STAIR PARTS · CONTINUOUS HANDRAIL SYSTEM

Over-the-*Post*
Installation Guide

The 7000-series fitting program — volutes, easings, goosenecks, quarter-turns, opening caps, and rosettes — riding over the pin-top newel program (UW-4040 / 4042 / 4045 / 4046). The continuous-handrail system promised in the Post-to-Post and Bending guides.



THE CONTINUOUS-HANDRAIL SYSTEM

Rail flows over *the newels.*

Over-the-post (OTP) is the alternative to the post-to-post system covered in the UWP Handrail & Newel Installation Guide. Instead of the handrail butting into each newel face, the rail flows continuously over pin-top newels — connected at each direction-change by a fitting (volute, easing, gooseneck, or quarter-turn). The result is one continuous handrail from the volute at the bottom of the stair to the cap at the top. More fittings, more cuts, more elegant — and the install method is fundamentally different.

WHAT THIS GUIDE COVERS

- Pin-top wood newels — the UW-4040 / 4042 / 4045 / 4046 turned family.
- The 7000-series fitting program — volutes (7030/7035), easings (7010/7012/7013/7014), level quarter-turns (7011/7021), goosenecks (7050–7099), opening and tandem caps (7019/7020).
- Rosettes (UW-7017 / 7037) for wall terminations.
- Starting steps that pair with volutes — UW-8010 / 8015 / 8315Z.
- Layout method — start at the volute, work UP the stair. Opposite of post-to-post.
- The four critical cuts: plumb, pitch, tangent, square-to-pitch.
- Rail-bolt joinery between fittings and rail sections — same hardware as P2P, more joints.
- IRC R311.7.8 + R312 code applied to the continuous-rail case.
- Field finishing, troubleshooting, code-compliance checklist.

WHAT THIS GUIDE DOES NOT COVER

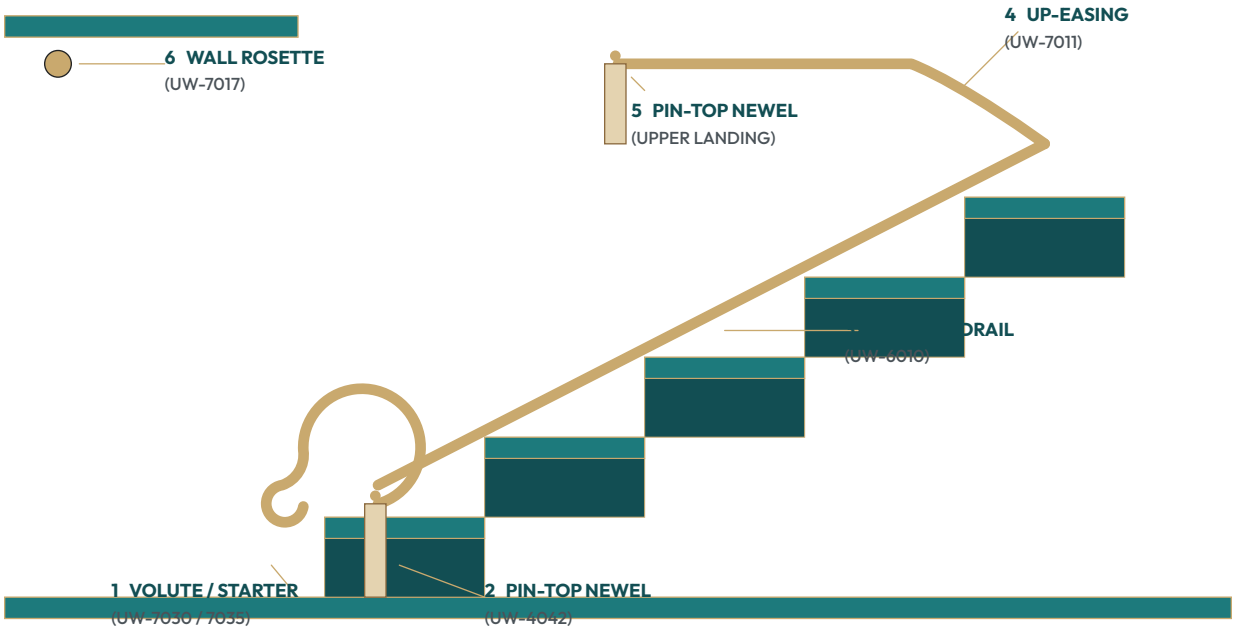
- Post-to-post wood handrail — see the UWP Handrail & Newel Installation Guide for square-top newels with rail butted to the face.
- Curved OTP runs — fittings ridable over curved sections; see the UWP Bending Handrail Installation Guide combined with this one.
- Helical (3D-curving) handrails — separate custom shop process.
- Iron handrails — UWP does not stock or fabricate.
- Specific volute layout templates — supplied with the fitting; this guide gives the install context, not the per-radius layout template.
- Commercial / IBC stairs — handrail extensions and projection rules vary; consult the AHJ.

