**A / AC / JA / MP** Framing Angles

**MP** – 18 gauge. Field adjustable from 45° to 180° (flat)

**A3** – 18 gauge. Eliminates toenailing and increases strength

**AC** – 16 gauge. Features staggered nail patterns which reduces wood splitting and allows installation on both sides of the supported member

**JA** – 14 or 16 gauge. Heavier capacity framing angle for joist support

**Materials:** See chart

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** IBC, FL, LA

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**Typical JA1 installation**

**Typical JA7 installation**

**Typical AC installation**

**Typical A3 installation**

**Material:**

- **W1**: 2-1/4”
- **W2**: 1-7/16”
- **L**: 2-3/4”

**Adjustable from 45° to 180° (flat)**

**Load direction**

**Available in Gold Coat**

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Continued on next page
## Installation:

- Use all specified fasteners. See Product Notes, page 18.
- MP Framing Angles are fabricated at 100° and may be field adjusted by hand from 45° to 180° (flat). Bend angle only once.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>A3</td>
<td>A23, GA1, GA2, L30</td>
<td>18</td>
<td>1-7/16</td>
<td>2-3/4</td>
<td>4</td>
<td>10d x 1-1/2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F2</td>
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<td></td>
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<td>F3</td>
</tr>
<tr>
<td>MP3</td>
<td>LS30</td>
<td>18</td>
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<td>2-1/4</td>
<td>3-3/8</td>
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<td>18</td>
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</tr>
<tr>
<td>MP7</td>
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<td>MP9</td>
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</tbody>
</table>

1) Allowable loads have been increased 60% for wind and seismic loads; no further increase shall be permitted.
2) Loads are shown per angle, and may be doubled if installed in pairs. When using a single angle, joist must be constrained from rotation.
3) Stainless steel ring shank nails must be used with stainless steel connectors to achieve tabulated allowable loads.
4) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 15d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

New products or updated product information are designated in blue font.
MP34 – Framing angle without tabs

MPA1 – Tabs enable two and three-way connections

MP4F – Connects 2x framing with floor sheathing up to 5/8”

MP6F – Connects 3x framing with floor sheathing up to 3/4”. Better choice for connections where floor sheathing is between sole plate and rim board

Materials: See chart
Finish: G90 galvanizing
Options: See chart for Corrosion Finish Options
Codes: IBC, FL, LA

Typical MP34 installation

Typical MPA1 joist / header installation
Typical MPA1 rafter / plate installation
Typical MPA1 stud / plate installation
Typical MP4F joist / header installation

MPF

Embossed plate lines

Type 1

Type 2

Typical MPF installation

Continued on next page
## MP / MPA / MPF Multi-Purpose Framing Angles

### Installation:
- Use all specified fasteners. See Product Notes, page 18.
- Bend tabs only once.
- MP4F connects 2x framing with floor sheathing up to 5/8".
- MP6F connects 3x framing with floor sheathing up to 3/4", and is a better choice for connections where floor sheathing is between sole plate and rim board.

<table>
<thead>
<tr>
<th>MiTek USP Stock No.</th>
<th>Ref. No.</th>
<th>Steel Gauge</th>
<th>Installation Type</th>
<th>Fastener Schedule 2,4</th>
<th>Direction of Load 2</th>
<th>DF/SP Allowable Loads (Lbs.) 1,3,4</th>
<th>S-P-F Allowable Loads (Lbs.) 1,3,4</th>
<th>Corrosion Finish</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Header or Stud Joist or Plate</td>
<td>Qty Type Qty Type</td>
<td>100% 115% 125% 160%</td>
<td>100% 115% 125% 160%</td>
<td>Stainless Steel</td>
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<td>MP4F LTP4</td>
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<td>20</td>
<td>Type 1</td>
<td>6 8d x 1-1/2 6 8d x 1-1/2</td>
<td>V</td>
<td>590 670 720 750</td>
<td>505 575 615 645</td>
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<td></td>
<td></td>
<td></td>
<td>Type 2</td>
<td>6 8d x 1-1/2 6 8d x 1-1/2</td>
<td>H</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>6 8d 6 8d</td>
<td>V</td>
<td>590 670 720 750</td>
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<td>Stainless Steel</td>
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<td></td>
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<td>H</td>
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<td>V</td>
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<td>6 8d 6 8d</td>
<td>H</td>
<td>590 670 720 750</td>
<td>505 575 615 645</td>
<td>Stainless Steel</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>6 8d 6 8d</td>
<td>V</td>
<td>590 670 720 750</td>
<td>505 575 615 645</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 8d 6 8d</td>
<td>H</td>
<td>590 670 720 750</td>
<td>505 575 615 645</td>
<td>Stainless Steel</td>
</tr>
</tbody>
</table>

