



CARLSTADT® RAILING SYSTEMS

THE MOST VERSATILE SYSTEM FOR RAILINGS IN ALUMINUM, BRONZE, NICKEL-SILVER, STAINLESS STEEL AND ACRYLIC/WOOD



Business School, Jackson State University, Jackson, MS General Contractor: Harrell Construction, Jackson MS Architect: Eley Associates, Jackson, MS Fabricator: Action Fabricators, Marion, AR

The **Carlstadt®** railing system features a full range of components available in aluminum, bronze, nickel-silver, and stainless steel to meet virtually any installation requirement. Posts and handrails may be combined with a variety of post, wall, and fascia brackets to achieve a wide range of design alternatives while meeting code and other regulatory requirements. The **Carlstadt®** system uses self-aligning **Carlstadt®** handrail brackets.

● **Aluminum** railing components are made of alloy 6063, except for cast flanges, corner bends, and floor flanges, which are cast from Almag 35. Aluminum extrusions are produced and handled with great care for use in architectural applications and are suitable for most of the hard coat anodic processes. Black anodizing may result in

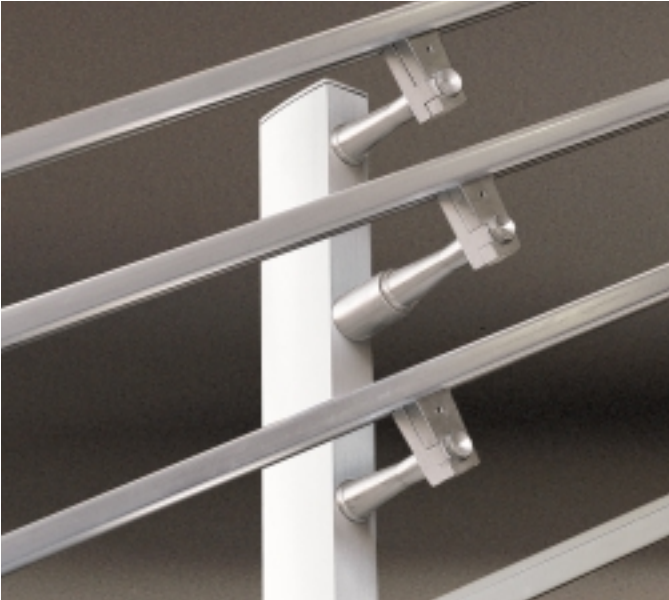
inconsistent matches. Consult your anodizer before specifying.

● **Bronze** components are made of extruded architectural bronze alloy C38500, except for cast cover flanges, corner bends, and terminals, which are cast from alloy C86500.

● **Nickel-Silver** components are extruded of alloy C79800. Nickel-Silver is a copper alloy which has the color of stainless steel with golden highlights.

● **Stainless Steel** components are made of type 302/304 (18-8) stainless steel.

● **Acrylic/Wood** rail is a prefinished composite material which retains all the beauty of natural hardwood—oak, walnut and ash—and provides it with a hard, lustrous acrylic surface. This is achieved



CARLSTADT® RAILING

The **Carlstadt®** railing system provides a flexible range of railing and post components in aluminum, bronze, nickel-silver, stainless steel and Acrylic/Wood to meet almost any installation or code requirement. The **Carlstadt®** railing system uses **Carlstadt®** self-aligning handrail brackets.

CARLSTADT® ACRYLIC / WOOD

Carlstadt® Acrylic/Wood posts and handrails are manufactured from a pre-finished composite material which retains the beauty of wood and provides a durable and lustrous acrylic surface. This material resists fading, may be used indoors or out, and may be easily refinished by sanding and buffing.

through the Permagrain® Radiation Process which impregnates the wood with acrylic plastic and hardens it by irradiation. The resulting composite has twice the resistance to indentation and several times the resistance to abrasion as the same hardwood finished conventionally. **Acrylic/Wood** handrails are laminated from several strips so as to obtain greater strength and continuous uniform lengths. Posts have an aluminum spine for strength and ease of assembly. Exposed aluminum surfaces of the post and aluminum-spined handrail have a clear anodized finish (AA-M10-C22-A31). Fascia mounting brackets provide concealed post fastening.

Americans with Disabilities Act (ADA): The Americans with Disabilities Act adopted by Congress in 1992 required handrails to be

1¼" minimum and 1½" maximum. However, *the US Architecture and Transportation Barriers Compliance Accessibility Guidelines—July 1998* has now clarified the intent of the dimensional requirements to be 1¼" minimum to a nominal 2" maximum. It is important to note that *Section 4.26.2 Size and Spacing of Grab Bars and Handrails* of the ADAAG Manual states in part, "Standard IPS pipe designated by 1¼" to 1½" is acceptable."

ADAAG also allows handrails which provide an equivalent gripping surface. ANSI117.1-98 defines this alternative: *equivalent gripping surfaces are permitted provided they have a perimeter dimension of 4" (100mm) minimum and 6¼" (160mm) maximum and provided their largest cross-section dimension is 2¼" (57mm) maximum.*



- ALUMINUM
- STEEL
- ACRYLIC / WOOD

● ● ● CARLSTADT® ACRYLIC / WOOD

Scale: 6" = 1'-0"

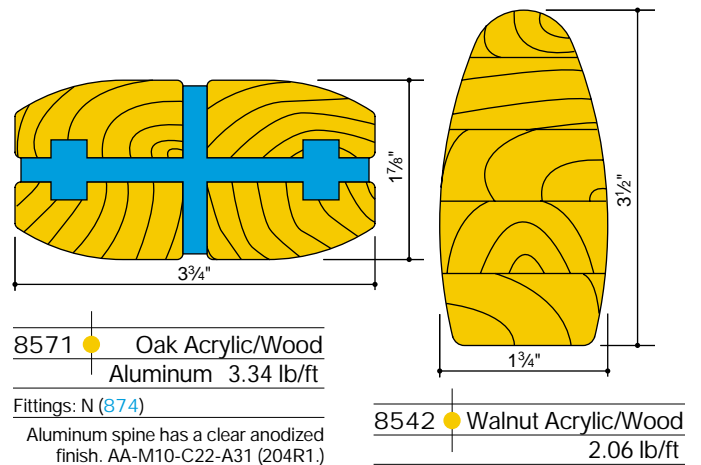
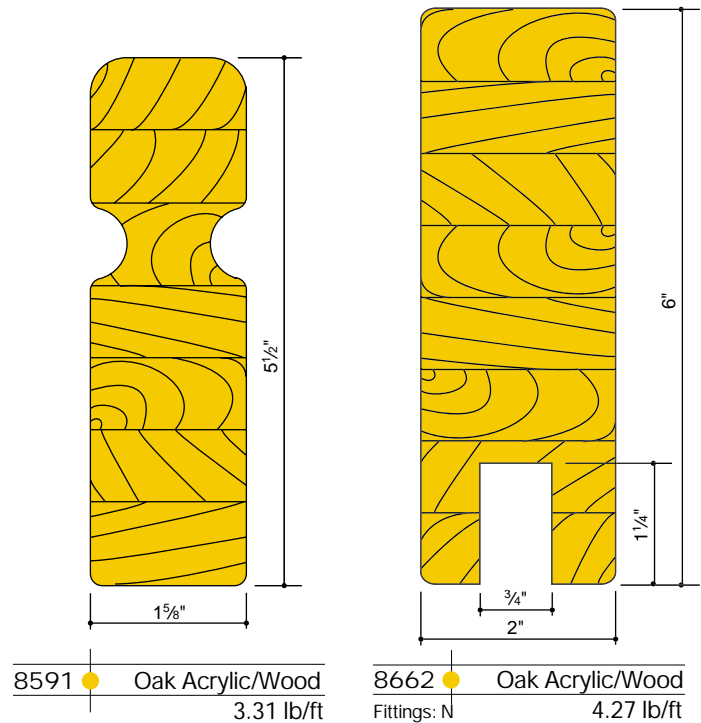
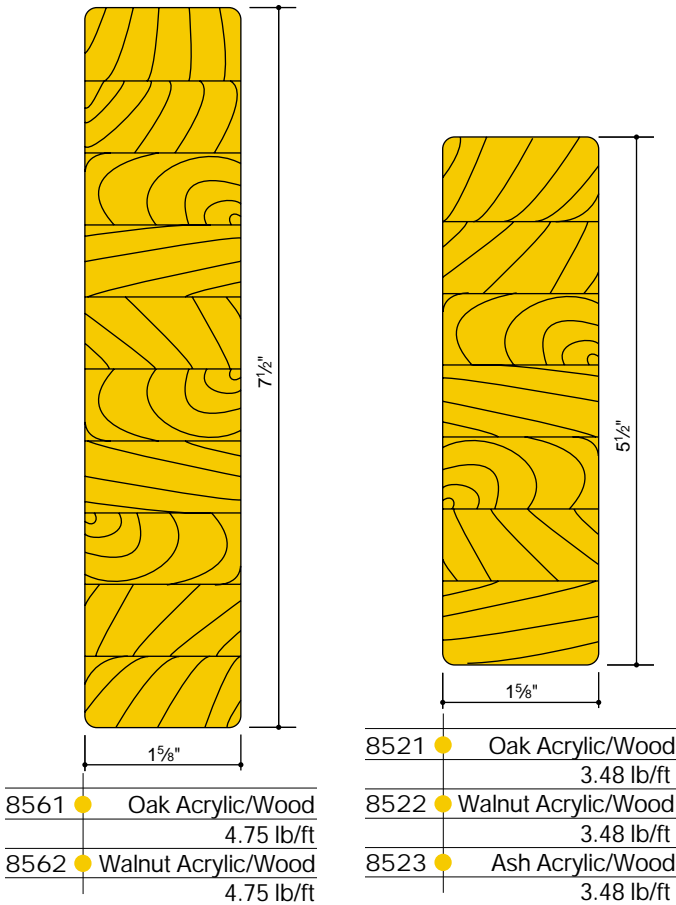
ACRYLIC/WOOD

16' lengths

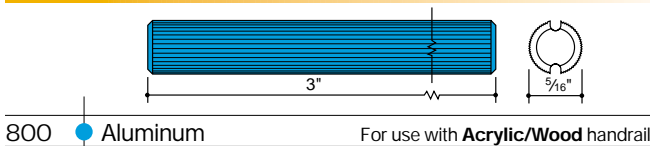
Acrylic/Wood rail is a prefinished composite material which retains all the beauty of natural hardwood—oak, walnut and ash—but is provided with a hard, lustrous acrylic surface. This is achieved by impregnating the wood with acrylic plastic and hardening it by irradiation. The composite has twice the resistance to indentation and several times the resistance to abrasion as the same hardwood finished conventionally. **Acrylic/Wood** is laminated from strips so as to obtain greater strength and continuous, uniform lengths.



Approximate color and grain configurations
Ash color may be substituted for maple or birch.



DOWEL



SLEEVE ANCHOR BOLT



The sleeve anchor bolt is an all steel, rust-proofed multipurpose anchor bolt intended for use in a wide range of masonry materials. The 3/8" bolt is recommended for use with heavy-duty floor flange 876.

SCOTCH-WELD® EPOXY ADHESIVE
Catalog No. 3M EC-2216 B/A, Clear Amber
 Recommended for splice joints.

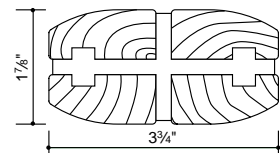
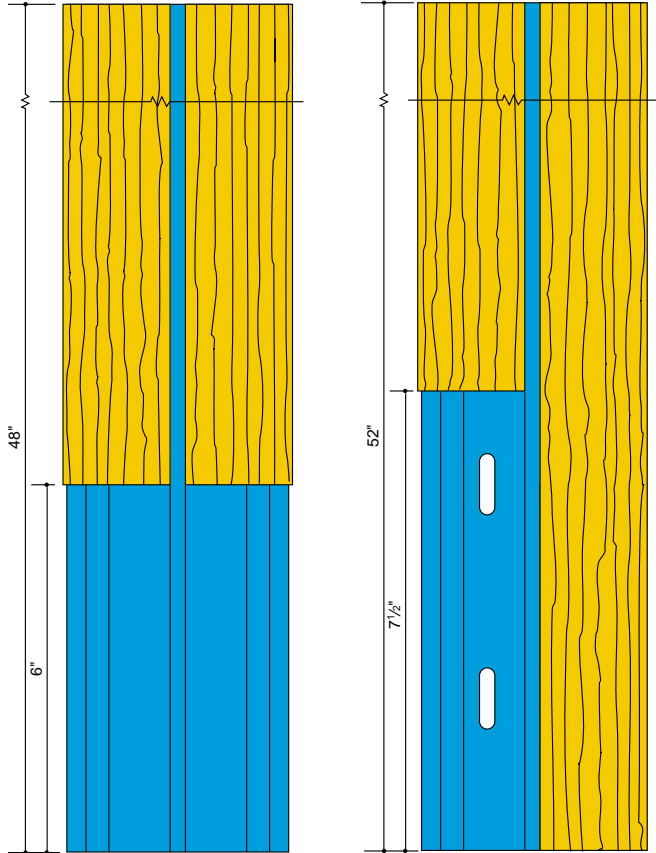
Cans—1 qt. total Tubes—4 oz. total

● ● ACRYLIC / WOOD POSTS AND FLANGES

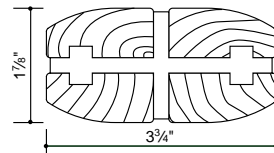
PRECUT ACRYLIC / WOOD POSTS

On fascia mounted posts 881 and 882, lower end of metal spine is partly exposed to accept fascia flange. Provision is made for vertical adjustment. Upper end of post is trimmed to required height before post cap is attached.

On floor mounted posts 871 and 872, 6" of aluminum spine is exposed for grouting in concrete. For surface mounting with heavy-duty floor flange, cut off exposed end of spine or cut post from full 16' length.



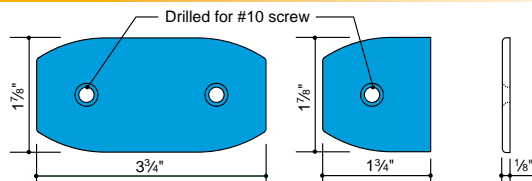
871 ● Oak Acrylic/Wood
872 ● Walnut Acrylic/Wood



881 ● Oak Acrylic/Wood
882 ● Walnut Acrylic/Wood

Slotted holes for vertical adjustment
Aluminum spine has a clear anodized finish AA-M10-C22-A31 (204R1).

POST CAPS



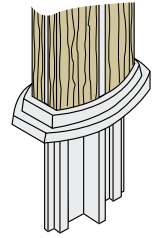
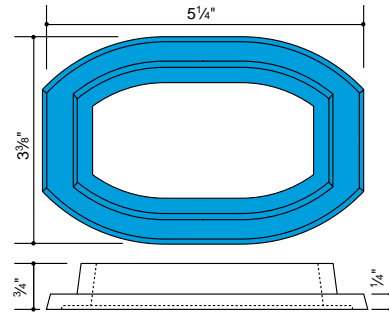
Upper Cap
874 ● Aluminum

For posts 871, 872, 881 and 882

Lower Cap
875 ● Aluminum

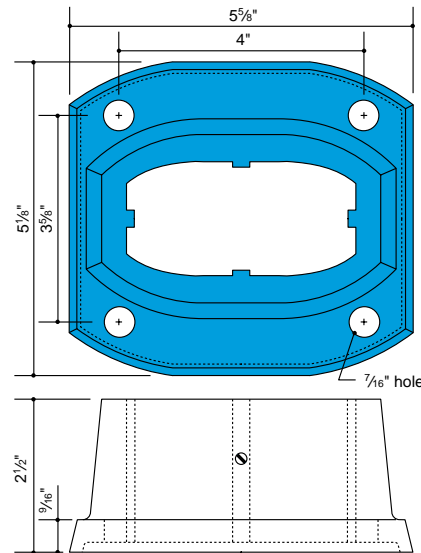
For posts 881 and 882
Aluminum items are suitable for anodizing.