WHEN OTP IS THE RIGHT CALL

Pick OTP when the customer wants a high-end traditional aesthetic with a continuous handrail, when the stair has a volute or gooseneck transition, or when the architect specifies the system. Post-to-post is simpler, faster, more affordable, and code-equivalent. OTP costs more in fittings, more in labor, and significantly more in cut-and-fit time. Quote accordingly.

SEE IT BEFORE YOU BUILD IT

The OTP *elevation.*



OVER-THE-POST STAIR · SIX LABELED FITTING FAMILIES IN ONE ELEVATION

THE PRINCIPLE: RAIL IS CONTINUOUS, NEWELS CARRY IT

Notice the handrail line is unbroken from the volute (1) up the rake (3), through the up-easing (4), across the level top, and to the rosette (6). The newels (2, 5) carry the rail at fixed elevation points. Direction changes happen INSIDE the fittings — never at a newel face. Anywhere the rail changes pitch, elevation, or direction, a fitting handles it.

THE NEWEL THAT HOLDS THE SYSTEM

Pin-top *newels.*

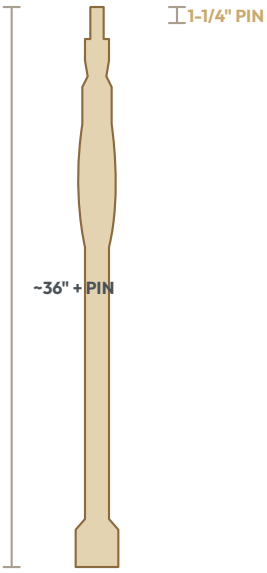
A pin-top newel has a small round dowel at the top (typically 1-1/4" diameter, 4–6" long) instead of a square cap. The fitting drops over the pin via a matching mortise on the underside, locks in place with glue and a pin nail. The newel pin replaces the rail-bolt joinery used at every newel in the post-to-post system. The newel is structurally identical otherwise — same anchor methods (bolt-through / lag / NFS) per the UWP Handrail & Newel Installation Guide.

PIN-TOP NEWEL INVENTORY

UW-4040	Pin-top starting newel	47-5/8"
UW-4042	Pin-top starting newel — taller	57-5/8" · WO 54"
UW-4045	Pin-top landing newel	57-5/8"
UW-4046	Pin-top landing newel — taller	62"
UW-4045BT	Sloped pin-top landing newel	57-5/8"

THE PIN DIMENSION

Standard pin is 1-1/4" diameter, 4" exposed. Some heavier newels use a 1-3/8" pin. The 7000-series fitting underside mortise is sized to match — verify the fitting and the newel come from the same manufacturer family or the pin diameter may differ.



PIN HEIGHT = RAIL HEIGHT TARGET

The pin top elevation IS the bottom of the handrail. To hit a 36-1/2" rail centerline, the newel pin top sits at 36-1/2" minus half the rail height (~1-5/16" for 6010 profile) = 35-3/16" plumb above the nosing. Get the newel installed first, verify pin height, THEN cut the fitting to ride over it. Reversing this order is the number-one OTP install failure.

THE FITTING PROGRAM

Fittings by *function.*

Each 7000-series fitting comes in profile-family versions (6010 / 6210 / 6710) and species (oak by default, white oak where listed). Verify the SKU at the counter before release.

VOLUTES & TURNOUTS

UW-7030	Left-hand volute	6010 / 6210 / 6710
UW-7035	Right-hand volute	6010 / 6210
UW-7040	5" left-hand turnout	6010 / 6210
UW-7045	5" right-hand turnout	6010 / 6210
UW-7041	3" left-hand turnout	6010
UW-7046	3" right-hand turnout	6010

EASINGS

UW-7010	Starting easing	Bottom transition
UW-7012	60° up easing	Rake to level
UW-7014	90° up easing	Rake to level

TURNS & CAPS

UW-7011	Level quarter turn	90° direction change
UW-7013	Over easing	Up and over a newel
UW-7019	Opening cap	Rail ends over a newel
UW-7020	Tandem cap	Over two newels

GOOSENECKS (VERTICAL RISE)

UW-7050	LH 2-riser, no cap	Landing turn
UW-7055	RH 2-riser, no cap	RH match
UW-7060	LH 2-riser, with cap	Capped turn
UW-7065	RH 2-riser, with cap	RH capped
UW-7071	LH 2-riser, level, no cap	Alt style
UW-7076	RH 2-riser, level, no cap	Alt RH
UW-7081	LH 2-riser, level, cap	Alt capped
UW-7086	RH 2-riser, level, cap	Alt RH capped

CAPS & ROSETTES

UW-7017	Round rosette	4-1/2" / 5"
UW-7037	Oval rosette	4" × 5-1/2" / 5-1/2" × 6"
UW-7036	Rectangle rosette	Wall termination

STARTING STEPS (PAIR W/ VOLUTES)

UW-8010	Reversible starting step	48" / 60"
UW-8015	Adjustable step	42"–60" in 3 ranges
UW-8315Z	Wedge starting step	48"–54"

PROFILE FAMILY + HANDEDNESS

Volutes, turnouts and most goosenecks come in left- and right-hand versions; easings are not handed. Order the hand that matches the open side of the stair, and always specify hand + profile family + species.

