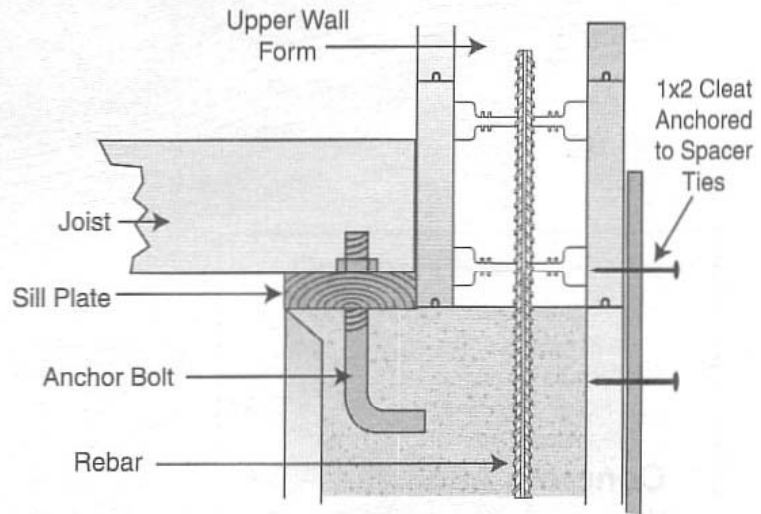


Attaching Lower Form to Upper Form

Multi-story concrete walls are constructed by assembling and pouring the forms, one story at a time. Vertical reinforcing steel is placed into the concrete of the lower form (spacing & overlap are dictated by local codes and project conditions) so that it extends into the cavity of the upper wall form. With the lower story completed, the floor system should be installed before the upper wall forms are put into place. Upper form walls can be secured to the lower form walls as shown below:

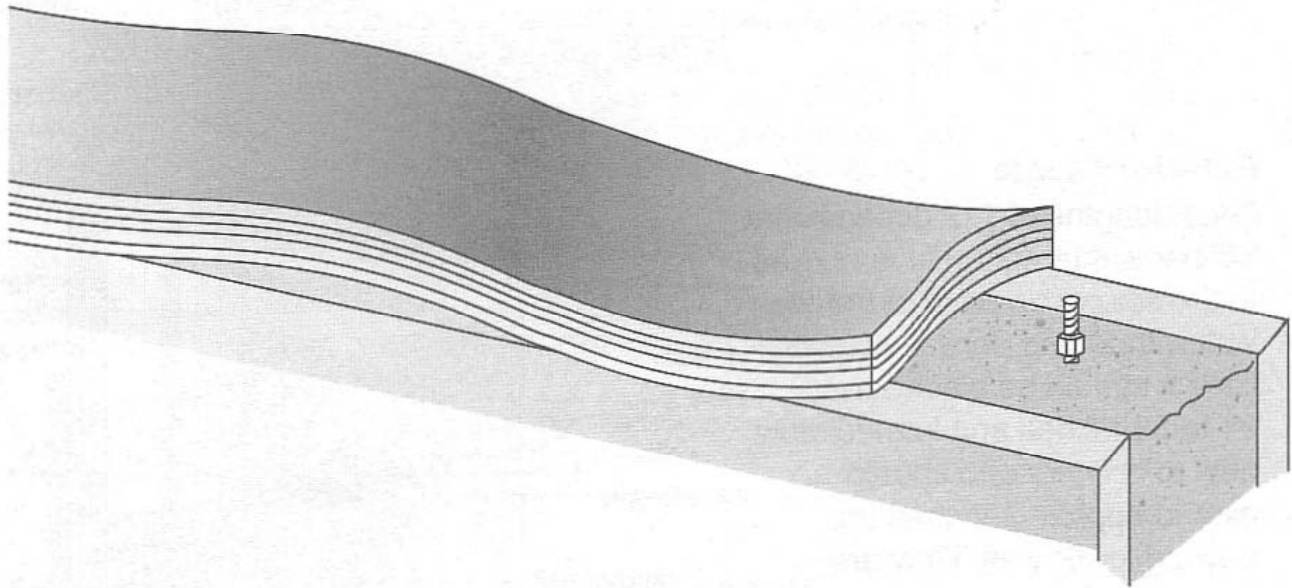
Exterior Cleats

3-foot lengths of 1x2 dimensional lumber are temporarily anchored to the spacer tie pads of the lower wall with 2-inch drywall screws. Cleats should be placed every 24 to 32-inches and immediately next to corners and should extend approx. 3-inches up, beyond lower wall. They are removed after concrete has been placed. (*diagram 23-1*)



Winter Projects

After pouring concrete in cold weather, a temporary blanket of insulation should be laid over the exposed concrete at the top of the form. Keep in place for at least 72 hours. Because of the high insulating value of the form walls, this protection from cold temperatures is all that's needed.



Concrete Additives

Winter temperatures may force the concrete supplier to include additives to the concrete so it will not freeze during delivery and placement. Hot water may be used in the mixture during mild winter conditions. Anti-freezing agents may be added to the mixture during more severe conditions.

Delays

If it will be several hours or days before concrete is placed in an assembled form, it should be covered at the top to avoid accumulating snow or ice inside the form. Accumulations of snow or ice must be removed before concrete placement. If left in place, it could cause major voids at the bottom of the wall.

Sloped (Raked) Forms

When constructing entire buildings, the top of the concrete form may be sloped (raked) at the gable ends of the walls. This can also occur at the top of a retaining wall which is sloped because of landscaping. This unique feature can be assembled and poured along with the conventional portion of the walls.

Assemble Forms Beyond Trim Line

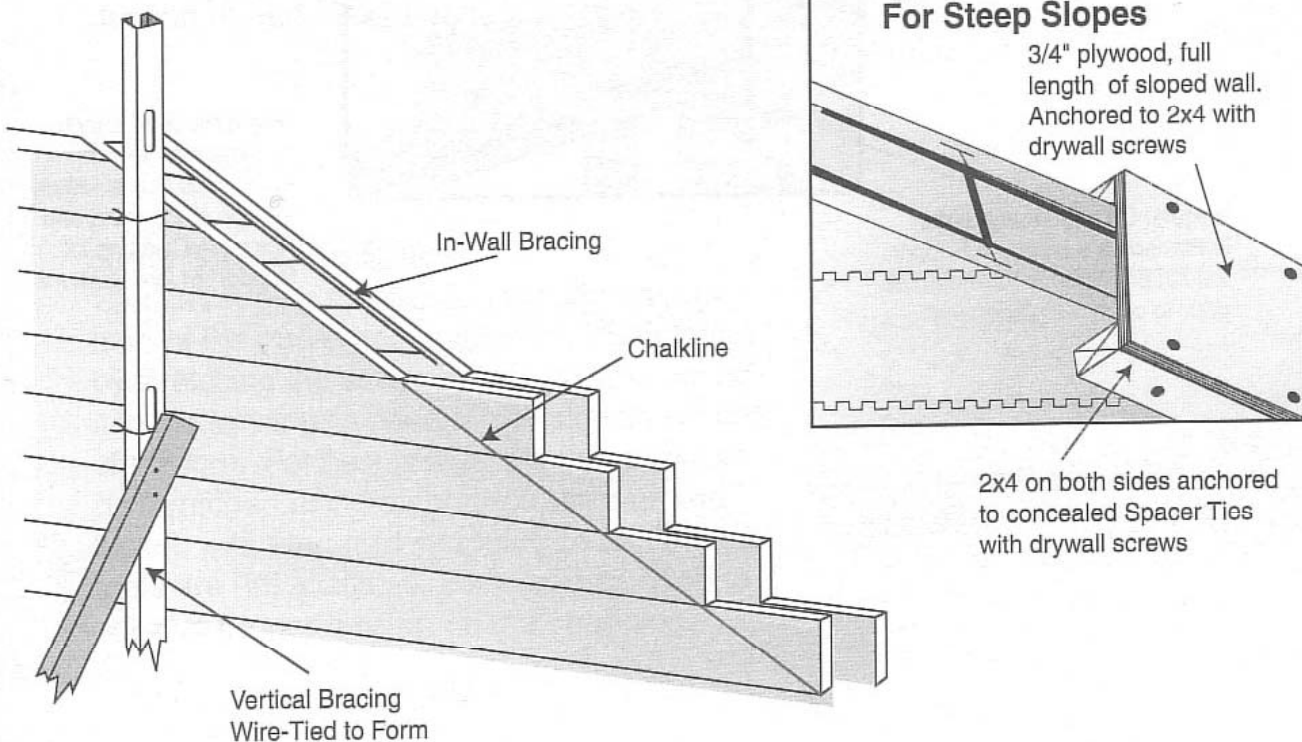
Once forms have been assembled beyond their trim point, snap a chalkline along the form wall and trim form with a hand saw. Exterior vertical bracing must extend a least to the top of finished height of wall.

