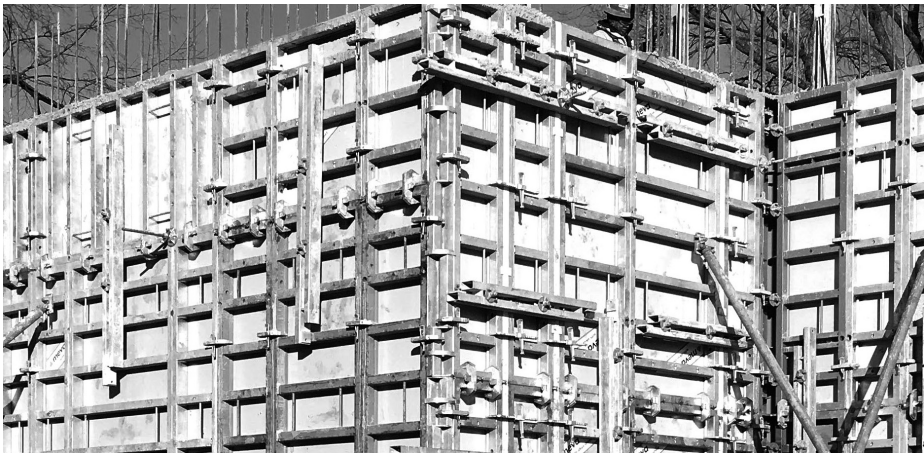
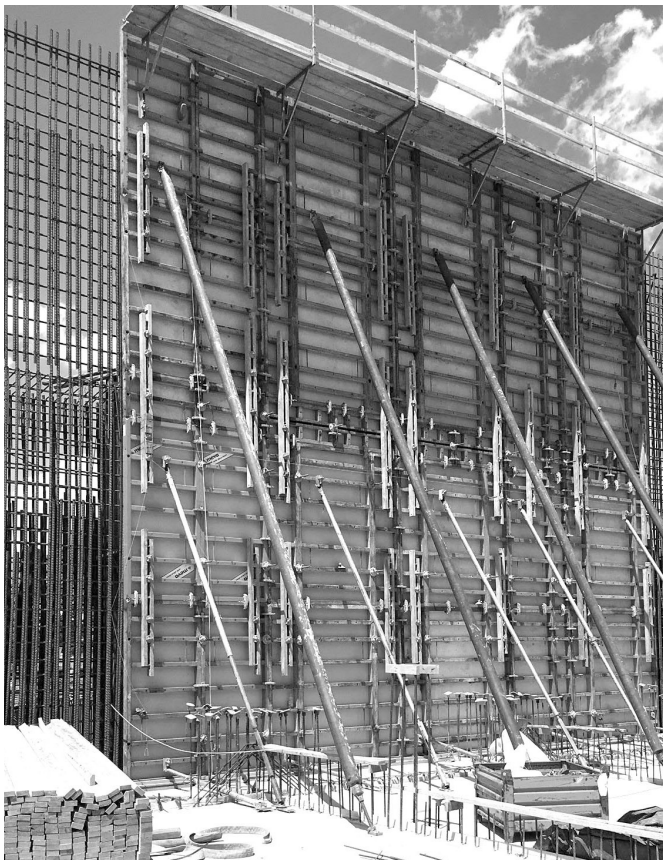


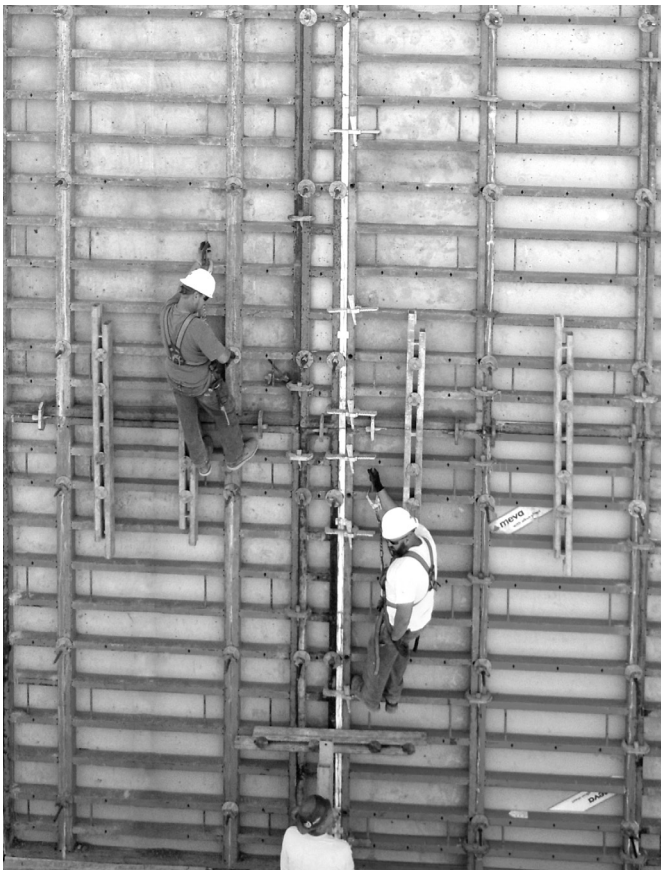
Imperial

Technical Instruction Manual

June 2022

meva





Introduction

Imperial is a crane set modular formwork system suitable for use on civil, commercial, industrial and highway projects.

The panels are composed of strong, durable steel frames and a high grade alkus composite facing that provides an excellent concrete finish. Panels are connected with the MEVA assembly lock which results in fast and efficient assembly with no nuts and bolts.

A complete formwork assembly including accessories weighs about 18 psf. Panels are designed for a maximum lateral concrete pressure of 2025 psf when properly supported.

Imperial panels are available in 4 different heights (12', 8', 4', and 2') and in 8 different widths (8', 4', 3'-6", 3', 2'-6", 2', 1'-6", and 1'). All panels are entirely symmetrical, which simplifies assembly. In addition, 4' wide multi-purpose panels are available in each height. These panels have multi-adjustment profiles for placing ties or column clamps and are ideal for forming 90° corners, columns, pilasters, and connections to existing walls.

Available accessories include pilaster panels, aluminum fillers (1", 2", and 3"), inside corners (12"x12"), outside corners, push-pull props, and walkway brackets. Threaded nuts built into the panels allow for easy attachment of accessories.

Please check here for the most up to date manual:
https://www.meva.net/en-us/tools-downloads/downloads

And please check here for the MEVA YouTube channel:
https://www.youtube.com/user/mevalive/featured

Safety Rules & Recommendations:

- This manual contains information and instructions on how to use MEVA equipment in a safe and efficient manner. All construction personnel involved with the use of this equipment ("User") must be familiar with the contents of this manual.
- The user is responsible for identifying and complying with all applicable government regulations, codes, and ordinances in the use of this equipment.
- MEVA equipment must be erected, used, and dismantled in accordance with this manual, safe practices, and all applicable industry standards developed and published by the American Concrete Institute (ACI), the American National Standards Institute (ANSI) and the Occupational Safety and Health Administration (OSHA). Additional workplace safety precautions should be taken where necessary.
- Most examples shown are standard applications that will occur in practice most often. For applications not covered in this manual, please contact your MEVA representative for advice.
- Many of the details in this manual show specific conditions and situations during different stages of assembly and are therefore not always complete. Any equipment or safety accessories not shown in the details must still be used in accordance with all applicable rules and regulations.
- In order to assure proper fit and load capacity, do not combine this equipment with components of other manufacturers unless directed by a MEVA representative.
- The user must inspect all equipment before each use. Never use equipment that is damaged, deformed, or weakened due to wear or corrosion.
- Never oil or wax MEVA assembly locks.
- The user must ensure the stability of all components during all phases of construction.
- For gang formwork, the user should always establish the number and location of lift points to equalize load on lift brackets and ensure that no individual component is overloaded.
- It is the user's responsibility to adjust the pour rate and placement methods in accordance with ACI 347 for the concrete mixture and the specific jobsite conditions at the time of placement so that the specified maximum lateral concrete pressure is never exceeded.
- Certain applications will result in a maximum lateral concrete pressure lower than the system panel capacity. Refer to specific sections of this manual, MEVA application drawings, or consult your MEVA representative.
- When stripping gang formwork, never use the crane to break the concrete bond. Instead, use suitable tools such as pry bars or wood wedges. Secure the lift brackets prior to removal of ties, anchors, and/or bracing.
- Do not nail into aluminum fillers.

Contents

The Imperial Panel

Fig. 4.1
Imperial panel

Fig. 4.2
The steel frames are manufactured of closed profiles which are welded in mitered joints. These profiles are provided with a groove and an integrated protection for the forming face.

Fig. 4.3
Tie hole with conical anchor sleeve (see page 13).

Fig. 4.4
Pioneering panel connection with MEVA assembly lock (see page 7).

Fig. 4.5
The tie-off bar allows safe working on the formwork. Under no circumstances should panels be lifted or moved using these tie-off bars. Tie-off bars should only be used with suitable positioning device systems as described in OSHA 1926-502(e), supplied by others.
Or, provided the user adhere to the guidance set forth in OSHA 1926.502(d)(15), 1926.502(d)(15)(i), 1926.502(d)(15)(ii), and all associated sections, these tie-off bars may be used with personal fall arrest systems that meet the requirements set forth in OSHA. It is the end user's responsibility to ensure OSHA requirements are met.

Fig. 4.6
The cross stiffeners are also made of closed profiles.

Fig. 4.7
Fast and safe attachment of accessory parts at the multi-function profile with Dywidag-threaded nuts.

Fig. 4.8
The bump notch is designed to facilitate shifting and lifting of panels (especially large size panels).

Fig. 4.9
Transportation holes are used to attach the lifting hook 60, allowing stacked panels to be moved at ground or slab level (see pages 57 & 58).
8 transportation holes all around the panel permit easy preassembly of gangs.

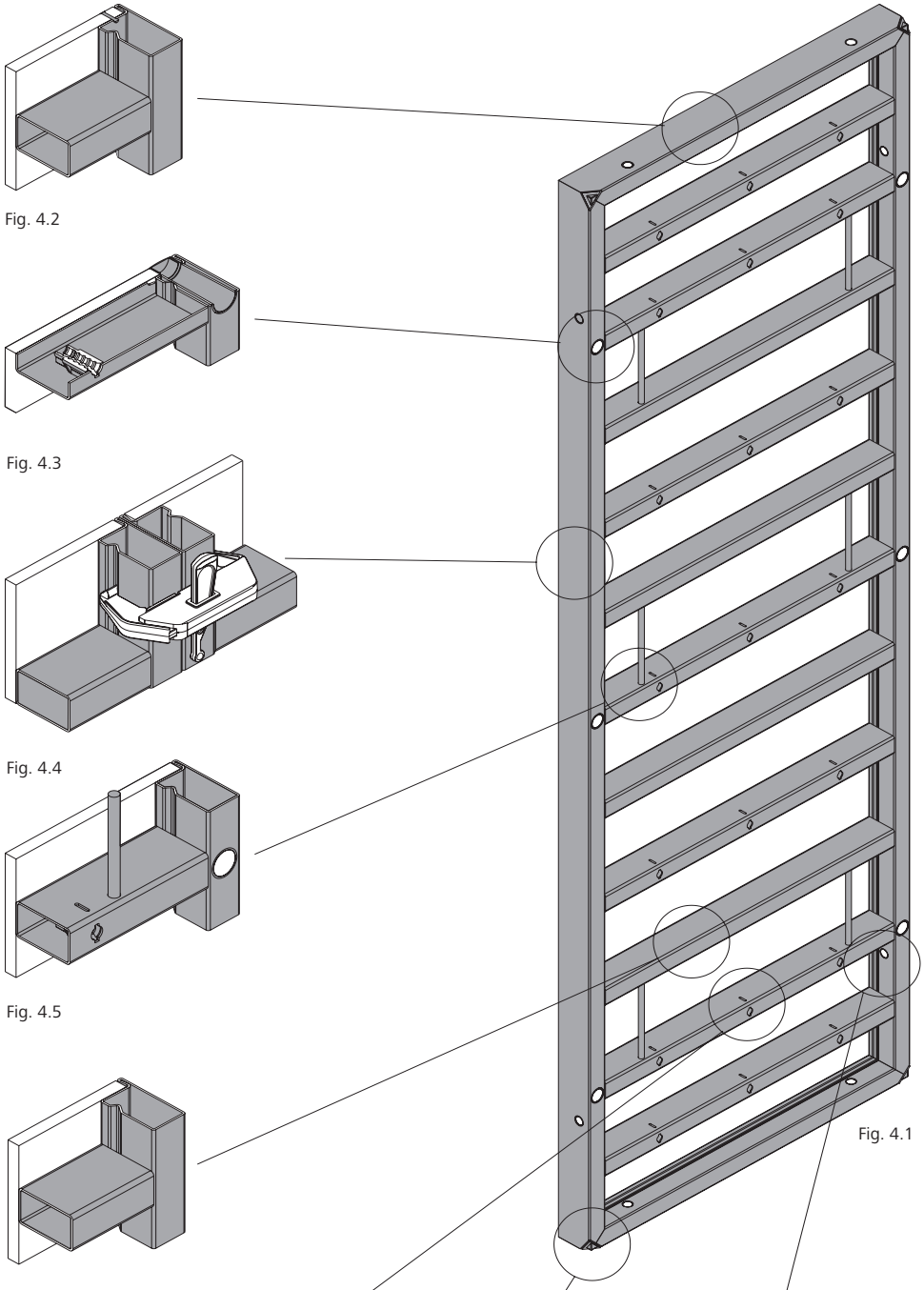


Fig. 4.1

Fig. 4.2

Fig. 4.3

Fig. 4.4

Fig. 4.5

Fig. 4.6

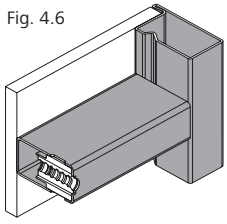


Fig. 4.7

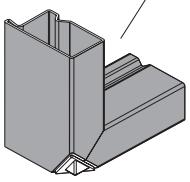


Fig. 4.8

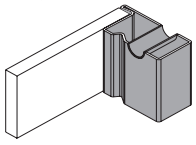


Fig. 4.9

Multi-purpose Panels

The multi-purpose panels are ideal for forming 90° corners, columns, pilasters, bridge abutments and connections to existing walls.

The panels are provided with multi-adjustment profiles where column clamps or ties are mounted (Fig. 5.1).

The 12’ panels have 3 multi-adjustment profiles, the 8’ panels have 2 multi-adjustment profiles and the 4’ and 2' panels have 1 multi-adjustment profile.

Plug the unused tie holes with Plug D36.

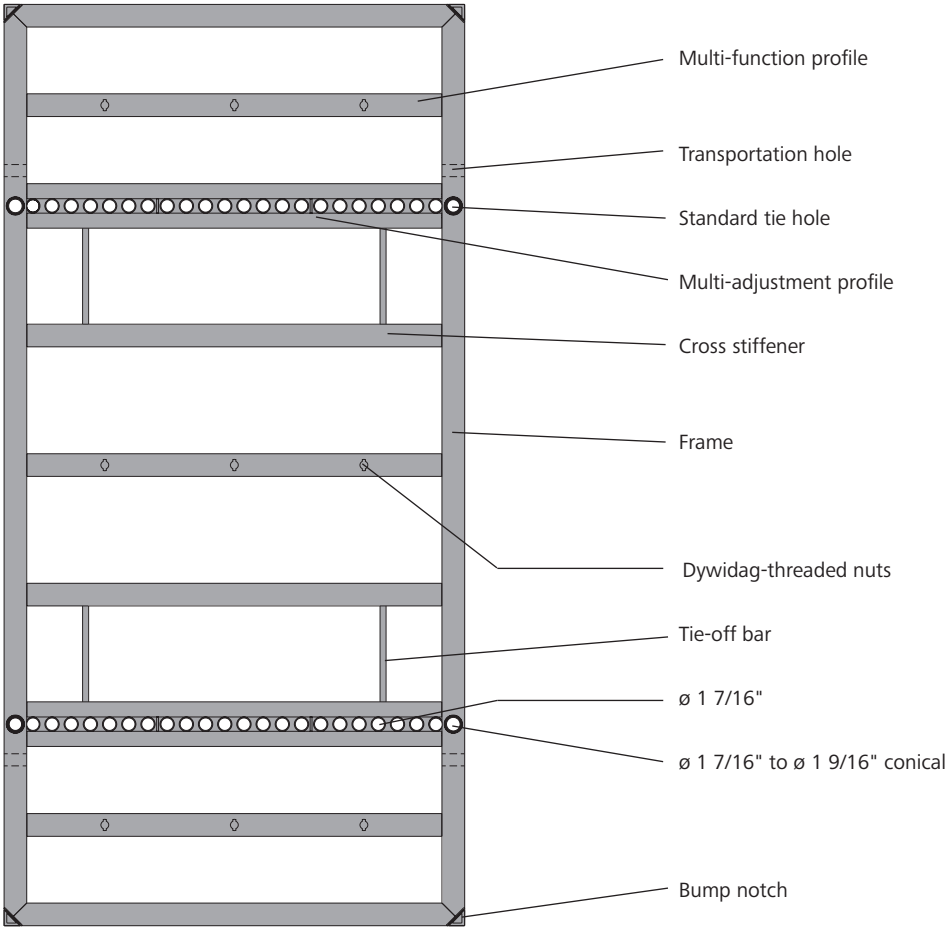


Fig. 5.1

Description	Ref.-No.
I-multi-purpose panels	
12’x4’	**23-300-25**
8’x4’	**23-302-25**
4’x4’	**23-304-25**
2’x4’	**23-305-25**
Plug D36	**29-902-65**

The alkus Sheet

The poly-propylene and aluminum composite forming face has all the positive properties of plywood plus important advantages: longer life span, greater load-bearing capacity, better nail-holding ability, fewer and easier repairs, 100 % recyclability.
Besides the obvious advantages, such as considerably reduced cleaning effort, minimum consumption of release agent and an excellent concrete finish, alkus offers substantial ecological benefits. Substituting plastic for wood saves valuable timber resources. Also, the release of highly toxic dioxin is avoided, which is released in the process of burning plywood (that is bonded with phenolic resin). Used or damaged alkus plastic sheets can be recycled into the same product. It is 100% recyclable, and the manufacturer guarantees reacceptance.

Frame profile + plywood face

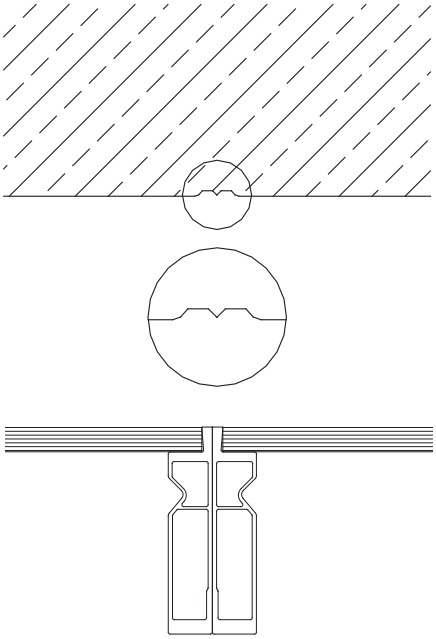


Fig. 6.1: Negative impression in the concrete when using panels with a conventional plywood face

Frame profile + alkus sheet

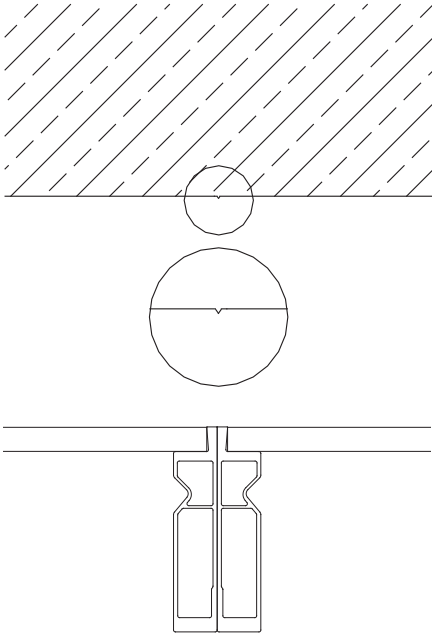


Fig. 6.2: Smooth and even concrete surface as there is no projecting profile of the panel frame

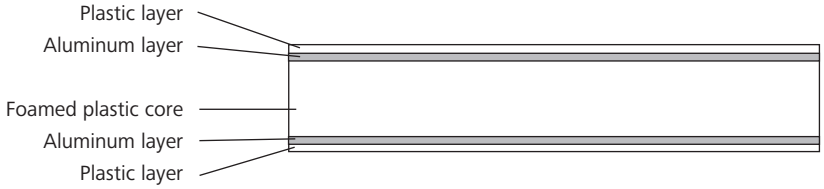


Fig. 6.3: Composite alkus plastic sheet structure

Panel Connection

The panels are connected quickly and efficiently with the M-assembly lock regardless of their orientation (Fig. 7.1, 7.2). The lock can be attached on the frame at any position, and its 5-point contact not only draws the panels together but aligns them as well. Only a few hammer blows are needed to create a safe connection with perfect alignment. Since the lock weighs only 6.6 lbs. it can be handled easily.

Standard lock requirements are shown in Figure 7.4. Additional locks are required for columns and outside corners (refer to respective sections for details).

Panels with aluminum or wood fillers in between are connected with the uni-assembly lock 28, which can accommodate a maximum filler width of 6" (Fig. 7.5).

Fig. 7.1 M-assembly lock

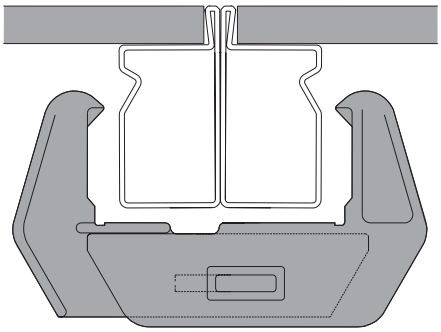


Fig. 7.2 M-assembly lock

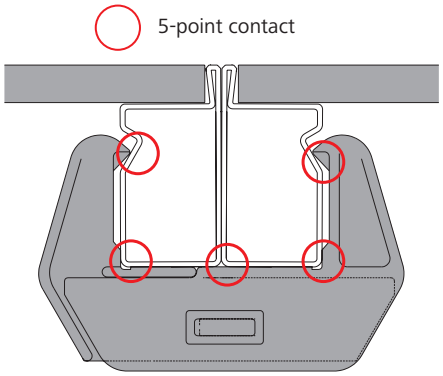


Fig. 7.3 M-assembly lock

Standard Lock Requirements	
Panel Edge Length	Number of Locks
12'	3
8'	2
4' thru 1'-6"	2
1'	1

Fig. 7.4

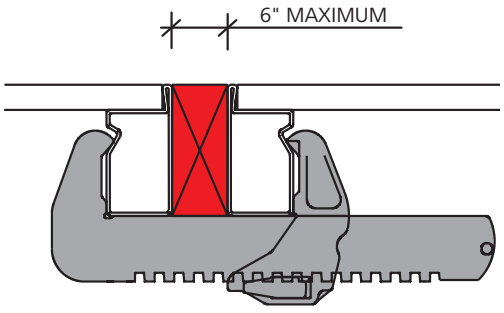


Fig. 7.5 Uni-assembly lock 28

Description	Ref.-No.
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Tie Systems

Description	Ref.-No.
Articuated flange nut 20/140	**29-900-05**
7/8" (20mm) Taper Tie Stock Sizes	
16/41 - 16" Taper length, 41" Overall	**2-500-2990031**
24/49 - 24" Taper length, 49" Overall	**2-500-2990033**
32/57 - 32" Taper length, 57" Overall	**2-500-2990035**
42/63 - 42" Taper length, 63" Overall	**2-500-2990037**
52/78 - 52" Taper length, 78" Overall	**2-500-78-52/78**

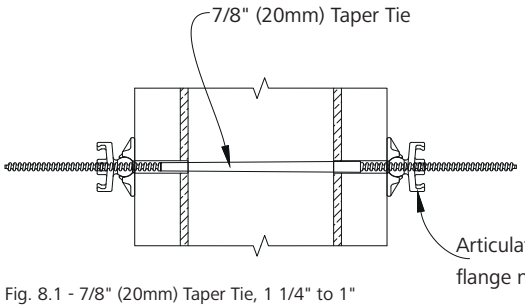


Fig. 8.1 - 7/8" (20mm) Taper Tie, 1 1/4" to 1"

7/8" (20mm) Taper Tie
SWL = 32.5 KIPS
Factor of Safety = 2:1

NOTE: When using taper ties in walls over 15' high, the max. lateral concrete pressure is 1900 psf

---

Description	Ref.-No.
Rental	
7/8" (20mm) Threadbar 18"	**2-500-2990058**
7/8" (20mm) Threadbar 42"	**2-500-2990056**
7/8" (20mm) Threadbar 54"	**2-500-2990054**
7/8" (20mm) Threadbar 72"	**2-500-2990052**
Articuated flange nut 20/140	**29-900-05**
7/8" Batter Washer	**2-500-2990084**
Purchase	
7/8" (20mm) Plastic Spacer Cone	**2-500-2990254**
1 1/4" Strip. Tool for 7/8" Spacer Cone	**2-500-2990223**
1" PVC Pipe Sch40 20ft	**2-500-2990246**

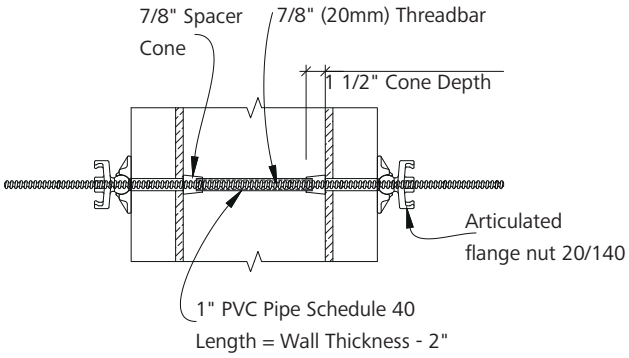


Fig. 8.2 - 7/8" (20mm) Threadbar

7/8" (20mm) Threadbar
SWL = 39.2 KIPS
Factor of Safety = 2:1

Description	Ref.-No.
Rental	
7/8" (20mm) Euro Shebolt 19"	**2-500-2990071**
Articuated flange nut 20/140	**29-900-05**
Purchase	
7/8" (20mm) Threadbar 19'-1"	**2-500-2990040**
7/8" (20mm) Neoprene Waterstop	**2-500-2990227**

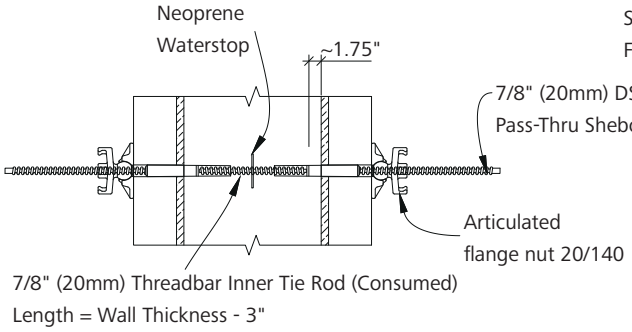


Fig. 8.3 - 7/8" (20mm) Euro Shebolt

7/8" (20mm) Euro Shebolt
SWL = 37.5 KIPS
Factor of Safety = 2:1

Description	Ref.-No.
Rental	
7/8" (20mm) Steel Setting Cone	**2-500-2990080**
7/8" (20mm) Threadbar 18"	**2-500-2990058**
Articuated flange nut 20/140	**29-900-05**
Purchase	
7/8" (20mm) Threadbar 19'-1"	**2-500-2990040**
7/8" (20mm) Neoprene Waterstop	**2-500-2990227**

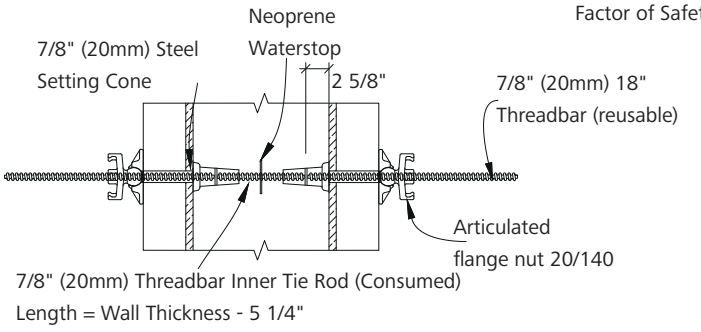


Fig. 8.4 - 7/8" (20mm) Steel Setting Cone

7/8" (20mm) Steel Setting Cone
SWL = 39.2 KIPS
Factor of Safety = 2:1

System Panel Sizes

High degree of flexibility

The formwork is extended in height using panels assembled vertically or horizontally on top of the lower panels. The wide range of panel heights and widths ensures:

→ Economical height extension in 6" increments through combined horizontal and vertical assembly.

→ Uniform joint grid.

Panel height: 12'

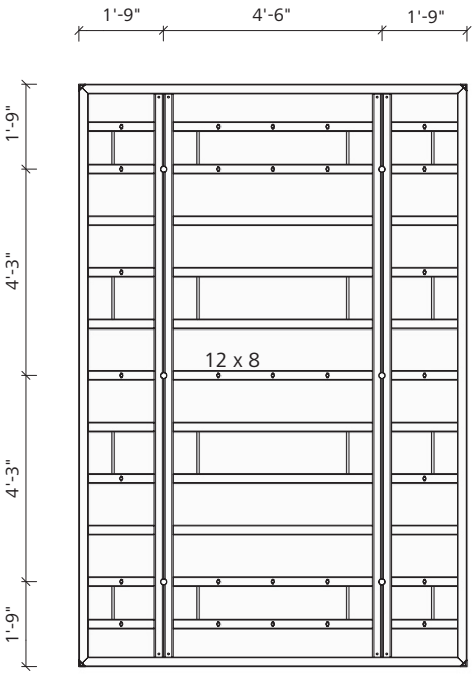


Fig. 9.1

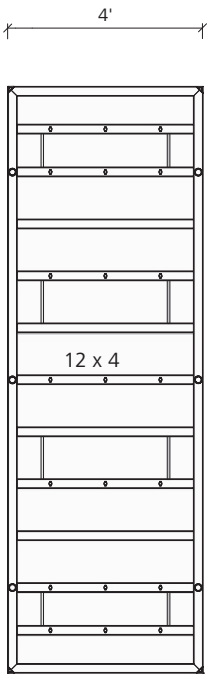


Fig. 9.2

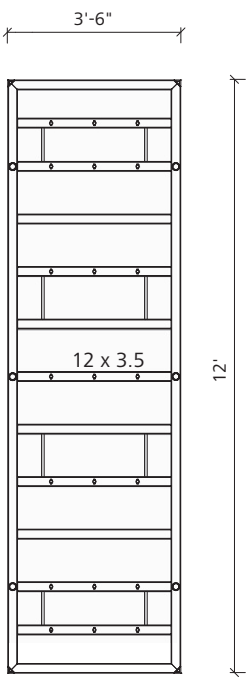


Fig. 9.3

Vertical joints:

For 2' and 4' high panels, you need just one 7/8" (20 mm) tie.

The 8' high panels require 2 ties and the 12' high panels require 3 ties.

In general, all tie positions pre-determined by the system must be used.

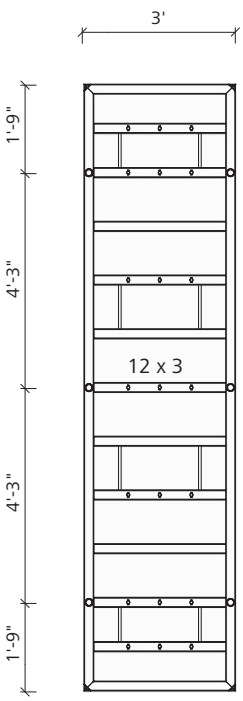


Fig. 9.4

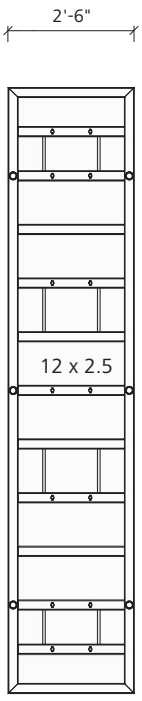


Fig. 9.5

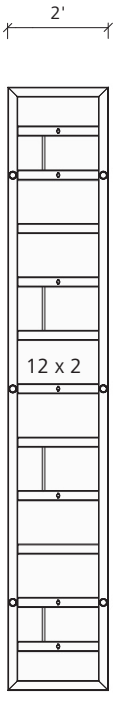


Fig. 9.6

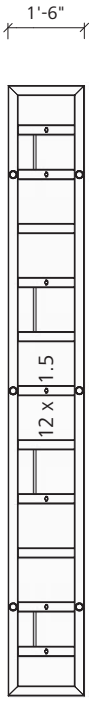


Fig. 9.7

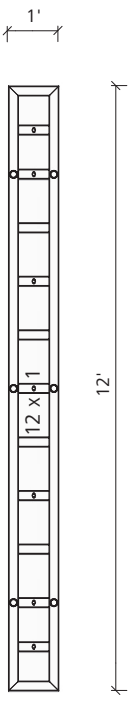


Fig. 9.8

System Panel Sizes

High degree of flexibility

The formwork is extended in height using panels assembled vertically or horizontally on top of the lower panels. The wide range of panel heights and widths ensures:

→ Economical height extension in 6" increments through combined horizontal and vertical assembly.

→ Uniform joint grid.

Panel height: 8'

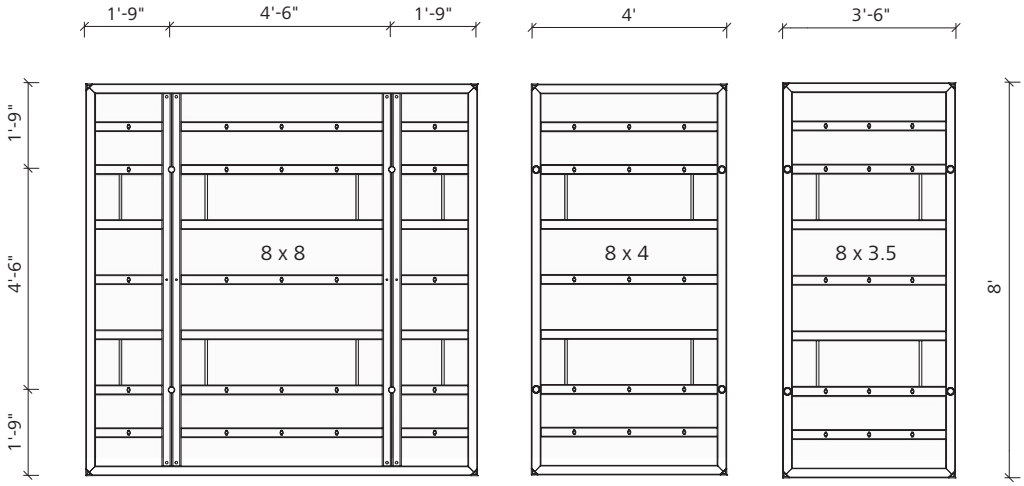


Fig. 10.1

Fig. 10.2

Fig. 10.3

Vertical joints:

For 2' and 4' high panels, you need just one 7/8" (20 mm) tie.

The 8' high panels require 2 ties and the 12' high panels require 3 ties.

In general, all tie positions pre-determined by the system must be used.

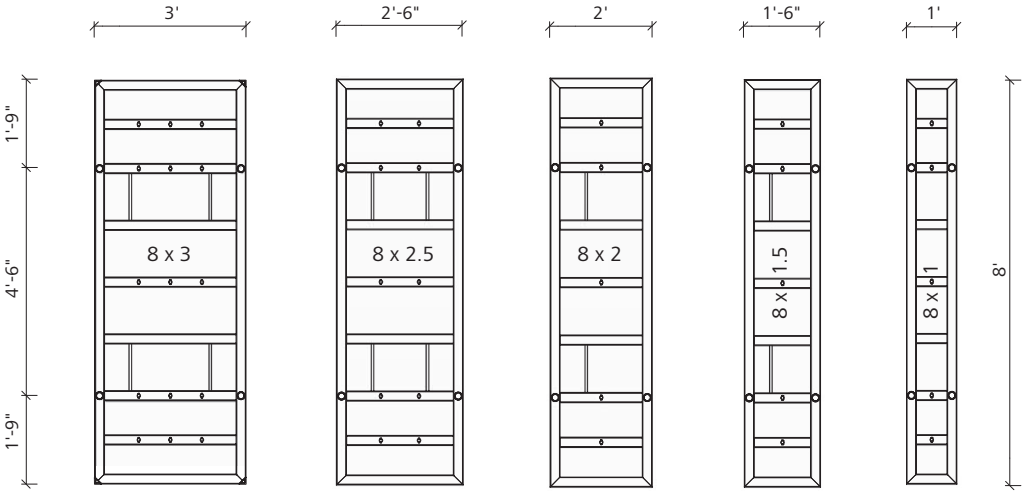


Fig. 10.4

Fig. 10.5

Fig. 10.6

Fig. 10.7

Fig. 10.8

System Panel Sizes

High degree of flexibility

The formwork is extended in height using panels assembled vertically or horizontally on top of the lower panels. The wide range of panel heights and widths ensures:

→ Economical height extension in 6" increments through combined horizontal and vertical assembly.

→ Uniform joint grid.

Vertical joints:

For 2' and 4' high panels, you need just one 7/8" (20 mm) tie.

The 8' high panels require 2 ties and the 12' high panels require 3 ties.

In general, all tie positions pre-determined by the system must be used.

Panel height: 4'

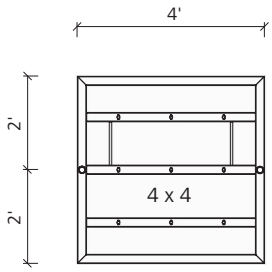


Fig. 11.1

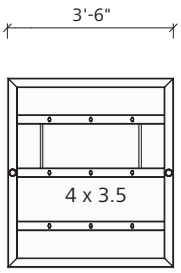


Fig. 11.2

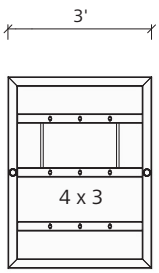


Fig. 11.3

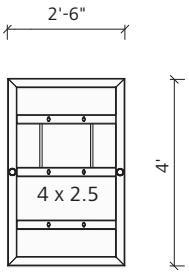


Fig. 11.4

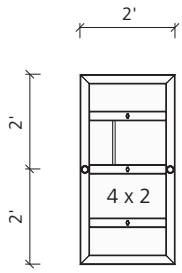


Fig. 11.5

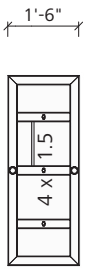


Fig. 11.6

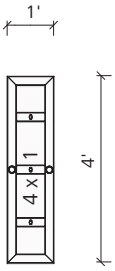


Fig. 11.7

Panel height: 2'

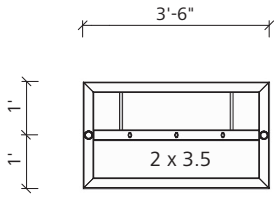


Fig. 11.8

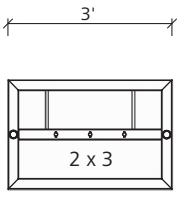


Fig. 11.9

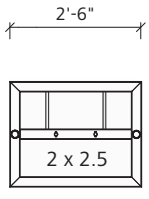


Fig. 11.10

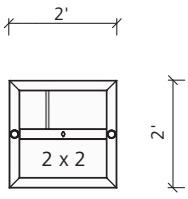


Fig. 11.11

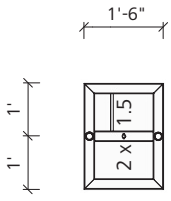


Fig. 11.12

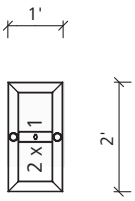


Fig. 11.13

System Panel Sizes

High degree of flexibility

The formwork is extended in height using panels assembled vertically or horizontally on top of the lower panels. The wide range of panel heights and widths ensures:

→ Economical height extension in 6" increments through combined horizontal and vertical assembly.

→ Uniform joint grid.

Vertical joints:

For 2' and 4' high panels, you need just one 7/8" (20 mm) tie.

The 8' high panels require 2 ties and the 12' high panels require 3 ties.

In general, all tie positions pre-determined by the system must be used.

Multi-purpose panels:

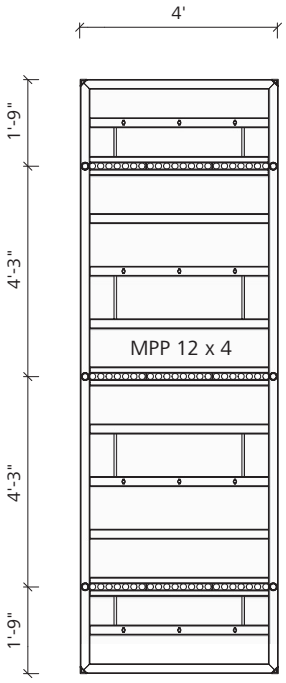


Fig. 12.1

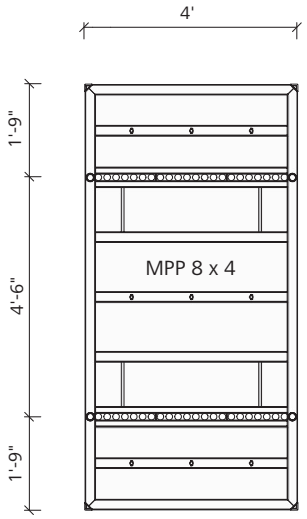


Fig. 12.2

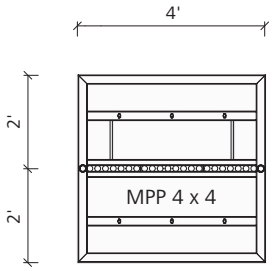


Fig. 12.3

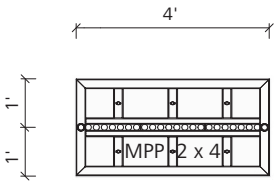


Fig. 12.4

Tie Placement

The conical anchor sleeves, where the ties can be inserted, are located inside the panel frame. The conical shape (Fig. 13.4) allows one or both sides of the wall to be inclined. In order to secure the formwork against uplift it has to be anchored to the foundation using shoe plates or other means.

Please note:
If two panels of different widths are assembled side by side, the ties should be placed through the panel with the larger width (Fig. 13.5).
When using Uni-tie claws (used only with threadbars), the ties can be placed at the outside edge of the panels. For example; when forming bulkheads, or directly above the panels when forming foundations.
Do not use ties as a means of supporting bulkheads, or in any other applications where shear load is applied, unless approved by MEVA.

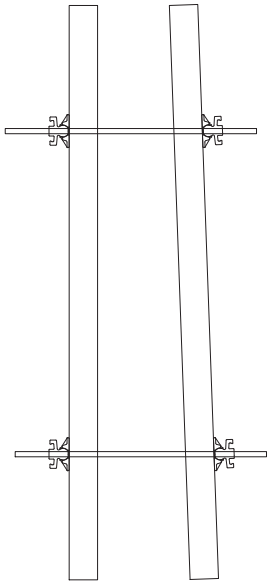


Fig. 13.1

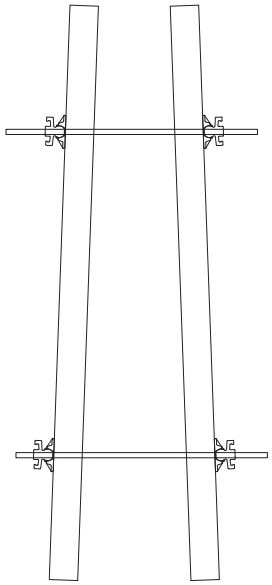
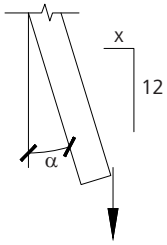


Fig. 13.2

Maximum Incline		
Tie System	Angle [α]	Ratio [x:12]
Taper Tie 1 1/4" to 1"	3°	5/8 : 12
7/8" Threadbar	7°	1 7/16 : 12

Fig. 13.3



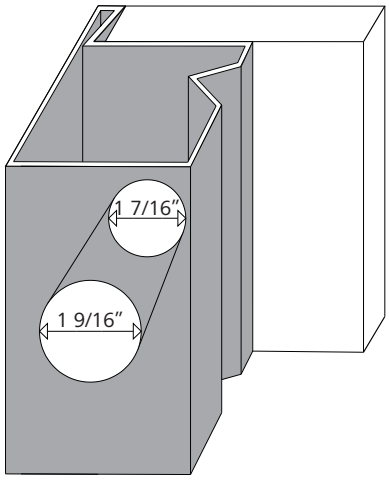


Fig. 13.4

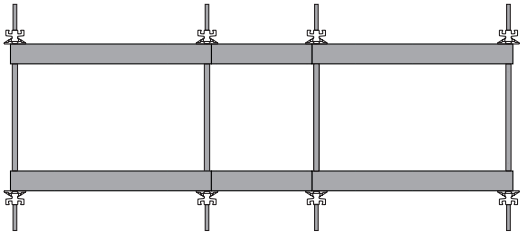


Fig. 13.5

Description	Ref.-No.
Plug D36	**29-902-65**
Spanner SW 36	**29-800-15**

Stacking Panels

For stacked panel conditions where the top of concrete is ≤ 1' above the panel below, it is not necessary to install ties in the top panel (Fig. 14.1), unless a walkway bracket is attached or the panel below is 2' or 4' high. If a walkway bracket is attached to the top panel, install ties in the upper tie holes.

For stacked panel conditions where the top of concrete is > 1' but ≤ 1'-6" above the panel below, it is not necessary to install ties in the bottom tie holes of the top panel (Fig. 14.2), unless the panel below is 2' or 4' high.

For stacked panel conditions where the top of concrete is > 1'-6" above the panel below (Fig. 14.3), and for all conditions where the panel below is 2' or 4' high, ties must be installed in all tie holes.

Vertical steel rails must be installed across stacked panel joints for lifting gang forms. See the "Gang Forming" section for additional information (Vertical rails shown in Figures on pages I-14 & I-15 are required for crane ganging only, and are not required for concrete pressures)..

