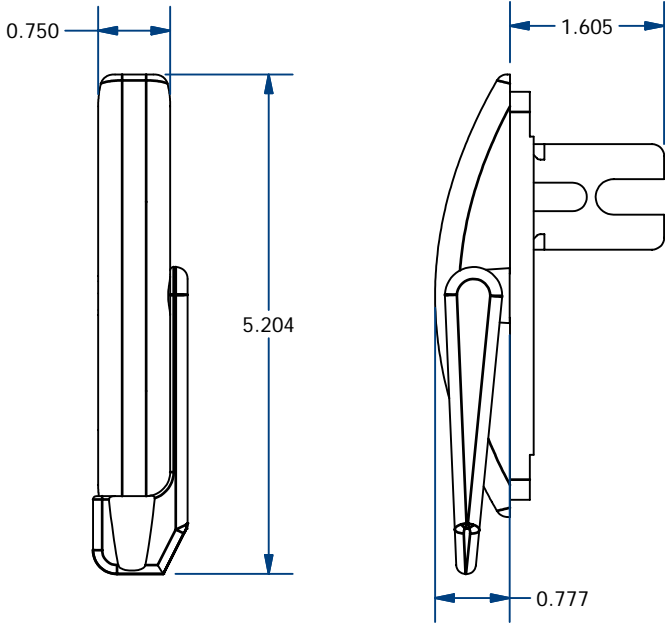


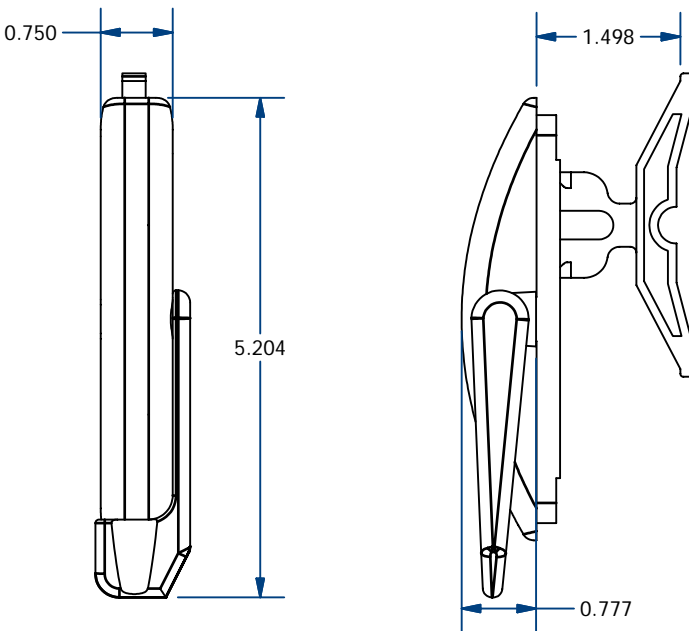
MULTIPOINT LOCKING HANDLE

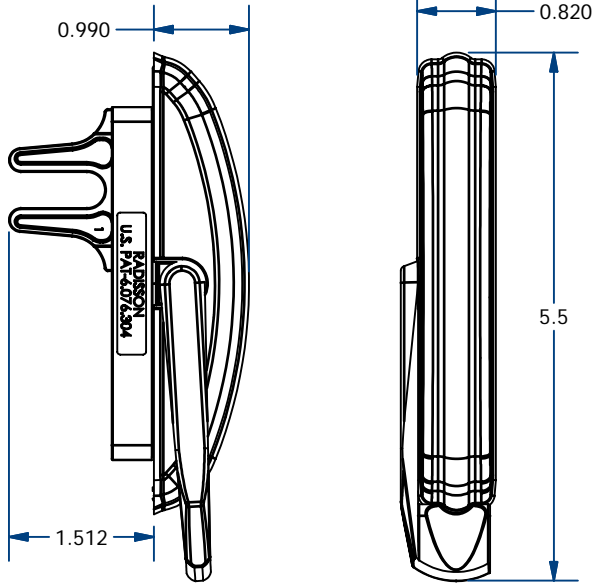
PART #	DESCRIPTION
PO-2301	LTS MULTIPOINT LOCKING HANDLE



SINGLE POINT LOCKING HANDLE

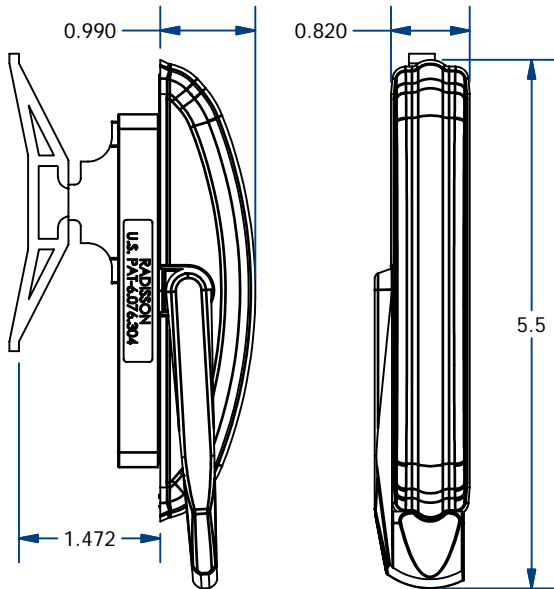
PART #	DESCRIPTION
PO-2301A	LTS SINGLE POINT LOCKING HANDLE





MULTIPOINT LOCKING HANDLE

PART #	DESCRIPTION
PO-2340	COLONIAL MULTIPOINT LOCKING HANDLE



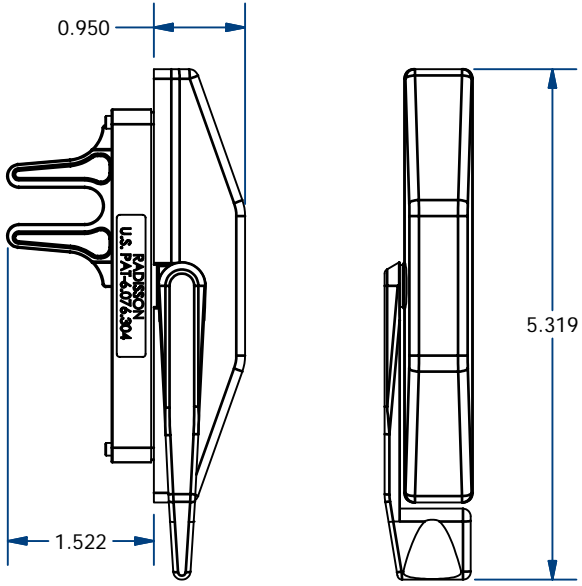
SINGLE POINT LOCKING HANDLE

PART #	DESCRIPTION
PO-2340A	COLONIAL SINGLE POINT LOCKING HANDLE



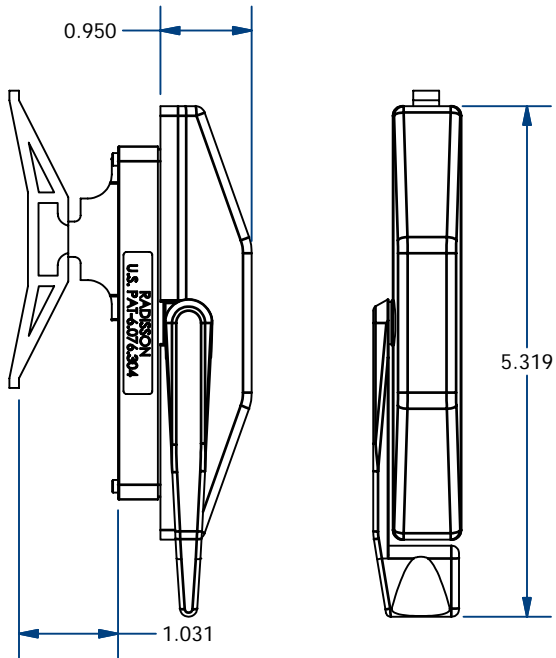
MULTIPOINT LOCKING HANDLE

PART #	DESCRIPTION
PO-2380	TRADITIONAL MULTIPOINT LOCKING HANDLE



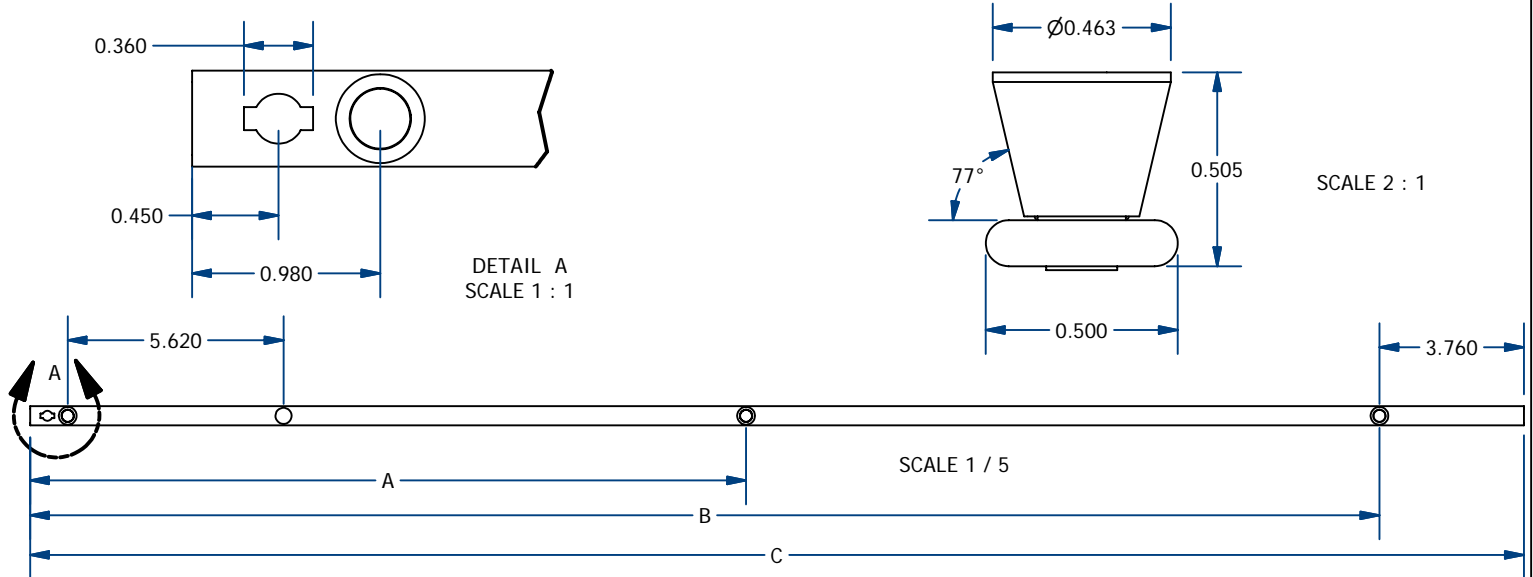
SINGLE POINT LOCKING HANDLE