MORE JOINTS THAN POST-TO-POST

Tools and *hardware.*

LAYOUT & CUTTING

- 4-ft level + 2-ft level (for fitting plumb checks)
- Pitch block — same as the Handrail & Newel guide
- Bevel gauge — capture the pitch for transfer to fittings
- Combination square + sliding T-bevel
- 12" compound miter saw — minimum capacity for handrail width
- Sharp 80T finish blade — chip-free cuts on stain-grade rail
- Hand saw (Japanese pull style) — fitting trim cuts
- Sharp 3/4" chisel — fitting pocket adjustment
- Block plane — fitting-to-rail final fit

DRILLING

- 5/16" auger bit (rail-bolt access through handrail)
- 3/8" twist bit (rail-bolt pilot)
- 1-1/4" or 1-3/8" Forstner bit (newel pin mortise, fitting underside)
- Drill press — preferred for fitting bottom mortise
- Self-centering drill jig

RAIL-BOLT HARDWARE — ORDER MORE

Post-to-post: ~3 rail bolts per stair (one per newel transition). OTP: typically 5–8 rail bolts per stair — one at each fitting-to-rail joint. Count joints from the elevation, add 2 spares.

- Snug-Tite or standard handrail-bolt kits — one per joint
- 3/8" rail bolts standard for 6010 / 6210 family
- Wood plugs in matching species for access holes

ADHESIVES

- Slow-set wood glue (Titebond III) — main bonding
- PU glue for pin-to-newel-pin mortise (gap-filling)
- Construction adhesive for pin-mortise bedding (sub to wood glue)

FASTENERS

- 1-1/4" finish screws — fitting-to-newel-pin reinforcement
- 15-ga finish nails — fitting positioning
- Color-matched putty stick
- 23-ga pin nailer — invisible positional fastening

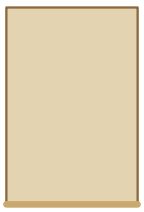
BUY FITTINGS BEFORE YOU BUY RAIL

Unlike post-to-post, OTP rail length depends on how the fittings consume length. Each fitting is ~6–18" of "developed" rail length consumed by the curve. Lay out the fittings dry first, measure rail-section lengths between them, THEN buy the rail. Buying rail first leads to expensive returns or short pieces that have to be scarf-joined.

EVERY OTP JOINT IS ONE OF THESE

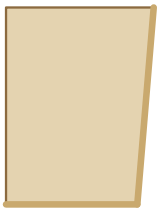
Four cuts *cover everything.*

Every rail-to-fitting and fitting-to-fitting joint in the OTP system uses one of four cuts. Learn the four, and any fitting joint reduces to "which two cuts meet here?" The cuts are language; the fittings are nouns; the joints are sentences. Get fluent in the cuts and the install gets dramatically faster.



PLUMB
90° to rail axis

CUT 1 · PLUMB



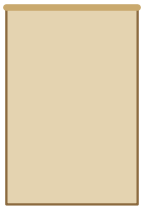
PITCH
rake-angle face

CUT 2 · PITCH



TANGENT
90° to tangent at point

CUT 3 · TANGENT



SQUARE-TO-PITCH
plumb cut on rake rail

CUT 4 · SQUARE-TO-PITCH

CUT 1 — PLUMB (90°)

Square cut perpendicular to the rail axis. Used at level-rail joints, fitting-to-fitting joints on a level run, and any rail end terminating into a vertical surface (wall rosette).

CUT 2 — PITCH

Cut at the rake angle (using the pitch block on miter saw). Used to make a rake rail face match a vertical fitting face, or to start an up-easing.

CUT 3 — TANGENT

Cut perpendicular to the tangent at a point along a curved fitting. Used where rail meets a volute or easing — the cut must match the curve's direction at the join point.

CUT 4 — SQUARE-TO-PITCH

On a rake rail: cut perpendicular to the rail axis. Looks like a "tilted plumb" — it's actually plumb relative to the rake. Used where a rake rail terminates into a vertical fitting like a gooseneck.

ESTABLISH THE RAIL LINE FIRST

Find the rake, *mark the newels.*

Same starting principle as post-to-post — chalk-line the rail centerline above the tread nosings — but with an OTP twist: you need TWO lines, the rail centerline plus the newel-pin-top line. The fitting underside rides on the pin tops; the rail rides above on the fittings. Two lines, both parallel to the nosing slope, separated vertically by half the rail height.

1

Measure rise and run.

Same as the Handrail & Newel guide — measure rise (riser height) and run (tread depth) on the installed stair. Cut a pitch block from 2x scrap. This block carries the rake angle to every cut.

2

Chalk the rail centerline.

Standard target: 36-1/2" plumb above each tread nosing. Mark on every step at this height, then snap a chalk line through the marks running to the top of the stair. Verify the line is parallel to the nosing slope.

3

Compute newel-pin-top line.