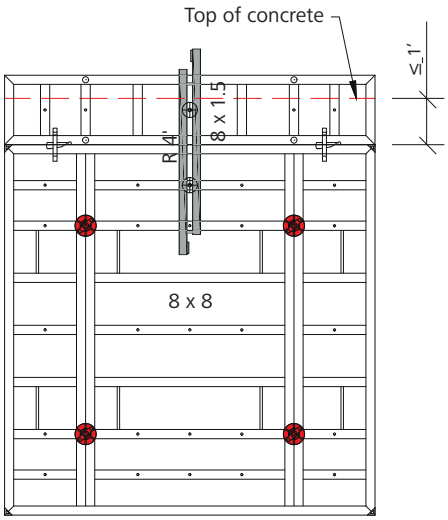


Fig. 14.1

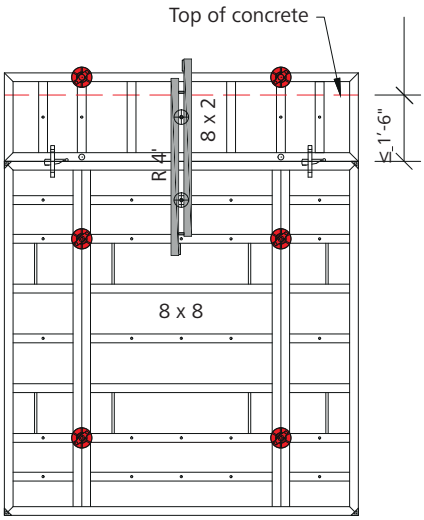


Fig. 14.2

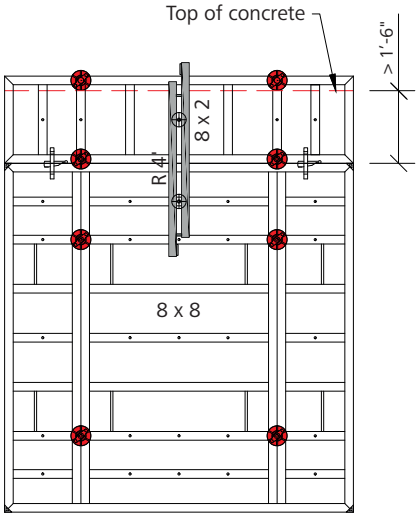


Fig. 14.3

Stacking Panels - Typical Examples

These figures show typical examples of how panels can be stacked to achieve different formwork heights. For special applications not covered in these examples, or other manual sections, contact your MEVA representative.

Vertical steel rails must be installed across stacked panel joints for lifting gang forms. See the "Gang Forming" section for additional information (Vertical rails shown in Figures on pages I-14 & I-15 are required for crane ganging only, and are not required for concrete pressures).

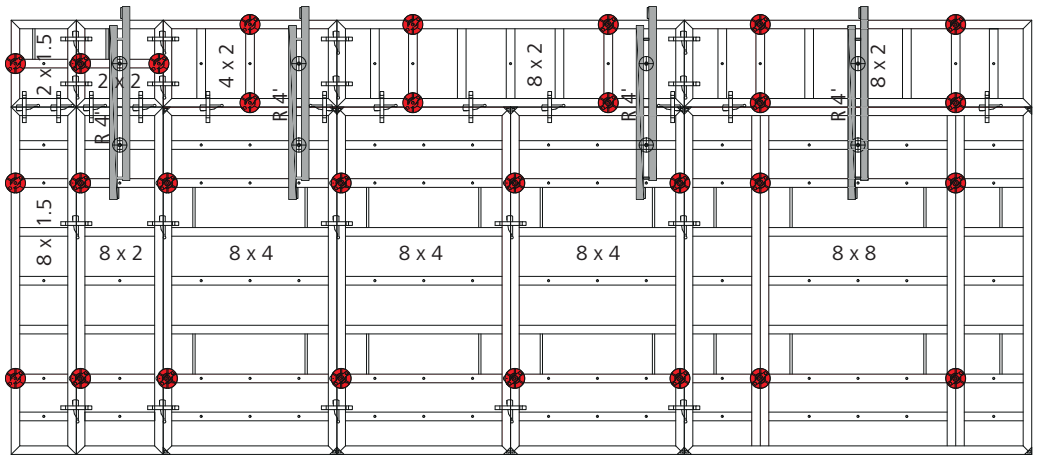


Fig. 15.1 Formwork 10' high

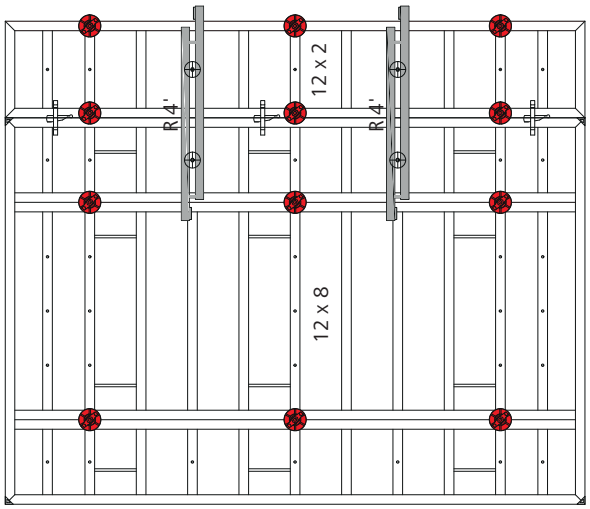


Fig. 15.2 Formwork 10' high using 12' panels

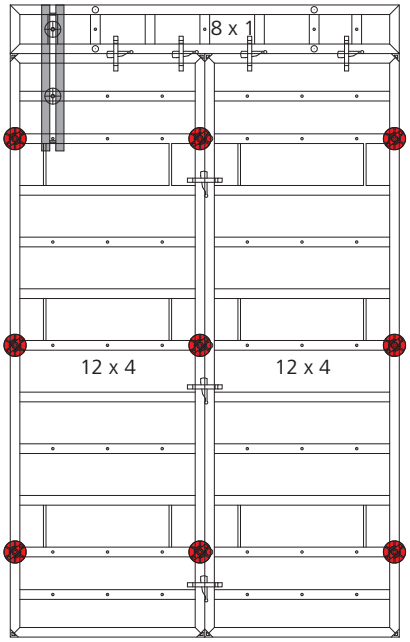


Fig. 15.3 Formwork 13' high

Stacking Panels - Typical Examples

These figures show typical examples of how panels can be stacked to achieve different formwork heights. For special applications not covered in these examples, or other manual sections, contact your MEVA representative.

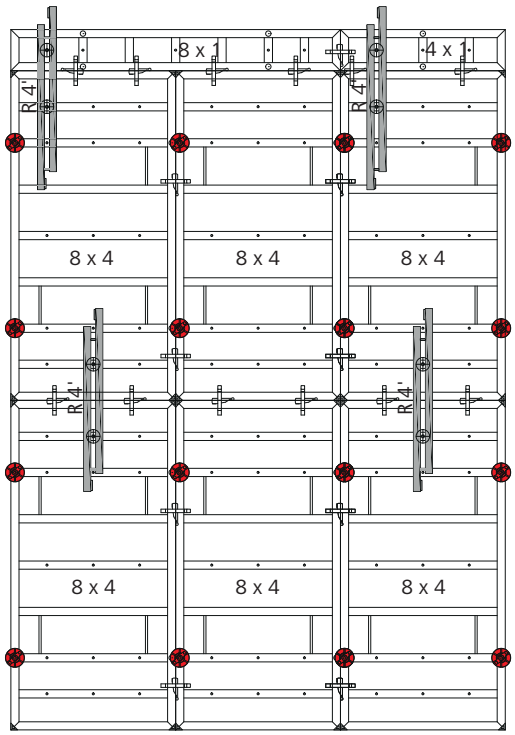


Fig. 16.1 Formwork 17' high

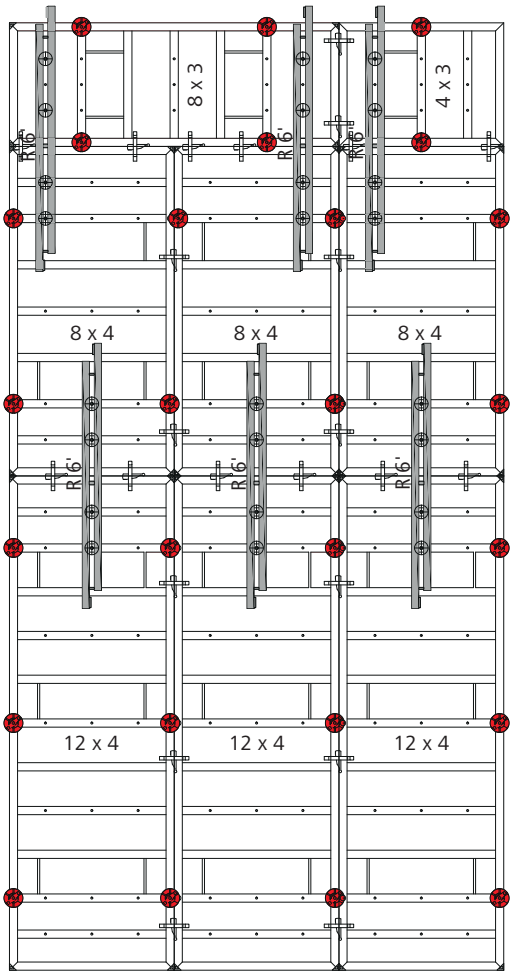


Fig. 16.2 Formwork 22' high

90° Corners

Imperial Inside Corners

The Imperial inside corner is provided with tie holes, and consists of a steel frame and a replaceable steel face that is protected with a plastic coating (Fig. 17.1) or alkus facing. The width of each side is 1' (Fig. 17.2). Imperial fillers (1", 2", and 3") are used to make adjustments for different wall thicknesses. Steel rails may be required depending on the filler/tie configuration (see the "Fillers" section) and the wall thickness.

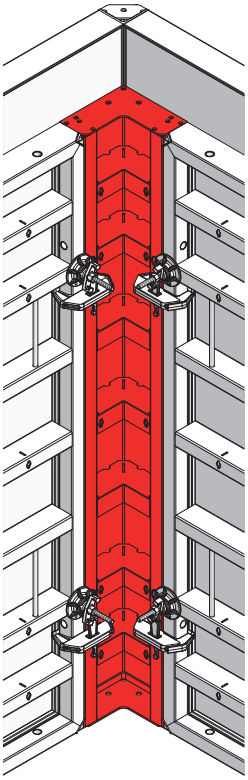


Fig. 17.1

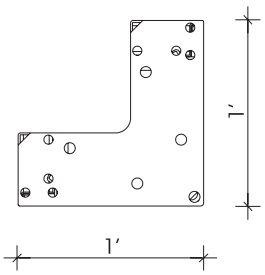


Fig. 17.2

Imperial Outside Corners

The outside corners (Fig. 17.3, 17.4) are connected to adjacent panels with assembly locks, but require more assembly locks than the standard panel connections. Steel rails may also be required. See the "Standard Panels and Outside Corners" section for specific requirements.
There are two ways to form 90° outside corners: with standard panels and outside corners, or with multi-purpose panels.

Description	Ref.-No.
I-inside corners	
12'x1'	**23-306-80**
8'x1'	**23-306-85**
4'x1'	**23-306-90**
2'x1'	**23-306-95**
I-outside corners	
12'	**23-306-00**
8'	**23-306-10**
4'	**22-306-20**
2'	**23-306-25**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

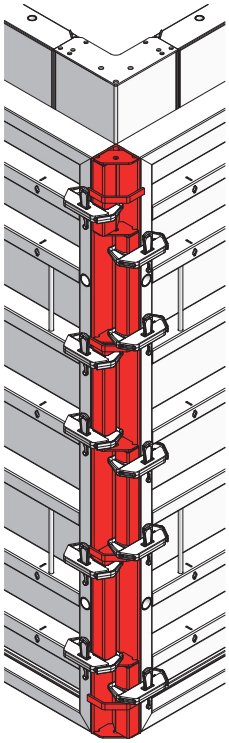


Fig. 17.3

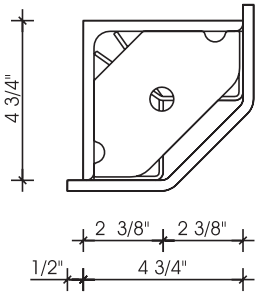


Fig. 17.4

90° Corners

Standard Panels and Outside Corners

The connection and rail support requirements for outside corner assemblies depend on the wall thickness.

For wall thicknesses ≤ 9", additional locks are required at the outside corner connections only (Fig. 18.1).

For wall thicknesses > 9" but ≤ 12", additional locks are required at the outside corner connections and at adjacent panel joints near the corner (Fig. 18.2).

For wall thicknesses > 12" but ≤ 21", additional locks are required at the outside corner connections and at adjacent panel joints near the corner (Fig. 18.3). Steel rails must also be mounted at all tie elevations except the top one with at least two flange screws each and bolted together at the corner with a flange screw 18 and flange nut 100. Rails are not installed on 2' high panels due to interference with lock installation on the outside corner. There must be at least one panel (1' or wider) adjacent to the outside corner panels and inside corner.
Flange screws securing rails to panels shall be tightened by turning with a hammer claw or bar until snug, followed by a few hammer blows (minimum 160 ft-lbs torque)..

Description	Ref.-No.
I-inside corners	
12'x1'	**23-306-80**
8'x1'	**23-306-85**
4'x1'	**23-306-90**
2'x1'	**23-306-95**
I-outside corners	
12'	**23-306-00**
8'	**23-306-10**
4'	**22-306-20**
2'	**23-306-25**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

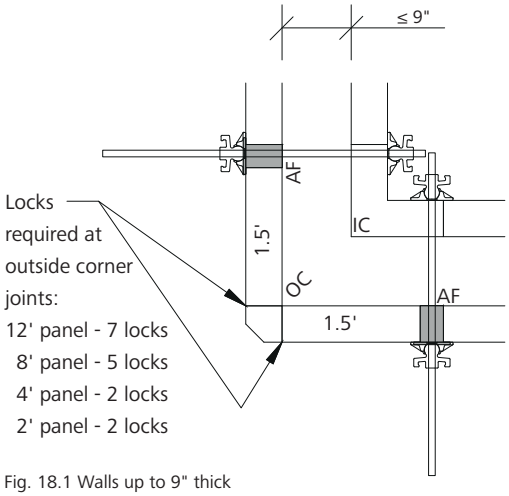


Fig. 18.1 Walls up to 9" thick

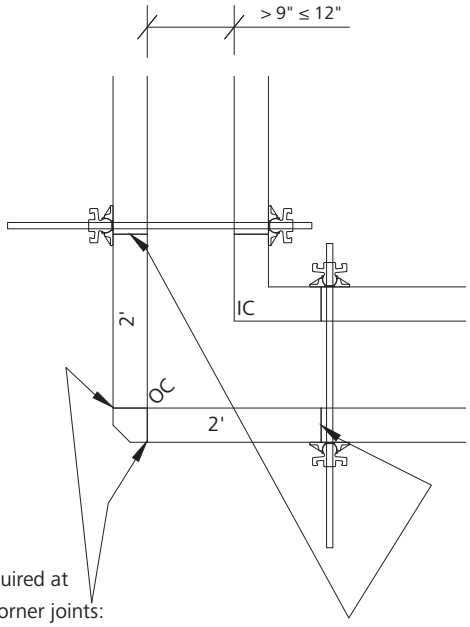


Fig. 18.2 Walls > 9" but ≤ 12" thick

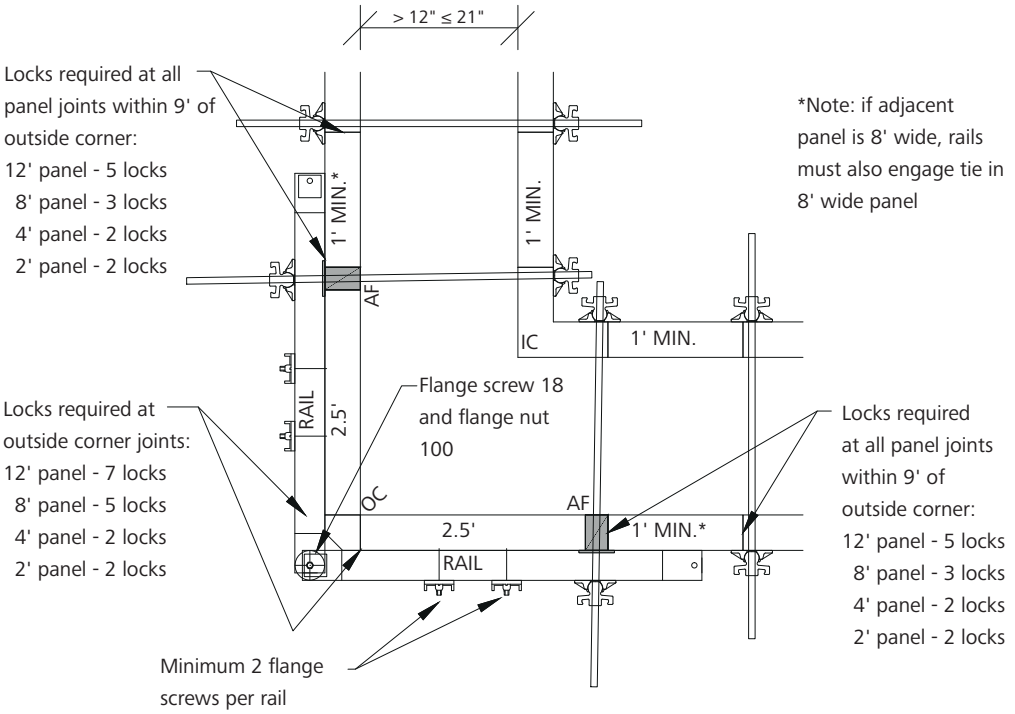


Fig. 18.3 Walls > 12" but ≤ 21" thick

90° Corners

Wall thicknesses > 21" but ≤ 27" also require steel rails at all tie elevations except the top one, and additional locks at the outside corners and nearby panel joints. At least three flange screws are required on each rail (Fig. 19.1), and the panels adjacent to the inside corner and outside corner panels must be at least 2.5' wide. Rails are not installed on 2' high panels.

An example corner elevation for walls > 21" but ≤ 27" thick is shown in Figure 19.2.

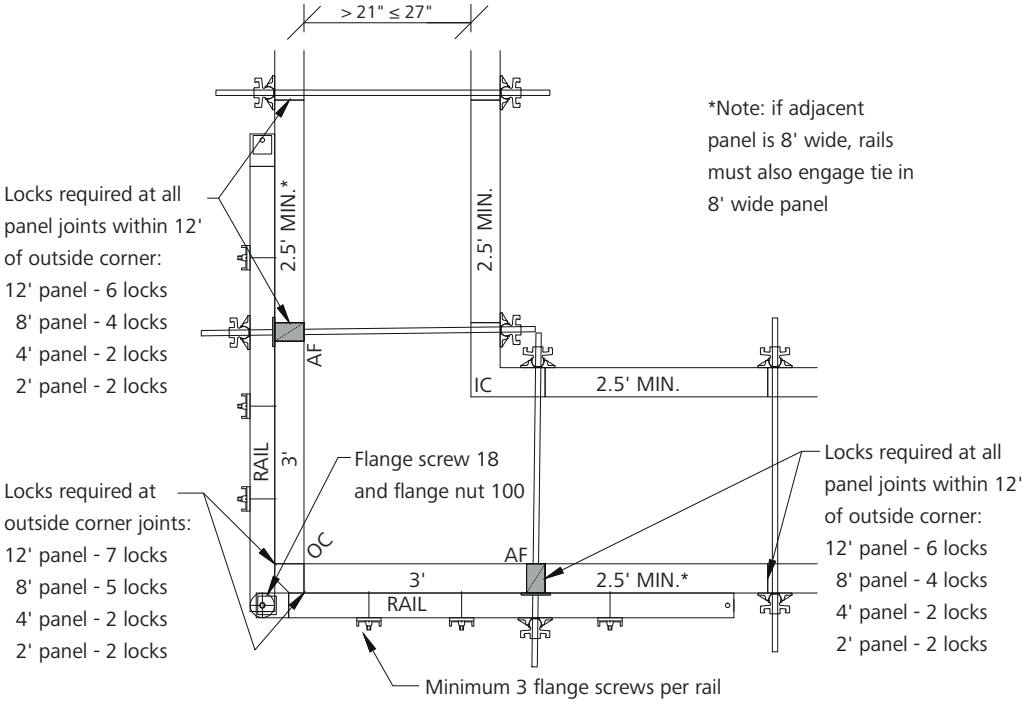


Fig. 19.1 Walls > 21" but ≤ 27" thick

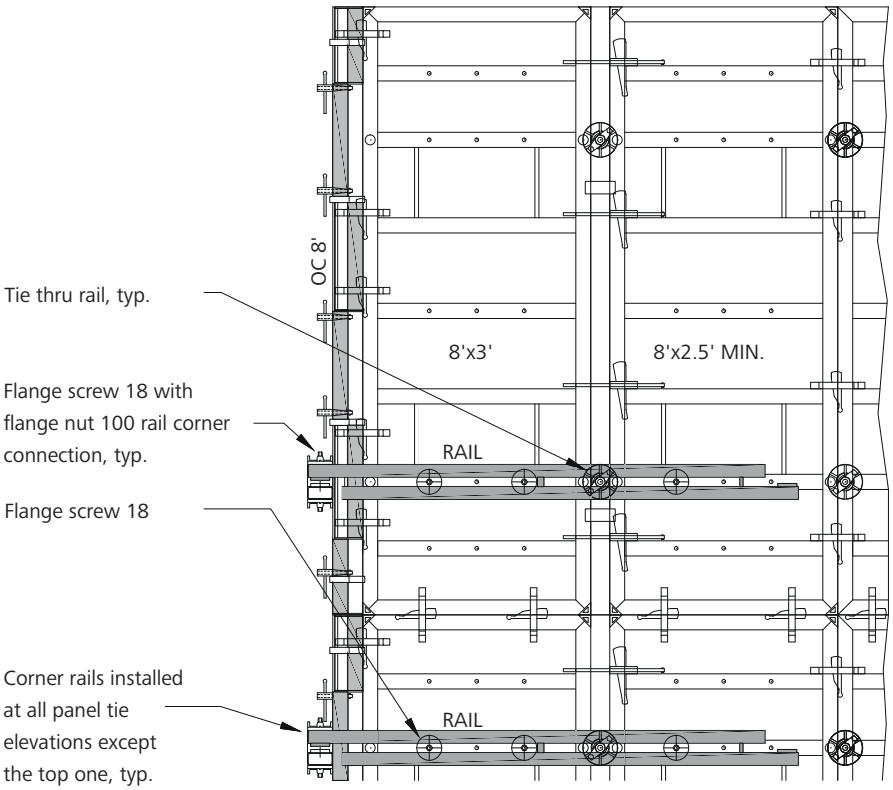


Fig. 19.2 Walls > 21" but ≤ 27" thick - example corner elevation

Description	Ref.-No.
I-inside corners	
12'x1'	**23-306-80**
8'x1'	**23-306-85**
4'x1'	**23-306-90**
2'x1'	**23-306-95**
I-outside corners	
12'	**23-306-00**
8'	**23-306-10**
4'	**22-306-20**
2'	**23-306-25**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

90° Corners

Wall thicknesses > 27" but ≤ 36" require steel rails at all tie elevations except the top one, and additional locks at the outside corners and nearby panel joints as well. The rails must engage at least two ties on each side, and the panels adjacent to the inside corner and outside corner panels must be at least 2.5" wide (Fig. 20.1). Panels 2' high may only be used within 10' of the top of the wall.
The maximum allowable concrete pressure for this configuration is 1650 psf.

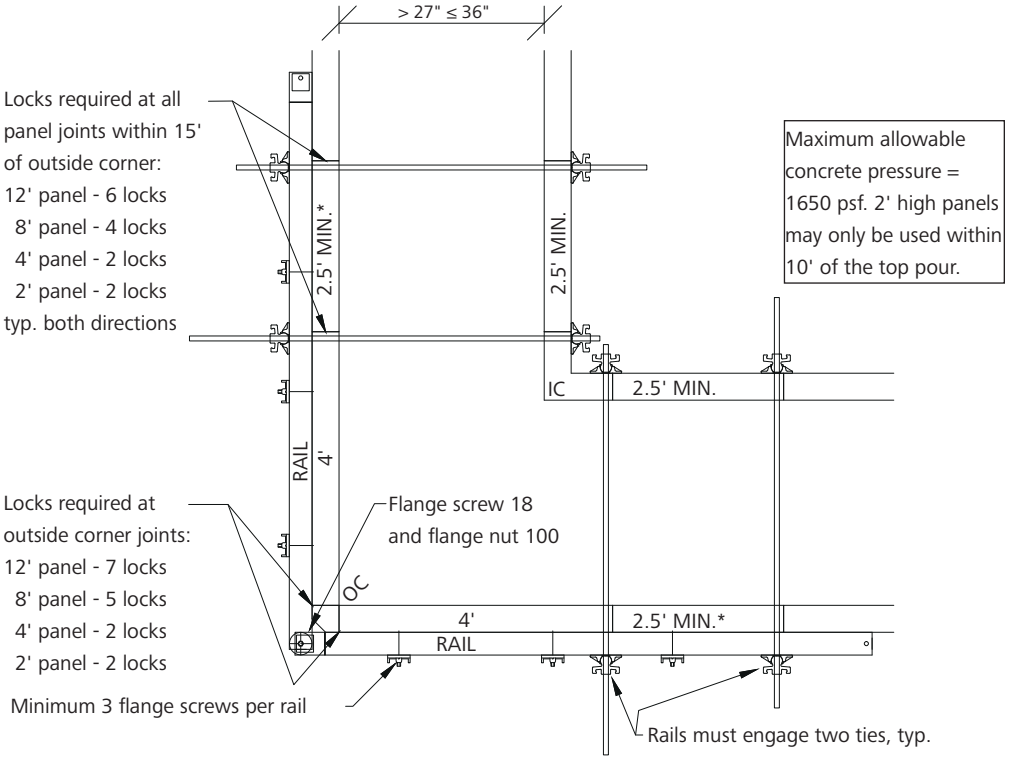


Fig. 20.1 Walls > 27" but ≤ 36" thick

Outside Corners Without Reinforcing Rails

When it is not possible or practical to install corner reinforcing rails for walls over 9" thick, configurations with locks only are possible at lower concrete pressures (Fig. 20.2).

Outside Corners with Locks Only (No Rail Reinforcing)

Wall-Thickness	Maximum Allowable Concrete Pressure	Distance from Outside Corner for Additional Locks on Panel Joints
≤ 15"	1900 psf	7'
≤ 21"	1500 psf	9'
≤ 27"	1250 psf	12'
≤ 33"	1050 psf	14'
≤ 36"	950 psf	15'

Fig. 20.2a

Description	Ref.-No.
I-inside corners	
12'x1'	**23-306-80**
8'x1'	**23-306-85**
4'x1'	**23-306-90**
2'x1'	**23-306-95**
I-outside corners	
12'	**23-306-00**
8'	**23-306-10**
4'	**22-306-20**
2'	**23-306-25**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Panel Height	Required Number of Locks at Outside Corner Joints	Required Number of Locks at Panel Joints (for Distance from Outside Corner in **Fig. 20.2a**) for Walls ≤ 21" Thick	Required Number of Locks at Panel Joints (for Distance from Outside Corner in **Fig. 20.2a**) for Walls > 21" and ≤ 36" Thick
12'	9 locks	5 locks	6 locks
8'	5 locks	3 locks	4 locks
4'	3 locks	2 locks	2 locks
2'	2 locks	2 locks	2 locks

Fig. 20.2b

90° Corners

Multi-Purpose Panels
A multi-purpose panel (MPP) can be used to form a 90° outside corner by connecting a standard panel with column clamps. The column clamp is secured with a flange nut 100 or an articulated flange nut 15/120. This creates a tight, rigid connection. The MPP accommodates wall thickness changes in 2" increments. Thickness changes in 1" increments can be achieved using a 1" filler.

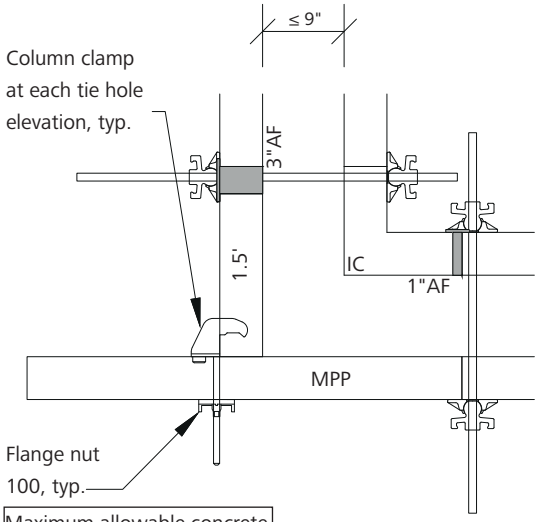
The maximum allowable concrete pressure and lock requirements for panel joints adjacent to the outside corner depend on the wall thickness.

For wall thicknesses ≤ 9", the maximum allowable concrete pressure is 2025 psf, and no additional locks are required at the panel joints adjacent to the corner (Fig. 21.1).

For wall thicknesses > 9", the maximum allowable concrete pressure must be reduced (Fig. 21.2 - 21.4). Additional locks are also required at the panel joints adjacent to the corner as shown in Fig 21.2.

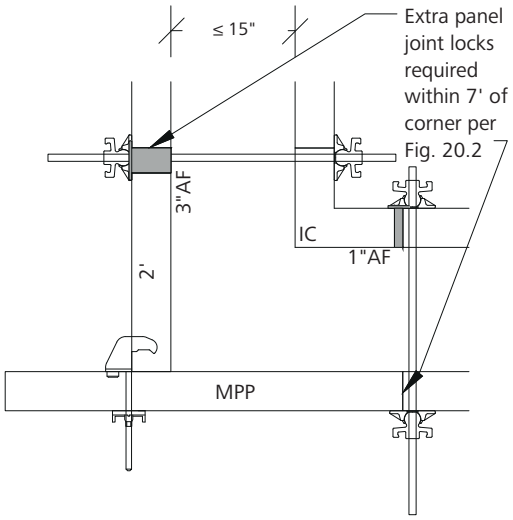
At the maximum wall thickness of 26", the indexing stud of the column clamp will be installed in the last tie hole of the multi-adjustment profile (Fig 21.5).

Description	Ref.-No.
I-inside corners	
12'x1'	**23-306-80**
8'x1'	**23-306-85**
4'x1'	**23-306-90**
2'x1'	**23-306-95**
I-multi-purpose panels	
12'x4'	**23-300-25**
8'x4'	**23-302-25**
4'x4'	**22-304-25**
2'x4'	**22-305-25**
I-column clamp	**23-311-00**
Flange nut 100	**29-900-20**



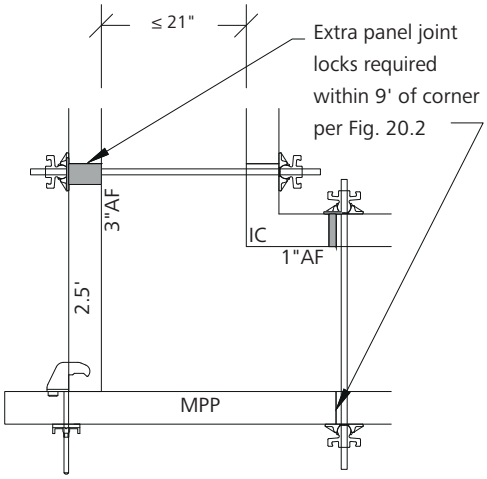
Maximum allowable concrete pressure = 2025 psf.

Fig. 21.1 Walls up to 9" thick



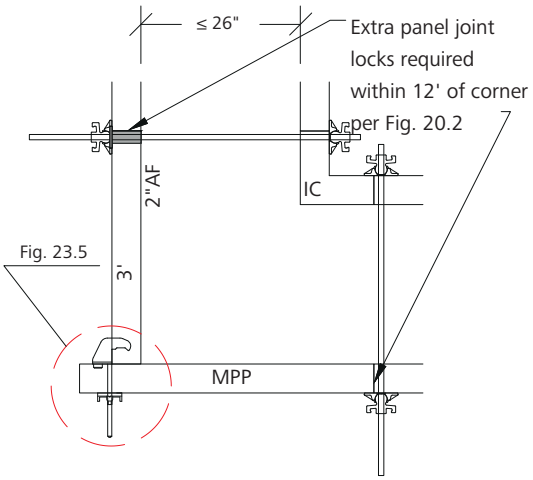
Maximum allowable concrete pressure = 1800 psf.

Fig. 21.2 Walls up to 15" thick



Maximum allowable concrete pressure = 1400 psf.

Fig. 21.3 Walls up to 21" thick



Maximum allowable concrete pressure = 1200 psf.

Fig. 21.4 Walls up to 26" thick

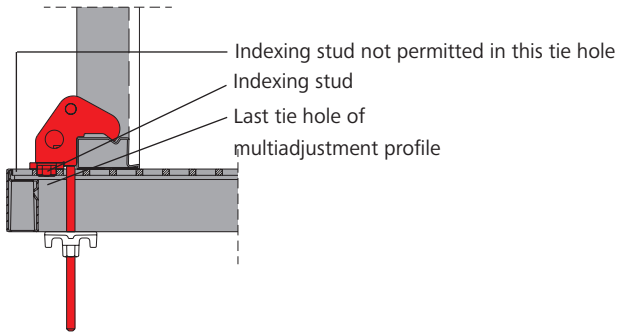


Fig. 21.5 Detail

Articulated Corners

Acute and obtuse angled corners are formed using Imperial articulated inside and outside corners. Steel rails are attached to the multi-function profile with flange screws at each tie hole elevation (Fig. 22.1 & 22.2). The rails at the outside corner must be attached to the panels with at least two flange screws each, one in the panel next to the AOC and one in the adjacent panel. These rails must also be bolted together at their intersection with a flange screw 18 and flange nut 100. Flange screws shall be tightened by turning with a hammer claw or bar until snug, followed by a few hammer blows.

If wood fillers are needed, the panel profiles are connected using Uni-assembly locks.

Side length of articulated outside corner (AOC): 5”

Side length of articulated inside corner (AIC): 1’

Adjustment range:
70° to 220°
(Fig. 22.1 - 22.3).

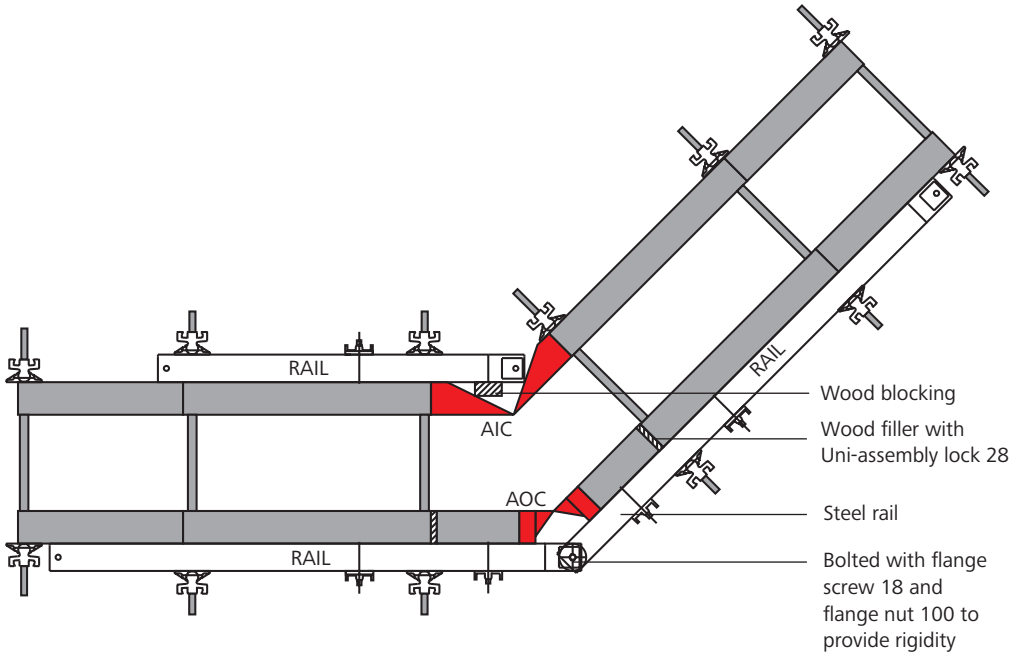


Fig. 22.1

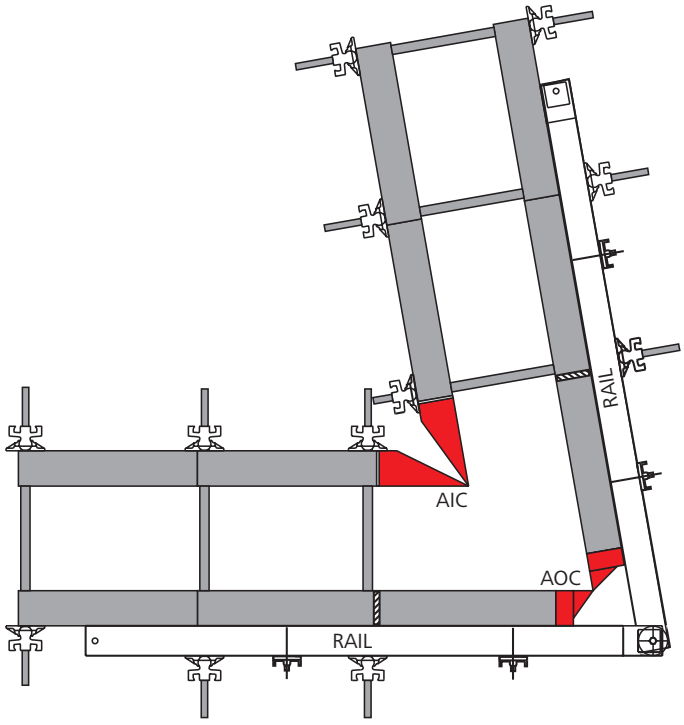


Fig. 22.2

Description	Ref.-No.
I-articulated inside corners	
12’x1'	**23-307-50**
8’x1'	**23-307-60**
4’x1'	**23-307-70**
I-articulated outside corners	
12’x5"	**23-307-00**
8’x5"	**23-307-10**
4’x5"	**23-307-20**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Note:
See the "90° Corners" section for lock requirements at outside corners

Articulated Corners

If the inside angle is >100°, steel rails and wood blocking have to be used on the inside (Fig. 23.1).
To determine the fill distance (y) between the Imperial articulated outside corner and the first panel where a tie can be used, see the tables on pages 23 and 24.

Form the fill distance with the widest Imperial panel possible and a wood filler ≤ 6" wide (if needed). Always locate wood fillers next to a tied Imperial panel.

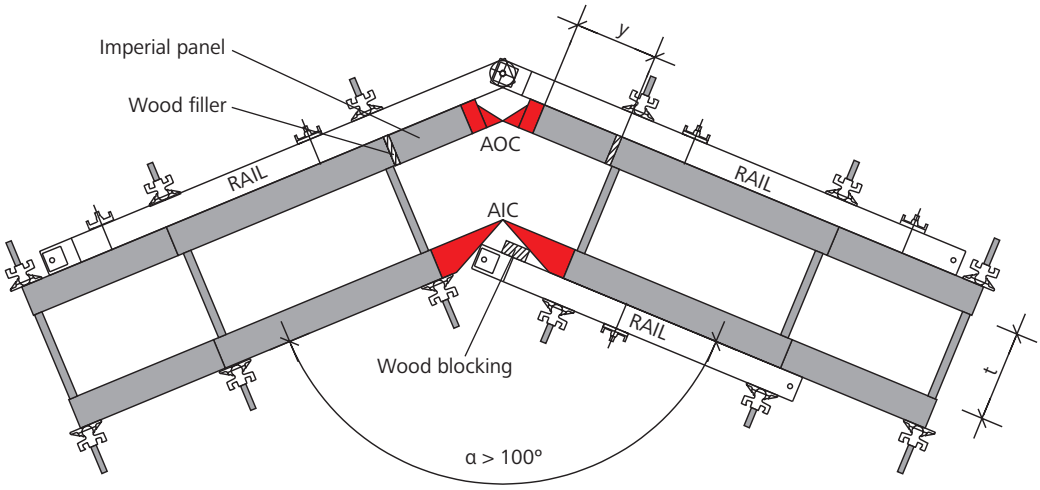


Fig. 23.1

Note:
See the "90° Corners" section for lock requirements at outside corners

Fill Distance, y (inches) for 8" - 15" Wall Thicknesses								
Angle, α	Wall Thickness, t (inches)							
(degrees)	8	9	10	11	12	13	14	15
70	18.4	19.9	21.3	22.7	24.1	25.6	27.0	28.4
75	17.4	18.7	20.0	21.3	22.6	23.9	25.2	26.5
80	16.5	17.7	18.9	20.1	21.3	22.5	23.7	24.9
85	15.7	16.8	17.9	19.0	20.1	21.2	22.3	23.4
90	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
95	14.3	15.2	16.2	17.1	18.0	18.9	19.8	20.7
100	13.7	14.6	15.4	16.2	17.1	17.9	18.7	19.6
105	13.1	13.9	14.7	15.4	16.2	17.0	17.7	18.5
110	12.6	13.3	14.0	14.7	15.4	16.1	16.8	17.5
115	12.1	12.7	13.4	14.0	14.6	15.3	15.9	16.6
120	11.6	12.2	12.8	13.4	13.9	14.5	15.1	15.7
125	11.2	11.7	12.2	12.7	13.2	13.8	14.3	14.8
130	10.7	11.2	11.7	12.1	12.6	13.1	13.5	14.0
135	10.3	10.7	11.1	11.6	12.0	12.4	12.8	13.2
140	9.9	10.3	10.6	11.0	11.4	11.7	12.1	12.5
145	9.5	9.8	10.2	10.5	10.8	11.1	11.4	11.7
150	9.1	9.4	9.7	9.9	10.2	10.5	10.8	11.0
155	8.8	9.0	9.2	9.4	9.7	9.9	10.1	10.3
160	8.4	8.6	8.8	8.9	9.1	9.3	9.5	9.6
165	8.1	8.2	8.3	8.4	8.6	8.7	8.8	9.0
170	7.7	7.8	7.9	8.0	8.0	8.1	8.2	8.3
175	7.3	7.4	7.4	7.5	7.5	7.6	7.6	7.7
180	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Tab. 23.2

Description	Ref.-No.
I-articulated inside corners	
12'x1'	**23-307-50**
8'x1'	**23-307-60**
4'x1'	**23-307-70**
I-articulated outside corners	
12'x5"	**23-307-00**
8'x5"	**23-307-10**
4'x5"	**23-307-20**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Articulated Corners

If the inside angle is ≤ 100°, steel rails and wood blocking are not required on the inside (Fig. 24.1).
To determine the fill distance (y) between the Imperial articulated outside corner and the first panel where a tie can be used, see the tables on pages 23 and 24.

Form the fill distance with the widest Imperial panel possible and a wood filler ≤ 6" wide (if needed). Always locate wood fillers next to a tied Imperial panel.

Note:
See the "90° Corners" section for lock requirements at outside corners

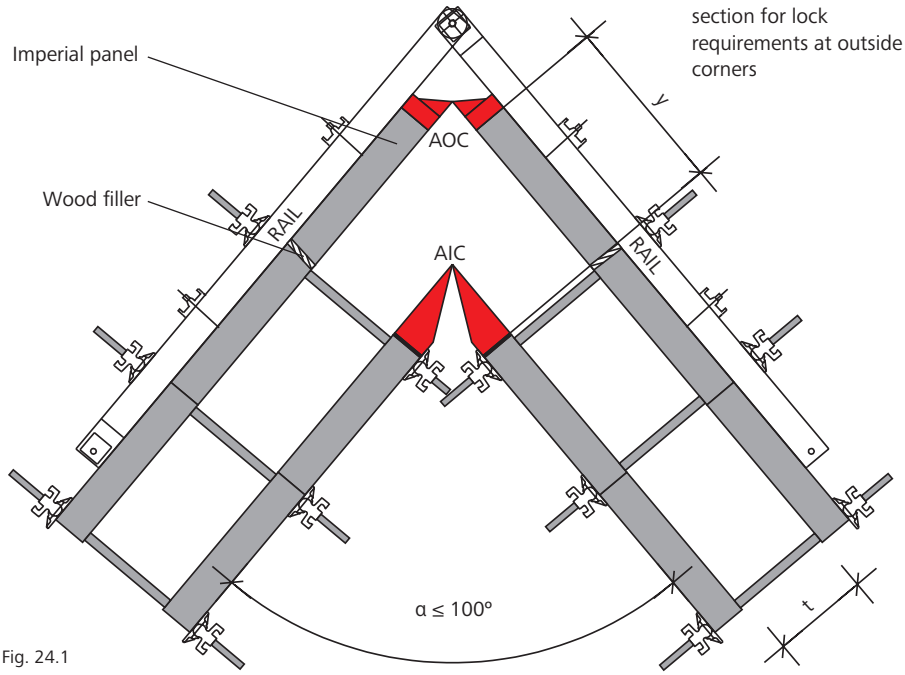


Fig. 24.1

Fill Distance, y (inches) for 16" - 24" Wall Thicknesses									
Angle, α	Wall Thickness, t (inches)								
(degrees)	16	17	18	19	20	21	22	23	24
70	29.9	31.3	32.7	34.1	35.6	37.0	38.4	39.8	41.3
75	27.9	29.2	30.5	31.8	33.1	34.4	35.7	37.0	38.3
80	26.1	27.3	28.5	29.6	30.8	32.0	33.2	34.4	35.6
85	24.5	25.6	26.6	27.7	28.8	29.9	31.0	32.1	33.2
90	23.0	24.0	25.0	26.0	27.0	28.0	29.0	30.0	31.0
95	21.7	22.6	23.5	24.4	25.3	26.2	27.2	28.1	29.0
100	20.4	21.3	22.1	22.9	23.8	24.6	25.5	26.3	27.1
105	19.3	20.0	20.8	21.6	22.3	23.1	23.9	24.6	25.4
110	18.2	18.9	19.6	20.3	21.0	21.7	22.4	23.1	23.8
115	17.2	17.8	18.5	19.1	19.7	20.4	21.0	21.7	22.3
120	16.2	16.8	17.4	18.0	18.5	19.1	19.7	20.3	20.9
125	15.3	15.8	16.4	16.9	17.4	17.9	18.5	19.0	19.5
130	14.5	14.9	15.4	15.9	16.3	16.8	17.3	17.7	18.2
135	13.6	14.0	14.5	14.9	15.3	15.7	16.1	16.5	16.9
140	12.8	13.2	13.6	13.9	14.3	14.6	15.0	15.4	15.7
145	12.0	12.4	12.7	13.0	13.3	13.6	13.9	14.3	14.6
150	11.3	11.6	11.8	12.1	12.4	12.6	12.9	13.2	13.4
155	10.5	10.8	11.0	11.2	11.4	11.7	11.9	12.1	12.3
160	9.8	10.0	10.2	10.4	10.5	10.7	10.9	11.1	11.2
165	9.1	9.2	9.4	9.5	9.6	9.8	9.9	10.0	10.2
170	8.4	8.5	8.6	8.7	8.7	8.8	8.9	9.0	9.1
175	7.7	7.7	7.8	7.8	7.9	7.9	8.0	8.0	8.0
180	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

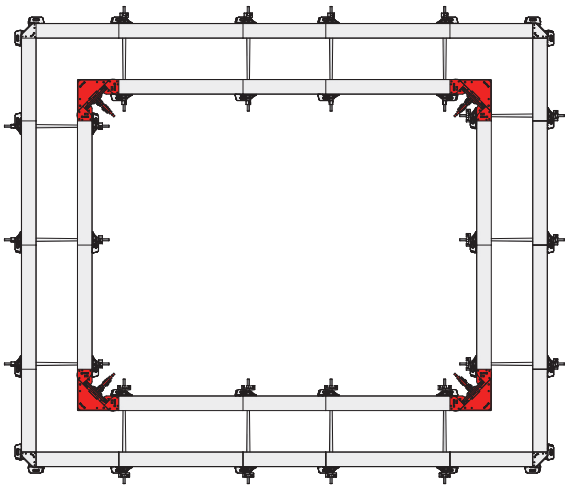
Tab. 24.2

Description	Ref.-No.
I-articulated inside corners	
12'x1'	**23-307-50**
8'x1'	**23-307-60**
4'x1'	**23-307-70**
I-articulated outside corners	
12'x5"	**23-307-00**
8'x5"	**23-307-10**
4'x5"	**23-307-20**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Stripping Corners

Stripping corners are designed specifically for use when forming shafts (Fig. 25.1 - 25.3), stairwell cores and in confined working conditions.
The corner is designed to allow the corner to retract inward for stripping, while still keeping the can intact so that no disassembly or re-assembly of the inner formwork between floors is required (Fig. 25.3).
The corner is designed in three pieces to permit inward movement when the lever is pushed upwards. This contraction allows for the bond between the formwork facing and the concrete to be broken more easily than with traditional core forming.
After stripping and cycling is complete, the corner can be reset with a few simple steps and the formwork is ready for the next pour (for details please see next pages).
Be sure to tape all seams on each corner and plug all unused tie holes prior to oiling the face to keep concrete from filling the inner channel.

