	933	1533			
10-16	2	267	360	534	763	1005	1606			
10-16	3	261	293	487	690	941	1432	2017		
12-14	3	283	333	537	737	1034	1585	2349	2911	
12-24	4			484	679	959	1489	2371	3384	3732
12-24	5			475	672	951	1486	2269	3593	3882
14-14	3	287	339	595	856	1114	1805	2337	4416	4885

The complete line of INTERCORP Self-Drilling Screws meets or exceeds the applicable ASTM Standard C954 A510, (American Society of Testing Materials) for steel screws. Tested in accordance with F.I.P-1000.7

Shear Strength Values for INTERCORP Self-Drilling Screws
Metal to Metal

SIZE	POINT	GAUGE (lbs.) 22-20	20-20	18-18	16-16	14-14	12-12	1/8-1/8	3/16-3/16	1/4-1/4
6-20	2									
8-18	2	546	721	1031	1049					
10-16	2	574	808	1173	1233					
10-16	3		709	1231	1497	1508				
12-14	3		749	1320	1574	1914	1929			
12-24	4						1989	1972		
12-24	5							2622	2641	2682
14-14	3		905	1401	2040	2509	2573	2738		

The complete line of INTERCORP Self-Drilling Screws meets or exceeds the applicable ASTM Standard C954 A510, (American Society of Testing Materials) for steel screws. Tested in accordance with F.I.P-1000.7

Ref-1

3.3.4 KWIK Bolt TZ Expansion Anchor

Table 7 - KWIK Bolt TZ Carbon and Stainless Steel Allowable Nonseismic Shear (ASD), Steel (lb)[1,2,3,4,5,6]

Diameter (in.)	Allowable Steel Capacity, Shear	
	Carbon Steel	Stainless Steel
3/8	1,925	2,530
1/2	2,945	3,685
5/8	4,335	5,290
3/4	7,325	8,415

1 Single anchors with no edge or anchor spacing reductions and no supplementary reinforcement (Condition B).

2 Strength design load combinations from ACI 318 Section 9.2. ASD load combinations from ASCE 7-05, Section 2.

3 For strength design, the required strength = 1.6D + 1.2L. For ASD, the factored load = 1.0D + 1.0L. Conversion factor α is calculated by dividing the ACI 318 required strength by the ASCE 7 factored load.

4 $ASD = \Phi_{steel} \cdot V_{sa} / \alpha = 0.75 \cdot V_{sa} / 1.4$

Table 8 - KWIK Bolt TZ Carbon and Stainless Steel Allowable Seismic Tension (ASD), Normal-Weight Cracked Concrete (lb)[1,2,3,4,5]

Diameter	h_{ef} (in.)	Concrete Compressive Strength[2]							
		f'_c = 2500 psi		f'_c = 3000 psi		f'_c = 4000 psi		f'_c = 6000 psi	
		Carbon Steel	Stainless Steel	Carbon Steel	Stainless Steel	Carbon Steel	Stainless Steel	Carbon Steel	Stainless Steel
3/8	2	774	882	937	966	1,082	1,115	1,225	1,366
1/2	2	906	1,198	992	1,312	1,146	1,515	1,297	1,856
	3-1/4	1,852	1,876	2,028	2,055	2,342	2,373	2,651	2,907
5/8	3-1/8	1,769	1,769	1,938	1,938	2,238	2,238	2,533	2,741
	4	2,562	2,200	2,806	2,410	3,240	2,783	3,668	3,408
3/4	3-3/4	2,325	3,055	2,547	3,347	2,941	3,865	3,330	4,733
	4-3/4	3,315	3,315	3,632	3,632	4,193	4,193	4,747	5,136

1 Single anchors with no edge or anchor spacing reductions and no supplementary reinforcement (Condition B).

2 Strength design load combinations from ACI 318 Section 9.2. ASD load combinations from ASCE 7-05, Section 2.

3 For strength design, the required strength = 1.2D + 1.0E. For ASD, the factored load = 1.0D + 0.7E. Conversion factor α is calculated by dividing the ACI 318 required strength by the ASCE 7 factored load.