Newel pin top sits at rail centerline minus half the rail height. For a 6010 rail (2-5/8" tall): half-height = 1-5/16". So pin-top line is at 36-1/2" − 1-5/16" = 35-3/16" plumb above the nosing. Mark this on each step. Snap a second chalk line parallel below the rail centerline.

4

Set newel positions on the stair.

Starting newel: at the volute position — typically just behind the bullnose of the starting step or first tread. Top newel: at the upper landing edge, face flush with the top riser. Mark both positions on the chalk lines.

5

Install newels per the Handrail & Newel guide.

Anchor method (bolt-through / lag-into-blocking / NFS) is identical to post-to-post — see pages 10–11 of that guide. Difference: cut the newel shaft so the PIN TOP lands at the pin-top chalk line, not the rail centerline. The pin sticks up above the shaft.

> **NEWEL PIN HEIGHT — MEASURE TWICE**
>
> The newel pin top must be at the exact pin-top line — too high and the fitting sits proud of the rail line; too low and the fitting cannot bear on the pin. Check pin height with a level after newel install, before any fitting goes on. A 1/8" error here propagates through the entire run.

THE OTP LAYOUT DIRECTION

Start at the volute, *work UP.*

This is the rule that separates OTP installers from post-to-post installers. The volute sits at a fixed position on the starting step. Everything above it follows from there. Start at the top and work down, and the rail-section lengths never quite work out — you end up with a gap or an overlap at the volute. Start at the volute and the math comes out right every time.

1

Dry-fit the volute on the starting step.

The volute mounts over the starting newel pin and rests on the bullnose of the starting step (UW-8010 / 8015 / 8315Z family). Position per the volute manufacturer's template — typically the centerline of the volute swirl aligns with the centerline of the bullnose curve. Pin-nail the volute lightly to the starting step for positioning; do not glue yet.

2

Locate the tangent-out point.

The volute spirals into the rake — the tangent-out point is where the volute curve becomes a straight rake rail. Mark this point with a pencil on the volute surface. This is also the START of the first straight rail section.

3

Mark the up-easing tangent-in.

At the top of the rake, where the rail transitions to level for the upper landing, the up-easing fitting starts. Dry-place the up-easing along the rake line; mark its tangent-in point (where the curve enters the rake). This is the END of the first straight rail section.

4

Measure the rake-rail section.

Between the volute tangent-out and the up-easing tangent-in, measure the developed length along the rake. This is the length of the straight rail section needed. Add ~1/4" for trim allowance — you can always cut shorter, never longer.

5

Continue up the run.

Each subsequent rail section (e.g., level rail across the upper landing) is laid out the same way — mark the tangent points on the adjoining fittings, measure between them, cut to length plus trim allowance.

6

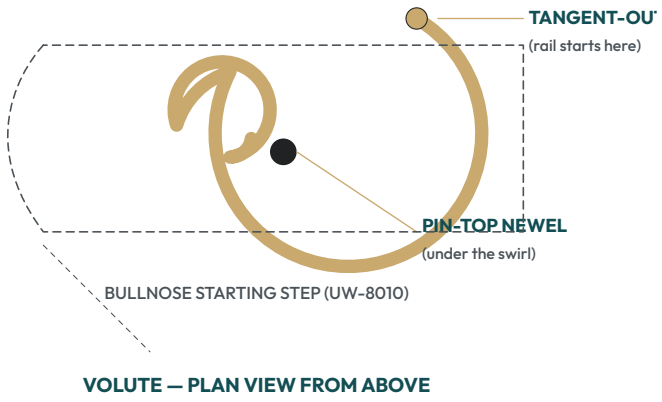
Dry-fit the entire run before any glue.

With volute + first rail + up-easing + level rail + termination fittings all dry-fit, the entire system should connect from the volute to the wall rosette or top cap. If lengths come up short or long, adjust now. After glue, the rail is committed.

THE TRICKIEST FITTING

Volute *install.*

The volute is the visual centerpiece of an OTP stair — the spiral at the bottom that the eye lands on first. It also drives the layout of the entire run. Get the volute positioned right on the starting step, with the pin-top newel in the correct spot beneath it, and the rest of the install follows. Get it wrong and every rail section above will fight the geometry.



VOLUTE — PLAN VIEW FROM ABOVE

VOLUTE LAYOUT · POSITION RELATIVE TO BULLNOSE + PIN-TOP NEWEL

1 *Dry-set the bullnose starting step.*

Install the starting step (UW-8010 / 8015) per the stair-tread guide before any handrail work. The bullnose face becomes the reference for the volute centerline.

2 *Position the volute by template.*

Each volute ships with a layout template (a paper sheet showing the underside footprint). Trace the template onto the starting step at the marked centerline position. The template shows the newel pin location, the bullnose alignment, and the tangent-out point.

3 *Install the pin-top newel.*

Anchor the starting newel exactly under the volute centerline as marked by the template. Pin-top must be at the pin-top elevation line (from page 8). Verify plumb and pin height before continuing.

4

Dry-fit the volute over the pin.

Drop the volute over the newel pin. The volute should sit flat — bearing on the pin AND on the starting step face. If either bearing is missing, adjust newel height or shim the volute. Verify the tangent-out point lines up with the desired rake direction.

5

Mark the tangent-out point on the volute.

With everything dry-fit and aligned, pencil-mark the tangent-out point on the volute outside face. This is the END of the volute and the START of the first rake rail section. Use this for measuring the rake rail length.

6

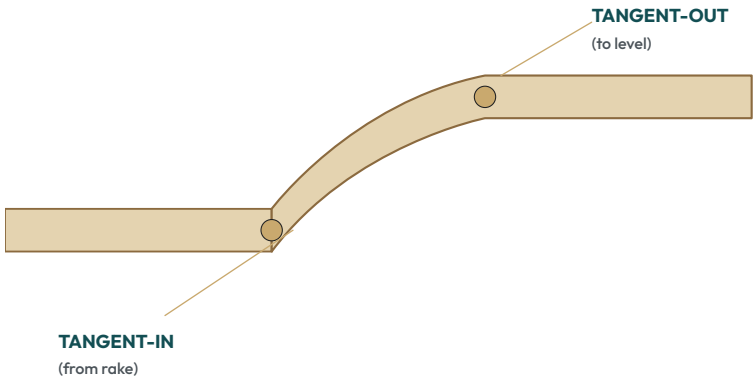
Glue and pin the volute.

Apply slow-set wood glue to the underside footprint that contacts the starting step + the inside of the pin mortise. Re-position over the pin, press down, pin-nail (15-ga) through the volute base into the starting step at two unobtrusive points. Wipe glue squeeze immediately.

RAKE MEETS LEVEL

Up-easings & *quarter-turns.*

Up-easings (UW-7012 / 7014) carry the rail from the rake of a stair flight to the level of a landing or balcony — a smooth curve eliminates the visual abruptness of a hard angle change. Level quarter-turns (UW-7011 / 7021) handle horizontal 90° changes on level runs. Both fittings install with tangent-cut rail sections on each end, joined by rail bolts.



UP-EASING (UW-7011) — rake-to-level transition

UP-EASING · CURVED TRANSITION FROM RAKE TO LEVEL

1 *Position the easing dry.*

Set the up-easing in position at the top of the rake — the lower tangent (tangent-in) should align with the rake-rail centerline, the upper tangent (tangent-out) should be level. Brace temporarily with a stud or scrap wood block.

2 *Mark tangent points and rail bolt centerlines.*

Mark the tangent-in and tangent-out points on the fitting. Mark the rail-bolt centerline location on each face — typically centered on the rail height.

3 *Drill rail-bolt pilots.*

Drill 3/8" rail-bolt pilots into each fitting face at the marked centerlines. Drill perpendicular to the face — not to the curve. The bolt must enter the fitting straight along the rail axis at the tangent point.

4 *Cut the rake rail end — pitch cut.*

The rake rail end that meets the easing's tangent-in must be cut to the pitch angle (Cut 2 from page 7). Use the pitch block on the miter saw fence. This cut matches the angle the easing's curve makes at the tangent-in point.

5 *Cut the level rail end — plumb cut.*

The level rail end that meets the easing's tangent-out is cut plumb (Cut 1 — 90° to rail axis). Standard miter saw setting.

6 *Glue, rail-bolt, torque.*

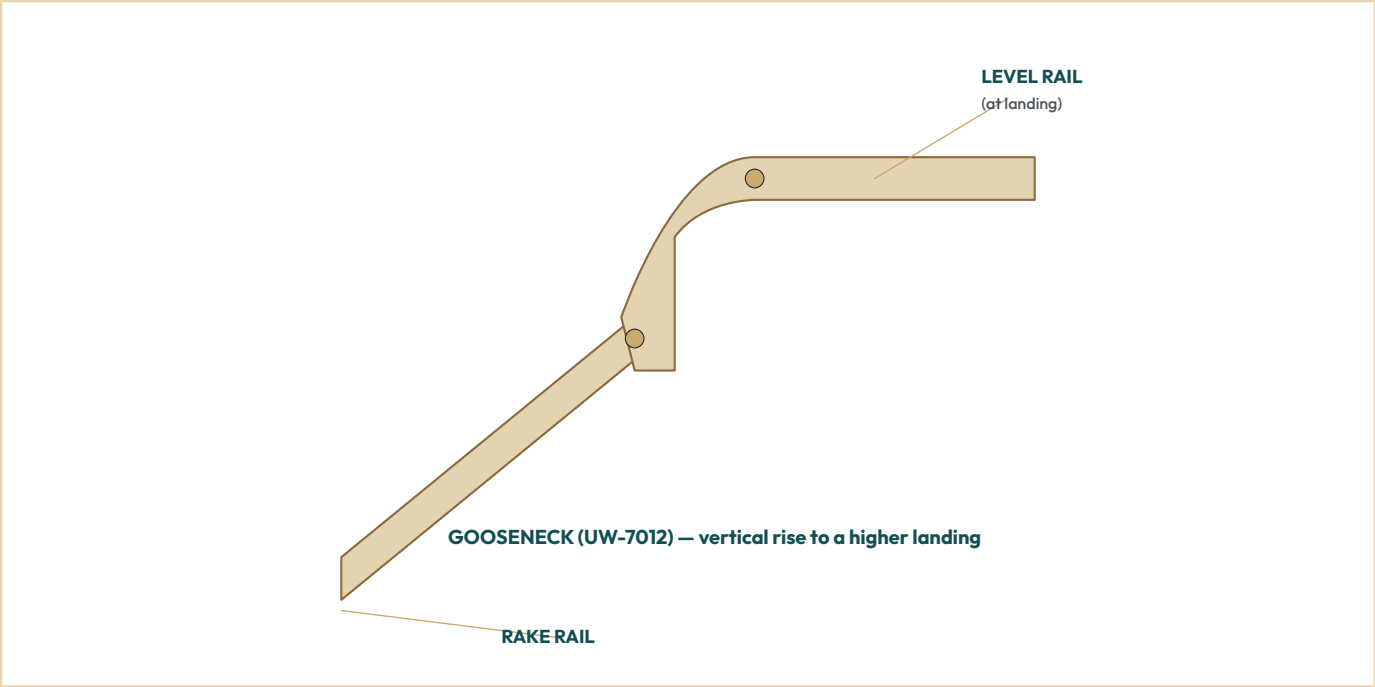
Glue both fitting faces and both rail ends. Thread rail-bolt studs from the rail through to the fitting tee-nuts. Work nuts and washers through access mortises. Torque snug. The fitting and rail should pull together with no visible gap.

> **QUARTER-TURNS — SAME METHOD, LEVEL ONLY**
>
> A quarter-turn (UW-7013) is just a 90° horizontal direction change with no pitch transition. Both rail sections meeting it are level — both ends get plumb cuts (Cut 1). The fitting bridges them. Same rail-bolt method, no pitch math.

VERTICAL RISE TRANSITIONS

Goosenecks *at landings.*

A gooseneck takes a rake handrail and lifts it vertically to meet a higher level rail — typically at a landing where a second flight starts. The gooseneck is more vertical than horizontal: it rises 6"–12" or more before turning level. Different fittings handle different rise heights (UW-7012 for 1-riser drops, UW-7050+ for taller transitions). Choose by the actual rise measurement on the stair, not by guesswork.



GOOSENECK — SIDE VIEW (RAKE LEFT, LEVEL RIGHT)

1

Measure the rise to the upper rail.

From the top of the lower rake rail to the bottom of the upper level rail, measure the vertical rise. This is the gooseneck rise. UW-7012 handles ~7" rise (one riser). UW-7050 / 7076 / 7086 handle taller rises. Order the right fitting; if between sizes, order the larger and trim down.

2

Position the gooseneck dry.

Hold the gooseneck in position at the top of the rake. The lower tangent (where rake enters) should align with the rake rail centerline; the upper tangent should be at the level rail centerline. Plumb the vertical section with a level. Brace temporarily.

3

Mark and drill rail-bolt pilots.

Mark rail-bolt centerlines on both fitting faces (lower rake face + upper level face). Drill 3/8" pilots. The lower face has a rake-pitch orientation; the upper face is level — drill straight into each face, not to a common axis.

4

Cut the rake rail — square-to-pitch.

The rake rail end meeting the gooseneck lower face is cut square-to-pitch (Cut 4 from page 7) — perpendicular to the rail axis, which looks tilted when viewed in elevation but is the correct cut to mate flush with the gooseneck face.

5

Cut the level rail — plumb.

The level rail meeting the gooseneck upper face is plumb-cut (Cut 1). Standard miter saw setting.

6

Glue, rail-bolt, torque.

Same final assembly as the up-easing: glue both faces, rail-bolt through, work nut and washer through access mortise, torque. Plumb the gooseneck vertical section once more before final torque — easy to drift here.

MORE JOINTS THAN P2P

Rail bolts *at every fitting.*

Same rail-bolt hardware and method as the Handrail & Newel Installation Guide (page 12) — threaded stud, tee-nut, access mortise. The OTP difference is volume: a typical OTP stair has 5–8 rail-bolt joints (one at each fitting-to-rail and fitting-to-fitting transition), versus 2–3 on a post-to-post stair. Each joint must be perfectly aligned for the rail to "flow" continuously.

1

Drill the fitting face pilot.

On each fitting face, mark the rail-bolt centerline at the rail-height midpoint. Drill 3/8" through the fitting wall — perpendicular to the FACE, not to any other reference. The pilot must enter the rail end straight along the rail axis at the tangent.

2

Tee-nut on the fitting back side.

Drive a tee-nut into the rear (behind the face) of the fitting, prongs into the wood. Some fittings come with the tee-nut pre-installed at the factory; check before drilling.

3

Thread the rail-bolt stud.