Please note:
When lifting, care should be taken not to overload the crane hooks!



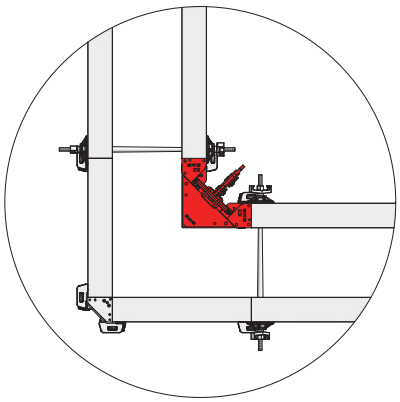
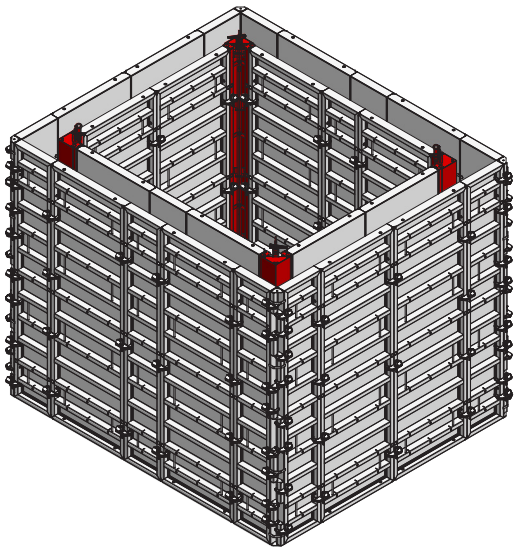


Fig. 25.1



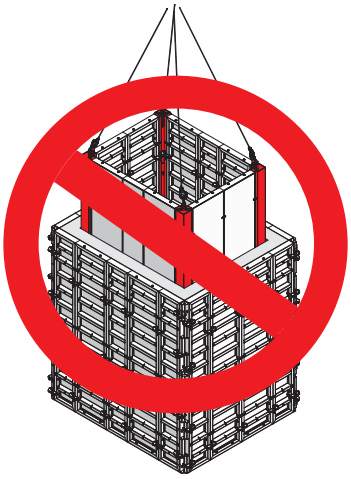


Fig. 25.2

Attention:
Lifting eyes on Stripping corners are not designed to be used when lifting large formwork assemblies and platforms. They are included for handling of stripping corners only, or assemblies weighing less than 4400 lbs, shared equally between 4 lifting eyes. When formwork is used in conjunction with flipper platforms, lifting is done using the high capacity lifting points provided on the flipper platform.

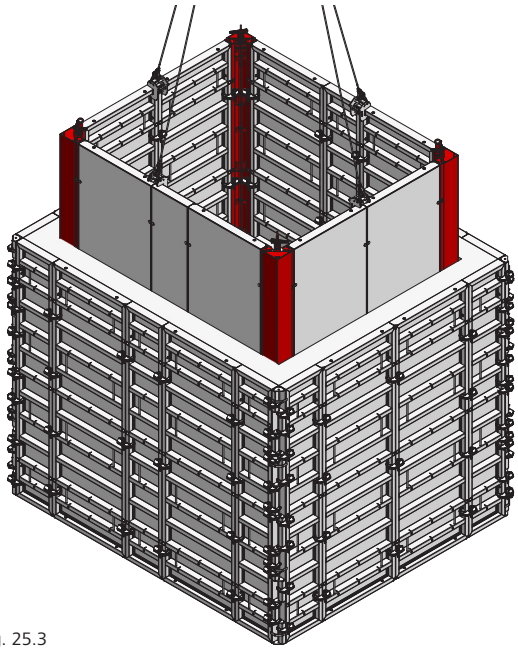


Fig. 25.3

Description	Ref.-No.
I-stripping corners	
12'x1'	**23-309-30**
8'x1'	**23-309-40**
4'x1'	**23-309-45**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Stripping Corners - Lever Tool

Stripping the corner:

To strip the corners, remove the wedge from the top corner (Fig. 26.1 and 22.2).

Apply the lever tool to the top of the corner and place the pin of the tool into the corner plate.
With the pin attached to the plate, push up the bar to slide the mechanism up the corner so that it pulls the corners' side profiles inward (Fig. 26.3, and 22.4).

Once the inner mechanism of the corner is pulled all the way to the top, the stripping corner is retracted and is in its stripped position (Fig. 26.5).

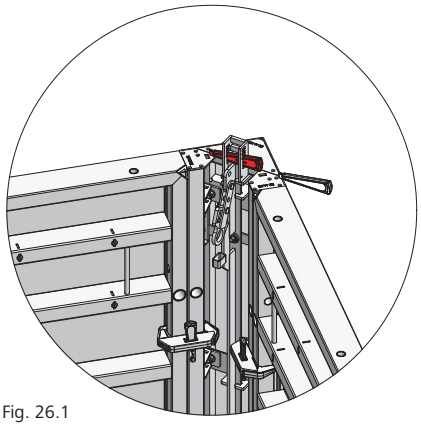


Fig. 26.1

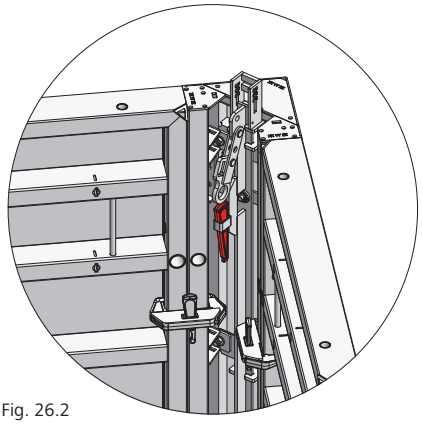


Fig. 26.2

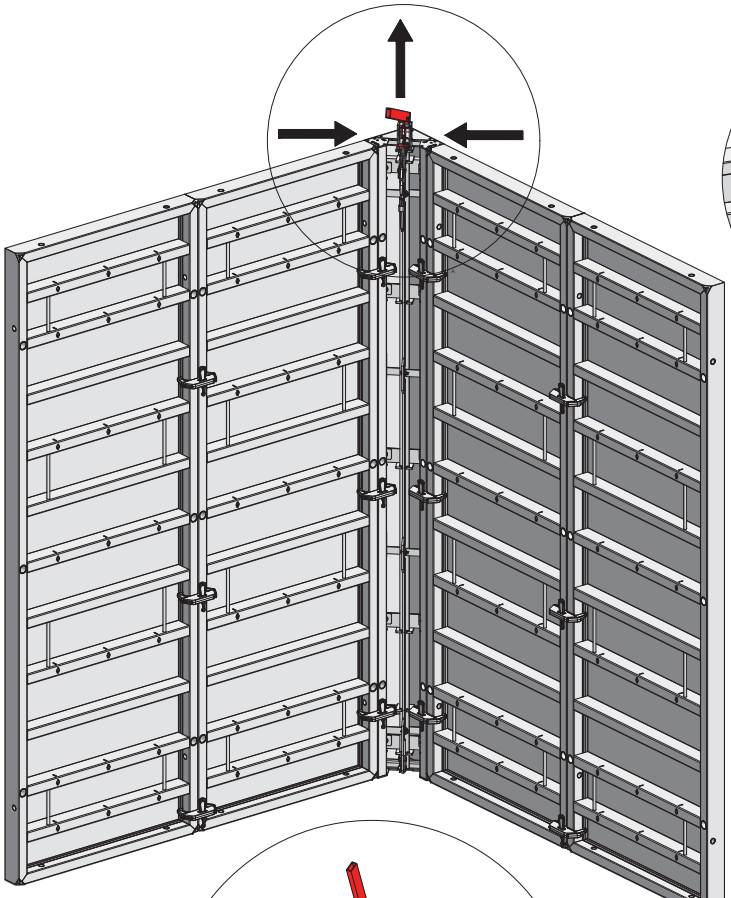


Fig. 26.3

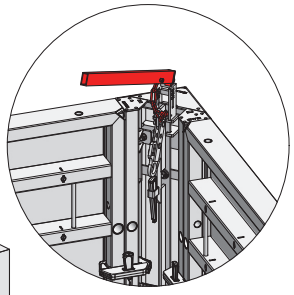


Fig. 26.4

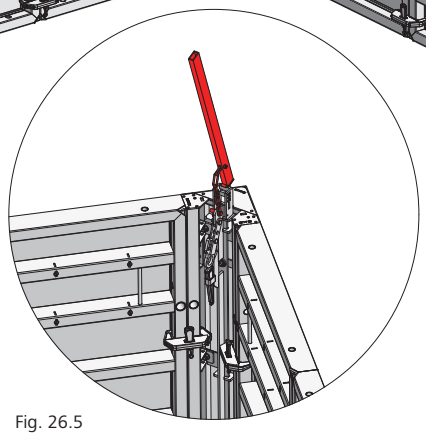


Fig. 26.5

Description	Ref.-No.
I-stripping corners	
12'x1'	**23-309-30**
8'x1'	**23-309-40**
4'x1'	**23-309-45**
Stripping corner lever tool	**2-500-2250980**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Stripping Corners - Lever Tool

Resetting the corner:

Remove the pin to the connecting plate that is at the bottom of the corner.

Place the pin to the lever tool in the plate of the corner (Fig. 27.1).

Push the bar down and away from the corner to slide the inner mechanism down, so that it pushes the corners' side profiles outward (Fig. 27.2).

Once the inner mechanism is pushed all the way down, the corner is reset to the expanded pouring position.

The wedge can be driven in at the top of the stripping corner with a few hammer blows for assistence in resetting the corner to expanded position.

Be sure to replace the wedge at the top of the corner to lock the corner into position (Fig. 27.3).

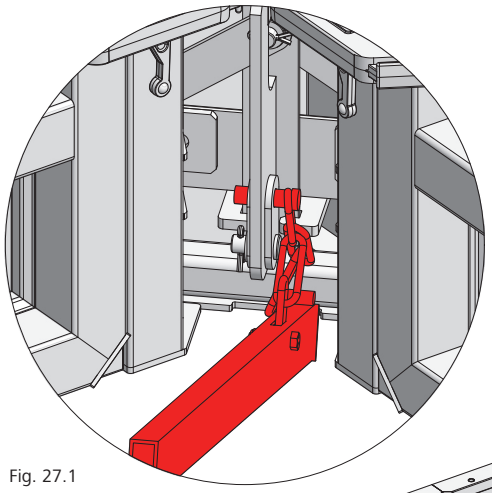


Fig. 27.1

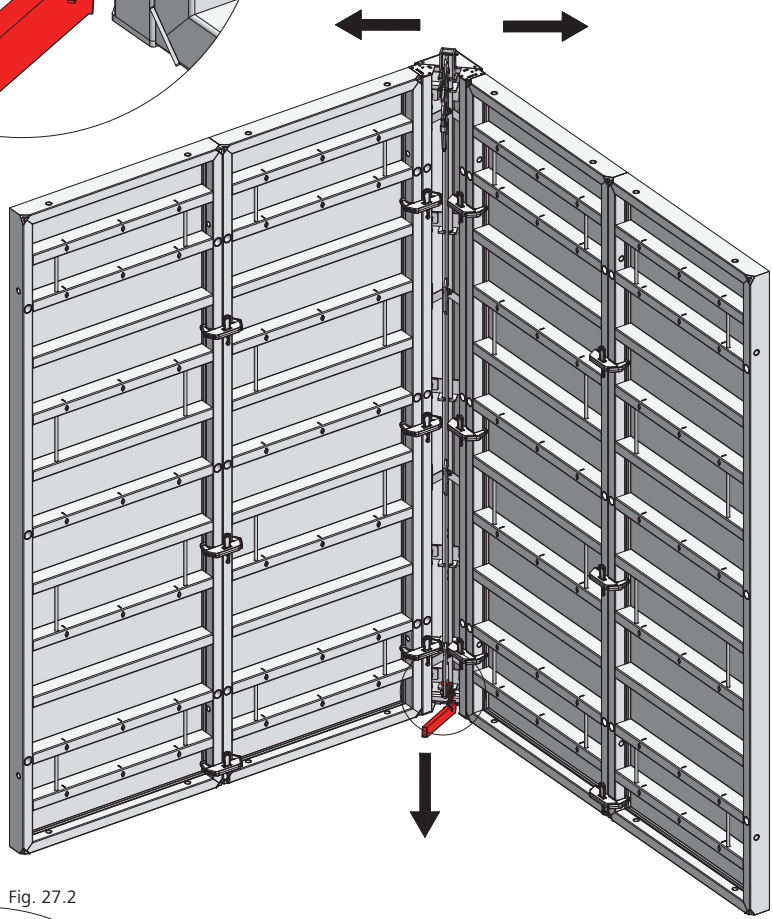


Fig. 27.2

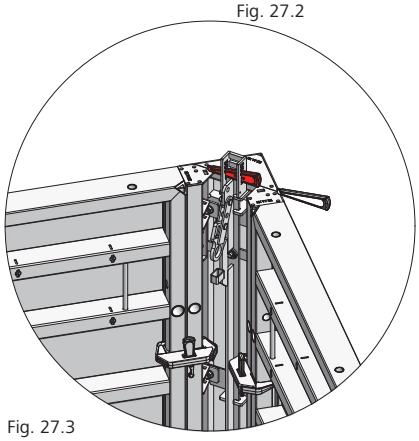


Fig. 27.3

Description	Ref.-No.
I-stripping corners	
12'x1'	**23-309-30**
8'x1'	**23-309-40**
4'x1'	**23-309-45**
Stripping corner lever tool	**2-500-2250980**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Stripping Corners - Retract and Reset Tool

Stripping Corner - Retract and Reset Tool

The retract and reset tool (Fig. 28.1) is used to easily activate the stripping corner from above with an impact wrench, a ratchet or a wrench.
The retract and reset tool has a hexagonal nut that is operated with tools with a width across flats of 36 mm (1 17/16").

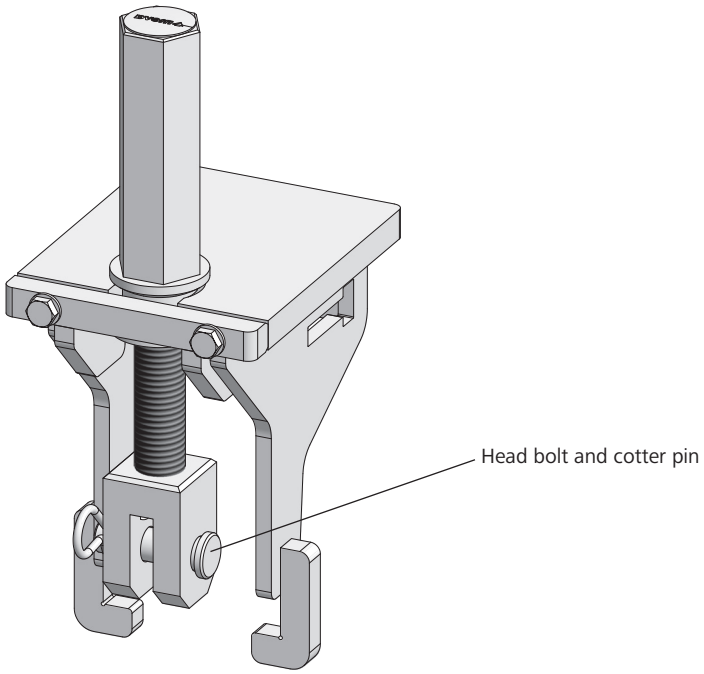


Fig. 28.1

Assembly

Temporarily remove wedge from top of stripping corner, then place the retract and reset tool onto the connecting device at the top of the stripping corner.

Connect the retract and reset tool to the stripping corner with the head bolt and cotter pin that are both integrated into the tensioning screw of the retract and reset tool (Fig. 28.2).

Lock the retract and reset tool to the stripping corner by driving the stripping corner's wedge with a few hammer blows into the opening of the retract and reset tool (Fig. 28.2).

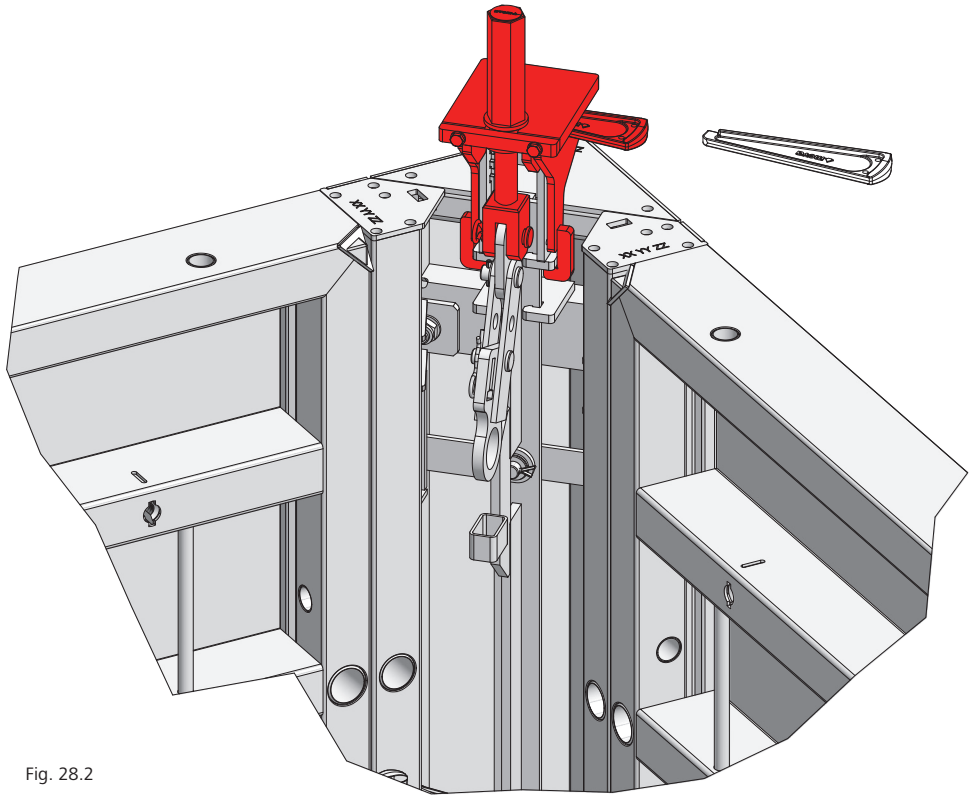


Fig. 28.2

Description	Ref.-No.
I-stripping corners	
12'x1'	**23-309-30**
8'x1'	**23-309-40**
4'x1'	**23-309-45**
Stripping corner retract and reset tool	**29-306-32**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Stripping Corners - Retract and Reset Tool

Stripping:

Turning the hexagonal nut with an impact wrench (Fig. 29.1), a ratchet (Fig. 29.2) or a wrench moves the stripping mechanism upwards.

This activates the stripping corner and separates the shaft formwork from the concrete walls (Fig. 29.3 and Fig. 29.4).

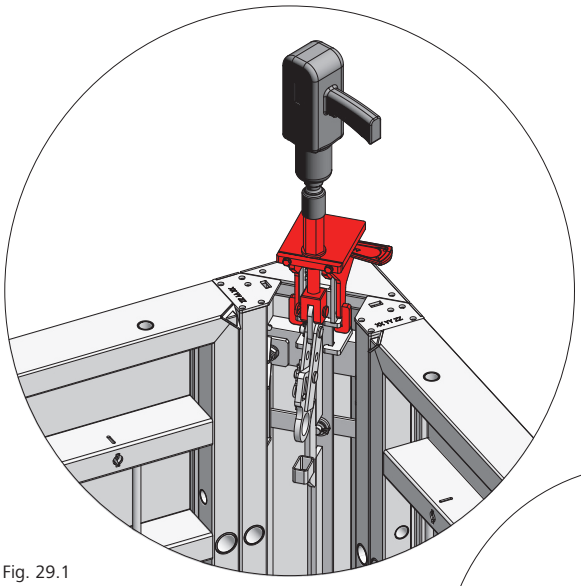


Fig. 29.1

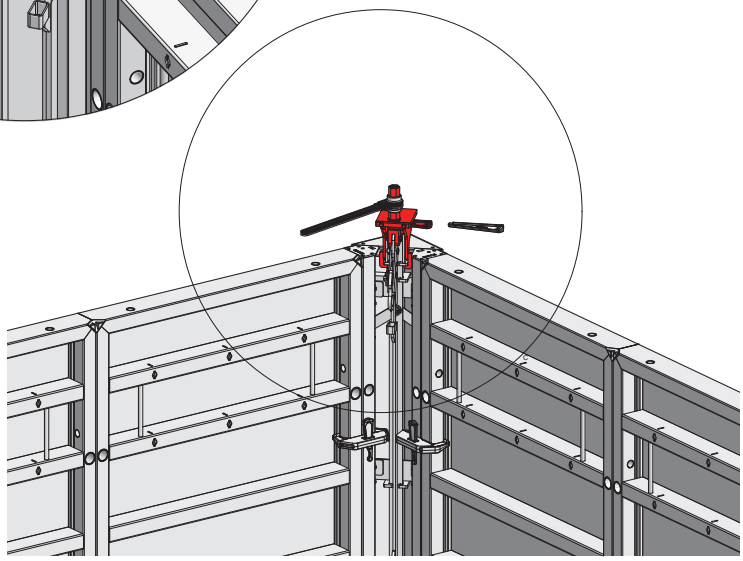


Fig. 29.2

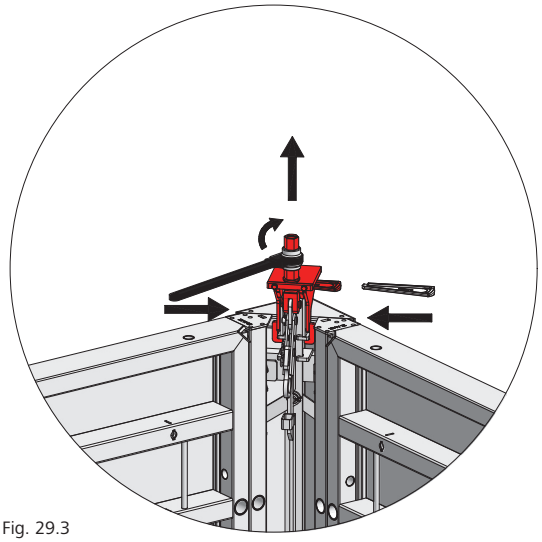


Fig. 29.3

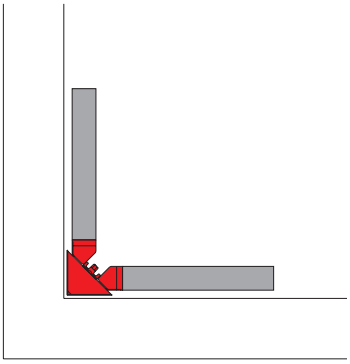


Fig. 29.4 Retracted (stripping) position

Description	Ref.-No.
I-stripping corners	
12'x1'	**23-309-30**
8'x1'	**23-309-40**
4'x1'	**23-309-45**
Stripping corner retract and reset tool	**29-306-32**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Stripping Corners - Retract and Reset Tool

Re-setting:

To reset the corner again, just push the stripping mechanism downwards by using the same tools (Fig. 30.1 - Fig. 30.4).

Once the inner channel is pushed all the way down, the corner is reset into place.
Remove the tool and reinstall the wedge.

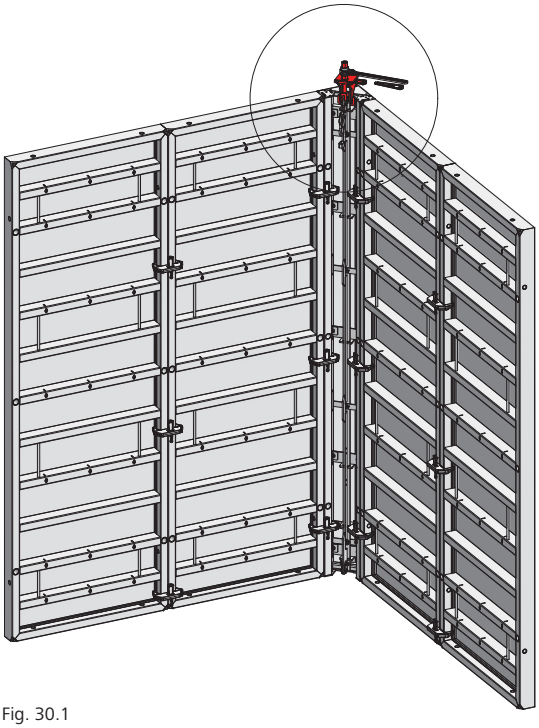


Fig. 30.1

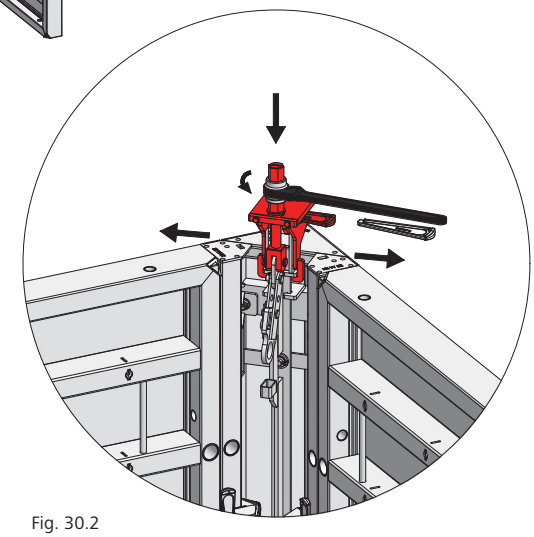


Fig. 30.2

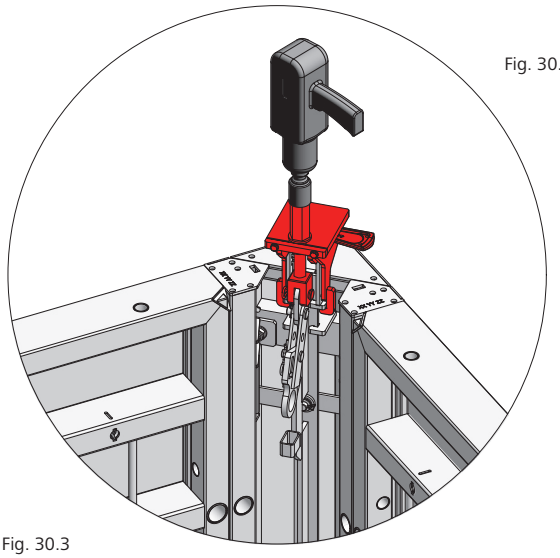


Fig. 30.3

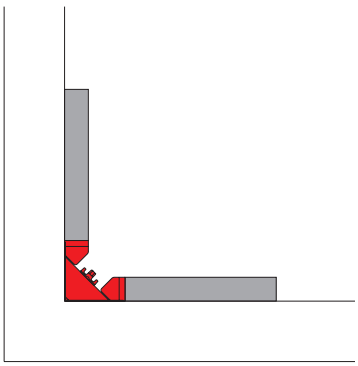


Fig. 30.4 Expanded (reset/pouring) position

Description	Ref.-No.
I-stripping corners	
12'x1'	**23-309-30**
8'x1'	**23-309-40**
4'x1'	**23-309-45**
Stripping corner retract and reset tool	**29-306-32**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Stripping Corners

Stacking/Connecting stripping corners:

To stack corners, make sure that you have a level surface and both corners are in the expanded (ready to pour) position.
Slide the top of one corner under the mechanism of the other corner.
Once both mechanisms are lined up, the corners can be connected with the connecting plate and head bolt with cotter pin (Fig. 31.1).
Then attach the corners to the intended formwork gang using the provided formwork locks (clamps) to keep the corners from separating.

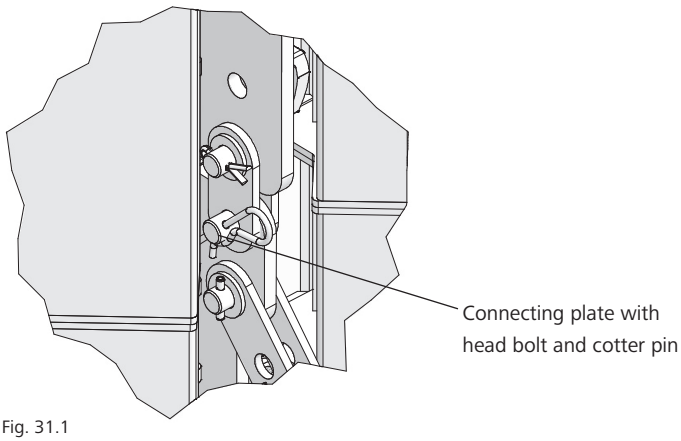


Fig. 31.1

The Imperial stripping corner can also be used for stripping of panels between corners inside a structure. In this case, the stripping corner is used to reduce the compression between the panels, so they can easily be removed from the poured wall between the corners.

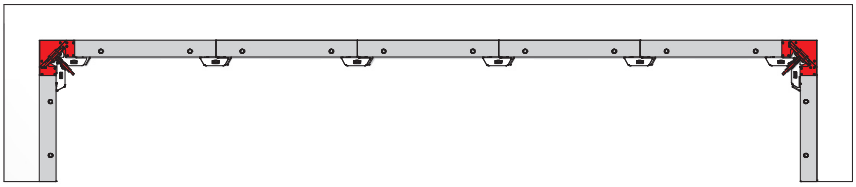


Fig. 31.2

Steps:
1. Remove the assembly locks connecting the stripping corners to the panels (Fig. 31.2).

2. Activate the Imperial stripping corner (Fig. 31.3).

3. Lift the stripping corners off, then strip the panels (Fig. 31.4).

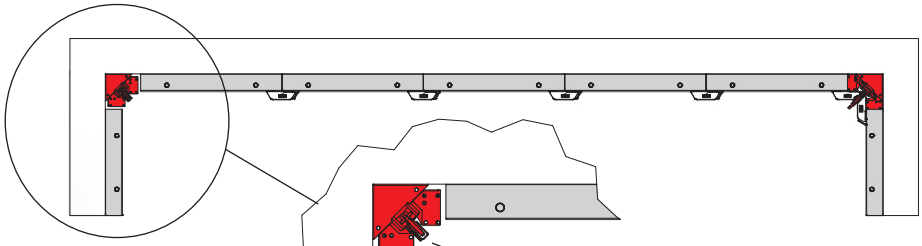


Fig. 31.3

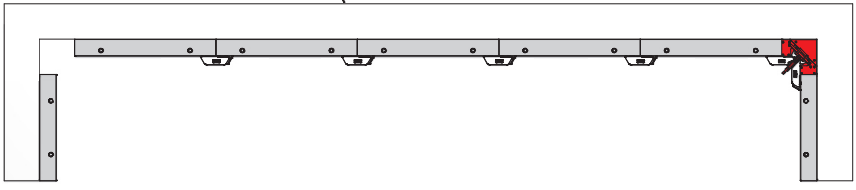


Fig. 31.4

Columns

Columns with Multi-Purpose-Panels:

Multi-purpose panels can be used to form columns of varying sizes up to 38" in 2" increments (Fig. 32.1 and 32.2).
A column clamp is installed at each multi-adjustment profile and secured with a flange nut 100. To form columns with odd dimensions the column form should be furred out on the inside.
At the maximum column size the indexing stud on the column clamp will be installed in the last tie hole of the multi-adjustment profile (Fig. 32.3).

The maximum allowable concrete pressure is 2025 psf for column sizes ≤ 21" (with rectangular columns the longer side controls). For column sizes > 21", the maximum allowable concrete pressure must be reduced - see Fig. 32.4.

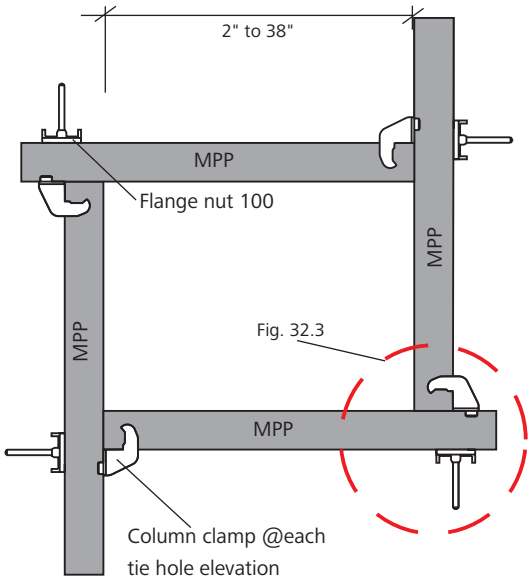


Fig. 32.1

Fig. 32.2

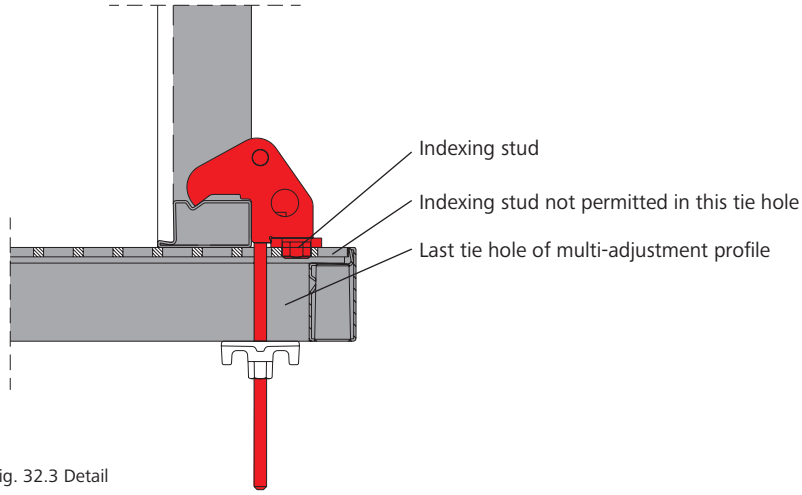


Fig. 32.3 Detail

Columns With Multi-Purpose Panels	
Column Size	Maximum Allowable Concrete Pressure
≤ 24"	1800 psf
≤ 27"	1600 psf
≤ 30"	1400 psf
≤ 36"	1200 psf
≤ 38"	1100 psf

Fig. 32.4

Description	Ref.-No.
I-multi-purpose panels	
12'x4'	**23-300-25**
8'x4'	**23-302-25**
4'x4'	**22-304-25**
2'x4'	**22-305-25**
I-column clamp	**23-311-00**
Flange nut 100	**29-900-20**

Columns

Columns with Standard Panels and Outside Corners:

Columns can also be formed using standard panels and outside corners. To form columns with sizes in between the Imperial panel widths, the next largest panel size is used and the forms are furred out on the inside. Columns can only be formed with panels oriented vertically (panel cross members horizontal).

The outside corner connections require more assembly locks than standard panel connections. The connection requirements and maximum allowable concrete pressure depend on the column size (with rectangular columns the longer side controls) - see Fig. 33.1 - 33.2.
An example elevation with 12' high panels & corners for columns > 18" is shown in Fig. 33.3.

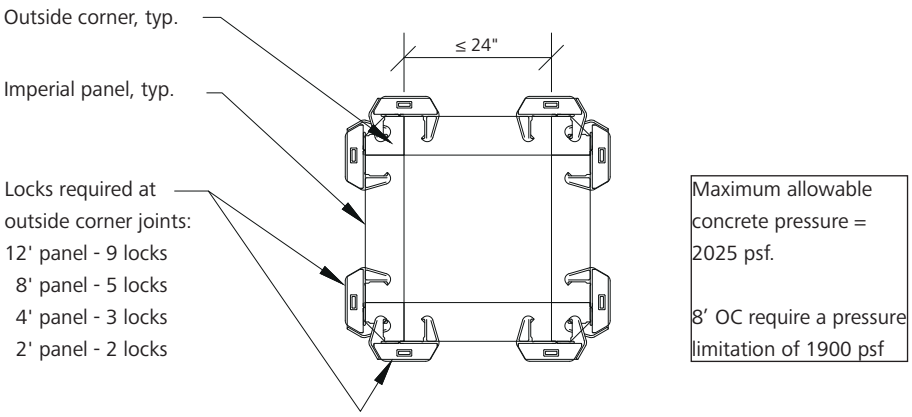


Fig. 33.1 Column sizes up to 24"

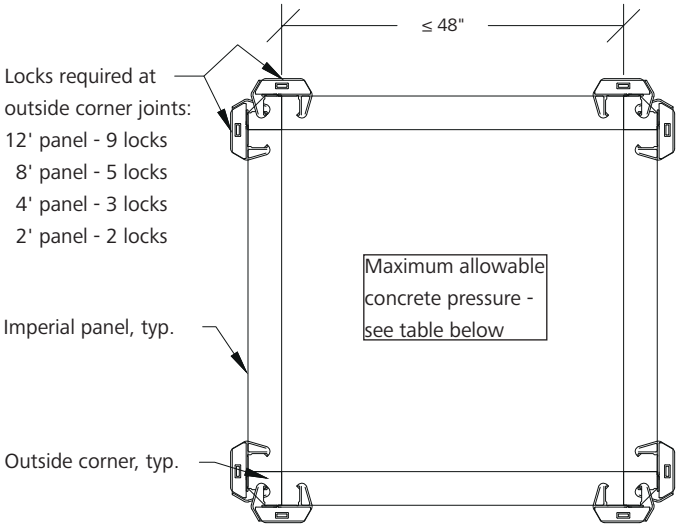


Fig. 33.2 Column sizes up to 48"

Columns With Standard Panels and Outside Corners	
Column Size	Maximum Allowable Concrete Pressure
≤ 24"	2025 (1900)* psf
≤ 30"	1800 (1500)* psf
≤ 36"	1500 (1250)* psf
≤ 42"	1250 (1050)* psf
≤ 48"	1100 (950)* psf

* Pressure when using 8' outside corners

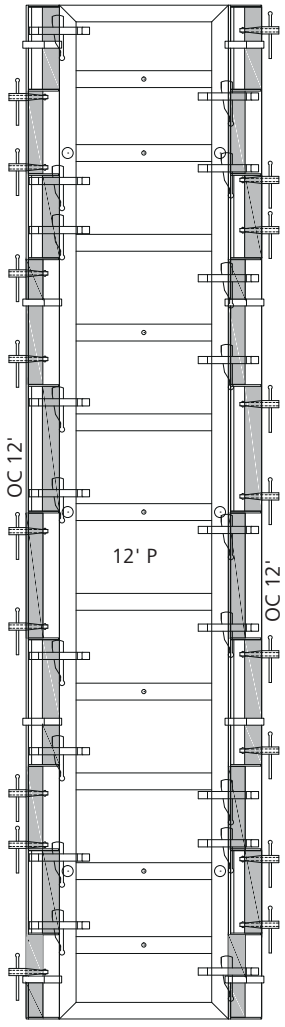


Fig. 33.3 Example 12' elevation

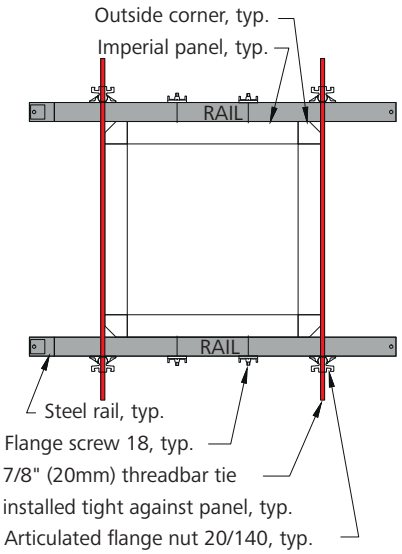
Columns

Columns with Standard Panels and Outside Corners, & Strengthening Collars

For column sizes > 18" but ≤ 48", a maximum allowable concrete pressure of 2025 psf can be achieved by using steel rails as strengthening collars. Two steel rails are attached to panels on opposite sides of the column with flange screws and connected with external threadbar ties and articulated flange nuts. Immediately above another pair of steel rails with threadbar ties are placed in the opposite direction to form a collar (Fig. 34.1).

The collars are installed at all tie hole elevations of 8' and 12' panels. Collars are not installed on 2' high and 4' high panels due to interference with lock installation on the outside corner. Panels 2' high require 2 locks at each outside corner joint and may only be used within 10' of the top of the column. Panels 4' high require 3 locks on each outside corner joint and may only be used within 7' of the top of the column.

Elevation views of 8' and 12' high panels with strengthening collars are shown in Fig. 34.2. The lock positions on the 12' high corners are adjusted to work with the collars and result in different patterns along the left and right sides of each panel. The pattern on diagonally opposed corners is the same.



NOTE:
Locks and upper rails not shown for clarity

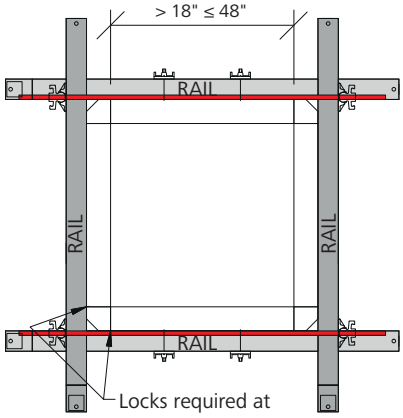
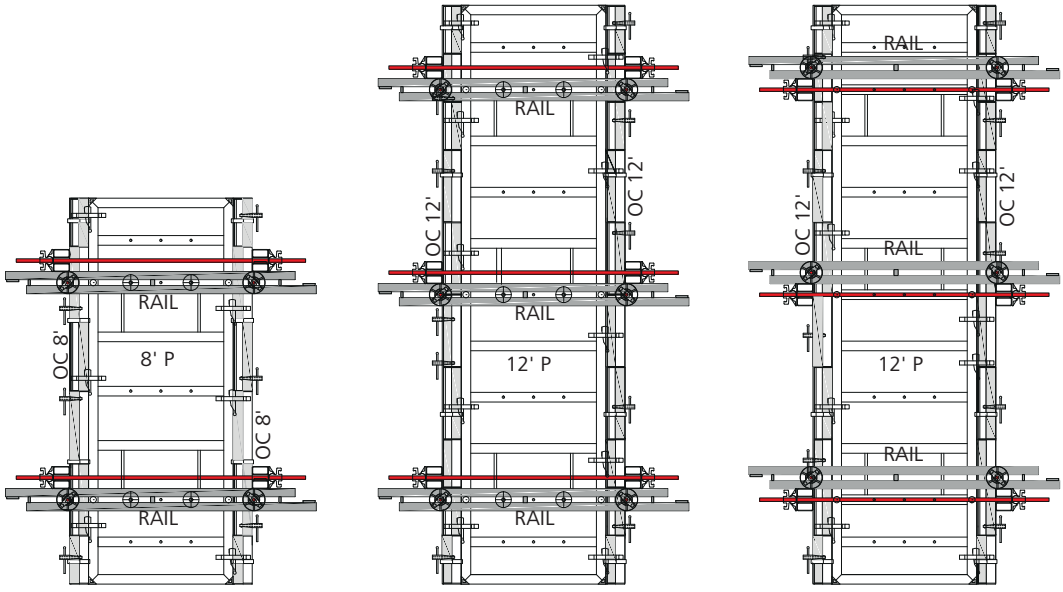


Fig. 34.1 Columns > 18" but ≤ 48" with strengthening collars - plan views



8' panel | 12' panel - front | 12' panel - side

Fig. 34.2 Columns with strengthening collars - elevation views

Fillers

Imperial Fillers
Fillers that are 1", 2", or 3" wide can be formed using single Imperial aluminum fillers without additional steel rails (Fig. 35.1).

Job-Built Fillers
Fillers up to 6" wide can be formed using 4 3/4" deep lumber. Steel rails are required at each tie hole elevation (Fig. 35.2). Uni-assembly locks are used to connect the adjacent panels with the filler in between (Fig. 35.3).

Fillers wider than 6" can be formed using 3/4" plywood with 4" deep lumber and timber profiles (Fig. 35.4 & 35.5). The timber profiles are installed around the perimeter of the job-built filler area and have routed grooves to allow connection to the Imperial panels with M-assembly locks (Fig. 35.6). The plywood is fastened to the timber profiles with nails or screws.

Fillers between 8' wide panels require ties on both sides of the filler. Refer to the remainder of this section for additional filler information and requirements.

