Metal Newels and Cable Stair Systems
**Stairway Open Tread Newels**

- **Rake Up**
  - CR-310U-36
  - CR-310U-39
  - Use on the first tread at the bottom of an open tread stairway flight.
  - Use at the top of the first flight of any L-shaped open tread stairway.
  - Also used at the top of any flight that ends at a wall.
  - 10 Holes

- **Rake Pass Through**
  - CR-320-36
  - CR-320-39
  - Use on the last tread at the bottom of an open tread stairway flight.
  - Use at the top of any flight at the bottom and top of each flight.
  - 8 Holes

- **Rake Down**
  - CR-310D-36
  - CR-310D-39
  - Use at the top of the first flight of any L-shaped open tread stairway.
  - Also used at the top of any flight that ends at a wall.
  - 9 Holes

**Stairway Kneewall Newels**

- **Rake Up**
  - CR-KW310U-36
  - CR-KW310U-39
  - Use on the first tread at the bottom of a kneewall stairway flight.
  - Use on kneewall stairs at 42” intervals between the newels at the bottom and top of each flight.
  - 10 Holes

- **Rake Pass Through**
  - CR-KW320-36
  - CR-KW320-39
  - Use on the last tread at the bottom of a kneewall stairway flight.
  - Use at the top of any kneewall stairway flight.
  - 8 Holes

- **Rake Down**
  - CR-KW310D-36
  - CR-KW310D-39
  - Use at the top of any kneewall stairway flight.
  - 9 Holes

A Rake Up Newel will need placed here.

Newel

Up

Newel

Up

Newel

Up

Newel

Up

Newel

Up
### Level Run Newels

<table>
<thead>
<tr>
<th>Type</th>
<th>Code</th>
<th>Dimensions</th>
<th>Interval</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level Start/Stop</td>
<td>CL-310-36</td>
<td>2&quot; x 34⅛&quot;</td>
<td>10 Holes</td>
<td>Use at the beginning or end of each level run. Also used on the level run transitions from a kneewall stair flight.</td>
</tr>
<tr>
<td></td>
<td>CL-310-39</td>
<td>2&quot; x 37⅛&quot;</td>
<td>11 Holes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CL-310-42</td>
<td>2&quot; x 40⅜&quot;</td>
<td>12 Holes</td>
<td></td>
</tr>
<tr>
<td>Level Corner</td>
<td>CL-310C-36</td>
<td>2&quot; x 34⅛&quot;</td>
<td>10 Holes</td>
<td>Use at the corner of two level runs</td>
</tr>
<tr>
<td></td>
<td>CL-310C-39</td>
<td>2&quot; x 37⅛&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CL-310C-42</td>
<td>2&quot; x 40⅜&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level Pass Through</td>
<td>CL-320-36</td>
<td>2&quot; x 34⅛&quot;</td>
<td>10 Holes</td>
<td>Use on level run at 4⅞ intervals between Level Start/Stop and Corner.</td>
</tr>
<tr>
<td></td>
<td>CL-320-39</td>
<td>2&quot; x 37⅛&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CL-320-42</td>
<td>2&quot; x 40⅜&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Transition Newels-Rake to Level Run

<table>
<thead>
<tr>
<th>Type</th>
<th>Code</th>
<th>Dimensions</th>
<th>Interval</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level Down/Straight</td>
<td>CL-310DS-36</td>
<td>36 rake to 36 level</td>
<td>10 Holes</td>
<td>Use on the second floor landing at the top of the stairway.</td>
</tr>
<tr>
<td></td>
<td>CL-310DS-39</td>
<td>36 rake to 39 level</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CL-310DS-42</td>
<td>36 rake to 42 level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level Down/Left</td>
<td>CL-310DL-36</td>
<td>36 rake to 36 level</td>
<td>10&amp;11 Holes</td>
<td>Use on the second floor landing at the top of the stairway.</td>
</tr>
<tr>
<td></td>
<td>CL-310DL-39</td>
<td>36 rake to 39 level</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CL-310DL-42</td>
<td>36 rake to 42 level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level Down/Right</td>
<td>CL-310DR-36</td>
<td>36 rake to 36 level</td>
<td>10&amp;12 Holes</td>
<td>Use on the second floor landing at the top of the stairway.</td>
</tr>
<tr>
<td></td>
<td>CL-310DR-39</td>
<td>36 rake to 39 level</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CL-310DR-42</td>
<td>36 rake to 42 level</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Requires a gooseneck handrail fitting
Linear Collection Features & Benefits

