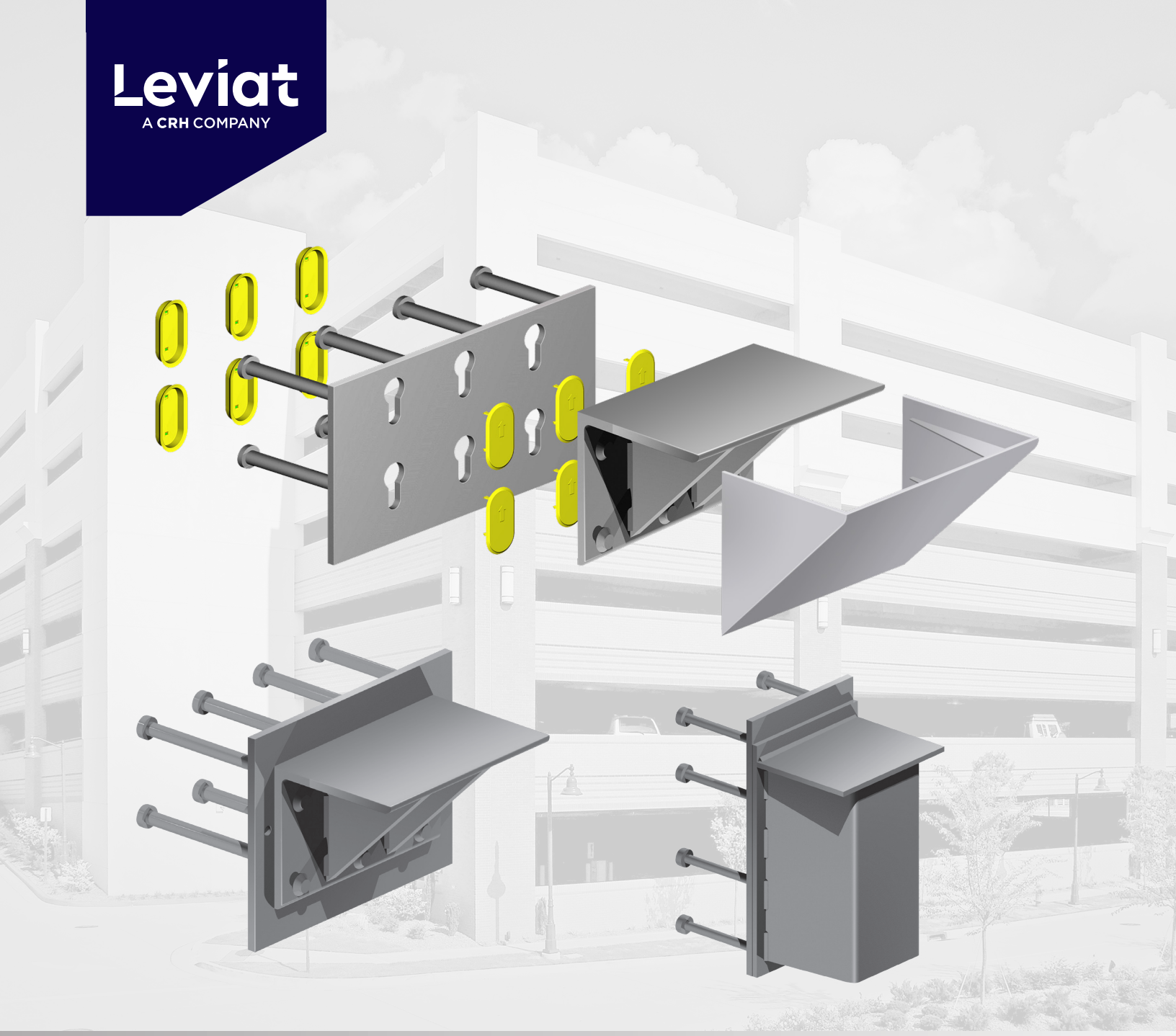
Leviat
A CRH COMPANY



MeadowBurke®

The Rapid-Lok® System

Generation II

Leviat®
A CRH COMPANY

We are one team.
We are Leviat.

Leviat is the new name of CRH's construction accessories companies worldwide.

Under the Leviat brand, we have united the expertise, skills and resources of Meadow Burke and its sister companies to create a world leader in fixing, connecting and anchoring technology.

The products you know and trust, including Meadow Burke, will remain an integral part of Leviat's comprehensive brand and product portfolio. As Leviat, we can offer you an extended range of specialist products and services, greater technical expertise, a larger and more agile supply chain and better, faster innovation.

By bringing together CRH's construction accessories family as one global organisation, we are better equipped to meet the needs of our customers, and the demands of construction projects, of any scale, anywhere in the world.

This is an exciting change. Join us on our journey.

Read more about Leviat at Leviat.com

Our product brands include:

MeadowBurke

HALFEN

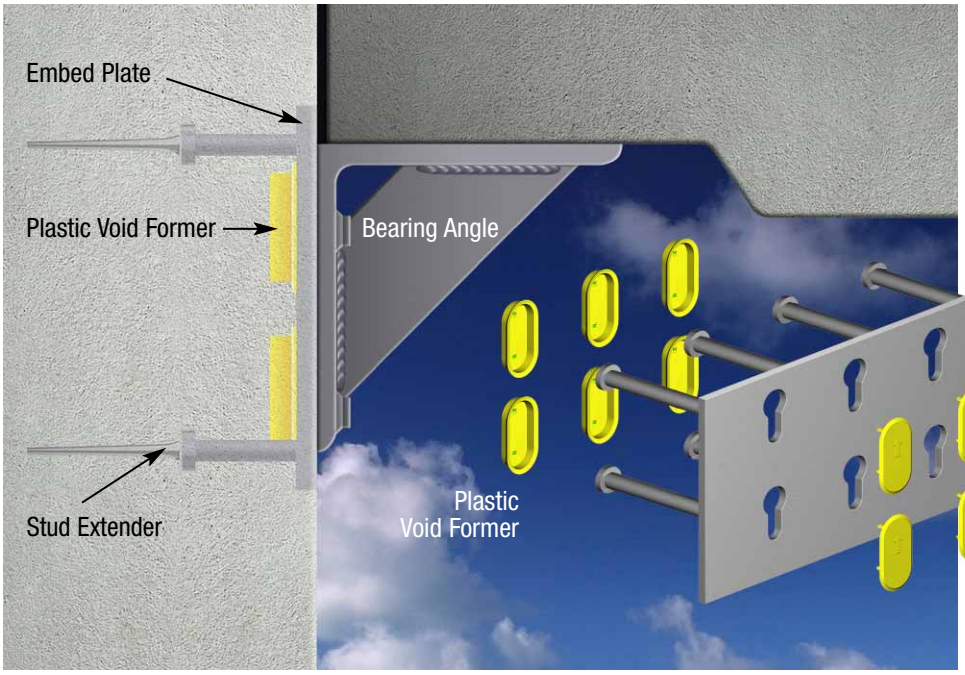
thermomass®

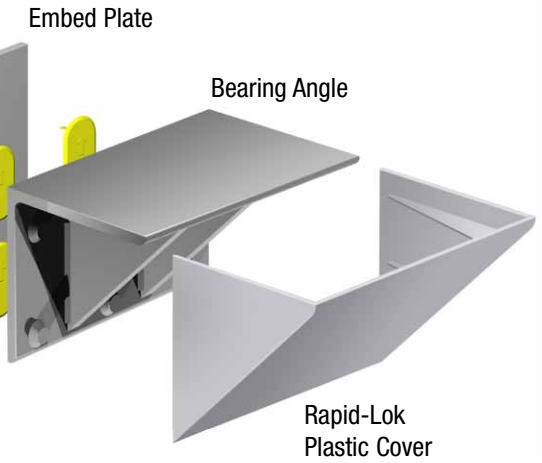
3,000	60	25	4
employees	locations	countries	continents

Imagine. Model. Make.

Leviat.com

A Better Solution





What is the Rapid-Lok System?

Rapid-Lok System is used to eliminate conventional concrete corbels. Rapid-Lok System creates a steel projection in a structural wall, which acts as a shelf, able to carry the weight of a Double Tee, Stair, Beam or other precast elements.

Rapid-Lok System consists of a Bearing Angle, Steel Corbel or Concrete Replicated Bearing Corbel that locks into an Embed Plate cast into a structural wall.

How It Works:

The Embed Plate is cast into the structural wall at the precast plant, with the faceplate flush to the wall face. Once the precast structure is on site, the void formers attached to the face of the Embed Plate that create recesses are removed by the Erector to reveal 'keyholes.'

The Bearing Angle, Concrete Replicated Bearing Corbel, or Steel Corbel's interlocking studs are then engaged into the keyholes of the Embedded Plate, securely locking them in place without requiring a weld. Selection of a Bearing Angle, Concrete Replicated Bearing Corbel or Steel Corbel is based upon load requirements, fire rating and aesthetic finish desired for the project.

Why is it Better?

Saves time and money:

- Reduces the risk of accidents in the precast plant by not having to position and place the heavy concrete corbels in the process of producing a panel or column
- Forming and casting corbels in a precast panel is both time consuming and requires additional material costs. This is eliminated by using the Rapid-Lok Embed Plate at the precast plant and then engaging the Bearing Angle or Bearing Corbel onsite during erection
- Eliminates the need for onsite welding and weld inspections as the connection to the face plate and angle are secured by interlocking studs

Improves aesthetics:

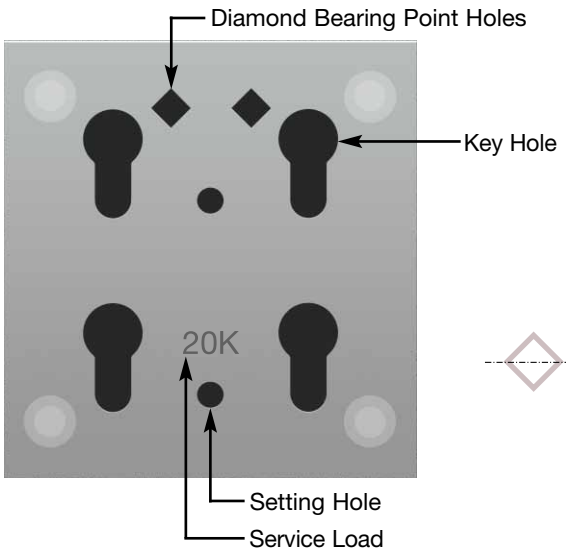
- Less obtrusive than a larger concrete corbel
- Offers an 'urban industrial' look to the structure if the steel of the Bearing Angle is left exposed
- The Bearing Angle can be covered with a concrete colored Rapid-Lok Plastic Cover
- When encased in concrete, the Bearing Angle recreates the finish and look of a traditional concrete corbel

Design the Rapid-Lok into a Project:

- Identify the live and dead loads of the weight the Rapid-Lok must hold
- Select either the Bearing Angle or Corbel system based on hours of fire rating required
- Select either the Bearing Angle or Corbel system based on aesthetics (exposed vs. encased finish)

The Embed Plate is cast into the structural wall at the precast plant, with the face-plate flush to the wall face.

Features



Embed Plate

Selection of the Embed Plate size and configuration is determined by the selection of either Bearing Angle, Concrete Replicated Bearing Corbel or Steel Corbel.

- Manufactured from ASTM A36 steel, it is a durable long-term solution over using a concrete corbel
- Available in various size configurations to provide a performance range from 6 kip – 40 kip in service load
- Available in either plain or hot dipped galvanized finish

Diamond Holes

Knowing exactly where the “Bearing Point” is located has never been easier. Find the “Diamond Hole,” line up the correct elevation to the corners, and the Rapid-Lok is right on! Note that this is a through hole, visible from either side, even after galvanizing.

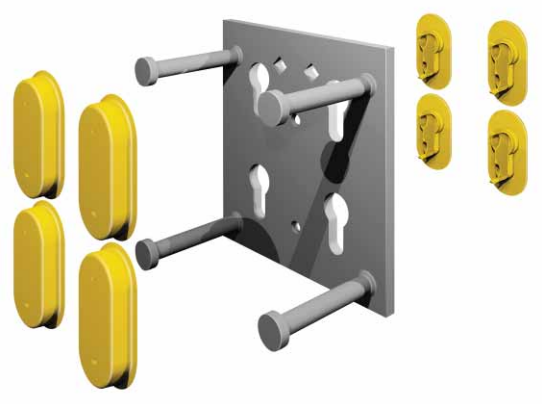
Setting Holes

Setting Holes aid in the installation process, are 0.562” in diameter and are consistently located for use with templates during production.