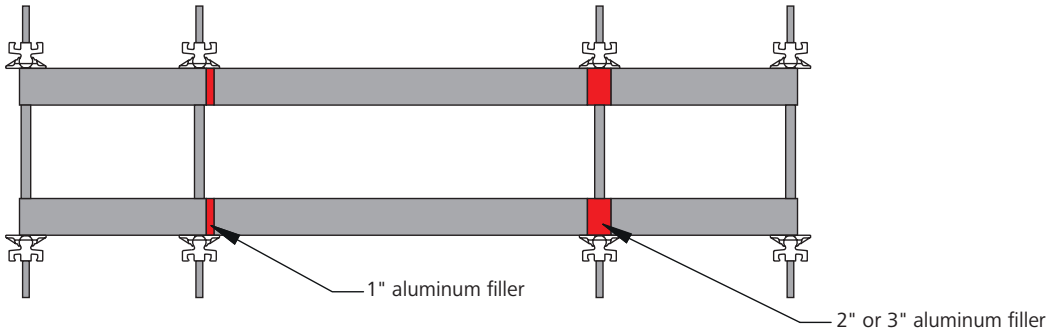


Fig. 35.1

Fig. 35.3

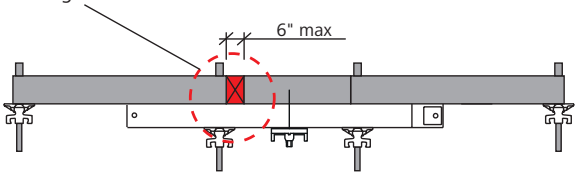


Fig. 35.2

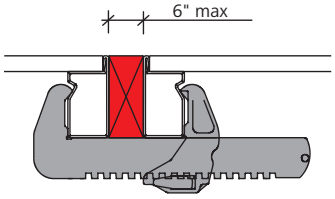


Fig. 35.3

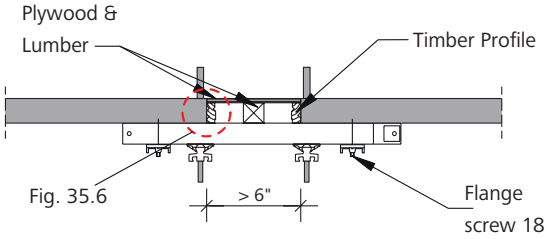
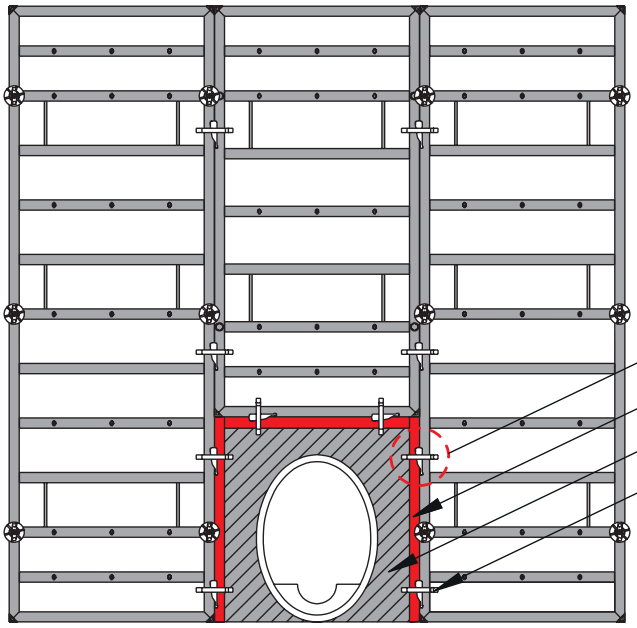


Fig. 35.4



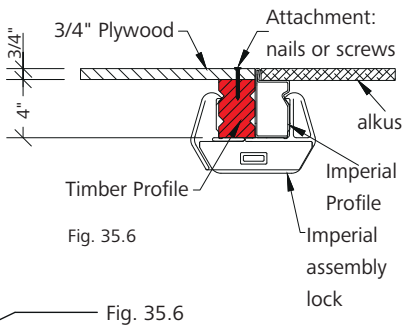


Fig. 35.6

Fig. 35.5 Simplified drawing (steel rails not shown for clarity)

Description	Ref.-No.
I-timber profiles	
8'	**2-500-2339950**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Fillers

Fillers Up to 6" Wide

Fillers up to 6" wide formed with 4 3/4" deep lumber require steel rails at each tie elevation. The rails are installed either between two ties or cantilevered over one tie to support the filler and adjacent Imperial panel. The maximum Imperial panel size that can be supported depends on the rail configuration and the filler size.

For fillers > 3" but ≤ 6" wide, the maximum Imperial panel sizes that can be supported by the rail are shown in Fig. 36.1 & 36.2.

For fillers up to 3" wide, the maximum Imperial panel sizes that can be supported by the rails are shown in Fig. 36.3 & 36.4.

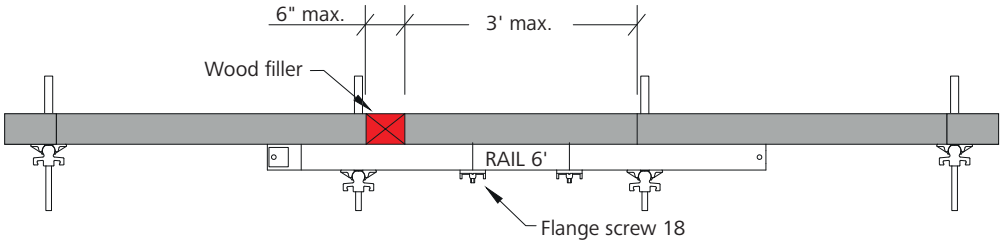


Fig. 36.1 Fillers > 3" but ≤ 6" wide, rails between two ties

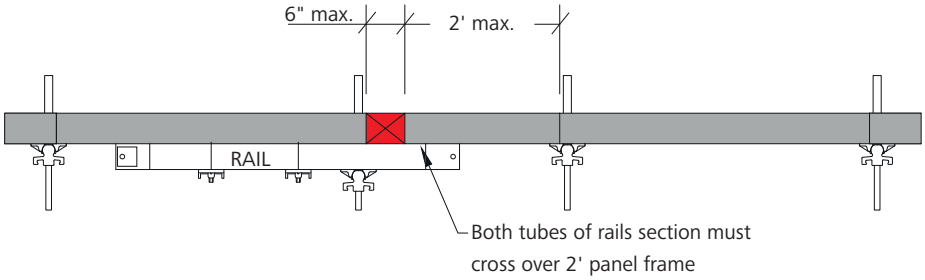


Fig. 36.2 Fillers > 3" but ≤ 6" wide, cantilevered rails

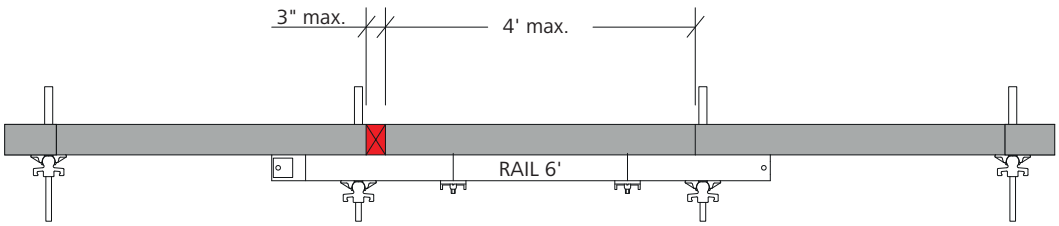


Fig. 36.3 Fillers up to 3" wide, rails between two ties

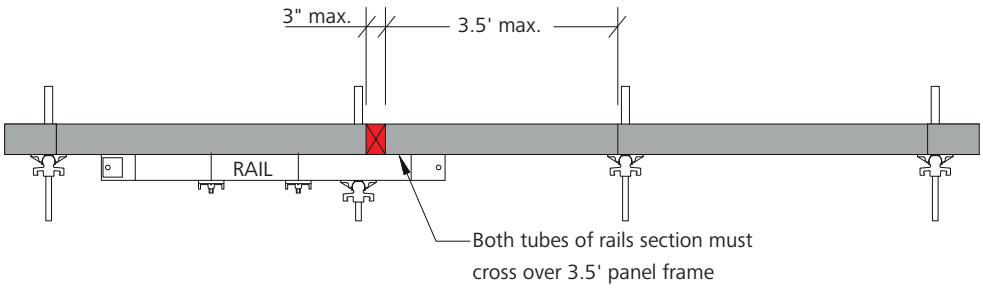


Fig. 36.4 Fillers up to 3" wide, cantilevered rails

Description	Ref.-No.
I-filler	
12'x3"	**23-312-10**
12'x2"	**23-312-15**
12'x1"	**23-312-20**
8'x3"	**23-312-40**
8'x2"	**23-312-45**
8'x1"	**23-312-50**
4'x3"	**23-312-70**
4'x2"	**23-312-75**
4'x1"	**23-312-80**
2'x3"	**23-312-85**
2'x2"	**23-312-90**
2'x1"	**23-312-95**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

Fillers

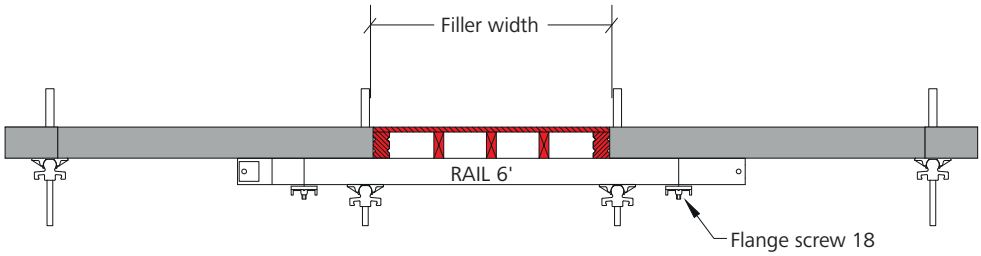
Fillers Over 6" Wide

Fillers over 6" wide require steel rails or walers at each tie hole elevation to support the filler. The maximum filler width can be determined using the tables in the following figures, and depends on the maximum lateral concrete pressure and the type of steel support.

For job-built fillers supported by rails, see Fig. 37.1.

For job-built fillers supported by 6" walers, see Fig. 37.2 .

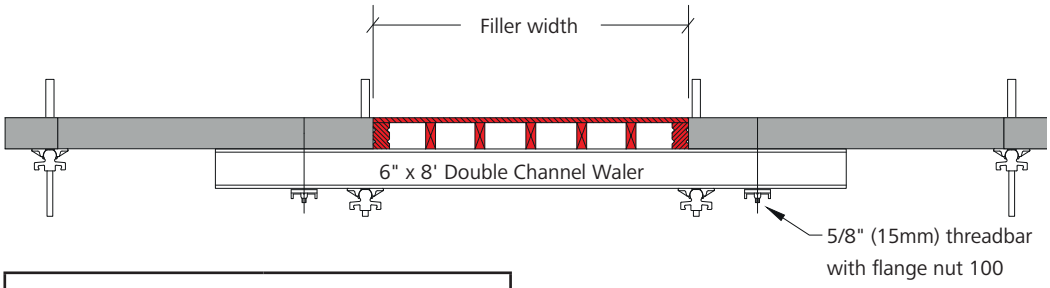
The job-built filler must be designed and constructed to resist the intended loads. Tensile load transfer must be considered when fillers are located near bulkheads or outside corners. Additional fasteners, bracing, or struts may be required.



Maximum Filler Width - Steel Rails ≤ 8' Long	
Concrete Pressure	Maximum Filler Width
2025 psf	29"
1600 psf	33"
1200 psf	38"

Steel Rails ≤ 8' long: Maximum allowable bending moment = 7.62 kip-ft, Ix = 5.3 In^4
(for 12' long steel rails: Maximum allowable bending moment: 10.74 kip-ft, Ix = 7.3 In^4)

Fig. 37.1 Rails supporting fillers over 6" wide



6" Waler Maximum Filler Width	
Concrete Pressure	Maximum Filler Width
2025 psf	42"
1600 psf	48"

6" Waler: Double C6x8.2, ASTM A36

Fig. 37.2 6" walers supporting fillers over 6" wide

Intersections

Intersecting walls are formed using inside corners and standard panels (Fig. 38.1 - Fig. 38.5). Fillers are used to make adjustments for different wall thicknesses. Steel rails may be required depending on the filler configuration (see the "Fillers" section for additional information and requirements). It may be necessary to utilize threadbar ties in some corner locations when other tie systems are used so that they can be adjusted to eliminate interferences.

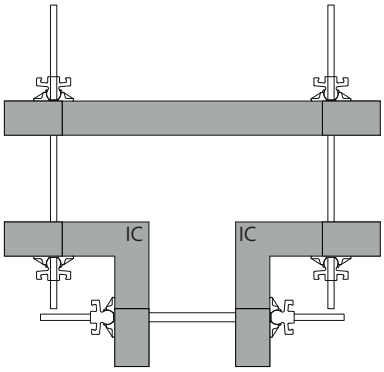


Fig. 38.1

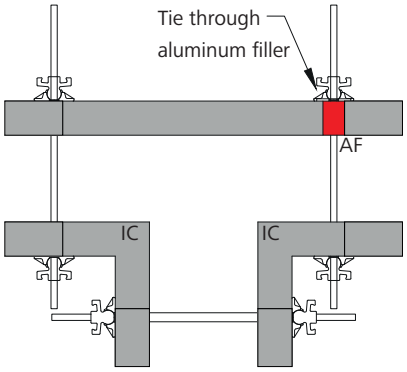


Fig. 38.2

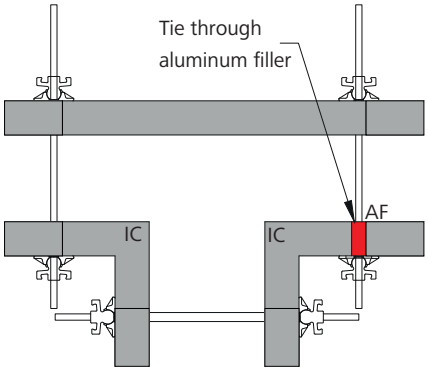


Fig. 38.3

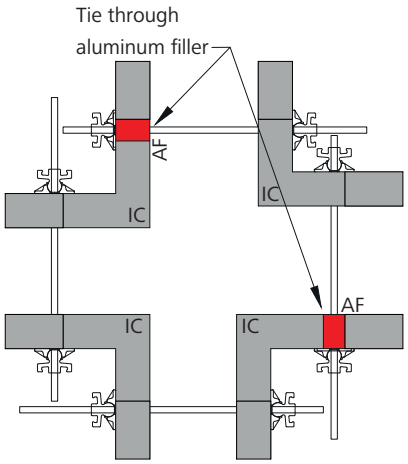


Fig. 38.4

Description	Ref.-No.
I-filler	
12'x3"	**23-312-10**
12'x2"	**23-312-15**
12'x1"	**23-312-20**
8'x3"	**23-312-40**
8'x2"	**23-312-45**
8'x1"	**23-312-50**
4'x3"	**23-312-70**
4'x2"	**23-312-75**
4'x1"	**23-312-80**
2'x3"	**23-312-85**
2'x2"	**23-312-90**
2'x1"	**23-312-95**
M-assembly lock	**29-400-71**
Uni-assembly lock 28	**29-400-90**

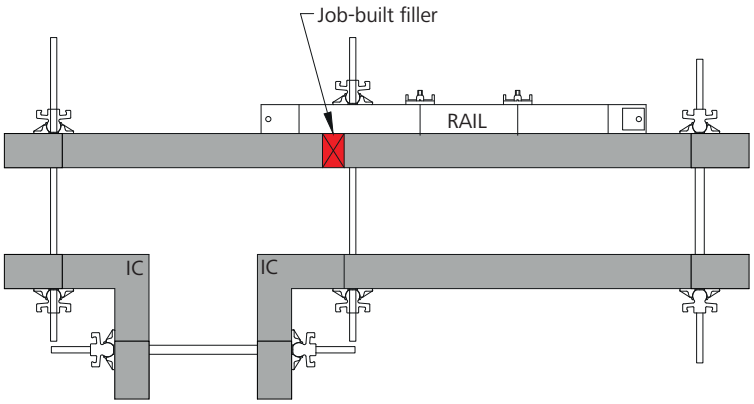


Fig. 38.5

Bulkheads

Bulkheads can be formed using either bulkhead brackets (Fig. 39.1), or steel rails/walers with column clamps and ties. Due to the increased tensile loads from bulkheads, additional locks are required at nearby panel joints for walls over 21" thick - see Fig. 39.2.

Bulkhead Brackets
Bulkhead brackets support loads from the bulkhead pressure and also contain integrated ties. Bulkhead brackets 40/60 can be used for walls up to 16" thick, and bulkhead brackets 60/23 can be used for walls up to 30" thick. The bulkhead bracket safe working load limits are as follows:

Shear/End Reaction = 5000 lb.

Tension = 6750 lb.

Bending Moment = 5091 ft-lbs.

Brackets may not be spaced closer together than the panel cross members.

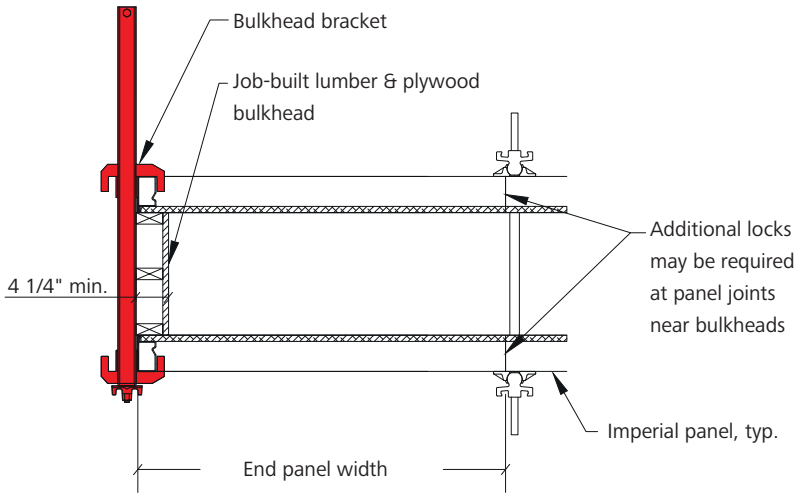


Fig. 39.1

Additional Locks Required for Panel Joints Near Bulkheads
Walls > 21" thick and ≤ 30" (joints within 13' of bulkhead)
12' panel - 5 locks
8' panel - 3 locks
4' panel - 2 locks
2' panel - 2 locks

Fig. 39.2

Description	Ref.-No.
Bulkhead bracket 40/60	**29-105-50**
Bulkhead bracket 60/23	**29-105-60**

Bulkheads

The bulkhead brackets are installed as shown in Fig. 40.1 - Fig. 40.3 for vertical panels. The maximum wall thicknesses and vertical end panel widths are determined from the table in Fig. 40.4. The table is based on a concrete pressure of 2025 psf.

The job-built bulkhead must be designed and constructed to resist the intended loads.

Note:
For 8' wide panels, read off the 1' wide end panel column of the table in Fig. 40.4.

For horizontal panels, the user should verify the applied loads based on formwork pressure, wall width, and bulkhead bracket spacing.

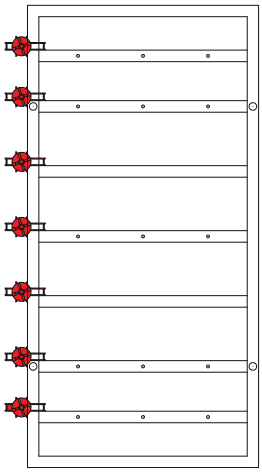


Fig. 40.1 Arrangement **A**

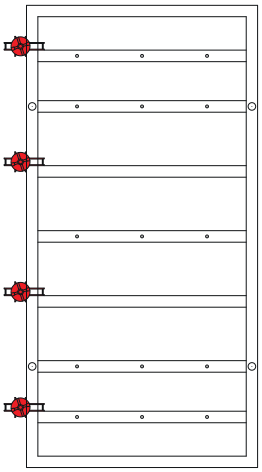


Fig. 40.2 Arrangement **B**

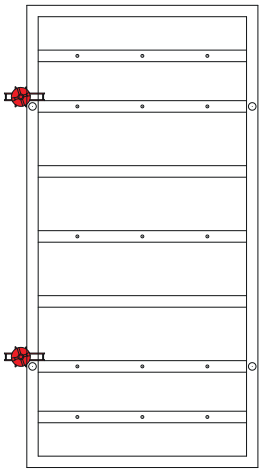


Fig. 40.3 Arrangement **C**

	End Panel Width						
Wall Thickness	4.0'	3.5'	3.0'	2.5'	2.0'	1.5'	1.0'
30"	A	A	A	A	A	A	A
28"	A	A	A	A	A	A	A
26"	A	B	B	B	B	B	B
24"	A	B	B	B	B	B	B
22"	A	B	B	B	B	B	B
20"	A	B	B	B	B	B	B
18"	A	B	B	B	B	B	B
16"	A	B	B	B	B	B	B
14"	A	B	B	B	B	B	B
12"	A	B	B	B	C	C	C
10"	A	B	B	B	C	C	C
8"	A	B	B	B	C	C	C

Fig. 40.4

Description	Ref.-No.
Bulkhead bracket 40/60	**29-105-50**
Bulkhead bracket 60/23	**29-105-60**

Bulkheads

Rails, Column Clamps, & Ties

Rails are secured to the panels using column clamps and flange nuts (Fig. 41.1). The column clamp's safe working load in tension is 10083 lb on Imperial panels. Column clamps on vertical panels must be installed so that they straddle the panel cross members.

The ends of the vertical bulkhead panels are tied by installing taper ties or threadbars using Uni-tie claws so that the ties clear the bulkhead (Fig. 41.2).

Caution:
Never use taper ties or threadbars as a means of supporting bulkheads where shear loads would be applied.

Ties with uni-tie claws are not required on horizontal panels since they are tied internally.

Standard Rail Configuration

In the standard rail configuration, steel rails and ties are to be installed as shown in Figure 41.3. The maximum concrete pressures and wall thicknesses are determined from the table. Wood blocking may be needed to hold rail positions when installing on horizontal panels.

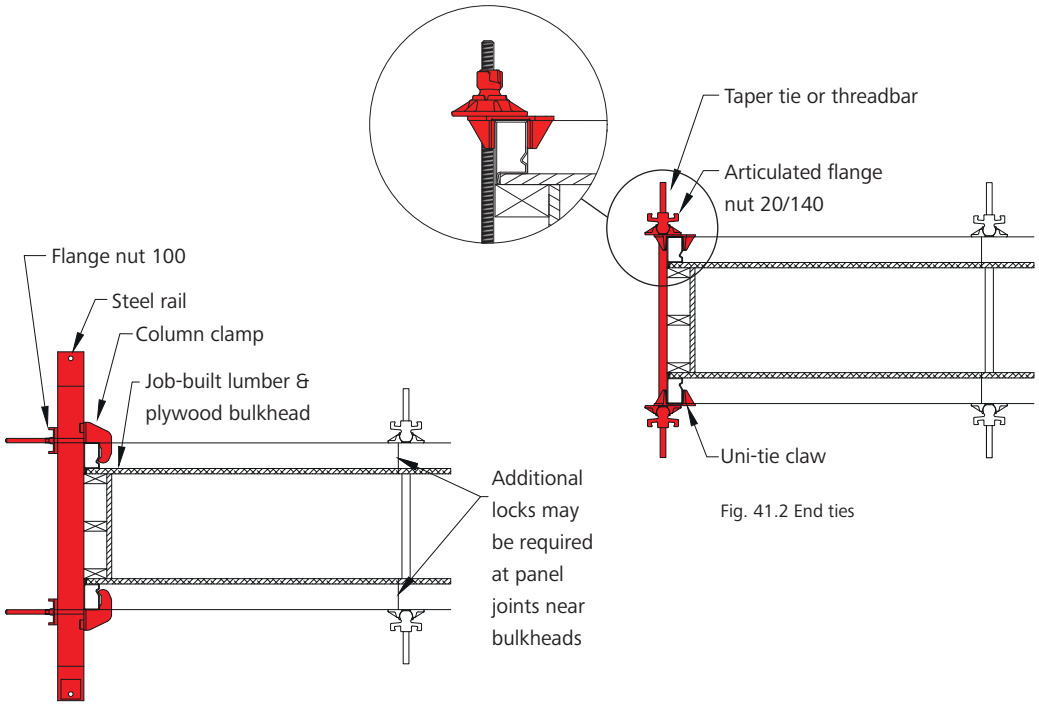
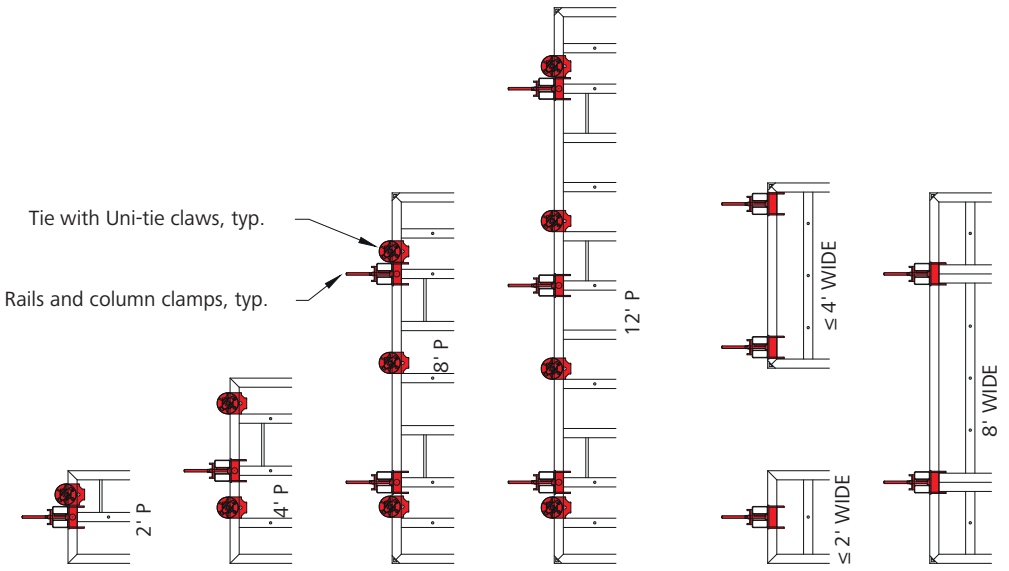


Fig. 41.1 Rails & column clamps

Fig. 41.2 End ties



Steel Rail Bulkhead Support - Standard Configuration	
Concrete Pressure	Maximum Wall Thickness
2025 psf	23"
1650 psf	26"
1000 psf	36"

Steel Rails ≤ 8' long: Maximum allowable bending moment = 7.62 kip-ft, Ix = 5.3 In4

Fig. 41.3 Steel rail bulkhead support - standard configuration

Description	Ref.-No.
I-column clamp	23-311-00
Flange nut 100	29-900-20
Steel rail 6'	2-500-2331030
Steel rail 8'	2-500-2331035
Uni-tie claw	29-901-41
Articulated flange nut 20/140	29-900-05

Bulkheads

Supplemental Rail Configuration

In the supplemental rail configuration, a wall thickness of 36" is possible at a concrete pressure of 2025 psf. The steel rails and ties are to be installed as shown in Fig. 42.1.

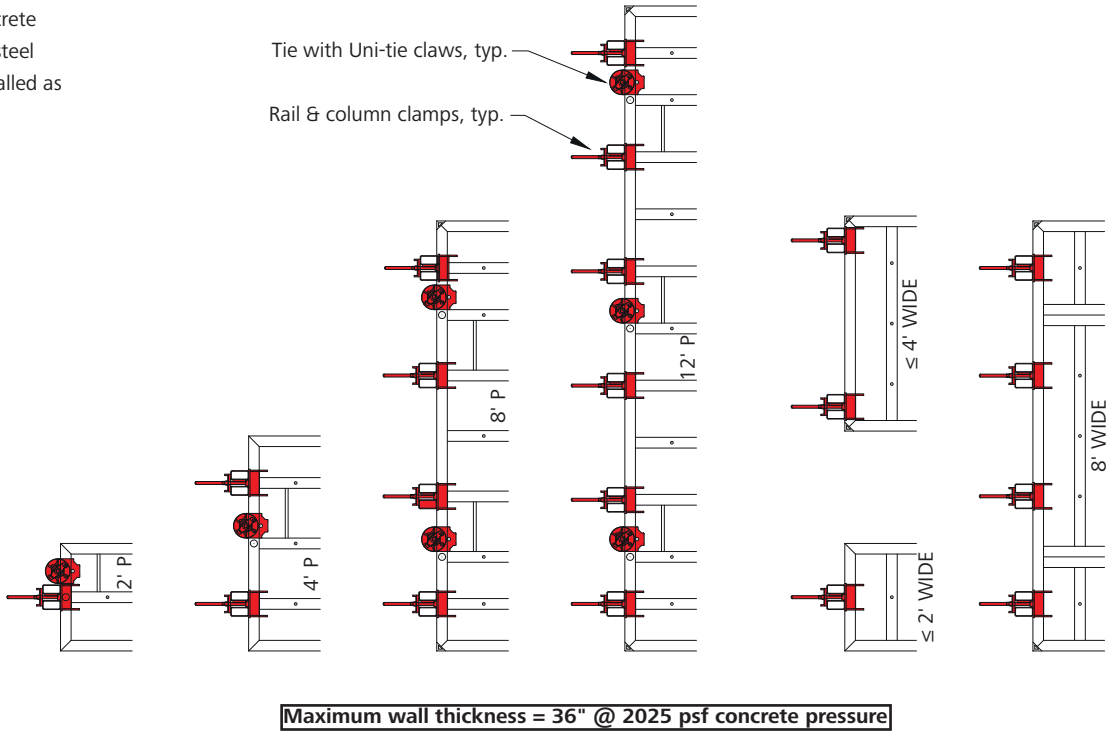


Fig. 42.1 Steel rail bulkhead supports - supplemental configuration

Due to the increased tensile loads from bulkheads, additional locks are required at nearby panel joints for walls over 21" thick - see Fig. 42.2.

Additional Locks Required for Panel Joints Near Bulkheads (Walls Over 21" Thick)	
Walls ≤ 31" thick (joints within 13' of bulkhead)	Walls ≤ 36" thick (joints within 15' of bulkhead)
12' panel - 5 locks	12' panel - 6 locks
8' panel - 3 locks	8' panel - 4 locks
4' panel - 2 locks	4' panel - 2 locks
2' panel - 2 locks	2' panel - 2 locks

Fig. 42.2

Description	Ref.-No.
I-column clamp	**23-311-00**
Flange nut 100	**29-900-20**
Steel rail 6'	**2-500-2331030**
Steel rail 8'	**2-500-2331035**
Uni-tie claw	**29-901-41**
Articulated flange nut 20/140	**29-900-05**

Adjoining Walls

These figures show example formwork details at adjoining walls. Details for lap conditions at a previous pour are shown in Figures 43.1 - 43.3.

The detail for formwork perpendicular to an existing wall is shown in Fig. 43.4. Three foot rails are used so that both tubes of the rail section support the filler.

Unbalanced forces on the formwork system must be considered when these conditions occur near a corner or bulkhead. Ties or anchors to the existing structure may be required. The existing structure may also need to be evaluated for imposed loads by the engineer of record.

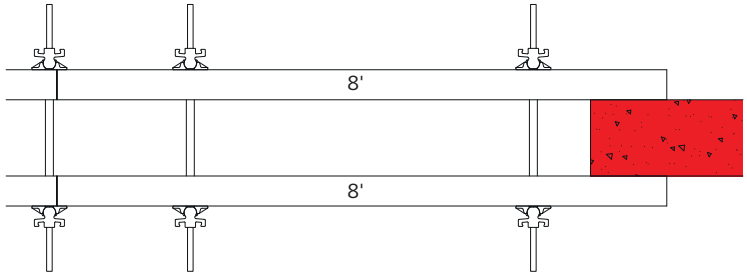


Fig. 43.1

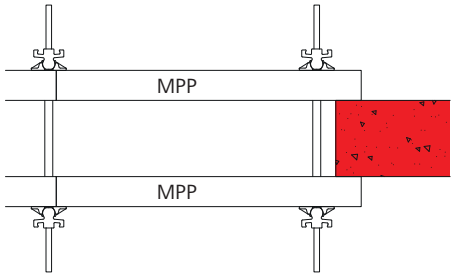


Fig. 43.2

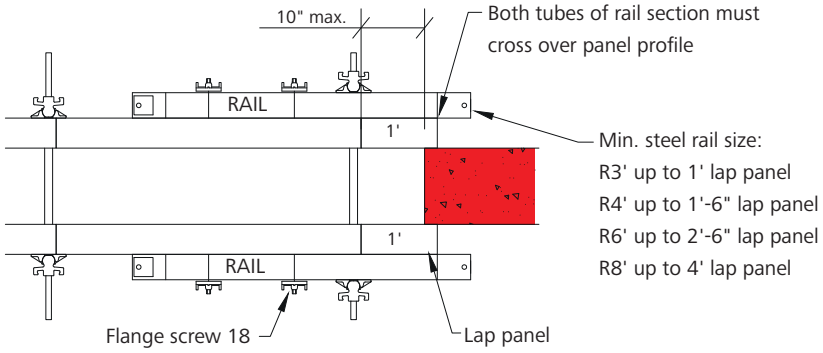


Fig. 43.3

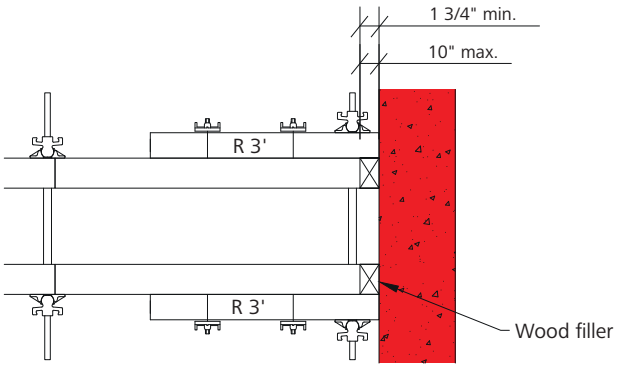


Fig. 43.4

Description	Ref.-No.
Steel rail 3'	**2-500-2251010**
Steel rail 4'	**2-500-2331020**
Steel rail 6'	**2-500-2331030**
Steel rail 8'	**2-500-2331035**
Flange screw 18	**29-401-10**

Pilaster Panels

The pilaster panel (Fig. 44.1 and 44.2) is a combination of a hinged corner and a multi-purpose panel. It allows forming pilasters without having a tie going through the pilaster.
Using standard panels in combination with column clamps for the bulkhead allows forming pilasters with a depth from 4" to 1'-8" in 2" increments
(Fig. 44.3).
At the maximum depth, the indexing stud of the column clamp will be installed in the last tie hole of the multi-adjustment profile (Fig 44.6).

A plywood and lumber bulkhead may also be used with either bulkhead brackets (Fig. 44.4) or rails with column clamps and ties (Fig. 44.5). The bulkhead must be designed and constructed to resist the intended loads. See "Bulkheads" section for additional information.
If standard panels and outside corners are used for the bulkhead, it is possible to form pilasters with a depth of 2'-6" (Fig. 44.7). See the "90° Corners" section for assembly lock requirements.

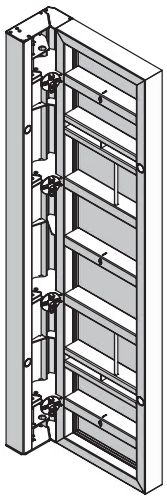


Fig. 44.1

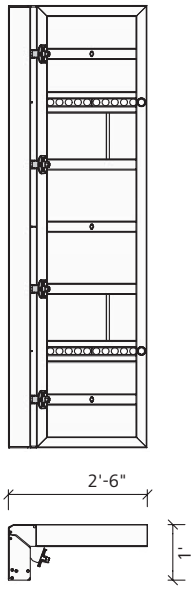


Fig. 44.2

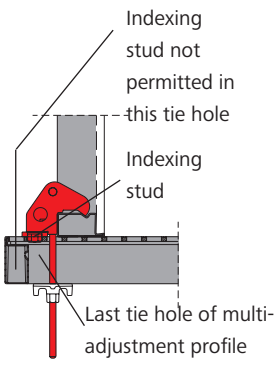


Fig. 44.6 Detail

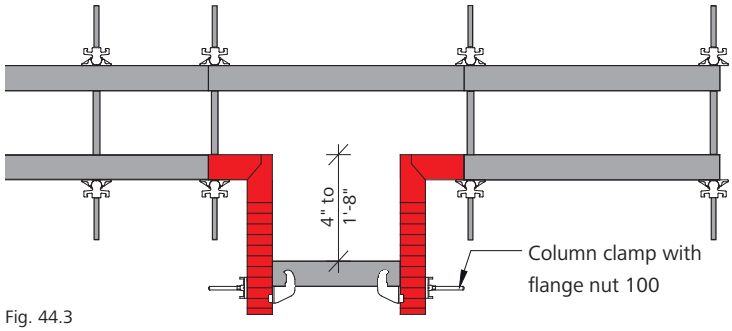


Fig. 44.3

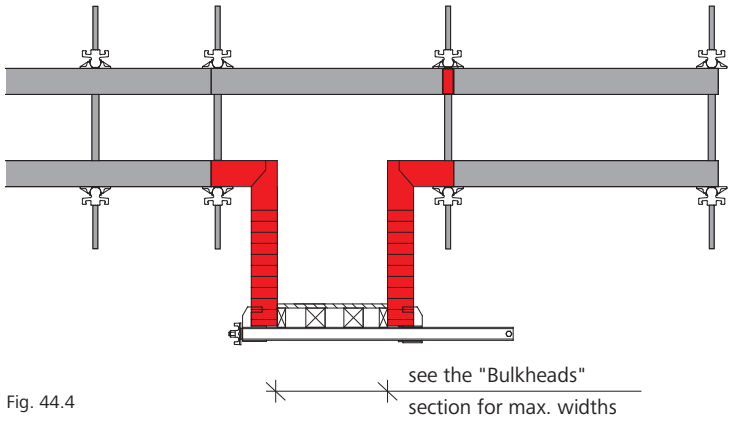


Fig. 44.4

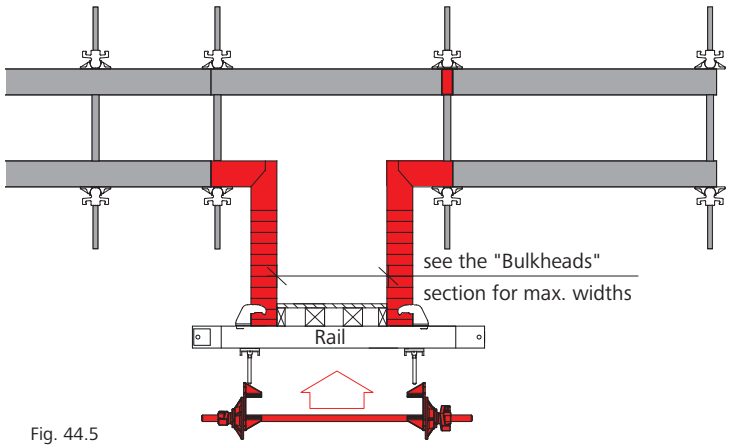


Fig. 44.5

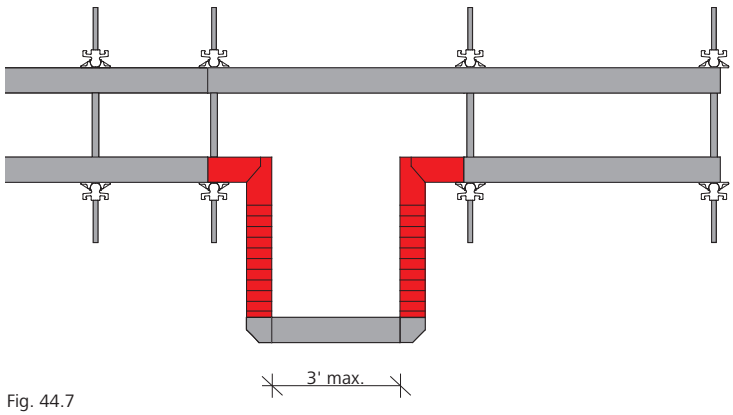


Fig. 44.7

Description	Ref.-No.
I-pilaster panels	
12'	**23-309-50**
8'	**23-309-60**
4'	**23-309-70**
I-column clamp	**23-311-00**
Bulkhead bracket 60/23	**29-105-60**
Flange nut 100	**29-900-20**

Pilasters with Panels & Corners

Pilasters are easily formed using panels and inside corners. The pilaster face panel can be supported with either bulkhead brackets (Fig. 45.1) or steel rails (Fig. 45.2). In both cases hardwood blocking must be installed between the panel frame and the bulkhead bracket or rail at the face of each inside corner.

Multi-purpose panels with column clamps can be used to form the bulkhead face up to 2'-2" wide in 2" increments (Fig. 45.3). A job-built boxout can be added if necessary to reduce the pilaster depth.

Pilasters more than 12" deep can be formed with additional panels and ties (Fig. 45.4). Any of the methods above can also be used to form the pilaster face.

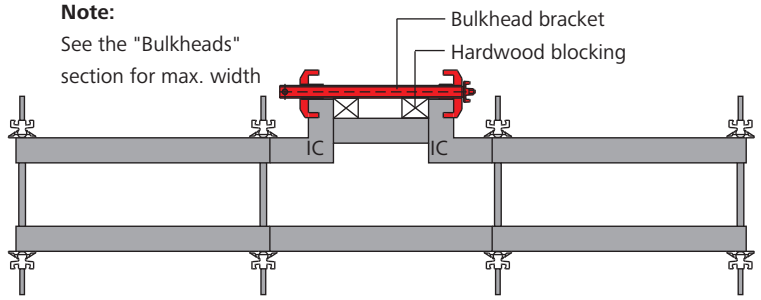


Fig. 45.1

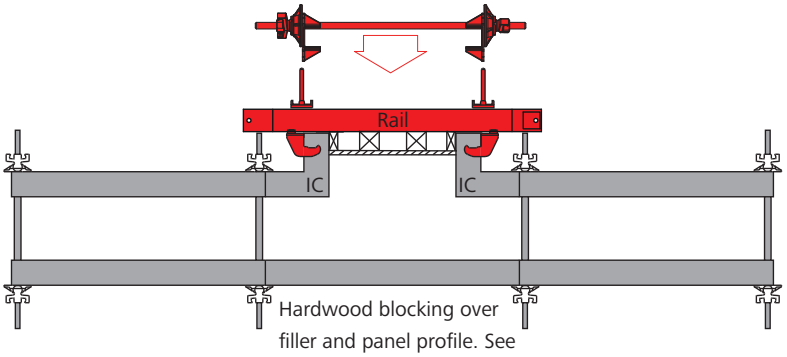


Fig. 45.2

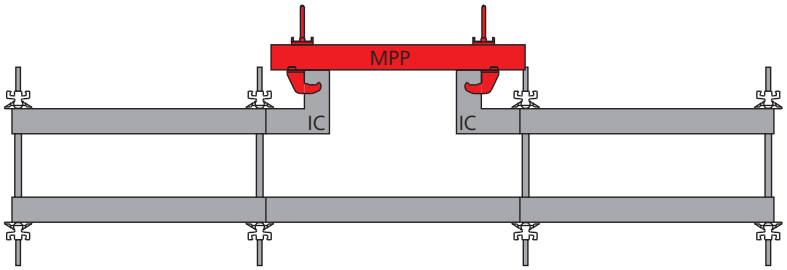


Fig. 45.3

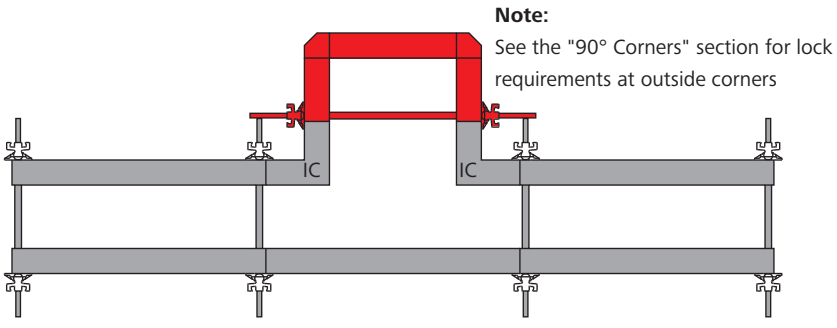


Fig. 45.4

Description	Ref.-No.
I-pilaster panels	
12'	**23-309-50**
8'	**23-309-60**
4'	**23-309-70**
I-column clamp	**23-311-00**
Bulkhead bracket 60/23	**29-105-60**
Flange nut 100	**29-900-20**

Pilasters at Corners

Example formwork solutions for wall corners with pilasters are shown in Fig. 46.1 - Fig. 46.3. Different pilaster sizes can be formed by using combinations of fillers and boxouts.
Multi-purpose panels and fillers can be used to accomodate different wall thicknesses.

Refer to the "90° Corners" section for lock and rail requirements at outside corners, and for maximum allowable concrete pressure.

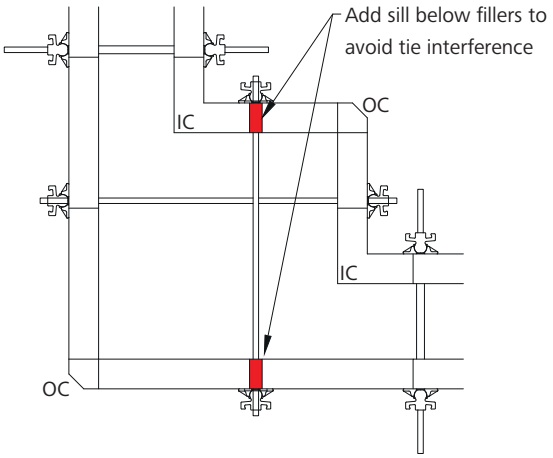


Fig. 46.1

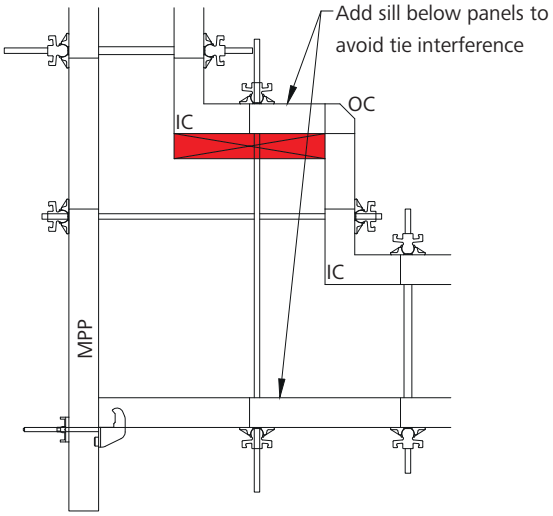


Fig. 46.2

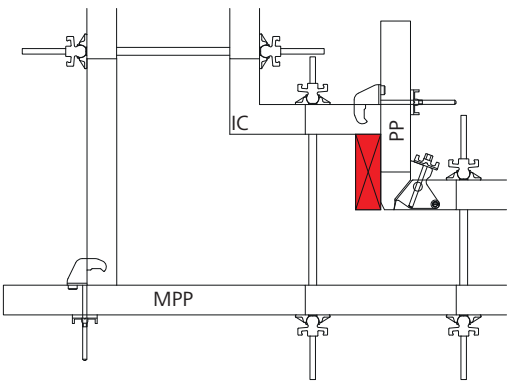


Fig. 46.3

Description	Ref.-No.
I-pilaster panels	
12'	**23-309-50**
8'	**23-309-60**
4'	**23-309-70**
I-column clamp	**23-311-00**
Bulkhead bracket 60/23	**29-105-60**
Flange nut 100	**29-900-20**

Wall Offsets

Wall offsets up to 2" can be formed by offsetting the corresponding panels, and adding rails and wood blocking (Fig. 47.1).
Tensile load transfer must be considered when this detail is used near bulkheads or outside corners. Additional bracing, struts, or thru ties may be necessary.

Offsets between 2" and 20" can be formed using pilaster panels (Fig. 47.2).
A boxout is needed if the offset is less than 4", or for odd inch increments.

Offsets up to 33" can be formed using multi-purpose panels with corner brackets (Fig. 47.3).

Refer to the "90 Degree Corners" section for maximum concrete pressure based on outside corner conditions.

