

STEEL-PLY FORMING SYSTEM



The Steel-Ply Forming System is a pre-engineered, factory-built, reusable concrete forming system. It may be used in handset or gang form applications, for commercial or residential structures.

The Steel-Ply Forming System can form walls of almost any shape or size, with accessories for special structures and details. This system is more productive and economical than job-built plywood formwork or other forming methods.

Steel-Ply Saves Time

The Steel-Ply Forming System saves time because it is easy to set up and easy to strip. No measuring, sawing, drilling, or nailing is required. Minimal training is needed, so workers are quickly up to maximum efficiency. The only tool required for setup and stripping is a hammer.

Steel-Ply Saves Materials

Unlike job-built formwork, which must be tailored for each specific pour, the Steel-Ply Forming System comes in a variety of standard sizes which can be combined to form virtually any dimension. Steel-Ply panels and fillers are made of special HDO plywood or birch plywood mounted on rugged steel frames. They can be used up to 200 times before being re-plyed.

Quality, Consistency and Safety

No matter what the application, the same basic components and methods are used. Labor performance becomes consistent and predictable, and the laminated plywood panels and tight-fitting side rails produce a high quality concrete surface. This engineered system is designed and manufactured with a known strength factor, a major consideration for jobsite safety.

Rent or Purchase

All standard panel sizes and most accessories are available for local rental or purchase. This is especially advantageous if you have an unusually large or unique job where purchasing a system is not practical. Another option is to buy the basic panels and accessories and rent some of the specialized components as the need arises.

STEEL-PLY SYSTEM DESIGN



Steel-Ply panels and fillers are constructed from a rugged steel frame. The side rail of the form is rolled exclusively for Symons and has a minimum yield stress of 55,000 psi. Crossmembers have a minimum yield stress of 60,000 psi and are located at one foot centers on all panels and fillers.

Symons special 1/2" High Density Overlay (HDO) or birch plywood provides a smooth finish. Each piece is edge sealed with polyurethane to repel moisture and prevent delamination. With proper care, contractors can expect up to 200 reuses before plywood replacement.

Steel-Ply requires little training because it has no top or bottom, left or right, and can be used vertically or horizontally. Dado slots at crossmembers simplify tie placement. Slots for hardware attachment are located between crossmembers.

All Steel-Ply components combine to provide a 1000 psf rated system with a predictable safety factor over the service life of the form.

Sizes

The complete Steel-Ply system consists of 80 standard panel and filler sizes. Panel and filler heights range from 3' to 8', in 1' increments. Panel widths are 24" and filler widths range from 4" to 22", in 2" increments. A 5" wide filler and steel 1", 1-1/2", and 2" fillers are also available. Wedge Bolts connect panels, fillers and ties in one simple operation.

Steel-Ply is also available in metric sizes. Panel and filler heights range from 60 cm to 240 cm in 30 cm increments. Panel widths are 60 cm and filler widths range from 10 cm to 55 cm in 5 cm increments.

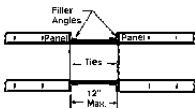
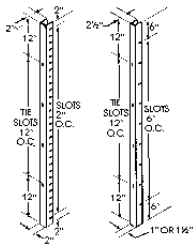
Steel Fillers Steel Fillers are cold-formed U-shaped steel. The 1" and 1-1/2" steel fillers are punched with connecting slots at 6" O.C. A Long Bolt passes through the steel filler to grip adjoining panel side rails.

The 2" Steel Filler has connecting slots at 2" O.C. It is used to "step" forms in 2" increments. This steel filler reduces the need to build up under forms when step footings or changing wall elevations occur.

Filler Angles

Filler Angles provide a means to construct a custom size filler with 1/2" plywood that can be connected to side rails of adjoining Steel-Ply forms.

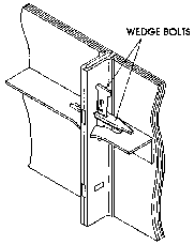
These Filler Angles are recommended where reinforcing steel, pipes, or other penetrations must protrude through the form face.



STEEL-PLY SYSTEM COMPONENTS

CONNECTING HARDWARE

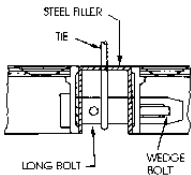
Wedge Bolts



Two identical Wedge Bolts function as a lock-bolt set, one as a connecting bolt, the other as a clamping wedge. At typical siderail-to-siderail connections, the loop end of the tie is positioned in dado slots and is secured by the same Wedge Bolts.

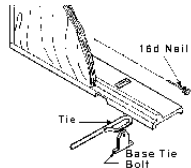
For typical walls, form connecting Wedge Bolts are only required at standard tie connection positions. Additional Wedge Bolts are utilized at other positions for attachment of walers, scaffold brackets or other accessory components.

Long Bolts



The Long Bolt is designed to be used with the 1", 1-1/2" and 2" Steel Filler. The long connecting bolt is punched with two 1/2" holes to accommodate a 16D nail to be used to shorten the bolt for Steel Fillers. A vertical Wedge Bolt secures the two panels and filler through the adjoining side rails.

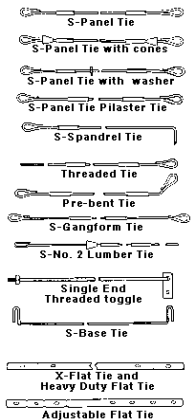
Base Tie Bolts



The Base Tie Bolt secures a tie to an endrail or a siderail resting on a footing. It also can be used in situations where panels butt against an existing vertical surface.

TIES

S-Panel Ties



The S-Panel Tie, or wire tie, is the most commonly used tie for commercial and industrial structures. The standard breakback for the S-Panel Tie is 1", with other breakbacks available upon request. The S-Panel Tie can be manufactured to almost any length, with optional cones and water resistant washers to meet job specifications.

X-Flat Ties

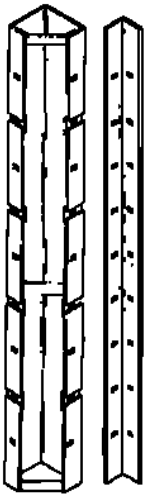
X-Flat Ties are commonly used for residential foundations when the 1" standard breakback is not required. The end of the tie extends beyond the back of the form for quick inspection of tie location.

Threaded Ties

The Threaded Tie provides adjustment advantages for battered wall forming. Threaded Ties have a special thread design to gain maximum strength using the maximum diameter thread possible with Symons standard wire tie.

S-Base Tie

The S-Base Tie has an upturned loop at each end which projects up through the bottom rail. Wedge Bolts are inserted through the loop end to secure the tie and panel. The S-Base Ties are used for small retaining walls or against existing walls.



CORNERS

Inside and Outside Corners

Inside and Outside Corners are all-steel corners that lock adjoining forms together to make a 90° angle.

Standard Inside Corners have a face dimension of 4" x 4" or 6" x 6". Each Inside Corner is manufactured with reinforcing straps to maintain 90°. Dadoes are placed 12" On Center (O.C.) for tie connection and slots are placed half-way between the dadoes at 12" O.C. for connecting hardware.

Bay Corners

Inside Bay Corners opposite Outside Bay Corners form a 135° angle.

The Inside Bay Corner has a 3" x 3" face dimension, and the Outside Bay Corner has a 7" x 7" face dimension. Ties connect at adjoining panel joints to complete this forming detail.

Bay Corners can also be used horizontally to form wall haunches and "Y" walls.

Hinged Corners

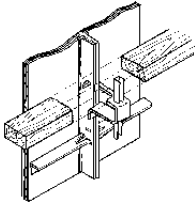
The Inside Hinged Corner may be used to form inside corners down to a 45° angle. The Outside Hinged Corner will form outside corners from 135° down to a 5° angle.

In most wall applications, Inside Hinged Corners are used opposite Outside Hinged Corners. Always insert connecting Wedge Bolts towards the adjoining panels so that the angle will not be restricted.

Corners should always be adequately waled, braced and blocked as required.

STEEL-PLY HARDWARE

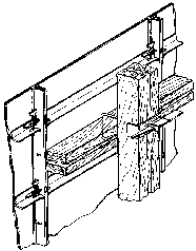
The strength of the panel design makes a waler necessary for alignment only, it is not a structural part of the formwork. Only one row of 2" x 4" walers on each tier of panels is required, with a variety of time and material saving attachment options available to increase your productivity.



WALERS AND STRONGBACKS

One-Piece Waler Bracket Attachment

The One-Piece Waler Bracket is fast and simple to install. Just insert the Waler Bracket into any siderail hole not being used for ties, place a single or double 2" x 4" piece of lumber on top of the bracket, and drop the wedge into position. No additional hardware is needed.



Z-Tie Holder

The Waler Tie and Z-Tie Holder combination is another method of attaching walers. Waler Ties are available in two lengths to secure double 2" x 4" or double 2" x 6" lumber walers. Once the Waler Tie is fastened with Wedge Bolts, the lumber is positioned and the Z-Tie Holder is used to complete the assembly.

Strongbacks

Strongbacks are vertical alignment members that are placed at 90° to walers. The Strongbacks are used to align the walers and are commonly placed at 8' O.C. Strongbacks can be doubled 2" x 4", 2" x 6" or 2" x 8" lumber secured with J-Strongback Hooks.

FORM ALIGNMENT

Attachment Plate

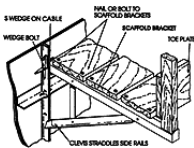
The Attachment Plate can be bolted or nailed to 2" x 4" lumber. Aligners are quickly attached or removed from the forms with standard connecting hardware.

Turnbuckle

Turnbuckles allow for 6" length adjustment. The Turnbuckle is attached with nails to lumber and anchored before final adjustments are made. The end of the Turnbuckle contains a large slot to accommodate a Steel Stake.

Pipe Form Aligner

The Pipe Form Aligner eliminates the use of lumber and allows adjustments from 13'-4" to 20'-9". The top end of the Pipe Form Aligner uses a Steel-Ply® Adapter Plate which connects to the Steel-Ply panel. The bottom of the Pipe Form Aligner requires a Pipe Form Aligner Shoe for anchoring a 1/2" diameter concrete anchor or a Steel Stake.

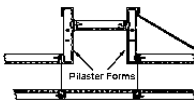


SCAFFOLD HARDWARE

Scaffold Bracket

Scaffold Brackets are installed where one or more levels of work platform are required for personal safety. The maximum safe load of the Scaffold Bracket is 500 lbs. (4 to 1 safety factor).

The Scaffold Bracket comes with a wedge and cable attachment for quick assembly.



PILASTER AND CULVERT DETAILS

Pilaster

Pilasters of almost any dimension are formed quickly and easily using standard Steel-Ply® panels or fillers with Inside and Outside Corners.

Adjustable Pilaster Form

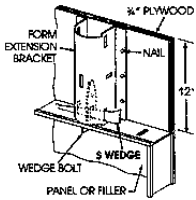
An Adjustable Pilaster Form is available to form standard pilasters from 1 to 12 inches deep in one inch increments. The Pilaster Form eliminates Inside and Outside Corners and the need for having specific size fillers on hand. The Pilaster Brace eliminates lumber bracing to maintain right angles.

Culvert Form

Reusable steel Culvert Forms come in lengths of 3', 4', 6' and 8', and widths of 6", 9" and 12". The Culvert Form permits monolithic pouring of the walls and elevated slab of culvert structures. The Culvert Form can also be used to make chamfered corners in vertical walls.

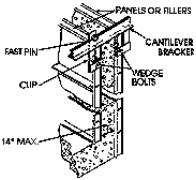
STEEL-PLY ACCESSORIES

Form Extension Bracket



The Form Extension Bracket is a convenient means to extend the height of a standard panel an additional 3" to 12" for straight or curved walls. The bracket is designed to be used with 1/2" plywood and attached with a Wedge Bolt. The bolt comes up from the top rail of the panel below and is locked in with an S-Wedge. A slot in the center of the bracket allows for Waler attachment.

Cantilever Bracket



The Cantilever Bracket is used to suspend a form on the opposite side of the wall. This allows different elevations at the bottom of forms so that a base slab can be monolithically poured with the wall. Maximum capacity is 700 lbs. Maximum spacing is not to exceed panel length when forms are horizontal, and must not exceed 8'-0" when panels are vertical.

Brick Ledge Bracket

The Brick Ledge Bracket is used to form brick ledges and support various framed boxouts. The bracket is attached to panels or fillers with Wedge Bolts. The bracket spans the wider side of a 2" x 4" piece of lumber to create the offset needed.

Bulkhead Forming

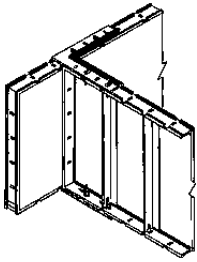
Keyway Forms come in 3', 4', 5', 6' and 8' lengths. When bolted to Bulkhead Bars, they produce a keyway and hold the waterstop in position.

Bulkhead bars can be used for forming bulkheads in walls 4" to 24" wide. Standard Wedge Bolts attach the bars to the siderails of panels and fillers.

Bulkheads can also be formed by using Outside Corners and a panel or filler.

Haunch Forming

Haunch Brackets provide an ideal way to form haunches or corbels, without any additional lumber support. The Haunch Bracket connects easily with Steel-Ply® panels and is designed to support 1/2" plywood. Slots make securing walers a simple operation.



Footing Corner Bracket

Forming footings, pads and slabs is made easy with the Footing Corner Bracket. Attached at the top and bottom of each corner, Footing Corner Brackets hold the panels firmly. A wide range of dimensions in 2" increments is possible.

Stake Plates are then positioned along the top edge of the Steel-Ply for Steel Stakes. The Stake Plates are typically located midway between Steel-Ply crossmembers and endrails to provide access for a stake puller.

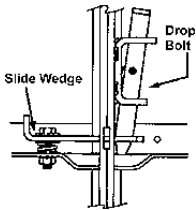


STEEL-PLY RESIDENTIAL FORMING

RESIDENTIAL FOUNDATIONS AND OTHER HANDSET FORMING

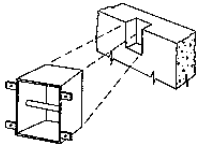
Attached Hardware

Residential and other repetitive handset jobs are perfect applications for the time-saving attached hardware feature. In this system, panels are supplied with the connecting Drop Bolts and Slide Bolts already attached. Since connecting bolts are already attached at the tie locations, workers immediately know where to position each tie.



Beam Pocket

The Beam Pocket is a reusable tapered steel boxout that leaves a void pocket at the top of the foundation wall for steel or wooden beams. The standard 6 x 8 x 4 deep size comes with a handle for easy carrying and removal.



Transition Fillers

Transition Fillers help you quickly connect Steel-Ply to Resi-Ply^a or Steel-Ply to Symons SilverTM for maximum inventory utilization of forming systems.

The Resi-Ply/Steel-Ply Transition Filler allows you to use the Steel-Ply versatility for forming curved walls and to simplify complicated forming applications.

The Steel-Ply/Silver Transition Filler allows you to use existing or rented forms for below grade walls and Symons Silver for exposed walls where concrete finish is important.