20K

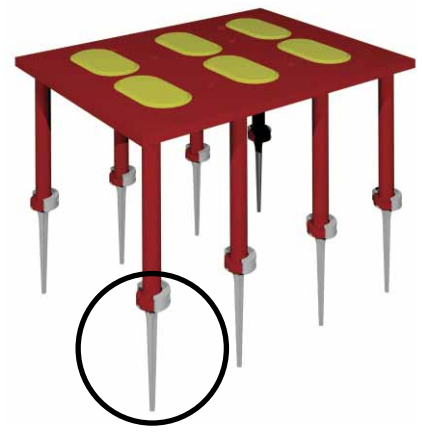
Service Load Stamp

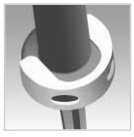
The service load of the device is located on the face of the embed plate. This indicates the unit's service load and is to be used only as a convenient indicator of the unit installed after concrete has been placed. Installation and location of the Rapid-Lok may reduce the service load.



Plastic Void Former

Each Void Former is a plastic box which fits into the keyhole and is secured into place with locking stems, eliminating any concrete leakage, even when self consolidating concrete is used. This former creates a voided area, free of concrete behind the Embed Plate and permits the attachment of the Bearing Angle or Bearing Corbel without interference.

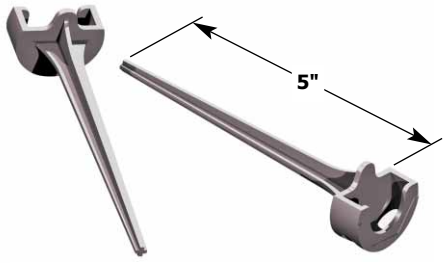




Stud Extender

The MB Stud Extender (US PATENT NO. US7065930B2) is designed as an adjustable height support chair for embed/weld plates. The Stud Extender eliminates the tedious, labor-intensive wood forming or risky "wet setting" of embed plates in the top-face of a concrete panel.

- Easy to use
- Saves materials and time
- Eliminates wood framing
- Consistent accuracy
- Screed and finish panels easily

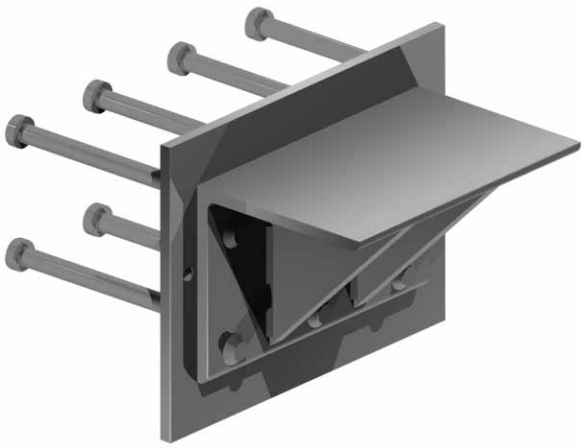


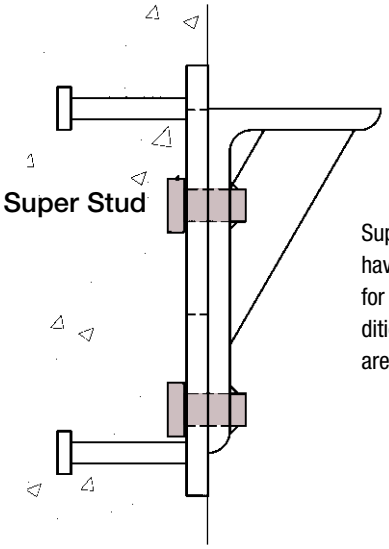
The Bearing Angle

Selection of a Rapid-Lok model is based on load requirements, fire rating and aesthetic finish desired for the project.

The Bearing Angle is used to create a shelf which acts as a traditional corbel replacement. The underside of the angle is left exposed or it is covered with the Rapid-Lok Plastic Cover.

- Available in various sizes to provide a performance range from 6 kip – 40 kip in service load
- All sizes of Bearing Angles provide up to a 1-hour fire rating. The 6 kip provides 3-hour fire rating and the 30 kip provides 2-hour fire rating
- The Rapid-Lok Plastic Cover is available for the 20 kip 8" and 30 kip Bearing Angle models. It fits securely under the gusset of the Bearing Angle units to completely conceal all three of its open sides. Due to it replicating the color of concrete, it blends into the surrounding structure

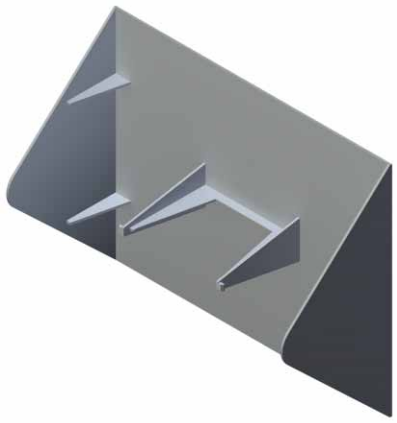




Super studs attached to the Bearing Angle have been “cold tested,” configured and sized for optimum performance in all weather conditions, ensuring the load bearing capacities are met.

Rapid-Lok Plastic Cover

Rapid-Lok Plastic Cover will completely conceal all three open sides of the Rapid-Lok Bearing Angle.