PART #	DESCRIPTION
PO-2380A	TRADITIONAL SINGLE POINT LOCKING HANDLE



TIE BARS

CASEMENT HARDWARE



CONE ROLLER

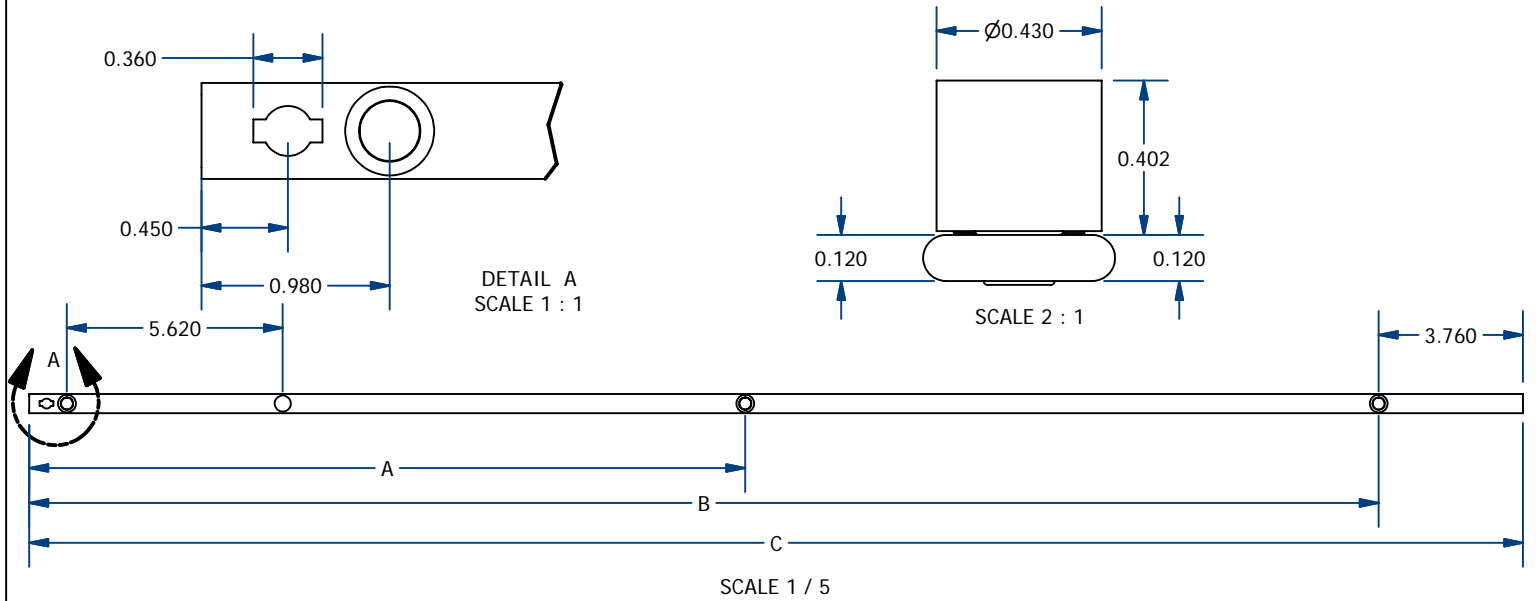
PART # STAINLESS STEEL	PART # POWDER COATED	SIZE "A"	SIZE "B"	SIZE "C"	* SIZE "D"	RECOMMENDED FRAME SIZE (MIN)
FM-13100-CRSS	FM-13100-CRF	N/A	N/A	10.9"	N/A	16"
FM-13101-CRSS	FM-13101-CRF	N/A	11.285"	14.9"	N/A	21"
FM-13110-CRSS	FM-13110-CRF	N/A	15.285"	18.9"	N/A	25"
FM-13120-CRSS	FM-13120-CRF	N/A	19.285"	22.9"	N/A	29"
FM-13130-CRSS	FM-13130-CRF	N/A	23.285"	26.9"	N/A	33"
FM-13140-CRSS	FM-13140-CRF	N/A	27.285"	30.9"	N/A	37"
FM-13150-CRSS	FM-13150-CRF	N/A	31.285"	34.9"	N/A	41"
FM-13160-CRSS	FM-13160-CRF	18.645"	35.285"	38.9"	N/A	45"
FM-13170-CRSS	FM-13170-CRF	20.645"	39.285"	42.9"	N/A	49"