Thread the rail-bolt stud into the fitting tee-nut from the rear. Leave ~1-1/2" projecting from the fitting face. The stud now extends into the rail end when the joint is closed.

4

Mark the rail end.

Hold the rail butt to the fitting face with the stud passing into the rail. Mark where the stud center hits the rail end. This is the rail-side pilot center.

5

Drill rail pilot + access mortise.

Drill a 3/8" hole into the rail end to receive the stud, ~2-1/2" deep. On the rail underside, ~2" back from the end, drill a 1" Forstner access mortise to expose the stud for nut tightening. Same dimensions as the Handrail & Newel guide.

6

Glue, mate, torque, plug.

Apply slow-set glue to both faces. Slide the rail onto the stud. Work the nut and washer through the access mortise onto the stud end. Torque snug — the joint pulls the rail tight to the fitting. Wipe glue squeeze. Plug the access mortise with matching species, pare flush, sand.

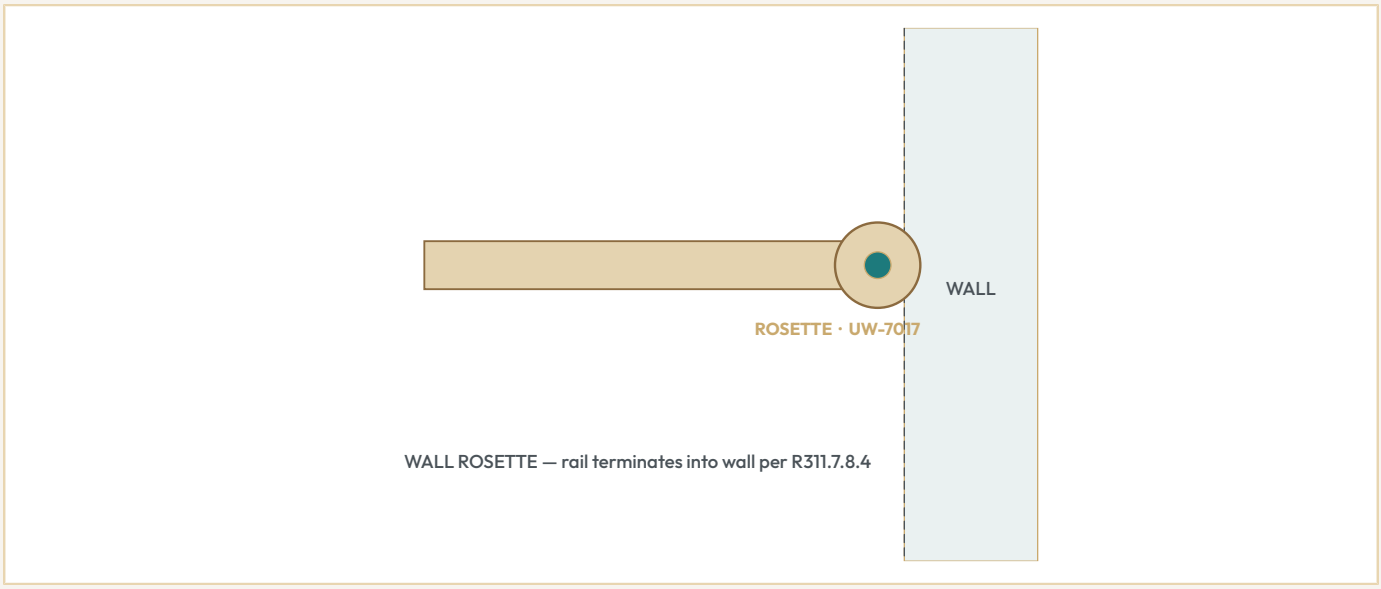
JOINT CHECK — FEEL THE SEAM

After every rail-bolt is set, run a finger along the seam between the fitting and the rail. If you can feel a step — high side or low side — the rail and fitting are not aligned. Loosen the bolt slightly, adjust the rail orientation, retighten. The seam must be invisible to the hand. Code is satisfied either way, but craftsmanship is in the seam.

WHERE THE RAIL ENDS

Closing *the run.*

IRC R311.7.8.4 requires handrails to "return or terminate in newel posts or safety terminals." In OTP, the upper end of the rail typically terminates at a wall (via a rosette + horizontal return) or at a top cap above a pin-top newel. Both methods are code-compliant; pick by which side the rail ends on and what the architectural plan calls for.



WALL ROSETTE TERMINATION (TOP OF STAIR)

1

Wall rosette termination.

At the wall end, install the UW-7017 wall rosette. Mark the wall at the rail centerline height. Lag-screw the rosette to wall framing (drywall anchors fail under code load). Cut the rail end square (Cut 1 plumb), glue and screw the rail end into the back of the rosette. Most rosettes have a pre-drilled lag pocket and a screw-receiver socket.

2

Top-cap newel termination.

For a rail terminating at a top newel rather than a wall, use a top cap (UW-7036) over the newel pin. The rail ends at the cap via a plumb cut + rail-bolt joint. The cap visually finishes the run.

3

Horizontal return.

