

RADIUS WALL ASSEMBLY AND INSTALLATION



One of the great things about the flexibility of NUDURA is the ability to form radius walls. This flexibility has enabled the creation of everything from round castle turrets on homes to bow window walls, to elaborate multiple curved pool walls just to name a few examples of what can be created.

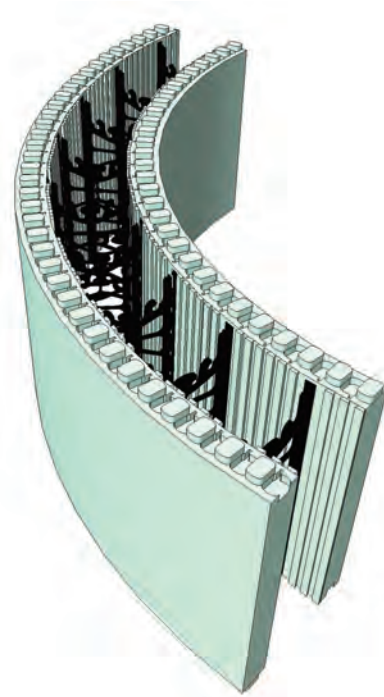
The installer has several options available for working with NUDURA in creating radius walls as they can be created using any of the following techniques:

- (a) Custom, on-site, using standard NUDURA fully assembled hinge pin web forms
- (b) Custom, on-site, using NUDURA panels and insert webs or
- (c) Factory prepared custom radius wall components shipped to the site, composed of exterior panels, insert webs and accurately pre-cut interior panel segments to specifically suit the radius wall desired.

PRODUCT SHIPMENT AND ARRIVAL TO SITE

As stated in Chapter 5 of the NUDURA Installation Manual, Factory Cut Radius Forms will arrive at the site in shrink wrapped packages of full length 8 foot (2.44 meter) long panels with fastening strips AND packages of pre-cut interior panel segments labeled according to whatever has been assigned to designate the radius on the order. Each foam segment that forms the interior panel of the radius form will have been hot knife cut at the factory, scoring a matching tongue and groove profile down each side of the segments that ensures positive vertical alignment of these segments with each other once they are assembled into the radius wall on site.

If there are multiple radii of differing sizes in the building, ensure that the segmented pieces designated for each different radius are kept in their designated packaging and in proximity to their final required position on the site. This will ensure all pieces of each radius form will remain together ready for construction to begin – without chance of mixing the segments in error on site.



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RADIUS WALL LAYOUT

Layout of the radius on the site will echo exactly what was done in plan to perform the estimate for the radius form order with the distributor. Start by accurately locating the FOCUS of the radius on the site area using existing surveyor pins or marks. Using a tape measure, accurately plot the outside and inside radius onto the footing or slab to and from their finish and start points of arc where they tie into the existing straight walls of the floor plan. Clearly mark the lines of the arc lengths with chalk or marker onto the footing or slab.

RADIUS WALL FORM INSTALLATION

There are many ways of supporting radius walls when working from the base course at the footing. Usually the outer panel can be supported at each web by anchoring wood blocking or “cleats” to the footing. However another suggested method is to use a flexible 2 1/2” (63.5 mm) stud track as a means of keeping the exterior panels in place. Simply arc the flexible track so that its exterior edge follows the outside radius line of the layout and secure firmly in place regularly along its length – with concrete nails or drilled holes fitted with a tie wire shim and spiral nails. After the stud track (or wood cleats) are fastened, installation of the radius can begin.

Depending upon the size of radius, the installation of the exterior panels may sometimes require relief or “back” cuts to be scored into the interior surface of the outer foam panel to allow additional flexibility. NUDURA’s manufacturing facility is able to execute custom cut radius forms to suit a radius as tight as 3’ (0.914m). However, to successfully bend the outside panel to a radius in the range of 8’ (2.44m) to 3’ (0.914m) this operation will require additional site or shop preparation. You can find detailed instructions on this operation in Appendix F of the Installation manual in the Technical Bulletin Entitled; “How to Prepare Exterior Panels for Construction of Small Radius Walls”

Once the outside panels have been relief cut, align them along the stud tracking or supporting blocking that has been laid out on the footing or slab. Starting at one end, attach the interior segments, to the outside panel using insert webs. NUDURA low expansion spray foam can be used to seal the vertical joints of the interior foam segments together as assembly is proceeding. Be sure to keep the dovetail male and female cuts of these pieces aligned in the same direction.



Upon completion, the first course should be tight and abutting into the two ends of the straight wall. Make any cuts as necessary at the ends of radius forms to assure this condition is properly interfacing at these areas and seal with low expansion foam. Each successive course will be installed just like the first with the interlock keeping the connections firmly in place. The outer panels can be stacked in running bond pattern (similar to standard form units). The inner panel segments, however, will be soldier stacked (one directly one on top of another). Once the wall is desired height has been reached, NUDURA low expansion spray foam can be used to additionally seal any of the vertical joints that may not already have been sealed properly during assembly. Additional reinforcement can be provided by cutting 6” (150mm) wide lengths of flexible 1/4” (6.4 mm) hardboard (i.e. Masonite®) material or 1/4” (6.4mm) plywood strapping. Screw fasten two of these strips on the outside of the wall (and inside if more form support is desired) to the web fastening strips per each course of formwork.

By overlapping the strips 4” (102mm) from one form to another, the joint between each panel will be reinforced. These strips of hardboard or plywood should be equally spaced to proven uniform coverage of the wall surface. Depending on the size of the radius, spray foam may be applied to the vertical joints between the exterior panels. As with standard wall installation, the NUDURA Alignment System will be installed after placement of the 3rd or 4th course in preparation for concrete placement. Platform installation (depending upon the radius) may require more finesse – using shorter platform planking to accommodate the continuing change in plane of the wall and for brace pole anchorage which can be more

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complex on tighter radii. The final step in completing the radius wall is to pour the concrete and ensure the radius stays true.

A situation that maybe encountered is a radius wall with openings. When this occurs, you may be lucky enough to have the sill (or door threshold) located at the top of a form unit; otherwise, you will have to place the opening framing lower into the wall. One common practice is to place the framing of the window or door opening buck materials completely inside the cavity of the wall (suspending the bucks at their desired height using temporary nailed cross blocks at the sill and keep building the wall around the opening but clearly denoting its location on both wall faces with a marker. This makes it easier to place the rest of the segmented blocks, and the installer can simply cut the foam away after the concrete has been poured and cured. This also allows the installer to keep the alignment system exactly as it should be. Always make sure that the framing for the opening is secured in place. NOTE: When employing this technique, care should be taken in placing concrete around openings especially at window sills. Access holes through each window area where the forms are running through may be required to be cut partially to access the sill of the bucks in order to assure proper placement & concrete vibration under the sill areas.

Once the concrete is cured – when specified by the engineer of record, and/or once floor or roof diaphragms (lateral supports) are in place, the alignment system can safely be removed along with any additional applied form support. The radius wall forms can then be readied for electrical or mechanical installations and finishes.