FM-13180-CRSS	FM-13180-CRF	22.645"	43.285"	46.9"	N/A	53"
FM-13190-CRSS	FM-13190-CRF	24.645"	47.285"	50.9"	N/A	57"
FM-13200-CRSS	FM-13200-CRF	26.645"	51.285"	54.9"	N/A	61"
FM-13210-CRSS	FM-13210-CRF	28.645"	55.285"	58.9"	N/A	65"
FM-13220-CRSS	FM-13220-CRF	30.645"	59.285"	62.9"	N/A	69"
FM-13230-CRSS	FM-13230-CRF	32.645"	63.285"	66.9"	N/A	73"
FM-13240-CRSS	FM-13240-CRF	34.645"	67.285"	70.9"	N/A	77"
FM-13201-CRSS	FM-13201-CRF	34.540"	51.285"	54.9"	17.760"	61"
FM-13211-CRSS	FM-13211-CRF	37.200"	55.285"	58.9"	19.090"	65"
FM-13221-CRSS	FM-13221-CRF	39.860"	59.285"	62.9"	20.420"	69"
FM-13231-CRSS	FM-13231-CRF	42.520"	63.285"	66.9"	21.750"	73"
FM-13241-CRSS	FM-13241-CRF	45.180"	67.285"	70.9"	23.080"	77"

* Dimension "D" not shown, has the same origin as A, B and C dimensions.