On a wall side where the architect wants a more pronounced termination, run a short level rail section + a 7037 cap or fittinged-return into the wall. The visible "tail" of rail past the newel reads as a more deliberate finish than a straight rosette.

Confirm 1-1/2" wall clearance.

4

R311.7.8.4 — anywhere the rail runs parallel to a wall (including the section approaching the rosette), 1-1/2" minimum clearance between rail and wall must be maintained. Verify with a 1-1/2" block before final fastening.

FITTING SEAMS ARE THE TEST

Finishing *OTP.*

OTP has more visible joinery than post-to-post — every fitting-to-rail joint is a potential telegraph point if finishing is sloppy. The good news: most fittings ship factory-sanded to 180 grit, so the prep is light. The challenge is the seams. Each seam takes a brief but careful pass with a sanding block (parallel to the rail axis, both sides at once) to blend the joint into invisibility.

1

Wait for full cure.

48 hours minimum after the last rail-bolt is torqued. Glue cures from outside in — partial cure at the joint surface will reject stain unevenly.

2

Sand every seam.

At each rail-fitting joint, sand the seam with a flat block (cork-faced sanding block works well) — 180 grit, light strokes parallel to the rail axis. Sand BOTH pieces simultaneously to blend the joint. Step up to 220.

3

Plug access mortises.

Cut wood plugs from matching species — 1" diameter for the access mortise. Glue and tap flush. Pare with a sharp chisel, sand to 220. On stain-grade rail, grain-match the plug to the surrounding rail underside.

4

Spot-fill nail holes.

15-ga finish nails used at fittings have small but visible holes. Fill with color-matched putty stick; wipe excess immediately. Test the color on a scrap before applying to the rail.

5

Stain — even strokes.

Stain the whole assembly in even strokes along the rail axis. End grain at every fitting-to-rail joint takes stain heavier than face grain — wipe back stain at joints to even the color, or pre-condition end grain before stain.

6

Topcoat 2–3 coats.

Polyurethane (oil-base or water-base — match the rest of the millwork program). Sand between coats with 320. Full cure 24 hr before traffic.

7

Wax the high-touch areas.

For premium installs, finish with paste wax on the rail top surface (the hand-touch area). Buff with a soft cloth. The wax fills micro-texture and gives the rail the smooth feel that distinguishes a custom OTP install.

BEFORE THE AHJ WALKS THE JOB

Final *inspection.*

CODE-COMPLIANCE CHECKLIST

- Handrail height 34"–38" plumb above nosing along the full rake AND across all level sections (R311.7.8.1)
- Handrail is continuous from top to bottom riser line — fittings + rail unbroken (R311.7.8.2)
- Handrail grasp meets Type I or Type II at every point along the run (R311.7.8.3)
- Handrail terminates in newel cap or wall rosette per R311.7.8.4
- 1-1/2" minimum clearance between handrail and wall — verified along all wall-adjacent sections
- Stair guard ≥36" measured from tread nosing (R312.1.2)
- Landing guard ≥42" where walking surface > 30" above grade
- 4" sphere cannot pass between balusters along the curve and at all transitions
- Newel anchors resist 200-lb concentrated load (R301.5)
- All rail-bolt access mortises plugged + finished
- No telegraph at any fitting-to-rail seam

TROUBLESHOOTING

Volute spins the wrong direction.

Wrong hand ordered. Volutes are LH or RH — return for the opposite hand. Determine from below the stair: if the stair runs UP and to the RIGHT, you need a RH volute. UP and LEFT = LH.

Rail height fails over a fitting.

The newel pin is too high or too low. Cannot move the cured fitting; pull the newel and reset at correct pin height. Verify on dry-fit next time (page 8).

Fitting wobbles on the newel pin.

Pin diameter mismatch (e.g. 1-1/4" pin in a 1-3/8" mortise). Fill the gap with PU foam glue + a thin wood sleeve dowel for solid bearing. Or order pin-to-fitting matching kit from the manufacturer.

Rail section comes up short between fittings.

Likely a tangent-point measurement error during dry-fit. Pull the rail; rip a 6" scarf joint, glue in a matching species piece, sand to blend. Re-measure with more care next time.

Fitting profile cross-section mismatches rail.

Wrong family — 6010 rail with 7000-series (6010-family) fittings or 7200-series (6210-family) fittings — must match. Check the SKUs. If mismatched, return and re-order from the same family.

Gooseneck not plumb.

Vertical section drifts left or right under final torque. Loosen rail-bolts on both ends, level the vertical section with a 2-ft level, retighten. If repeating, the lower rake-rail cut is off-pitch.

SETTING AN OVER-THE-POST STAIR?

Volute, easing, gooseneck — *from one Houston yard.*

The full 7000-series fitting program — volutes, easings, goosenecks, quarter-turns, opening caps, and rosettes — plus matching pin-top newels (UW-4040 / 4042 / 4045 / 4046) and starting steps (UW-8010 / 8015 series). Special order through our Tanner Road branch, NW Houston; timing confirmed at quote.

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