COVER FLANGE

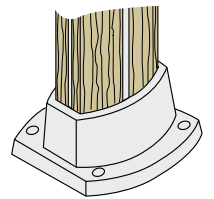


877 ● Aluminum
Fits Acrylic/Wood posts

HEAVY-DUTY FLOOR FLANGE

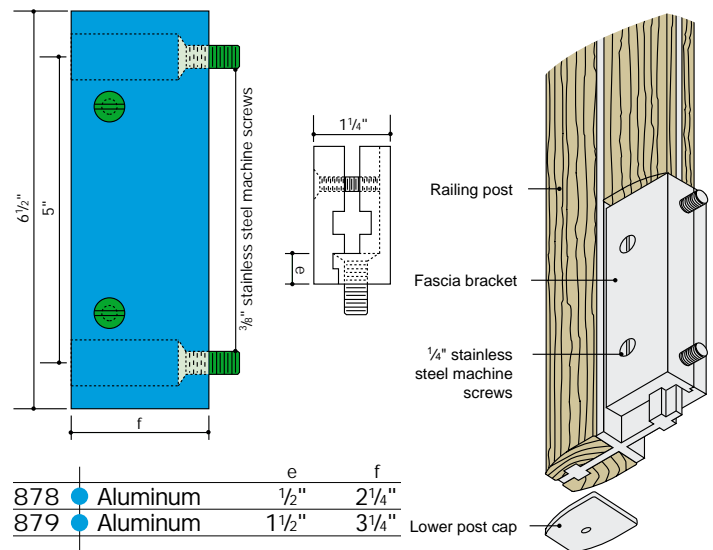


This heavy-duty floor flange is for use with Acrylic/Wood posts when embedment is not possible. Additional lateral bracing or end support is usually required.



876 ● Aluminum
Fits Acrylic/Wood posts

FASCIA BRACKETS

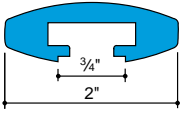


878 ● Aluminum	e 1/2"	f 2 1/4"
879 ● Aluminum	e 1 1/2"	f 3 1/4"

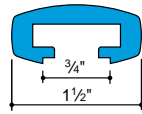
Lower post cap

CARLSRAIL® HANDRAIL

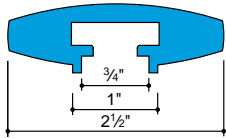
20' lengths



6530 • Aluminum .900 lb/ft
Fittings: C-N



6531 • Aluminum .600 lb/ft
Fittings: C-N

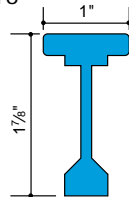


6532 • Aluminum 1.440 lb/ft
Fittings: C-N

A slip fit support bar adds both vertical and horizontal stiffness to the handrail mouldings, when required.

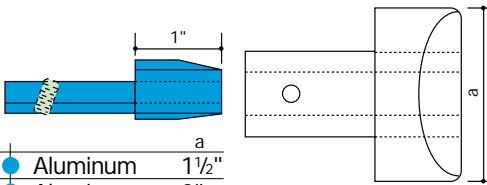
SUPPORT BAR

6063-T6



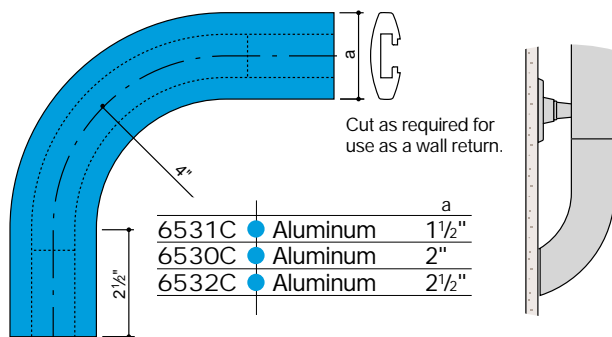
6540 • Aluminum .753 lb/ft

END CAP



6531N • Aluminum 1 1/2"
6530N • Aluminum 2"
6532N • Aluminum 2 1/2"

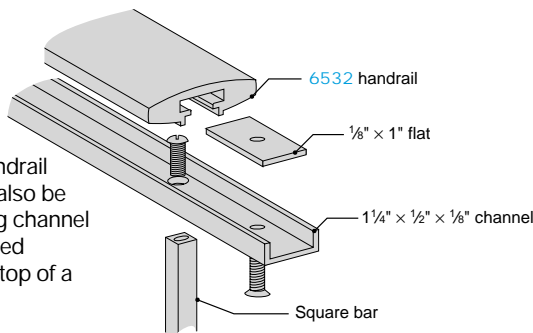
CORNER BEND



Cut as required for use as a wall return.

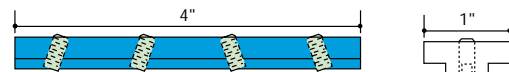
6531C • Aluminum 1 1/2"
6530C • Aluminum 2"
6532C • Aluminum 2 1/2"

Carlsrail® handrail sections may also be mounted using channel and then applied directly to the top of a picket or post.



The Fannin Library at Phoenix College, Phoenix, AZ
Fabricator: Bernie's Brass, Inc., Phoenix, AZ
Architect: Durrant Architects

SPLICE INSERT

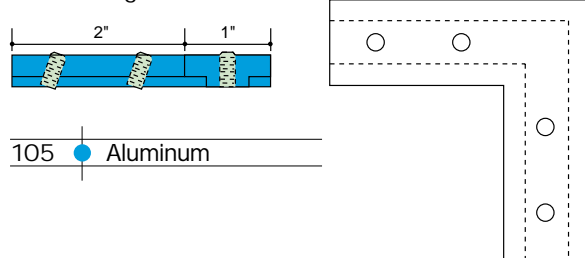


104 • Aluminum

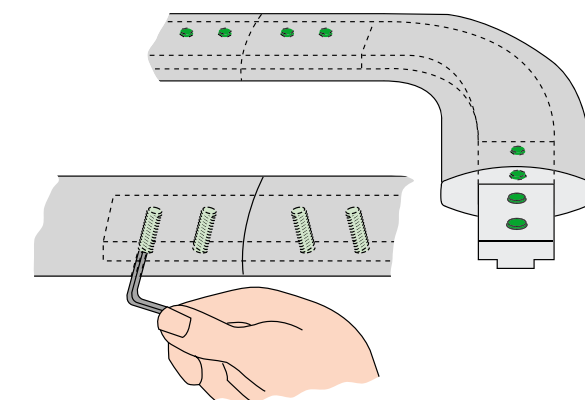
Also available in 16' lengths without holes or set screws 104-16.

CORNER SPLICE INSERT

Cast, Almag 35



105 • Aluminum

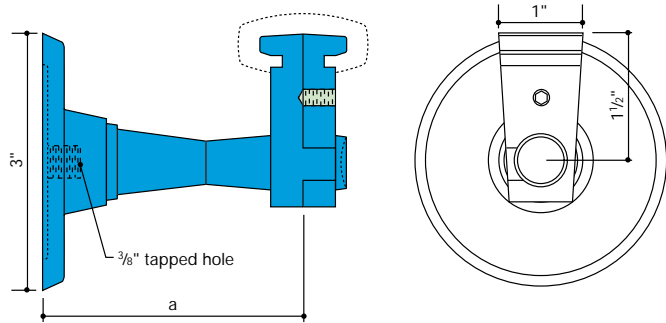


Splicing

An internal splice is used to attach corner bends and wall returns, as a connector for continuous runs and for expansion joints. A set screw tightens and draws components together.

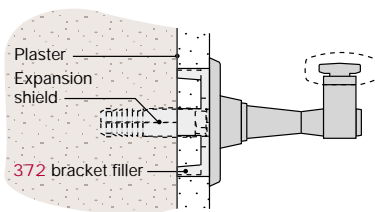
CARLSTADT® Self-Aligning WALL BRACKETS

Satin Finish



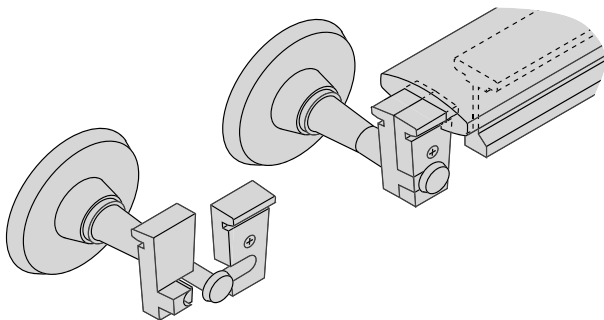
For use with **Carlsrail®** handrail moulding

		a
173	● Aluminum	3"
174	● Aluminum	3 1/2"
175	● Aluminum	2 1/4"



Wall Bracket Detail

Wall brackets match the post brackets, except that they come with a wall flange. Rear of wall bracket is tapped to receive an anchoring bolt. Wall bracket arm and flange may be disassembled to permit insertion of bracket extension (see above).

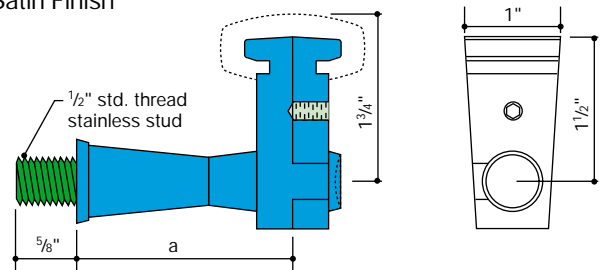


Carlsrail® Bracket Assembly

The **Carlsrail®** bracket assembly has a two-part clamp which, in slipping together, engages the bracket arm and the handrail simultaneously, without drilling or tapping. It aligns itself on the handrail and tilts to the required stair or ramp angle.

CARLSTADT® Self-Aligning POST BRACKETS

Satin Finish



For use with **Carlsrail®** handrail moulding.

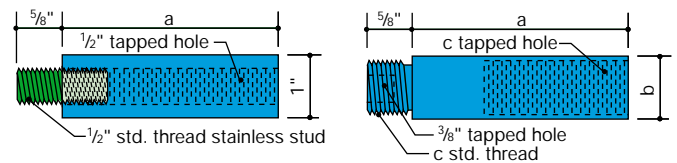
		a
171	● Aluminum	2 1/4"
172	● Aluminum	2 3/4"

CARLSTADT® BRACKET EXTENSIONS

Satin Finish

For Post Brackets

For Wall Brackets

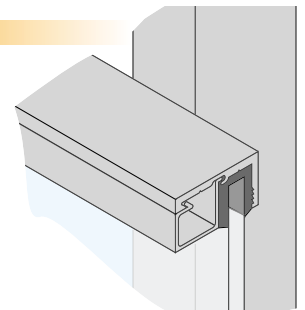


		a	b	c		a	b	c	
462	● Aluminum	1 3/4"	1"	3/4"	464	● Aluminum	1 3/4"	1"	3/4"
463	● Aluminum	3"	1"	3/4"	465	● Aluminum	3"	1"	3/4"

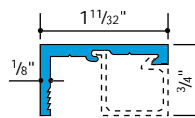
Extensions may be cut to length to suit individual conditions. Trim Wall Bracket Extensions to no shorter than 1 1/8". Designers should note that extending a bracket increases stress at its base and reduces allowable load.

GLAZING MEMBERS

Aluminum glass stop/snap-in and flexible PVC glazing channel serve to mount panels of 1/4" glass, plastic, wire mesh, or other material.

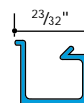


Glass Stop 20' lengths



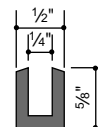
8106	● Aluminum	.276 lb/ft
8206	● Aluminum Anodized	

Snap-in 20' lengths



8107	● Aluminum	.138 lb/ft
8207	● Aluminum Anodized	

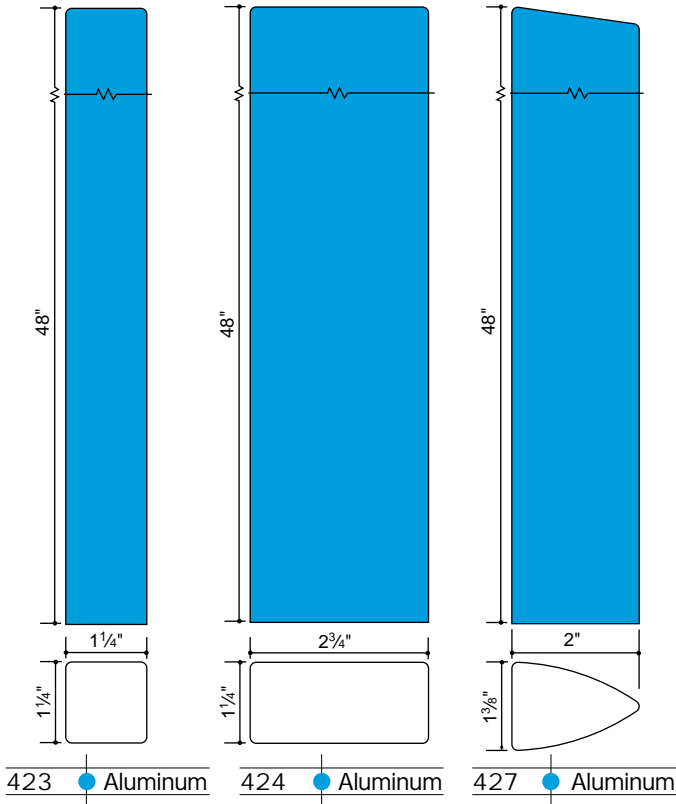
Flexible PVC Channel 50' coils



8708	● Flexible PVC	90 durometer
------	----------------	--------------

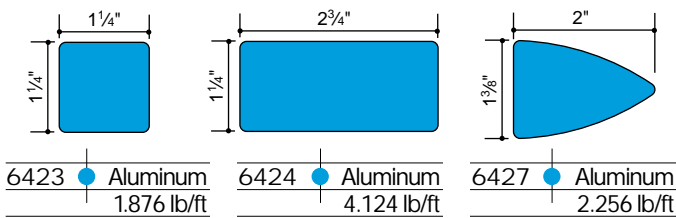
PRECUT SOLID ALUMINUM POSTS

Aluminum 6063-T52, Mill Finish, 48" lengths
 Upper end has been trimmed as shown – no post cap is required.
 Lower end may be cut to achieve required post height. Drill and tap to receive Carlstadt® handrail brackets.



