Taper Dowel

An engineered load transfer system for horizontal movement in concrete construction joints

The size and diamond-shape of the Taper Dowel provides concrete joint stability, load transfer and smooth slab-to-slab transition, without restraining floor movement.

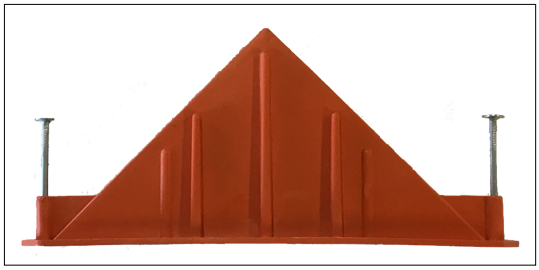
The plastic sleeve is nailed to lumber edge forms before concrete placement. Due to concrete shrinkage, forms are removed in preparation for the adjoining slab and Taper Dowels are installed within 24 hrs of casting in the sleeves.

The Taper Dowel simplifies dowel installation, eliminates slab edge drilling and reduces labor costs for all types of ground level concrete slabs, including floors, flatwork and pavement.

The plastic sleeve allows movement and the steel plate provides maximum bearing, bending and punching resistance, without the risk of slab interlock common with other methods.

A properly installed Taper Dowel is recommended for joints up to 0.20” wide and is suitable for all types of ground level concrete slabs, such as jointed floors, flatwork and pavement.

A Taper Dowel installation conforms to ACI 302.1R Guide for Concrete Floor and Slab Construction and ACI 360 Design of Slabs-on-Ground.



The dowel sleeve is quickly positioned and attached to edge forms, minimizing the related labor costs.

The steel dowel plate fits snugly into the sleeve, creating the load transfer between adjoining concrete slabs.

Taper Dowel Set (One Sleeve and One Plate)			
Part No.	**Description**	**Slab**	**Spacing***
SBTD14S	SB Taper Dowel 1/4” Set - Plate & Sleeve 1/4” x 4-1/2” x 4-1/2”	4” to 6-1/2”	18”
SBTD38S	SB Taper Dowel 3/8” Set - Plate & Sleeve 3/8” x 4-1/2” x 4-1/2”	7” to 9”	18”
SBTD34S	SB Taper Dowel 3/4” Set - Plate & Sleeve 3/4” x 4-1/2” x 4-1/2”	9” to 12”	18”

** Spacing shown based on ACI 360 Design of Slabs-on-Ground.*

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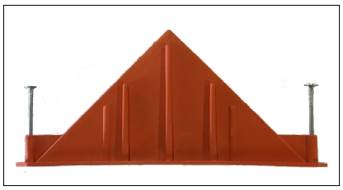
Taper Dowel Installation

1. Mark the horizontal line on formwork for the half slab thickness. Mark a vertical line for the center-to-center spacing of the sleeve. They should be carefully aligned so they remain parallel in a horizontal plane. Nail all sleeves securely at each marked location. Position and tie any remaining slab reinforcement. Sleeves should be no closer than 6” to the intersection of any joints.

2. *(Before concrete placement, understand that steel plates must be installed within 24 hours of slab placement to avoid damaging concrete and steel plates during installation.)*
Place concrete normally, completely surrounding each sleeve location. Vibration is required to properly consolidate concrete and eliminate air entrapment. Do not strike or damage sleeves with the vibrator.

3. When concrete reaches sufficient strength, the adjoining slab base can be leveled and compacted. Insert the steel plates into the sleeves, within 24 hours of casting sleeves into the slab, by puncturing the cover strips. The plates should be completely inserted into the sleeves.

4. Position, support and tie any remaining slab reinforcement. The adjoining concrete can now be placed against the edge of the first and the exposed steel plates. Place concrete normally, completely surrounding the area around each plate.



Sleeves nail to lumber edge forms, simplifying installation.

Dowels are inserted into sleeves after edge forms have been removed.

Taper Dowel Alignment Template

This device's function is to facilitate quick and accurate placement of the SureBuilt Taper Dowel sleeves onto wooden forms so that the sleeves can be cast into concrete pavement and slabs.

Procedure

The device for fixing the Sleeves is made up of two pieces: the Aligner and the Template **Figure 1**.

The Template locks into the desired placement on the Aligner. Both sides of the Aligner have holes with desired placement marked in inches.

The Template's ends have buttons that should be inserted into the holes on the Aligner at the height specified for placement of the steel plates in the concrete slab.

In **Figure 2** the Template is set to 4", which corresponds to a 8" slab thickness, placing the steel plate at the center.

