JORDAHL® Technical Information

JTB-uni Channels for Windows & Window Wall

DECON
a JORDAHL company

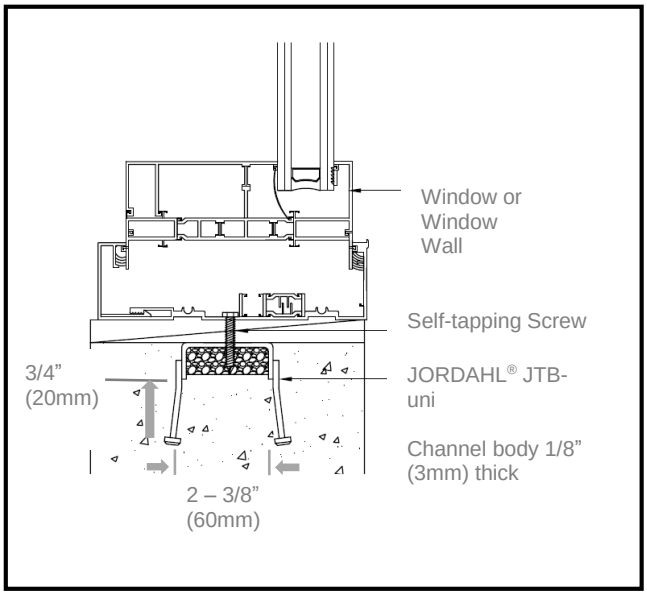
JORDAHL® JTB-uni anchor channels are used with self-tapping screws, and are an ideal solution for window wall and window connections to concrete. They provide the following user benefits:

- Fast and reliable connections to concrete.
- Two dimensional connection adjustment.
- No drilling of concrete - No dust. No concrete cracking or reinforcement conflict.
- No welding - No spark damage or fires.
- Easy placement

Standard channel length: 12” (300mm) with 4 anchors
Standard finish: Pre-galvanized carbon steel

Stainless steel and longer lengths are also available.

Installation and Design Data



JORDAHL® JTB-uni channels can be used to transfer wind loads into the concrete slab or architectural precast panels according to the data provided below. The design engineer should also check that the capacity of the selected self-tapping fasteners are sufficient to transfer the applied loads.

Single connections or double connections (at minimum 6” spacing) can be made at any position greater than 1-1/2” from the ends of each channel, providing that the maximum capacity of the channel is not exceeded.

JORDAHL® JTB-uni channels should be cast into concrete according to the minimum dimensions provided below. The concrete around the channel should be carefully compacted, and the channel should be straight and level with the surface of the concrete.

Factored Nominal Strength (LRFD): ǂ

Shear ϕ V_s = 1,700 lbs (7.4 kN) assuming cracked and

un-reinforced concrete at 2,500 psi, with minimum dimensions of 3" (75mm) edge distance and 7" (175mm) concrete depth.

The factors below and on the following page may be applied to adjust for different concrete conditions.

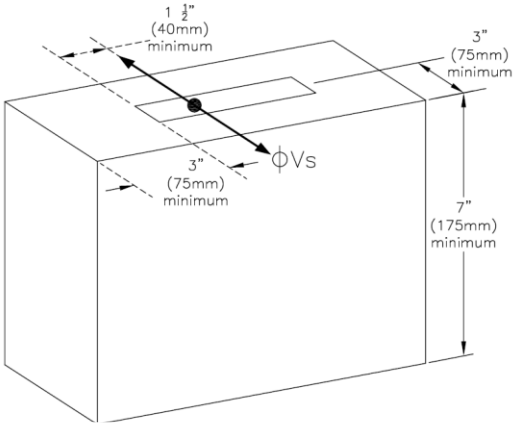
Un-cracked concrete factor (ψ_0):
$\psi_0 = 1.4$

Concrete strength factor (ψ_1):

$$\psi_1 = \sqrt{\frac{Project f c' (4{,}500\ psi\ max.)}{2{,}500\ psi}}$$

Reduction Factor for Slab Connections (ψ_2):
$0.56 \leq \psi_2 \leq 1.00$ (see tables 1 & 2)