Top Bracing

Insert a continuous length of in-wall bracing accessory along the top of the trimmed form. Bracing should be same width as form cavity and fit snugly into it.

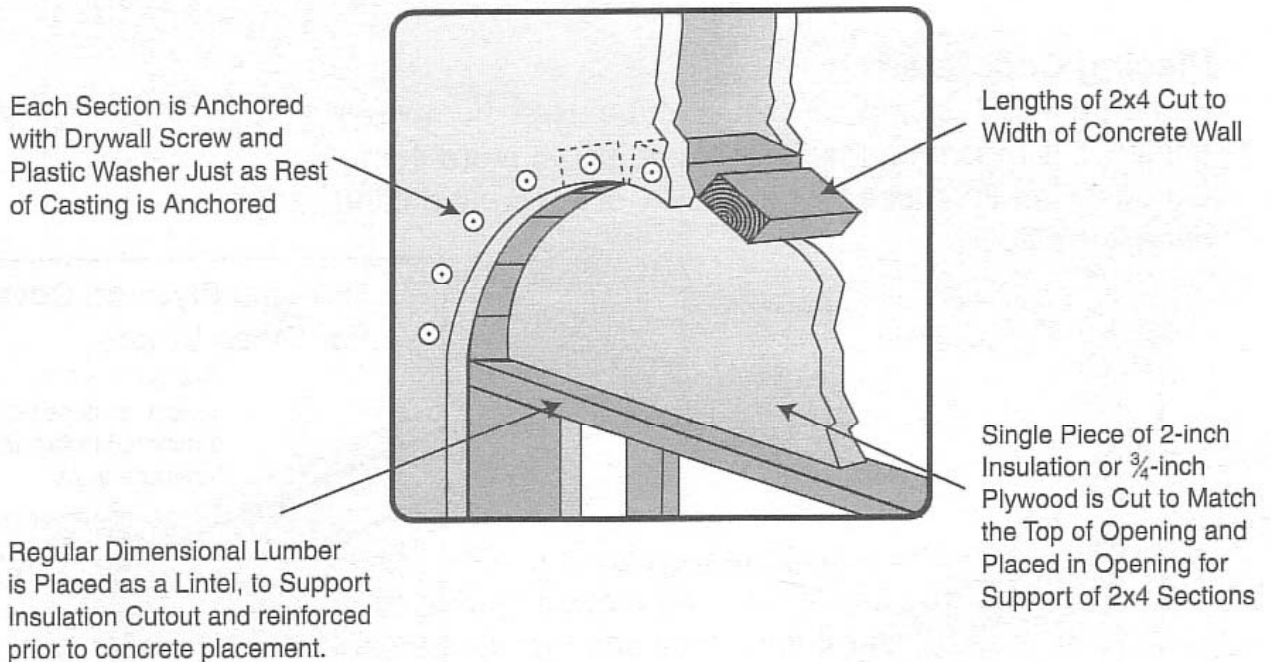
Placing Concrete

Standard 6-inch slump concrete can be used. For extreme angles, it is recommended that slump be no more than 4-inch. This will reduce the possibility of concrete drifting, once it is placed.