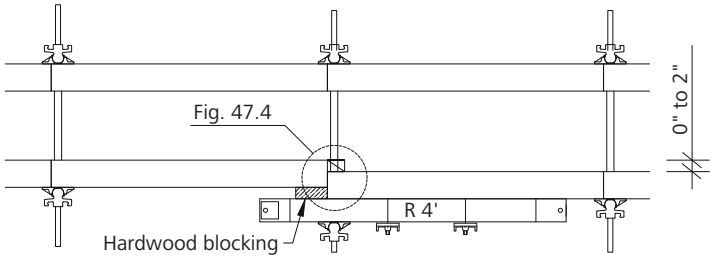


Fig. 47.1

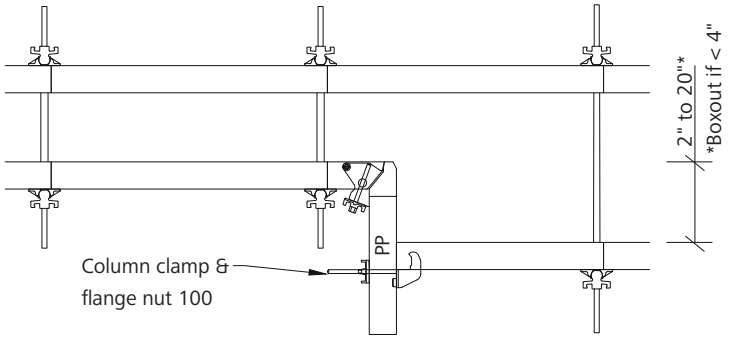


Fig. 47.2

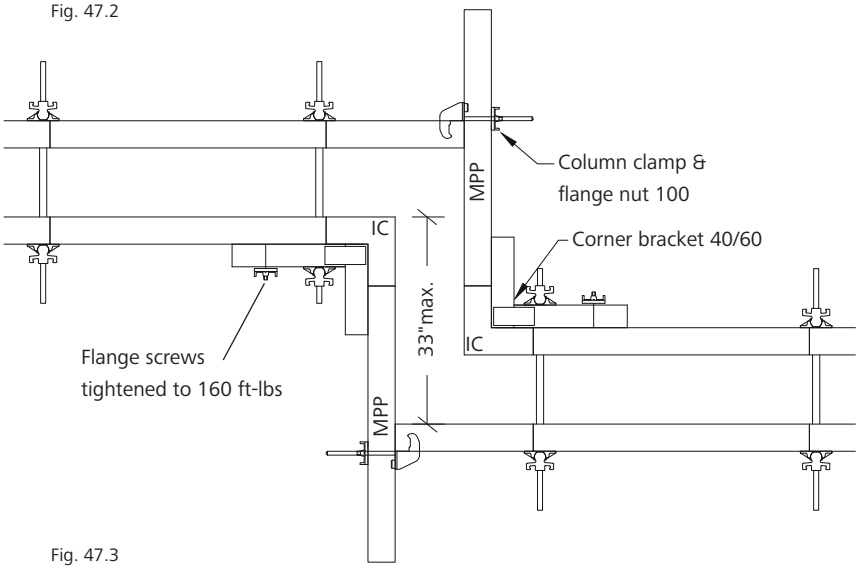


Fig. 47.3

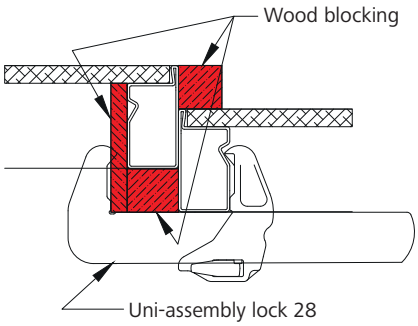


Fig. 47.4

Vertical Offsets

The assembly lock can be attached at any position on the frame profile, so all panels can be safely connected even when offset from each other vertically (Fig. 48.1).

Job built fillers are used to transition between vertical and inclined panels (see the "Fillers" section for additional information and requirements). They must be designed and constructed to resist the intended loads.

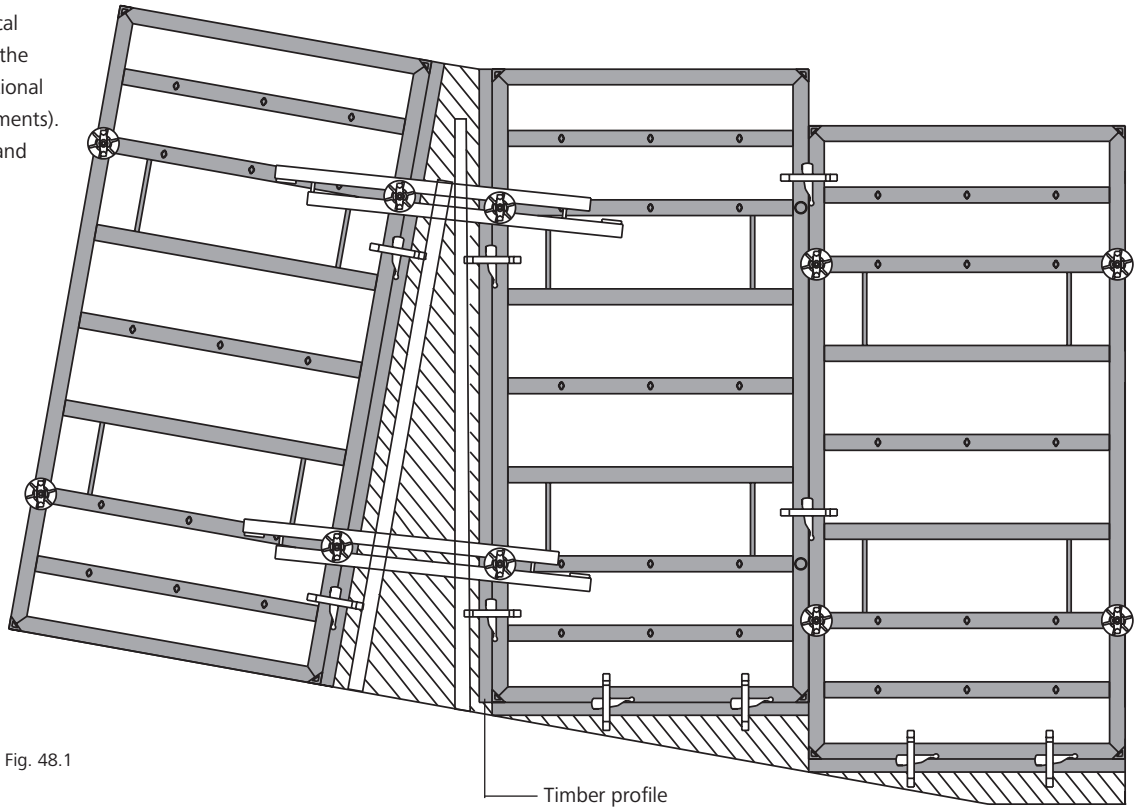


Fig. 48.1

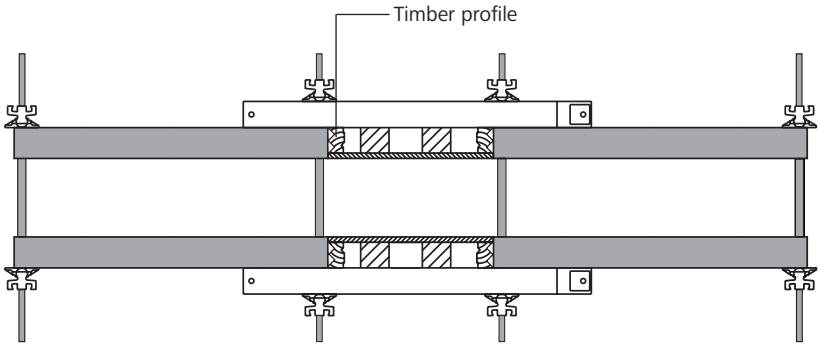


Fig. 48.2

Horizontal Panels

A horizontal panel configuration is well suited for some applications such as basin walls in water treatment plants, foundations, and one-sided formwork (Fig 49.1). The bottom of the formwork can be tied using 5/8" ties with drive nuts. This method may only be used at a single panel edge, and is not permitted at panel joints and fillers.

Foundation spanners and foundation tape may be substituted for the bottom ties in single panels up to 4' wide (Fig. 49.2). For pour heights up to 4', the maximum spacing of the foundation spanners is 2'-3". For pour heights up to 3', the maximum spacing of the foundation spanners is 4'-3".

At the top of the formwork, ties can either be located in the panel tie holes as shown in Fig. 44.1, or above the panels using Uni-tie claws as shown in Fig. 49.2.

Multi-purpose panels are well suited for forming walls with starter walls or waterstop at the base (Fig. 49.3).

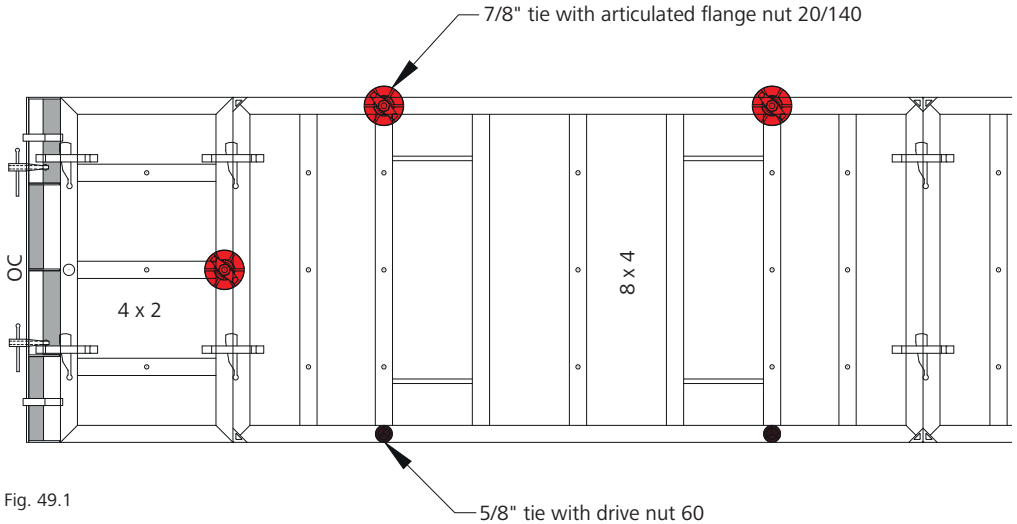


Fig. 49.1

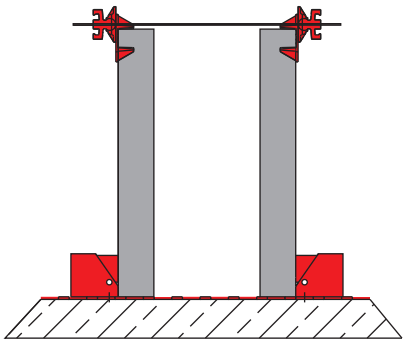


Fig. 49.2

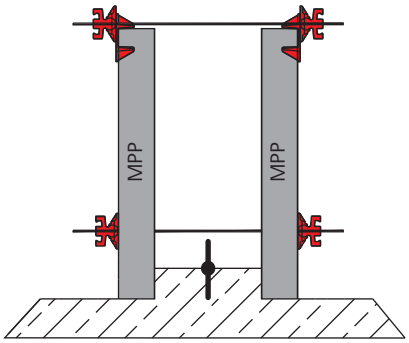


Fig. 49.3

Description	Ref.-No.
I-multi-purpose panels	
12'x4'	**23-300-25**
8'x4'	**23-302-25**
4'x4'	**22-304-25**
2'x4'	**22-305-25**
M-Foundation spanner	**29-307-60**
Foundation tape	**29-307-50**
Drive nut 60	**29-900-23**

Wall Braces

Wall braces and accessories are available for plumbing and aligning the formwork (Fig. 50.1). If braces are used to resist wind or other loads, the bracing system and anchorages must be designed by a competent person in accordance with all applicable governmental regulations, codes, and ordinances.

Wall braces are attached to the panels at the multi-function profiles using formwork prop connectors and flange screws (Fig. 50.2). Shoe plates must be installed and anchored at each brace location (Fig. 50.4). The allowable uplift on the shoe plate is 4000 lb when properly anchored. The base of the brace is anchored using the articulated foot plate (Fig. 50.5). If adequate foundations are not present to resist the required loads, temporary footings or deadmen will be needed.

Formwork must be kept stable at all times. Each individual wall form section must be supported by at least two braces.

Note:
When installing R160 and/or R250 make sure the inner tube is attached at the formwork prop connector.

Always ensure G-hook is properly engaged on props prior to releasing gangs from crane (Fig. 50.3).

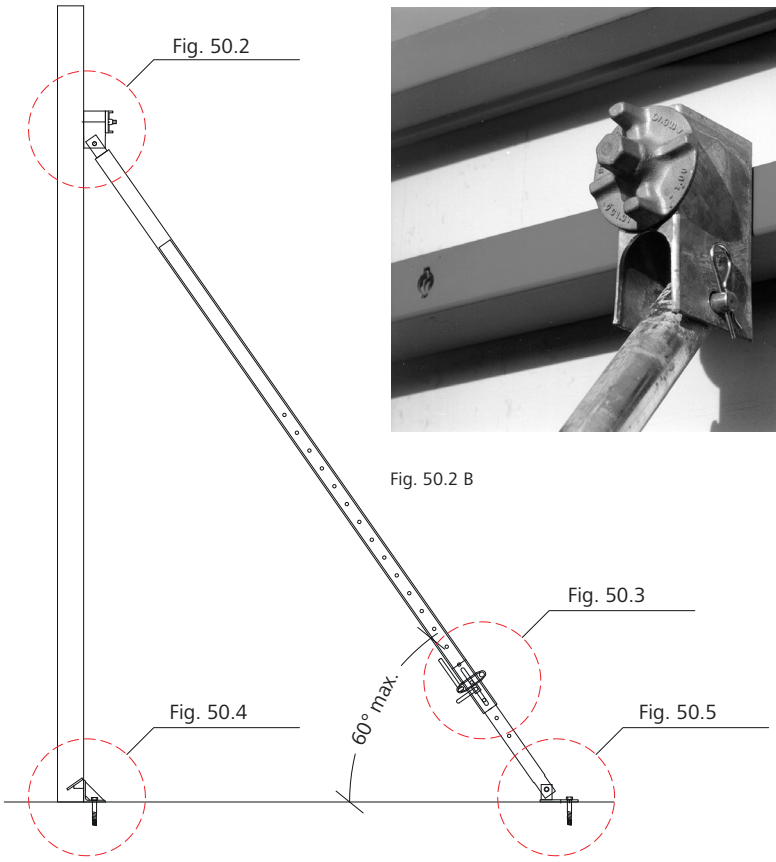


Fig. 50.1

Fig. 50.2 B

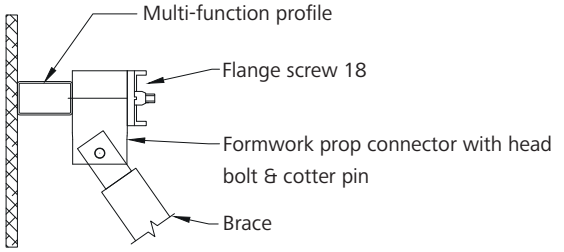


Fig. 50.2 A

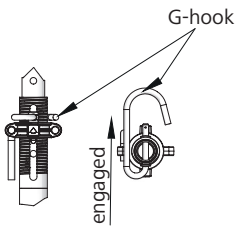


Fig. 50.3

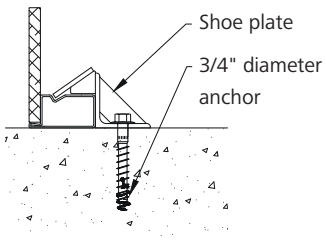


Fig. 50.4

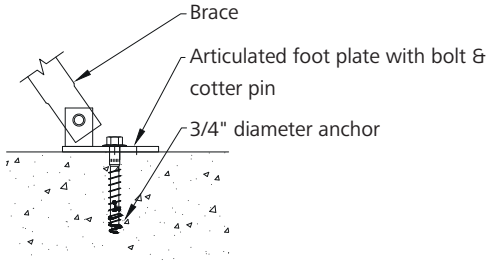


Fig. 50.5

Wall Braces

Information for the push-pull prop R brace type including load capacity and adjustment range is shown in Table 51.1.

Push-pull prop R				
Description	Adjustment range	Compression		Tension Safe working load [1,2] (lb)
		Length	Safe working load [1] (lb)	
R 160	4'-6" to 6'-6"	6'-6"	4491 [5620]	4491 [5620]
R 250	6'-3" to 10'-5"	6'-3"	4491 [5845]	4491 [5845]
		7'-1"	4491 [5845]	
		8'-9"	4491 [5620]	
		10'-5"	3372 [3372]	
R 460	11'-2" to 17'-0"	11'-2"	4491 [5620]	4491 [5620]
		12'-4"	4491 [5620]	
		14'-1"	4491 [4721]	
		14'-8"	4047 [4047]	
		15'-10"	3372 [3372]	
		17'-0"	2698 [2698]	
R 630	16'-9" to 24'-11"	16'-9"	4491 [6519]	4491 (7149) [7419]
		18'-4"	4491 [5395]	
		19'-6"	4491 [4721]	
		20'-8"	4047 [4047]	
		21'-8"	3597 [3597]	
		23'-3"	2923 [2923]	
		24'-11"	2473 [2473]	

[1] Primary value listed is based on application as brace installed at 60° to horizontal and accounts for Imperial panel connection with multi-function profile transverse working load limit of 3890 lb. Value in [brackets] is safe working load of brace alone.
[2] Tension value in (parentheses) is Imperial multi function profile pullout working load limit, included if applicable.

Table 51.1

Wall Braces

Information for the SRL and RSK brace types including load capacity and adjustment range is shown in Tables 52.1 and 52.2.

Brace SRL				
Description	Adjustment range	Compression		Tension Safe working load [1] (lb)
		Length	Safe working load [1] (lb)	
SRL 120	3'-0" to 4'-11"	3'-0"	4491 [6744]	4491 [6744]
		4'-11"	4491 [6744]	
SRL 170	3'-11" to 7'-3"	3'-11"	4491 [6744]	4491 [6744]
		5'-11"	4491 [6744]	
		7'-3"	4491 [4496]	

[1] Primary value listed is based on application as brace installed at 60° to horizontal and accounts for Imperial panel connection with multi-function profile transverse working load limit of 3890 lb. Value in [brackets] is safe working load of brace alone.

Table 52.1

Brace RSK				
Description	Adjustment range	Compression		Tension Safe working load [1,2] (lb)
		Length	Safe working load [1] (lb)	
RSK 1	3'-0" to 4'-11"	3'-0"	4491 [8992]	4491 (7149) [8992]
		4'-11"	4491 [8992]	
RSK 4	8'-6" to 13'-1"	8'-6"	4491 [8543]	4491 (7149) [8992]
		9'-5"	4491 [7194]	
		10'-10"	4491 [5171]	
		11'-3"	4721 [4721]	
		13'-1"	2698 [2698]	

[1] Primary value listed is based on application as brace installed at 60° to horizontal and accounts for Imperial panel connection with multi-function profile transverse working load limit of 3890 lb. Value in [brackets] is safe working load of brace alone.
[2] Tension value in (parentheses) is Imperial multi function profile pullout working load limit, included if applicable.

Table 52.2

Form Walkways

Walkway Bracket
The walkway bracket contains an integral self-locking pin, and is mounted to a multi-function profile (Fig. 53.1 and 53.2). To mount the bracket: rotate it 45°, insert the pin into the profile hole, then turn it back to the vertical position. The bottom of the bracket can then be secured to the panel with a flange screw, if required (Fig. 53.3).

After bracket installation the walkway planking, guard-railing posts, and guardrails may be installed. Holes are provided in the walkway brackets and guardrail posts for fasteners. The guard-railing post 100 can accomodate guardrail sections up to 2 3/8" thick.

The walkway bracket 90 is capable of supporting a 25 psf applied uniform load at a 4:1 factor of safety against failure when spaced up to 8' on center (assuming adequate planking is utilized).

Walkway brackets may only be occupied when attached to adequately braced panels (or panels tied to braced panels) after guardrails and all other safety components and anchors are installed.

The guard-railing adapter is used to mount the guard-railing post 100 on the formwork opposite the walkway brackets (Fig. 53.2).

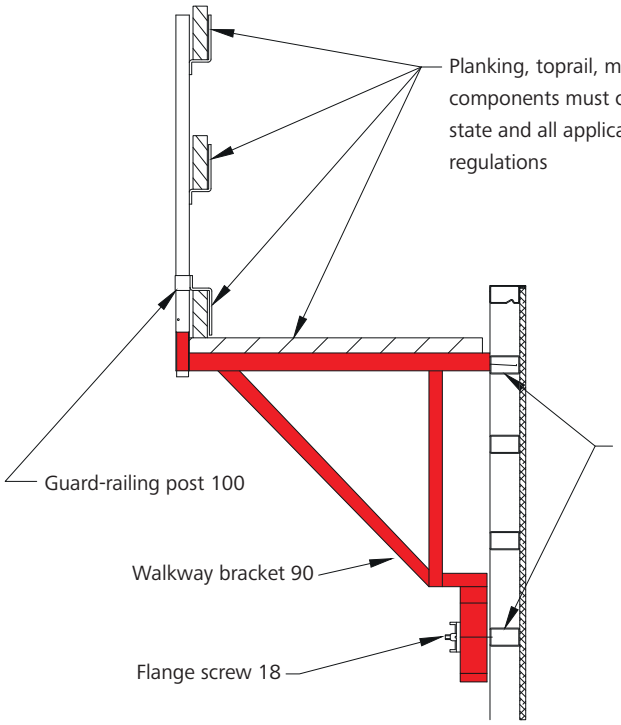


Fig. 53.1

Fig. 53.2

Fig. 53.3

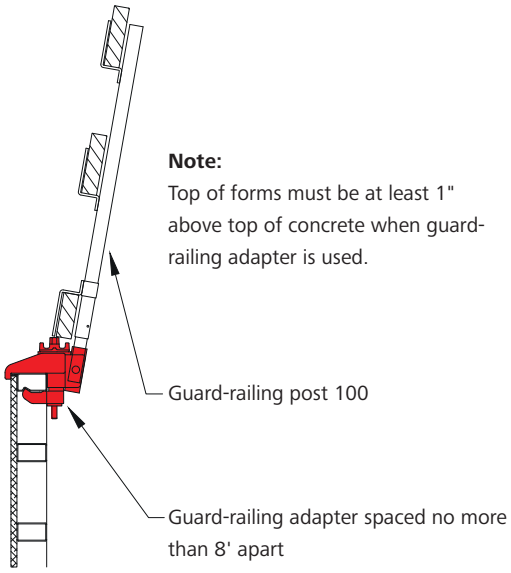


Fig. 53.2

Description	Ref.-No.
Walkway bracket 90	**29-106-00**
Guard-railing post 100	**29-106-75**
Guard-railing adapter	**23-311-10**
Flange screw 18	**29-401-10**

Crane Hook

The safe working load of a crane hook (Fig. 54.1) is 3,300 lbs (Safety factor: 5:1 against failure)

The handling is very simple:
Open the safety lever as far as possible (Fig. 54.2), then move the crane hook onto the panel profile until the claw engages completely in the groove. Push the safety lever down and toward the panel to lock the crane hook (Fig. 54.3).
When moving gangs (Fig. 54.4), make sure that each crane hook is attached at a panel joint or above a stiffener (when horizontally stacked). This prevents the crane hook from sliding.
Exeption: single vertical panels up to 4' wide.

Safety tips
Always check the crane hook before each use.
Do not overload the crane hook.
Do not use the crane hook to break concrete bond when stripping.

Safety regulations
When using our products the federal, state and local codes and regulations must be observed.

Attention
If the reference dimension shown in Fig. 54.5 exceeds 2 13/32" the crane hook must be replaced immediately. Replace it even if only one side of the hook exceeds this dimension.

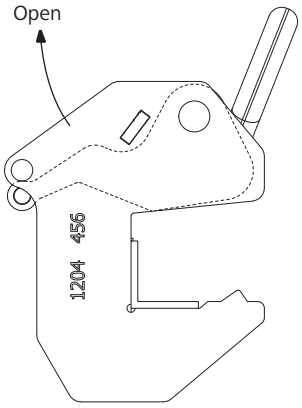


Fig. 54.2

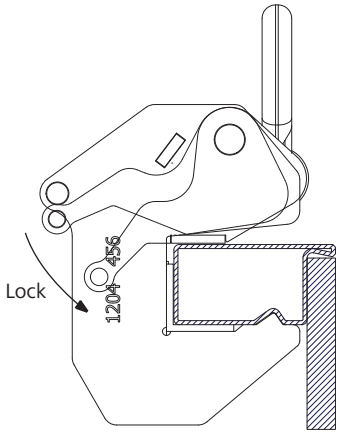


Fig. 54.3

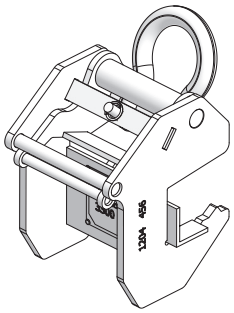


Fig. 54.1

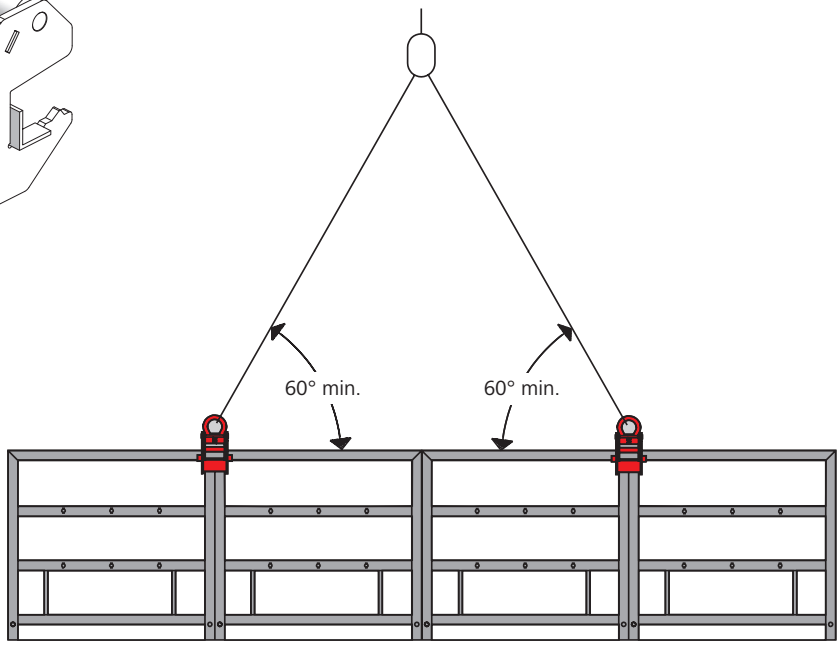


Fig. 54.4

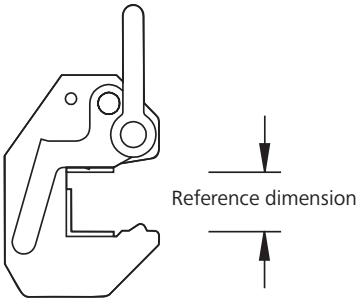


Fig. 54.5

Description	Ref.-No.
M-crane hook	**29-401-25**

Gang Forming

Each crane hook must be attached at a panel joint (Fig. 56.1) or above a cross member when the top panels are horizontal (Fig. 55.1). The number and location of crane hooks and the rigging arrangement must be established by the user so that no individual component is overloaded. Spreader beams with load equalizers are recommended for all but simple two-point lifts.

Vertical steel rails must be installed across stacked panel joints for lifting gang forms. The following rules must be observed:

1. Maximum average rail spacing is 8' for gangs up to 18' high. Maximum average rail spacing is 4' for gangs over 18' high. Rails should be installed on panels at both ends of each gang.

2. Both tubes of rail section must extend to 2nd cross member away from panel joint or beyond (Fig. 55.1). Flange screws must be installed in threaded holes closest to panel joint.

3. 4' long rails with (1) flange screw on each side of the panel joint may be used for gangs up to 18' high when connecting 12' and 8' high panels (Fig. 55.1). Longer rails are required when connecting 4' high and 2' high panels.

4. For gangs > 18' high, 6' long rails with (2) flange screws on each side of the panel joint must be used (Fig. 56.1), except at top horizontal panels ≤ 2'-0" wide.

5. 1' and 1.5' wide horizontal panels can only be located at the top or bottom for gang heights over 14'.

6. Maximum gang height for single lift is 26'. Higher walls must be set in multiple lifts, unless special analysis and design are performed.

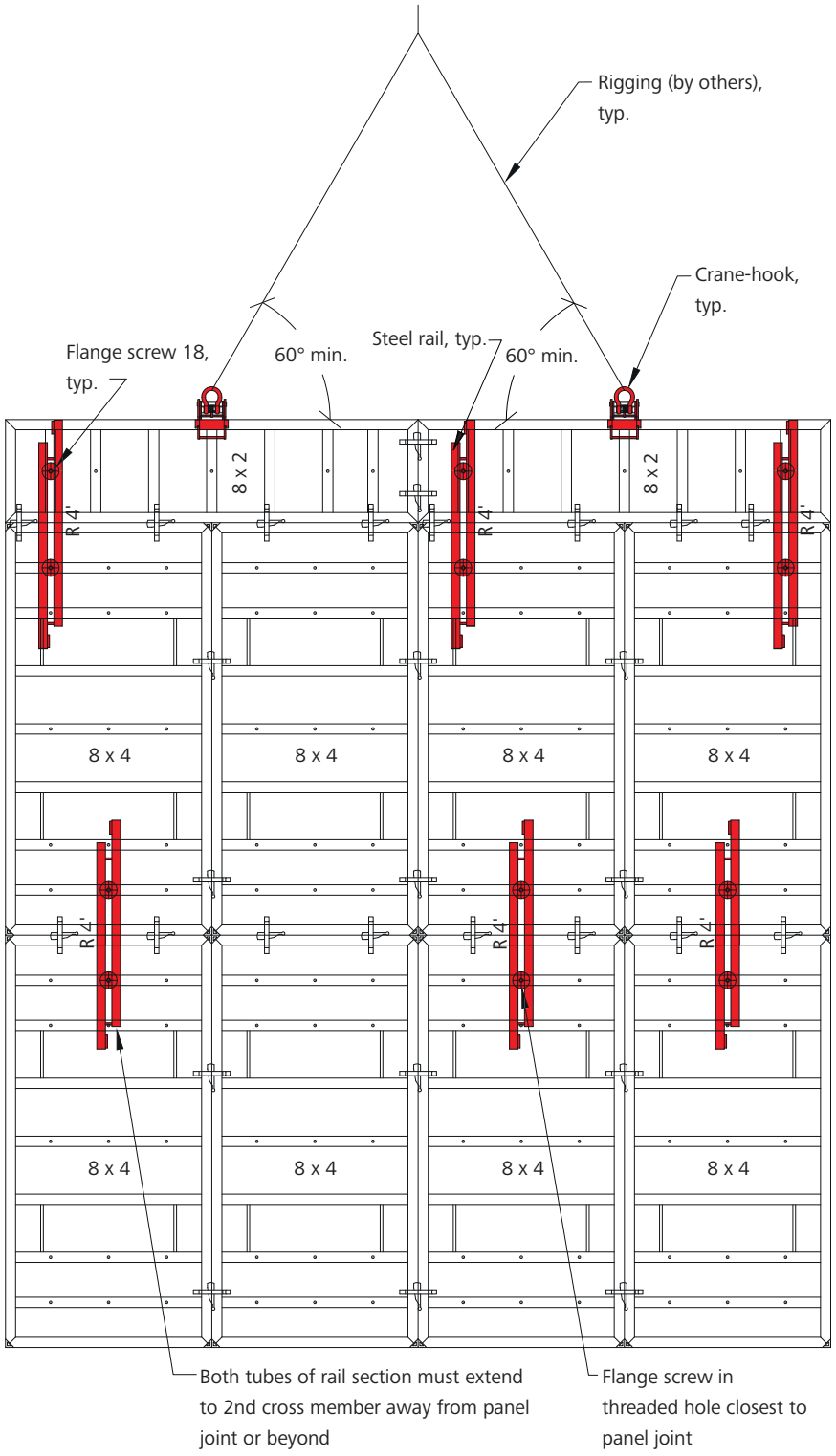


Fig. 55.1 Gang form with horizontal top panels

Gang Forming

If rails required for lifting interfere with those needed for concrete placement, reconfigure/remove lifting rails after setting gangs, then reset to lifting configuration prior to stripping.and design are performed.

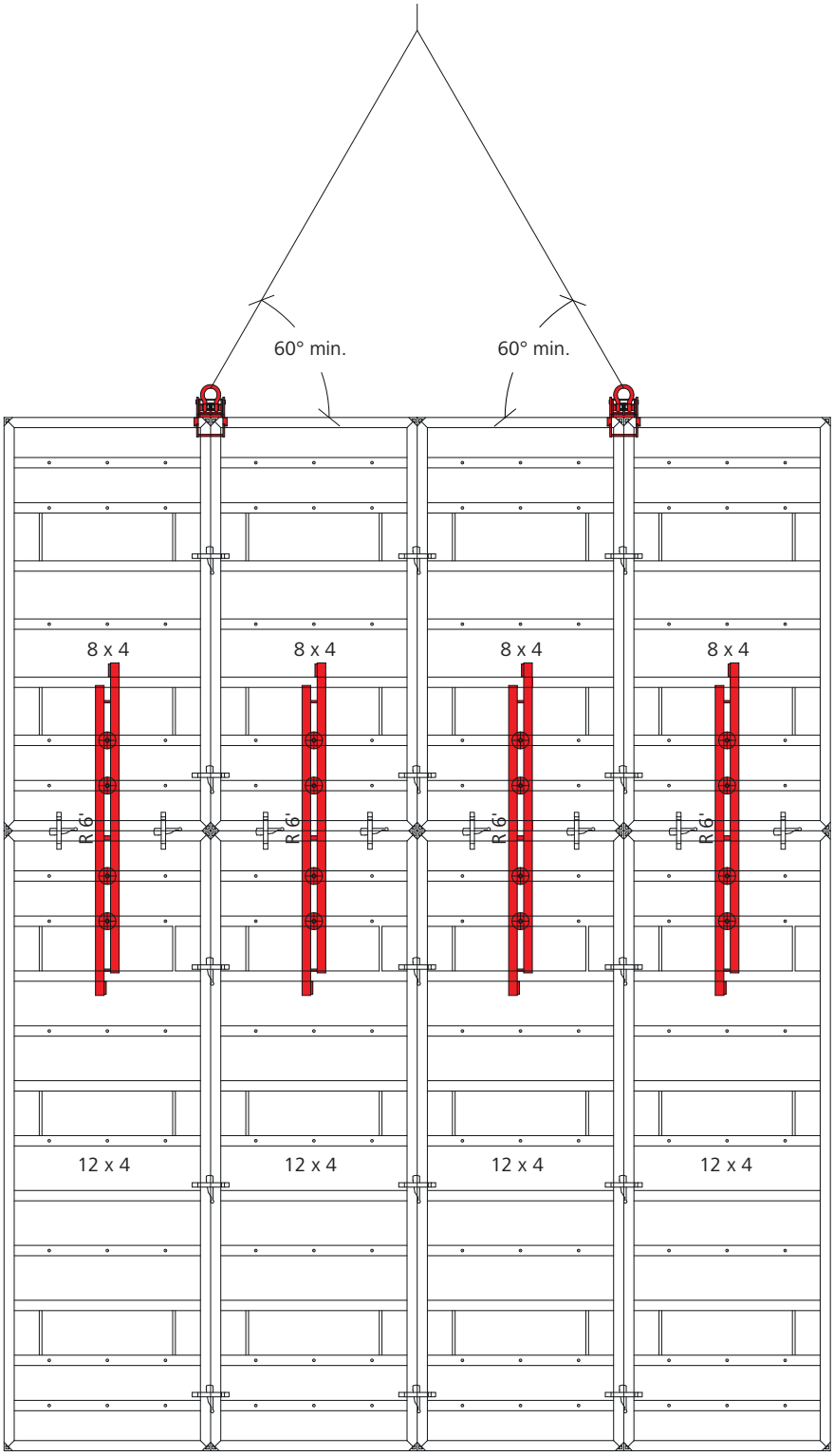


Fig. 56.1 Typical gang form

Adjustable Shearwall Bracket

Adjustable shearwall brackets are used to support formwork from the vertical face of previously cast concrete. The brackets are made with Imperial profiles welded to the top so that assembly locks can be used to connect the formwork to the brackets (Fig. 57.1 & 57.2).

The brackets are bolted to the concrete using anchor bolts with climbing cone inserts located at the desired elevation. Climbing cones with conical sleeves and anchor plates are set in the previous lift formwork with the positioning disk M24 (nailed to the form face) or a setting bolt (through the form face). After the forms are stripped the shearwall brackets are bolted to the climbing cones. The formwork may be set and connected to the brackets once the concrete has reached a minimum compressive strength of 2200 psi.

Brackets are designed for vertical load only. Formwork must be securely braced to prevent any lateral force on the bracket.

The safe working load of the shearwall bracket assembly is 3300 lb., which is limited by the anchor bolt shear combined with bending due to the climbing cone & positioning disk recess. Higher capacities are possible with other anchor configurations. The ultimate capacity of the bracket itself is 36,500 lb.

If post-installed anchors are to be used, they must be 1" diameter and designed to resist the intended loads. The anchor length must account for the required concrete embedment plus the bracket and washer thickness.

Description	Ref.-No.
Adjust. shearwall bracket..	**2-500-2942020**

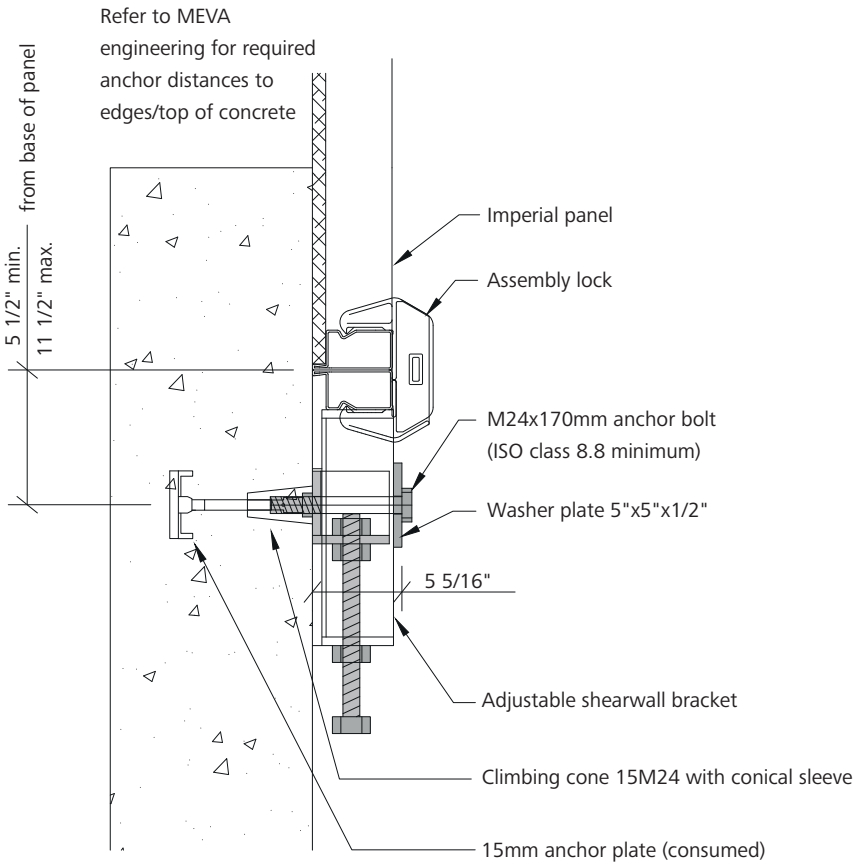


Fig. 57.1 Section view

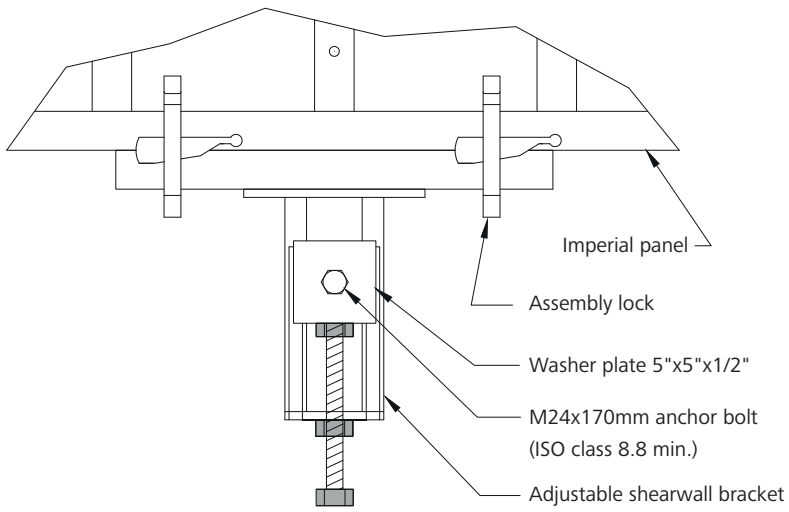


Fig. 57.2 Elevation view

Assembly, Erection and Stripping

Planning Stage
Planning and preparation are the keys to a successful application of any formwork system.

To determine the amount of formwork material that will be needed, a number of influencing factors should be taken into account such as:

→ movement of formwork on the site, including weight to be handled and capacity of lifting equipment
→ project schedule
→ construction joints (if specified) that define concrete placements
→ pour plan & sequence, taking into account the number of corners, pilasters, etc. in each pour
→ stripping requirements
→ concrete placement method
→ reinforcing steel placement method
→ site conditions and accessibility
→ coordination with other trades

Once all these aspects have been considered, the quantity of formwork can be determined.

During the planning stage some general aspects of the forming details should also be considered, such as incorporating stripping relief. Continuous formwork between two structural elements such as walls or pilasters should utilize stripping corners, pilaster panels, or job built fillers to facilitate stripping.

A safety plan should be developed to address all aspects of the formwork operation including assembly, erection, concrete placement, and stripping. Adequate fall protection must be provided as required by all applicable regulations & codes.

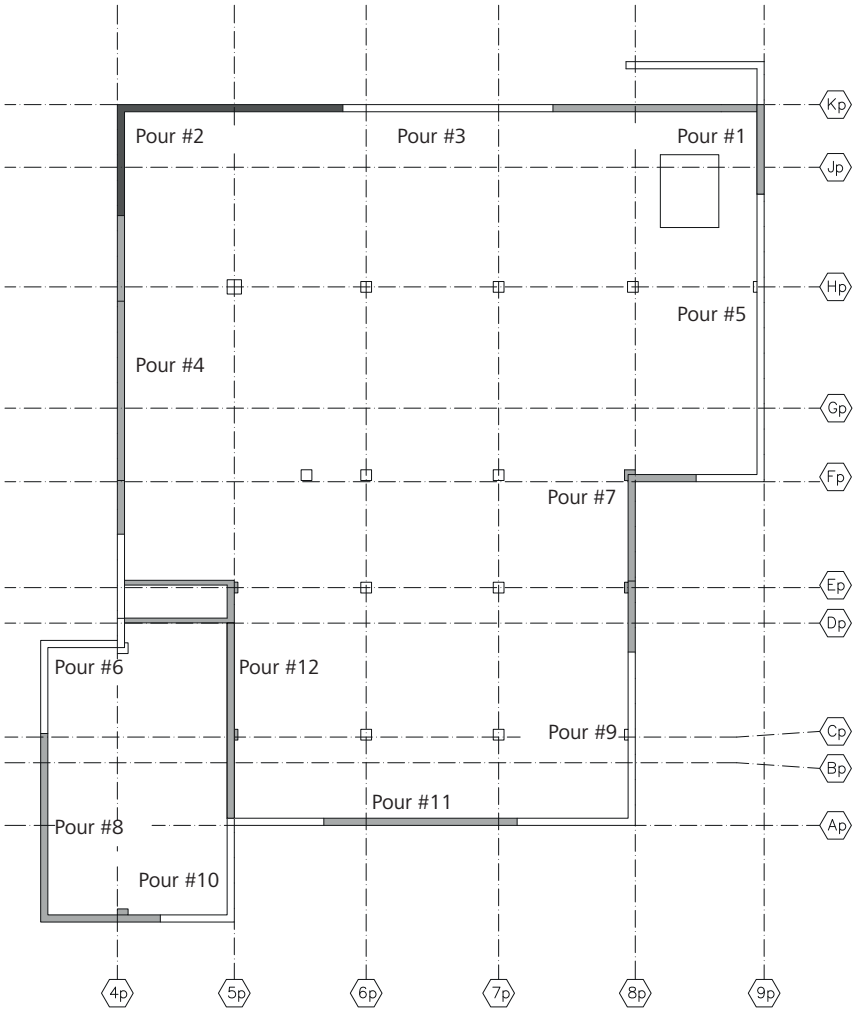


Fig. 58.1 Example wall pour plan

Assembly, Erection and Stripping

General

The following assembly, erection, and stripping information is provided as a guide, and is not intended to be all-inclusive. The contractor is responsible for the safe usage of the formwork equipment in accordance with all applicable government regulations, codes, and ordinances. Refer to the appropriate sections of this manual for more detailed information on the components described.

Unloading and Assembly

The assembly area should be clean, level, and capable of supporting the expected load.

1. For unloading panels from a truck a stack at a time, use the lifting hook 60. The forms are usually delivered with the panels face-up.

2. Move one panel at a time onto dunnage face-up (Fig. 59.1). Dunnage should raise the panel at least 5 1/2" and be clear of the lift points to allow access for crane hooks.

3. Remove the lifting hook 60 and attach the crane hooks.

4. Lift the panel up, then lay it face down in the gang assembly area, arranging it with other panels needed for the gang (Fig. 59.2).

