

The following guidelines are designed to provide an accurate and complete list of components necessary to complete your wood newel post and cable or tube 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 for cable infill of installing a newel at every corner or change in direction making each straight run separate cable with a fixed cable fitting on one end and a tensioner cable fitting on the other end into the newel posts. However, you can run cable through two Pass Through Newels (positioned at 45° from one another) with Post Protector Tubes to turn a corner, but tensioner cable fittings must be used on both ends of the cable to achieve the desired tensioning on both directions of cable. Tensioner cable fittings should also be used on both ends of any cable run that is 25' to 50' long. **Consult your local building code official before purchasing and installing this system.**

NOTE: Wood components are for interior use only.

Item	Guidelines	Part #	Qty.
1	BOX TREADS	Select one tread for each step.	
2	LANDING TREAD	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.	
3	COVE MOULD	Select sufficient lineal footage of LJ-8095 to go under all landing tread.	
4	RAKE UP NEWEL	CABLE SYSTEM: For stairs with a 34"-36" rake rail height, select the CR-410U-36 at the bottom of the stairway at the first floor. For 36"-38" rake rail height, select the CR-410U-39. If the stairway is open on both sides, two of these newels will be needed. See the Wood Linear Newel Applications chart at the bottom of this page for further information. TUBE SYSTEM: For stairs with a 34"-36" rake rail height, select the TR-410U-36 at the bottom of the stairway at the first floor. For 36"-38" rake rail height, select the TR-410U-39. If the stairway is open on both sides, two of these newels will be needed. See the Wood Linear Newel Applications chart at the bottom of this page for further information.	
5	RAKE PASS THROUGH NEWEL (Cable) RAKE CENTER NEWEL (Tube)	CABLE SYSTEM: The distance between the rake newels should not exceed 42". Use in the middle of a rake run of handrail to keep the spacing between the newel posts at 42" or less. For stairs with a 34"-36" rake rail height, select the CR-420-36. For 36"-38" rake rail height, select the CR-420-39. TUBE SYSTEM: The distance between the rake newels should not exceed 48". Use in the middle of a rake run of handrail to keep the spacing between the newel posts at 48" or less. For stairs with a 34"-36" rake rail height, select the TR-420-36. For 36"-38" rake rail height, select the TR-420-39.	
6	LEVEL DOWN NEWEL	CABLE SYSTEM: For 36" level rail height, select the CL-410D-36 for the newel on the second floor landing at the top of the stairway flight. For 39" level rail height, select the CL-410D-39. For 42" level rail height, select the CL-410D-42. TUBE SYSTEM: For 36" level rail height, select the TL-410D-36 for the newel on the second floor landing at the top of the stairway flight. For 39" level rail height, select the TL-410D-39. For 42" level rail height, select the TL-410D-42.	
7	LEVEL CORNER NEWEL	CABLE SYSTEM: For 36" level rail height, select the CL-410C-36 for the newel at the corner of two level runs. For 39" level rail height, select the CL-410C-39. For 42" level rail height, select the CL-410C-42. TUBE SYSTEM: For 36" level rail height, select the TL-410C-36 for the newel at the corner of two level runs. For 39" level rail height, select the TL-410C-39. For 42" level rail height, select the TL-410C-42.	
8	LEVEL START/STOP NEWEL	CABLE SYSTEM: 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-410-36 for 36" level rail height. Select the CL-410-39 for 39" level rail height. Select the CL-410-42 for 42" level rail height. TUBE SYSTEM: Tube should be installed into a newel post at the end of the level run that is placed next to the wall. Select the TL-410-36 for 36" level rail height. Select the TL-410-39 for 39" level rail height. Select the TL-410-42 for 42" level rail height.	
9	LEVEL PASS THROUGH NEWEL (Cable) LEVEL CENTER NEWEL (Tube)	CABLE SYSTEM: The distance between the level run newels should not exceed 42". Use the Level Pass Through Newel at 42" intervals in the middle of a level run. For 36" level rail height, select the CL-420-36. For 39" level rail height, select the CL-420-39. For 42" level rail height, select the CL-420-42. TUBE SYSTEM: The distance between the level run newels should not exceed 48". Use the Level Pass Through Newel at 48" intervals in the middle of a long level run. For 36" level rail height, select the TL-420-36. For 39" level rail height, select the TL-420-39. For 42" level rail height, select the TL-420-42.	
10	BLANK NEWEL	Use at the corner of an intermediate landing and at any level position requiring holes for the cable or tube to be positioned different from our standard Linear Collection Newels.	
11	NEWEL MOUNTING KIT	Select one LJ-3004-3.5 newel mounting kit for each newel post.	
12	RAKE FIXED/TENSIONER CABLE FITTINGS PAIR (CR-WDFTGS-SS)	CABLE SYSTEM: To ensure performance of our system, a stabilizing member such as our 3/4" tube or 1 1/4" S4S wood is required between all newel posts at the top pre-drilled position. Each rake cable run requires a CR-WDFTGS-SS (Rake Fixed/Tensioner Pair). Calculate the total number of rake cable fitting pairs needed based on the cable system Rake Up Newel(s) selected in #4 above. CR-410U-36 requires 9 pairs when installing a stabilizing member at the top position (10 pairs without stabilizing member); CR-410U-39 requires 10 pairs when installing a stabilizing member at the top position (11 pairs without stabilizing member). Be sure to include enough cable fitting pairs for each flight. Do not include Rake Pass Through Newels (CR-420) when calculating cable fitting sets required since the cable will simply "pass through" this newel. Any cable run of 25' to 50', or if the cable runs through Pass Through Newels to make a <u>change in direction or elevation</u> , tensioner cable fittings should be used on both ends of the cable to achieve the desired tensioning on both directions of cable. Item CR-WD2TSN-SS contains 2 Rake Tensioners.	
13	LEVEL RUN FIXED/TENSIONER CABLE FITTINGS PAIR (CL-WDFTGS-SS)	CABLE SYSTEM: To ensure performance of our system, a stabilizing member such as our 3/4" tube or 1 1/4" S4S wood is required between all newel posts at the top pre-drilled position. Each level cable run requires a CL-WDFTGS-SS (Level 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 cable system level newels. CL-410-36 requires 9 pairs when installing a stabilizing member at the top position (10 pairs without stabilizing member); CL-410-39 requires 10 pairs when installing a stabilizing member at the top position (11 pairs without stabilizing member); CL-410-42 requires 11 pairs when installing a stabilizing member at the top position (12 pairs without stabilizing member). Do not include Level Pass Through Newels (CL-420) when calculating cable fitting sets required since the cable will simply "pass through" this newel. Any cable run of 25' to 50', or if the cable runs through Pass Through Newels to make a <u>change in direction or elevation</u> , tensioner cable fittings should be used on both ends of the cable to achieve the desired tensioning on both directions of cable. Item CL-WD2TSN-SS contains 2 Level Run Tensioners.	
14	POST PROTECTOR TUBE	CABLE SYSTEM: Select a C-PROTECTOR (Post Protector Tube) for every instance where the cable enters or exits a Level Pass Through Newel at an angle. Post Protector Tubes keep the cable from biting into the wood.	
15	1/8" CABLE	CABLE SYSTEM: Calculate enough 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 is available in 50' (CABLE-050-SS), 150' (CABLE-150-SS) and 500' (CABLE-500-SS) spools.	
16	3/4" TUBE	CABLE SYSTEM: If using 3/4" Tube as a stabilizing member between newels in a cable system, select enough tube to run between each newel. TUBE SYSTEM: Select enough tube to run between every tube system newel selected. TR/TL-410/420-36 requires 7 tubes; TR/TL-410/420-39 requires 8 tubes; TL-410/420-42 requires 9 tubes. Tube is available in 5' (TUBE-005-SS) or 20' (TUBE-020-SS) lengths.	
17	HANDRAIL	Select 684 handrail at a rate of 13" per each tread and include enough for all level runs and walls (if wall rail is required). Handrail is available in 8', 10', 12', 14', & 16' lengths.	
18	HANDRAIL GOOSENECK FITTINGS	A gooseneck handrail fitting must be used for the following rake to level run transitions: 36" rake to 39" level; 36" rake to 42" level; 39" rake to 42" level. Select the appropriate gooseneck fitting: 784LHGN (Left Hand Gooseneck), 784RHGN (Right Hand Gooseneck), 784SGN (Straight Gooseneck)	
19	HANDRAIL FITTINGS (Other Components)	Select the necessary Overeasing, Upeasing and 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 as wall rail, select two Level Quarterturns. Select from these fittings: 784OE (Overeasing), 784UE (Upeasing), 784QTR (Level Quarterturn)	

Linear Wood Newel Applications

Rake Up Newel (Cable: CR-410U) (Tube: TR-410U)	Use this newel as the starting newel on the first tread at the bottom of the stairway
Rake Pass Through/Center Newel (Cable: CR-420) (Tube: TR-420)	Use this newel on the stairs at 42"(cable)/48"(tube) intervals between the newels at the bottom and top of each flight
Level Start/Stop Newel (Cable: CL-410) (Tube: TL-410)	Use this newel at the beginning or end of each level run
Level Corner Newel (Cable: CL-410C) (Tube: TL-410C)	Use this newel at the corner of two level runs
Level Down Newel (Cable: CL-410D) (Tube: TL-410D)	Use this newel on the second floor landing at the top of the stairway flight
Level Pass Through/Center Newel (Cable: CL-420) (Tube: TL-420)	Use this newel on level runs midway between the Level Start/Stop, Corner and Down Newels at 42"(cable)/48"(tube) intervals
Blank Newel (Cable & Tube: B-400-48)	This newel is not pre-drilled and can be custom drilled at the jobsite and used at any level location

L.J. Smith Stair Systems

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Item	Guidelines	Part #	Qty.
1	BOX TREADS Select one tread for each step. (Interior stairs only)		
2	LANDING TREAD 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)		
3	COVE MOULD Select sufficient lineal footage of LJ-8095 to go under all landing tread. (Interior stairs only)		
4	RAKE UP NEWEL Open Tread Stairways: For stairs with a 34"-36" rake rail height, select the CR-310U-36 at the bottom of the stair flight. For 36"-38" 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. Kneewall Stairways: For stairs with a 34"-36" rake rail height, select the CR-KW310U-36 at the bottom of the stair flight. For 36"-38" 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.		
5	RAKE PASS THROUGH NEWEL Open Tread Stairways: The distance between the rake newels should not exceed 42". Use in the middle of a rake run of handrail to keep the spacing between the newel posts at 42" or less. For stairs with a 34"-36" rake rail height, select the CR-320-36. For 36"-38" rake rail height, select the CR-320-39. Kneewall Stairways: The distance between the rake newels should not exceed 42". Use in the middle of a rake run of handrail to keep the spacing between the newel posts at 42" or less. For stairs with a 34"-36" rake rail height, select the CR-KW320-36. For 36"-38" rake rail height, select the CR-KW320-39.		
6	RAKE DOWN NEWEL 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"-36" rake rail height, select the CR-310D-36. For stairs with a 36"-38" rake rail height, select the CR-310D-39. Kneewall Stairways: Use this newel at the top of any kneewall stair flight. For stairs with a 34"-36" rake rail height, select the CR-KW310D-36. For stairs with a 36"-38" rake rail height, select the CR-KW310D-39.		
7	LEVEL DOWN NEWEL Open Tread Stairways Only: There are three different types of Level Down Newels for use at the top of open tread stairways at the second floor landing. Based on the application details below, please select the appropriate second floor landing newel(s). Transition from stair rake and continues straight to a level run: For 34"-36" rake rail height transitioning to 36" level rail height select the CL-310DS-36. For 34"-36" rake rail height transitioning to 39" level rail height select the CL-310D36S-39. For 34"-36" rake rail height transitioning to 42" level rail height select the CL-310D36S-42. For 36"-38" rake rail height transitioning to 39" level rail height select the CL-310DS-39. For 36"-38" rake rail height transitioning to 42" level rail height select the CL-310D39S-42. Transition from stair rake and turns left to a level run: For 34"-36" rake rail height transitioning to 36" level rail height select the CL-310DL-36. For 34"-36" rake rail height transitioning to 39" level rail height select the CL-310D36L-39. For 34"-36" rake rail