1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
2) Refer to drawings for installation type and definition of the various load directions.
3) If installing MP4F or MP6F over plywood, use 8d common nails for 100% of table load.
4) Loads are shown per angle. When using a single anchor, joist must be constrained from rotation.
5) Stainless steel ring shank nails must be used with stainless steel connectors to achieve tabulated allowable loads.
6) **NAILS:** 8d x 1-1/2 nails are 0.131” dia. x 1-1/2” long, 8d nails are 0.131” dia. x 2-1/2” long

New products or updated product information are designated in **blue font**.
ML Angles

ML angles are multi-purpose angles that install easily with MiTek’s WS15 structural wood screws. The staggered fastener pattern allows for back-to-back installations.

**Materials:** 12 gauge  
**Finish:** G-185 galvanizing  
**Codes:** IBC, FL, LA  

**Installation:**  
- Use all specified fasteners. See Product Notes, page 18.  
- MiTek WS15 structural wood screws (1/4” dia. x 1-1/2” long) are not supplied with ML angles.

<table>
<thead>
<tr>
<th>ML24-TZ</th>
<th>ML26-TZ</th>
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<tbody>
<tr>
<td>W</td>
<td>H</td>
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<tr>
<td>2</td>
<td>4</td>
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<tr>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>WS15</td>
<td></td>
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</tbody>
</table>

**Corrosion Finish:**  
- Stainless Steel  
- Gold Coat  
- HDG  
- Triple Zinc

**Typical ML26-TZ installation**  
(ML24-TZ similar)

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TDL Concrete Angles

These angles secure wood posts to concrete or wood floors in light-duty applications.

**Materials:** 12 gauge  
**Finish:** G90 galvanizing  
**Options:** See chart for Corrosion Finish Options

**Installation:**  
- Use all specified fasteners. See Product Notes, page 18.  
- The TDL10 can be embedded into concrete. Minimum embedment depth is 4” to achieve allowable loads.  
- Moisture barrier may be required.

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>W</th>
<th>H</th>
<th>D</th>
<th>Qty</th>
<th>Dia. (in)</th>
<th>Type</th>
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<tr>
<td>TDL10</td>
<td>A311</td>
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<td>2</td>
<td>9-3/4</td>
<td>2-1/4</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

**Typical TDL5 interior installation**

**Typical TDL10 embedded interior installation**

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Anchor Bolts

**Anchorage**

1) Allowable loads have been increased 60% for wind and seismic loads; no further increase shall be permitted.  
2) MiTek’s WS15 structural wood screws are 1/4” dia. x 1-1/2” long and are not included with angles.  
3) For exterior applications use MiTek’s WS15-EXT structural wood screws with exterior coat finish. New products or updated product information are designated in blue font.

**Corrosion Finish**

- Stainless Steel  
- Gold Coat  
- HDG  
- Triple Zinc

**Anchor Bolts**  
- Nails  
- Bolts

**Fastener Schedule**

1) Allowable loads are based on the use of either nails or bolts; nail and bolt values cannot be combined.  
2) The bolt values are based on single shear with a minimum member thickness of 3-1/2”.

**DF/SP Allowable Loads**

1) Allowable loads have been increased in accordance with the code; no further increase shall be permitted.  
2) Designer must specify anchor bolt type, length, and embedment.

**Corrosion Finish**

- Stainless Steel  
- Gold Coat  
- HDG  
- Triple Zinc

**Dimensions (in)**

<table>
<thead>
<tr>
<th>W</th>
<th>H</th>
<th>D</th>
<th>Qty</th>
<th>Dia. (in)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

**Anchor Bolts**

- Nails  
- Bolts

**Typical ML26-TZ installation**  
(ML24-TZ similar)
These multi-purpose braces are designed to provide reinforcement for 90° wood-to-wood connections.