4 Assuming a 50% dead and 50% earthquake contributions, $\alpha = (1.2 \cdot 0.5 + 1.0 \cdot 0.5) / (1.0 \cdot 0.5 + 0.7 \cdot 0.5) = 1.294$

5 $ASD = \phi_{concrete} \cdot \phi_{seismic} \cdot N_{p,uncr} / \alpha = 0.65 \cdot 0.75 \cdot N_{p,uncr} / 1.294$

Table 9 - KWIK Bolt TZ Carbon and Stainless Steel Allowable Seismic Shear (ASD), Steel (lb)[1,2,3,4,5]

Diameter (in.)	Allowable Steel Capacity, Shear	
	Carbon Steel	Stainless Steel
3/8	1,565	1,915
1/2	2,390	2,590
5/8	3,515	4,005
3/4	5,945	6,375

1 Single anchors with no edge or anchor spacing reductions and no supplementary reinforcement (Condition B).

2 Strength design load combinations from ACI 318 Section 9.2. ASD load combinations from ASCE 7-05, Section 2.

3 For strength design, the required strength = 1.2D + 1.0E. For ASD, the factored load = 1.0D + 0.7E. Conversion factor α is calculated by dividing the ACI 318 required strength by the ASCE 7 factored load.

4 Assuming a 50% dead and 50% earthquake contributions, $\alpha = (1.2 \cdot 0.5 + 1.0 \cdot 0.5) / (1.0 \cdot 0.5 + 0.7 \cdot 0.5) = 1.294$

5 Seismic $ASD = \Phi_{steel} \cdot \Phi_{seismic} \cdot V_{eq} / \alpha = 0.75 \cdot 0.75 \cdot Veq / 1.294$

WOOD SCREW CAPACITY BASED ON NDS 2005

Input

Wood Screw # =	12	
Diameter, in. =	0.216	
F_y =	80	ksi
Load Duration Type:	Wind / Earthquake	
Penetration, in. =	2.25	

Wood Species:	Spruce-Pine-Fir
Specific Gravity, G =	0.42
Moisture Content:	
At Time of Fabrication	<= 19%
In-Service	<= 19%
Condition	Dry
Temperature	T<=100°F

Metal Gage =	12	
F_y =	33	ksi

	ADJUSTMENT FACTORS	Lateral Load	Withdrawal Load	
ASD	Load Duration, C_D =	1.60	1.60	Table 2.3.2
Both	Wet Service, C_M =	1.0	1.0	Table 10.3.3
Both	Temperature, C_t =	1.0	1.0	Table 10.3.4
Both	Group Action, C_g =	1.0	-	Section 10.3.6
Both	Geomentry, C_Δ =	1.0	-	Section 11.5.1
Both	Penetration Depth, C_d =	-	-	
Both	End Grain, C_{eg} =	1.0	1.0	Not Loaded in end Grain
Both	Metal Side PL, C_{st} =	-	-	
Both	Diaphragm, C_{di} =	1.0	-	Not Used As Diaphragm
Both	Toe-Nail, C_{tn} =	1.0	1.0	No Toe Nailing
LRFD	Format Conv., K_F =	3.32	3.32	Table N1
LRFD	Resistance, Φ_z =	0.65	0.65	Table N2
LRFD	Time Effect, λ =	1.00	1.00	Table N3

Z, lb. = 135 Table 11M

W, lb / in of Penetration = $2850 \cdot G^2 \cdot D =$ 109 Eq. 11.2-2

Lateral Capacity

Penetration Reduction Factor = 1.00 Table 11M Note #3

Minimum, p_{min}, in. = 2.16 10d

Z'_{ASD}, lb. = 216

Z'_{LRFD}, lb. = 292

Withdrawal Capacity (times penetration)

Minimum, p_{min}, in. = 1.30 6d

W'_{ASD}, lb. = 391

W'_{LRFD}, lb. = 528

Combinded Lateral and Withdrawal Capacity

α = 0.0

$Z_\alpha{}'_{ASD}$, lb. = 216

$Z_\alpha{}'_{LRFD}$, lb. = 292

$$Z_\alpha{}' = \frac{(W' \cdot p) \cdot Z'}{(W' \cdot p) \cdot \cos^2 \alpha + Z' \cdot \sin^2 \alpha}$$ Eq. 11.4.2