Arched Openings

Blockouts for roundtop and eyebrow windows can be formed by first cutting the opening in the form walls with a saw, then anchoring lengths of 2x4 wood studs into the opening along the curve of the blockout. Studs should be spaced without gaps between them. Each length is anchored with 3-inch drywall screws and plastic washers on both sides of the form. After installing a dimensional lumber lintel at the bottom of the opening, insert a single piece of 3/4-inch plywood or 2-inch insulation, cut to match the opening. This should fit snugly so it will keep the blockout properly aligned. This piece is removed after concrete placement.



Radius Walls

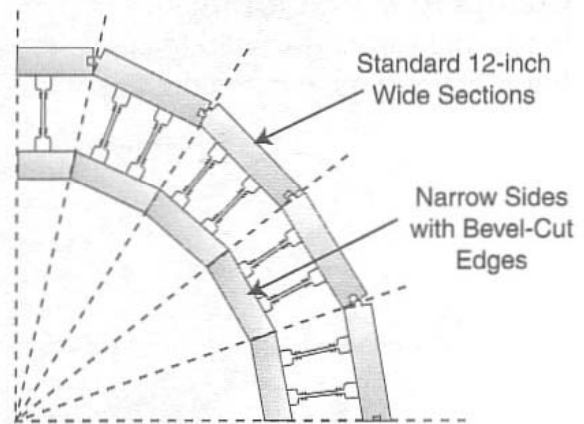
Curved wall forms are produced by assembling the 12-inch wide form sections vertically, similar to the staves in a wooden barrel. The result is that the curve is broken down into 12-inch wide flat sections on the outside of the curve and specially cut, narrower sections on the inside of the curve.

Determining Radius

The radius of the curve is determined by the width of the inner side of sections. Deciding how narrow this side should be, can be worked out mathematically, by scale drawings or by laying out a full-size pattern on a flat work surface.

Reductions for Inner Form Wall

Once the proper width for the inner side has been determined, the edges should be mitre-cut with a table or bench saw.

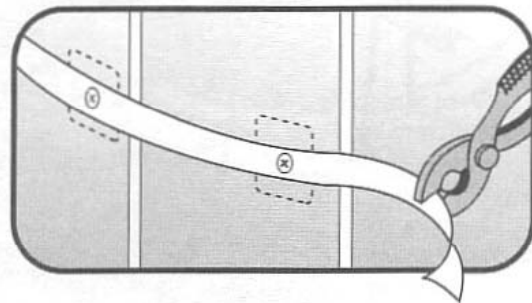


Assembly of Curve

It is best to assemble the curved portion of the wall by itself, placing the assembled section onto footing or pad, next to the straight portion of the form.

Steel Strapping Brace

Steel strapping is mounted around the outside of the curve and anchored. This is done by stretching the strapping taut and anchoring it to the forming tie pads on the straight section of the form. For best results, strapping should be stretched using standard tensioner and locked with standard strapping seals. If these tools are not available, pliers can be used to achieve proper tension on the strapping.



Radius Walls *continued*

Bracing

Once assembly is completed, move the form into position. Adjust the form for proper alignment and anchor the form guides at the footing. A top ladder brace is constructed by using two pieces of 1/2-inch plywood which has been cut to match the inner and outer form wall. Each piece of plywood should be approximately 6-inches wide. 1x2 lumber is used to anchor the pieces together. This ladder brace is put in position at top of form.

Clamping & Anchoring

Wood 1x2 cleats are used to clamp the curved section to the rest of the form at the common seam. For most curves, it is not necessary to install an inner form guide at the bottom.