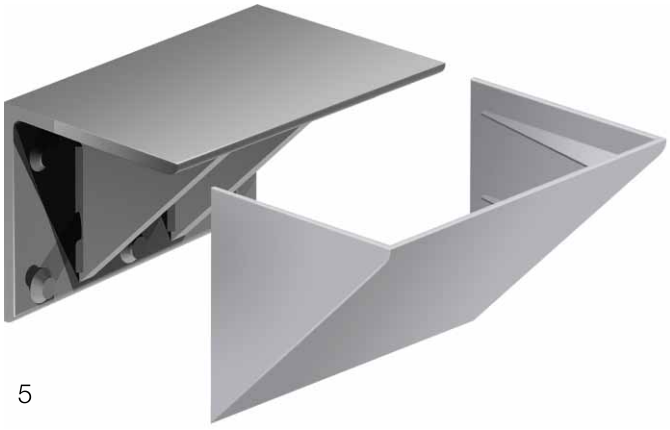


Fits 20 Kip 8" and 30 Kip Rapid-Lok

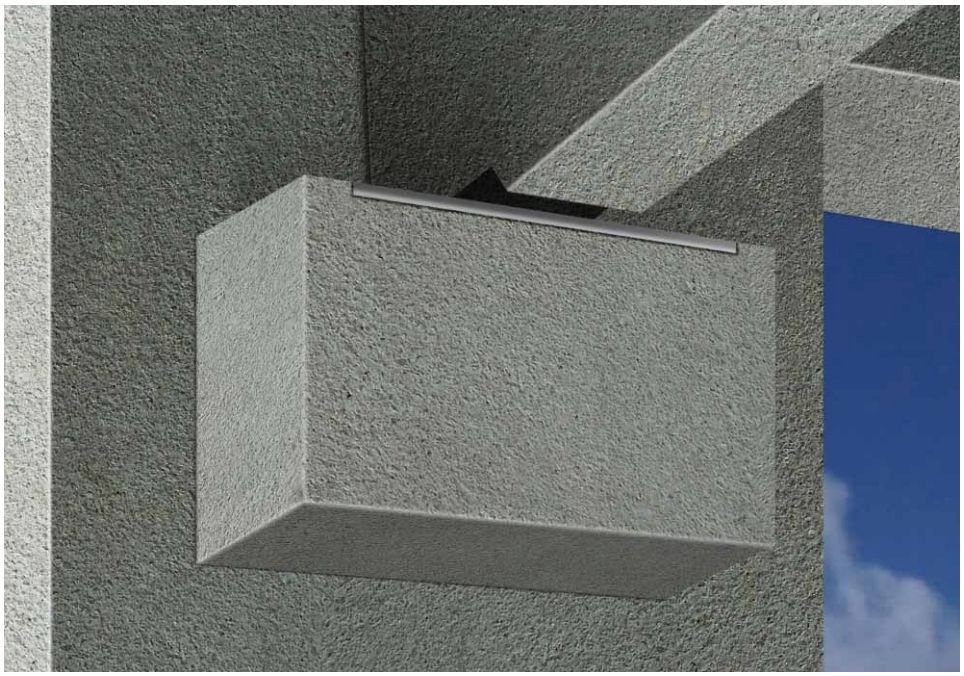
Rapid-Lok Plastic Cover will completely conceal all three open sides of the Rapid-Lok Bearing Angle, like that of a concrete corbel or concrete ledge in a conventional precast or cast-in-place scenario. Just simply snap the cover into place, fastening it to the gussets of the existing Rapid-Lok Bearing Angle Assembly.

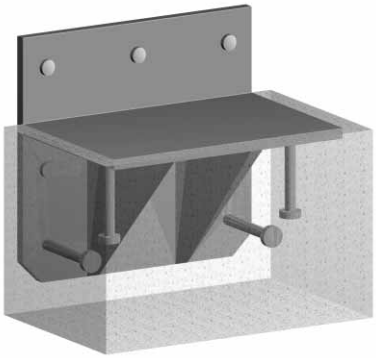
A simple but effective concrete colored plastic cover that attaches to the existing angles of the 20 kip 8" (MBRLC20) and 30 kip (MBRLC30) Rapid-Lok Bearing Angle Assembly. The Rapid-Lok Plastic Cover eliminates all the safety issues associated with installing a concrete corbel to a precast panel by reducing the weight and ergonomic concerns of hanging a large piece of concrete. The Rapid-Lok Plastic Cover was thoroughly tested to ensure that it will perform exceptionally well, even in extreme conditions. It holds its shape and resists impact damage at temperatures approaching zero and exceeding 125ºF. Although it normally remains in place once installed, the cover can be detached and reattached dozens of times if needed without deforming.

Item Number	Description
MBRLC20	Plastic Cover for 20 kip 8" Rapid-Lok
MBRLC30	Plastic Cover for 30 kip Rapid-Lok



Concrete Replicated Bearing Corbel





Concrete Replicated Bearing Corbel is functionally identical to the Bearing Angle but has additional studs to form a frame, allowing the casting of concrete around the corbel. The underside angle is then encased in concrete to create a traditional concrete corbel finish.

- Available in various sizes to a performance range from 20 kip – 40 kip in service load
- The 30 kip and 40 kip units provide a 2-hour fire rating and the 20 kip 8" unit provides 3-hour fire rating.

Steel Corbel

The Steel Box Corbel is a steel formed unit used to create a shelf which acts as a traditional concrete corbel replacement.

- A bottom plate improves its appearance when viewed from below
- All sizes of the Bearing Corbel achieve a minimum 1-hour fire rating. This can be increased to 2-hour rating with the addition of 6-pcf of mineral wool.

6 & 15* Kip Service Load

Rapid-Lok Model	Plain Finish Item Number	Hot Dipped Galvanized Item Number	Description	Vertical Service Load (kips)	Horizontal Service Load (kips)	Fire Rating Hours	Embed Plate Dim. A (inches)	Embed Plate Dim. B (inches)	Bearing Angle & Corbel Dim. C (inches)	Bearing Angle & Corbel Dim. D (inches)	Bearing Angle & Corbel Dim. E (inches)	Bearing Point F (inches)	Bearing Point *e* (inches)	Embed Plate Stud Qty & Size # of Studs/ Embed Plate	Embed Plate Stud Qty & Size Stud Size (inches)
6 kip 4"	6RLA	6RLAG	6 kip 4" Bearing Angle	6 kip	3 kip	3 Hour			4"	6"	8"	1.625"	2.5"		
	6RLP	6RLPG	6 kip Embed Plate				8"	10.625"						4	3/4"x 3"
15 kip 4"	15RLA	15RLAG	15 kip 4" Bearing Angle	15 kip	9 kip	1 Hour			4"	7.75"	8"	1.625"	2.5"		
	15RLP	15RLPG	15 kip Embed Plate				10"	10.625"						4	3/4"x 3"

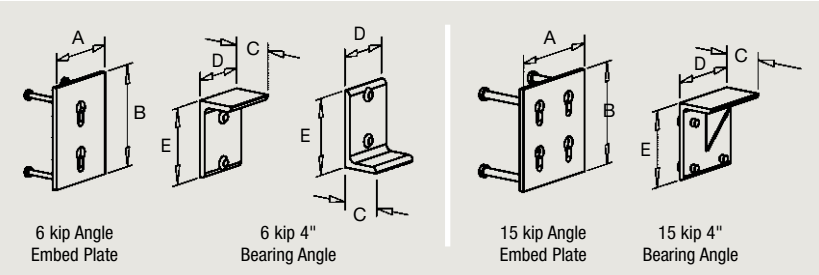
NOTE: Full vertical and horizontal service loads cannot be applied simultaniously. The following interaction equation should be used for controlling service load combinations.