Minimum Dimensions for Edge Connections



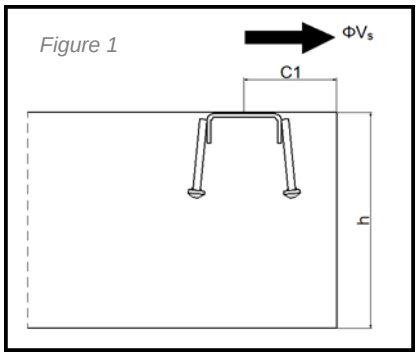


Table 1 - Reduction Factors for Top of Slab/Panel Edge Connections

Edge distance C_1 [in]	Concrete thickness h [in]				
	5	5-1/2	6	6-1/2	7
	Modification factor ($\psi_2 \leq 1$) for slab thickness h ≤ 7"				
3	0.78	0.84	0.89	0.93	1.00
3-1/2	0.88	0.94	1.00	1.00	1.00

ǂ For calculations using Allowable Stress Design (ASD), the allowable shear capacity = 1,100 lbs (4.9 kN)

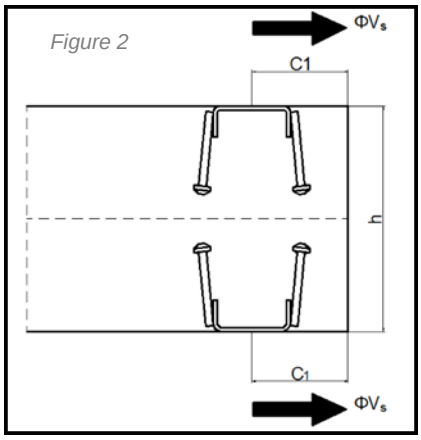


Table 2 - Reduction Factors for Top and Bottom Slab Connections

Edge distance C_1 [in]	Slab thickness h [in]								
	6	6-1/2	7	7-1/2	8	8-1/2	9	9-1/2	10
	Modification factor ($\psi_2 \leq 1$) for slab thickness h ≤10"								
3	0.56	0.59	0.62	0.65	0.68	0.70	0.73	0.76	0.78
3-1/2	0.63	0.66	0.70	0.73	0.76	0.79	0.82	0.85	0.88
4	0.70	0.73	0.77	0.81	0.84	0,.88	0.91	0.94	0.98
4-1/2	0.76	0.80	0.84	0.88	0.92	0,.96	1.00	1.00	1.00
5	0.82	0.87	0.91	0.95	1.00	1.00	1.00	1.00	1.00

Calculation Examples

1. **Edge connection to architectural precast panel. (Fig. 1)**

Design Conditions
Project fc' = 5,000 psi
C1 = 3"; h = >7"
Design load = 2,500 lbs
Concrete un-cracked

Calculation

$\psi_0 = 1.4;\ \psi_1 = \sqrt{\frac{\text{Project fc' (4,500 psi max.)}}{2{,}500\ \text{psi}}}$ = 1.34: ψ_2 = 1.00 (table 1)

Shear ϕ V_s = 1,700 lbs x 1.4 x 1.34 x 1.00 = 3,189 lbs
Shear ϕ V_s = 3,189 lbs > Design Load – OK

2. **Top and bottom slab connection. (Fig. 2)**

Design Conditions
Project fc' = 4,300 psi
C_1 = 3"; h = 8"
Design load = 2,000 lbs
Concrete un-cracked

Calculation

$\psi_0 = 1.4;\ \psi_1 = \sqrt{\frac{\text{Project fc' (4,500 psi max.)}}{2{,}500\ \text{psi}}}$ = 1.31: ψ_2 = 0.68 (table 2)

Shear ϕ V_s = 1,700 lbs x 1.4 x 1.31 x 0.68 = 2,120 lbs
Shear ϕ V_s = 2,120 lbs > Design Load - OK

Our engineering and sales support team will be pleased to provide further specific assistance for your project, as required.