TIE BARS

CASEMENT HARDWARE



CYLINDRICAL ROLLER

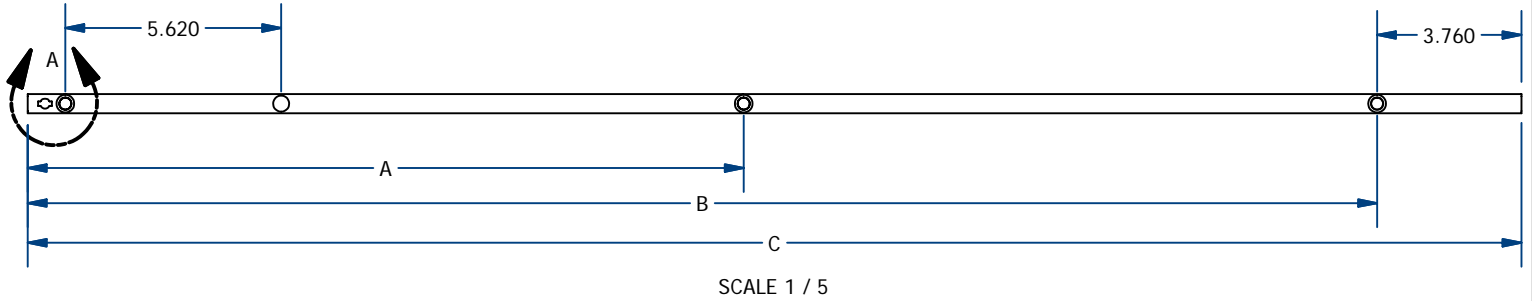
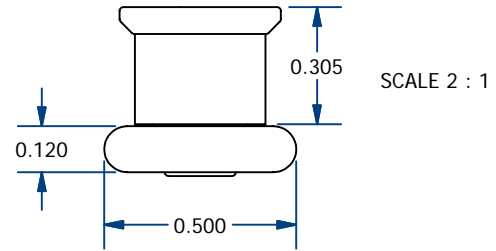
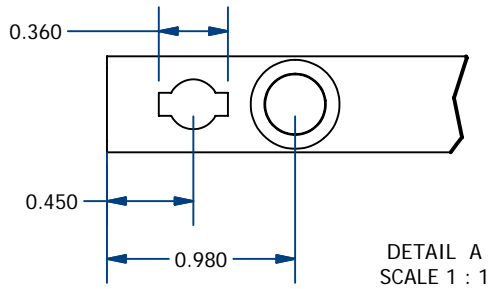
PART # STAINLESS STEEL	PART # CARBON STEEL	SIZE "A"	SIZE "B"	SIZE "C"	* SIZE "D"	RECOMMENDED FRAME SIZE (MIN)
FM-13100-GRSS	FM-13100-GRF	N/A	N/A	10.9"	N/A	16"
FM-13101-GRSS	FM-13101-GRF	N/A	11.285"	14.9"	N/A	21"
FM-13110-GRSS	FM-13110-GRF	N/A	15.285"	18.9"	N/A	25"
FM-13120-GRSS	FM-13120-GRF	N/A	19.285"	22.9"	N/A	29"
FM-13130-GRSS	FM-13130-GRF	N/A	23.285"	26.9"	N/A	33"
FM-13140-GRSS	FM-13140-GRF	N/A	27.285"	30.9"	N/A	37"
FM-13150-GRSS	FM-13150-GRF	N/A	31.285"	34.9"	N/A	41"
FM-13160-GRSS	FM-13160-GRF	18.645"	35.285"	38.9"	N/A	45"
FM-13170-GRSS	FM-13170-GRF	20.645"	39.285"	42.9"	N/A	49"
FM-13180-GRSS	FM-13180-GRF	22.645"	43.285"	46.9"	N/A	53"
FM-13190-GRSS	FM-13190-GRF	24.645"	47.285"	50.9"	N/A	57"
FM-13200-GRSS	FM-13200-GRF	26.645"	51.285"	54.9"	N/A	61"
FM-13210-GRSS	FM-13210-GRF	28.645"	55.285"	58.9"	N/A	65"
FM-13220-GRSS	FM-13220-GRF	30.645"	59.285"	62.9"	N/A	69"
FM-13230-GRSS	FM-13230-GRF	32.645"	63.285"	66.9"	N/A	73"
FM-13240-GRSS	FM-13240-GRF	34.645"	67.285"	70.9"	N/A	77"
FM-13201-GRSS	FM-13201-GRF	34.540"	51.285"	54.9"	17.760"	61"
FM-13211-GRSS	FM-13211-GRF	37.200"	55.285"	58.9"	19.090"	65"
FM-13221-GRSS	FM-13221-GRF	39.860"	59.285"	62.9"	20.420"	69"
FM-13231-GRSS	FM-13231-GRF	42.520"	63.285"	66.9"	21.750"	73"
FM-13241-GRSS	FM-13241-GRSS	45.180"	67.285"	70.9"	23.080"	77"

* Dimension "D" not shown, has the same origin as A, B and C dimensions.



TIE BARS

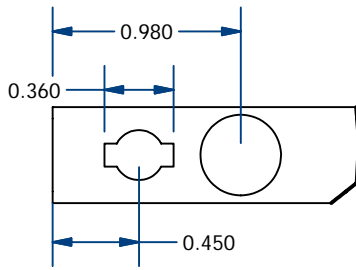
CASEMENT HARDWARE



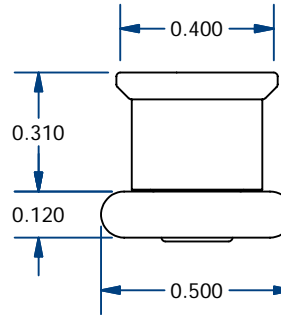
INTERLOCK ROLLER						
PART # STAINLESS STEEL	PART # POWDER COATED	SIZE "A"	SIZE "B"	SIZE "C"	* SIZE "D"	RECOMMENDED FRAME SIZE (MIN)
FM-13100-ILSS	FM-13100-ILF	N/A	N/A	10.9"	N/A	16"
FM-13101-ILSS	FM-13101-ILF	N/A	11.285"	14.9"	N/A	21"
FM-13110-ILSS	FM-13110-ILF	N/A	15.285"	18.9"	N/A	25"
FM-13120-ILSS	FM-13120-ILF	N/A	19.285"	22.9"	N/A	29"
FM-13130-ILSS	FM-13130-ILF	N/A	23.285"	26.9"	N/A	33"
FM-13140-ILSS	FM-13140-ILF	N/A	27.285"	30.9"	N/A	37"
FM-13150-ILSS	FM-13150-ILF	N/A	31.285"	34.9"	N/A	41"
FM-13160-ILSS	FM-13160-ILF	18.645"	35.285"	38.9"	N/A	45"
FM-13170-ILSS	FM-13170-ILF	20.645"	39.285"	42.9"	N/A	49"
FM-13180-ILSS	FM-13180-ILF	22.645"	43.285"	46.9"	N/A	53"
FM-13190-ILSS	FM-13190-ILF	24.645"	47.285"	50.9"	N/A	57"
FM-13200-ILSS	FM-13200-ILF	26.645"	51.285"	54.9"	N/A	61"
FM-13210-ILSS	FM-13210-ILF	28.645"	55.285"	58.9"	N/A	65"
FM-13220-ILSS	FM-13220-ILF	30.645"	59.285"	62.9"	N/A	69"
FM-13230-ILSS	FM-13230-ILF	32.645"	63.285"	66.9"	N/A	73"
FM-13240-ILSS	FM-13240-ILF	34.645"	67.285"	70.9"	N/A	77"
FM-13201-ILSS	FM-13201-ILF	34.540"	51.285"	54.9"	17.760"	61"
FM-13211-ILSS	FM-13211-ILF	37.200"	55.285"	58.9"	19.090"	65"
FM-13221-ILSS	FM-13221-ILF	39.860"	59.285"	62.9"	20.420"	69"
FM-13231-ILSS	FM-13231-ILF	42.520"	63.285"	66.9"	21.750"	73"
FM-13241-ILSS	FM-13241-ILF	45.180"	67.285"	70.9"	23.080"	77"

* Dimension "D" not shown, has the same origin as A, B and C dimensions.

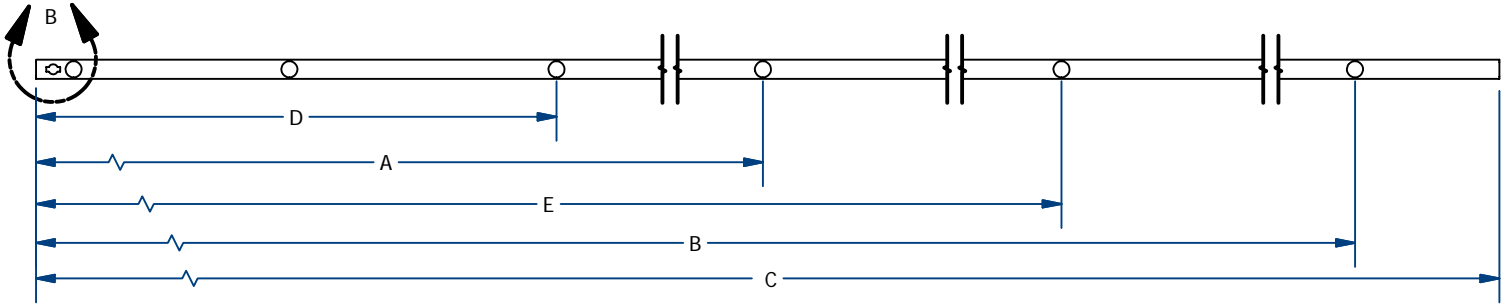




DETAIL B
SCALE 1 : 1



SCALE 2 : 1



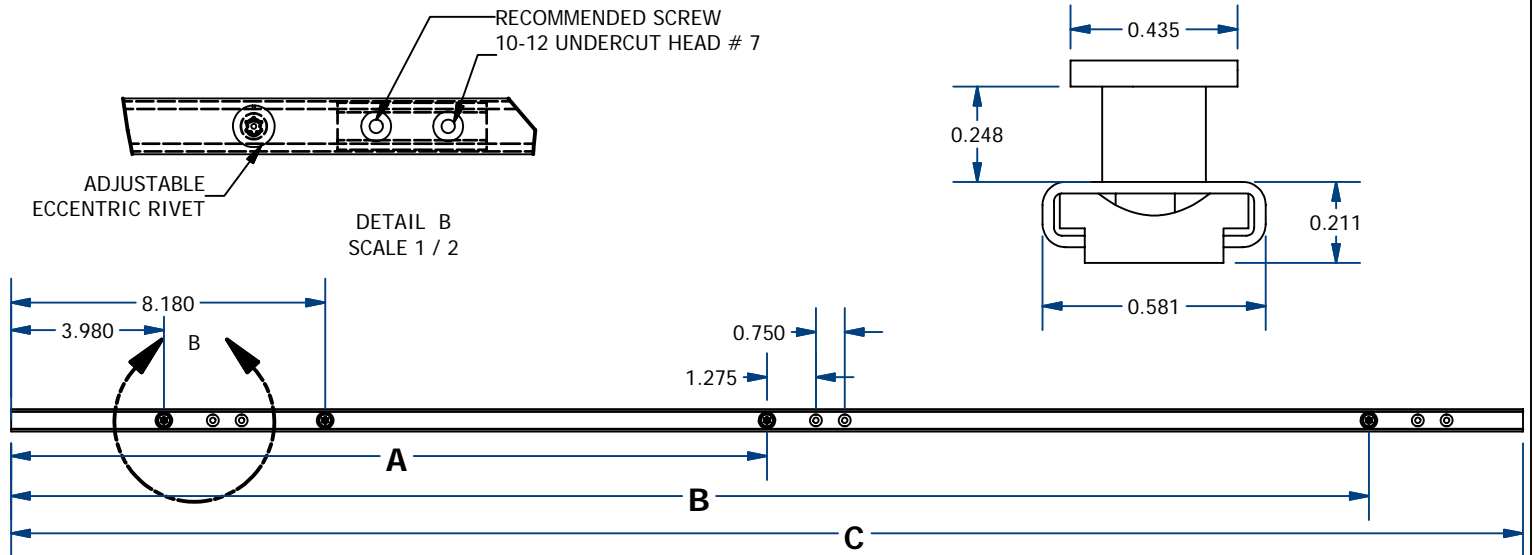
IMPACT INTERLOCK ROLLER

PART # STAINLESS STEEL	SIZE "A"	SIZE "B"	SIZE "C"	SIZE "D"	SIZE "E"	RECOMMENDED FRAME SIZE (MIN)
FM-13100-ILSS	N/A	N/A	10.9"	N/A	N/A	16"
FM-13101-ILSS	N/A	11.285"	14.9"	N/A	N/A	21"
FM-13110-ILSS	N/A	15.285"	18.9"	N/A	N/A	25"
FM-14120-ILSS	10.132"	19.285"	22.9"	N/A	N/A	29"
FM-14130-ILSS	12.132"	23.285"	26.9"	N/A	N/A	33"
FM-14140-ILSS	14.132"	27.285"	30.9"	N/A	N/A	37"
FM-14150-ILSS	16.132"	31.285"	34.9"	N/A	N/A	41"
FM-14160-ILSS	23.850"	35.285"	38.9"	12.415"	N/A	45"
FM-14170-ILSS	25.516"	39.285"	42.9"	13.748"	N/A	49"
FM-14180-ILSS	29.182"	43.285"	46.9"	15.081"	N/A	53"
FM-14190-ILSS	31.850"	47.285"	50.9"	16.415"	N/A	57"
FM-14200-ILSS	26.132"	51.285"	54.9"	13.556"	38.708"	61"
FM-14210-ILSS	28.132"	55.285"	58.9"	14.556"	41.708"	65"
FM-14220-ILSS	30.132"	59.285"	62.9"	15.556"	44.708"	69"
FM-14230-ILSS	32.132"	63.285"	66.9"	16.556"	47.708"	73"
FM-14240-ILSS	34.132"	67.285"	70.9"	17.556"	50.708"	77"



TIE BARS

CASEMENT HARDWARE



ADJUSTABLE CAM TIE BAR SYSTEM TANDEM SLIDER

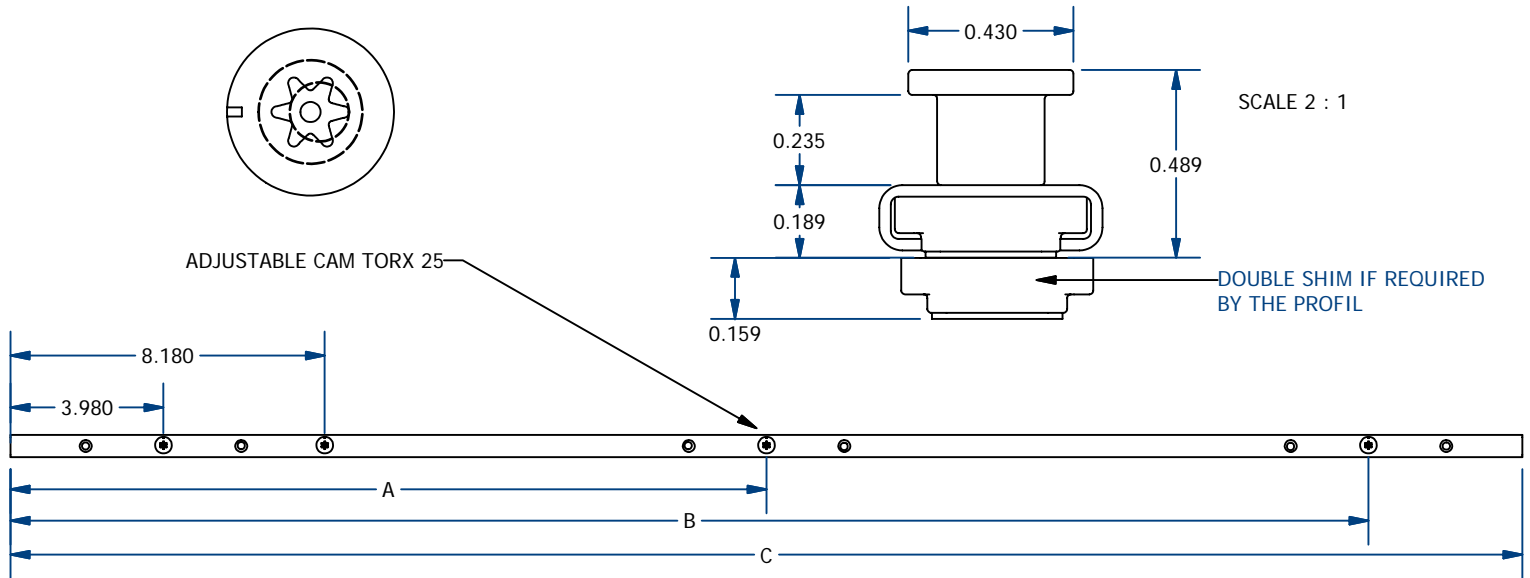
PART # SINGLE SHIM	DIMENSION "A"	DIMENSION "B"	DIMENSION "C"	DIMENSION "D"
FM-1310-S	N/A	N/A	9.8"	N/A
FM-1310A-S	N/A	N/A	9.8"	N/A
FM-1511-S	N/A	13.06"	17.24"	N/A
FM-1512-S	N/A	19.44"	23.6"	N/A
FM-1513-S	N/A	23.37"	27.6"	N/A
FM-1514-S	N/A	27.31"	31.5"	N/A
FM-1515-S	N/A	31.25"	35.4"	N/A
FM-1516-S	19.69"	35.18"	39.4"	N/A
FM-1517-S	21.65"	39.12"	43.3"	N/A
FM-1518-S	23.62"	43.06"	47.2"	N/A
FM-1519-S	25.59"	46.99"	51.2"	N/A
FM-1520-S	27.56"	50.93"	55.1"	N/A
FM-1521-S	29.53"	54.87"	59.1"	N/A
FM-1522-S	31.50"	58.81"	63"	N/A
FM-1523-S	33.46"	62.74"	66.9"	N/A
FM-1524-S	35.43"	66.68"	70.9"	N/A
FM-1530-S	35.43"	50.93"	55.1"	19.69"
FM-1531-S	37.40"	54.87"	59.1"	21.65"
FM-1532-S	39.37"	58.81"	63"	23.62"
FM-1533-S	41.34"	62.74"	66.9"	25.59"
FM-1534-S	43.31"	66.68"	70.9"	27.56"