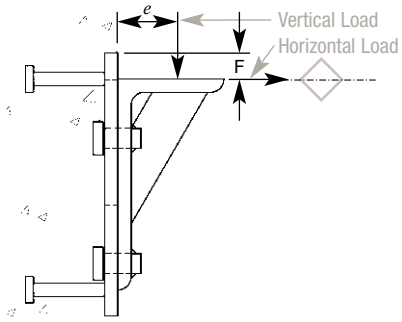
1 *Maximum in-plane eccentricity for load application is 2-3/8" from centerline

2 Products are fire tested per ASTM E119

3 All Hot Dipped Galvanized components are hot dip galvanized per ASTM A153

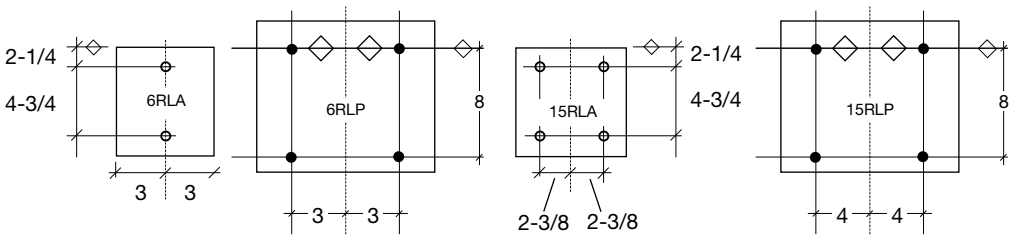
$$\left(\frac{\text{Horizontal Service Load}}{\text{Published Horizontal Service Load}}\right)^{5/3} + \left(\frac{\text{Vertical Service Load}}{\text{Published Vertical Service Load}}\right)^{5/3} \leq 1.0$$





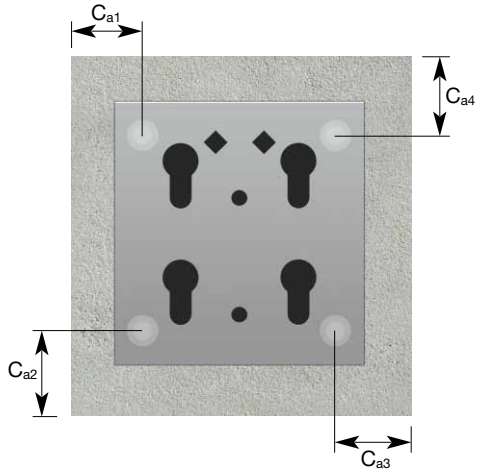
Stud Location

(Units in Inches)



Minimum Edge Distance

6 & 15 Kip Service Load					
Rapid-Lok Model	Item Number	Edge Distances (Inches)			
		C_{a1}	C_{a2}	C_{a3}	C_{a4}
6 kip 4"	6RLP	8	3	8	11
15 kip 4"	15RLP	5	6	5	14



20 Kip Service Load

Rapid-Lok Model	Plain Finish Item Number	Hot Dipped Galvanized Item Number	Description	Vertical Service Load (kips)	Horizontal Service Load (kips)	Fire Rating Hours	Embed Plate Dim. A (inches)	Embed Plate Dim. B (inches)	Bearing Angle & Corbel Dim. C (inches)	Bearing Angle & Corbel Dim. D (inches)	Bearing Angle & Corbel Dim. E (inches)	Bearing Point F (inches)	Bearing Point *e* (inches)	Embed Plate Stud Qty & Size # of Studs/ Embed Plate	Embed Plate Stud Qty & Size Stud Size (inches)
20 kip 6"	20RLA	20RLAG	20k 6" Bearing Angle	20 kip	11 kip	1 Hour			6"	7.75"	8"	1.625"	4"		
	20RLP	20RLPG	20k Embed Plate				10"	10.625"						4	3/4" x 5"
20 kip 8"	20RLA8	20RLA8G	20k 8" Bearing Angle	20 kip	11 kip	1 Hour			8"	7.75"	8"	1.625"	4"		
	20RLP8	20RLP8G	20k 8" Embed Plate				10"	10.625"						4	3/4" x 6"
20 kip 6" Concrete Corbel	20RLAS	20RLASG	20k 6" Bearing Angle w/studs	20 kip	11 kip	2 Hour			6"	7.75"	8"	1.625"	4"		
	20RLP	20RLPG	20k Embed Plate				10"	10.625"						4	3/4" x 5"
20 kip 8" Concrete Corbel	20RLA8S	20RLA8SG	20k 8" Bearing Angle w/studs	20 kip	11 kip	3 Hour			8"	7.75"	8"	1.625"	4"		
	20RLP8	20RLP8G	20k 8" Embed Plate				10"	10.625"						4	3/4" x 6"
20 kip 7-7/8" Steel Corbel	20RLC1*, 20RLC2**	20RLC1G*, 20RLCG2**	20k 7-7/8" Bearing Corbel	20 kip	11 kip	1 Hour*			7.875"	10"	10"	2.75"	6"		
	20RLCP	20RLCPG	20k Corbel Embed Plate			2 Hour**	10"	12.13"						4	3/4"x6-1/2"

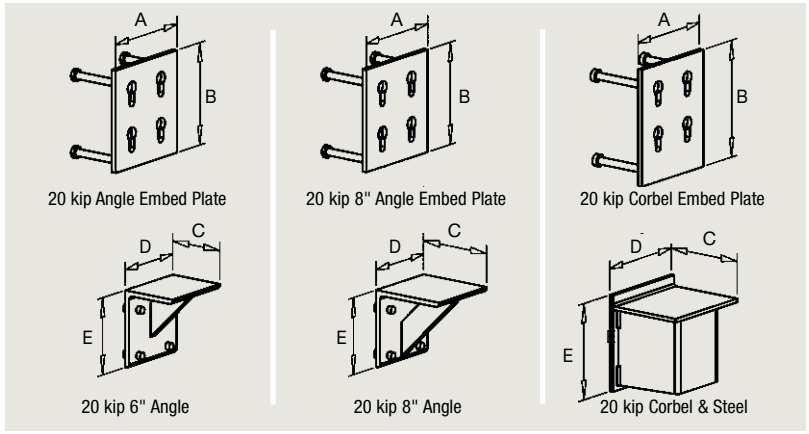
NOTE: Full vertical and horizontal service loads cannot be applied simultaniously. The following interaction equation should be used for controlling service load combinations.

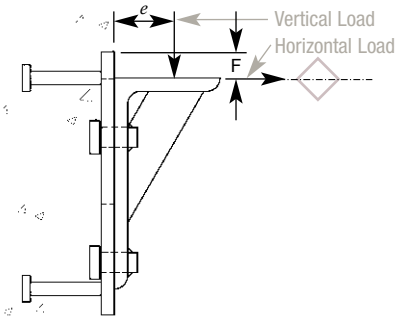
1 Maximum in-plane eccentricity for load application is 2-3/8" from centerline

2 Products are fire tested per ASTM E119

3 All Hot Dipped Galvanized components are hot dip galvanized per ASTM A153

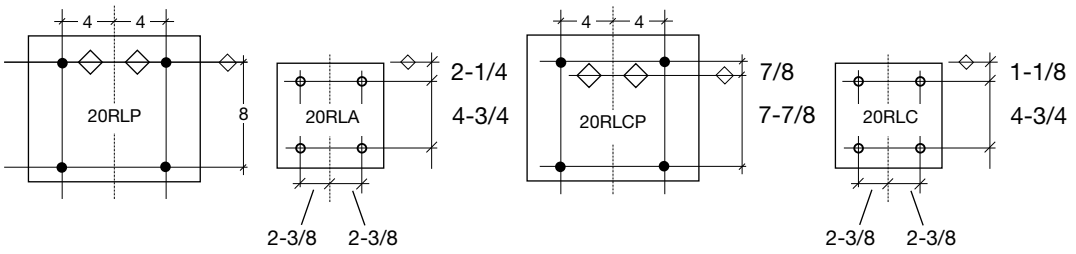
$$\left(\frac{\text{Horizontal Service Load}}{\text{Published Horizontal Service Load}}\right)^{5/3} + \left(\frac{\text{Vertical Service Load}}{\text{Published Vertical Service Load}}\right)^{5/3} \leq 1.0$$





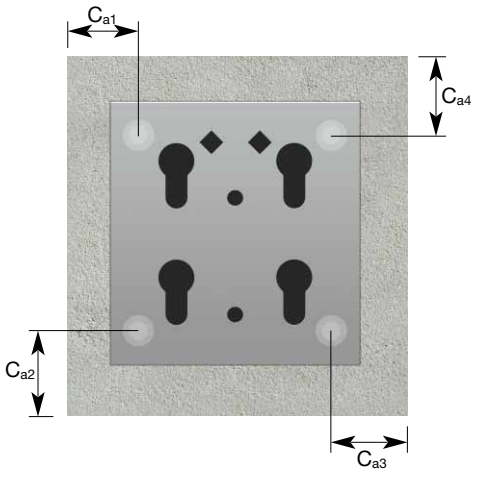
Stud Location

(Units in Inches)



Minimum Edge Distance

20 Kip Service Load					
Rapid-Lok Model	Item Number	Edge Distances (Inches)			
		C_{a1}	C_{a2}	C_{a3}	C_{a4}
20 kip 6"	20RLP	10	6	10	14
20 kip 8"	20RLP8	10	6	10	14
20 kip 6" Concrete Corbel	20RLP	10	6	10	14
20 kip 8" Concrete Corbel	20RLP8	10	6	10	14
20 kip 7-7/8" Steel Corbel	20RLCP	10	10	10	14



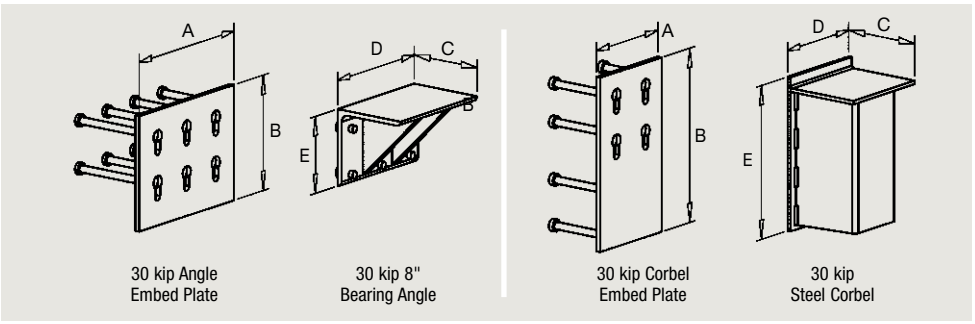
30 Kip Service Load

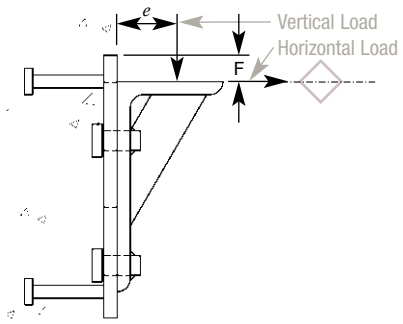
Rapid-Lok Model	Plain Finish Item Number	Hot Dipped Galvanized Item Number	Description	Vertical Service Load (kips)	Horizontal Service Load (kips)	Fire Rating Hours	Embed Plate Dim. A (inches)	Embed Plate Dim. B (inches)	Bearing Angle & Corbel Dim. C (inches)	Bearing Angle & Corbel Dim. D (inches)	Bearing Angle & Corbel Dim. E (inches)	Bearing Point F (inches)	Bearing Point *e* (inches)	Embed Plate Stud Qty & Size # of Studs/ Embed Plate	Embed Plate Stud Qty & Size Stud Size (inches)
30 kip 8"	30RLA	30RLAG	30k 8" Bearing Angle	30 kip	18 kip	2 Hour			8"	14"	8"	2"	5"		
	30RLP12	30RLP12G	30k Embed Plate				15.5"	12"						8	3/4" x 8"
30 kip Thin Wall	30RLA	30RLAG	30k 8" Bearing Angle	30 kip	18 kip	2 Hour			8"	14"	8"	2"	5"		
	30RLP12TW	30RLP12TWG	30k Thin Wall Embed Plate				15.5"	12"						8	3/4" x 5"
30 kip 8" Concrete Corbel	30RLAS	30RLASG	30k 8" Bearing Angle w/studs	30 kip	18 kip	2 Hour			8"	14"	8"	2"	5"		
	30RLP12	30RLP12G	30k Embed Plate				15.5"	12"						8	3/4" x 8"
30 kip 8" Thin Wall Concrete Corbel	30RLAS	30RLASG	30k 8" Bearing Angle w/studs	30 kip	18 kip	2 Hour			8"	14"	8"	2"	5"		
	30RLP12TW	30RLP12TWG	30k Thin Wall Embed Plate				15.5"	12"						8	3/4" x 5"
30 kip 7-7/8" Steel Corbel	30RLC1*, 30RLC2**	30RLC1G*, 30RLC2G**	30k 7-7/8" Bearing Corbel	30 kip	18 kip	1 Hour*			7.875"	10"	16"	2.75"	6"		
	30RLCP	30RLCPG	30k Corbel Embed Plate			2 Hour**	10"	18.13"						8	3/4"x6-1/2"

NOTE: Full vertical and horizontal service loads cannot be applied simultaniously. The following interaction equation should be used for controlling service load combinations.

