

## Invalid Design When Transfer Reactions Are at The Same Location

**Software Versions Affected:** 3.0 through 5.2

**Users Affected:** Anyone using Forte software to design members with ALL the following conditions:

1. A member is loaded with more than one transfer reaction<sup>1</sup>, AND
2. Two or more transfer reactions of the same contact load type are applied at the same location, AND
3. At least two transfer reactions have both an upward and downward component.

**Description:** When a member is loaded by at least two transfer reactions of the same contact load type at the same location, that contain both downward and upward magnitudes (applies to transfer reactions with single contact (e/g. Point (lb) or repetitive contact (e/g. Point (PLF) or Uniform (PLF))), improper loading is applied to the member. This results in incorrect design results being reported for these members, that may allow the member to pass design when it should fail.

<sup>1</sup> Transfer Reactions are created either by linking loads from one member to another within Forte or by importing members with specific loads from Javelin software. For more information regarding these features, please refer to Forte Help.

**Example:**

Expected Loads			Actual Loads		
Vertical Loads	Load 1	Load 2	Vertical Loads	Load 1	Load 2
Type	Point (lb)	Point (lb)	Type	Point (lb)	Point (lb)
Dead (0.90)	42	42	Dead (0.90)	42	42
Floor Live (1.00)	1919/-231	1919/-231	Floor Live (1.00)	1919/-231	1919
Roof Live (1.25)	0	0	Roof Live (1.25)	0	0
Snow (1.15)	0	0	Snow (1.15)	0	0
Wind (1.60)	0	0	Wind (1.60)	0	0
Seismic (1.60)	0	0	Seismic (1.60)	0	0
Comments	Linked from: Floor: Joist, Support 1	Linked from: Floor: Joist, Support 3	Comments	Linked from: Floor: Joist, Support 1	Linked from: Floor: Joist, Support 3

Expected Results

Design Results	Actual	Allowed	Result
Slenderness	34	50	Passed (69%)
Compression (lbs)	3922	8616	Passed (46%)
Base Bearing (lbs)	3922	623700	Passed (1%)
Bending/Compression	0.42	1	Passed (42%)

Actual Results

Design Results	Actual	Allowed	Result
Slenderness	34	50	Passed (69%)
Compression (lbs)	5841	8616	Passed (68%)
Base Bearing (lbs)	5841	623700	Passed (1%)
Bending/Compression	1.00	1	Passed (100%)

**User Action:** Until the new version is available, jobs created in Forte software that include multiple transfer reactions at the same location need to be reviewed for accuracy. For horizontal members, the transfer reaction may be adjusted slightly (e/g. 1/16"), with respect to the other transfer reactions, for proper design. Loads on vertical members should be manually applied when upward and downward magnitudes exist.

**Version Fixed:** Forte 5.3 (available Summer 2017)

**Contact Support:** If you have any questions or concerns regarding this software advisory please contact Weyerhaeuser Software Support at [software@weyerhaeuser.com](mailto:software@weyerhaeuser.com) or by calling 1.800.833.9491.