Once the Template is assembled to the Aligner at the chosen height, and the Sleeve is inserted inside the Template, the device is ready for alignment and to be nailed on the wooden form. **Figures 3 & 4**

Separations between plate sleeves should be marked on formwork as a reference for the fixing of the sleeves. **Figure 5**

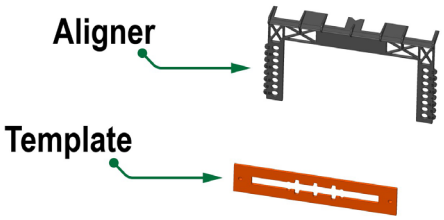


Figure 1 - Aligner and Template

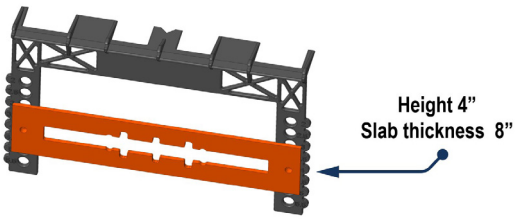


Figure 2 - Aligner and Template assembled

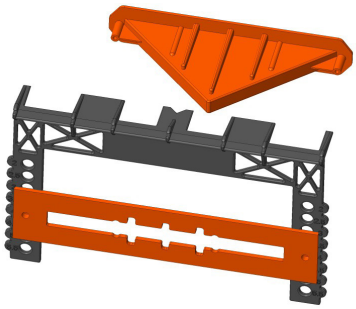


Figure 3 - Aligner and Template assembled with sleeve ready

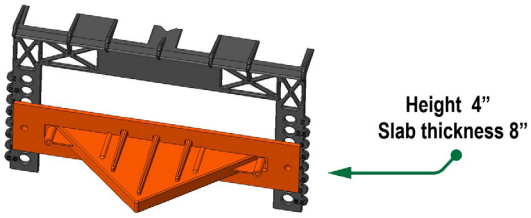


Figure 4 - Fully assembled at projected height

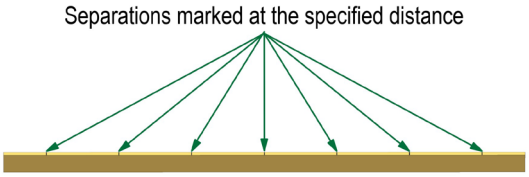


Figure 5 - Formwork with marked separations

Taper Dowel Alignment Template

Center the Aligner on the form at the marked locations and fix to formwork. **Figures 6 to 9**

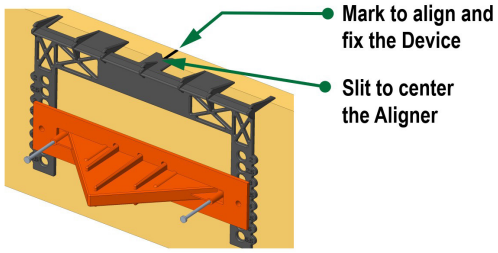


Figure 6 - Alignment at marked line

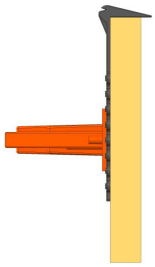


Figure 7 - Side view of Alignment

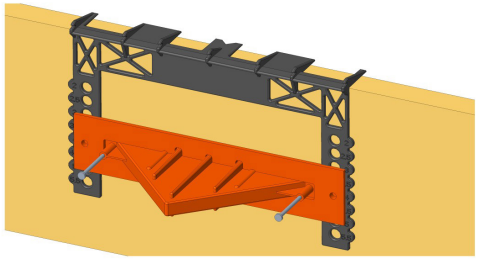


Figure 8 - Device ready to be nailed

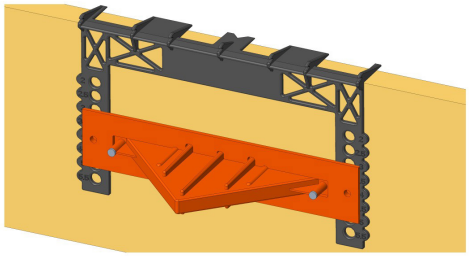


Figure 9 - Device fixed to the formwork

Taper Dowel Sleeve Placement	
Part No.	**Description**
SBTDA	Taper Dowel Aligner
SBTD14T	Aligner Template for 1/4” Taper Dowel
SBTD38T	Aligner Template for 3/8” Taper Dowel
SBTD34T	Aligner Template for 3/4” Taper Dowel

Once the Sleeve is fixed to the wooden form, the device is removed and can be reused to align and fix as many Sleeves as needed. **Figures 10 to 12**

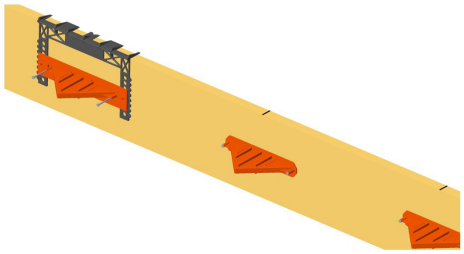


Figure 10 - Sleeves fixed to formwork

Figure 11 - Front view

Figure 12 - Top view

Taper Dowel Sleeve Placement	
Sleeve Height	**Slab Thickness**
2	4
2.5	5
3	6
3.5	7
4	8
4.5	9
5	10
5.5	11 / 12

Note: Steel plates must be installed within 24 hours of slab placement to avoid damaging concrete and steel plates during installation.