# Performance/Submittal

***PLY138 TrakFast Plywood to Steel Pin Performance Tables.***

## PIN SPECIFICATIONS

- Made from AISI 1060-1065 steel. Austempered to a core hardness of 52-56 Rc
- Typical tensile strength: 270,000 psi
- Typical shear strength: 162,000 psi
- Standard finishes
  -Proprietary black
  -Mechanical zinc plate to a minimum thickness of .0002 meets requirements of ASTM B695

## APPROVALS/LISTINGS

| | |
|---|---|
| **ICC Evaluation Service, Inc.** | #ESR-2579 TrakFast Pins<br>#ESR-1955 T3 Fasteners |
| **City of Los Angeles** | #RR-25264 TrakFast Pins<br>#RR-25739 Powder Pins |

## Performance Tables

**ALLOWABLE SHEAR FOR WIND OR SEISMIC FORCES IN POUNDS PER FOOT FOR HORIZONTAL PLYWOOD DIAPHRAGMS WITH STEEL FRAMING**

| PLYWOOD GRADE | MINIMUM STEEL GAGE 4, 6 | MINIMUM PANEL THICKNESS (INCHES) | BLOCKED DIAPHRAGM PIN SPACING (Inches) 5, 6 Pin spacing at diaphragm boundaries (all cases), at continuous panel edges parallel to load (cases 3 & 4) and at all panel edges (cases 5 & 6) **ALLOWABLE LOAD** | | | | UNBLOCKED DIAPHRAGM PIN SPACING (Inches) 5, 6 Pins spaced 6 inches max. at supported edges | |
|---|---|---|---|---|---|---|---|---|
| | | | 6 | 4 | 2-1/2 | 2 | Case 1 (no unblocked edges or continuous joints parallel to load) | All other configurations (cases 2, 3, 4, 5 and 6) |
| | | | Pin spacing at other panel edges | | | | | |
| | | | 6 | 6 | 4 | 3 | | |
| Structural 1 | 20 | 7/16 | **185** | **280** | **420** | **475** | **185** | **140** |
| | 16 | 15/32 | **205** | **305** | **460** | **520** | **205** | **150** |
| Grades other than Structural 1 | 20 | 7/16 | **165** | **250** | **380** | **430** | **165** | **125** |
| | 16 | 15/32 | **185** | **275** | **415** | **470** | **185** | **140** |

Note 1: These values are for short-time loads due to wind or earthquake and shall be reduced by 25 percent for normal loading.

Note 2: The pin shall be long enough to penetrate through the thickness of the steel a minimum of 1/4 inch.

Note 3: Minimum width of framing is 1-1/2 inches.

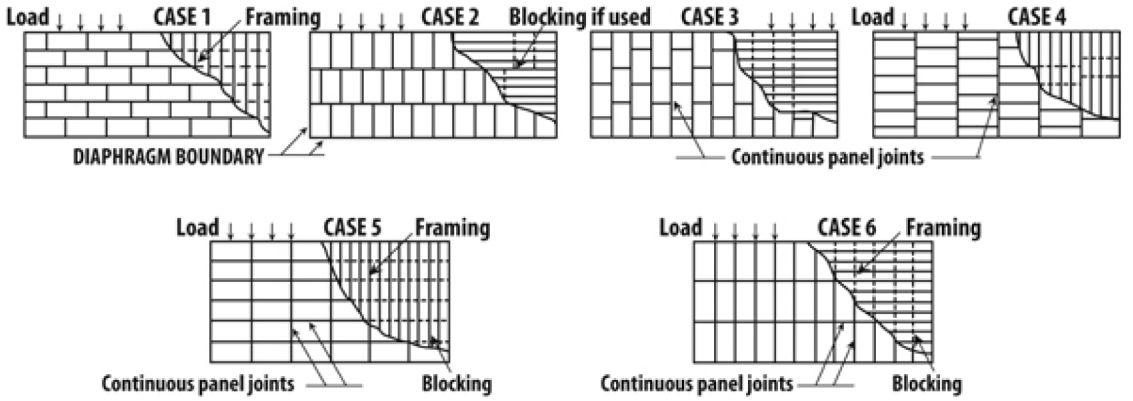
Note 4: These shear values also apply to framing made of thicker steel.

Note 5: Spacing of fasteners along intermediate framing members is 12 inches on center.

Note 6: The minimum panel edge distance is 3/8 inch.

Note 7: Values shown reflect a 5:1 safety factor.

Note 8: For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa




**Note:** Framing is permitted to be oriented in either direction for diaphragms, provided sheathing is designed for vertical loading.