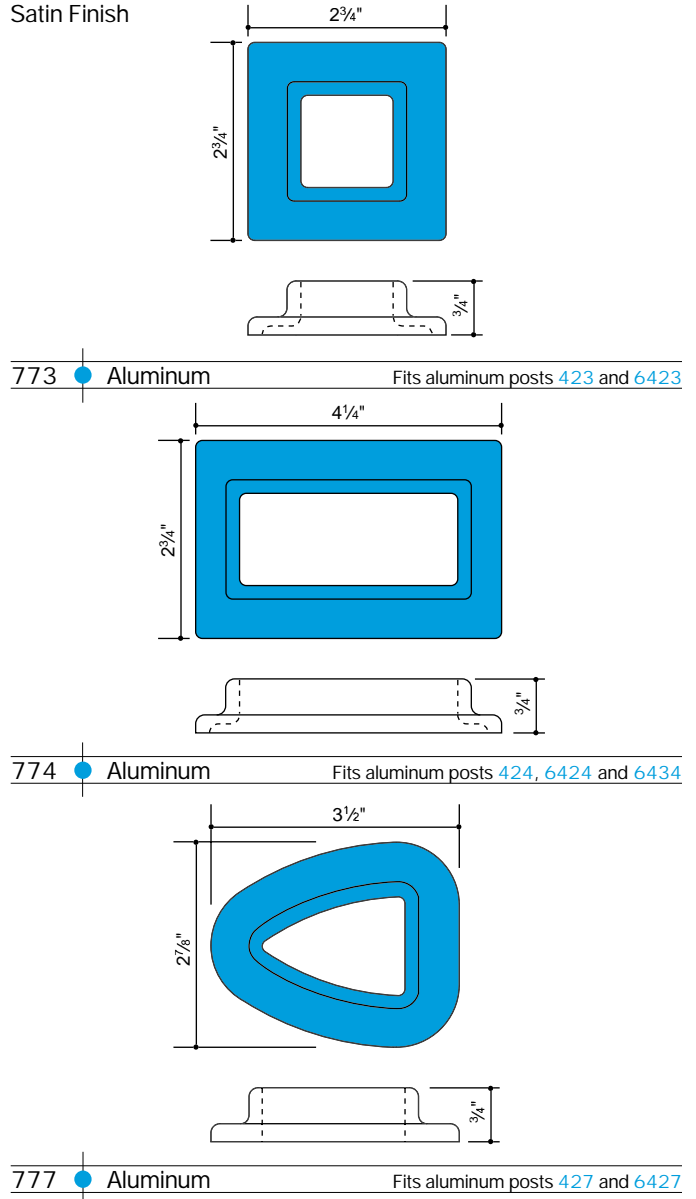
BAR STOCK FOR RAILING POSTS

Aluminum 6063-T52, 20' lengths, except as noted



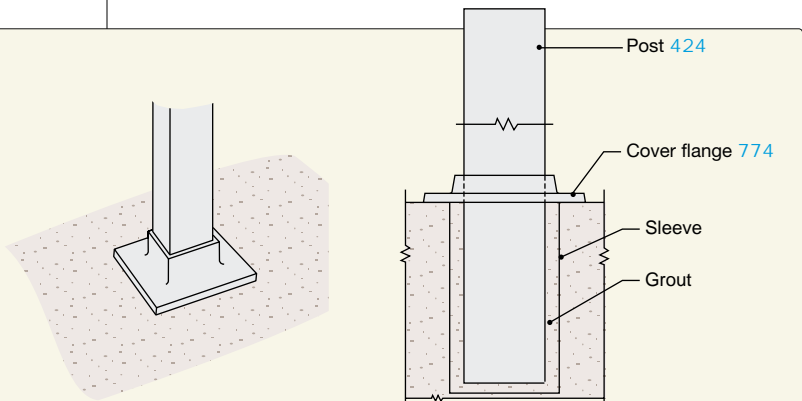
COVER FLANGES

Satin Finish



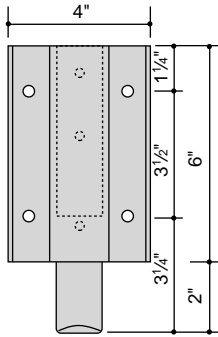
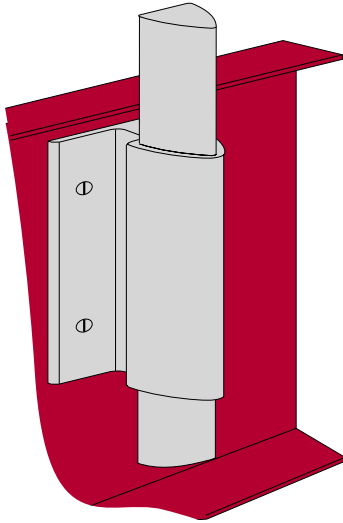
Installation Details

Post is set in metal sleeve in concrete and grouted. Embed post to a depth of 4" to 6" in slab. Allow for a 1" grout pad beneath post. Sleeve should provide ample clearance around post for grouting and to allow for adjustment to field variations. For outdoor installations, weep holes should be drilled in the posts to prevent water from collecting below ground level. A cover flange conceals the floor opening.

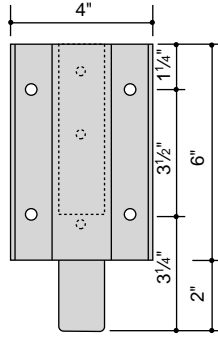


FASCIA FLANGES

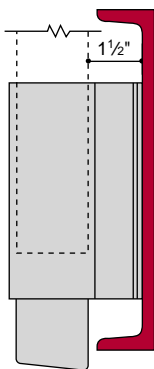
Sleeve type fascia flanges are provided with two clearances for mounting on solid or channel fascias and stringers. The post slips into the pocket of the fascia flange and is anchored with concealed set screws. The bottom extension of each fascia flange matches the profile of the post and is trimmed to match its top.



Elevation of 425 and 426

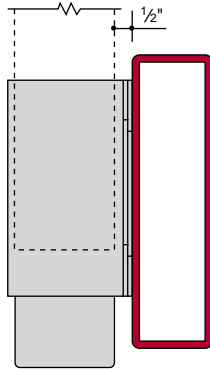


Elevation of 408, 421, and 422



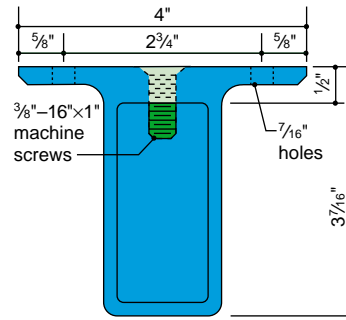
Fascia flange 426 used with channel stringer.

Fascia flange 422 is similar.



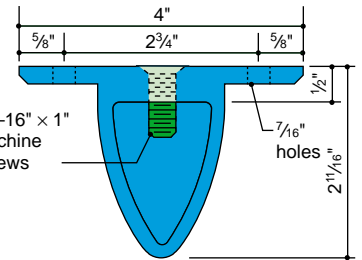
Fascia flange 408 used with box stringer.

Fascia flanges 421 and 425 are similar.



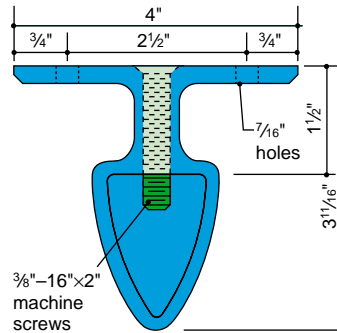
408 Aluminum

Fits aluminum posts 424, 6424, 6434



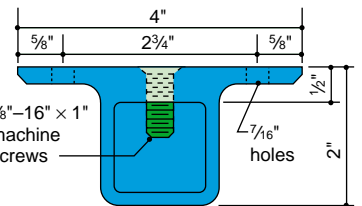
425 Aluminum

Fits aluminum posts 427 and 6427



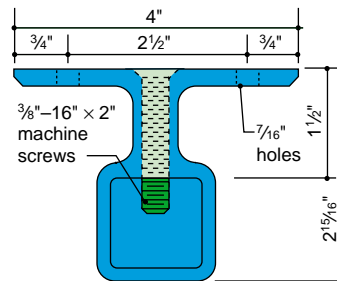
426 Aluminum

Fits aluminum posts 427 and 6427



421 Aluminum

Fits aluminum posts 423 and 6423

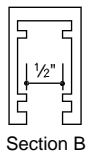
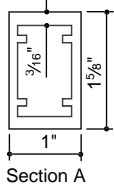
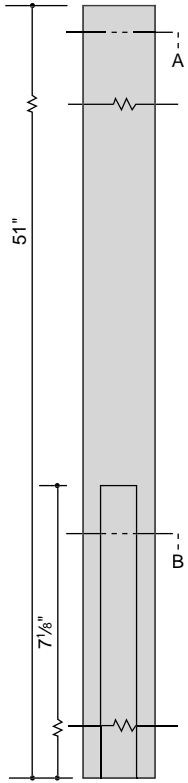


422 Aluminum

Fits aluminum posts 423 and 6423

PRECUT POST

For fascia mounting,
51" lengths, Mill Finish
● Aluminum 6063-T6
● Bronze C38500



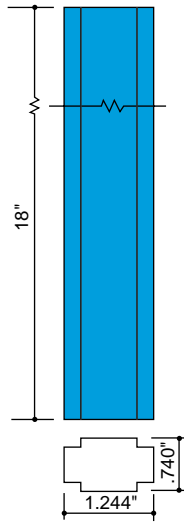
430* ● Aluminum
830* ● Bronze

* Cut and machined for use with fascia brackets.

Aluminum items are suitable for anodizing, including most of the hard-coat color finishes. Properties of sections for handrail posts are listed on page 124. Refer to pages 123-130 for detailed information on the structural design of handrail installations.

REINFORCING BARS

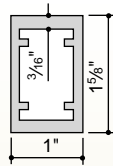
Aluminum 6063-T6



436E ● Aluminum
Fits aluminum post 430 or 830

TUBING FOR FLOOR-MOUNTED POSTS

20' lengths, Mill Finish

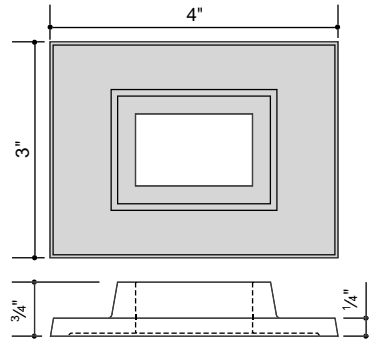


6430	● Aluminum	.899
4830	● Bronze	2.950



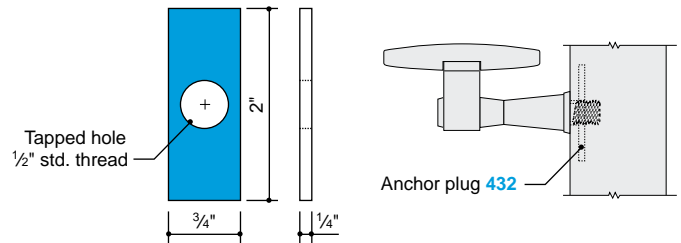
COVER FLANGES

Satin Finish



435	● Aluminum	Fits aluminum post 430 or 6430
835	● Bronze	Fits bronze post 830 or 4830

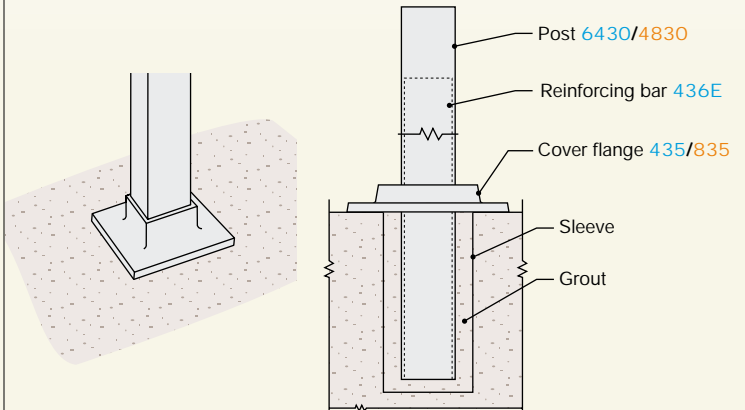
POST BRACKET ANCHOR PLUGS



432 ● Aluminum
Fits aluminum post 430 and 830

FLOOR MOUNTED POST DETAIL

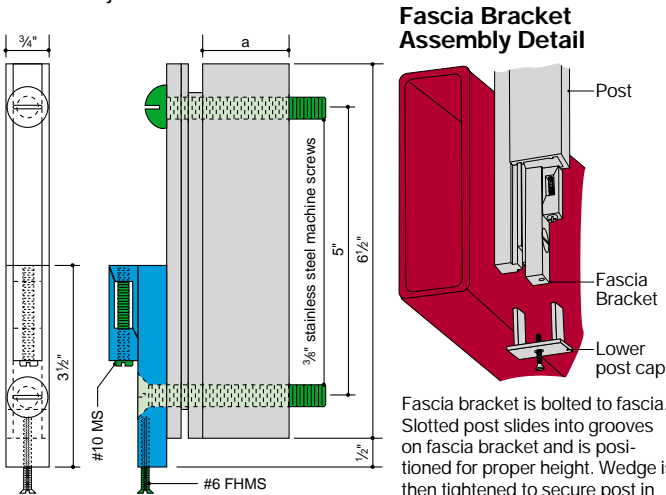
Reinforcing bar is placed within mating hollow post. Post is set in metal sleeve in concrete and grouted. Embed post to a depth of 4" to 6" in slab. Allow for a 1" grout pad beneath post. Sleeve should provide ample clearance around post for grouting and to allow for adjustment to field variations. For outdoor installations, weep holes should be drilled in the posts to prevent water from collecting below ground level. A cover flange conceals the floor opening.



FASCIA BRACKETS

Mill Finish

Fascia brackets are available for concealed fastening of acrylic/wood and hollow posts of aluminum, bronze, and stainless steel—both for solid and channel fascias. The fastening mechanism provides for vertical field adjustment.

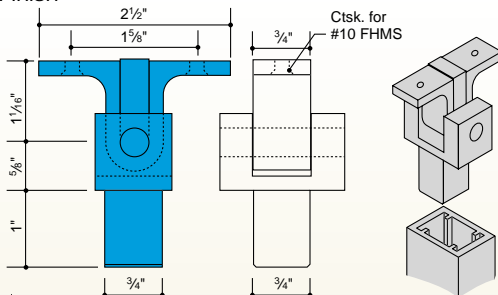


Fascia bracket is bolted to fascia. Slotted post slides into grooves on fascia bracket and is positioned for proper height. Wedge is then tightened to secure post in position. Lower post cap is then attached, completing assembly.

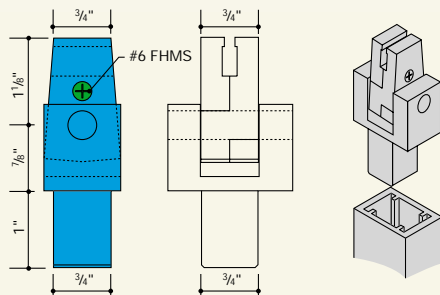
		a	
428	● Aluminum	1/2"	For box stringers, Fits aluminum post 430
429	● Aluminum	1 1/2"	For channel stringers, Fits aluminum post 430
838	● Bronze	1/2"	For box stringers, Fits bronze post 830
839	● Bronze	1 1/2"	For channel stringers, Fits bronze post 830

CENTER POST BRACKETS

Satin Finish



161	● Aluminum	Curved for pipe, Fits aluminum posts 430 and 6430
162	● Aluminum	Flat for moulding, Fits aluminum posts 430 and 6430



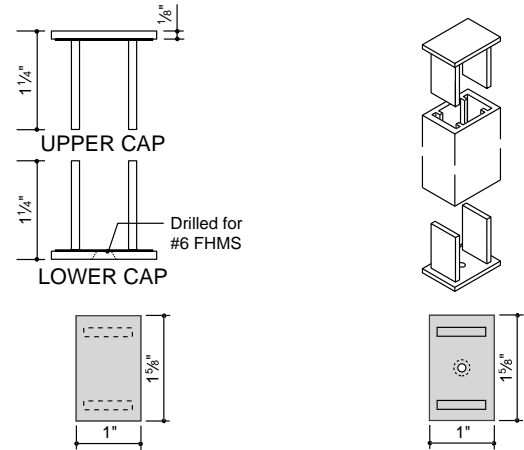
152	● Aluminum	For Carlstadt® T-handrail, Fits aluminum posts 430 and 6430
-----	------------	---

Center post brackets permit handrail to be centered directly over post, while allowing the bracket to tilt to conform to stair incline. Bracket is secured to post with pin or screw.