- Marine Grade 316 Stainless Steel Cable and Fittings for lasting beauty and very low maintenance
- Swageless Cable Fittings eliminate the need for expensive equipment
- Unique Linear designed newels sized and drilled for simplified installation
- Modern and code compliant handrail profile for a clean, refined look
- Box Treads create a modern and open designed stairway
Cable System

Level Run Fixed/Tensioner Pair
- CL-MFTGS-SS

Rake Fixed/Tensioner Pair
- CR-MFTGS-SS

Level Run Tensioner/Tensioner Pair
- CL-M2TSN-SS

Rake Tensioner/Tensioner Pair
- CR-M2TSN-SS

1/8” Marine Grade 316 Stainless Steel Cable
(1x19 construction)

CABLE-050-SS - 50’ Roll
CABLE-150-SS - 150’ Roll
CABLE-500-SS - 500’ Roll

Cable Release Tool
- C-RELEASE

Cable Cutter
- C-CUTTER

Stainless Steel Cleaner & Protectant
- C-CLEANER

Handrail and Handrail Fittings

- Quarterturn 784QTR
- Upeasing 784UE
- Overeasing 784OE
- Left Hand Gooseneck 784LHGN
- Right Hand Gooseneck 784RHGN
- Straight Gooseneck 784SGN

Box Treads

- Face Laminated 3½” x 11½” Solid Treads
  - BOXTRD42 - 42”
  - BOXTRD48 - 48”
The following guidelines are designed to provide an accurate and complete list of components necessary to complete your metal newel post and cable railing system. This checklist and our Linear Collection brochure will provide the flexibility to comply with most building codes as they relate to handrail height and infill spacing requirements. The following guidelines are designed for stairways with 7 1/2" rise and 10" run (approx. 36.8°), a rake handrail height of 34"-38" and a level handrail height of 36", 39" or 42". These guidelines also follow our recommendation of installing a newel at every corner or change in direction making each straight run having separate cable with a fixed cable fitting on one end and a tensioner cable fitting on the other end into the newels. Tensioner cable fittings should be used on both ends of any cable run that is 25' to 50' long. Wood components are for interior use only. Cable, cable fittings and metal newels are for interior or exterior use. Consult your local building code official before purchasing and installing this system.

### Guidelines

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty.</th>
<th>Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 BOX TREADS</td>
<td></td>
<td>Select one tread for each step. (Interior stairs only)</td>
</tr>
<tr>
<td>2 LANDING TREAD</td>
<td></td>
<td>Select sufficient lineal footage of LJ-8090-5 for the entire balcony and width of stairs at each landing. Custom landing tread can also be quoted and ordered. (Interior stairs only)</td>
</tr>
<tr>
<td>3 COVE MOULD</td>
<td></td>
<td>Select sufficient lineal footage of LJ-8095 to go under all landing tread. (Interior stairs only)</td>
</tr>
<tr>
<td>4 RAKE UP NEWEL</td>
<td></td>
<td>Open Tread Stairways: For stairs with a 34&quot;-36&quot; rake rail height, select the CR-310U-36 at the bottom of the stair flight. For 36&quot;-38&quot; rake rail height, select the CR-310U-39. If the stairway is open on both sides, two of these newels will be needed. See the Linear Metal Newel Applications chart at the bottom of this page for further information.</td>
</tr>
<tr>
<td>5 RAKE PASS THROUGH NEWEL</td>
<td></td>
<td>Kneewall Stairways: For stairs with a 34&quot;-38&quot; rake rail height, select the CR-KW310U at the bottom of the stair flight. For 36&quot;-38&quot; rake rail height, select the CR-KW310U-39. If the stairway is open on both sides, two of these newels will be needed. See the Linear Metal Newel Applications chart at the bottom of this page for further information.</td>
</tr>
<tr>
<td>6 RAKE DOWN NEWEL</td>
<td></td>
<td>Open Tread Stairways: Use this newel at the top of any open tread stair flight that ends at a wall. For stairs with a 34&quot;-36&quot; rake rail height, select the CR-310D-36. For stairs with a 36&quot;-38&quot; rake rail height, select the CR-310D-39.</td>
</tr>
<tr>
<td>7 LEVEL DOWN NEWEL</td>
<td></td>
<td>Transition from stair rake and continues straight to a level run: For 34&quot;-36&quot; rake rail height transitioning to 36&quot; level rail height select the CL-310DS-36. For 34&quot;-36&quot; rake rail height transitioning to 39&quot; level rail height select the CL-310DS-39. For 34&quot;-36&quot; rake rail height transitioning to 42&quot; level rail height select the CL-310DS-42. For 36&quot;-38&quot; rake rail height transitioning to 36&quot; level rail height select the CL-310DL-36. For 36&quot;-38&quot; rake rail height transitioning to 39&quot; level rail height select the CL-310DL-39. For 36&quot;-38&quot; rake rail height transitioning to 42&quot; level rail height select the CL-310DL-42.</td>
</tr>
<tr>
<td>8 LEVEL CORNER NEWEL</td>
<td></td>
<td>For 36&quot; level rail height, select the CL-310C-36 for the newel at the corner of two level runs. For 36&quot; level rail height, select the CL-310C-39. For 42&quot; level rail height, select the CL-310C-42.</td>
</tr>
<tr>
<td>9 LEVEL START/STOP NEWEL</td>
<td></td>
<td>Cable fittings may be installed directly into the wall at the end of a level run, or they can be installed into a newel post at the end of the run that is placed next to the wall. If ending a level run with a newel post, select the CL-310L-36 for 36&quot; level rail height. Select the CL-310L-39 for 39&quot; level rail height. Select the CL-310L-42 for 42&quot; level rail height. The levels are all used to start the level run at the beginning of a level run in stair flights.</td>
</tr>
<tr>
<td>10 LEVEL PASS THROUGH NEWEL</td>
<td></td>
<td>The distance between the level run newels should not exceed 42&quot;. Use the Level Pass Through Newel at 42&quot; intervals in the middle of a level run. For 36&quot; level rail height, select the CL-320-36. For 36&quot; level rail height, select the CL-320-39. For 42&quot; level rail height, select the CL-320-42.</td>
</tr>
<tr>
<td>11 RAKE FIXED/TENSIONER CABLE FITTINGS PAIR (CR-MFTGS-SS)</td>
<td></td>
<td>Each rake cable run requires a CR-MFTGS-SS (Rake Fixed/Tensioner Pair). Calculate the total number of rake cable fitting pairs needed based on the Rake Up Newel(s) selected in #4 above. Be sure to include enough cable fitting pairs for each flight. Do not include Rake Pass Through Newels (CR-310U) when calculating cable fitting sets required since the cable will simply &quot;pass through&quot; this newel.</td>
</tr>
<tr>
<td>12 RAKE FLEXED/TENSIONER CABLE FITTINGS PAIR (CR-MFTGS-SS)</td>
<td></td>
<td>Each level cable run requires a CR-MFTGS-SS (Tensioner Fixed/Tensioner Pair) or a CR-MFTGS-SS (Tensioner Fixed/Tensioner Pair). Calculate the level cable fitting pairs needed by taking the number of straight level runs times the number of pairs required for the selected newels. CL-310L-36 requires 10 pairs; CL-310L-39 requires 11 pairs; CL-310L-42 requires 12 pairs. Do not include Level Pass Through Newels (CL-320) when calculating cable fitting sets required since the cable will simply “pass through” this newel.</td>
</tr>
<tr>
<td>13 LEAVE RUN FIXED/ TENSIONER CABLE FITTINGS PAIR (CR-MFTGS-SS)</td>
<td></td>
<td>For any cable run of 25' to 50' long, tensioner cable fittings should be used on both ends of the cable to achieve the desired tensioning on both directions of cable. Item CR-MFTGS-SS contains 2 Level Tensioners.</td>
</tr>
<tr>
<td>14 1/8&quot; CABLE</td>
<td></td>
<td>Select sufficient cable to run between every Fixed/Tensioner Cable Fitting Pair as well as between every Tensioner/Tensioner Cable Fitting Pair. Cable runs should be no longer than 50' (CABLE-500-SS), 150' (CABLE-150-SS) and 500' (CABLE-500-SS) spools.</td>
</tr>
<tr>
<td>15 HANDRAIL</td>
<td></td>
<td>Select handrail at a rate of 13&quot; per each tread and include enough for all level runs and landings. (If wall rail is required). Handrail is available in 10&quot;, 12&quot;, 14&quot;, and 16' lengths. (Interior stairs only, however exterior 684 can be quoted).</td>
</tr>
<tr>
<td>16 HANDRAIL GOOSENECK FITTINGS</td>
<td></td>
<td>A gooseneck handrail fitting must be used for the following rake to level run transitions: 36&quot; rake to 36&quot; level, 36&quot; rake to 42&quot; level. Select the appropriate gooseneck fitting, 784HGN (Left Hand Gooseneck), 784RGN (Right Hand Gooseneck), 784SGN (Straight Gooseneck). (Interior stairs only, however exterior gooseneck fittings can be quoted).</td>
</tr>
<tr>
<td>17 HANDRAIL FITTINGS (Miscellaneous Components)</td>
<td></td>
<td>Select the appropriate Level Quarterturns as needed for changes in elevation and/or direction of the handrail. If continuous handrail is needed to transition from the rake, around a wall, and continue up the stair wall as wall rail, select two Level Quarterturns. Select from these fittings: 784DGE (Overcrossing), 784UE (Upeasing), 784QTR (Level Quarterturn) (Interior stairs only, however exterior gooseneck fittings can be quoted).</td>
</tr>
</tbody>
</table>