5. Install the assembly locks, steel rails, bracing, and walkway brackets (Fig. 59.3).

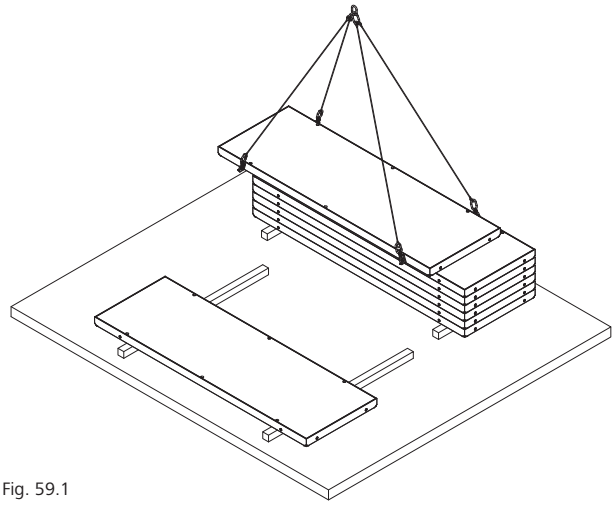


Fig. 59.1

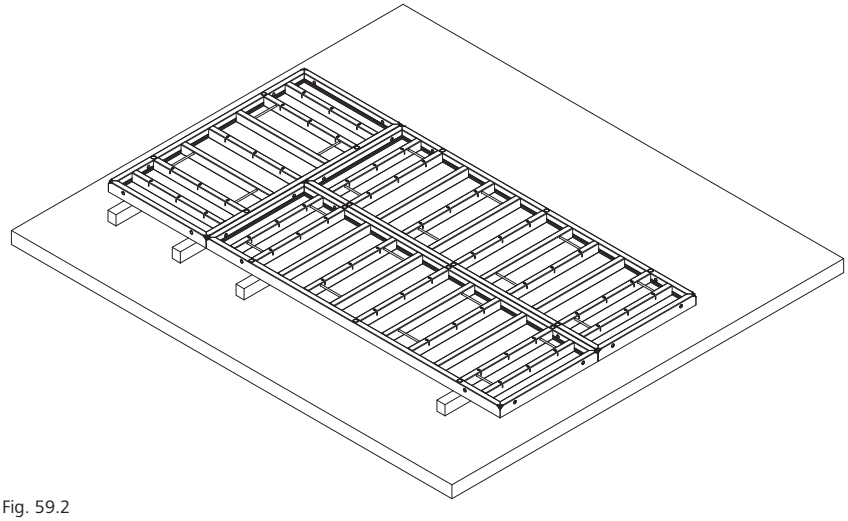


Fig. 59.2

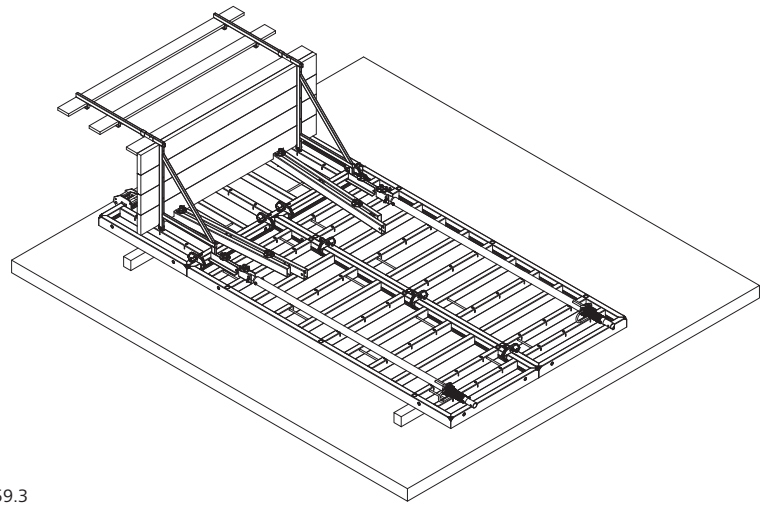


Fig. 59.3

Assembly, Erection and Stripping

Erecting the First Side

1. Determine the number and locations of crane hooks and the rigging arrangement based on the weight and configuration of the gang, ensuring that none of the components will be overloaded. Always use at least two crane hooks.

2. Lift the gang into the upright position and apply form release agent. Do not allow any personnel on or directly under any formwork while it is being moved or suspended.

3. Set the gang into position and immediately anchor the bracing foot plates and install and anchor the shoe plates (Fig. 60.1).

Caution:
Do not release crane support until the gang is secured. Unsecured formwork can fall over causing severe injury or death.

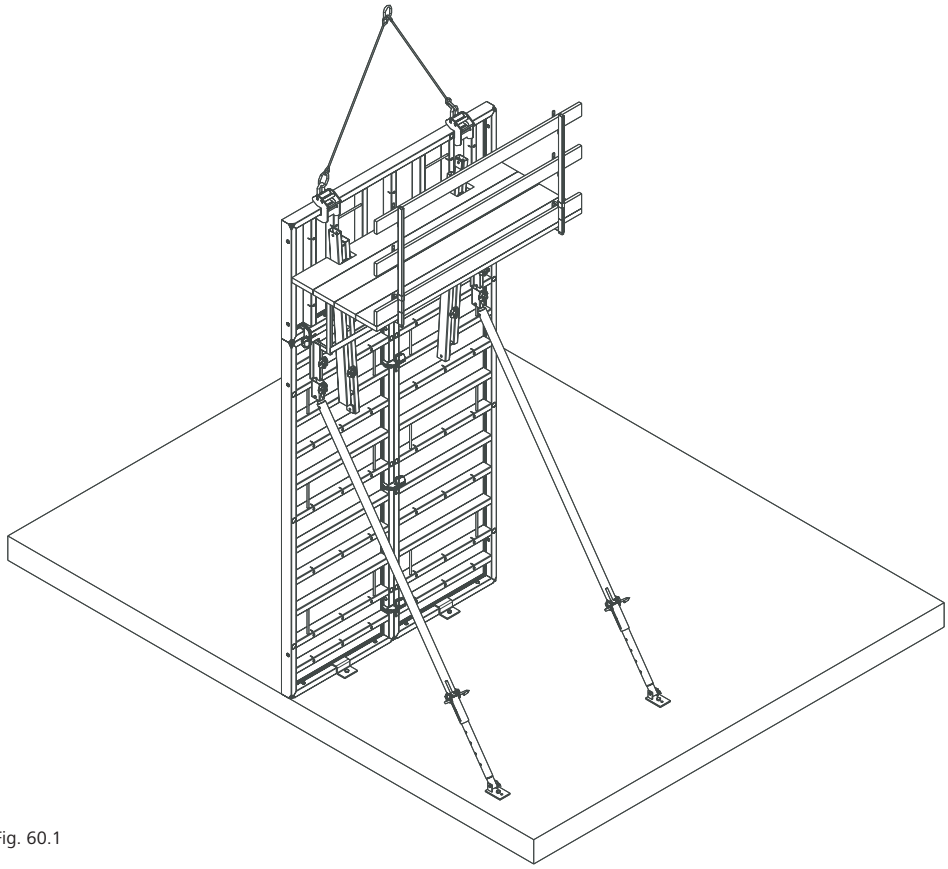


Fig. 60.1

4. Remove the crane hooks.

5. Proceed with setting the other gangs along the first side (Fig. 60.2).

6. After all of the first side gangs for the planned pour are set, the reinforcing steel, blockouts, and other items to be embedded may be installed.

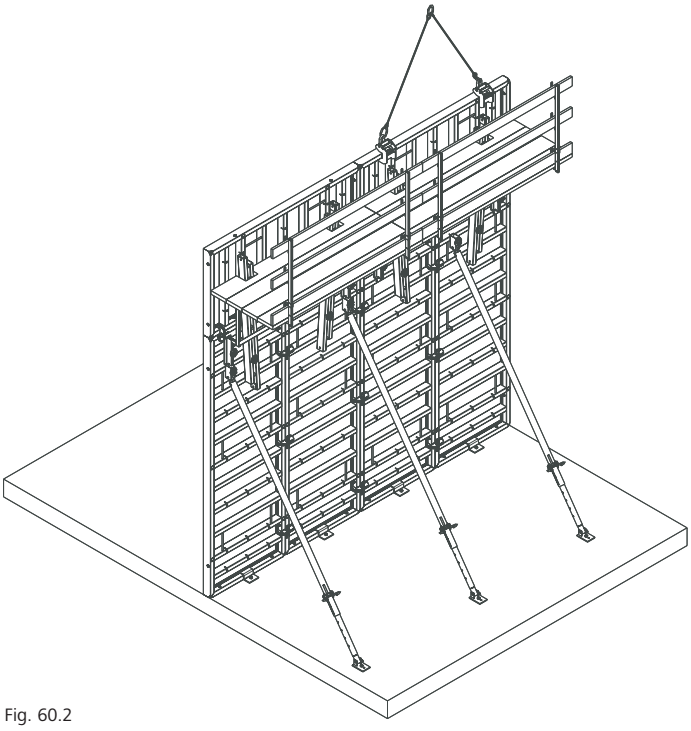


Fig. 60.2

Assembly, Erection and Stripping

Erecting the Second Side (Closing)

1. The second side formwork gangs are assembled the same way as the first side. Depending on the tie system, some tie components may need to be installed on the first (set) side prior to erecting any second side gangs:

1.1. For threadbar ties, insert the threadbar through the set side formwork extending to the required wall thickness. Install PVC sleeves and spacer cones over the threadbar.

1.2. For pass-through shebolts, install the set side shebolts with inner units.

1.3. For steel cone shebolts, install steel cones, inner units, and set side threadbar.

1.4. If taper ties or pass-through shebolts are used, spacers are recommended to maintain wall thickness and facilitate plumbing forms.

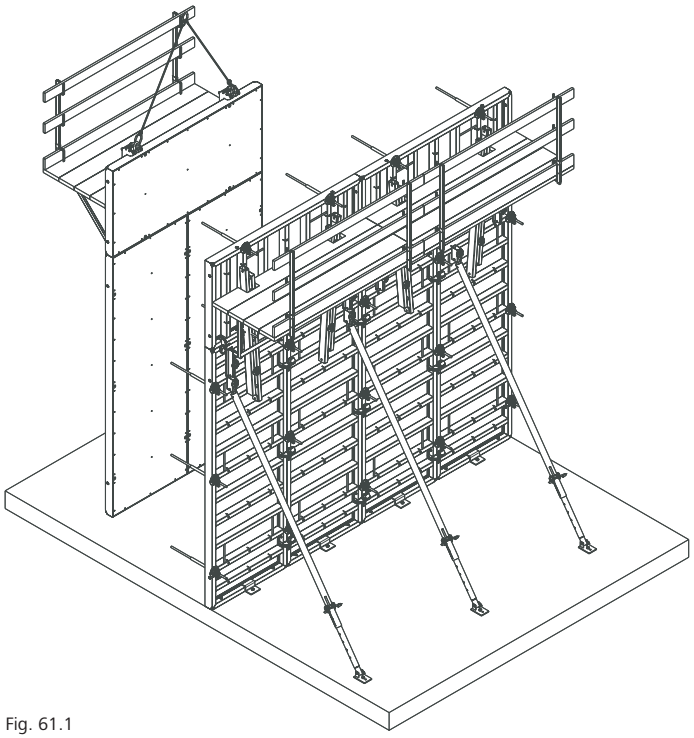


Fig. 61.1

2. Lift the second side gang form, apply form release agent, and set into place (Fig. 61.1). Anchor braces and install and anchor shoe plates if being used on second side. Otherwise, install taper ties or remaining components of other tie systems and secure with flange nuts.

Caution:
If braces are used on the first side only, do not release crane support until ties are installed and the formwork is secured on both sides.

3. Proceed with setting the other gangs along the second side in the same manner, connecting them with assembly locks (Fig. 61.2).

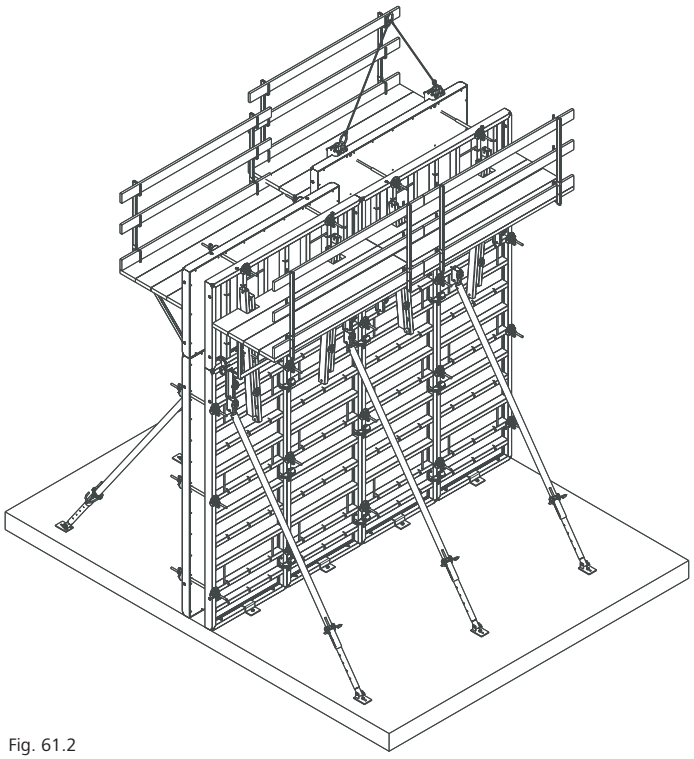


Fig. 61.2

Assembly, Erection and Stripping

Concrete Placement
Before placing concrete, the user should inspect all formwork to ensure proper placement and secure connections of ties and hardware. The maximum lateral concrete pressure shall be as indicated in this manual (or on MEVA formwork drawings if provided), taking into account all limiting factors and details of the formwork layout. Job built components incorporated into the layout may limit the pressure further.

It is the user's responsibility to adjust the pour rate and placement methods in accordance with ACI 347 for the concrete mixture and specific jobsite conditions at the time of placement so that the maximum lateral concrete pressure is not exceeded.

Stripping and Disassembly
Formwork shall not be stripped until the requirements of the project specifications have been met. If braces were installed on the first side only, strip the second side formwork first.

1. Remove all loose objects such as tools from the formwork.

2. Mount crane hooks to the gang to be stripped and remove slack from lift lines.

3. Remove ties only from the gang being stripped and the assembly locks connecting it to the adjacent gang(s).

4. Break bond to cast concrete using prybars and wedges or other stripping aids as required.

Caution: never use crane to break bond.

5. Lift gang and move to next pour (bracing required), temporary storage, or disassembly area (Fig. 62.1).

6. Proceed with stripping the remaining gangs (Fig. 62.2).

7. Clean formwork as required and apply form release agent before next use.

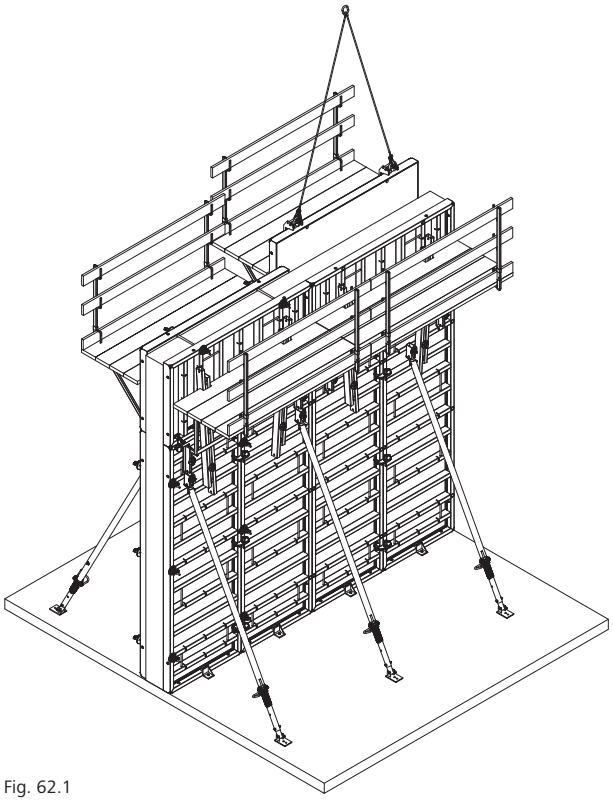


Fig. 62.1

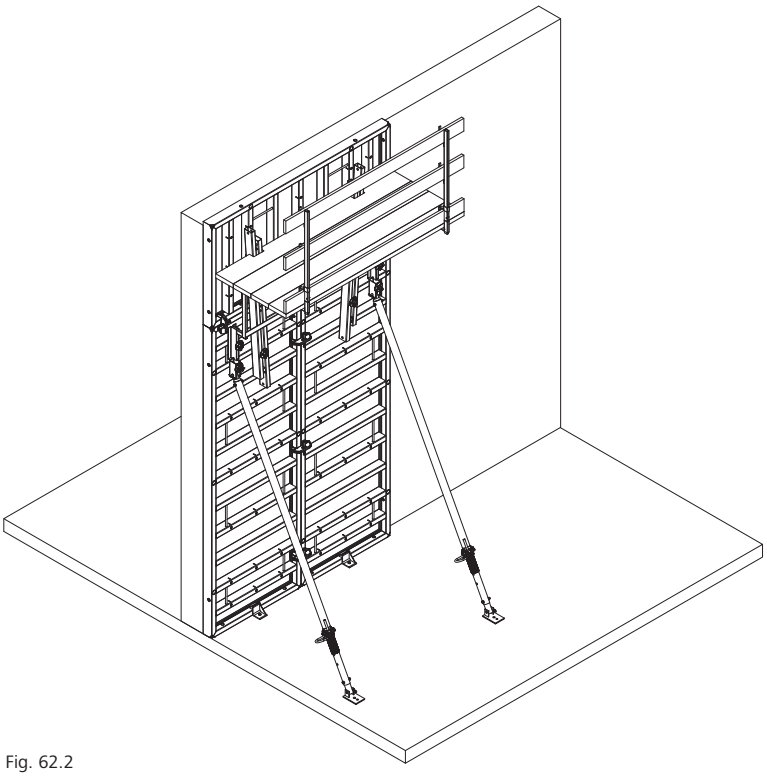


Fig. 62.2

Lifting Hook 60

Lifting hook 60
The lifting hook 60 can be used with any four-rope crane device available on the construction site to transport stacks of panels (Fig. 63.1 and 63.3).

Always use 4 hooks at a time. The load capacity of the lifting hook is 2200 lb. The maximum stack height, depending on panel size and weight, is 10 panels and the maximum stack weight is 4400 lb (use capacity of 2 hooks only).

Attention
Check to make sure the hooks are safely locked before lifting (Fig. 63.2).

Example stack possibilities:

(3) 12' x 8' panels
(4) 8' x 8' panels
(6) 12' x 4' Multi-purpose panels
(10) 8' x 4' panels

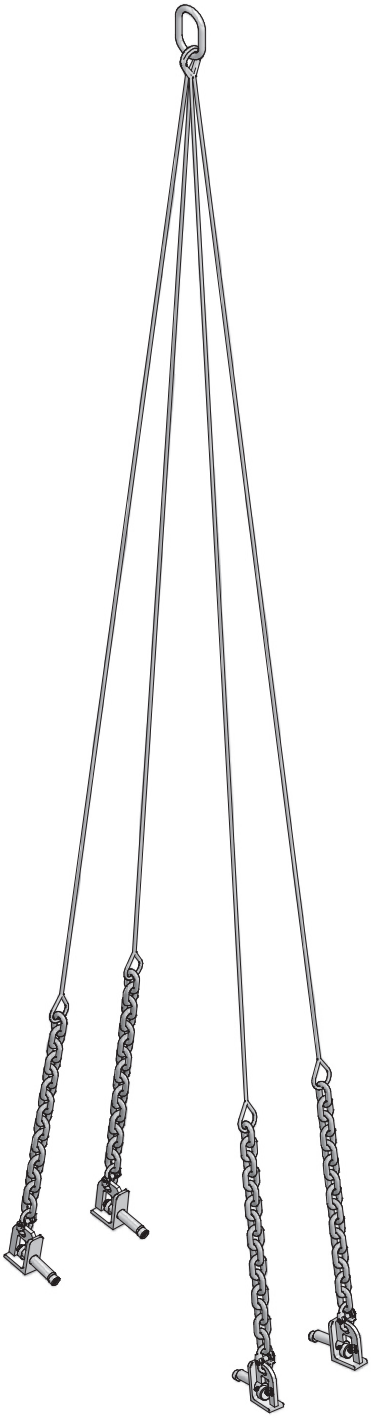


Fig. 63.1 Use MEVA **sale only** Crane Slings, or suitable lifting slings provided by others

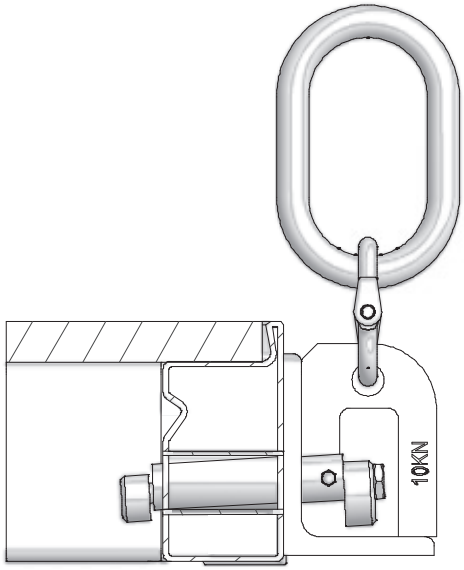


Fig. 63.2

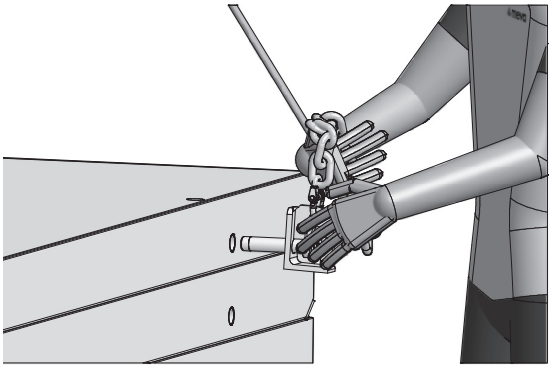


Fig. 63.3

Description	Ref.-No.
Crane sling 60	**29-401-45**
Lifting hook 60	**29-401-40**

Lifting hook 60

Transport
When transporting several panels at a time, the stack must be secured against displacement using a tensioning belt or two Dywidag rods with flange nuts.

Maintenance
The eccentric part of the lifting hook must rotate under its own dead weight. If necessary, clean and grease the lifting hook. A drilled hole is provided for adding lubrication.

Inspection
The lifting hook/crane slings must be regularly checked (at least once a year) by a competent person. In addition, the user must check it before each use for visible damage.

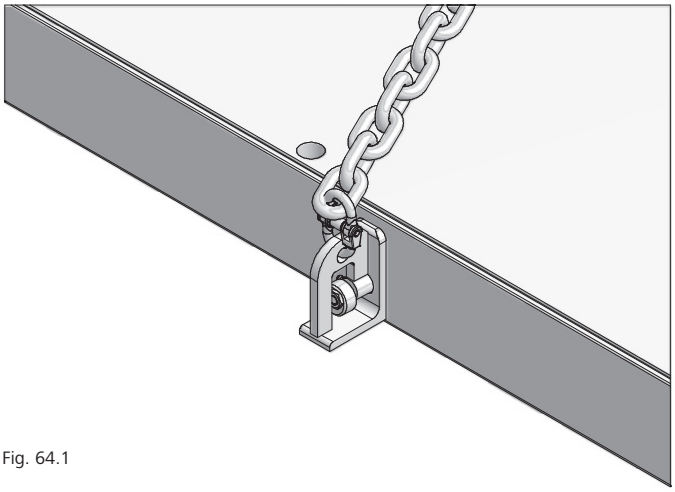


Fig. 64.1

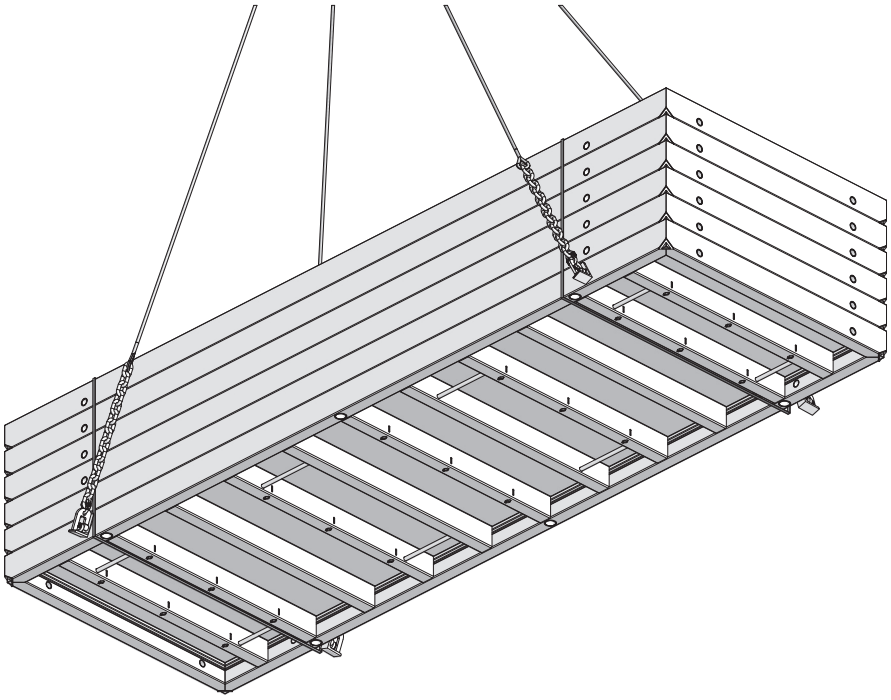


Fig. 64.2

Description	Ref.-No.
Crane sling 60	**29-401-45**
Lifting hook 60	**29-401-40**

Related Products

Support frame STB for One - Sided Forming
The Imperial formwork – together with support frames – can also be applied when concrete has to be poured against an existing structure or embankments where ties cannot be used. Support frames 300 are designed for wall heights up to 11'. Support frames 450 with height extensions allow for wall heights over 30'.
Technical data sheets are available on request.

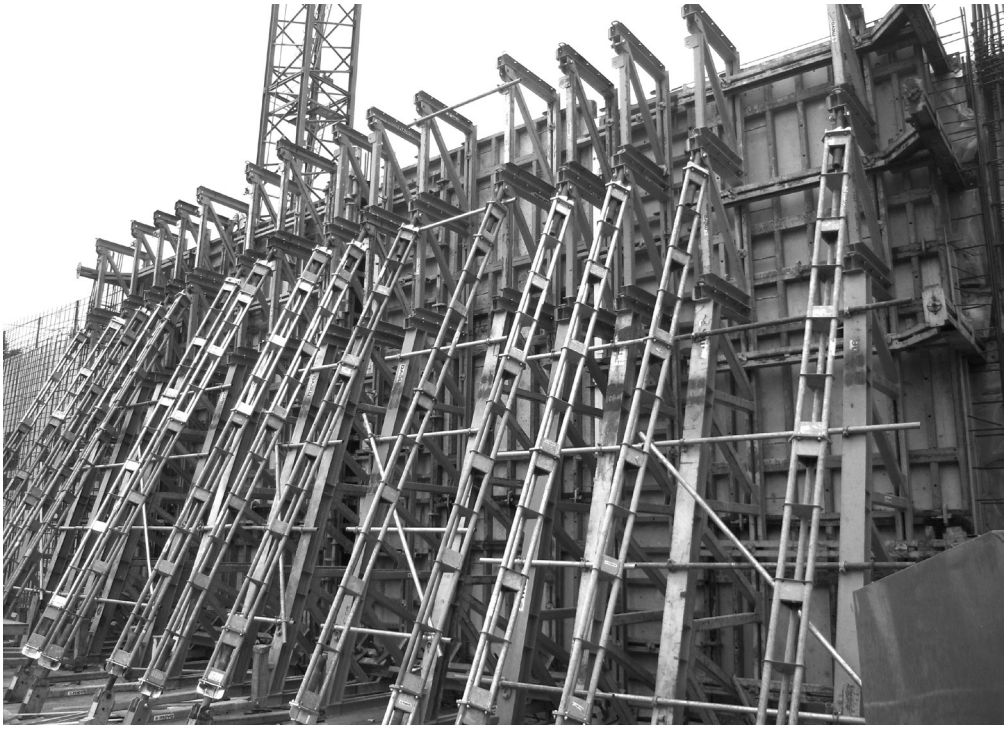


Fig. 65.1

Formwork Climbing systems KLK 230 and MGC-F
When forming high walls, facades, pillars, staircases or elevator shafts, Imperial formwork can be set and secured on the KLK 230 or MGC-F.
Technical data sheets are available on request.

Attention:
The use of STB, KLK and MGC-F requires a detailed formwork planning!

Fig. 65.2

Transport

Transport units

Fig. 66.1
Panel stacks should not exceed 10 panels. Make sure that panels are secured before flying the stack.

Fig. 66.2
Corners can be stored in stacking racks.

Fig. 66.3 & Fig. 66.4
Fillers and walkway brackets can also be stored in stacking racks.

Fig. 66.5
Accessories such as assembly locks, flange screws, articulated flange nuts, ties, crane hooks, etc. can be stored in the MEVA storage boxes.

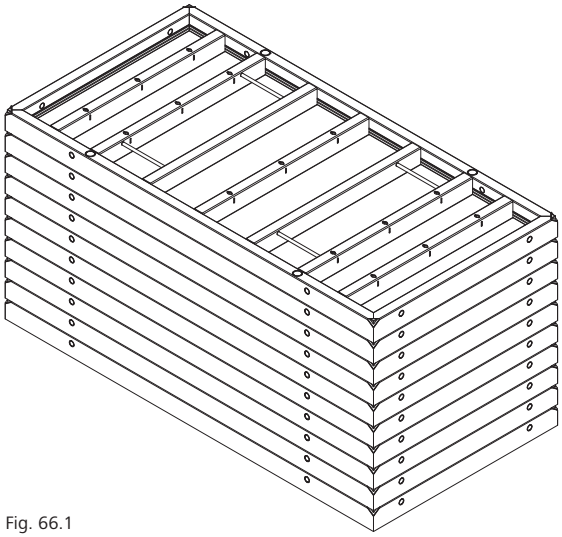


Fig. 66.1

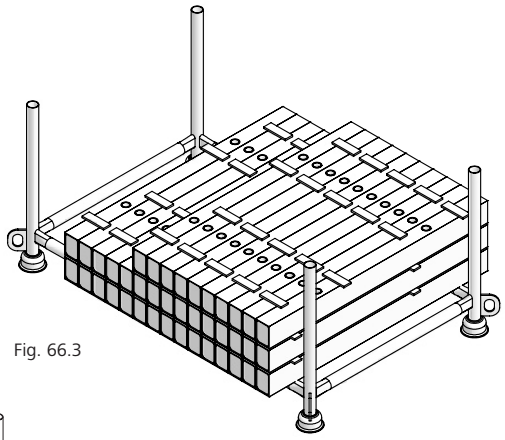


Fig. 66.3

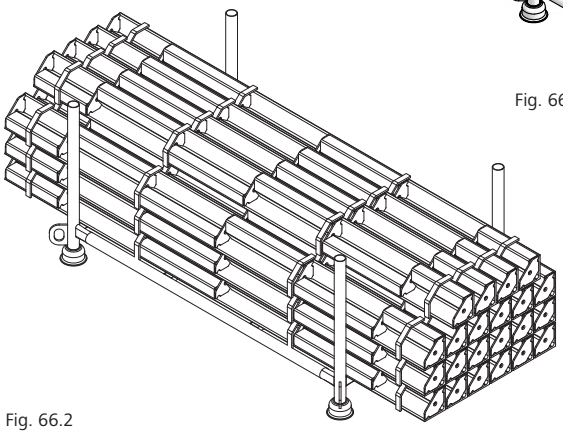


Fig. 66.2

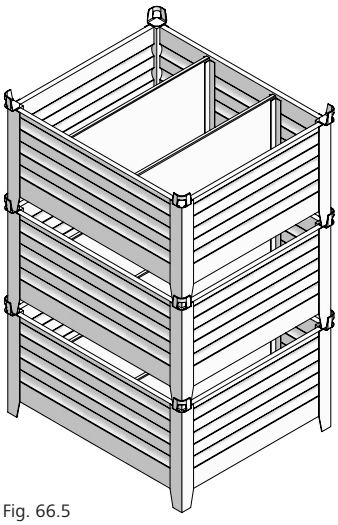


Fig. 66.5

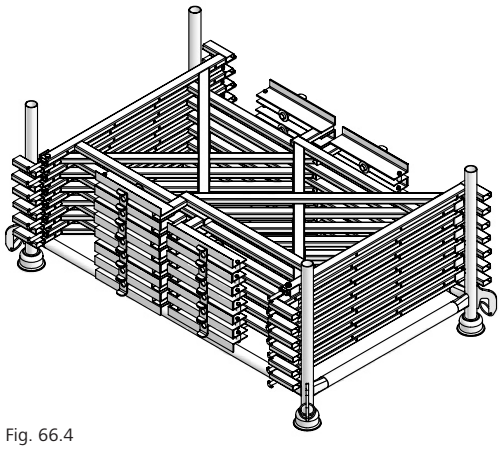


Fig. 66.4

Description	Ref.-No.
Storage box	**27-000-10**
Stacking rack	**27-000-20**

Service

Rentals
We offer our customers the option of renting supplementary material during peak times. We also give prospective customers the chance to test MEVA formwork so they can see its benefits for themselves in actual use.

RentalPlus
Since MEVA started the flat rate for cleaning and repair of rented formwork systems in early 2000 more and more contractors experience the outstanding advantages. Ask our representatives about the details!

Formwork drawings
Of course, all offices in our technical department have CAD and BIM facilities. You get expert, clearly represented plans and work cycle drawings.

Special solutions
We can help with special parts, custom designed for your project, as a supplement to our formwork systems.

Notes

Product list

Please note
This product list includes all parts necessary for most applications, along with the corresponding dimensions. For parts required for a special application of Imperial, please refer to our MEVA pricelist.

Content

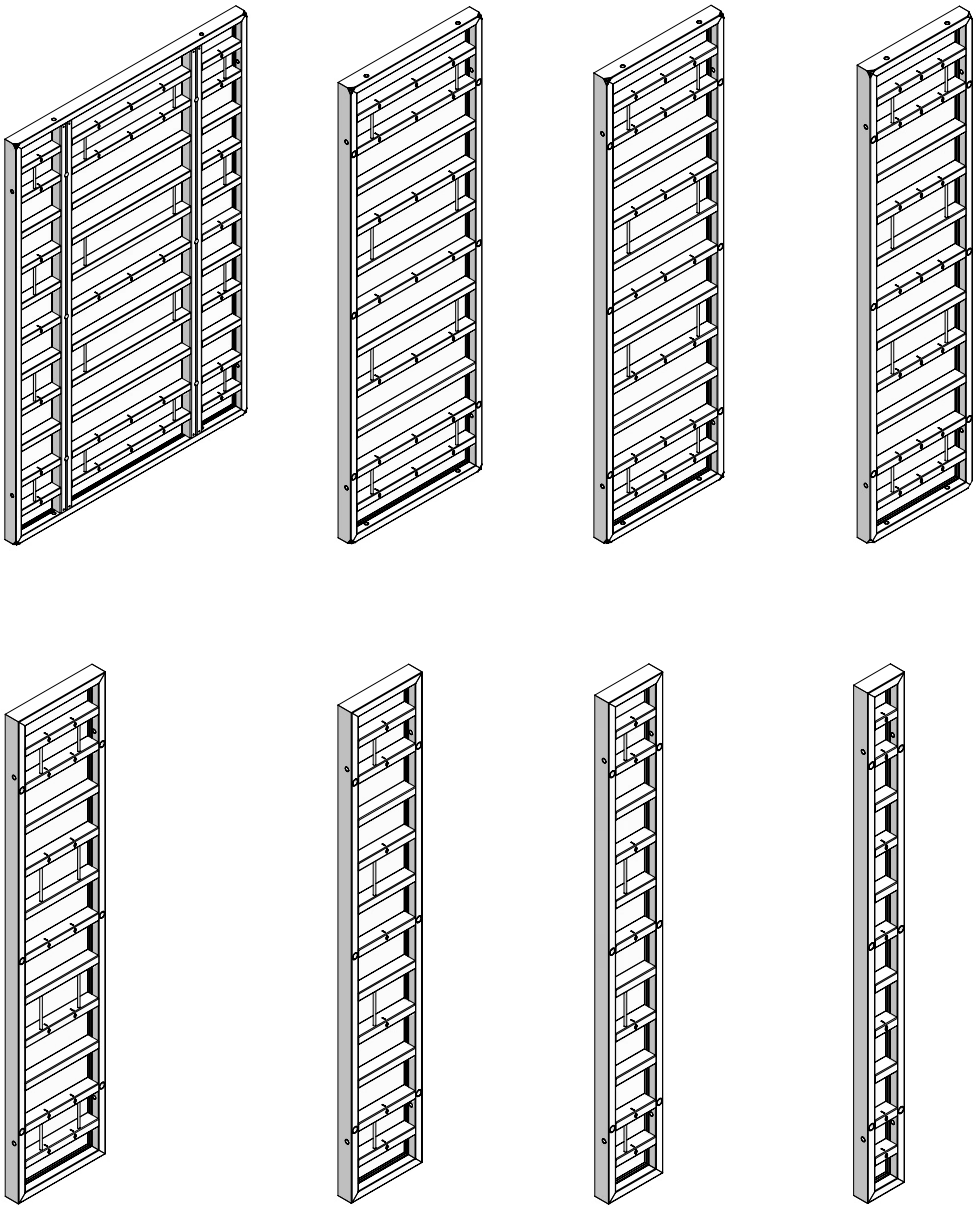
I-panels

All panels available are listed on the right.
For description and dimensions refer to the following pages.

Panel height 12'
For panel height 12': 11 cross stiffeners, of which 5 are multi- function profiles with welded DW-threaded nuts.
3 symmetrically arranged tie holes per panel height.

Attention
Unused tie holes need to be closed with plugs D 36.

Ref.-No.	Description / Application	sq. ft.	lb
23-300-05	I-panel 12' x 8'	96.0	1342.6
23-300-20	I-panel 12' x 4'	48.0	590.8
23-300-30	I-panel 12' x 3'-6"	42.0	535.7
23-300-40	I-panel 12' x 3'	36.0	478.4
23-300-50	I-panel 12' x 2'-6"	30.0	415.6
23-300-60	I-panel 12' x 2'	24.0	350.5
23-300-70	I-panel 12' x 1'-6"	18.0	293.2
23-300-80	I-panel 12' x 1'	12.0	235.9

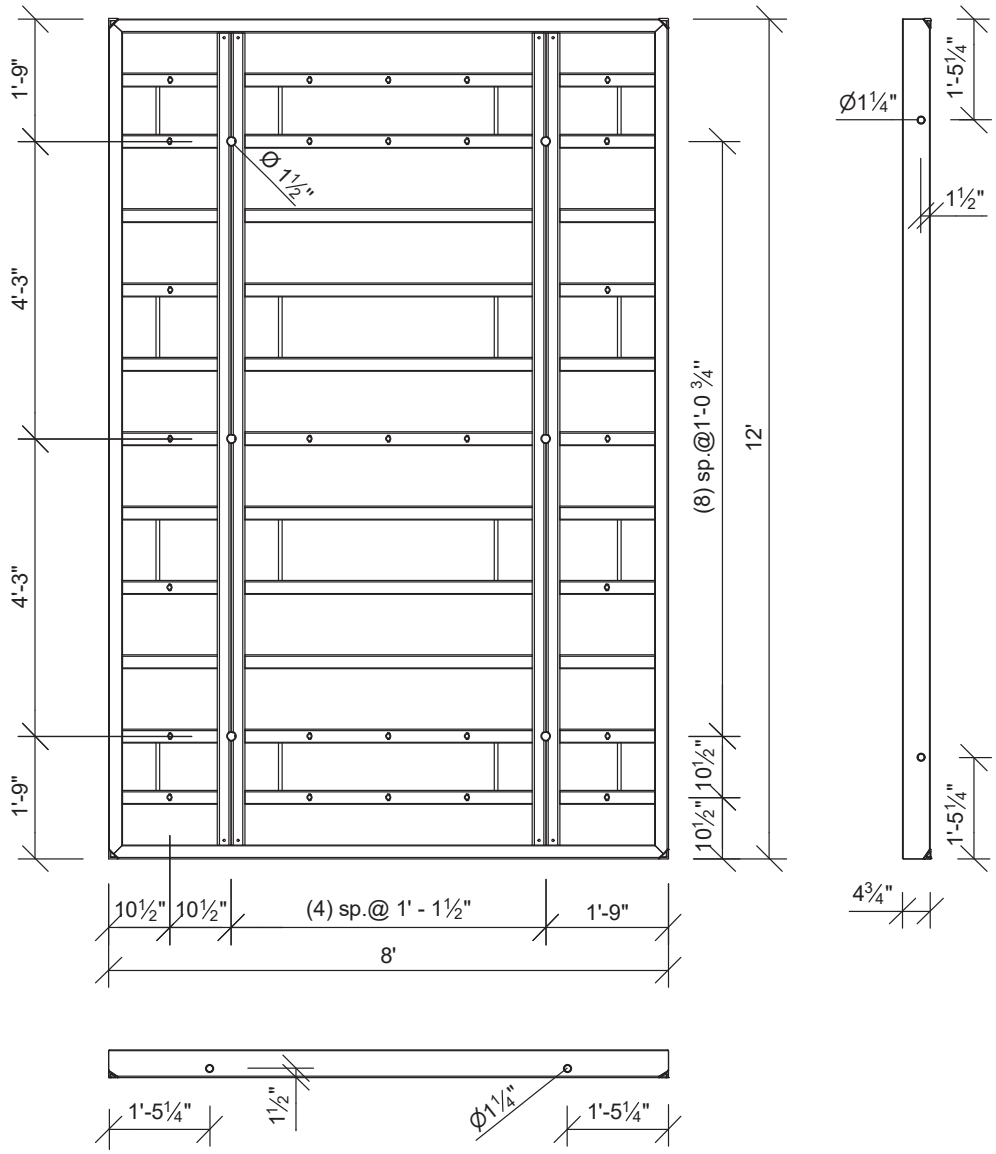


I-panels

Ref.-No.	Description / Application	sq. ft.	lb
23-300-05	I-panel 12' x 8'	96.0	1342.6

Panel height 12'
For panel height 12': 11 cross stiffeners, of which 5 are multi- function profiles with welded DW-threaded nuts.
3 symmetrically arranged tie holes per panel height.

Attention
Unused tie holes need to be closed with plugs D 36.



I-panels

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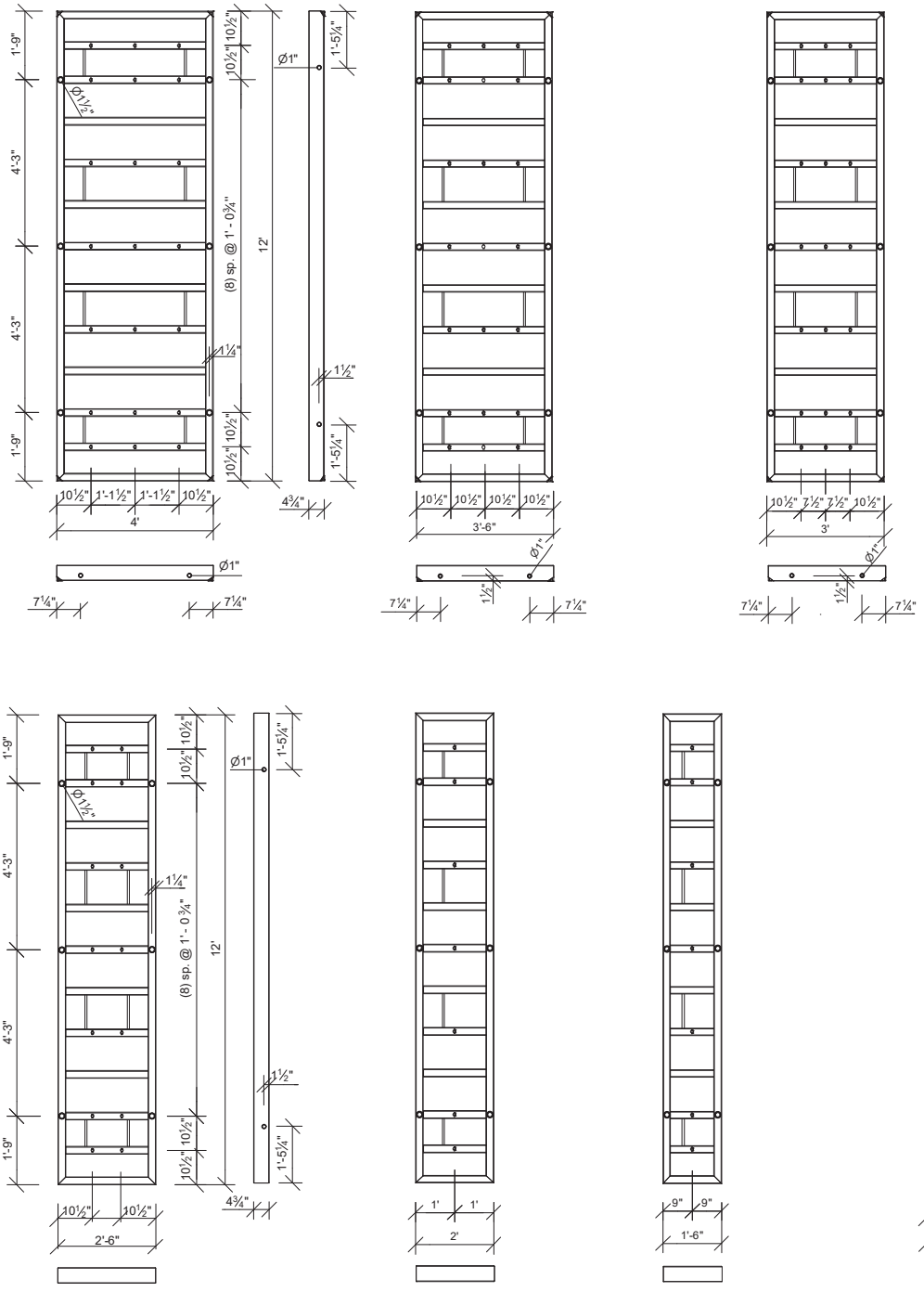
23-300-20	I-panel	12' x 4'	48.0	590.8
23-300-30	I-panel	12' x 3'-6"	42.0	535.7
23-300-40	I-panel	12' x 3'	36.0	478.4
23-300-50	I-panel	12' x 2'-6"	30.0	415.6
23-300-60	I-panel	12' x 2'	24.0	350.5
23-300-70	I-panel	12' x 1'-6"	18.0	293.2
23-300-80	I-panel	12' x 1'	12.0	235.9

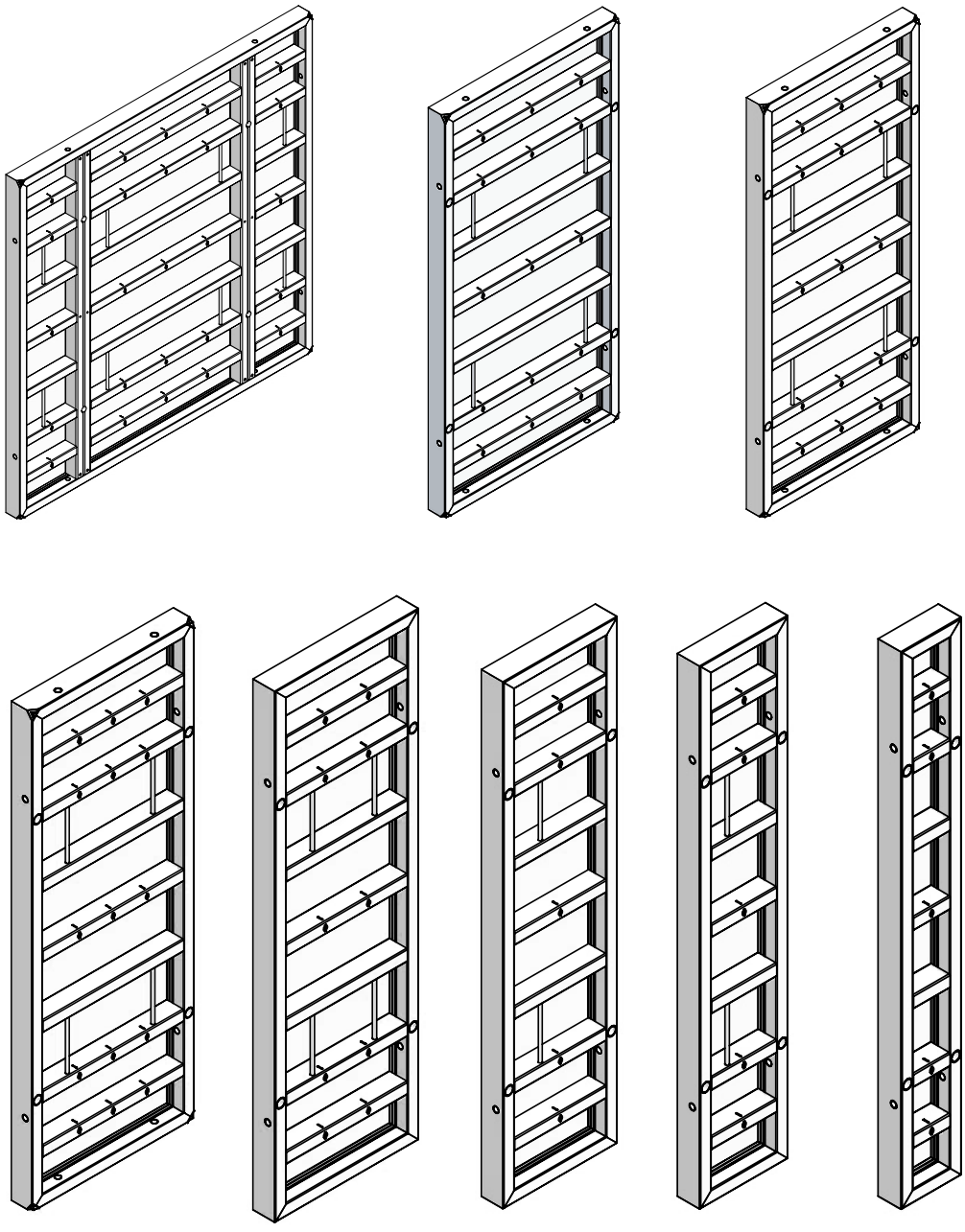


I-panels

Panel height 8'
For panel height 8': 7 cross stiffeners, of which 5 are multi- function profiles with welded DW-threaded nuts.
2 symmetrically arranged tie holes per panel height.