**Materials:** 12 gauge  
**Finish:** G90 galvanizing

**Installation:**  
• Use all specified fasteners. See Product Notes, page 18.

### KHL Heavy Angles

Designed for heavy-duty reinforcement of 90° framing intersections.

**Materials:** See chart  
**Finish:** Primer  
**Options:** See chart for Corrosion Finish Options

**Installation:**  
• Use all specified fasteners. See Product Notes, page 18.  
• Connectors are not load rated.

### Typical KHL35 installation

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>B23</td>
<td>--</td>
<td>12</td>
<td>2 2-5/8</td>
<td>6 16d</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>B24</td>
<td>--</td>
<td>12</td>
<td>2 3-5/8</td>
<td>8 16d</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>BL3</td>
<td>A33</td>
<td>12</td>
<td>1-1/4 3-1/16</td>
<td>8 16d</td>
<td>--</td>
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<tr>
<td>BL4</td>
<td>A44</td>
<td>12</td>
<td>1-1/4 4-13/16</td>
<td>10 16d</td>
<td>--</td>
<td></td>
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<tr>
<td>BL5</td>
<td>--</td>
<td>12</td>
<td>1-1/4 6-9/16</td>
<td>12 16d</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>BL8</td>
<td>--</td>
<td>12</td>
<td>1-1/4 8-5/16</td>
<td>14 16d</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>B66</td>
<td>A66</td>
<td>12</td>
<td>1-1/2 6</td>
<td>--</td>
<td>4 3/8</td>
<td></td>
</tr>
<tr>
<td>B88</td>
<td>A88</td>
<td>12</td>
<td>2 8</td>
<td>--</td>
<td>6 3/8</td>
<td></td>
</tr>
</tbody>
</table>

1) Bolts shall conform to ASTM A 307 or better.  
2) **NAILS:** 16d nails are 0.162” dia. x 3-1/2” long.
The ANJ44S is a 7 gauge heavy duty angle intended to securely attach a post and beam together.

**Materials:** 7 gauge  
**Finish:** Hot-dip galvanized  

**Installation:**  
- Install with (2) 1/2" x 2-1/2" HDG lag screws into each leg.

**Typical ANJ44S-HDG installation**

**SCA Stair Angles**

Stair angles simplify stair construction. There is no need to calculate and notch stair stringers. Stronger and safer than wood blocking, and the angle and fasteners are hidden from view.

**Materials:** 12 gauge  
**Finish:** G-185 galvanizing  
**Codes:** IBC, FL, LA

**Installation:**  
- Use all specified fasteners. See Product Notes, page 18.  
- MiTek WS15-EXT (1/4" dia. x 1-1/2" long) structural wood screws are not supplied with SCA angles.  
- Use the SCA9-TZ for single 2x10 stair treads. Use the SCA10-TZ for double 2 x 6 stair treads.  
- To calculate stair construction do the following:  
  1. Find the number of steps needed by dividing the vertical drop in inches from the deck surface to grade by 7. Round off to the nearest whole number. (Ex: Vertical drop of 39" divided by 7" equals 5.57 rounded off is 6)  
  2. Find the step rise by dividing the vertical drop by the number of steps (39" divided by 6 = 6.5")  
  3. Find the step run by measuring the depth of your tread board (Ex: (2) 2x6s with 1/4" gap will have a run of 11-1/4")  
  4. Find the stairway span by multiplying the run by the number of treads minus one (Ex: 11-1/4" x 5 = 56-1/4")  
- Using the above calculations, mark stair angle locations on each stringer. Attach a stair angle to the inside of each stringer at the marked locations. Attach stringers to deck rim joist and railing posts. Position tread-boards on angles and fasten from below.

**Typical SCA9-TZ installation**

**Typical SCA10-TZ installation**

---

**ANJ Heavy Angles**

1) Loads based on use of (2) 1/2" x 2-1/2" lag screws, loaded parallel to grain, in Douglas Fir-Larch (G=0.50).