*** DIMENSION "D" NOT SHOWN, HAS THE SAME ORIGIN AS A,B AND C DIMENSION.



TIE BARS

CASEMENT HARDWARE

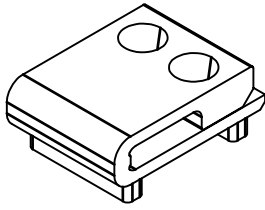


ADJUSTABLE CAM TIE BAR SYSTEM

PART # SINGLE SHIM	PART # DOUBLE SHIM	DIMENSION "A"	DIMENSION "B"	DIMENSION "C"	DIMENSION "D"
FM-1310-S	FM-1310-D	N/A	N/A	9.8"	N/A
FM-1310A-S	FM-1310A-D	N/A	N/A	9.8"	N/A
FM-1311-S	FM-1311-D	N/A	13.06"	17.24"	N/A
FM-1312-S	FM-1312-D	N/A	19.44"	23.6"	N/A
FM-1313-S	FM-1313-D	N/A	23.37"	27.6"	N/A
FM-1314-S	FM-1314-D	N/A	27.31"	31.5"	N/A
FM-1315-S	FM-1315-D	N/A	31.25"	35.4"	N/A
FM-1316-S	FM-1316-D	19.69"	35.18"	39.4"	N/A
FM-1317-S	FM-1317-D	21.65"	39.12"	43.3"	N/A
FM-1318-S	FM-1318-D	23.62"	43.06"	47.2"	N/A
FM-1319-S	FM-1319-D	25.59"	46.99"	51.2"	N/A
FM-1320-S	FM-1320-D	27.56"	50.93"	55.1"	N/A
FM-1321-S	FM-1321-D	29.53"	54.87"	59.1"	N/A
FM-1322-S	FM-1322-D	31.50"	58.81"	63"	N/A
FM-1323-S	FM-1323-D	33.46"	62.74"	66.9"	N/A
FM-1324-S	FM-1324-D	35.43"	66.68"	70.9"	N/A
FM-1330-S	FM-1330-D	35.43"	50.93"	55.1"	19.69"
FM-1331-S	FM-1331-D	37.40"	54.87"	59.1"	21.65"
FM-1332-S	FM-1332-D	39.37"	58.81"	63"	23.62"
FM-1333-S	FM-1333-D	41.34"	62.74"	66.9"	25.59"
FM-1334-S	FM-1334-D	43.31"	66.68"	70.9"	27.56"

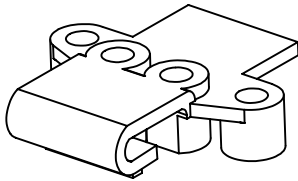
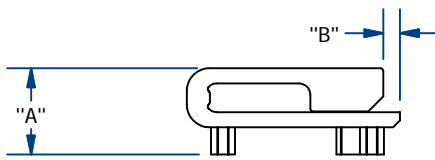
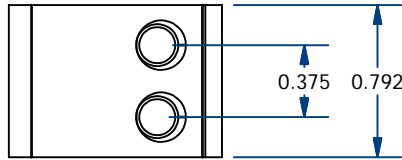
*** DIMENSION "D" NOT SHOWN, HAS THE SAME ORIGIN AS A,B AND C DIMENSION.





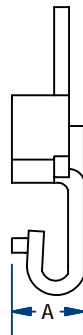
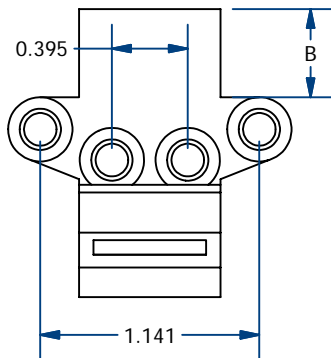
TIE BAR GUIDE WRAP AROUND

PART #	SIZE "A"	SIZE "B"
TGW-312-"B"	0.312"	CUSTOM
TGW-375-"B"	0.375"	CUSTOM
TGW-437-"B"	0.437"	CUSTOM

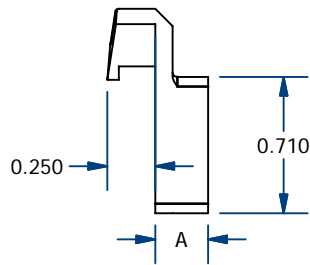
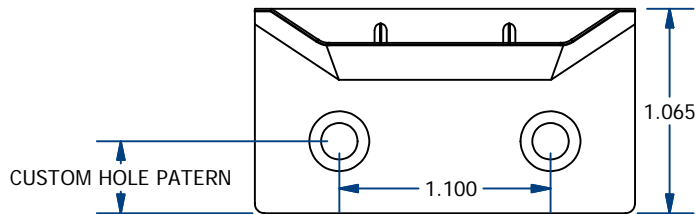
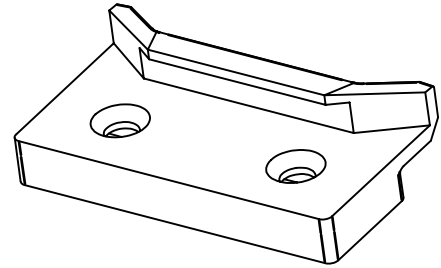