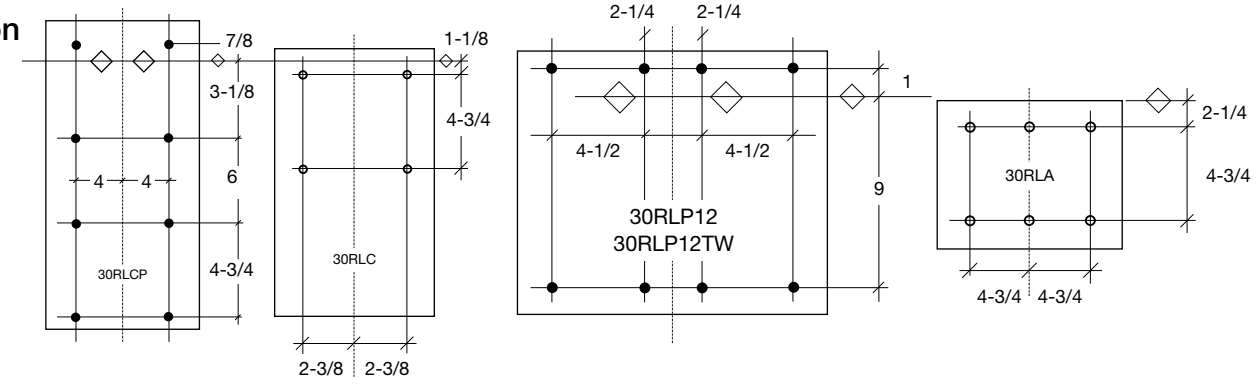
1 Maxium in-plane eccentricity for load application is 2-3/8" from centerline
2 Products are fire tested per ASTM E119
3 All Hot Dipped Galvanized components are hot dip galvanized per ASTM A153
4 30 kip concrete corbel with 3 hour fire rating available on special order.

$$\left(\frac{\text{Horizontal Service Load}}{\text{Published Horizontal Service Load}}\right)^{5/3} + \left(\frac{\text{Vertical Service Load}}{\text{Published Vertical Service Load}}\right)^{5/3} \leq 1.0$$



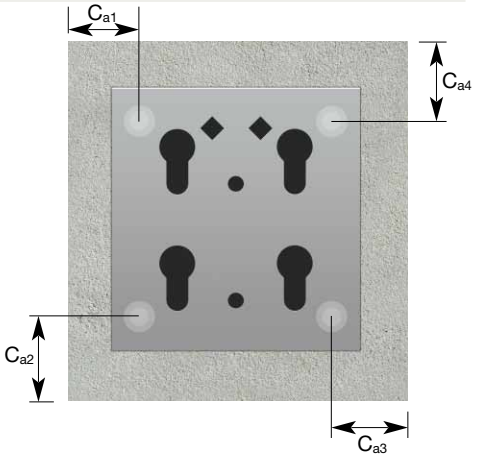


Stud Location
(Units in Inches)



Minimum Edge Distance

30 Kip Service Load					
Rapid-Lok Model	Item Number	Edge Distances (Inches)			
		C_{a1}	C_{a2}	C_{a3}	C_{a4}
30 kip 8"	30RLP12	12.25	10	12.25	18
30 kip Thin Wall	30RLP12TW	12.25	10	12.25	18
30 kip 8" Concrete Corbel	30RLP12	12.25	10	12.25	18
30 kip 8" Thin Wall Concrete Corbel	30RLP12TW	12.25	10	12.25	18
30 kip 7-7/8" Steel Corbel	30RLCP	8.00	19	8.00	19



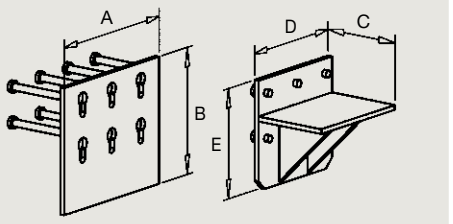
40 Kip Service Load

Rapid-Lok Model	Plain Finish Item Number	Hot Dipped Galvanized Item Number	Description	Vertical Service Load (kips)	Horizontal Service Load (kips)	Fire Rating Hours	Embed Plate Dim. A (inches)	Embed Plate Dim. B (inches)	Bearing Angle & Corbel Dim. C (inches)	Bearing Angle & Corbel Dim. D (inches)	Bearing Angle & Corbel Dim. E (inches)	Bearing Point F (inches)	Bearing Point e (inches)	Embed Plate Stud Qty & Size # of Studs/ Embed Plate	Embed Plate Stud Qty & Size Stud Size (inches)
40 kip 8-1/2"	40RLA	40RLAG	40k 8-1/2" Bearing Angle	40 kip	26 kip	1 Hour			8.5"	12"	11.5"	5.75"	5"		
	40RLP	40RLPG	40k Embed Plate				15.5"	13.25"						8	3/4" x 7"
40 kip 8-1/2" Concrete Corbel	40RLAS	40RLASG	40k 8-1/2" Bearing Angle w/studs	40 kip	26 kip	2 Hour			8.5"	12"	11.5"	5.75"	5"		
	40RLP	40RLPG	40k Embed Plate				15.5"	13.25"						8	3/4" x 7"
40 kip 7-7/8" Steel Corbel	40RLC1*, 40RLC2**	40RLC1G*, 40RLC2G**	40k 7-7/8" Bearing Corbel	40 kip	26 kip	1 Hour*			7.875"	14.75"	16"	2.75"	6"		
	40RLCP	40RLCPG	40k Corbel Embed Plate			2 Hour**	14.75"	18.13"						8	3/4" x 8"

NOTE: Full vertical and horizontal service loads cannot be applied simultaniously. The following interaction equation should be used for controlling service load combinations.