height transitioning to 42" level rail height select the CL-310D36L-42. For 36"-38" rake rail height transitioning to 39" level rail height select the CL-310DL-39. For 36"-38" rake rail height transitioning to 42" level rail height select the CL-310D39L-42. Transition from stair rake and turns right to a level run: For 34"-36" rake rail height transitioning to 36" level rail height select the CL-310DR-36. For 34"-36" rake rail height transitioning to 39" level rail height select the CL-310D36R-39. For 34"-36" rake rail height transitioning to 42" level rail height select the CL-310D36R-42. For 36"-38" rake rail height transitioning to 39" level rail height select the CL-310DR-39. For 36"-38" rake rail height transitioning to 42" level rail height select the CL-310D39R-42.		
8	LEVEL CORNER NEWEL For 36" level rail height, select the CL-310C-36 for the newel at the corner of two level runs. For 39" level rail height, select the CL-310C-39. For 42" level rail height, select the CL-310C-42.		
9	LEVEL START/STOP NEWEL 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-310-36 for 36" level rail height. Select the CL-310-39 for 39" level rail height. Select the CL-310-42 for 42" level rail height. These newels are also used to start the level run that transitions from the top of a kneewall stair flight.		
10	LEVEL PASS THROUGH NEWEL The distance between the level run newels should not exceed 42". Use the Level Pass Through Newel at 42" intervals in the middle of a level run. For 36" level rail height, select the CL-320-36. For 39" level rail height, select the CL-320-39. For 42" level rail height, select the CL-320-42.		
11	RAKE FIXED/TENSIONER CABLE FITTINGS PAIR (CR-MFTGS-SS) 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-320) when calculating cable fitting sets required since the cable will simply "pass through" this newel. Open Tread Stairways: CR-310U-36 requires 10 pairs; CR-310U-39 requires 11 pairs Kneewall Stairways: CR-KW310U-36 requires 8 pairs; CR-KW310U-39 requires 9 pairs 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-M2TSN-SS contains 2 Rake Tensioners.		
12	LEVEL RUN FIXED/TENSIONER CABLE FITTINGS PAIR (CL-MFTGS-SS) Each level cable run requires a CL-MFTGS-SS (Level 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-310-36 requires 10 pairs; CL-310-39 requires 11 pairs; CL-410-42 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. 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 CL-M2TSN-SS contains 2 Level Run Tensioners.		
13	1/8" CABLE Calculate enough 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 is available in 50' (CABLE-050-SS), 150' (CABLE-150-SS) and 500' (CABLE-500-SS) spools.		
14	HANDRAIL Select 684 handrail at a rate of 13" per each tread and include enough for all level runs and walls (if wall rail is required). Handrail is available in 8', 10', 12', 14', & 16' lengths. (Interior stairs only, however exterior 684 can be quoted)		
15	HANDRAIL GOOSENECK FITTINGS A gooseneck handrail fitting must be used for the following rake to level run transitions: 36" rake to 39" level; 36" rake to 42" level; 39" rake to 42" level. Select the appropriate gooseneck fitting: 784LHGN (Left Hand Gooseneck), 784RHGN (Right Hand Gooseneck), 784SGN (Straight Gooseneck) (Interior stairs only, however exterior gooseneck fittings can be quoted)		
16	HANDRAIL FITTINGS (Miscellaneous Components) Select the necessary Overeasing, Upeasing and 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 as wall rail, select two Level Quarterturns. Select from these fittings: 784OE (Overeasing), 784UE (Upeasing), 784QTR (Level Quarterturn) (Interior stairs only, however exterior handrail fittings can be quoted)		

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-310)	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-310DL)	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.