## ALLOWABLE WITHDRAWAL LOADS IN POUNDS PER FASTENER DUE TO WIND OR SEISMIC FORCES FOR PLYWOOD AND LUMBER ATTACHED TO STEEL FRAMING 1, 2, 3, 4

| PIN DIAMETER (Inches) | MINIMUM STEEL THICKNESS (Gage or Inches) | MINIMUM THICKNESS OF PLYWOOD (Inches) **ALLOWABLE LOAD** | | | | | |
|---|---|---|---|---|---|---|---|
| | | 3/8 | 7/16 | 15/32 | 19/32 | 23/32 | 1-1/8 |
| 0.100 | 22 | **15** | **15** | ----- | ----- | ----- | ----- |
| 0.100 | 20 | **20** | **25** | **25** | **25** | ----- | ----- |
| 0.100 | 18 | **30** | **35** | **40** | **40** | ----- | ----- |
| 0.100 | 16 | **40** | **45** | **60** | **60** | ----- | ----- |

Note 1: Plywood shall be Structural 1 rated. For other grades, values shall be reduced by 10 percent.

Note 2: These values are for loads due to wind or earthquake and shall be reduced by 25 percent for other applications.

Note 3: Minimum panel edge distance is 3/8 inch.

Note 4: The pin shall be long enough to penetrate through the metal a minimum of 1/4 inch.

Note 5: Values shown reflect a 8:1 safety factor.

Note 6: For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa

## ALLOWABLE SHEAR AND WIND FORCES IN POUNDS PER FOOT FOR PLYWOOD SHEAR WALLS AND STEEL FRAMING

| PLYWWOD GRADE | MINIMUM STEEL GAGE[5] | MINIMUM PANEL THICKNESS (Inches) | PIN SPACING, ALL PANEL EDGES (Inches) **ALLOWABLE LOAD** | | | |
|---|---|---|---|---|---|---|
| | | | 6 | 4 | 3 | 2 |
| Structural 1 | 22 | 3/8[6] | **120** | **180** | **240** | **305** |
| | 22 | 7/16[6] | **130** | **195** | **260** | **330** |
| | 22 | 15/32 | **145** | **215** | **290** | **365** |
| | 20 | 3/8[6] | **155** | **235** | **310** | **395** |
| | 20 | 7/16[6] | **170** | **255** | **340** | **435** |
| | 20 | 15/32 | **205** | **305** | **410** | **520** |
| Grades other than Structural 1 | 22 | 3/8[6] | **110** | **165** | **215** | **275** |
| | 22 | 7/16[6] | **120** | **175** | **235** | **300** |
| | 22 | 15/32 | **130** | **195** | **260** | **330** |
| | 20 | 3/8[6] | **140** | **210** | **280** | **360** |
| | 20 | 7/16[6] | **155** | **230** | **310** | **390** |
| | 20 | 15/32 | **185** | **275** | **370** | **470** |

Note 1: Values are for loads imposed by wind and shall be reduced by 25 percent for normal loading.

Note 2: The pin shall be long enough to penetrate through the metal framing a minimum of 1/4 inch.

Note 3: The minimum panel edge distance for pin placement is 3/8 inch.

Note 4: Spacing of fasteners along intermediate framing members is 6 inches on center for 3/8 inch and 7/16 inch panels when studs are 24 inches on center and 12 inches on center when studs are 16 inches on center. For other panel thickness, spacing along intermediate framing members is 12 inches from center.

Note 5: Framing to be spaced 24 inches on center or closer except as provided in Footnote 6.

Note 6: The values for 3/8-inch and 7/16-inch panels may be increased by 20 percent and 10 percent, respectively, for framing spaced 16 incheson center.

Note 7: Values shown reflect a 5:1 safety factor.

Note 8: For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa

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**ALLOWABLE LATERAL LOADS IN POUNDS PER FASTENER DUE TO WIND OR SEISMIC FORCES FOR STRUCTURAL 1 PLYWOOD AND LUMBER ATTACHED TO STEEL FRAMING** 1, 2, 3, 4, 6

| PIN DIAMETER (Inches) | MINIMUM STEEL THICKNESS (Gage or Inches) | MINIMUM THICKNESS OF PLYWOOD (Inches) **ALLOWABLE LOAD** | | | | | |
|---|---|---|---|---|---|---|---|
| | | 3/8 | 7/16 | 15/32 | 19/32 | 23/32 | 1-1/8 |
| 0.100 | 22 | **80** | **80** | **80** | **80** | **80** | **80** |
| 0.100 | 20 | **105** | **105** | **115** | **115** | **115** | **115** |
| 0.100 | 16 | **105** | **105** | **115** | **170** | **170** | **170** |

Note 1: Plywood shall be Structural 1 rated. For other grades, values shall be reduced by 10 percent.

Note 2: These values are for loads due to wind or earthquake and shall be reduced by 25 percent for other applications.

Note 3: Minimum panel edge distance for placement is 1 inch from the fastener to the sheathing edge measured in the direction of the load and 3/8 inch measured perpendicular to the direction of the load.

Note 4: The pin shall be long enough to penetrate through the metal a minimum of 1/4 inch.

Note 5: Values for 16 gage also apply to 14 gage.

Note 6: The above values apply to groups of at least five fasteners. For fewer fasteners in a group, use one-half of the tabulated value.

Note 7: Values shown reflect a 5:1 safety factor.

Note 8: For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa