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INDEX

DAYTON SUPERIOR®

STEEL-PLY®

Concrete Forming System

SYMONS® BY DAYTON SUPERIOR

Forming productivity

The Steel-Ply system is more productive and economical than job-built lumber and plywood formwork. No measuring, sawing, drilling, or nailing is required. Minimal training is needed, so workers are quickly up to maximum efficiency with only a hammer needed for setup and stripping.

Application flexibility

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 specially laminated plywood mounted to rugged steel frames. With proper care, Steel-Ply forms can be used up to 200 times before being reconditioned.

Consistent results

No matter what the forming application, the same basic components and methods are used. Labor performance becomes consistent and predictable, saving time and money on concrete forming operations.

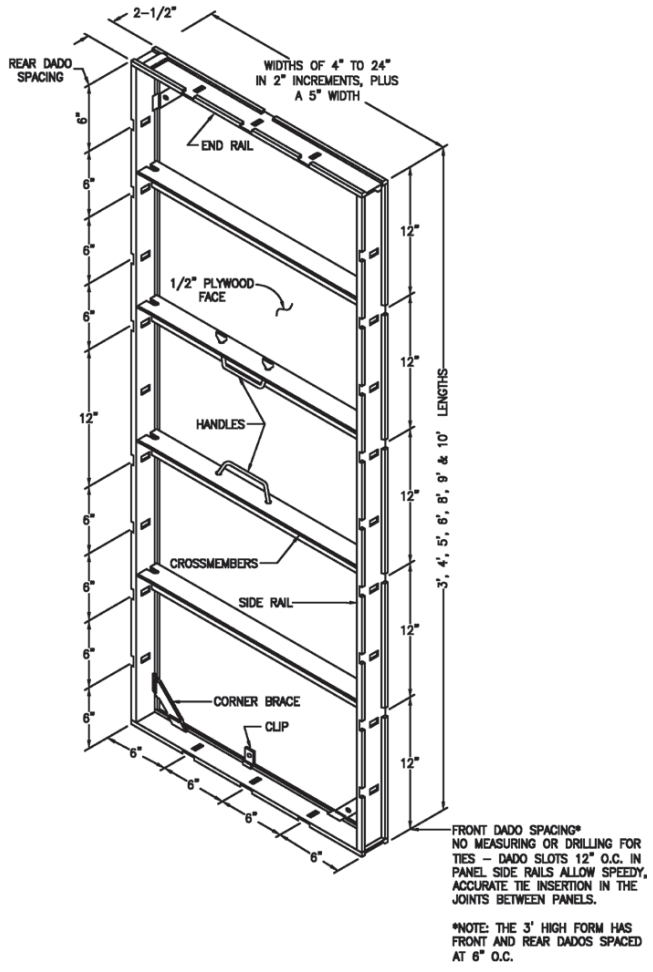
Steel-Ply Forms

INTRODUCTION

The Steel-Ply components and accessories illustrated herein have been designed with safety and performance in mind to help achieve a safe and productive forming operation. It's recommended that all construction personnel thoroughly familiarize themselves and comply with the applicable industry standards and safe practices established by the American Concrete Institute (ACI), American National Standards Institute (ANSI), The Occupational Safety and Health Administration (OSHA), and the Scaffolding, Shoring and Forming Institute (SSFI). Tie spacings shown are for illustration purposes only. Proper spacing must be determined for individual job conditions. Refer to Ties section for tie capacities. The maximum allowable pour pressure for the Steel-Ply system is 1000 psf.

Handles

Steel-Ply standard handles are designed to be used to assist in manually transporting or positioning each modular panel, and should not be used as a means of attachment or for any other purpose.



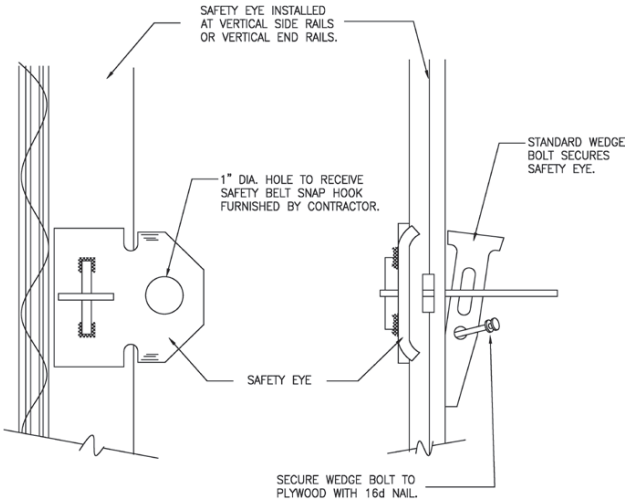
5' Steel-Ply Panel

COMPONENTS

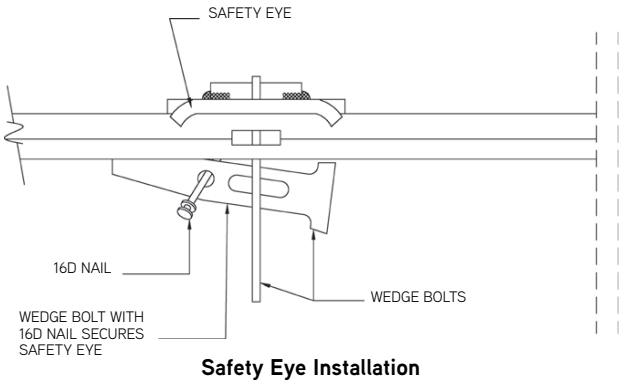
Safety Eyes

The installation of Safety Eyes on Steel-Ply panels allows easy attachment of safety belts while working on the forms, though work platforms are recommended and normally provide more efficient working conditions.

The Safety Eye meets the requirements of OSHA (29 CFR Part 1926) subpart M 1926.502d15.



Safety Eye Installation



Safety Eye Installation

CAUTION: DO NOT use handles as a safety belt hook-up or as a connecting point for bracing, scaffolding or ganged movement of panels.

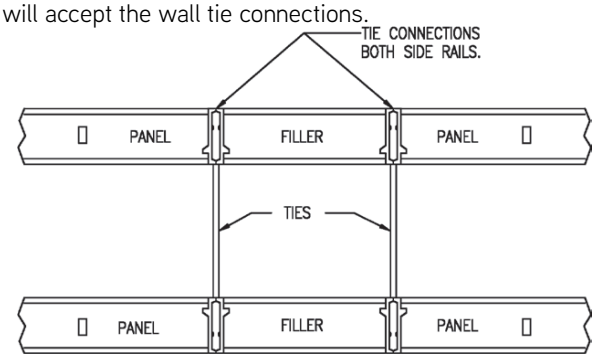
CAUTION: Do not use Safety Eye as a Lifting Bracket. Do not attach to a single horizontal side rail.

CAUTION: Symons recommends gloves, safety shoes and safety glasses during the panel erection and stripping processes.

Steel-Ply Forms

Fillers

Steel-Ply Fillers are manufactured from the same steel and plywood as panels, and are available in all even inch widths from 4" to 22" and 5". These fillers require wall tie connections to both side rails, and therefore either the same size filler must be in position directly opposite or some specific form detail that will accept the wall tie connections.

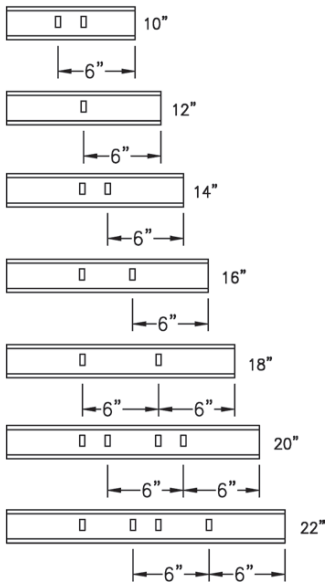


Typical Steel-Ply Filler Application

Filler width may be determined by looking carefully at the end rails. Slots are located in 6" increments from each end of the end rail for fillers from 10" to 22".

NOTES:

- Front and rear dadoes align on 12" centers. Three foot high forms have front and rear dadoes at 6" centers.
- Handles are added to 20", 22" and 24" wide frames. 5', 6' and 8' length frames have two handles. 3' and 4' lengths have one handle.
- There are no Wedge Bolt slots or dadoes on 4", 5", 6" and 8" filler end rails. All other end rails have slots and dadoes at 6" O.C. from both ends.

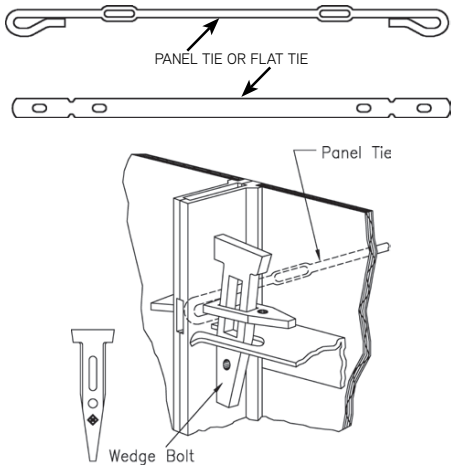


Slot Spacing for Filler End Rails

Wedge Bolts

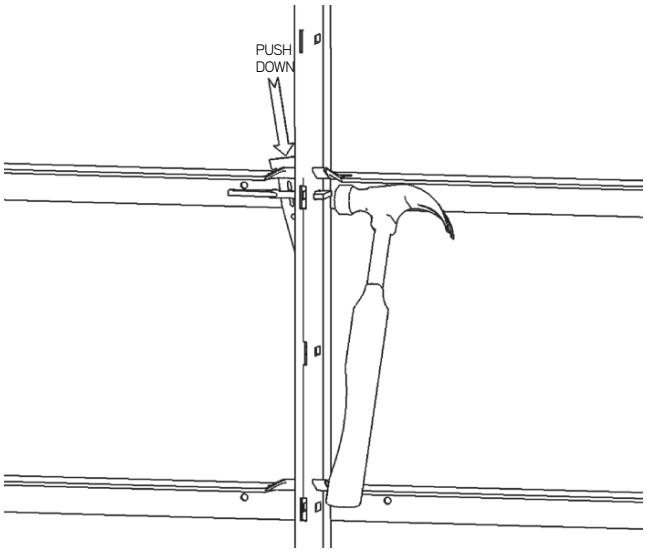
Two identical Wedge Bolts function as a lock-bolt set, one as a connecting bolt, the other as a clamping wedge. At typical side rail to side rail form connections, the loop end of the tie is positioned in dado slots and is secured by the same Wedge Bolts.

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.



Typical Wedge Bolt Connection through Ties and Side Rails

A sufficiently tight Wedge Bolt connection can be achieved by pushing down on the head of the vertical Wedge Bolt with one hand while striking the head of the lateral Wedge Bolt with a hammer. The vertical Wedge Bolt will respond downward to a tight, secure position. Excessively tightened Wedge Bolts require excessive labor during stripping. Care should be taken when striking Wedge Bolts with a hammer during assembly and disassembly.



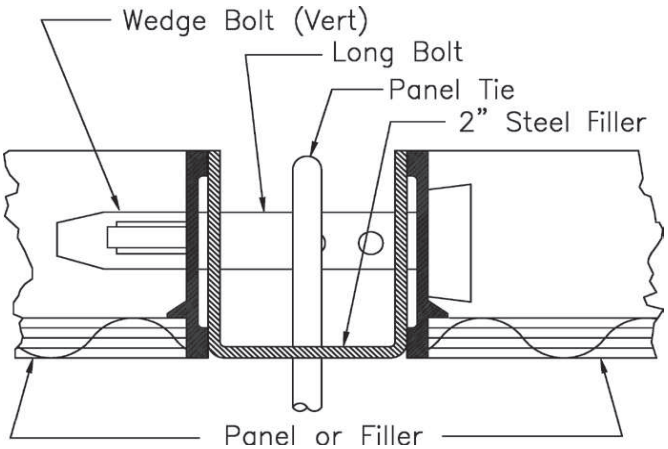
Hammer Strikes Horizontal Wedge Bolt

Steel-Ply Forms

Steel Fillers and Long Bolts

1", 1½" and 2" Steel Fillers are cold formed U-shaped steel. These fillers utilize a Long Bolt that passes through the filler to grip both adjoining side rails. Tie slots are located in the center of the face of the "U" for wall ties. The Long Bolts pass through the loop end of the ties.

The Long Bolt is punched with two ¼" holes to accommodate a 16D, or 20D nail, or a broken off panel tie end to shorten the bolt for 1", and 1½" steel fillers. See the Adjustable Long Bolt section.



Typical Steel Filler Application

CAUTION: If tension exists in job-built filler, tension rods must be installed through panel siderails. If compression exists, lumber blocking is required.

Adjustable Long Bolts

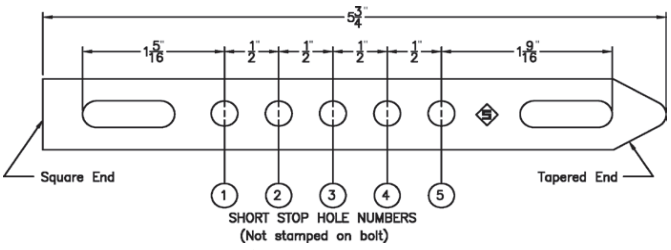
We recommend that the tapered end of all of the Adjustable Long Bolts at each fill-in joint be pointed in the same left or right direction. The width of the filler determines if the Wedge Bolt is located in the slotted hole at the square end or the slotted hole at the tapered end.

Application:

1. For width of fillers from ½" to 2" in ½" increments insert Wedge Bolt in slotted hole at tapered end.
2. For width of fillers from ¼" to 1¾" in ½" increments insert Wedge Bolts in slotted hole at square end.

NOTES:

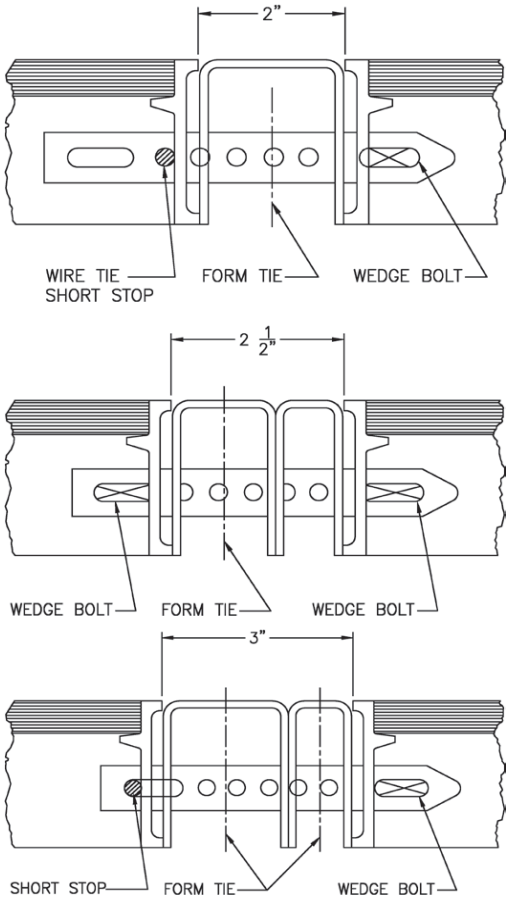
- Form Ties must be used at all filler conditions.
- Do not short stop with nail where there will be a high shear load on nail.



Adjustable Long Bolt

ADJUSTMENT RANGE

Short Stop Hole No.	Width of Filler Wedge Bolt at Square End	Width of Filler Wedge Bolt at Tapered End
1	0"	2" to 2¼"
2	¼" to ½"	1½" to 1¾"
3	¾" to 1"	1" to 1¼"
4	1¼" to 1½"	½" to ¾"
5	1¾" to 2"	0" to ¼"

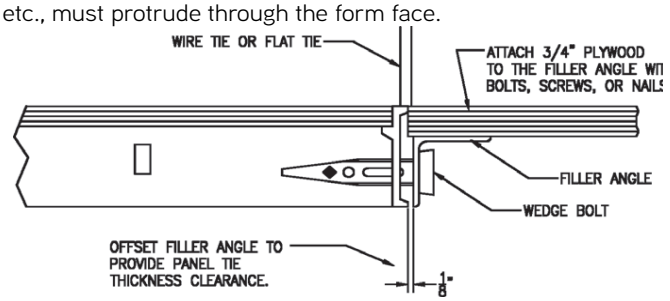


Typical Examples of Adjustable Long Bolt and Steel Filler Applications

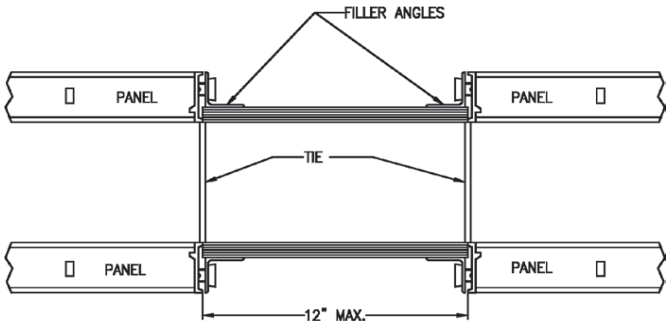
Steel-Ply Forms

Job Built Fillers
(Utilizing Filler Angles)

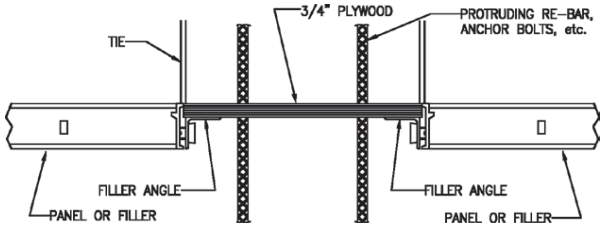
Filler Angles provide a means to construct a custom size filler of ¾" plywood that can be connected to side rails of adjoining forms. Job-built fillers are recommended where reinforcing steel, pipes, etc., must protrude through the form face.



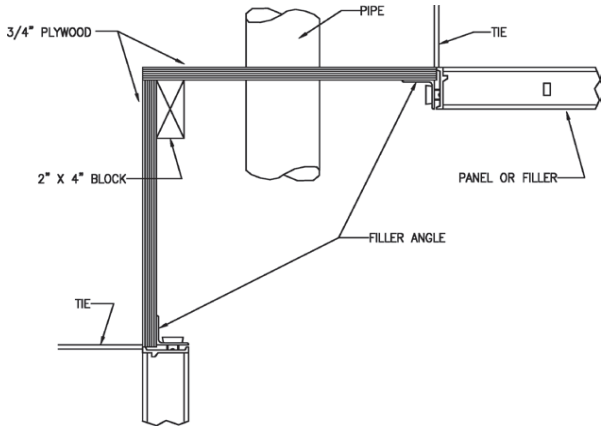
Typical Filler Angle Attachment



Typical Job-Built Filler with Filler Angles



Typical Job-Built Filler with Rebar Penetrations



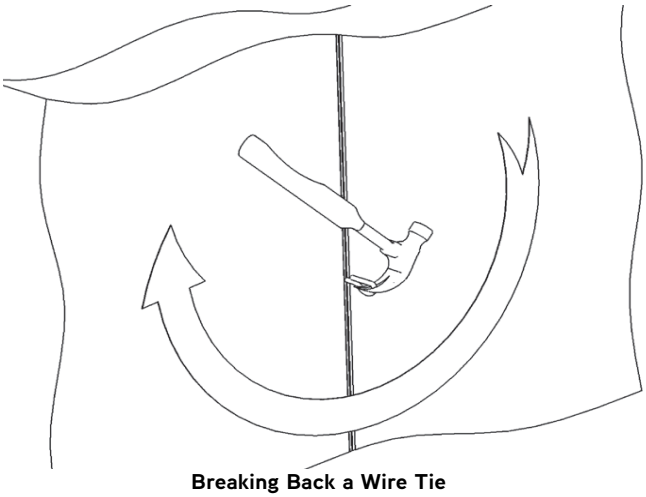
Custom Inside Corner Job-Built With Two Filler Angles

Stripping and Tie Breakbacks

Panel stripping can be started at any point after walers and connecting hardware are removed. Usually, it is easier to start stripping forms at an outside corner, or adjacent to a 1", 1½" or 2" filler. It is recommended that hardware be placed in a metal container so that none of the pieces are lost.

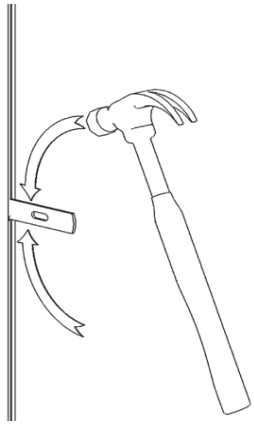
CAUTION: Symons recommends wearing gloves, safety shoes and safety glasses during the erection and stripping processes.

Breakback of ties is recommended within two days after stripping. With S-Panel ties, a ½ to ¾ twist will break them back.



Breaking Back a Wire Tie

Flat ties are broken off by a firm hammer blow hitting the edge of the tie as shown. A blow against the flat side of the tie will bend the tie.



Breaking Back a Flat Tie

CAUTION: Care should be used in striking ties with a hammer during the stripping process.

Steel-Ply Forms

TIES

Tie Capacities

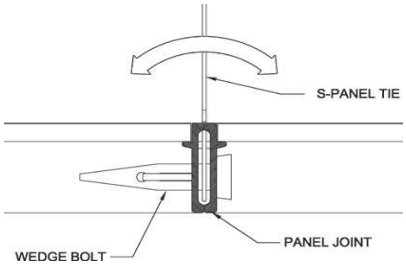
Safe Load Ratings
Symons S-Panel and Flat Ties

	Ultimate Load (lb)	Rating According to Factor of Safety 2.0 (lb)
Standard Duty Panel Tie	4,500	2,250
Standard Duty Threaded Tie [1]	4,200	2,100
Standard Duty S-Base Tie	3,000	1,500
Heavy Duty Panel Tie	6,000	3,000
Standard Duty Flat Tie	6,000	3,000
Heavy Duty Flat Tie	7,000	3,500
Heavy Duty Adjustable Flat Tie	7,000	3,500
Toggle Tie [1]	4,200	2,100

[1] Tie capacity is dependent on adequate anchorage

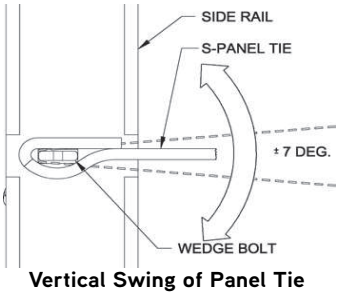
Tie Alignment

Occasionally, to simplify erection, it may be advantageous to connect ties between opposing form joints that are not exactly opposite. Either panel ties or flat ties can be safely swung laterally up to 1" on 8" walls, or up to 2" on 16" walls. Exceeding the 1:8 angle proportion will diminish the tie strength or cause failure by bending through the tie breakback crimp. Also, the wall thickness dimension will foreshorten appreciably.

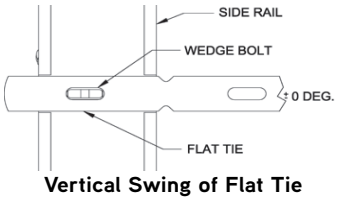


Lateral Swing of Panel Tie

Panel ties can swing up or down up to 1" on 8" walls, or up 2" on 16" walls. An example would be where a plate is utilized under one form side only. A ¾" thick 1 x 4 plate under one side for any wall thickness 6" or more, or a 1½" thick 2 x 4 plate under one side for any wall 12" or thicker are within the 1:8 angle proportion.

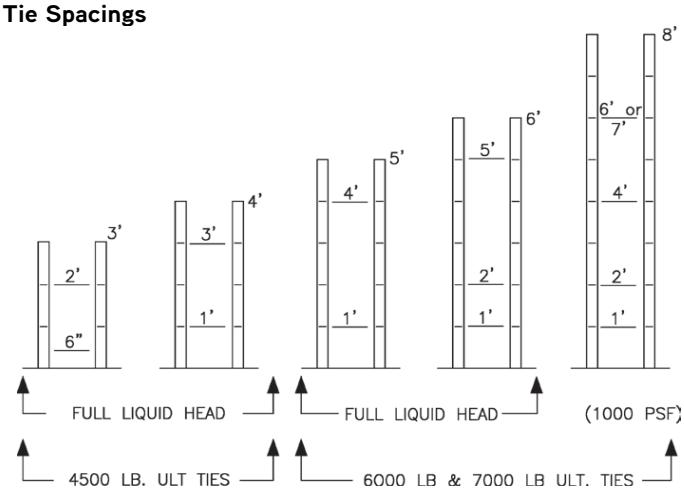


Vertical Swing of Panel Tie

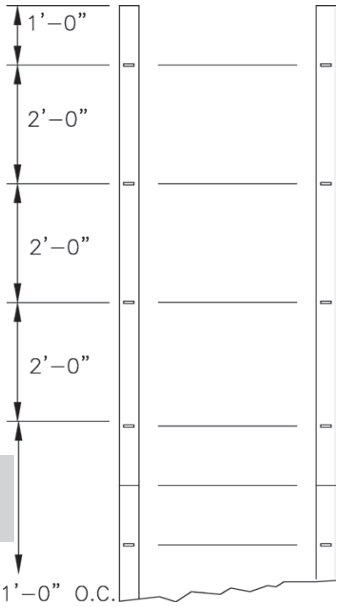


Vertical Swing of Flat Tie

Tie Spacings



Tie Spacings
Walls 8' Tall or Less



NOTE: Ties at 1' O.C. 7' or more from top.

Tie Spacings
Walls Taller Than 8'
6,000 lb Ultimate Tie Capacity

SYMONS® BY DAYTON SUPERIOR

Sym-Ply Concrete Forming System

Symons all new Sym-Ply concrete forming system has been desgined and manufactured to the demanding requirements of today's construction projects.

Simply Faster

- Sym-Ply's speed of assembly and versatility allows for more productivity on a job site
- The lightweight design allows for hand-ganging by two men without the use of a crane

Simply Easier

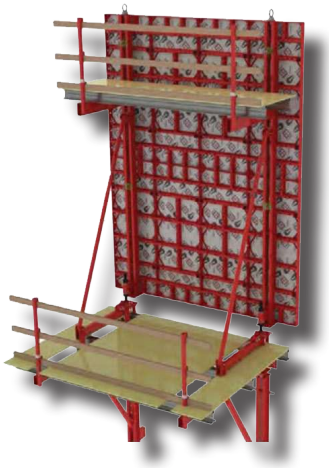
- Fast clamp connections with a focused fleet package in imperial dimensions
- Accessories with built-in attachments mean no loose parts

Simply Stronger

- 80ksi steel manufactured to Symons' standards results in a tough, durable product
- A guaranteed 1,500psf pour pressure

Key Features:

- The only clamp system in the market with a direct attachment to Steel-Ply
- 1,500psf pour pressure rating
- Panels weigh 8 pounds per square foot.
- 5/8" 100/30 HDO plywood face
- 1 7/16" diameter tie hole accomodates up to a 50kip taper ties and she-bolts
- Penels can accomodate 10 degrees of batter without special tie attachments
- Profiled side rails allow pry bar access for adjusting gangs to the chalk line



DAYTON SUPERIOR®

MAX-A-FORM®

All-Steel Concrete Forming System

SYMONS® BY DAYTON SUPERIOR

Panel design

Max-A-Form panels are constructed with a 3⁄16" steel face plate and heavy duty crossmembers to support higher pour rates. Panels up to 8' wide by 20' long are rated at 1500 psf; 9' and 10' wide panels are rated at 1200 psf and 12' wide panels are rated at 1000 psf. The rigidity of these panels virtually eliminates the need for waler or strongback requirements and reduces the number of ties required.

Panel sizes

Panels are available in more than 100 sizes, from 2' wide by 1' long to 10' wide by 20' long. The number of sizes provides more options when designing gangs, columns and pier caps. The large size means fewer pieces, fewer panel joints, fewer ties and less assembly labor.

Labor-saving

The Max-A-Form forming system is ideal for gang forming heavy structural walls and columns where repetition, multiple lifts and a smooth finish are required. The structurally welded frame and steel face also can support concrete loads over long spans without the need for shoring.

Max-A-Forms

INTRODUCTION

Max-A-Form® is a steel faced and framed modular forming system rated at a maximum of 1500 pounds per square foot (psf) of concrete pressure. The modular panels are available in a wide variety of sizes in order to make optimum sized gang forms. Crane-handled Max-A-Form produces excellent concrete finishes in both wall forming and self-spanning applications.

Max-A-Form components and accessories have been designed for safe and efficient forming operations. It is recommended that all construction personnel review and follow the applicable standards and practices established by the American Concrete Institute, the American National Standards Institute, the Occupational Safety and Health Administration, and the Scaffolding, Shoring and Forming Institute.

Caution: Max-A-Form components should be inspected regularly for damage. Damaged equipment must be replaced.

The procedures outlined in this Application Guide describe standard application procedures for the Max-A-Form forming system. Since field conditions vary and are beyond the control of Dayton Superior Corporation, safe and proper use of the equipment is the responsibility of the user.

Sections I through III (One through Three) describe Max-A-Form and its applications in the continually supported mode. Self-spanning applications are presented in Section IV and Max-A-Ply in Section V.

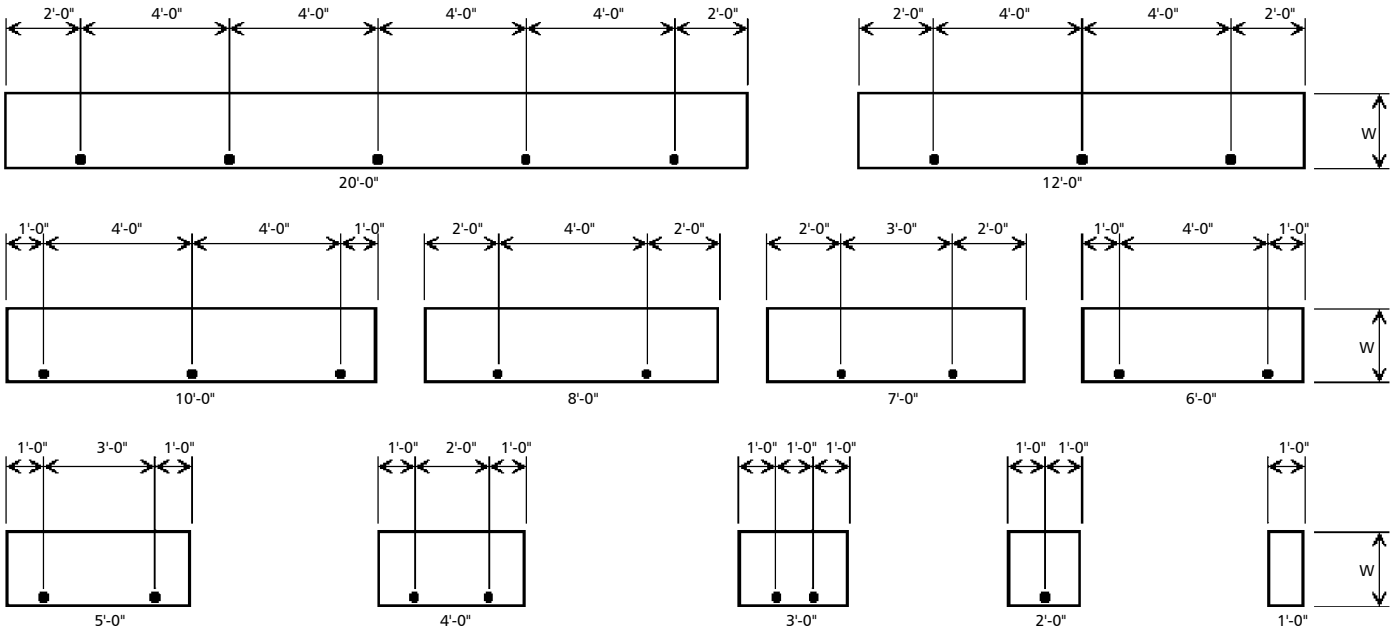
BASIC ELEMENTS

A. Panels

1. Max-A-Form is a modular forming system made of steel 3⁄16" face plates and sections welded together. The precise tolerances and built-in strengths generate a high quality concrete finish. The panels are designated by their width (the stiffener direction) and length.

2. Width: The panels are made in ten standard widths: 2'-6", 3', 3'-6", 4', 5', 6', 7', 8', 9', 10 and 12'. The 2'-6" through 8' widths are designed for concrete pressures of 1500 pounds per square foot (psf), while the 9' and 10' panels are designed for 1200 psf. The 2'-6" through 7'-0" forms are 6½" thick, and 8', 9' and 10' forms are 8½" thick.

3. Length: The Max-A-Form panels come in eleven standard lengths: 1', 2', 3', 4', 5', 6', 7', 8', 10', 12', and 20'. Each length has its own tieing pattern, and these are illustrated below. The 2'-6" and 3'-6" wide panels are only available in 3', 4' and 8' lengths.



Tie Locations for Max-A-Form Panels

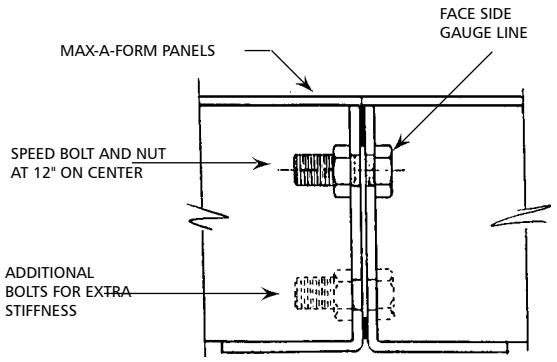
Max-A-Forms

4. 2'-0" Double Duty Panels. Panels that are 2'-0" in length are designed so that they may be used either as a 2' long panel or a 2' wide panel. If they are intended to be used as 2' wide panels they must be ordered as such, so that extra tie holes are added. Do not use 2' wide Double Duty Panels in self-spanning applications. Standard 2'-0" wide panels can be used in self-spanning applications.

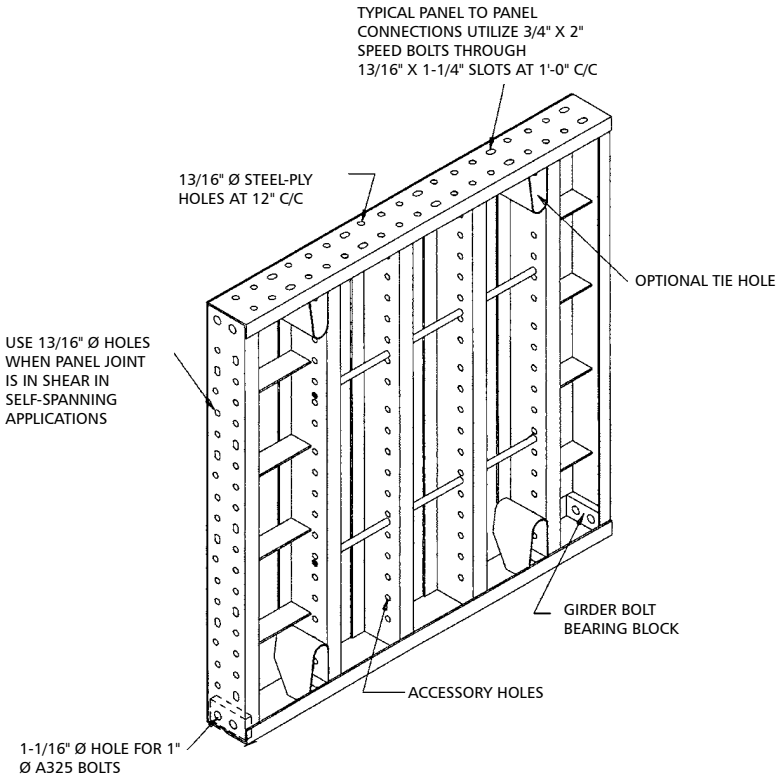
B. Bolts and Connections

1. Speed bolts, ¾" x 2", are used one foot on center at face side gauge line, inserted in the 13⁄16" x 1¼" slots around panel rails. For extra stiffness additional speed bolts can be used on alternate gauge lines.

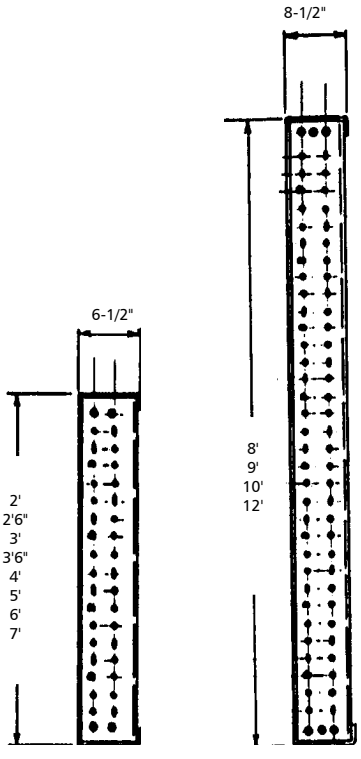
2. The speed bolts are high strength, A-325 equivalents. They should be installed snug tight plus ⅓ additional turn.



Max-A-Form Panel-To-Panel Bolt Connection



Typical Panel



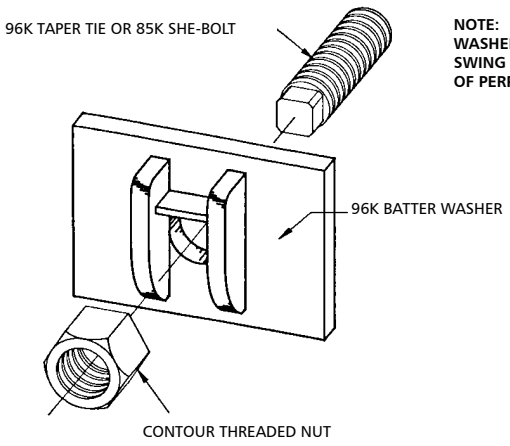
Elevation

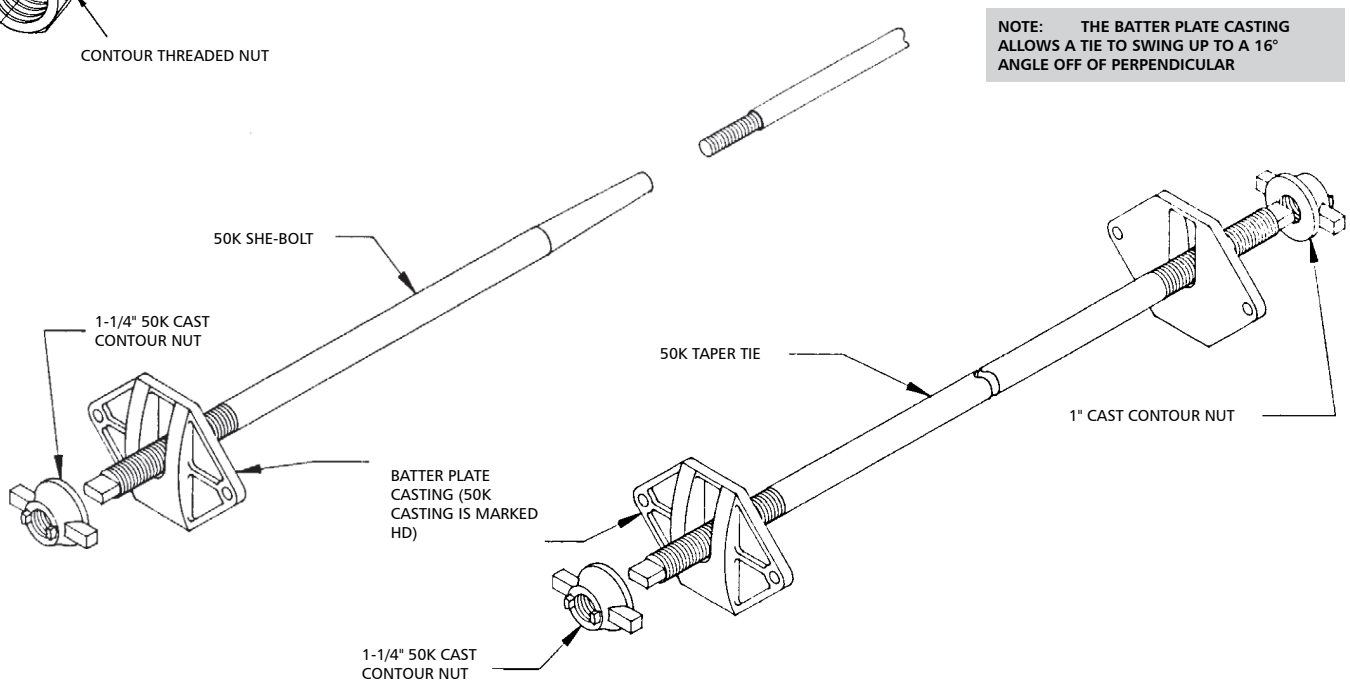
Max-A-Forms

C. Wall Ties

1. Wall ties must be in compliance with industry standards and safe practices established by the American Concrete Institute, The American National Standards Institute, The Occupational Safety and Health Administration, and The Scaffolding, Shoring and Forming Institute. Illustrations and capacities of Dayton Superior Taper Ties and She-Bolt Ties are given on the following page.
2. Project drawings indicate safe load capacities of Taper Ties and She-Bolt assemblies, when both outer unit and inner ties are supplied by Dayton Superior Corporation.
3. It is the contractor's responsibility to control concrete mix and placement procedures to assure that the maximum formwork design pressure is not exceeded.
4. Tie Installation Precautions:
   a. Be sure that the correct thread size hex nut, or cast contour nut is mated to all Taper Tie or She-Bolt out-unit threads.
   b. Be sure that inner ties engage full thread depth in all she-bolts. Full thread engagement is noted as dimension "E" on illustration of She-Bolt capacities and thread dimensions.
   c. Be sure that all ties using hex nuts with Cast Bearing Washers or Flat Washers are installed perpendicular to both form faces. Hex nuts installed on ties not perpendicular to the form face are subjected to eccentric loading that can cause tie failure.
5. Batter Plate Castings, with mating Cast-Contour Nuts, should be installed to support 50K ties that are not perpendicular to the form face.

   The 96K Batter Washer is used with the 85K She-Bolts or 96K Taper Ties.



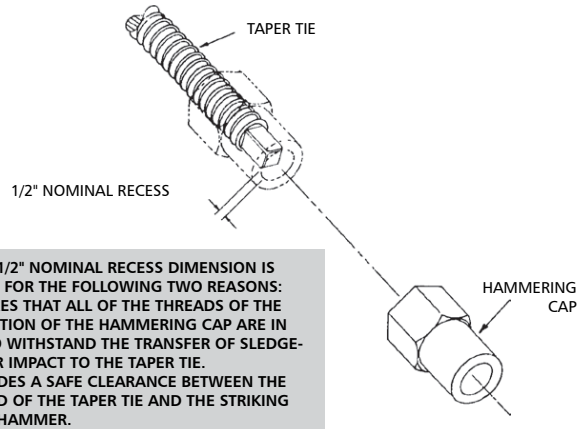


Max-A-Forms

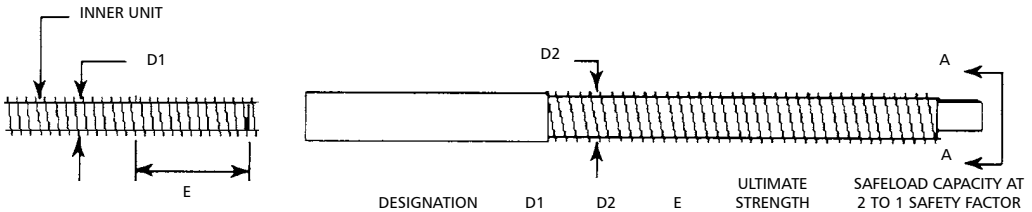
6. a. Taper Tie Hammering Caps are available in two sizes: 1" contour thread or 1¼" contour thread.

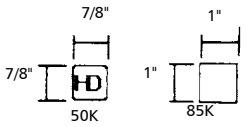
   b. The correct diameter and thread-type Hammering Cap must be utilized during initial impact release of embedded Taper Ties.

   c. The Hammering Cap is positioned at the smaller diameter end of the Taper Tie. The protruding end of the Hammering Cap is then struck with an 8 lb. or heavier sledgehammer. All mushrooming type impact damage is accumulated at the end of the Hammering Cap, rather than the butt end of the Taper Tie so as not to damage tie threads.



NOTE: THE 1/2" NOMINAL RECESS DIMENSION IS CRITICAL FOR THE FOLLOWING TWO REASONS:
- **IT ASSURES THAT ALL OF THE THREADS OF THE NUT PORTION OF THE HAMMERING CAP ARE IN MESH TO WITHSTAND THE TRANSFER OF SLEDGE-HAMMER IMPACT TO THE TAPER TIE.**
- **IT PROVIDES A SAFE CLEARANCE BETWEEN THE BUTT END OF THE TAPER TIE AND THE STRIKING SLEDGE-HAMMER.**

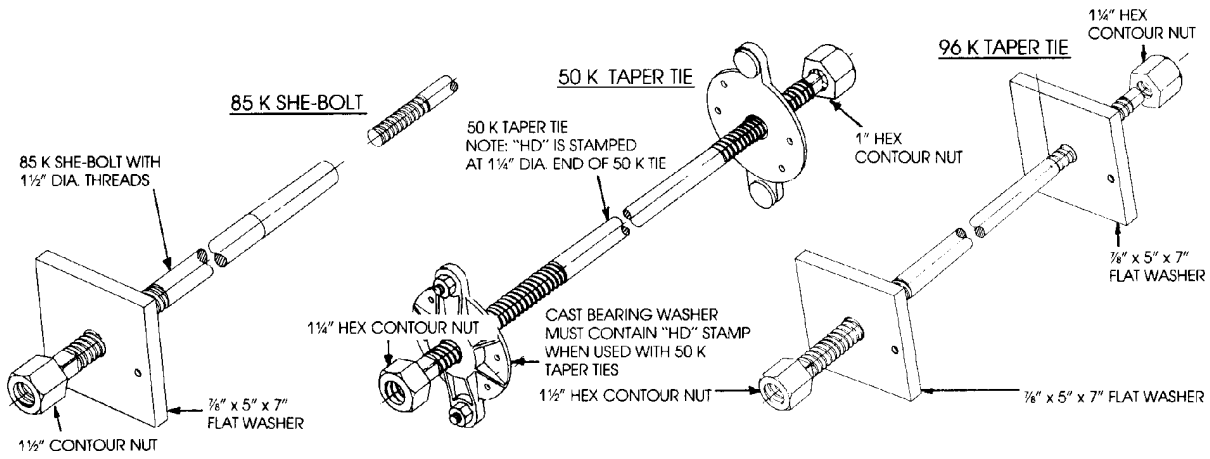


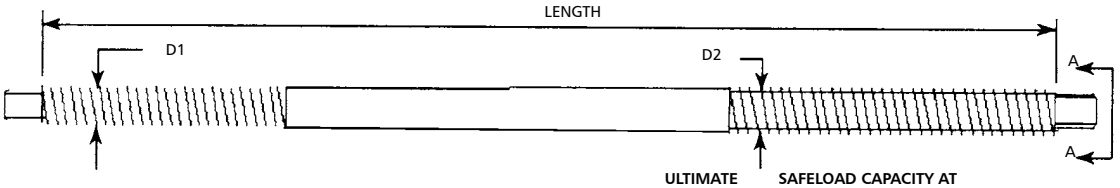


Elevation A-A

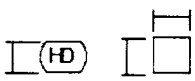
DESIGNATION	D1	D2	E	ULTIMATE STRENGTH	SAFELOAD CAPACITY AT 2 TO 1 SAFETY FACTOR
50K	7/8"	1-1/4"	2'	50,000 LBS.	25,000 LBS.
85K	1-1/8"	1-1/2"	2-1/4"	85,000 LBS.	42,500 LBS.

She-Bolt Capacities and Thread Dimensions





Elevation A-A



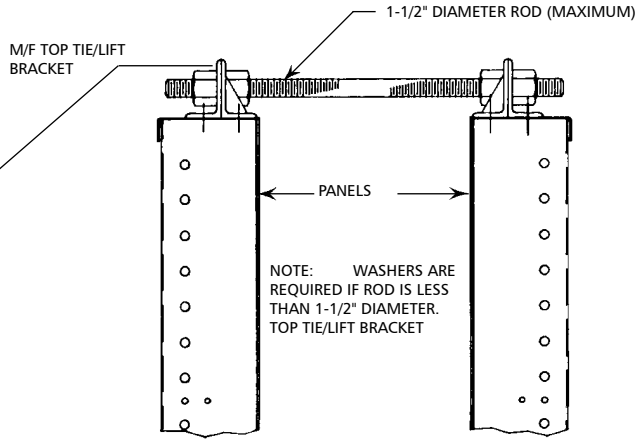
DESIGNATION	D1	D2	ULTIMATE STRENGTH	SAFELOAD CAPACITY AT 2 TO 1 SAFETY FACTOR
50K	1"	1-1/4"	50,000 LBS.	25,000 LBS.
96K	1-1/4"	1-1/2"	96,000 LBS.	48,000 LBS.

Taper Tie Capacities and Thread Dimensions

Max-A-Forms

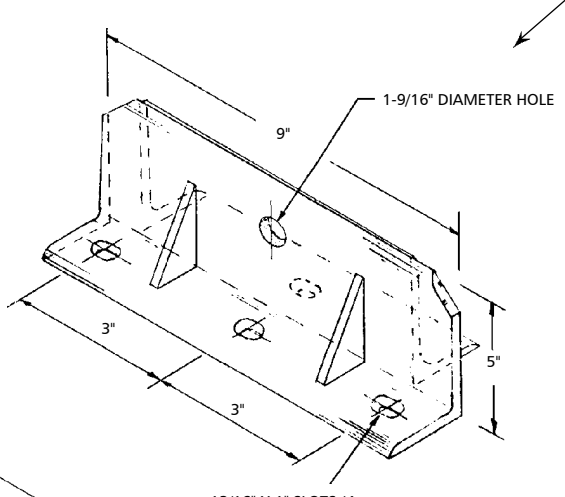
D. Top Tie/Lift Bracket

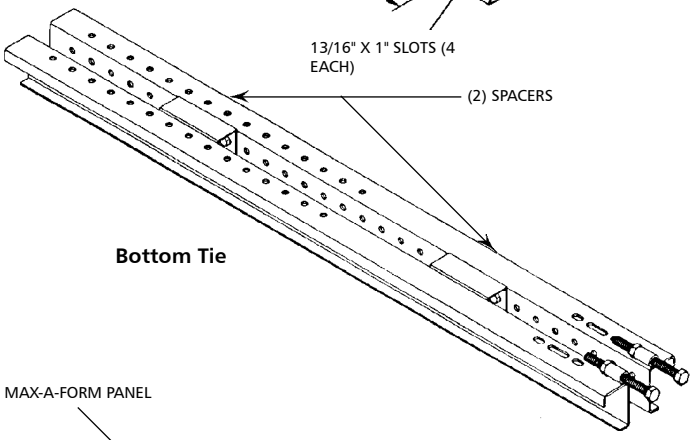
Tieing to the edge rails is accomplished with the Max-A-Form Top Tie/Lift Brackets, Top Ties or Bottom Ties. These are shown below, and are fastened with speed bolts to the rails. The bolts are inserted through the 13⁄16" holes in the panel not through the slots.



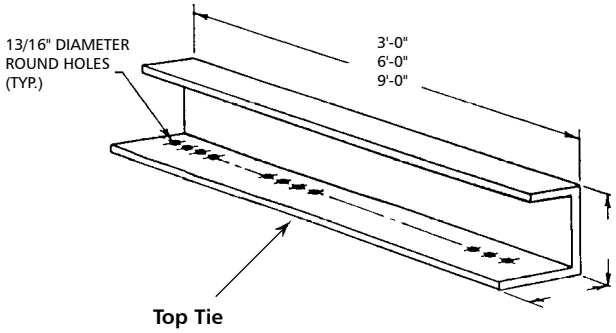
LIFT LOAD RATING: 8,000 LBS AT 5:1 SAFETY FACTOR
TIE LOAD RATING: 9,800 LBS AT 2:1 SAFETY FACTOR (3 BOLTS ON 2 GAUGE LINES)
2,000 LBS AT 2:1 SAFETY FACTOR (3 BOLTS ON 1 GAUGE LINE)

Top Tie/Lift Bracket

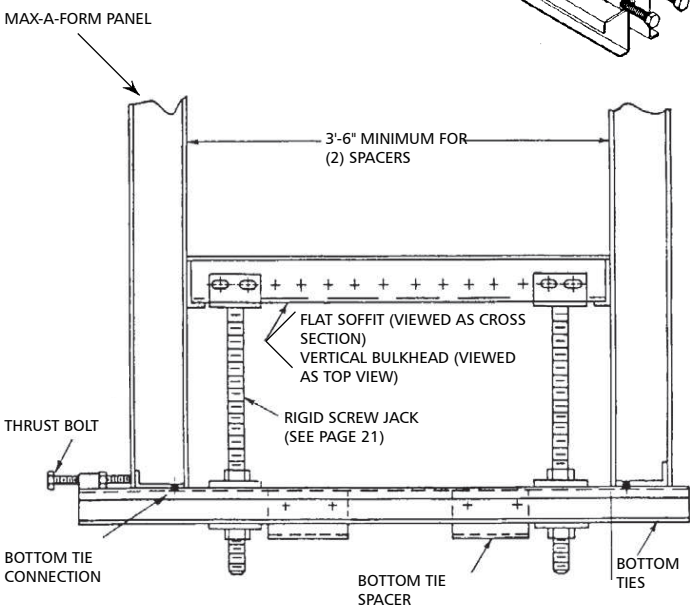


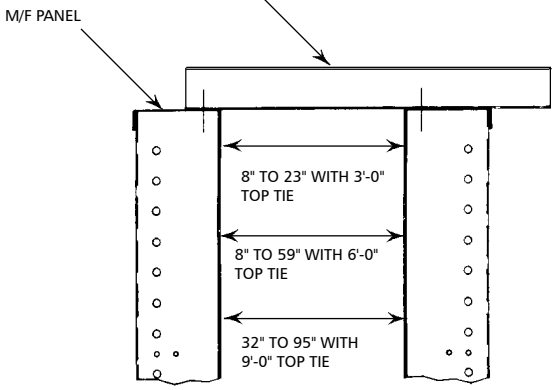


Bottom Tie



Top Tie





(Refer to Page 19 for Bottom Tie Applications)

Max-A-Forms

GANG ASSEMBLY

Tools

The following list of tools will help construction personnel erect Max-A-Form gangs and tighten nuts on bolts and ties.

1¼" Socket, ½" drive
Socket Wrench, ½" drive
Adjustable wrench, 12" length
Box or Open End wrenches for ties:
Symons Pry Bar
Oil for threaded parts
Spud Wrench

Site Selection

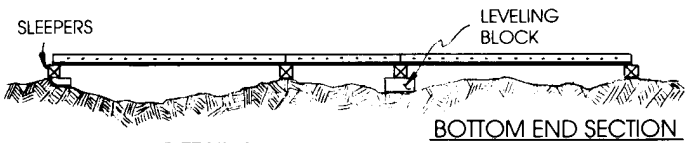
1. The gang assembly site should be chosen before the arrival of the Max-A-Form equipment and should meet the following criteria:
   - ◆ The site should be within reach of the crane to both unload the truck and to position the Max-A-Form panels for assembly.
   - ◆ The site should be as close to where the gangs are going to be used as possible
   - ◆ The surface area of the gang assembly site should be reasonably flat and level.
   - ◆ A large storage area next to the gang assembly area is desirable in that it allows all like components to be stacked together in an efficient manner.
2. Prepare the assembly site by cleaning away debris and laying down 2x6 or 2x8 lumber. The lumber should be positioned at all joints between panels and at panel ends. The lumber provides a flat plane and a common bearing surface for adjacent panels. It also protects the panel face from ground-contact damage.

Bolt-Up

1. Begin assembling by laying the panels face down on the prepared surface in their proper locations. Be sure that the tie holes in each panel are toward the bottom of the gang in vertical-stiffener gangs. Remember that opposite sides of walls are mirror-image gangs, and the forms are assembled accordingly (so the tie holes match).

   Hint: When assembling panel gangs, snug bolts finger tight until gang is totally assembled. Then wrench tighten after checking final alignment.
2. Use a spud wrench or drift pin to correctly align bolt holes and form edges. Place the ¾" x2 " speed bolts in the face side gauge line at one foot on center in the 13⁄16" x 1¼" slots in the side, top, and bottom rails, as appropriate. All bolts should be snug tight plus ⅓ additional turn. This bolting method is for Max-A-Form wall forming, not self-spanning applications.
3. Occasionally shims may be required for horizontal and vertical panel joint alignment. If leakage is to be reduced, install rubber gaskets at joints.
4. Additional speed bolts should be used in the second gauge line to increase the stiffness.
5. The basic gang is complete when the forms are fastened together. However, the contractor may attach appropriate accessories before raising the gang.

Caution: When gangs are more than two panels high, it may be necessary to add strongbacks to the gang before raising to the vertical position. Check with your Dayton Superior representative for this condition.



DAYTON® SUPERIOR® CONCRETE FORMING ACCESSORIES

Ties, Brackets, Rods, Nuts, Bolts and More

Dayton Superior offers one of the most comprehensive lines of forming accessories in the concrete industry, establishing them as the industry's preferred single-source provider. The company's engineered, technologically advanced forming accessory product solutions can be found on forming project jobsites nationwide.

Snap Ties

Loop Ties

Flat Ties

Coil Ties

Accessories from Steel Dog and OCM available.

STEEL DOG®

OCM

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SYMONS® BY DAYTON SUPERIOR — *MEDIAN AND BARRIER FORMS*

Symons cast-in-place design

Symons cast-in-place Median Barrier and Parapet forms are designed to conform to the standard 32" high "Jersey style" contour. Available in 5' or 10' standard lengths, these all-steel units can be furnished as an assembly or in component parts, depending on your specific requirements. Adjustable top ties for standard forming operations or an adjustable yoke with tieless design and single-unit-stripping, have a range of top widths from 6" to 14" in 1" increments, providing versatility for almost every median barrier project.

Inverted design

Symons also provides Median Barrier forms for conventional inverted casting or very productive rollover casting. The all-steel design withstands the demands of repetitive casting operations, producing a smooth and accurate shape every time. Standard flat bulkheads are available for conventional inverted casting, while an adjustable trunnion bulkhead is utilized for more productive rollover operations.

Precast design

Precast barrier forms conform to the standard 32" high "Jersey style" contour and are available in standard 10' or 12' lengths. Units may be bolted together to create even longer barriers and lateral span rails may be added to support blockouts. Whether your application is standard or special, Symons can furnish a system suited to your precast concrete operations, so you can get the job done right.

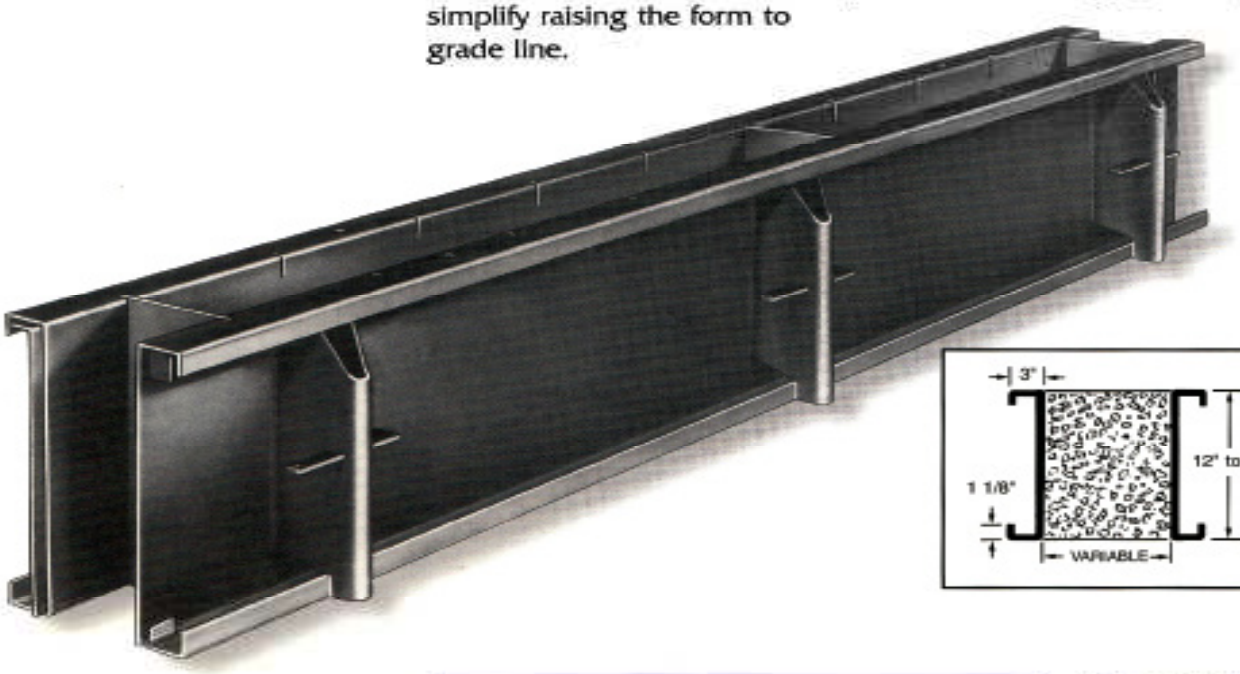
For Purchase Only —6-8 week lead time for fabrication

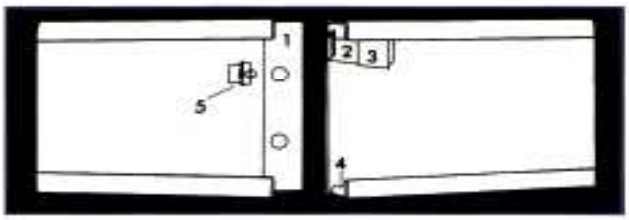
bmf® Metal Forms

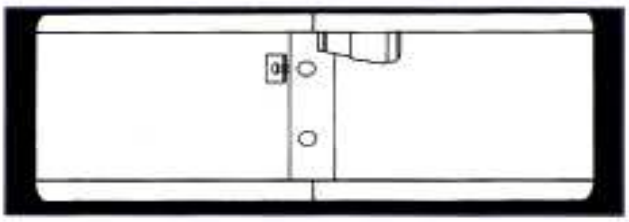
O-K Curb Forms

There's an O-K Curb Form for every need . . . from 12 to 24 inches high . . . vertical, full battered, partially battered, for combined curb and gutter work, or wide base forms. Because these curb forms are made in heights to 24 inches, we've put steel where it will help most — in hefty 3 x 1-1/8 inch flanges, both top and bottom. To add additional rigidity, particularly for combined curb and gutter work where the curb back form may be required to completely support the curb face form, a diagonal brace clip welded at the sleeve end is used to attach the Adjustable Diagonal Brace accessory.

The sleeve and lock assembly will align and lock forms perfectly every time and the three stake pockets with heavy 3/8" wedges simplify raising the form to grade line.







Sleeve End Lock

1. Sleeve – aligns ends of forms.
2. Clamp – grips sleeve to lock forms together.
3. Clamp Guide – clamp cams upward to lock forms.
4. Stop – keeps bottom of forms aligned.
5. Diagonal Brace Clip

Specifications

O-K Curb Forms

Height, in.	12 to 24
End Connection	Sleeve and Clamp
Division Plate Slots	10 per form (12 in. spacing)
Length, ft.	10 (three stake pockets)

Note: for stacking options please call Jaquith for technical data.

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bmf® Metal Forms

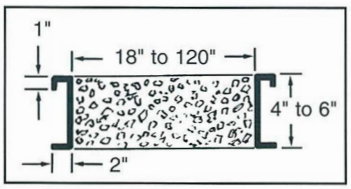
O-K Straight Sidewalk Forms

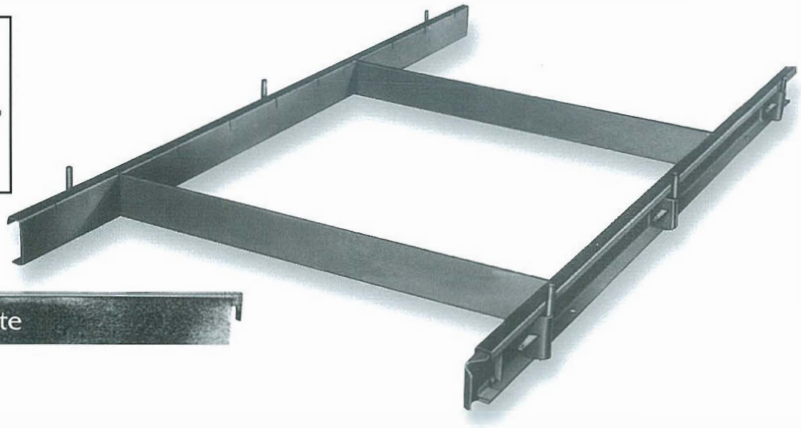
Here are forms built to help you knock out those bread-and-butter jobs–pouring sidewalks. These forms are light but rugged. O-K Sidewalk Forms have a husky double flange at the top and a single flange at the bottom. Actual strength tests and years of experience have shown that this flange design has more than enough strength with the least amount of weight. The open flange on the bottom is easily flushed to remove spilled concrete.

O-K Sidewalk Forms feature the BMF **slide cam lock**. Here is an end lock made of tough 3/16-inch steel that needs no babying; a sharp blow with a hammer positively locks up the ends of the form in perfect alignment. The exclusive run-up wedge does the trick, locking the forms both vertically and horizontally. And they don't bind either, because every slide is hand fitted with a load button to the form to take up part of the locking stress and to prevent jam up from spilled concrete or dirt.

The **O-K stake pocket** with the 3/8-inch thick giant wedge is a special feature of BMF forms. This stake pocket, which locks the forms securely to the stakes, is electrowelded to give extreme rigidity and durability. Its V-shape and its large open bottom makes it easy to remove spilled concrete.

Because of these features, this line of forms is truly "O-K" to many of the country's concrete contractors.





Division Plate

Specifications

O-K Straight Forms

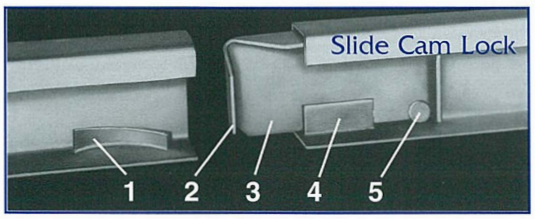
Height, in.	4, 5, 6*
End Connection	Slide Cam Lock 3/16 in. thick
Division Plate Slots	10 per form (12 in. spacing)
Length, ft.	10 (three stake pockets)

*Same as O-K 6" Gutter Form

Note: For stacking options please call Jaquith for technical data.

Division Plates

Widths, in.	18, 24, 30, 36, 48, 60, 72, 96, 108, 120
Heights, in.	4, 5, 6 One division plate required per each joint. Please specify height and width when ordering.



O-K Stake Pocket

1. Maximum rigidity; pocket electrowelded to support top flange.
2. Full height pocket; stake locked in contact with whole length of pocket.
3. Wide V-neck throat.
4. Giant wedge, 3/8 inch thick; dimpled for retaining; no chain needed.

Slide Cam Lock

1. Run-up wedge
2. Slide cam surface
3. Slide
4. Slide retainer
5. Load button

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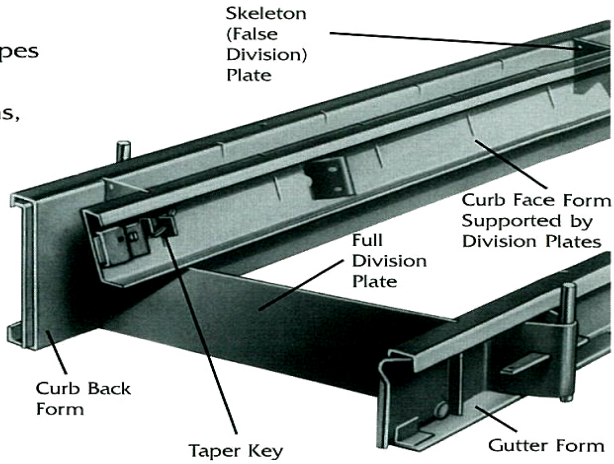
O-K Curb & Gutter Forms

BMF O-K curb, curb face, and gutter forms are made for all types of curb and gutter work, with or without division plates.

The curb form (back) is from the famous line of O-K curb forms, sufficiently rugged to provide rigid support for the curb face form.

All gutter forms have a 2 x 1 inch right angle flange at the top and a husky 2-1/2 inch flat flange at the bottom. The extended flat bottom flange provides sufficient strength and will not trap spilled concrete. O-K gutter form design includes the rugged slide end lock and the O-K giant wedge stake pocket.

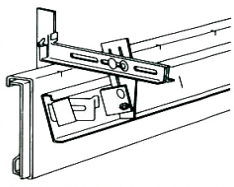


Taper Key
The banana-shaped taper keys securely lock the curb face form to the division plate. Its curved shape makes it easier to pick up and handle.

Specifications

Curb	
Height, in.	**12, 24**
End Connection	Sleeve and Clamp
Division Plate Slots	**10 per form (12 in. spacing)**
Length, ft.	10 (three stake pockets)
Gutter	
Height, in.	**6* to 10**
End Connection	Slide Cam Lock 3/16 in. thick
Division Plate Slots	**10 per form (12 in. spacing)**
Length, ft.	10 (three stake pockets)

*Same as O-K 6" straight sidewalk form.



Curb face form supported by adjustable hangers (see accessories).

O-K forms are easily adaptable to any type of combined curb and gutter setting. The type of setting determines how the curb face form is supported. A mountable curb and gutter is set up in a similar manner except no face form is required.

On projects with division plates, the curb face form is securely locked to the division plates by the taper keys. Thus the curb face form may be entirely supported on two full division plates, or a combination of one full and one skeleton plate. Or, the curb face form may be entirely supported by a minimum of two skeleton (false division) plates spaced every five feet.

On projects where specifications require no breaks or scoring, complete suspension (without division plates) of the curb face form from the curb form (back) is accomplished by the use of two Adjustable Hanger accessories which hold the curb face form rigidly in place.

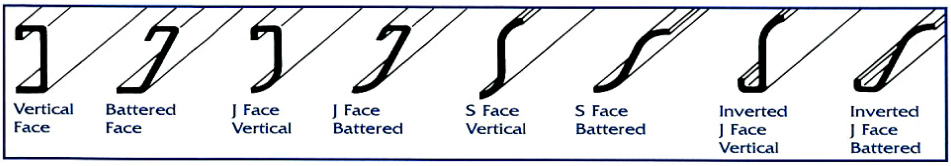
O-K Curb Face Forms

BMF manufactures a complete line of O-K Curb Face Forms for combined curb and gutter setting. Standard shapes that meet most specifications are illustrated below. However, any type and size can be supplied on order. See Guide to Ordering.

In combined curb and gutter form setting, the curb face form is the one that "takes the beating"; it is essentially a suspended member, depending on division plates or adjustable hangers for support. Therefore, the curb face form must be ruggedly constructed, and designed for rigid support. BMF engineers have taken these service factors into account.

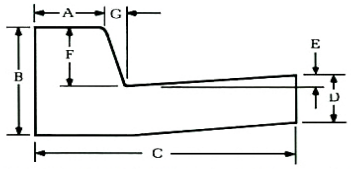
O-K Curb Face Forms include the rugged and positive slide lock assuring ease of joining forms and rigid alignment once the slide lock is tapped into place. O-K Curb Face Forms are designed for the greatest adaptability in combination with other forms. When used with division plates, the curb face forms are quickly locked into and aligned with the tabs or ears in the division plates by simply tapping taper keys into place.

Standard Shape Face Form



Specifications

O-K Curb Face Forms	
Height, in.	**6 to 9**
End Connection	Slide lock, 3/16" Thick
Division Plate Slots	**10 per form (12 in. spacing)**
Length, ft.	10
Note: For stacking options please call Jaquith for technical data.	
O-K Curb & Gutter Division Plates	
Curb and Gutter Width, in. (C)	18 to 60
Curb Height, in. (B)	**12 to 20**
Curb Height (D)	See Guide to Ordering
Curb Face, Type and Height	**Specify Standard Shape and See Guide to Ordering.**



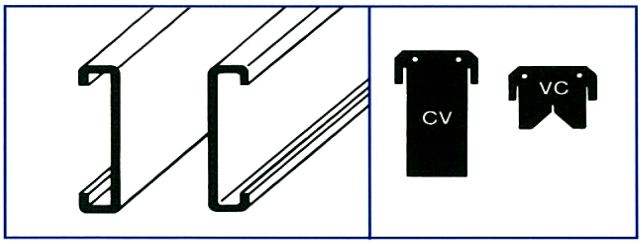
****For Purchase Only —6-8 week lead time for fabrication****

bmf® Metal Forms

O-K Curb Form Division Plates

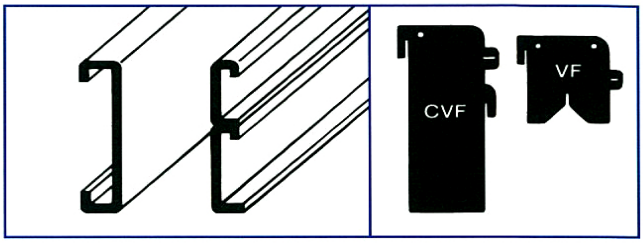
A full depth division plate is used for spacing and support where a full depth joint is required. The skeleton (false division plate) is used for spacing and support where a full depth joint is not required. A minimum of two plates are required (spaced at five foot intervals).

O-K Curb Form Adaptability



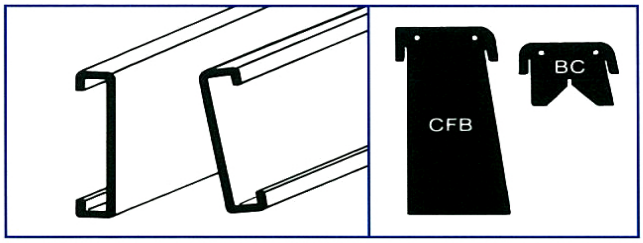
Vertical Curb
A vertical curb face can be made by using the proper division plates. Division plates can be removed without stripping forms.

CV — Full vertical division plate.
VC — Skeleton vertical division plate.



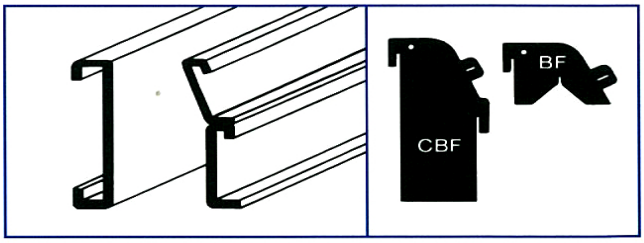
Vertical Curb
A vertical curb face can be made by stacking a vertical face form on a gutter or low curb form.

CVF — Full vertical division plate.
VF — Skeleton vertical division plate.



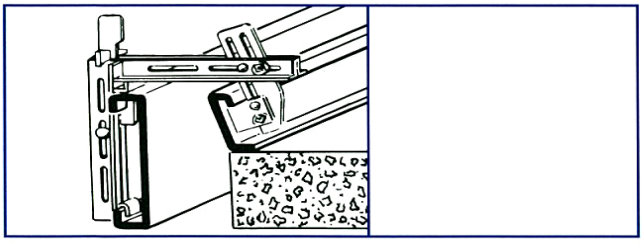
Full Batter Curbs
A full batter curb face can be made by using the proper division plate and setting the straight curb form at an angle.

CFB — Full batter division plate.
BC — Full batter skeleton plate.



Partial Batter Curbs
Partial batter curbs can be made by stacking a battered curb face form on a gutter form, or on a low curb form.

CBF — Partial batter division plate.
BF — Partial batter skeleton plate.



Curbing to Existing Slab
For this type of setup you can set a vertical, battered, inverted battered-J or face form on the concrete slab. All you'll need are two Adjustable Hangers accessories (per 10 foot length) to connect with the curb form, and an Adjustable Diagonal Brace accessory for additional curb form support.

Specifications

O-K Curb Form Division Plates

Heights, in.	12 to 24
Widths, in.	5 to 9

Note: BMF supplies division plates for vertical, full batter or partial batter curbs to customer specifications. See Guide to Ordering.

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Column Clamps

Item#	Bar Size	Net Concrete Dimensions	Weight
CC-38/38	3/8″x2″x38″	10″ to 24″	40 lb
CC-48/48	3/8″x2-1/2″x48″	10″ to 34″	55 lb
CC-60/60	3/8″x3″x60″	22″ to 46″	84 lb

Ellis Scissor Clamps provide a fast, easy, accurate and affordable way to build column forms for pouring your concrete columns. Steel bars clamp snug to your wood forms. Simply slide the red castings along the bar up to the adjacent bar, drop the wedge through a slot in the casting and matching slot in the bar. Hammer down each wedge to seat bars tight against the wood forms. Slot spacing in bars and castings have been designed to eliminate dead spaces and insure you are always able to clamp tight to your wood form.

To dismantle, simply tap the wedge up to loosen the scissor clamp bars from the wood form.

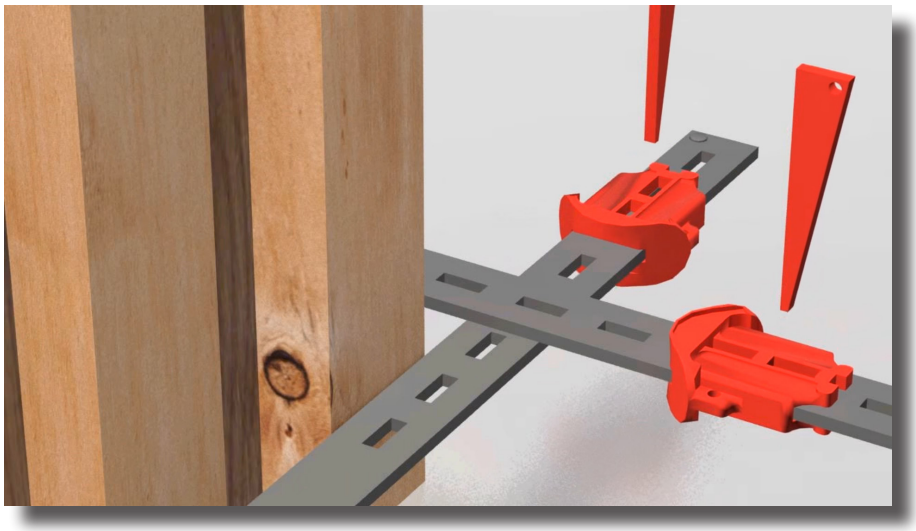
All parts are connected to make single units with no loose parts to get lost.

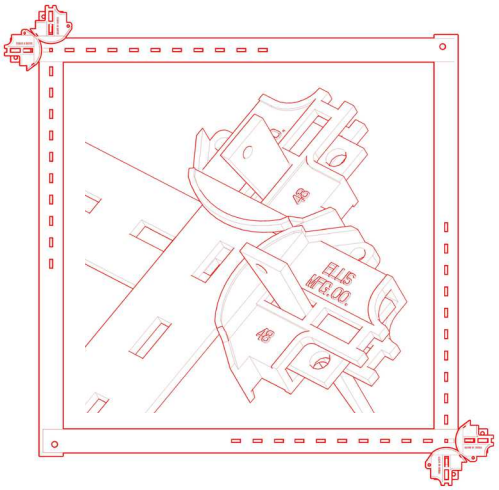
The units are identical; no right or left, up or down.

Only a hammer, nails, and lumber are needed to erect the form. Ellis Column Clamps are made of high carbon steel with malleable iron castings to promote long life and many reuses.

The chart above indicates the finished concrete size each set of clamps will form and assumes use of 3/4″ or 5/8″ Plywood and 2x4 or 2x6 vertical walers (laying flat).

Assembly





Mertubes & Sonotubes

SONOTUBE COMMERCIAL TUBE CONCRETE FORMS

For the most demanding column forming applications, choose Sonotube® Commercial concrete forms.

More water resistant than paper forms, Sonotube Commercial forms easily withstand 72 hours or more of rainfall. They also offer improved strength and tear resistance and stand up to full liquid head pressures of heights up to 20 feet.

The proprietary outside ply of the Sonotube Commercial forms makes them perfect for distributors, concrete sub-contractors and general contractors with demanding commercial grade applications, and delivers a more functional, versatile and economical alternative to steel and fiberglass forms.

FORM MERTUBES

Form tube for one time applications that reduce the cost of pouring footings, round columns and piers. Pour concrete directly into the cardboard concrete forms for a neat and easy form. This product is a cylindrical cardboard concrete form used for posts and pillars in above or below grade applications. - See more at: http://www.sakrete.com/products/detail.cfm/prod_alias/Form-Tubes#sthash.OY9mXNMY.dpuf

WHARTON FORM RENTALS
8042 Old Alexandria Ferry Rd. Clinton, MD 20735
Phone: (301) 877-8640 | Fax: (301) 877-8643

Tilt-Up Bracing

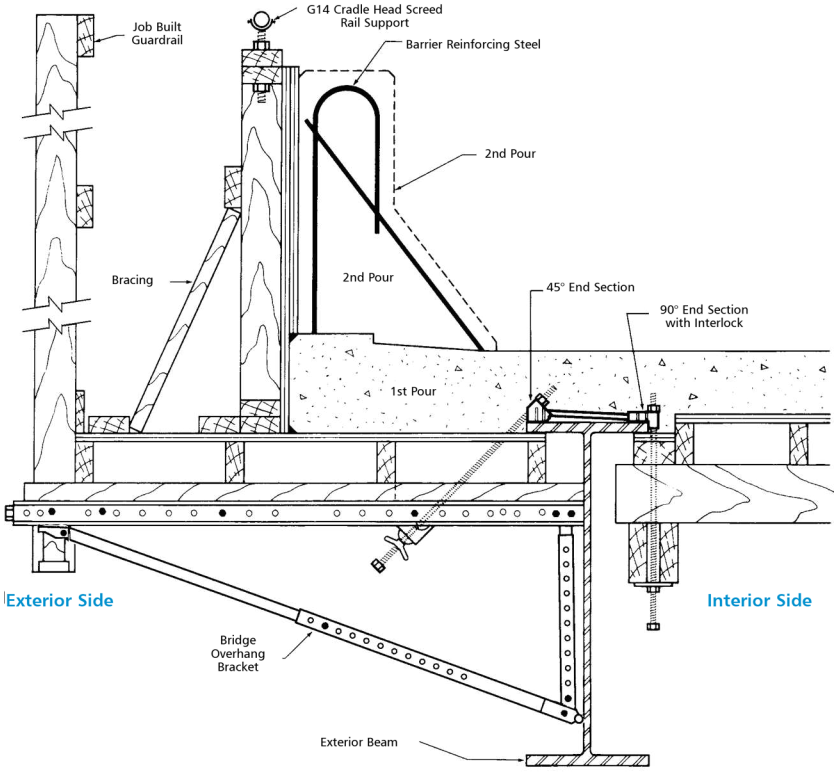
Tilt-Up Construction

Tilt-up is a job-site form of precast concrete construction. It involves prefabricating concrete wall sections (panels) flat on either the building floor slab or on a temporary casting slab, then lifting or tilting them up and carrying them to their final position with a mobile crane. Once they are in position, the panels are temporarily braced until they are tied into the roof and floor system and become an integral part of the completed structure. It is a fast, simple, and economical method of construction, which has been used extensively for one-story buildings and has most recently been adapted successfully to multi-story structures. Today, walls of up to four stories in height are being cast and tilted into position. Currently there have been several instances of wall panels as high as six stories being cast and erected as a unit by the tilt-up method of construction. The economy of tilt-up lies in its simplicity of construction. The critical factors in this method of construction are handled in the pre-construction planning stage. Skill in laying out panel erection sequences and designing safe lifting elements which fully utilize crane time will provide for the fast and safe completion of the job.

DAYTON SUPERIOR

BRIDGE DECK

Hangers, Brackets and Other Accessories



Typical Section View at Exterior Beams

Dayton Superior offers one of the most comprehensive lines of bridge deck forming accessories in the concrete industry, establishing them as the industry's preferred single-source provider. The company's engineered, technologically advanced bridge deck product solutions can be found on bridge construction jobsites nationwide.

SYMONS BY DAYTON SUPERIOR

Application

Exterior hangers generally utilize two different types of end clips, a 90° end to support the interior formwork and a 45° end to support the overhang forming on the exterior side. Dayton Superior offers several exterior hangers that are especially designed to support bridge deck formwork loads, consisting of a live load, dead load, formwork load and usually on the exterior overhang a concrete conveyor and/or a finishing machine load.

Occasionally, 45° half hangers may be required, especially for use in situations where prestressed concrete or steel stay-in-place forms are used to form the interior bays of a bridge deck.

Job Name: _____ Date: _____

By: _____ Chk: _____ Job# _____ Sheet# _____ of _____

Contractor: _____

Description: _____

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