POST CAPS

Satin Finish

Caps for hollow Carlstadt® posts have a flange extending inside to receive and support the thread of the bracket arm.



Upper Cap

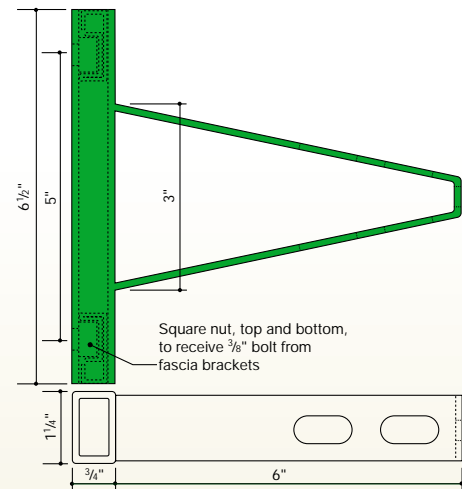
431	● Aluminum
831	● Bronze

Lower Cap

433	● Aluminum
833	● Bronze

Fits aluminum posts 430 and 6430 and bronze posts 830 and 4830

POST ANCHOR FOR CAST STEPS



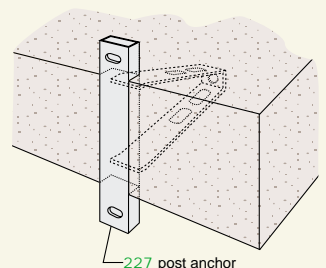
227 ● Stainless

For use with aluminum and bronze railings

Post anchor 227 can be used with fascia brackets 428, 429, 838, 839 or to mount Carlstadt® Aluminum or Bronze posts. Cast post anchor into concrete with minimum slab thickness of 3" and minimum compressive strength of 3500 psi. Maximum recommended post spacing for 3" slabs is 30"; for slabs 4" thick and thicker, recommended maximum post spacing is 48".

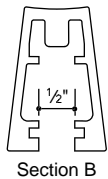
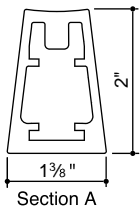
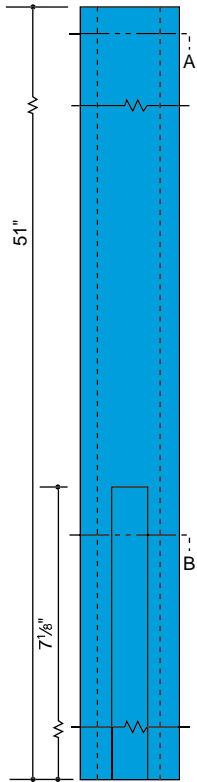
Post Anchor Installation

Anchor is embedded in slab with anchor centered vertically in slab thickness. Front face of anchor should be flush with edge of slab. Square nuts move freely in pockets, receive 3/8" mounting bolts of Carlstadt® fascia brackets. Wide slots provide for lateral adjustment and vertical alignment.



PRECUT POST

For fascia mounting,
51" lengths, Mill Finish
● Aluminum 6063-T6



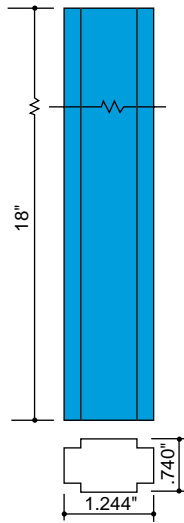
458 ● Aluminum

* Cut and machined for use with fascia brackets.

Aluminum items are suitable for anodizing, including most of the hard-coat color finishes. Properties of sections for handrail posts are listed on page 124. Refer to pages 123-130 for detailed information on the structural design of handrail installations.

REINFORCING BARS

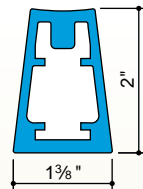
Aluminum 6063-T6



436E ● Aluminum
Fits aluminum post 458

TUBING FOR FLOOR-MOUNTED POSTS

20' lengths, Mill Finish

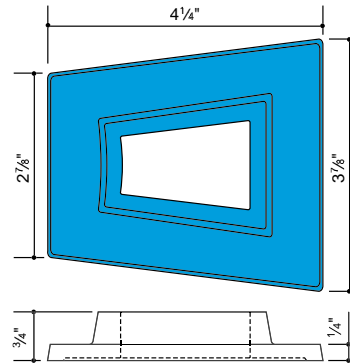


6458 ● Aluminum 1.326 lb/ft



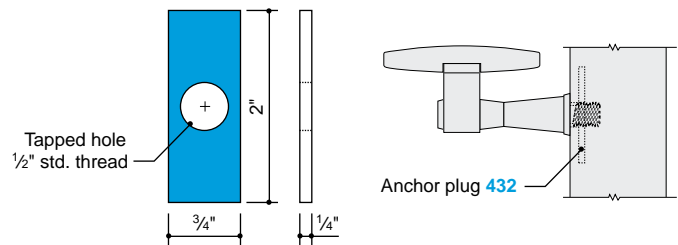
COVER FLANGES

Satin Finish



495 ● Aluminum Fits aluminum post 458 or 6458

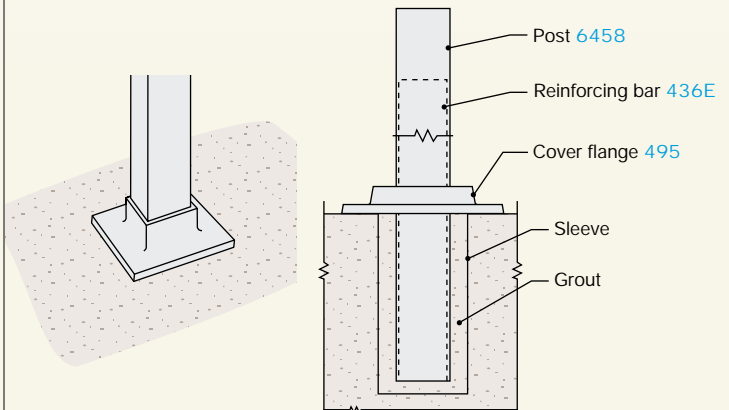
POST BRACKET ANCHOR PLUGS



432 ● Aluminum Fits aluminum post 458

FLOOR MOUNTED POST DETAIL

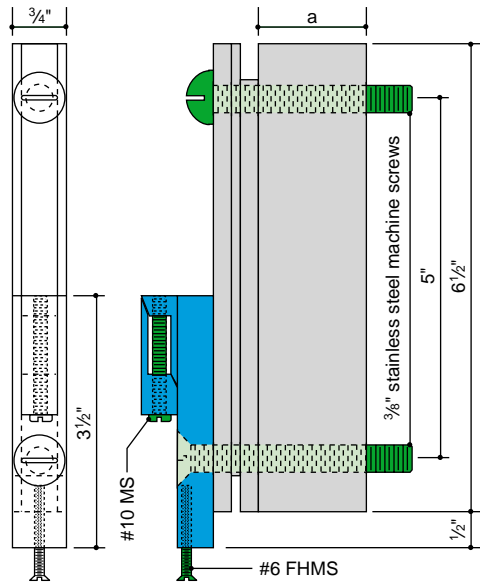
Reinforcing bar is placed within mating hollow post. Post is set in metal sleeve in concrete and grouted. Embed post to a depth of 4" to 6" in slab. Allow for a 1" grout pad beneath post. Sleeve should provide ample clearance around post for grouting and to allow for adjustment to field variations. For outdoor installations, weep holes should be drilled in the posts to prevent water from collecting below ground level. A cover flange conceals the floor opening.



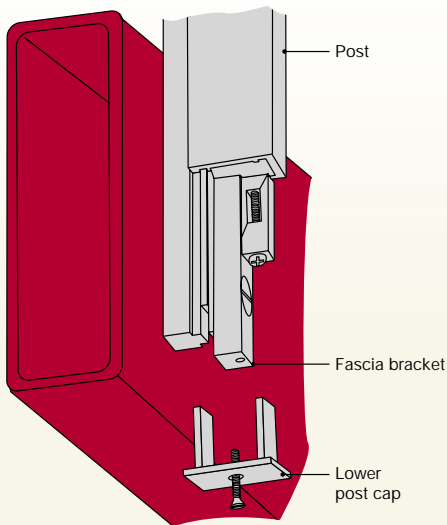
FASCIA BRACKETS

Mill Finish

Fascia brackets are available for concealed fastening of acrylic/wood and hollow posts of aluminum, bronze, and stainless steel—both for solid and channel fascias. The fastening mechanism provides for vertical field adjustment.



428	● Aluminum	1/2"	For box stringers, Fits aluminum post 458
429	● Aluminum	1 1/2"	For channel stringers, Fits aluminum post 458



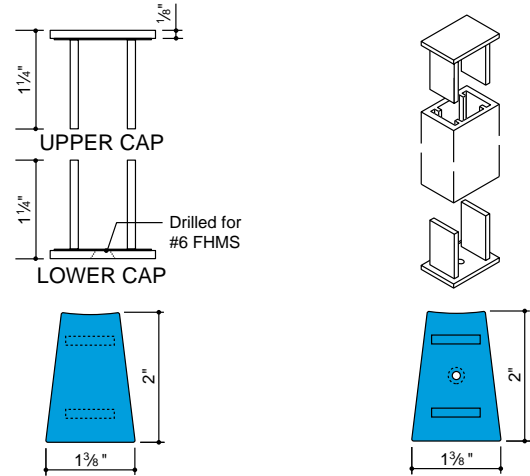
Fascia Bracket Assembly Detail

Fascia bracket is bolted to fascia. Slotted post slides into grooves on fascia bracket and is positioned for proper height. Wedge is then tightened to secure post in position. Lower post cap is then attached, completing assembly.

POST CAPS

Satin Finish

Caps for hollow Carlstadt® posts have a flange extending inside to receive and support the thread of the bracket arm.



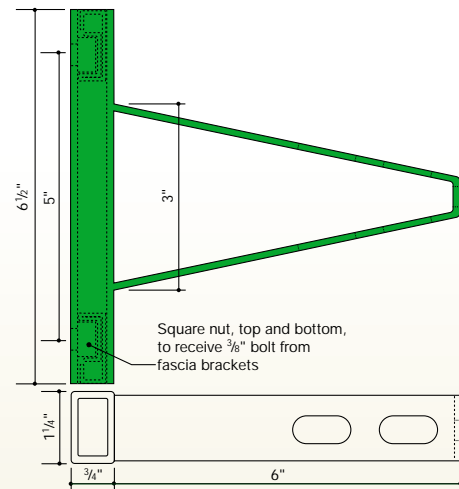
Upper Cap

468 ● Aluminum
Fits aluminum posts 458 and 6458

Lower Cap

469 ● Aluminum
Fits aluminum posts 458 and 6458

POST ANCHOR FOR CAST STEPS



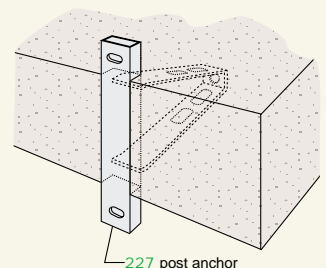
227 ● Stainless

For use with aluminum and bronze railings

Post anchor 227 can be used with fascia brackets 428 and 429 to mount Carlstadt® Aluminum or Bronze posts. Cast post anchor into concrete with minimum slab thickness of 3" and minimum compressive strength of 3500 psi. Maximum recommended post spacing for 3" slabs is 30"; for slabs 4" thick and thicker, recommended maximum post spacing is 48".

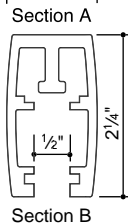
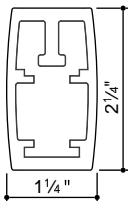
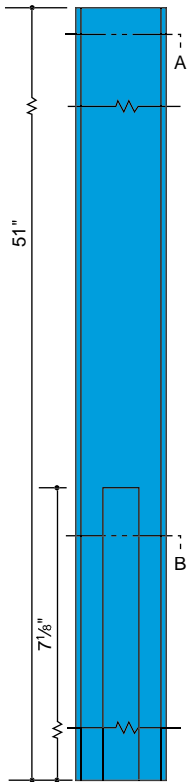
Post Anchor Installation

Anchor is embedded in slab with anchor centered vertically in slab thickness. Front face of anchor should be flush with edge of slab. Square nuts move freely in pockets, receive 3/8" mounting bolts of Carlstadt® fascia brackets. Wide slots provide for lateral adjustment and vertical alignment.



PRECUT POST

For fascia mounting,
51" lengths, Mill Finish
● Aluminum 6063-T6



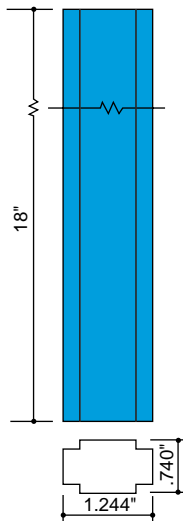
459* ● Aluminum

* Cut and machined for use with fascia brackets.

Aluminum items are suitable for anodizing, including most of the hard-coat color finishes. Properties of sections for handrail posts are listed on page 124. Refer to pages 123-130 for detailed information on the structural design of handrail installations.

REINFORCING BARS

Aluminum 6063-T6

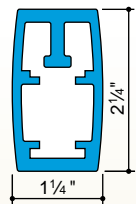


436E ● Aluminum

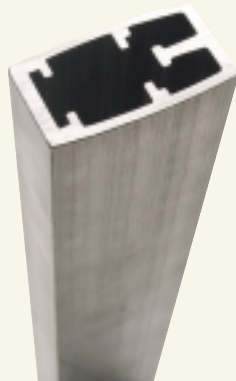
Fits aluminum post 459

TUBING FOR FLOOR-MOUNTED POSTS

20' lengths, Mill Finish

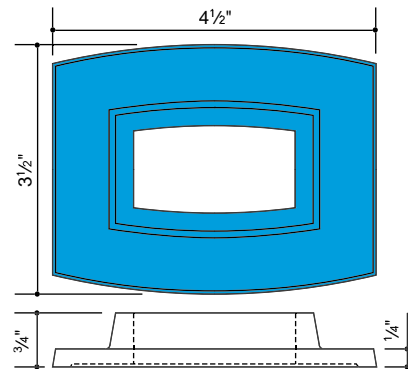


6459 ● Aluminum 1.240 lb/ft



COVER FLANGES

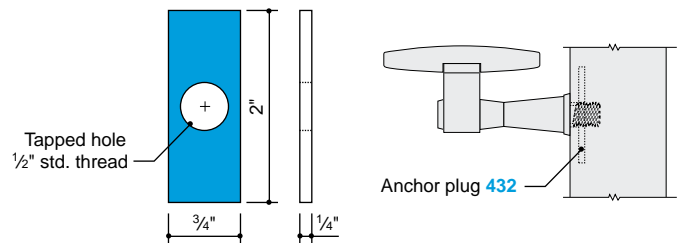
Satin Finish



496 ● Aluminum

Fits aluminum post 459 or 6459

POST BRACKET ANCHOR PLUGS

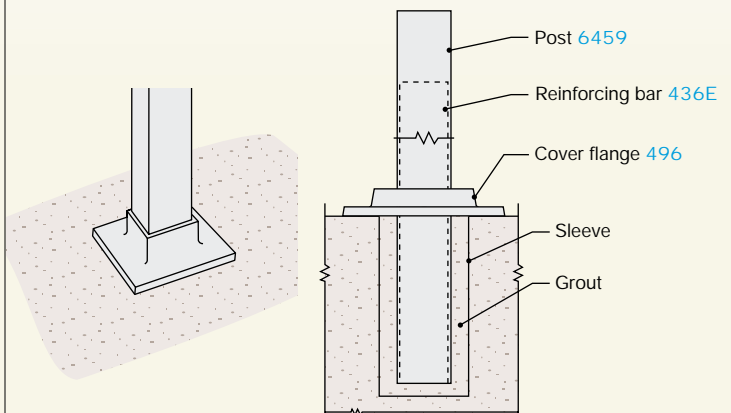


432 ● Aluminum

Fits aluminum post 459

FLOOR MOUNTED POST DETAIL

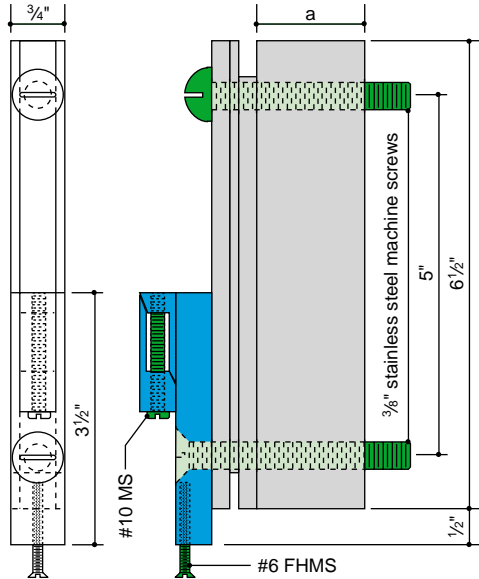
Reinforcing bar is placed within mating hollow post. Post is set in metal sleeve in concrete and grouted. Embed post to a depth of 4" to 6" in slab. Allow for a 1" grout pad beneath post. Sleeve should provide ample clearance around post for grouting and to allow for adjustment to field variations. For outdoor installations, weep holes should be drilled in the posts to prevent water from collecting below ground level. A cover flange conceals the floor opening.



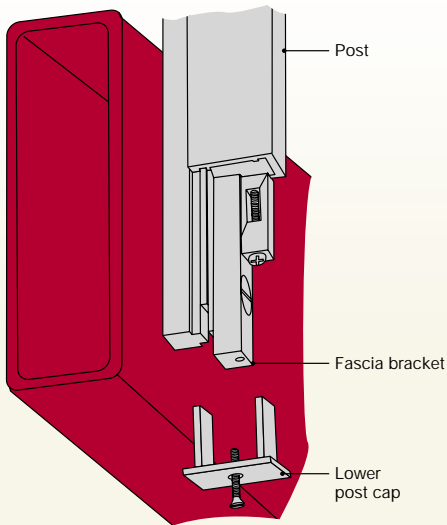
FASCIA BRACKETS

Mill Finish

Fascia brackets are available for concealed fastening of acrylic/wood and hollow posts of aluminum, bronze, and stainless steel—both for solid and channel fascias. The fastening mechanism provides for vertical field adjustment.



		a	
428	● Aluminum	1 1/2"	For box stringers, Fits aluminum post 459
429	● Aluminum	1 1/2"	For channel stringers, Fits aluminum post 459



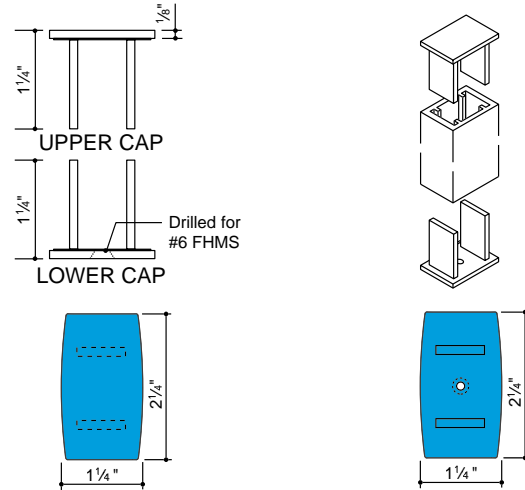
Fascia Bracket Assembly Detail

Fascia bracket is bolted to fascia. Slotted post slides into grooves on fascia bracket and is positioned for proper height. Wedge is then tightened to secure post in position. Lower post cap is then attached, completing assembly.

POST CAPS

Satin Finish

Caps for hollow Carlstadt® posts have a flange extending inside to receive and support the thread of the bracket arm.



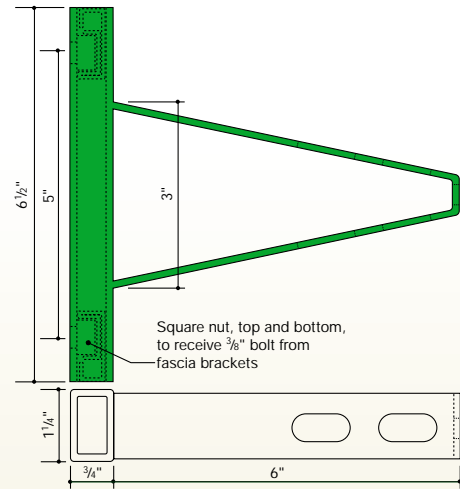
Upper Cap

451 ● Aluminum
Fits aluminum posts 459 and 6459

Lower Cap

453 ● Aluminum
Fits aluminum posts 459 and 6459

POST ANCHOR FOR CAST STEPS



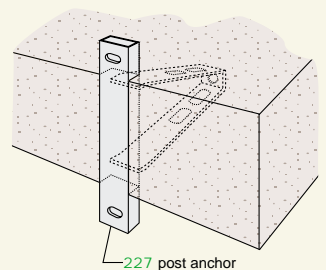
227 ● Stainless

For use with aluminum and bronze railings

Post anchor 227 can be used with fascia brackets 428 and 429 to mount Carlstadt® aluminum or bronze posts. Cast post anchor into concrete with minimum slab thickness of 3" and minimum compressive strength of 3500 psi. Maximum recommended post spacing for 3" slabs is 30"; for slabs 4" thick and thicker, recommended maximum post spacing is 48".

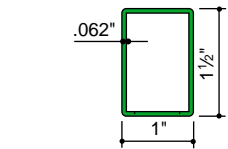
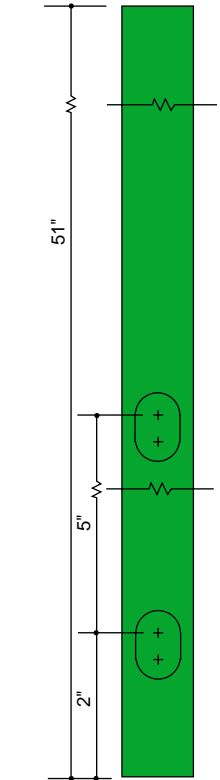
Post Anchor Installation

Anchor is embedded in slab with anchor centered vertically in slab thickness. Front face of anchor should be flush with edge of slab. Square nuts move freely in pockets, receive 3/8" mounting bolts of Carlstadt® fascia brackets. Wide slots provide for lateral adjustment and vertical alignment.

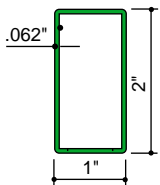


PRECUT POST

For fascia mounting,
51" lengths, 2B Mill Finish
● Stainless Type 304



230* ● Stainless

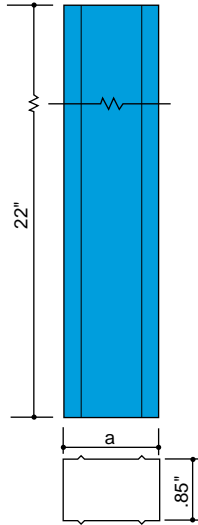


280* ● Stainless

* Cut and punched for fascia block.

Properties of sections for handrail posts are listed on page 124. Refer to pages 123-130 for detailed information on the structural design of handrail installations.

REINFORCING BARS

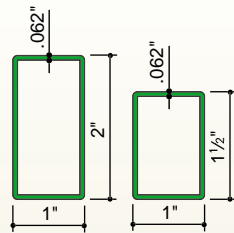


294 ● Aluminum $a = 1.34"$
Fits aluminum post 230

295 ● Aluminum $a = 1.84"$
Fits aluminum post 280

TUBING FOR FLOOR-MOUNTED POSTS

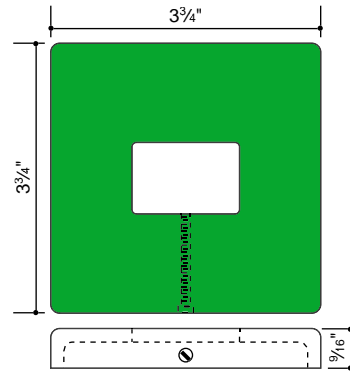
20' lengths, 2B Mill Finish



● Stainless Tubing

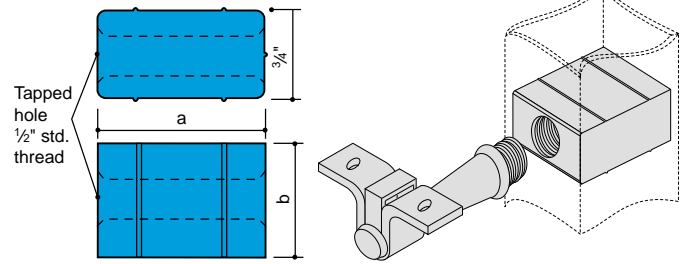
COVER FLANGES

Satin Finish



237 ● Stainless Fits stainless post 230 or tubing
285 ● Stainless Fits stainless post 280 or tubing

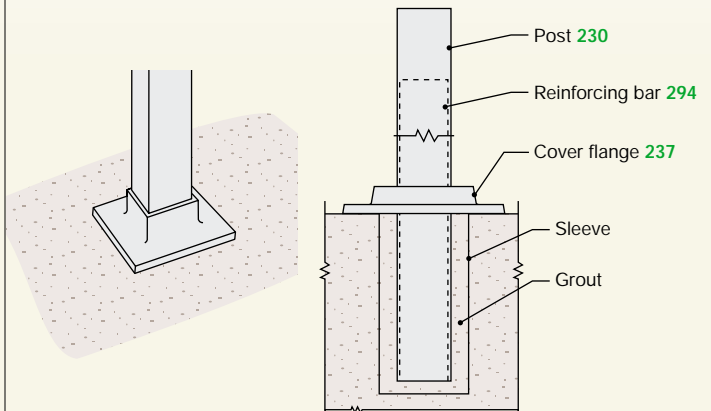
POST BRACKET ANCHOR PLUGS



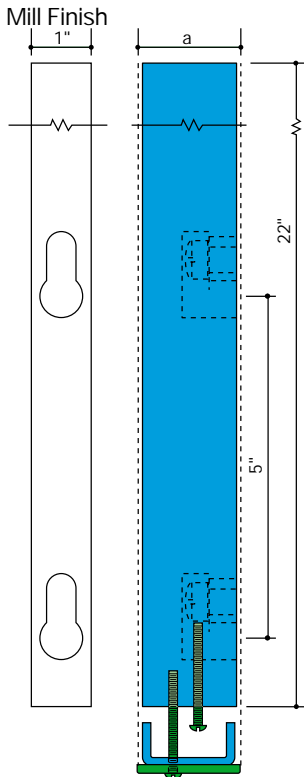
238 ● Aluminum $a = 1.34"$ $b = 1 1/8"$ Fits with stainless post 230
279 ● Aluminum $a = 1.84"$ $b = 1 1/4"$ Fits with stainless post 280

FLOOR MOUNTED POST DETAIL

Reinforcing bar is placed within mating hollow post. Post is set in metal sleeve and grouted. Embed post to a depth of 4" to 6" in slab. Allow for a 1" grout pad beneath post. Sleeve should provide ample clearance around post for grouting and to allow for adjustment to field variations. For outdoor installations, weep holes should be drilled in the posts to prevent water from collecting below ground level. A cover flange conceals the floor opening.

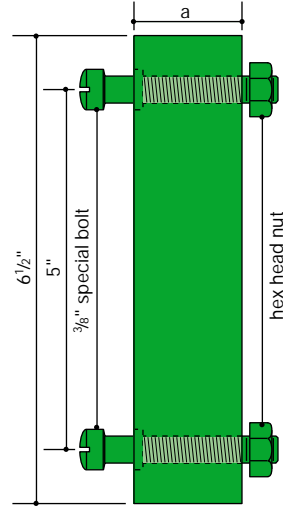


ANCHOR BAR WITH LOWER POST CAP



		a	post
233B	● Aluminum	1 1/2"	230
(With stainless steel lower post cap*)			
283	● Aluminum	2"	280
(With stainless steel lower post cap*)			
* Satin finish			

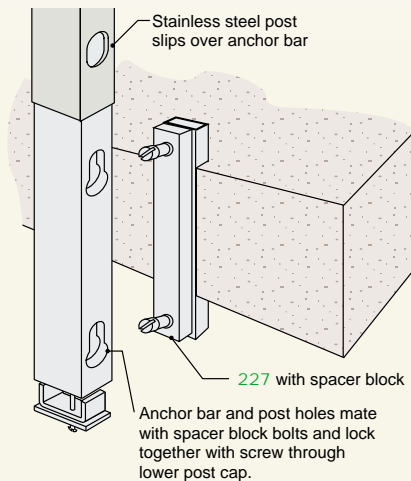
FASCIA SPACER BLOCK
Satin Finish



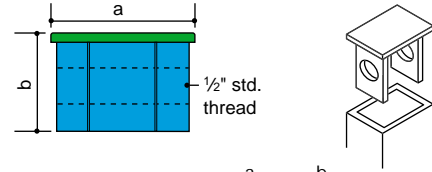
		a
228	● Stainless	1/2"
(Use with box stringers)		
229	● Stainless	1 1/2"
(Use with channel stringers)		

Fascia Spacer Block Assembly

The spacer block is first fastened to the stringer. The keyhole in the anchor bar aligns with the holes in the tubular post. Post and anchor bar assembly are then fed over the bolt heads, into the keyhole slot and seated manually. Final tightening is achieved by drawing up the tightening screw in the lower post cap.

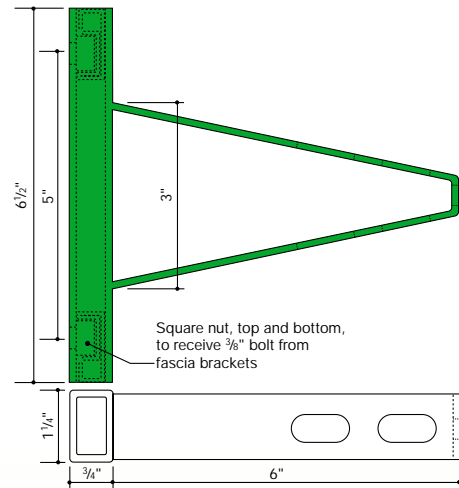


UPPER POST CAP
Satin Finish



		a	b	
231	● Stainless	1 1/2"	1 1/4"	Fits stainless post 230
284	● Stainless	2"	1 7/16"	Fits stainless post 280

POST ANCHOR FOR CAST STEPS

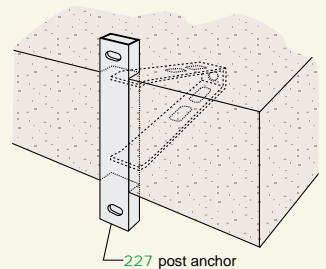


227	● Stainless	For use with aluminum and bronze railings
-----	-------------	---

Post anchor 227 can be used with fascia brackets 428 and 429 to mount Carlstadt® Aluminum or Bronze posts. Cast post anchor into concrete with minimum slab thickness of 3" and minimum compressive strength of 3500 psi. Maximum recommended post spacing for 3" slabs is 30"; for slabs 4" thick and thicker, recommended maximum post spacing is 48".

Post Anchor Installation

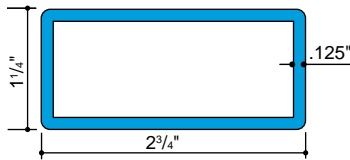
Anchor is embedded in slab with anchor centered vertically in slab thickness. Front face of anchor should be flush with edge of slab. Square nuts move freely in pockets, receive 3/8" mounting bolts of Carlstadt® fascia brackets. Wide slots provide for lateral adjustment and vertical alignment.



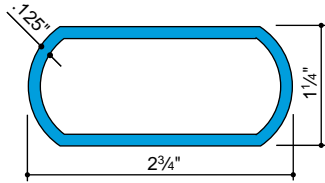
TUBING FOR RAILING POSTS

Mill Finish

Aluminum
6063-T6
20' lengths

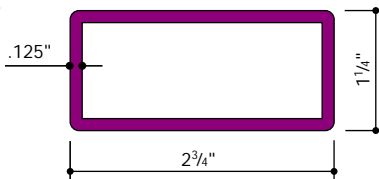


6434 ● Aluminum 1.123 lb/ft Fittings: N



6435 ● Aluminum 1.075 lb/ft Fittings: N

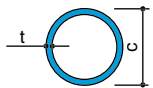
Nickel-Silver
C79800
16' lengths



1334 ● Nickel-Silver 3.40 lb/ft Fittings: N

HIGH STRENGTH CONNECTORAIL® POSTS

Aluminum only, Alloy 6063-T832

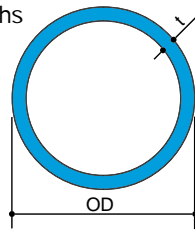


Drawn pipe precut to post lengths.
Clear anodized or mill finish

	Pipe	Sched.	Length	c	t
7103	● Aluminum	1 1/4"	10 38"	1.660"	.109"
7104	● Aluminum	1 1/4"	10 50"	1.660"	.109"
7403	● Aluminum	1 1/4"	40 38"	1.660"	.140"
7404	● Aluminum	1 1/4"	40 50"	1.660"	.140"
7203	● Aluminum	1 1/2"	10 38"	1.900"	.109"
7204	● Aluminum	1 1/2"	10 50"	1.900"	.109"
7503	● Aluminum	1 1/2"	40 38"	1.900"	.145"
7504	● Aluminum	1 1/2"	40 50"	1.900"	.145"

DRAWN ALUMINUM HANDRAIL PIPE

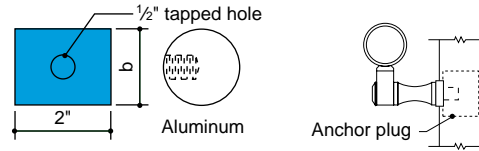
Aluminum Alloy 6063-T832, 20' lengths



Nominal Size	Sched.	OD	ID	t	lb/ft
1 1/4"	10	1.660"	1.442"	.109"	.625
1 1/4"	40	1.660"	1.380"	.140"	.785
1 1/2"	10	1.900"	1.682"	.109"	.721
1 1/2"	40	1.900"	1.610"	.145"	.940

This premium quality drawn pipe has an extra smooth surface. Its harder temper gives it high strength. See pages 14-29 for stock pipe fittings. Available in clear anodized or mill finish.

PIPE ANCHOR PLUGS

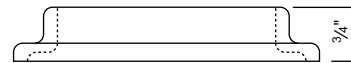
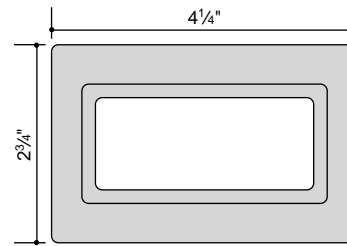


	Pipe	Sched.	b
7162	● Aluminum	1 1/4"	10 1.427"
7462	● Aluminum	1 1/4"	40 1.360"
7262	● Aluminum	1 1/2"	10 1.667"
7562	● Aluminum	1 1/2"	40 1.585"

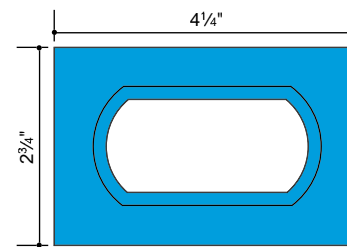
Anchor plugs provide secure mounting for brackets supporting second or third rails. Aluminum anchor plugs are machined from solid extruded stock; the stainless steel anchor plug is fabricated from heavy metal.

COVER FLANGES

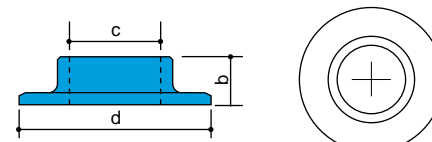
Satin Finish



774 ● Aluminum Fits posts 424, 6424 and 6434
1374 ● Nickel-Silver Fits nickel-silver post 1334



775 ● Aluminum Fits aluminum post 6435



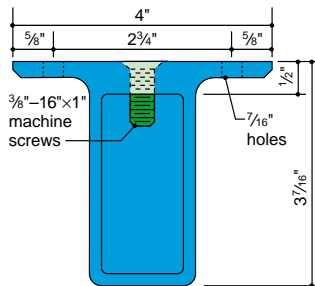
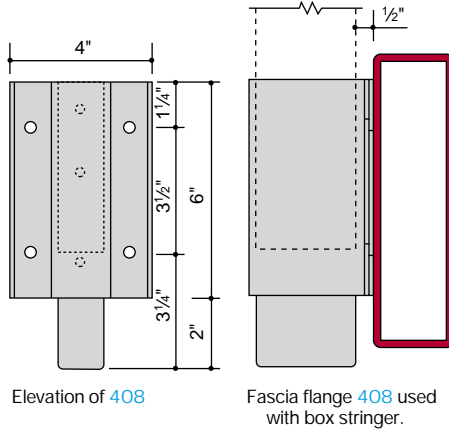
	Pipe	c	d	
710*	● Aluminum	1 1/4"	1.688"	3 13/16"
711*	● Aluminum	1 1/2"	1.938"	4"

* Also available in clear anodized AA-M32-C22-A31 (204R1)

FASCIA FLANGES

Mill Finish

Sleeve type fascia flanges are provided for mounting on solid or channel fascias and stringers. The post slips into the pocket of the fascia flange and is anchored with concealed set screws. The bottom extension of each fascia flange matches the profile of the post and is trimmed to match its top.

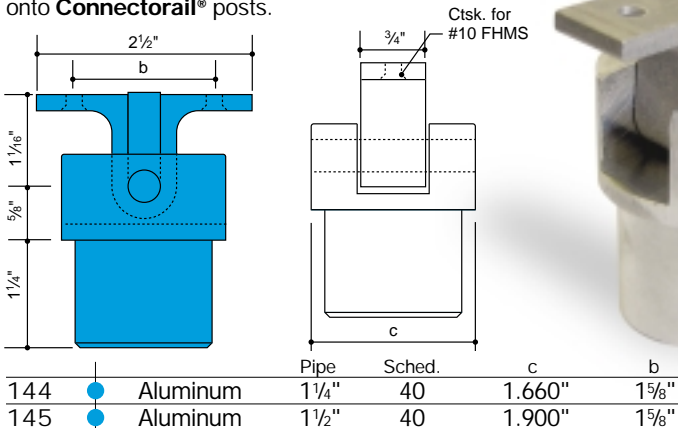


408 ● Aluminum Fits aluminum posts 6434

See page 69 for a complete range of Carlstadt® fascia flanges.

CENTER POST BRACKETS

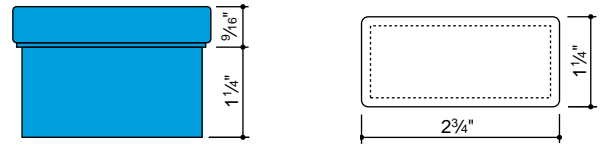
Mill Finish, For use in mounting of flat-bottomed handrail onto Connectorail® posts.



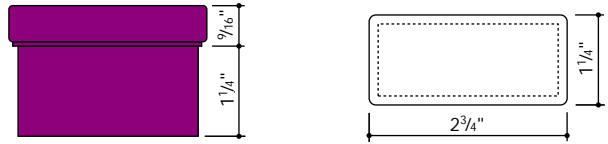
POST CAPS

Satin finish

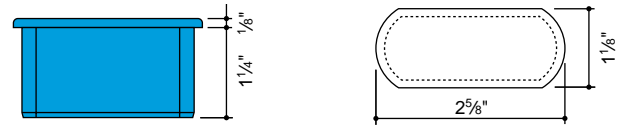
Caps for hollow Carlstadt® posts have a flange extending inside to receive and support the thread of the bracket arm.



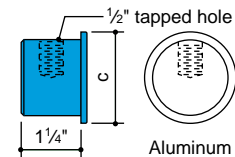
6434N ● Aluminum



1334N ● Nickel-Silver



6435N ● Aluminum



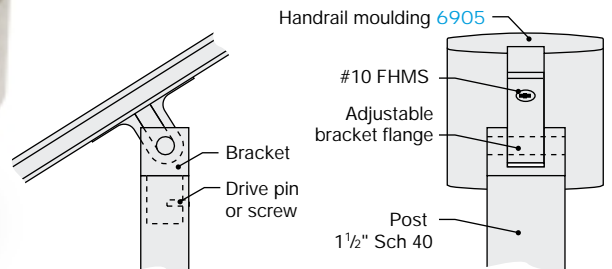
	Pipe	Sched.	c
7180* ● Aluminum	1 1/4"	10	1.660"
7480* ● Aluminum	1 1/4"	40	1.660"
7280* ● Aluminum	1 1/2"	10	1.900"
7580* ● Aluminum	1 1/2"	40	1.900"

* Also available in clear anodized AA-M32-C22-A31 (204R1)



Assembly Details

Angle may be adjusted as required



See page 84 for a complete range of Carlstadt® center post brackets



Julius Blum & Co. Inc.

● ● ● ● CARLSTADT® POST BRACKETS

- ALUMINUM
- BRONZE
- NICKEL-SILVER
- STAINLESS

SELF-ALIGNING

Satin Finish

Ctsk. for #10 FHMS

1/2" std. thread stainless stud

		a	b
441	● Aluminum	2 1/4"	1 5/8"
442	● Aluminum	2 3/4"	1 5/8"
841	● Bronze	2 1/4"	1 5/8"
1341	● Nickel-Silver	2 1/4"	1 5/8"
241	● Stainless	2 1/4"	1 13/16"

Aluminum, Bronze and Nickel-Silver detail

Stainless detail

Ctsk. for 1/4" FHMS

1/2" std. thread stainless stud

		a
309	● Aluminum	3 1/4"
312	● Aluminum	2 3/8"

For use with Carlstadt® T-handrail moulding.

		a
309	● Aluminum	3 1/4"
312	● Aluminum	2 3/8"

1/2" std. thread stainless stud

		a
439	● Aluminum	2 1/4"
440	● Aluminum	2 3/4"

For use with Carlstadt® T-handrail moulding.

		a
439	● Aluminum	2 1/4"
440	● Aluminum	2 3/4"

1/2" std. thread stainless stud

		a
171	● Aluminum	2 1/4"
172	● Aluminum	2 3/4"

For use with Carlsrail® handrail moulding.

		a
171	● Aluminum	2 1/4"
172	● Aluminum	2 3/4"

POST BRACKET ADAPTER

Satin Finish

Aluminum
Bronze

Bronze
Stainless
Nickel-Silver

Adapter

Post cap

6435

Post bracket

		Pipe Size	Schedule	Clear Hole
7161*	● Aluminum	1 1/4"	all	1/2"
7261*	● Aluminum	1 1/2"	all	1/2"
8661	● Bronze	1 1/4"	all	1/2"
8861	● Bronze	1 1/2"	all	1/2"
1361	● Nickel-Silver	1 1/2"	all	1/2"
9161	● Stainless	1 1/4"	all	1/2"
9361	● Stainless	1 1/2"	all	1/2"

*Also available in clear anodized AA-M10-C22-A31 (204R1)

POST BRACKET EXTENSIONS

Satin Finish

1/2" std. thread stainless stud

1/2" tapped hole

a

Designers should note that extending a bracket increases stress at its base and reduces its allowable load.

Post		a
462*	● Aluminum	1 3/4"
463*	● Aluminum	3"
862	● Bronze	1 3/4"
863	● Bronze	3"
245	● Stainless	1 3/4"
246	● Stainless	3"
1362	● Nickel-Silver	1 3/4"
1366	● Nickel-Silver	3"

Extensions may be cut to length to suit individual conditions.
* Also available in clear anodized AA-M10-C22-A31 (204R1)

POST BRACKET ANCHOR PLUGS

Tapped hole
1/2" std. thread

2"

3/4"

1/4"

Anchor plug 432

432	● Aluminum	Fits with posts 430, 458, 459 and 830
-----	------------	---------------------------------------

Tapped hole
1/2" std. thread

3/4"

a

b

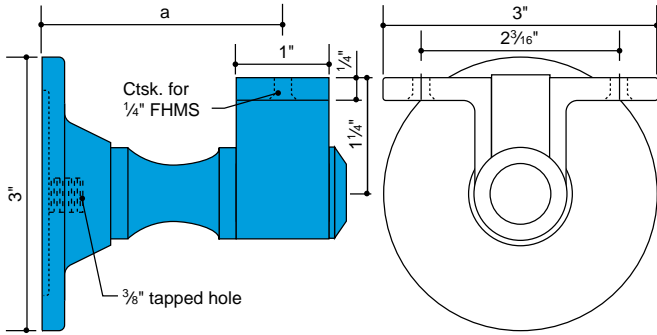
		a	b	
238	● Aluminum	1.34"	1 1/8"	Fits with stainless post 230
279	● Aluminum	1.84"	1 1/4"	Fits with stainless post 280

For Pipe Post Anchor Plugs, see page 20.

● ● ● ● CARLSTADT® WALL BRACKETS AND EXTENSIONS

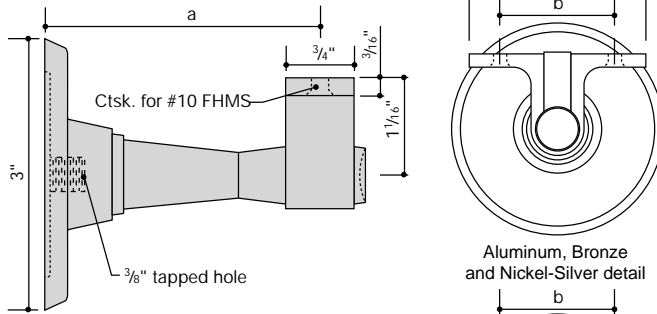
CARLSTADT® SELF-ALIGNING WALL BRACKETS

Satin Finish

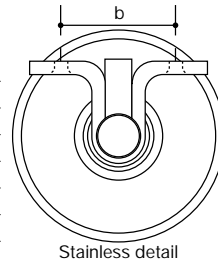


For use with **Carlstadt®** handrail moulding.

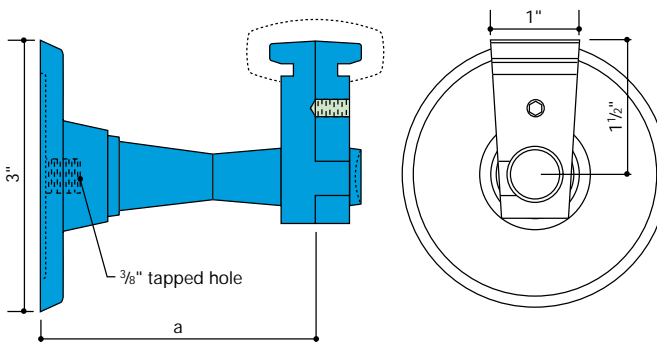
		a
313	● Aluminum	2 5/8"
314	● Aluminum	3 1/8"



Aluminum, Bronze and Nickel-Silver detail

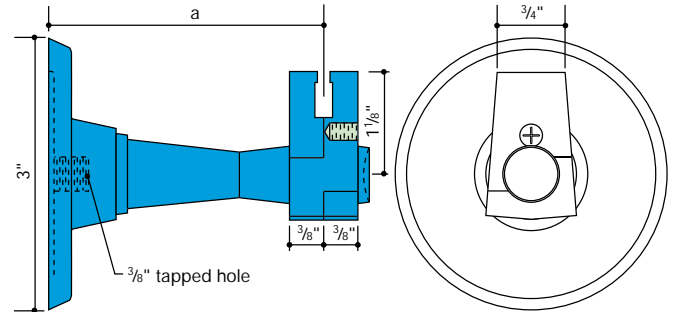


		a	b
443	● Aluminum	3"	1 5/8"
444	● Aluminum	3 1/2"	1 5/8"
844	● Bronze	2 1/2"	1 5/8"
843	● Bronze	3"	1 5/8"
1343	● Nickel-Silver	3"	1 5/8"
271	● Stainless	2 1/4"	1 13/16"
243	● Stainless	3"	1 13/16"



For use with **Carlsrail®** handrail moulding.

		a
175	● Aluminum	2 1/4"
173	● Aluminum	3"
174	● Aluminum	3 1/2"



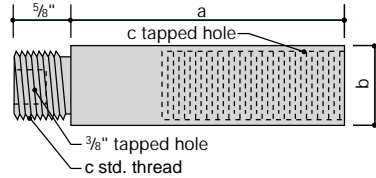
For use with **Carlstadt®** T-handrail moulding.

		a
418	● Aluminum	3"
419	● Aluminum	3 1/2"

* Also available in clear anodized AA-M10-C22-A31 (204R1)

WALL BRACKET EXTENSIONS

Satin Finish



Designers should note that extending a bracket increases stress at its base and reduces its allowable load.

		a	b
414*	● Aluminum†	1 3/4"	1 1/8"
415*	● Aluminum†	3"	1 1/8"
464	● Aluminum	1 3/4"	1"
465	● Aluminum	3"	1"
864	● Bronze	1 3/4"	1"
865	● Bronze	3"	1"
247	● Stainless	1 3/4"	1"
248	● Stainless	3"	1"
1364	● Nickel-Silver	1 3/4"	1"
1365	● Nickel-Silver	3"	1"

Extensions maybe cut to length to suit individual conditions.

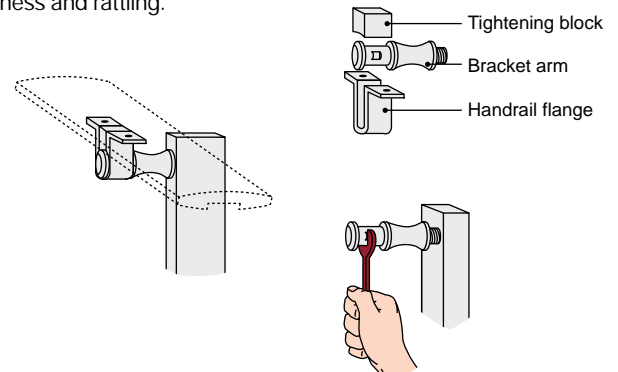
* Also available in clear anodized AA-M10-C22-A31 (204R1)

† For use with 307, 308, 313, and 314 wall brackets.

Trim Wall Bracket Extensions to no shorter than 1 5/8".

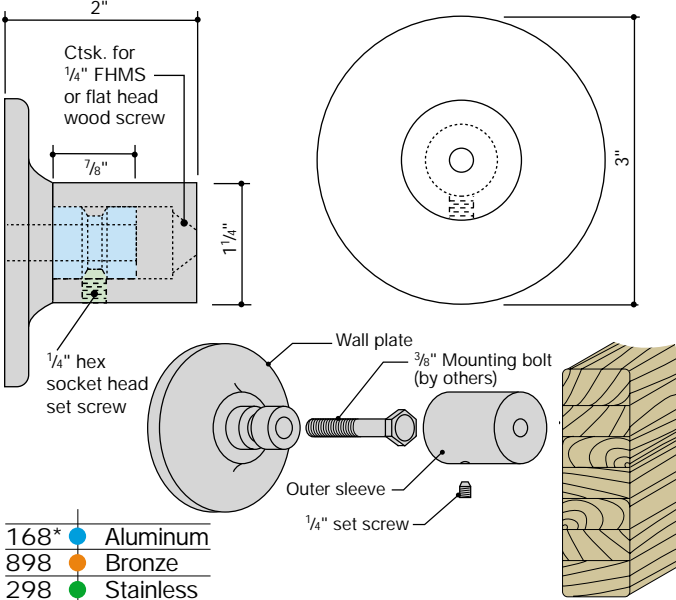
ADJUSTABLE BRACKET DETAIL

Post and upper post caps must be drilled and tapped to accept bracket arm. Recess of bracket arm has flat sides to accommodate wrench, which permits tightening without marring exposed surfaces. Handrail flange tilts to adjust to stair angle and is attached to handrail with machine screws. Pressure on tightening block prevents looseness and rattling.

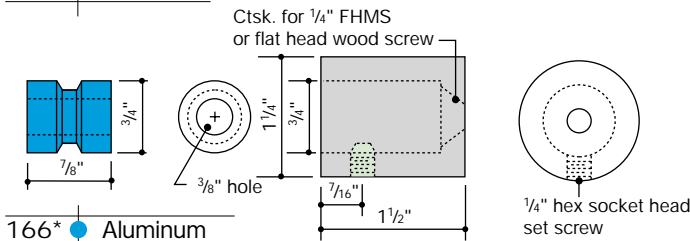


TWO-PIECE MOUNTING BRACKETS

Satin Finish

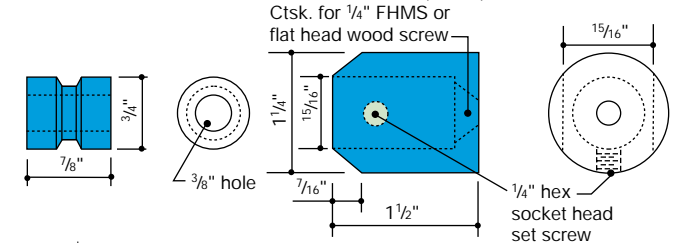


- 168* Aluminum
- 898 Bronze
- 298 Stainless

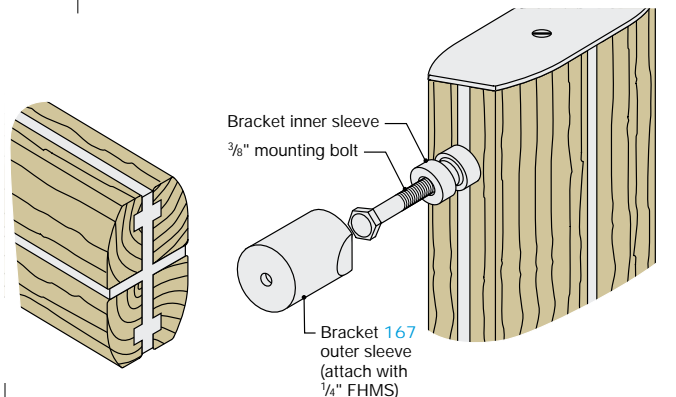


- 166* Aluminum
- 896 Bronze
- 196 Nickel-Silver
- 296 Stainless

* Also available in clear anodized AA-M32-C22-A31 (204R1).



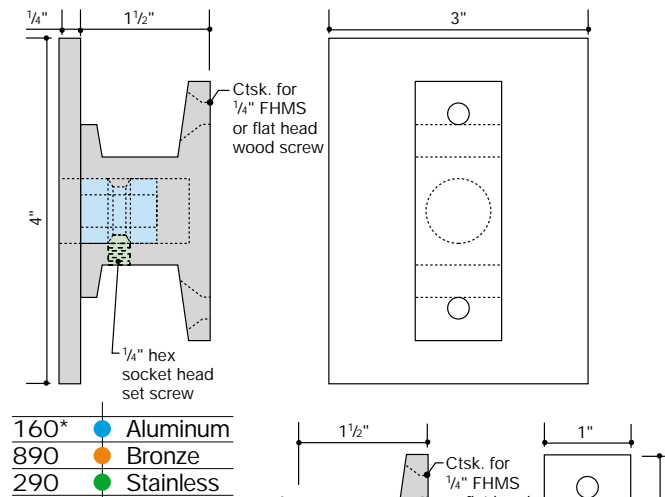
- 167 Aluminum For mounting to Acrylic/Wood posts



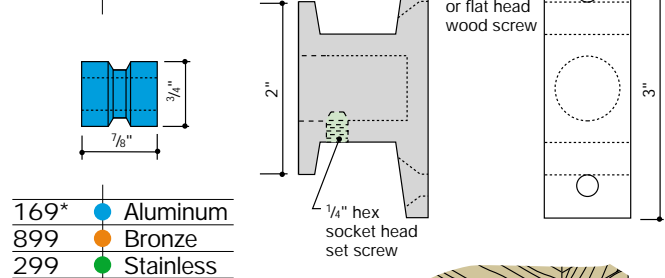
TWO-PIECE MOUNTING BRACKETS

Satin Finish

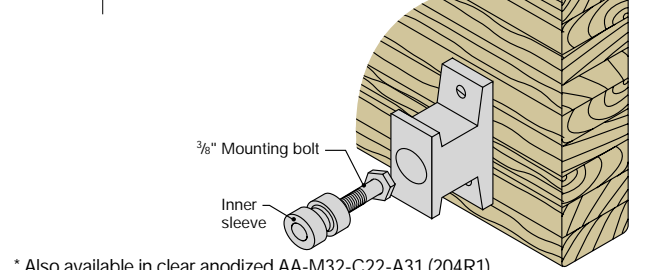
For wide wood handrails or metal handrails



- 160* Aluminum
- 890 Bronze
- 290 Stainless

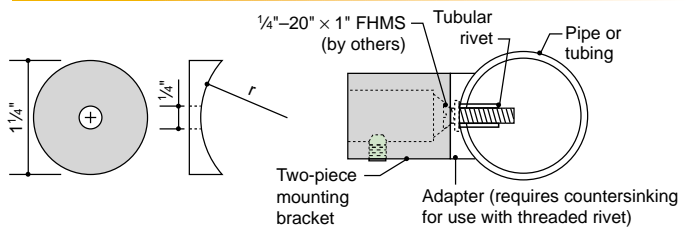


- 169* Aluminum
- 899 Bronze
- 299 Stainless



* Also available in clear anodized AA-M32-C22-A31 (204R1).

ADAPTERS



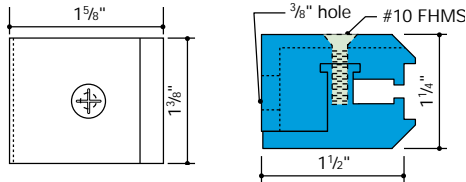
	r	Use With
7164*	.830"	1.660" OD
7264*	.950"	1.900" OD
8864	.950"	1.900" OD
8964	.750"	1.500" OD
5264	.750"	1.500" OD
5364	.950"	1.900" OD
9164	.830"	1.660" OD
9364	.950"	1.900" OD

* Also available in clear anodized AA-M32-C22-A31 (204R1).

● ● ● ● ● CARLSTADT® VERTICAL MOUNTING BRACKETS

VERTICAL MOUNTING BRACKET

Satin Finish

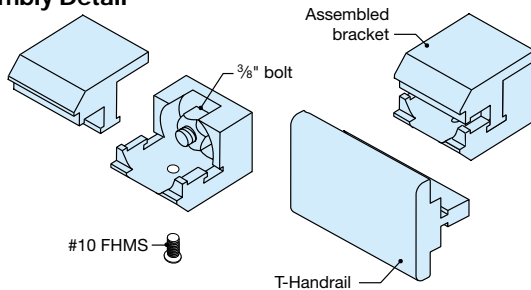


151 ● Aluminum

* Also available in clear anodized AA-M10-C22-A31 (204R1)

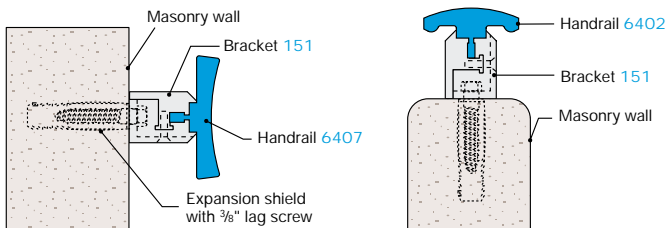
Vertical mounting bracket 151 is designed for mounting handrail on edge to provide a wall guard or bumper. Carlstadt® T-handrail mouldings 6402, 6405 or 6407 can be mounted without drilling and tapping. Bracket is also suitable for mounting handrail on top of a parapet or wall.

Assembly Detail



Use 3/8" machine screw, stud or hex head bolt for fastening to wall.

Installation Details



BOLTS AND ANCHORS for handrail wall brackets

Threaded Stud ● Steel 3/8" - 16 x 1 1/2"

Hanger Bolt ● Steel 3/8" x 3"

Hex Head Lag Screw

- Aluminum 3/8" x 2"
- Brass 3/8" x 2" (Plain or Finished)
- Nickel-Silver 3/8" x 2" (Finished)
- Stainless 3/8" x 2"

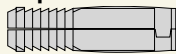


Post Bracket Hanger Bolt

● Steel 5/16" x 1 1/2" / 1/2" - 13 x 3/8"

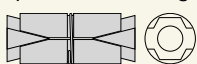


Expansion Shields (Lead) For setting 3/8" lag screws and hanger bolts in concrete, brick or stone. Drill hole size of 3/8" diameter by 2 1/2" deep.