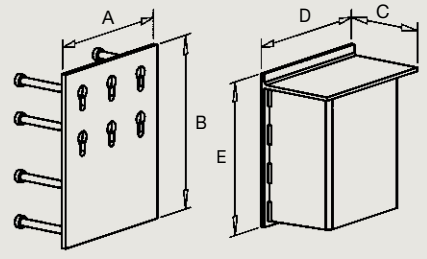
1 Maximum in-plane eccentricity for load application is 2-3/8" from centerline
2 Products are fire tested per ASTM E119
3 All Hot Dipped Galvanized components are hot dip galvanized per ASTM A153

$$\left(\frac{\text{Horizontal Service Load}}{\text{Published Horizontal Service Load}}\right)^{5/3} + \left(\frac{\text{Vertical Service Load}}{\text{Published Vertical Service Load}}\right)^{5/3} \leq 1.0$$



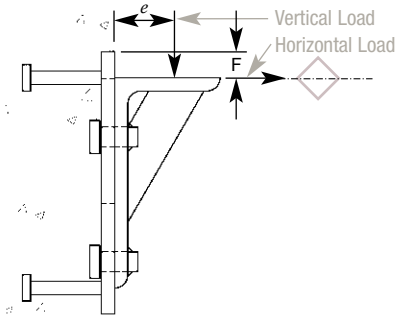
40 kip Angle Embed Plate

40 kip 8.5" Bearing Angle



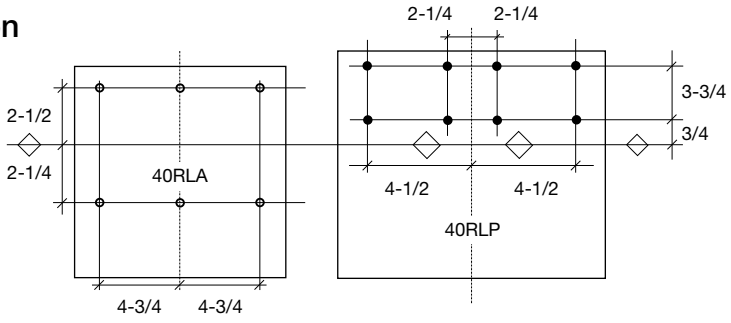
40 kip Corbel Embed Plate

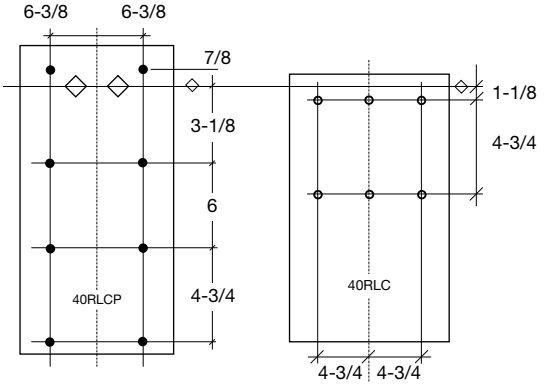
40 kip Steel Corbel



Stud Location

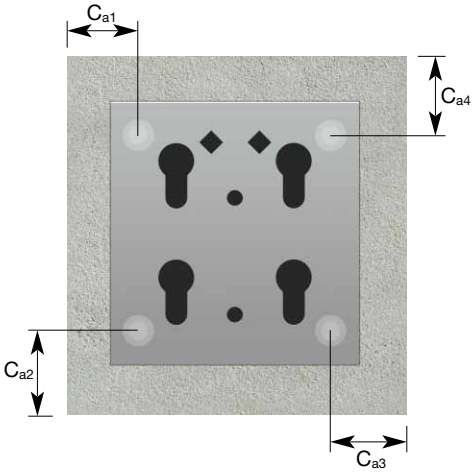
(Units in Inches)

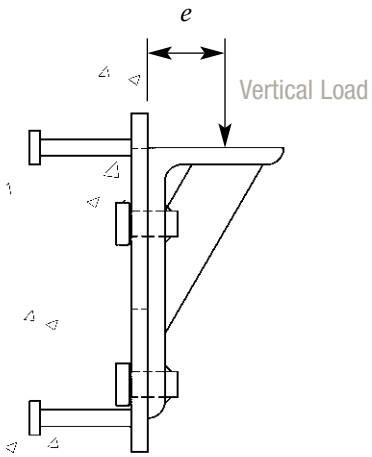




Minimum Edge Distance

40 Kip Service Load					
Rapid-Lok Model	Item Number	Edge Distances (Inches)			
		C_{a1}	C_{a2}	C_{a3}	C_{a4}
40 kip 8-1/2"	40RLP	15.25	17.75	15.25	12.25
40 kip 8-1/2" Concrete Corbel	40RLP	15.25	17.75	15.25	12.25
40 kip 7-7/8" Steel Corbel	40RLCP	8.63	15.00	8.63	19.00





Ultimate Assembly Capacities as Tested in Concrete

Raw Material Information

U-stiffners, Embedment Plates and Angles F_y=36,000 psi
Triangular Stiffners F_y=50,000 psi
Concrete Embedment Studs f_{ut}=65,000 psi
Interconnecting Studs f_{ut}=70,000 psi

MB Item Number	Rapid-Lok Assembly Type	Vertical Load Eccentricity "e"	Ultimate Load
6RLA 6RLP	6 kip 4"	2.5"	18 kip
15RLA 15RLP	15 kip 4"	2.5"	45 kip
20RLA 20RLP	20 kip 6"	4"	60 kip
20RLA8 20RLP8	20 kip 8"	4"	60 kip
20RLC1 & 2 20RLCP	20 kip 7-7/8" Corbel	6"	60 kip
30RLA 30RLP12	30 kip 8"	5"	90 kip
30RLA 30RLP12TW	30 kip Thin Wall	5"	90 kip
30RLC1 & 2 30RLCP	30 kip 7-7/8" Corbel	6"	90 kip
40RLA 40RLP	40 kip 8-1/2"	5"	120 kip
40RLC1 & 2 40RLCP	40 kip 7-7/8" Corbel	6"	120 kip

This data is for designers using ultimate strength design per PCI, 8th edition or ACI 318. Meadow Burke does not recommend using or accept liability for Service Loads applied in excess of those listed as Service Loads in this document.

Note: Ultimate Loads are based on 5,000 psi concrete.
Note: Proper installation of the Rapid-Lok Bearing Angle and/or Corbel is indicated by the bearing surface being properly positioned at the center/corners of the Diamond Holes. No load is to be applied to the Rapid-Lok assembly until these units are fully and properly engaged.

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