Attention
Unused tie holes need to be closed with plugs D 36.

Ref.-No.	Description / Application		sq. ft.	lb
23-302-05	I-panel	8' x 8'	64.0	912.7
23-302-20	I-panel	8' x 4'	32.0	402.3
23-302-30	I-panel	8' x 3'-6"	28.0	363.8
23-302-40	I-panel	8' x 3'	24.0	326.3
23-302-50	I-panel	8' x 2'-6"	20.0	281.1
23-302-60	I-panel	8' x 2'	16.0	238.1
23-302-70	I-panel	8' x 1'-6"	12.0	197.3
23-302-80	I-panel	8' x 1'	8.0	158.7



I-panels

Panel height 8'
For panel height 8': 7 cross stiffeners, of which 5 are multi- function profiles with welded DW-threaded nuts.
2 symmetrically arranged tie holes per panel height.

Attention
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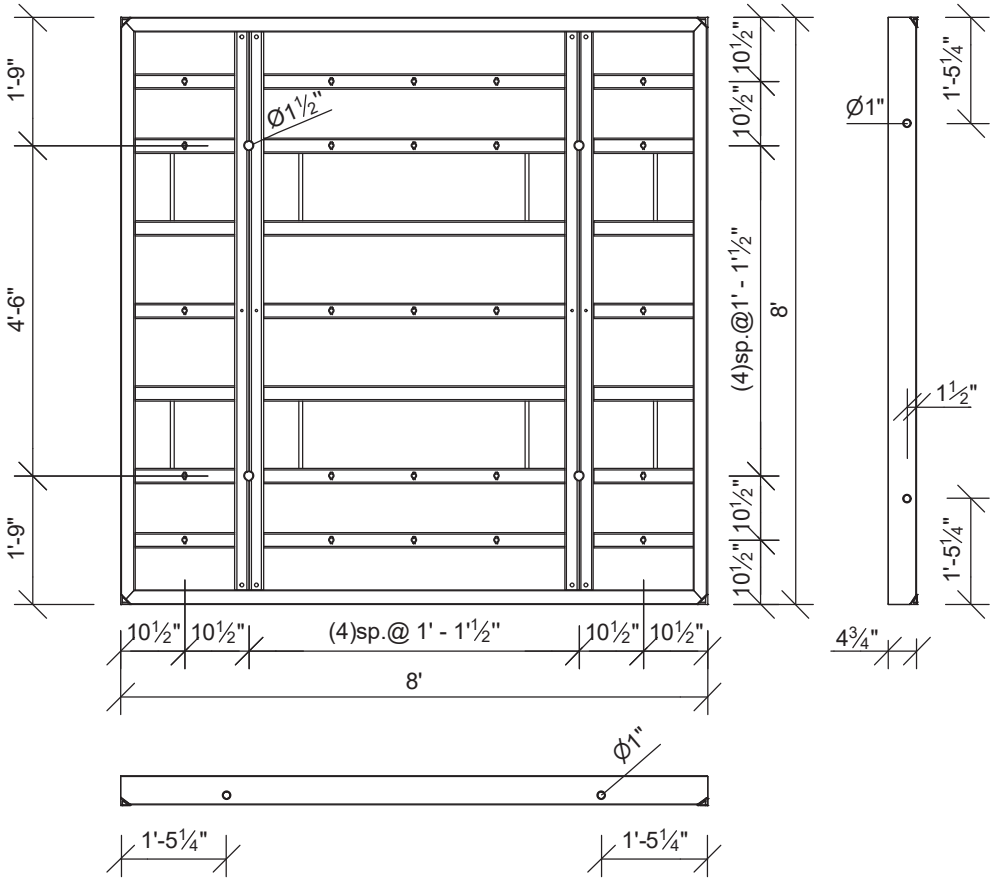
Ref.-No.	Description / Application	sq. ft.	lb
23-302-05	I-panel 8' x 8'	64.0	912.7

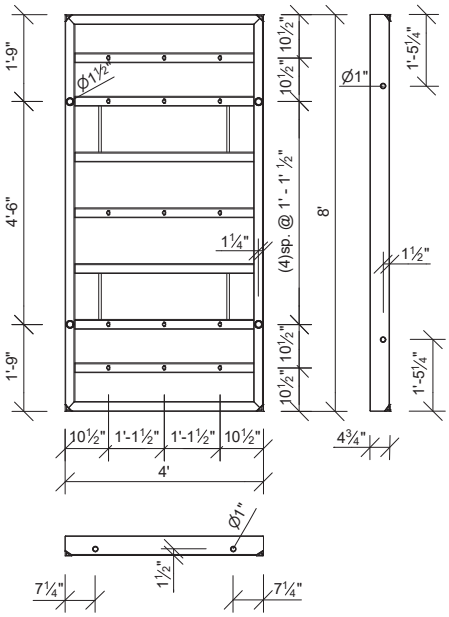


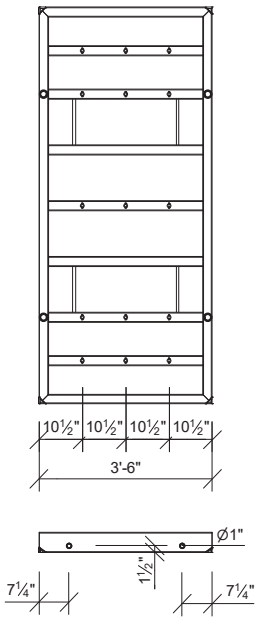
I-panels

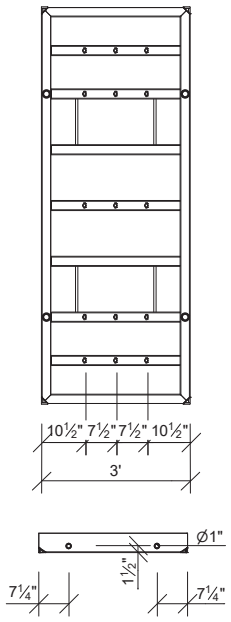
Panel height 8'
For panel height 8': 7 cross stiffeners, of which 5 are multi- function profiles with welded DW-threaded nuts.
2 symmetrically arranged tie holes per panel height.

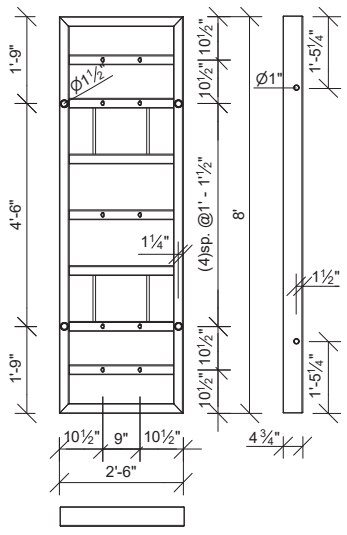
Attention
Unused tie holes need to be closed with plugs D 36.

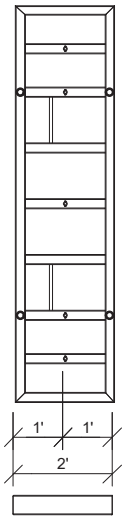
Ref.-No.	Description / Application	sq. ft.	lb
23-302-20	I-panel	8' x 4'	32.0	402.3
23-302-30	I-panel	8' x 3'-6"	28.0	363.8
23-302-40	I-panel	8' x 3'	24.0	326.3
23-302-50	I-panel	8' x 2'-6"	20.0	281.1
23-302-60	I-panel	8' x 2'	16.0	238.1
23-302-70	I-panel	8' x 1'-6"	12.0	197.3
23-302-80	I-panel	8' x 1'	8.0	158.7

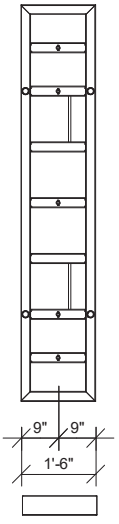










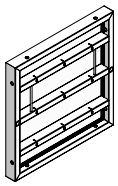
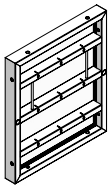
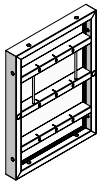
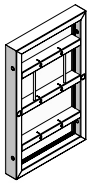
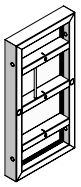
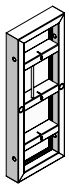
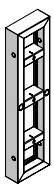


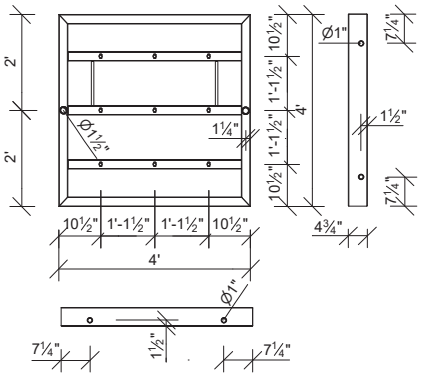
I-panels

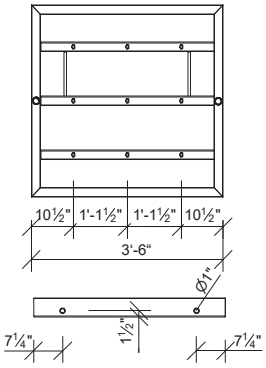
Panel height 4'
For panel height 4': 3 cross stiffeners, of which 3 are multi- function profiles with welded DW-threaded nuts.
One tie rod per panel height is required.

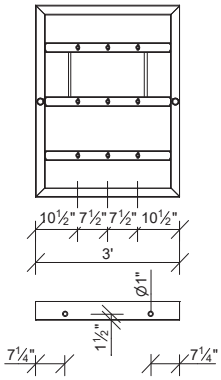
Attention
Unused tie holes need to be closed with plugs D 36.

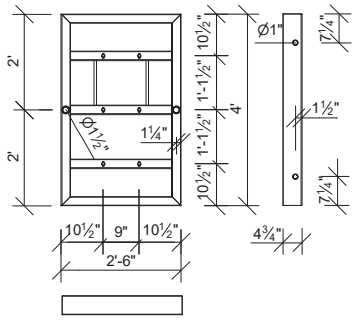
Ref.-No.	Description / Application		sq. ft.	lb
23-304-20	I-panel	4' x 4'	16.0	214.9
23-304-30	I-panel	4' x 3'-6"	14.0	194.0
23-304-40	I-panel	4' x 3'	12.0	173.1
23-304-50	I-panel	4' x 2'-6"	10.0	149.9
23-304-60	I-panel	4' x 2'	8.0	125.7
23-304-70	I-panel	4' x 1'-6"	6.0	104.7
23-304-80	I-panel	4' x 1'	4.0	82.7

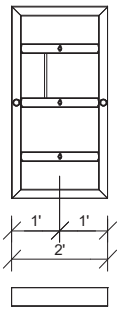








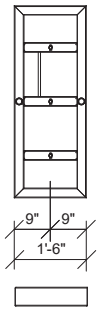


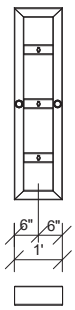










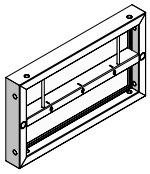


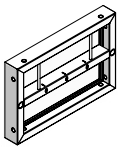
I-panels

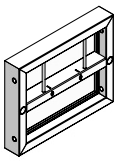
Panel height 2'
For panel height 2': One cross stiffener, which is a multifunction profile with welded DW-threaded nuts.
One tie rod per panel height is required.

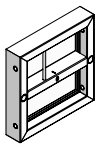
Attention
Unused tie holes need to be closed with plugs D 36.

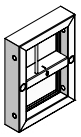
Ref.-No.	Description / Application	sq. ft.	lb
23-305-30	I-panel	2' x 3'-6"	7.0	104.7
23-305-40	I-panel	2' x 3'	6.0	95.9
23-305-50	I-panel	2' x 2'-6"	5.0	82.7
23-305-60	I-panel	2' x 2'	4.0	69.4
23-305-70	I-panel	2' x 1'-6"	3.0	57.3
23-305-80	I-panel	2' x 1'	2.0	44.1

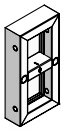


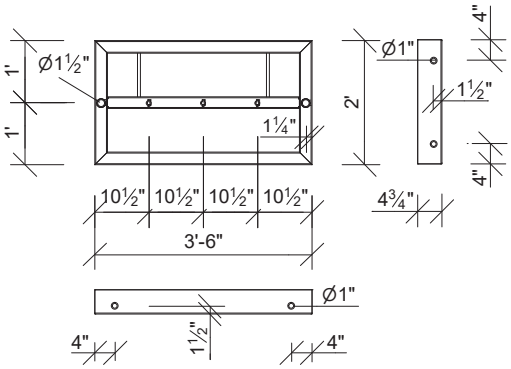


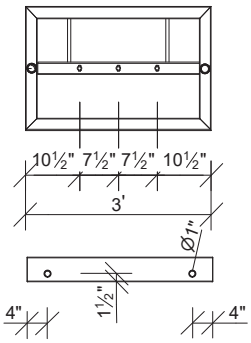


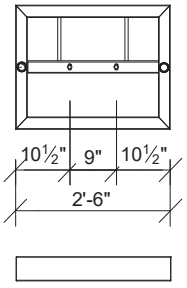


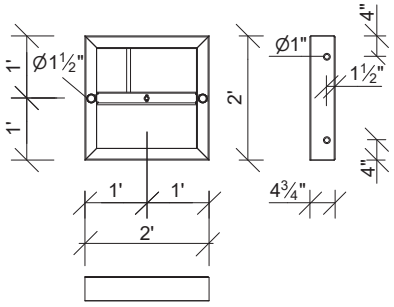


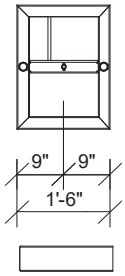


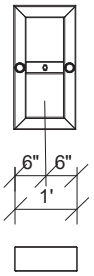










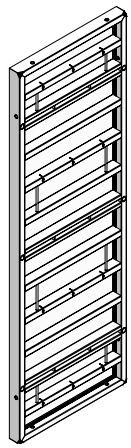


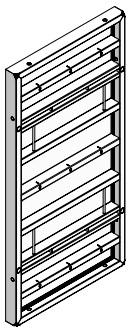
I-multi-purpose panels

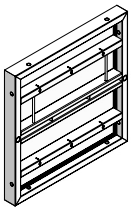
The frames are made of steel profiles. The multi-purpose panel 12′ is provided with three symmetric multi-adjustment profiles to attach column clamps or to install ties. The 8′ panel has two of them, and the 4′ and 2′ panels have one multi-adjustment profile. For corners, column formwork and connection to existing walls.

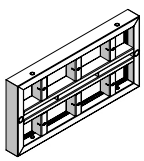
Attention
Unused tie holes need to be closed with plugs D 36.

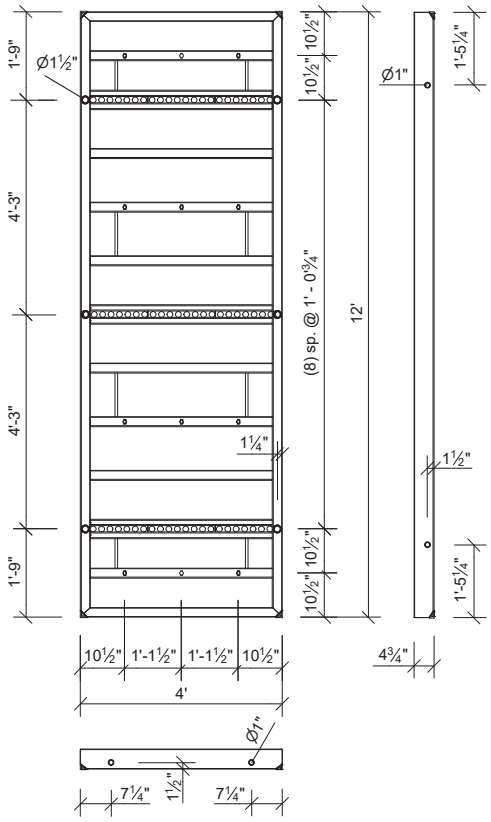
Ref.-No.	Description / Application	sq. ft.	lb
23-300-25	I-multi-purpose panel ... 12′ x 4′	48.0	661.4
23-302-25	I-multi-purpose panel ... 8′ x 4′	32.0	450.8
23-304-25	I-multi-purpose panel ... 4′ x 4′	16.0	239.2
23-305-25	I-multi-purpose panel ... 2′ x 4′	8.0	144.4

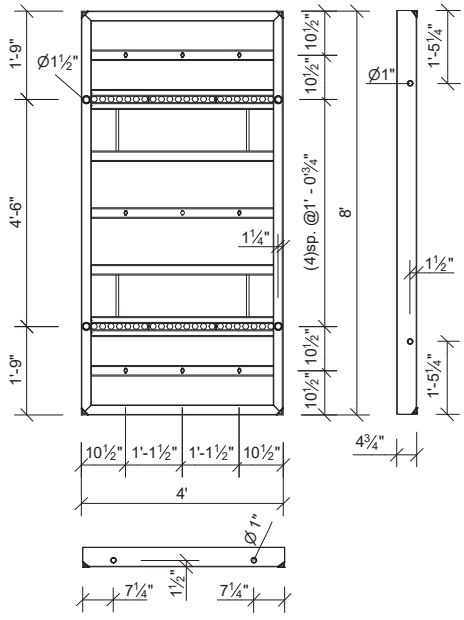


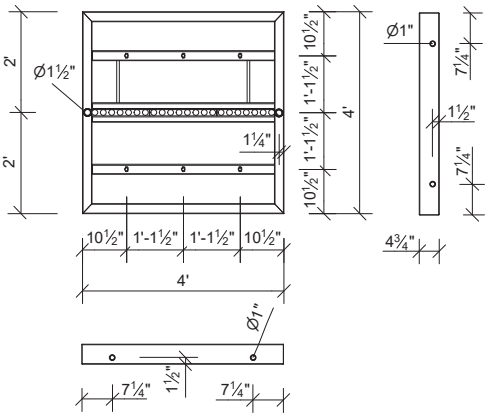


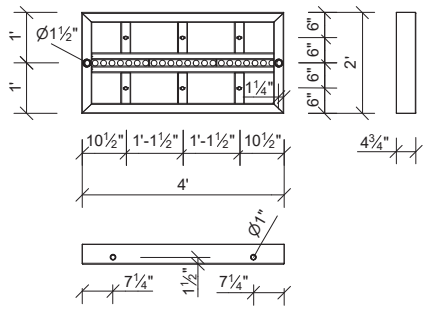








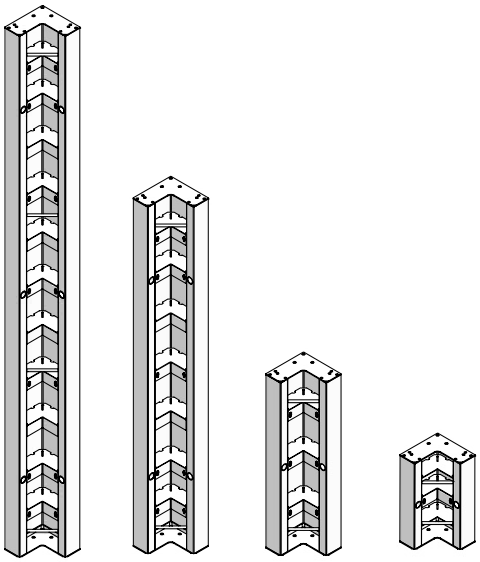


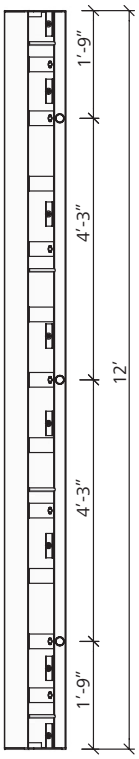


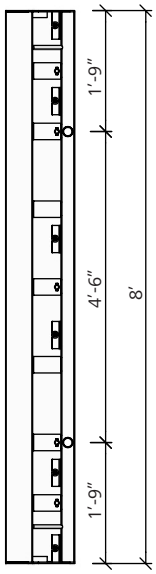
I-inside corner

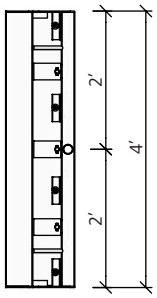
consists of a galvanized steel frame and a replaceable alkus face; for 90°angles.

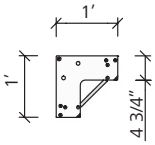
Ref.-No.	Description / Application	sq. ft.	lb
23-306-80	I-inside corner	12′ x 1′	24	414.5
23-306-85	I-inside corner	8′ x 1′	16	277.8
23-306-90	I-inside corner	4′ x 1′	8	144.4
23-306-95	I-inside corner	2′ x 1′	4	80.0

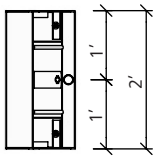








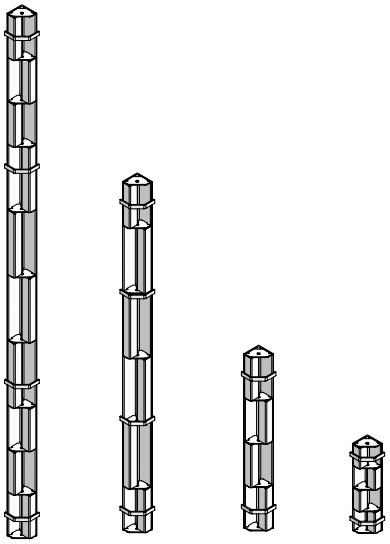


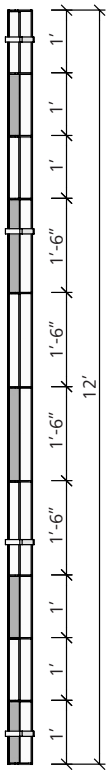


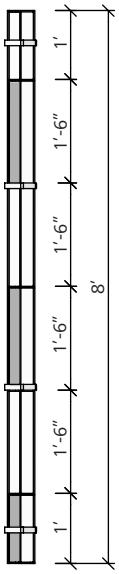
I-outside corner

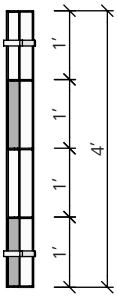
galvanized, together with Imperial-panels and M-assembly locks it provides a solid outside corner assembly for 90° angles with high resistance to tensile force.

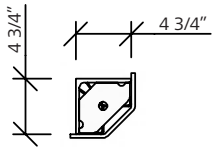
Ref.-No.	Description / Application	sq. ft.	lb
23-306-00	I-outside corner	12′	-	179.0
23-306-10	I-outside corner	8′	-	120.4
23-306-20	I-outside corner	4′	-	61.5
23-306-25	I-outside corner	2′	-	33.7

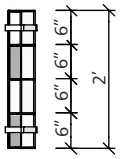






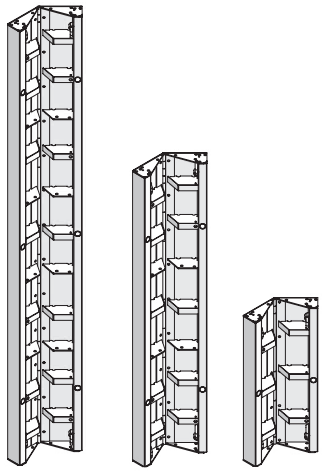


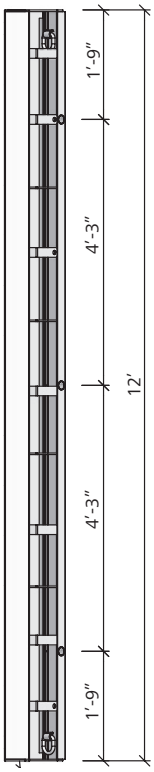




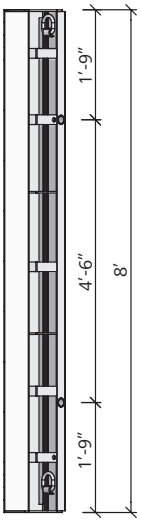
I-articulated inside corner

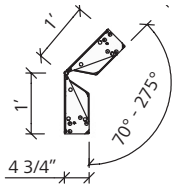
steel; side length = 1'; adjustable from 70° to 275°; stop points at 70°, 90° and 135°; plugs D 36 (Ref.-No. 29-902-65) are used to close the tie holes.

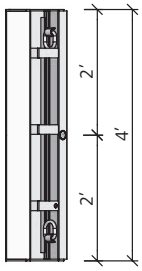




Ref.-No.	Description / Application	sq. ft.	lb
23-307-50	I-articulated IC	12' x 1'	24	434.3
23-307-60	I-articulated IC	8' x 1'	16	311.7
23-307-70	I-articulated IC	4' x 1'	8	157.8

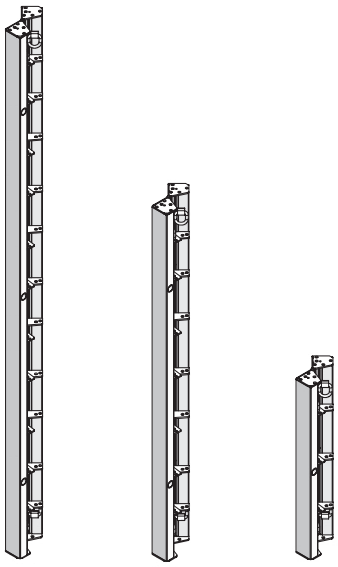


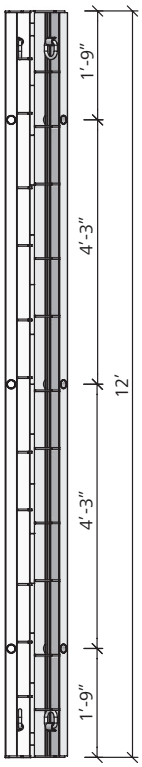




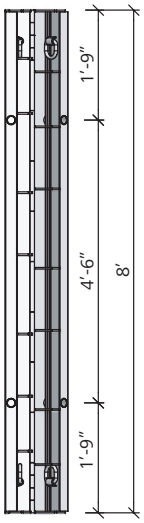
I-articulated outside corner

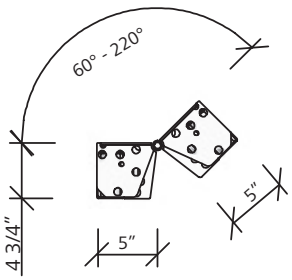
steel, side length = 5"; stop points at 90°, 120° and 135°; adjustable from 60° to 220°, plugs D 36 (Ref.-No. 29-902-65) are used to close the tie holes.

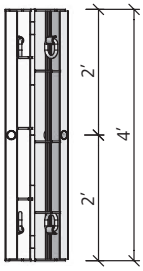




Ref.-No.	Description / Application	sq. ft.	lb
23-307-00	I-articulated OC	12' x 1'	10.0	253.5
23-307-10	I-articulated OC	8' x 1'	6.7	172.4
23-307-20	I-articulated OC	4' x 1'	3.3	88.2



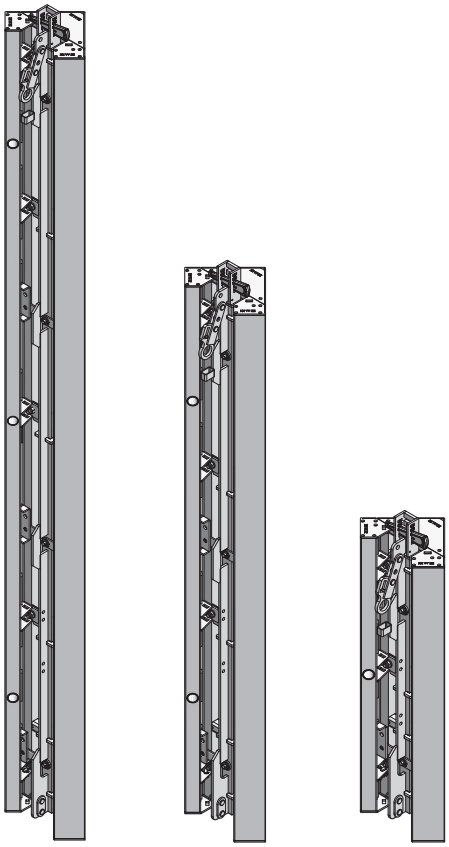


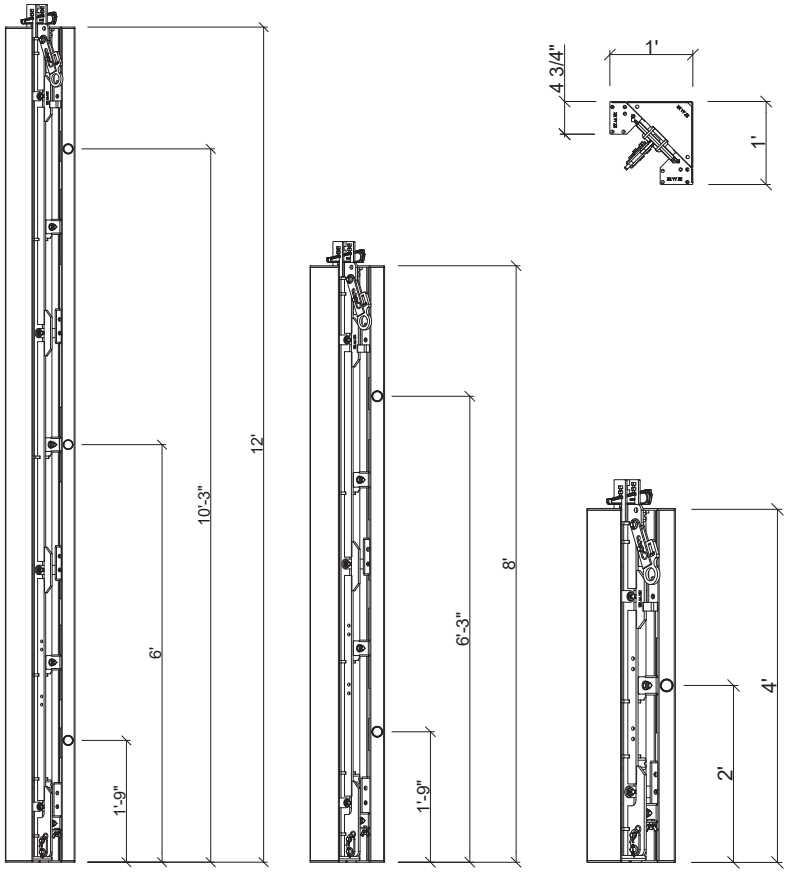


I-stripping corner

steel; side length = 1', designed with 3 pieces to permit inward movement to facilitate stripping and resetting of formwork e.g. in a shaft.

Ref.-No.	Description / Application	sq. ft.	lb
23-309-30	I-stripping corner 12' x 1'	24	488.7
23-309-40	I-stripping corner 8' x 1'	16	351.5
23-309-45	I-stripping corner 4' x 1'	8	197.9

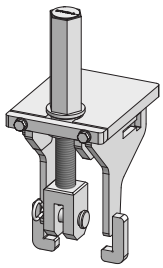


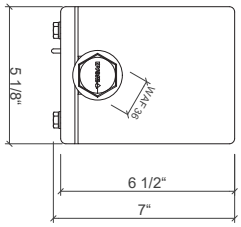


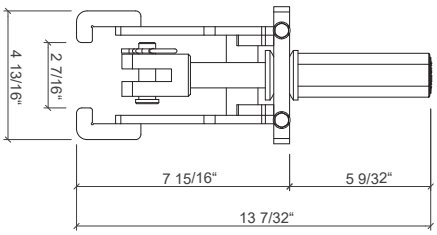
Stripping corner retract & reset tool

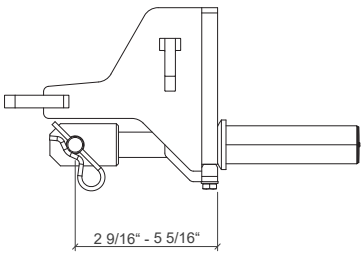
The retract and reset tool is used to easily activate the stripping corner from above with an impact wrench, a ratchet or a wrench.
The retract and reset tool has a hexagonal nut that is operated with tools with a width across flats of 36 mm (1 17/16").
An additional possibility is the use of the Stripping Corner Lever Tool (see page 89).

Ref.-No.	Description / Application	lb
29-306-32	Stripping corner retract & reset tool	14.6





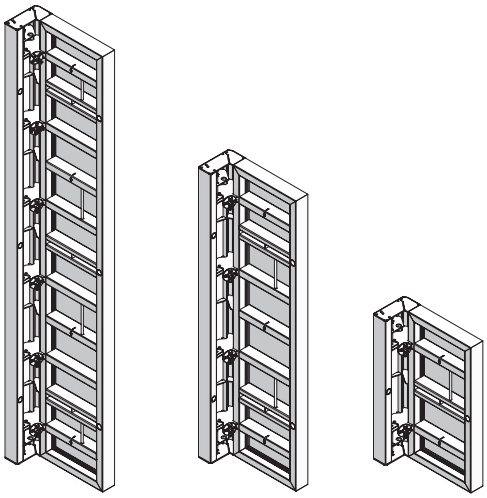


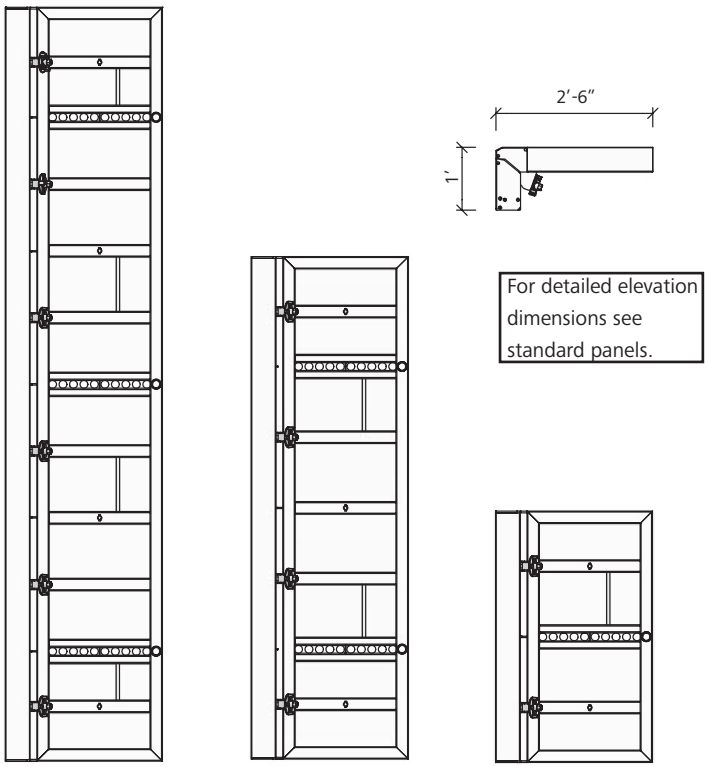


I-pilaster panel

a combination of a hinged corner and a multi-purpose panel.

Ref.-No.	Description / Application		sq. ft.	lb
23-309-50	I-pilaster panel	12′	42	653.7
23-309-60	I-pilaster panel	8′	28	443.1
23-309-70	I-pilaster panel	4′	14	234.8



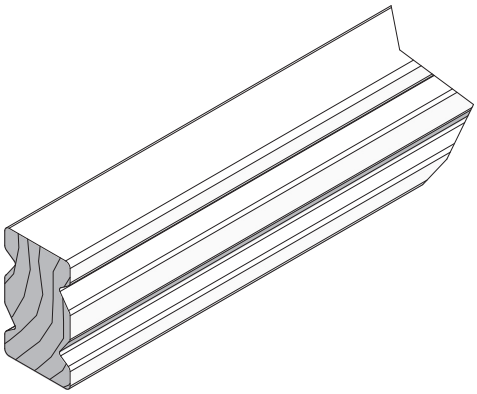


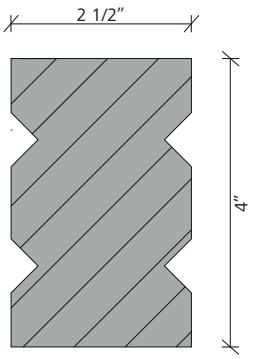
For detailed elevation dimensions see standard panels.

Timber profile 8' LVL

used together with 3/4″ plywood for fillers over 6″ wide.

Ref.-No.	Description / Application	lb
2-500-2339950	Timber profile 8′ - LVL	19.0

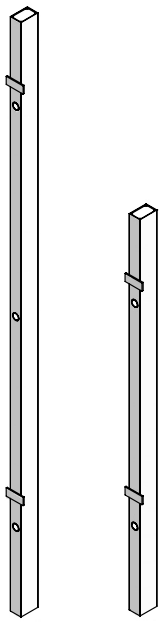


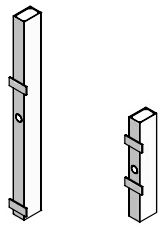


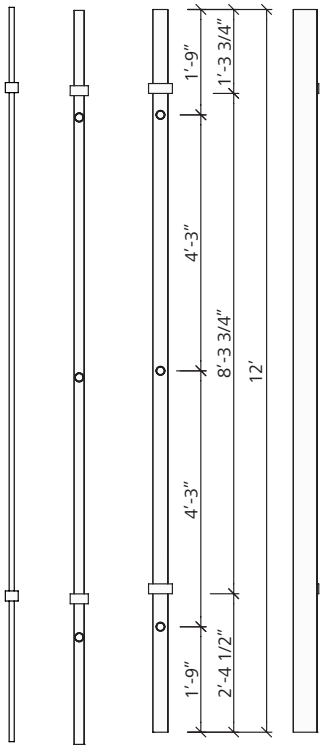
I-filler

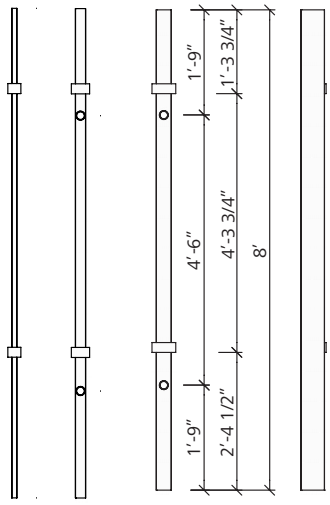
for length adjustments of 1″ to 3″.

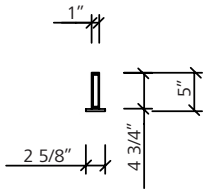
Ref.-No.	Description / Application		sq. ft.	lb
23-312-10	I-filler	12′ x 3″	3.0	31.7
23-312-15	I-filler	12′ x 2″	2.0	23.4
23-312-20	I-filler	12′ x 1″	1.0	18.7
23-312-40	I-filler	8′ x 3″	2.0	21.6
23-312-45	I-filler	8′ x 2″	1.3	15.7
23-312-50	I-filler	8′ x 1″	0.7	12.8
23-312-70	I-filler	4′ x 3″	1.0	11.2
23-312-75	I-filler	4′ x 2″	0.7	8.4
23-312-80	I-filler	4′ x 1″	0.3	6.6
23-312-85	I-filler	2′ x 3″	0.5	6.1
23-312-90	I-filler	2′ x 2″	0.3	4.5
23-312-95	I-filler	2′ x 1″	0.2	3.5

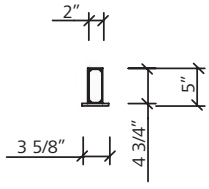


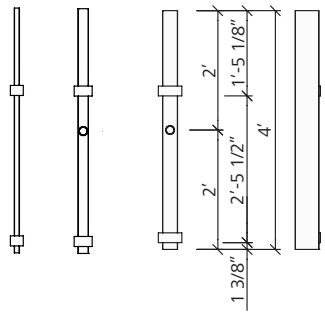


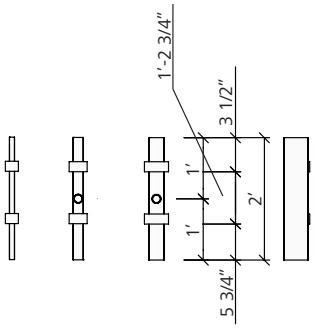


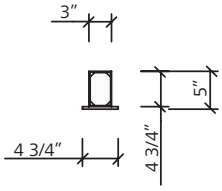








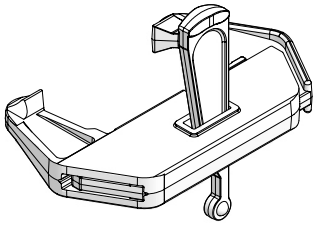


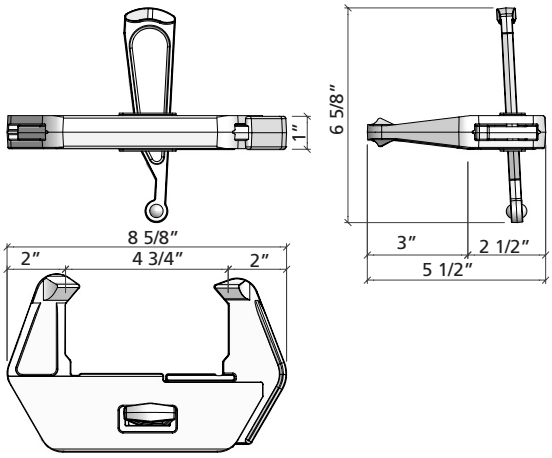


M-assembly lock

galvanized; to tightly connect and align Imperial panels; clamping length: 4 3/4"

Ref.-No.	Description / Application	lb
29-400-71	M-assembly lock	6.6





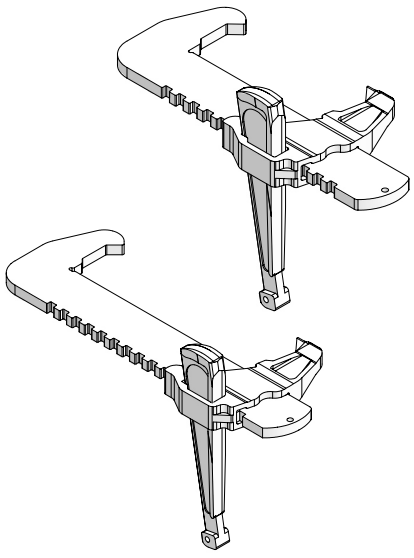
Uni-assembly lock

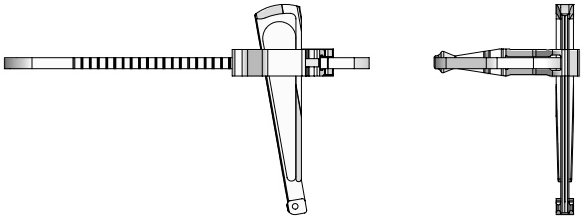
galvanized; for connecting panels with fillers;

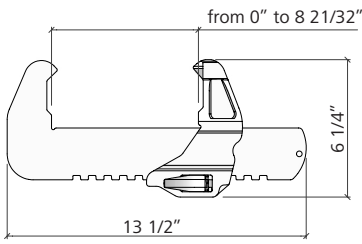
Uni-assembly lock 22:
clamping length = 8 21/32",
spans fillers up to 4" (when using Imperial panels).

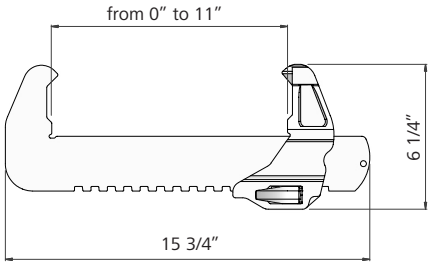
Uni-assembly lock 28:
clamping length = 11",
spans fillers up to 6" (when using Imperial panels).

Ref.-No.	Description / Application	lb
29-400-85	Uni-assembly lock 22	7.9
29-400-90	Uni-assembly lock 28	8.6





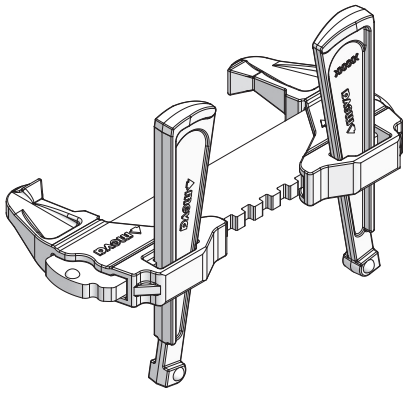


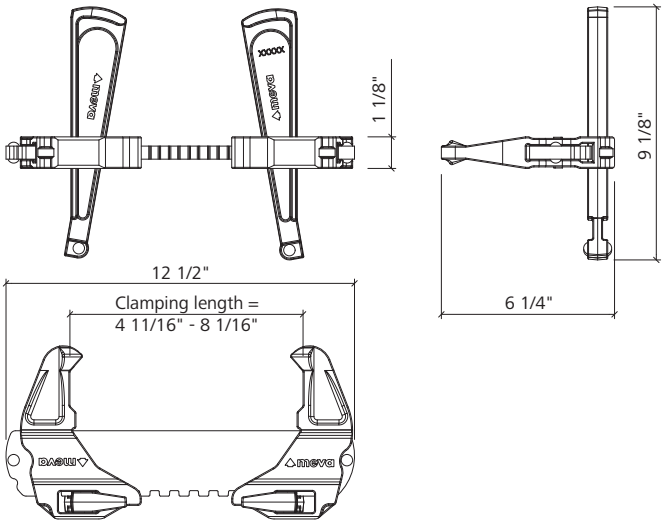


Double wedge lock

galvanized; for connecting Imperial panels with fillers at stripping corners;
clamping length = 4 11/16" - 8 1/16“,
spans fillers up to 3.3“ (maximum filler size).