Heavy-Duty Double Machine Bolt Anchor (Zinc Alloy)

Non-calking machine bolt anchor for use in masonry materials of questionable strength or where heavy shear loads are encountered.

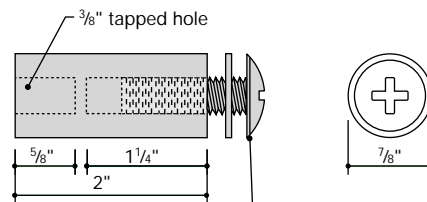


Thread accommodates 3/8" - 16 stud or machine bolt (supplied by others). Drill hole size of 3/4" diameter by 2 1/4" deep.



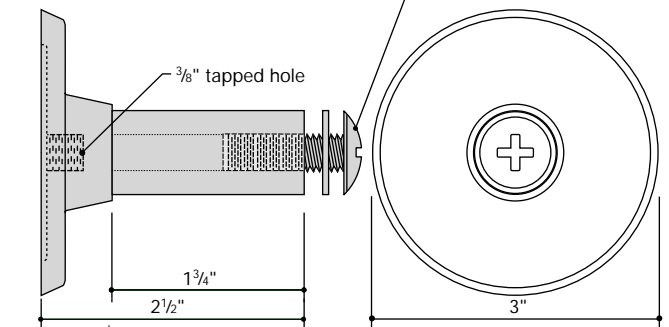
THREADED BUSHING BRACKETS

Satin Finish



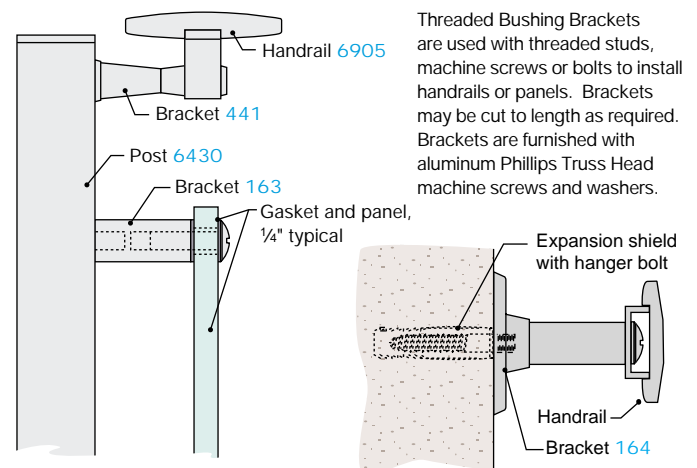
163 ● Aluminum ● Nickel-Silver
 63 ● Stainless ● Steel

3/8"-16" x 1 1/4" Phillips Truss Head MS with Washer



164 ● Aluminum
 64 ● Stainless

Installation Details

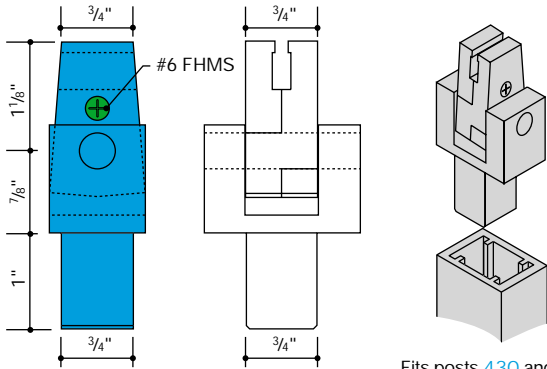


Threaded Bushing Brackets are used with threaded studs, machine screws or bolts to install handrails or panels. Brackets may be cut to length as required. Brackets are furnished with aluminum Phillips Truss Head machine screws and washers.

CARLSTADT® POST BRACKETS AND PANEL CLIPS

CENTER POST BRACKETS

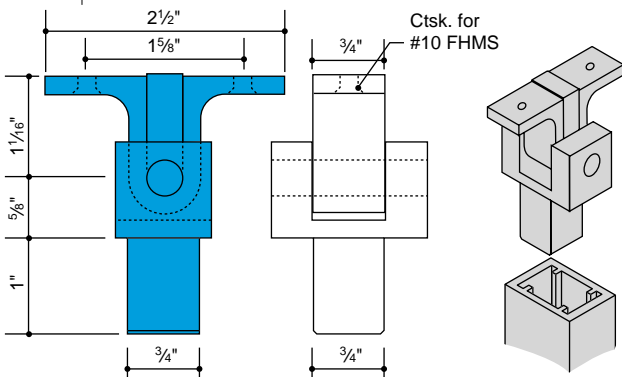
Satin Finish, except as noted



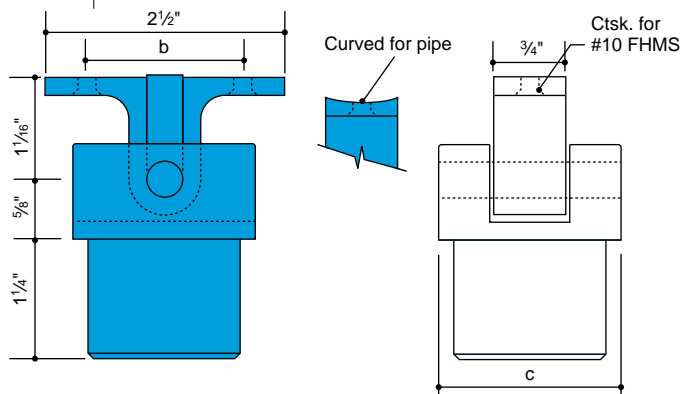
Fits posts 430 and 6430

Center post brackets permit handrail to be centered directly over post, yet allow it to tilt to conform to stair incline. Bracket is secured to post with pin or screw.

152 Aluminum for Carlstadt® T-handrail moulding



- 161 Aluminum Curved for pipe, Fits posts 430 and 6430
- 162 Aluminum Flat for moulding, Fits posts 430 and 6430



For center mounting of flat-bottomed handrail onto aluminum Connectorail® posts or stainless steel pipe posts.

Flat	Aluminum	Pipe	Sched.	c	b
144	Aluminum	1 1/4"	40	1.660"	1 5/8"
145	Aluminum	1 1/2"	40	1.900"	1 5/8"

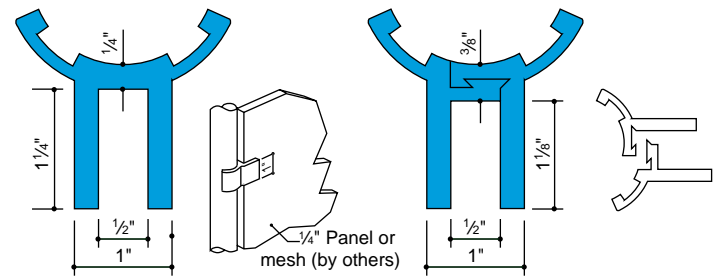
For center mounting of pipe or rounded handrail onto aluminum Connectorail® posts.

Curved	Aluminum	Pipe	Sched.	c	b
142	Aluminum	1 1/4"	40	1.660"	1 5/8"
143	Aluminum	1 1/2"	40	1.900"	1 5/8"



PANEL CLIPS

For aluminum pipe only, Mill Finish or Clear Anodized



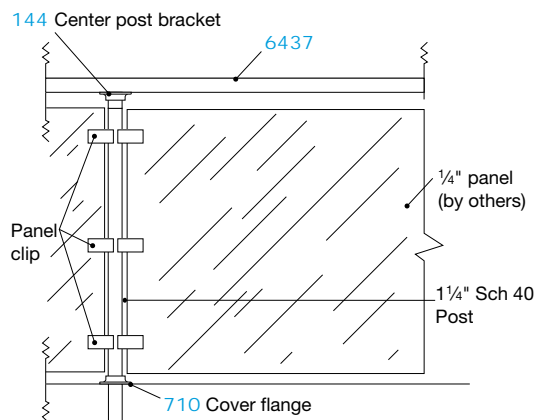
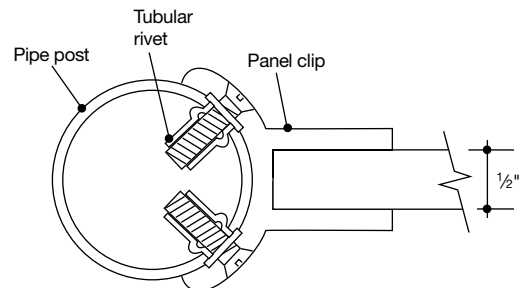
Part	Material	Pipe
7460-5*	Aluminum	1 1/4"
7460†	Aluminum	1 1/4"
7560-5*	Aluminum	1 1/2"
7560†	Aluminum	1 1/2"

7260** Aluminum 1 1/2"
Packages of 4 sets

† Packages of 4 pieces

* 5' Length
** Two-piece assembly

Installation Detail

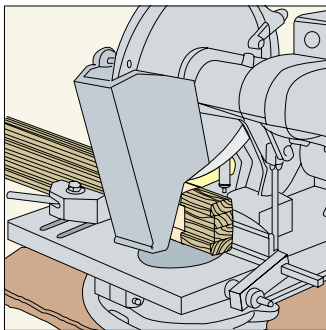
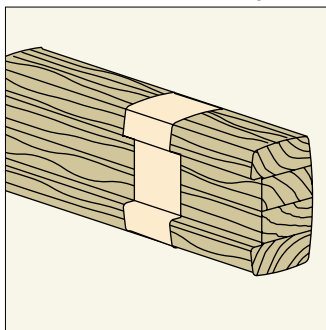


FABRICATION AND INSTALLATION PROCEDURE

A. CUTTING

Because of the hardness and density of the Acrylic/Wood material and the aluminum spine of the **8570** series moulding, metal-working equipment is best suited to cut **Carlstadt®** Acrylic/Wood handrail mouldings.

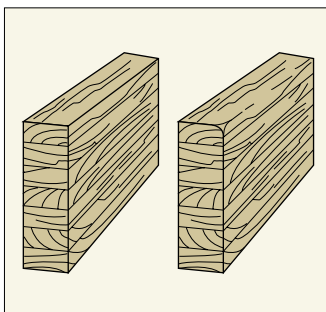
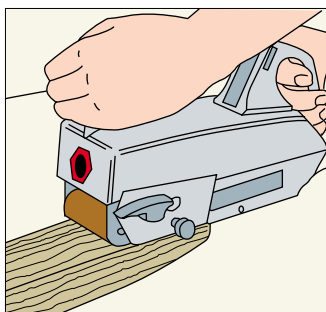
The mouldings can be cut on a saw using a standard metal cutting band saw blade (10 teeth to the inch, raker set) or a high speed cut-off saw with an alloy steel or carbide tipped blade. To avoid chipping, apply masking tape or fiberglass reinforced, pressure sensitive tape to the section to be cut and use a slow to moderate feed. After cutting, use naphtha to remove petroleum based lubricants or metal oxides from the handrail moulding material.



B. SHAPING ENDS AND CORNERS

It is easy to remove sharpness from mitered corners and shape railing ends to form attractive, smoothly contoured terminals. For initial rough removal of material, use a wood rasp or a belt sander with #60 grit paper. A stationary or portable belt sander-grinder or similar equipment works best.

To smooth the work to a polished finish, use sanding belts with successively finer grits in the following sequence: #100, #120, #150, #280. With some experience, it is possible to use #120 and #280 grit sanding belts only. Following final sanding with the #280 grit belt, buff the moulding with a clean lamb's wool pad using an oil base lubricant such as *Liquid Gold*.



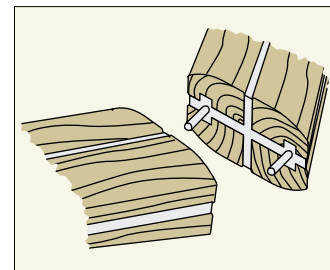
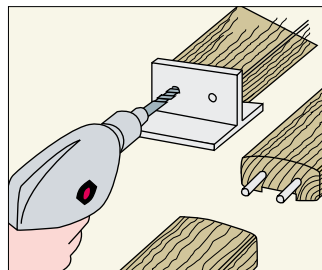
C. FORMING MITERS AND SPLICES

Miter joints can be used to make vertical and horizontal direction changes. More often, independent handrails are used on each flight without connections for changes in direction. If the mouldings are mounted securely on a metal subrail and joints are accurately cut, no doweled connections between adjacent moulding sections are required.

If a metal subrail is not used, or if heavy traffic is anticipated, miter joints and splices must be doweled and glued. The doweling and gluing technique forms strong joints that reveal only a circumferential hairline. Epoxy structural adhesive is available from Julius Blum & Co.,

Inc. For maximum joint strength, apply epoxy adhesive liberally to all mating surfaces and press the handrail moulding sections firmly together. Surfaces must be clean before adhesive is applied. Carefully remove all excess adhesive immediately. Structural adhesives can be applied both in the shop and in the field.

For accurate mating of butting pieces, holes for dowels should be located and drilled with the aid of a doweling jig.

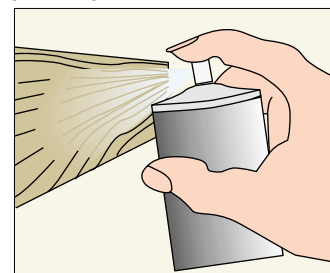
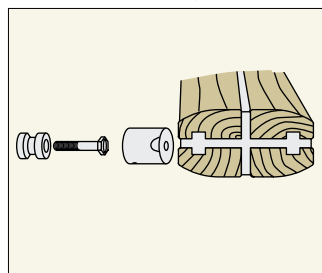


D. ATTACHMENT TO SUPPORTING STRUCTURES

Carlstadt® Acrylic/Wood handrail mouldings have exceptional screw holding power. Where fasteners smaller than 1/4" are required, use Type AB sheet metal screws. Drill pilot holes the same size as required for aluminum. For larger fasteners (1/4" and up), the handrails can be drilled and tapped for machine screws. Under no circumstances must screws be inserted without prior drilling – they will split the material.

Carlstadt® Acrylic/Wood handrail mouldings can be post or wall mounted using **Carlstadt®** System posts and brackets, or the mouldings can be adapted to custom designed supporting structures.

Carlstadt® Acrylic/Wood **8570** series mouldings must be attached by tapping into the aluminum spine. Attachment to the Acrylic/Wood alone could cause the facing to pull away from the spine. Direct attachment to the metal spine insures a high strength structural connection.



E. PROTECTION AND FINISHING

Mouldings are shipped individually wrapped in a paper or plastic sleeve, which should be left in place as long as possible for protection.

F. MAINTENANCE

Normal maintenance requires only periodic cleaning with an oil-base furniture polish. Luster can be maintained by using light hand buffing with a soft cloth or by mechanical buffing with a lamb's wool pad.

Nicks, scratches or burn marks can be removed by sanding (finishing with #280 grit) and the finish restored to the original luster by buffing.

SLEEVE ANCHOR BOLT

The sleeve anchor bolt is an all-steel rust-proofed multi-purpose anchor bolt intended for use in a wide range of masonry materials. The 3/8" bolt is recommended for use with heavy-duty floor flange **876**. To install, drill a 3/8" hole in concrete or masonry to 3" depth. Drill holes which conform to ANSI standard carbide bit dimension (.390" to .398"). Clean out dust in hole after drilling. Insert sleeve bolt in hole, hand tighten, then tighten with wrench to a maximum torque of 30 ft. lbs.