### Linear Metal Newel Applications

- **Open Tread Rake Up Newel** (CR-310U) - Use this newel as the starting newel on the first tread at the bottom of an open tread stairway flight.
- **Open Tread Rake Pass Through Newel** (CR-320) - Use this newel on open tread stairs at 42" intervals between the newels at the bottom and top of each flight.
- **Open Tread Rake Down Newel** (CR-310D) - Use this newel at the top of the first flight of any L-shaped open tread stairway. Also used at the top of any flight that ends at a wall.
- **Kneewall Rake Up Newel** (CR-KW310U) - Use this newel as the starting newel on the first tread at the bottom of a kneewall stairway flight.
- **Kneewall Rake Pass Through Newel** (CR-KW320) - Use this newel on kneewall stairs at 42" intervals between the newels at the bottom and top of each flight.
- **Kneewall Rake Down Newel** (CR-KW310D) - Use this newel at the top of any kneewall stairway flight.
- **Level Start/Stop Newel** (CL-310L) - Use this newel at the beginning or end of each level run. Also used on the level run that transitions from a kneewall stair flight.
- **Level Pass Through Newel** (CL-320) - Use this newel on level runs midway between the Level Start/Stop, Level Corner and Level Down Newels at 42" intervals.
- **Level Corner Newel** (CL-310C) - Use this newel at the corner of two level runs.
- **Level Down to Level Straight Newel** (CL-310DS) - Use this newel on the second floor landing at the top of the stairway flight that transitions to a straight level run.
- **Level Down to Level Left Newel** (CL-310LL) - Use this newel on the second floor landing at the top of the stairway flight that transitions left to a level run.
- **Level Down to Level Right Newel** (CL-310DR) - Use this newel on the second floor landing at the top of the stairway flight that transitions right to a level run.
TOOLS LIST

- 3/16” Allen Wrench or Hex Bit Socket
- Two 3/8” Open End Wrenches
- 1/8” Cable Cutter

Consult your local building code official before purchasing and installing this system. The tension on the cables will need periodic adjustment by using two 3/8” open end wrenches as described in the installation instructions. Please contact your L.J. Smith dealer or representative if you have any questions about our Linear Collection products.