Ref.-No.	Description / Application	lb
23-807-70	Double wedge lock	10.4

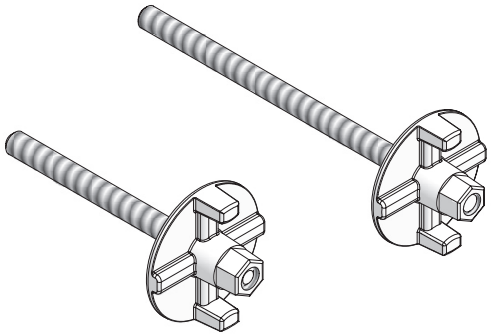


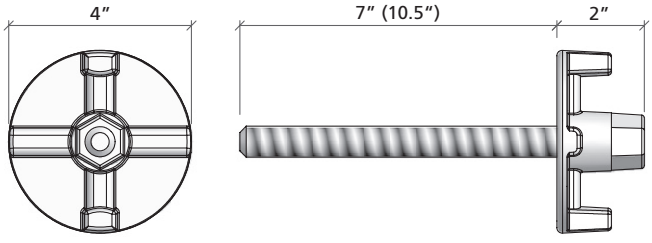


Flange screw 18/28

galvanized; to attach steel rails, scaffolding brackets and formwork-prop connectors etc.;
length of thread: 7” for flange screw 18
and 10.5“ for flange screw 28.

Ref.-No.	Description / Application	lb
29-401-10	Flange screw 18	2.4
29-401-12	Flange screw 28	2.7

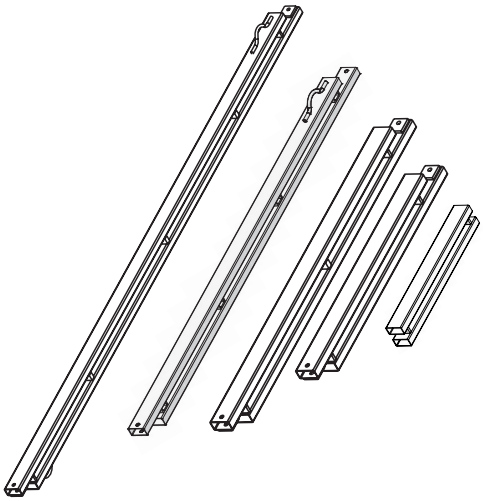


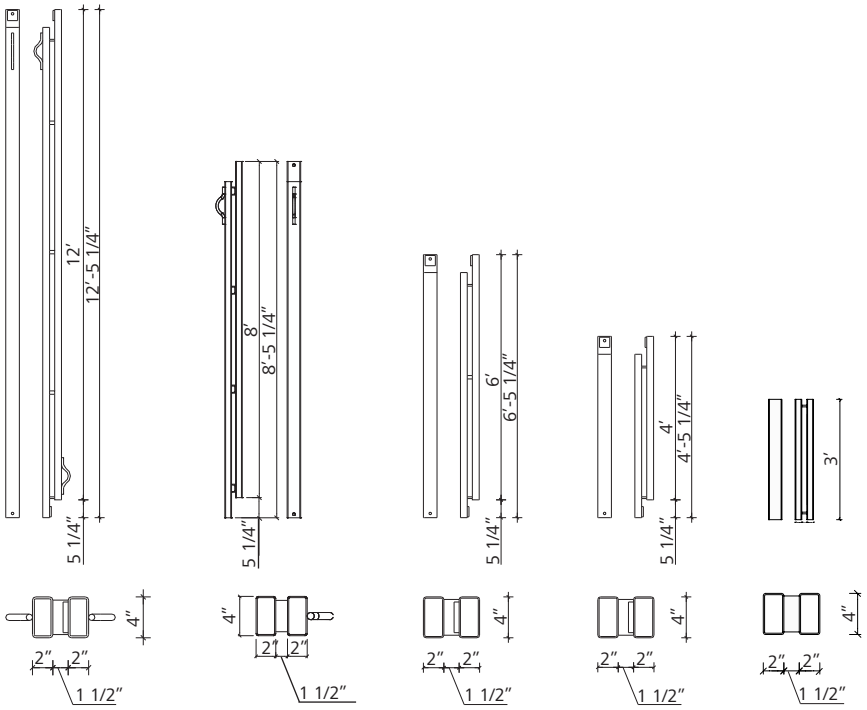


Alignment rails

galvanized; to brace panel joints for gang forming, to support fillers and to build bulkheads. Is attached to formwork with flange screws.

Ref.-No.	Description / Application	lb
2-500-2331040	Steel rail 12'	155.0
2-500-2331035	Steel rail 8'	80.0
2-500-2331030	Steel rail 6'	61.0
2-500-2331020	Steel rail 4'	44.0
2-500-2251010	Steel rail 3'	29.0

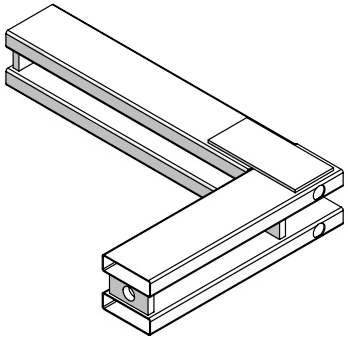


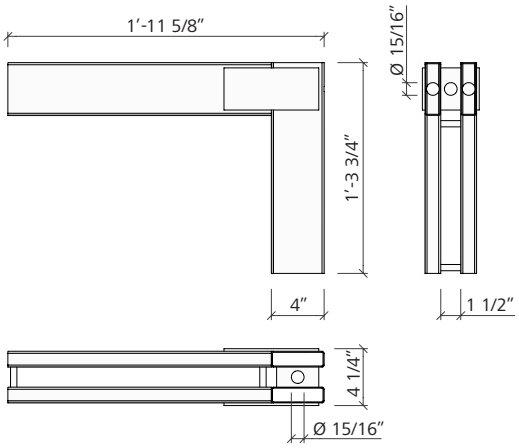


Corner bracket 40/60

galvanized; to reinforce corner applications.

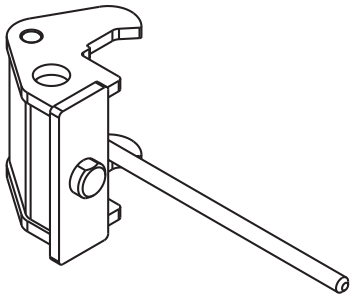
Ref.-No.	Description / Application	lb
29-402-25	Corner bracket 40/60	20.9



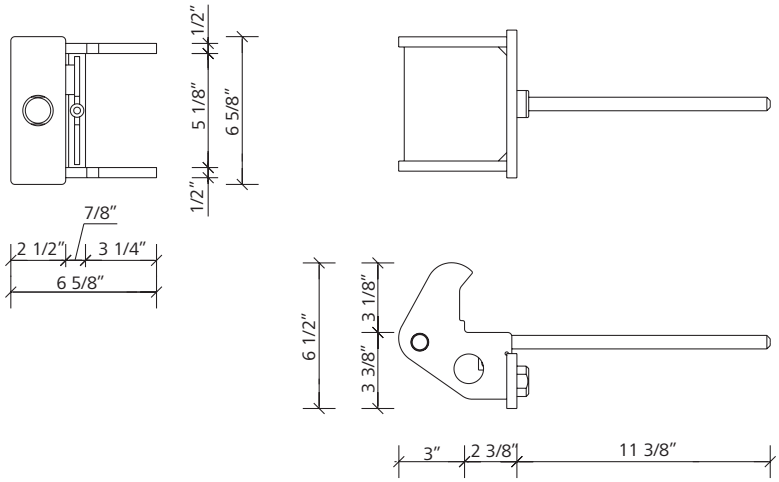


I-column clamp

galvanized, permits connection of panels at an angle of 90°. Used to secure rails for bulkheads and to form columns with I-multi-purpose panels; needs one flange nut 100 or articulated flange nut 15/120.

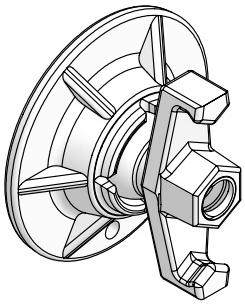


Ref.-No.	Description / Application	lb
23-311-00	I-column clamp	12.6

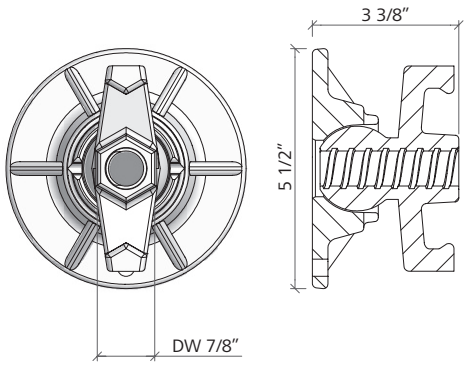


Articulated flange nut 20/140

forged part with cut thread, ball-and-socket joint; max. inclination 10°; for threadbars with 7/8″ (20 mm); plate diameter: 5 1/2″;
admissible load-bearing capacity: 39,200 lbs.

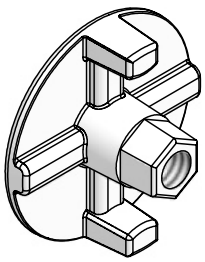


Ref.-No.	Description / Application	lb
29-900-05	Articulated flange nut 20/140	5.3

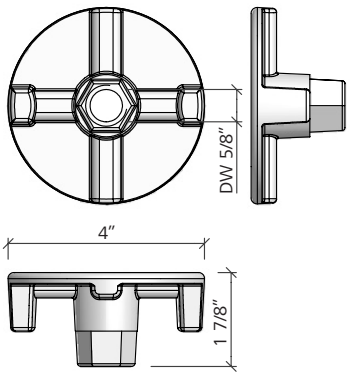


Flange nut 100

forged part with cut thread; for threadbars with 5/8″ (15 mm); plate diameter: 4″;
admissible load-bearing capacity: 21,900 lbs.

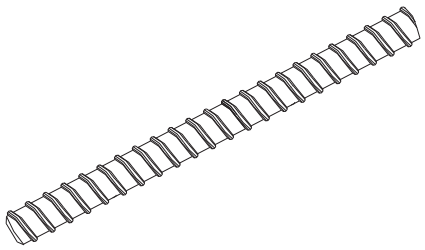


Ref.-No.	Description / Application	lb
29-900-20	Flange nut 100	1.5

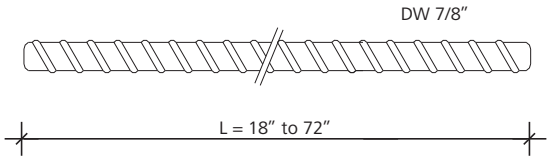


Threadbar 7/8" (20mm)

to tie formwork;
safe working load = 39.2 kips @ 2:1 safety factor

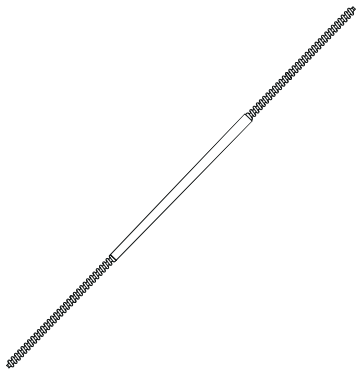


Ref.-No.	Description / Application	lb
2-500-2990058	18"	2.65
2-500-2990056	42"	6.20
2-500-2990054	54"	7.90
2-500-2990052	72"	10.50



Taper tie

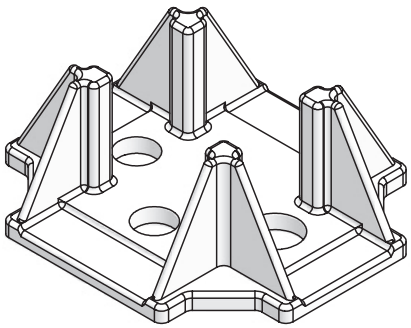
to tie formwork; 7/8" (20mm) thread diameter,
1" to 1 1/4" taper diameters;
safe working load = 32.5 kips @ 2:1 safety factor



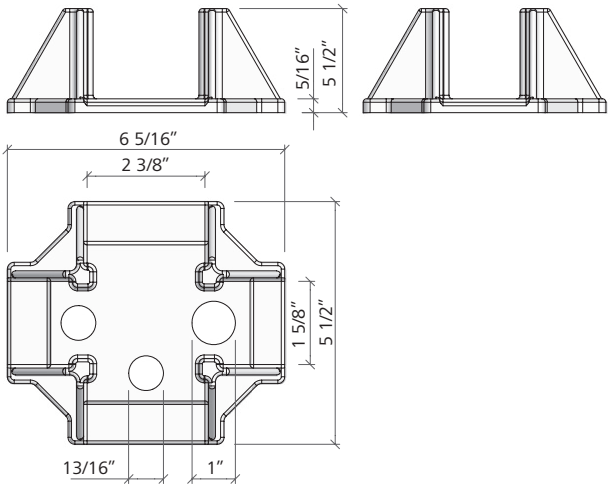
Ref.-No.	Taper Length	Overall Length	lb
2-500-2990031	16"	41"	7.47
2-500-2990033	24"	49"	9.33
2-500-2990035	32"	57"	11.20
2-500-2990037	42"	63"	15.08
2-500-78-52/78	52"	78"	28.00

Uni-tie claw

galvanized; permits tieing directly above or beside the panels; suited for modular panels with a profile width of 1 9/16" (AluStar/StarTec) and 2 3/8" (Imperial).



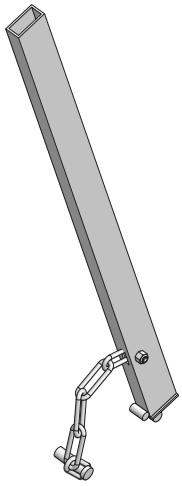
Ref.-No.	Description / Application	lb
29-901-41	Uni-tie claw	3.3

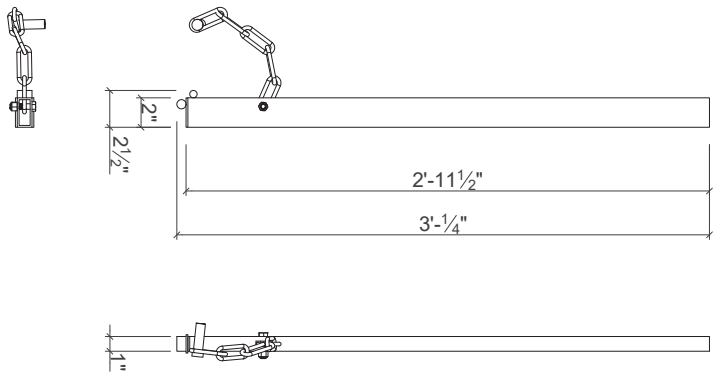


Stripping corner lever tool

is used to strip and reset wall formwork when using stripping corners.

Ref.-No.	Description / Application	lb
2-500-2250980	Stripping corner lever tool	8.0

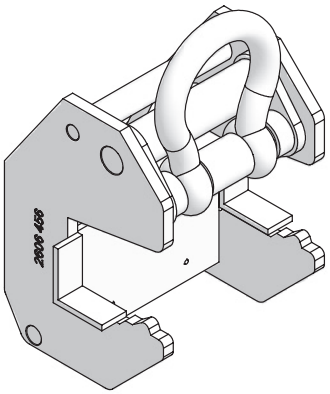


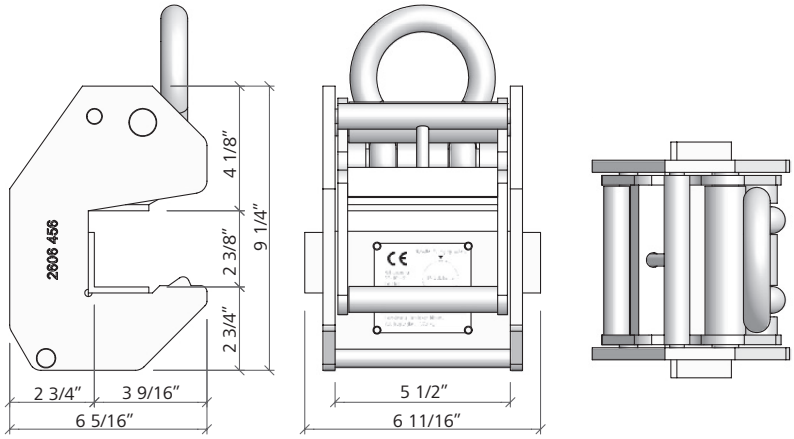


M-crane hook

to move panels and lift gangs; self-locking mechanism; admissible load-bearing capacity: 3,300 lbs;
for application and safety test – see „Crane Hook“ section.

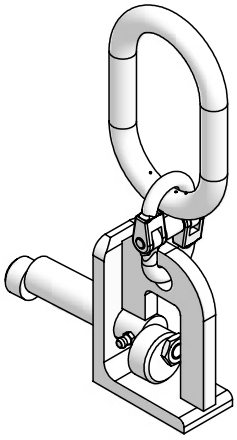
Ref.-No.	Description / Application	lb
29-401-25	M-crane hook	21.2



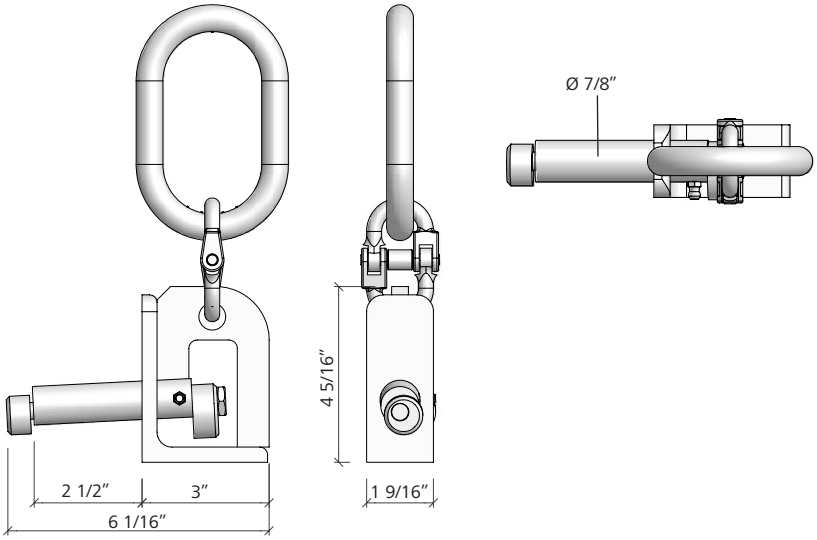


Lifting hook 60

galvanized; enables moving and transporting of a stack of panels with 4 hooks and any available crane slings.

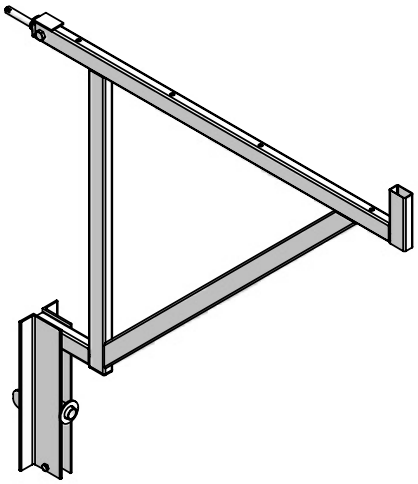


Ref.-No.	Description / Application	lb
29-401-40	Lifting hook 60	3.8

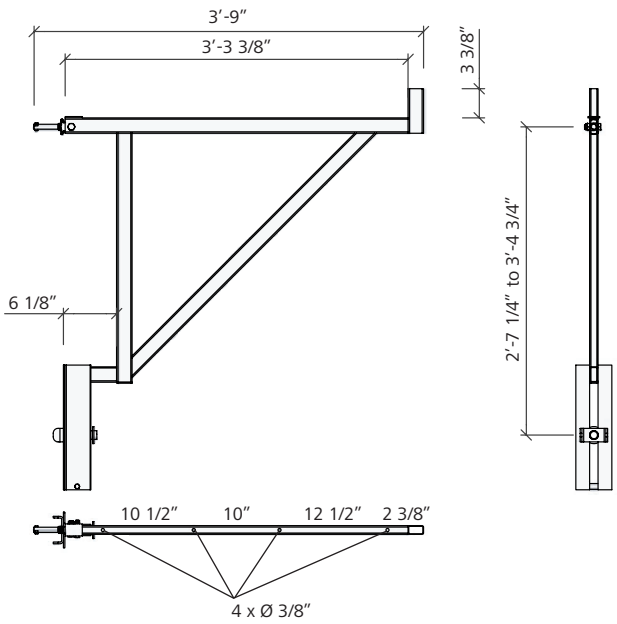


Walkway bracket 90

galvanized; is attached to the multi-function profile and secured to the multi-function profile below by means of a flange screw 18. The planking has to be bolted to the brackets. Working width approx. 3'.
Guard-railing post 100 is required in addition.



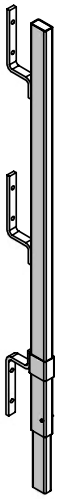
Ref.-No.	Description / Application	lb
29-106-00	Walkway bracket 90 (3')	22.0

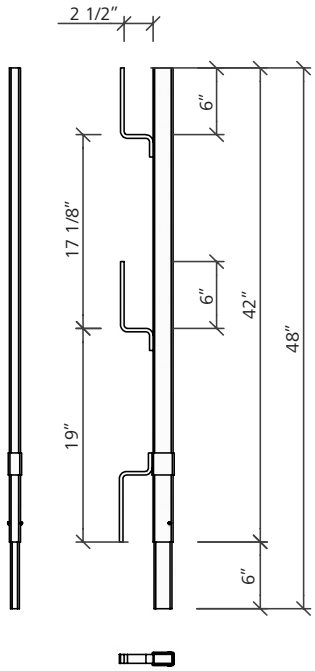


Guard-railing post 100

galvanized; is attached to the walkway bracket.

Ref.-No.	Description / Application	lb
29-106-75	Guard-railing post 100	8.2

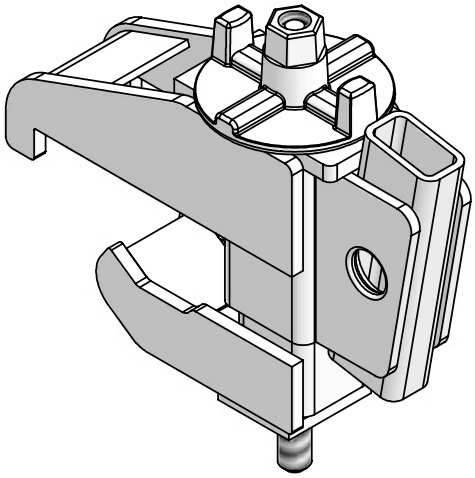


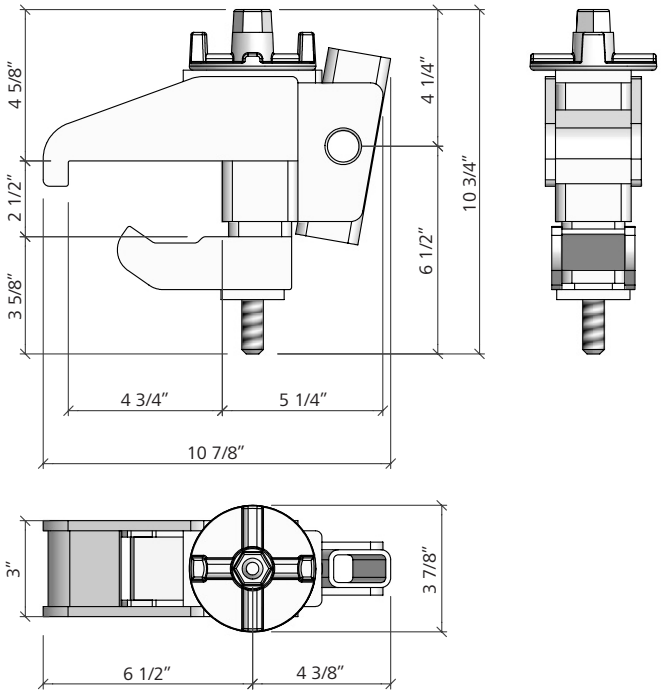


Guard-railing adapter

galvanized; to attach the guard-railing post.

Ref.-No.	Description / Application	lb
23-311-10	Guard-railing adapter	15.9

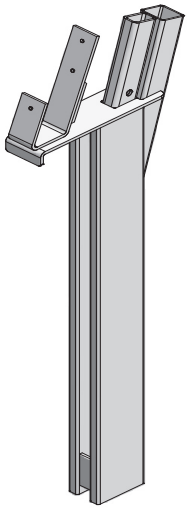


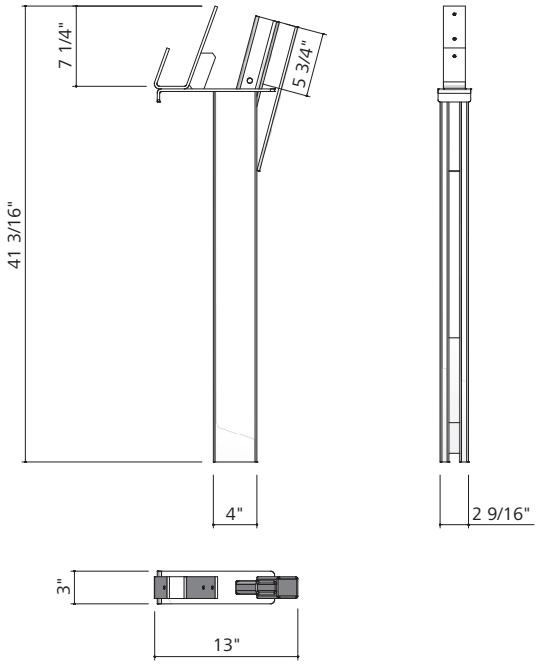


Support 800 for guard-railing post

galvanized; allows plugging in of all MEVA guard-railing posts. The support 800 is mounted to MEVA wall-formwork panels by using a flange screw 18.
The angle between wall formwork and guard-railling post is about 15°.
Not for use on horizontal panels!
Guard-railing post and flange screws 18 must be ordered separately.

Ref.-No.	Description / Application	lb
29-108-50	Support 800 for guard-railing post	22.5

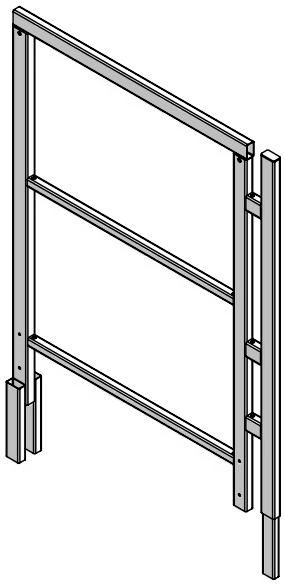


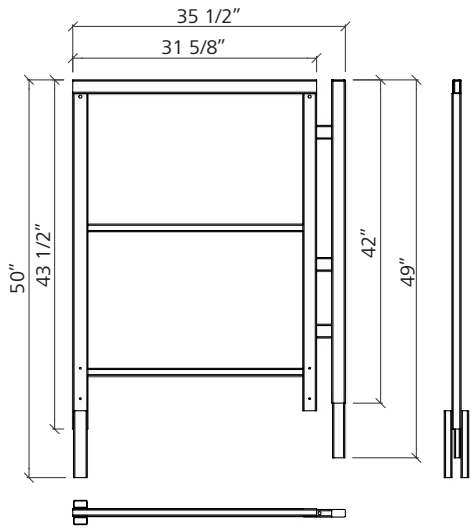


Side railing

galvanized; for walkway brackets.

Ref.-No.	Description / Application	lb
29-108-20	Side railing 90/100	27.1

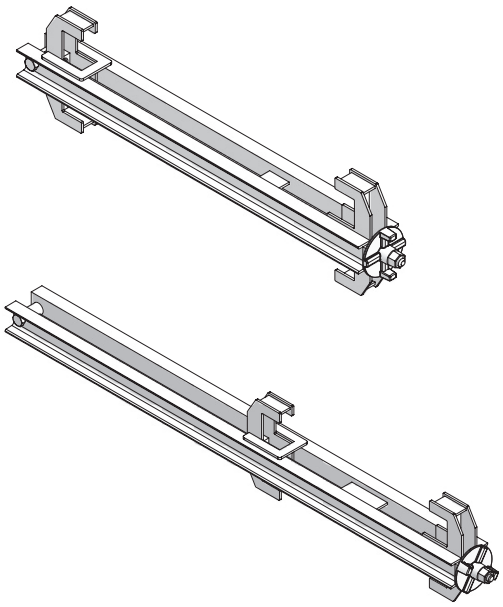




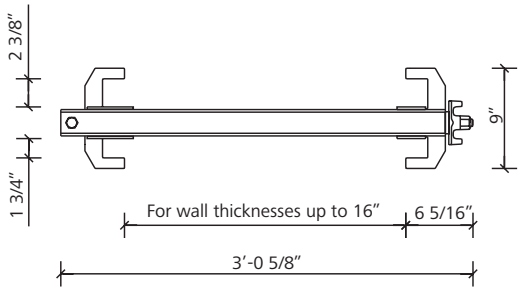
Bulkhead bracket

galvanized; replaces the tie rod or taper tie.
Bulkhead bracket 40/60: suited for modular panels with a profile width of 1 9/16" (StarTec) and 2 3/8" (Imperial).
Bulkhead bracket 60/23: suited for modular panels with a profile width of 7/8" (MevaLite) and 2 3/8" (Imperial).

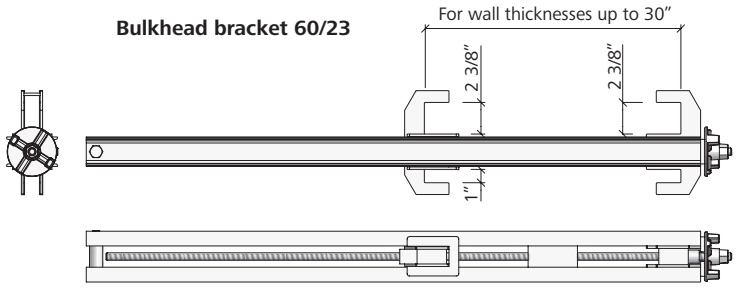
Ref.-No.	Description / Application	lb
29-105-50	Bulkhead bracket 40/60	34.0
29-105-60	Bulkhead bracket 60/23	44.1



Bulkhead bracket 40/60



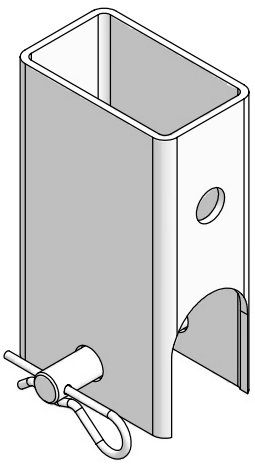
Bulkhead bracket 60/23

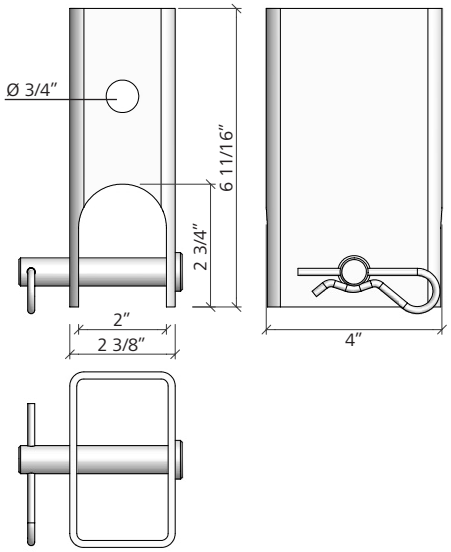


Formwork-prop connector

galvanized; to connect braces, brace frames and push-pull props to the multi-function profile by means of a flange screw 18.
Delivery includes head bolt 16/90 and cotter pin 4.

Ref.-No.	Description / Application	lb
29-804-85	Formwork-prop connector	3.6

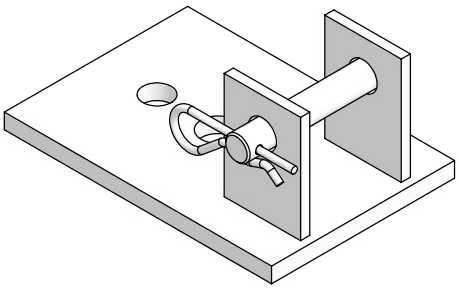


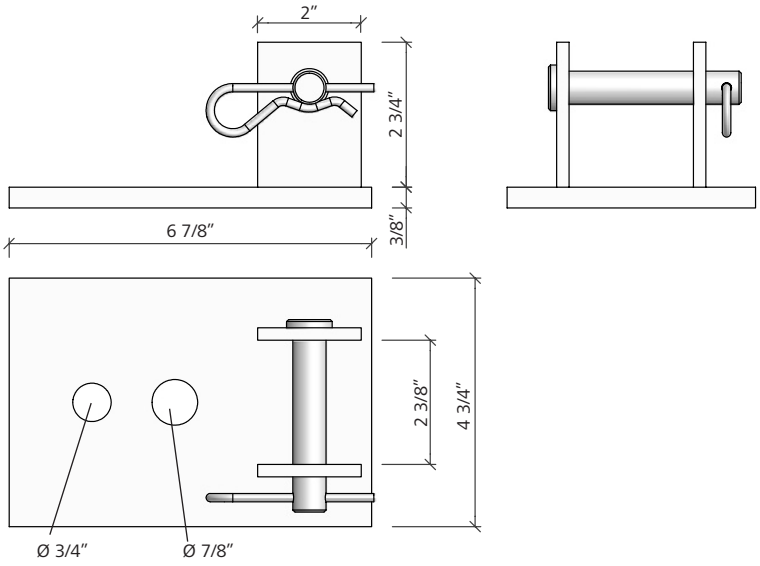


Articulated foot plate

galvanized; to anchor braces with up to 2 1/4“ (58 mm) outside diameter, includes M16x90 bolt and cotter pin.

Ref.-No.	Description / Application	lb
29-802-48	Articulated foot plate	5.1

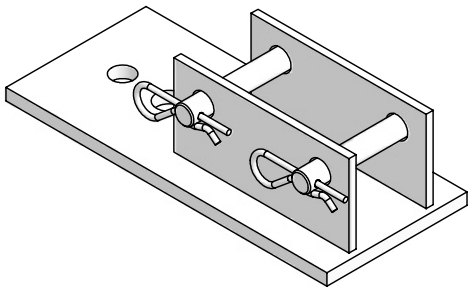


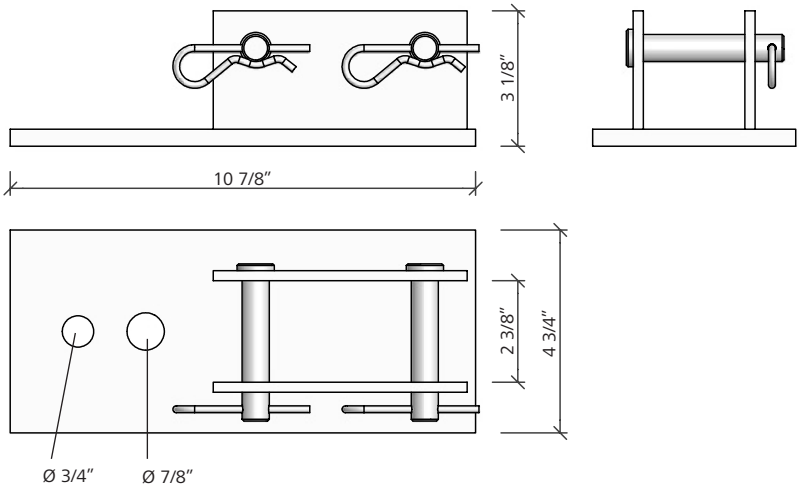


Double-jointed foot plate

galvanized; to anchor two braces with diameters up to 2 1/4“(58 mm). Includes two M16x90 bolts and cotter pins.

Ref.-No.	Description / Application	lb
29-402-32	Double-jointed foot plate	8.8

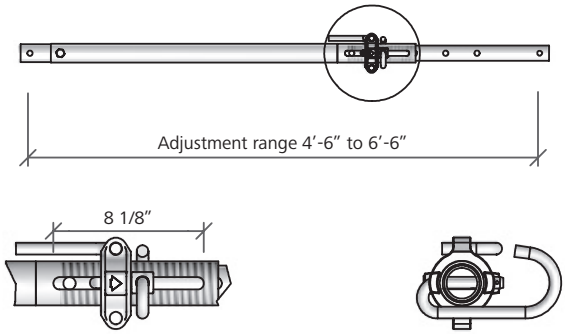




Push-pull prop R 160

galvanized; high tensile and compression strength, for aligning formwork.
Articulated foot plate and formwork-prop connector must be ordered separately.
Adjustment range: 4’-6” to 6’-6”.

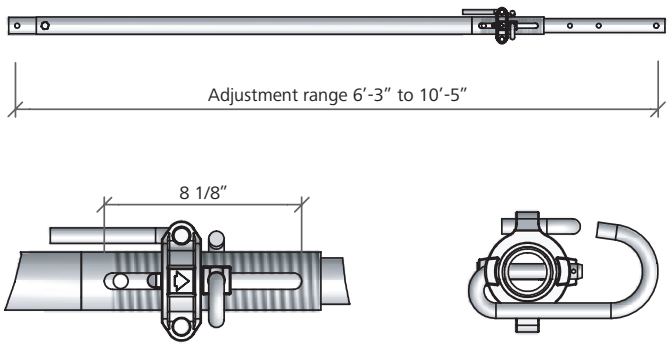
Ref.-No.	Description / Application	lb
29-109-40	Push-pull prop R 160	24.3



Push-pull prop R 250

galvanized; high tensile and compression strength, for aligning formwork.
Articulated foot plate and formwork-prop connector must be ordered separately.
Adjustment range: 6’-3” to 10’-5”.

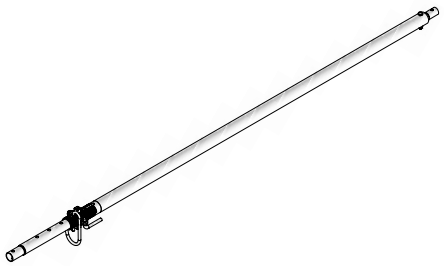
Ref.-No.	Description / Application	lb
29-109-60	Push-pull prop R 250	40.8

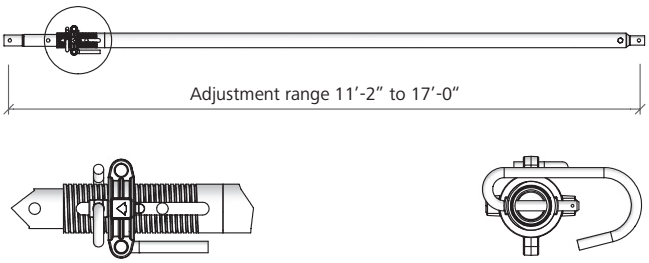


Push-pull prop R 460

galvanized; high tensile and compression strength, for aligning formwork.
Articulated foot plate and formwork-prop connector must be ordered separately.
Adjustment range: 11’-2” to 17’-0”.

Ref.-No.	Description / Application	lb
29-109-80	Push-pull prop R 460	78.9

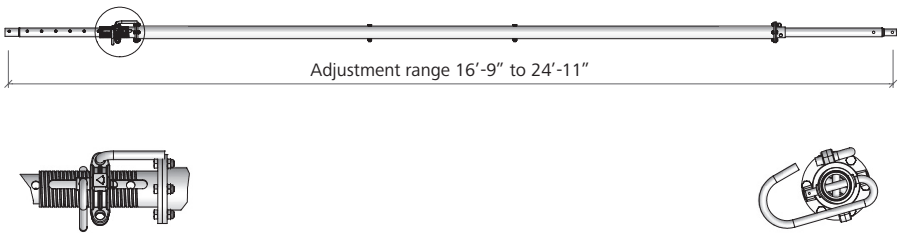




Push-pull prop R 630

galvanized; high tensile and compression strength, for aligning formwork.
Articulated foot plate and formwork-prop connector must be ordered separately.
Adjustment range: 16’-9” to 24’-11”.

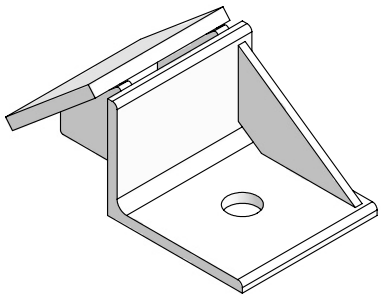
Ref.-No.	Description / Application	lb
29-109-85	Push-pull prop R 630	149.9

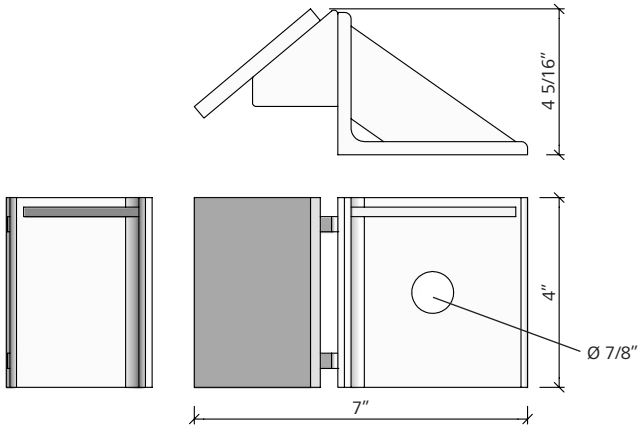


Shoe plate

galvanized; to anchor forms to the supporting structure.

Ref.-No.	Description / Application	lb
2-500-2331195	Shoe plate 60	4.7

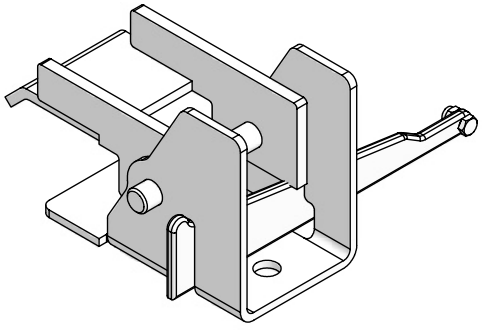


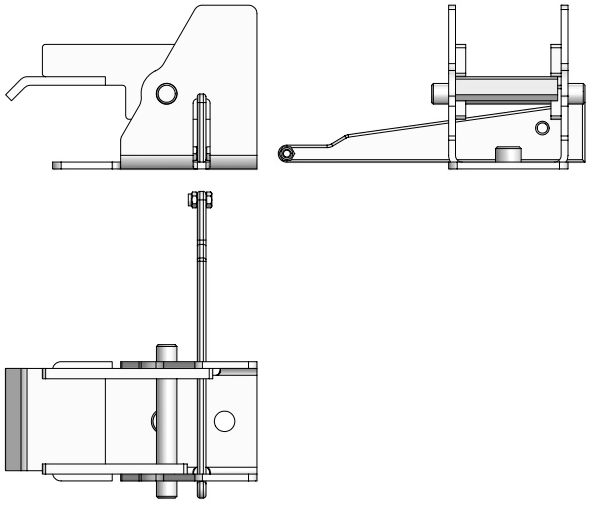


M-foundation spanner

galvanized; to connect the foundation tape to Imperial panels; it serves as bottom tie when panels are assembled in horizontal position. Two (2) foundation spanners are required per tieing position.

Ref.-No.	Description / Application	lb
29-307-60	M-foundation spanner	3.9

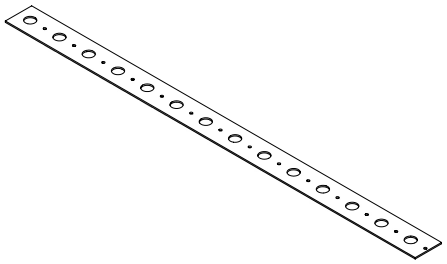


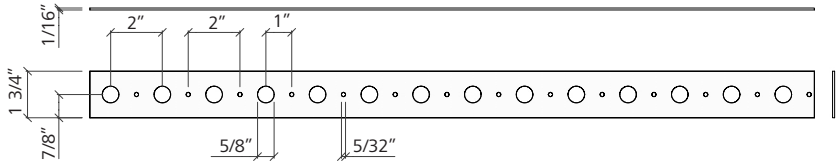


Foundation tape

galvanized; hole spacing 2″ (50 mm);
hole diameter 5/8″ (16 mm);
length 164′ (50 m);
adm. tension force 2.2 kips (10.0 KN);
to be cut at hole center. Together with foundation spanners it serves as bottom tie when panels are assembled in horizontal position.

Ref.-No.	Description / Application	lb
29-307-50	Foundation tape	44.1





Plug D 36

for plugging unneeded tie holes (w/o illustration).

Ref.-No.	Description / Application	lb
29-902-65	Plug D 36	0.01

Notes

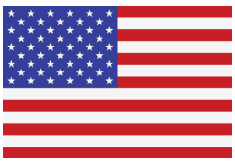
USA / Canada

MEVA Formwork Systems, Inc.

2000 Airpark Dr.
Springfield, OH 45502

298 Commercial Road
Spartanburg, SC 29303

Tel. +1 937 328 0022
Fax +1 937 328 0044
info@meva.net
www.meva.net



Headquarters (Germany)

MEVA Schalungs-Systeme GmbH
Industriestrasse 5
D-72221 Haiterbach
Tel. +49 7456 692-01
Fax +49 7456 692-66
info@meva.net
www.meva.net

Logistic Centers

A-Pfaffstätten, Tel. +43 2252 20900-0
D-Berlin, Tel. +49 3375 9030-0
D-Haiterbach, Tel. +49 7456 692-01
D-Hannover, Tel. +49 511 94993-0
H-Budapest, Tel. +36 1 2722222
UAE-Dubai, Tel. +971 4 3411180
USA-Springfield, Tel. +1 937 3280022

International Sales & Service

A-Pfaffstätten, Tel. +43 2252 20900-0
AUS-Adelaide, Tel. +61 8 82634377
Benelux, Gouda, Tel +31 182 570770
CDN-Toronto, Tel. +1 416 8278714
CH-Seon, Tel. + 41 62 7697100
CO-Bogotá, Tel. +57 1 5204236
F-Sarreguemines, Tel. +33 387 959938
GB-Tamworth, Tel. +44 1827 60217
H-Budapest, Tel. +36 1 2722222
IND-Mumbai, Tel. +91 22 27563430
MAL-Perak, Tel. +60 12 5209337
N-Oslo, Tel. +47 67 154200
PA-Panama City +507 2372222
SGP-Singapore, Tel. +65 67354459
UAE-Dubai, Tel. +971 4 3411180
USA-Springfield, Tel. +1 937 3280022

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