TIE BAR GUIDE STANDARD

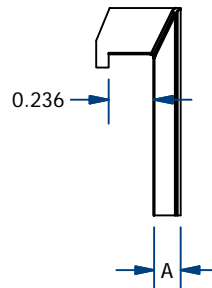
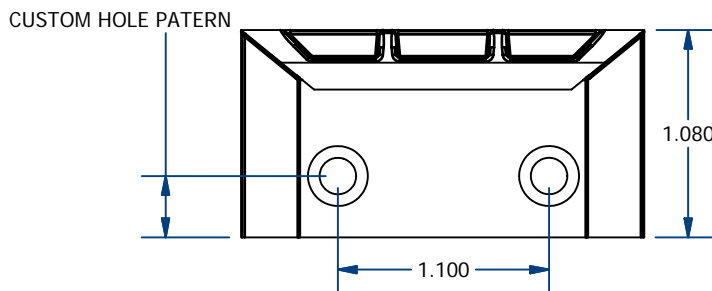
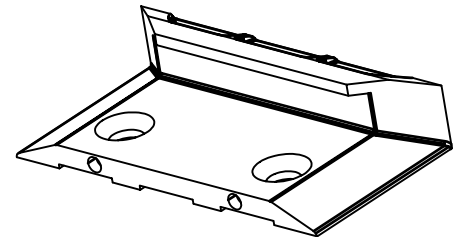
PART #	SIZE "A"	SIZE "B"
TG-300-"B"	.300"	CUSTOM
TG-375-"B"	.375"	CUSTOM
TG-430-"B"	.430"	CUSTOM



NYLON KEEPER		
PART #	MATERIAL	SIZE "A"
GA-2390-00	NYLON	0.090"
GA-2390-0	NYLON	0.155"
GA-2390-01	NYLON	0.195"
GA-2390-03	NYLON	0.275"
GA-2390-05	NYLON	0.375"
GA-2390-07	NYLON	0.430"

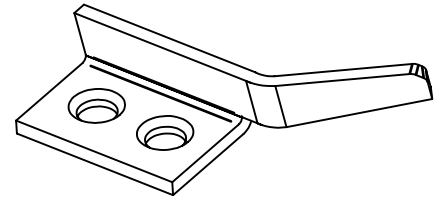
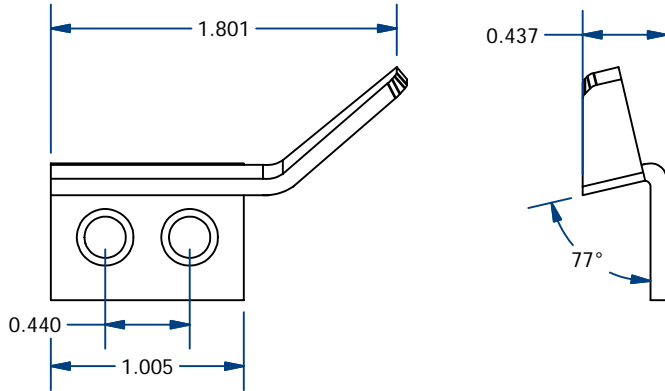


NYLON KEEPER		
PART #	MATERIAL	SIZE "A"
GA-2390-09	NYLON	0.140"
GA-2390-11	NYLON	0.220"
GA-2390-17	NYLON	0.320"



CONE ROLLER KEEPER

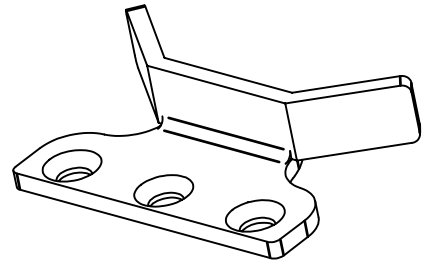
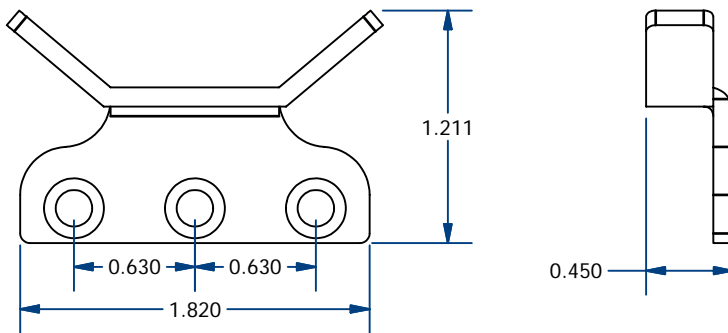
PART #	FINISH	HAND
GA-007-LH	CLAY	LEFT
GA-007-RH	CLAY	RIGHT
GA-007-LH-SS	STAINLESS STEEL	LEFT
GA-007-RH-SS	STAINLESS STEEL	RIGHT



RIGHT HAND SHOWN

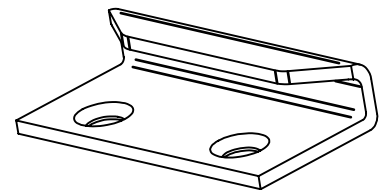
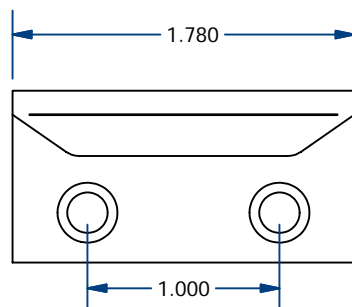
CYLINDRICAL ROLLER KEEPER

PART #	FINISH	HAND
GA-005	CLAY	NO
GA-005-SS	STAINLESS STEEL	NO



INTERLOCK ROLLER KEEPER

PART #	FINISH	HAND
GA-006	CLAY	NO
GA-006-SS	STAINLESS STEEL	NO

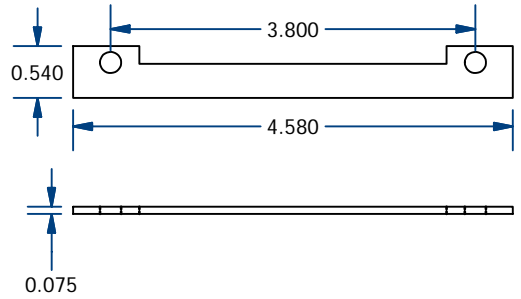


ACCESSORIES

CASEMENT HARDWARE

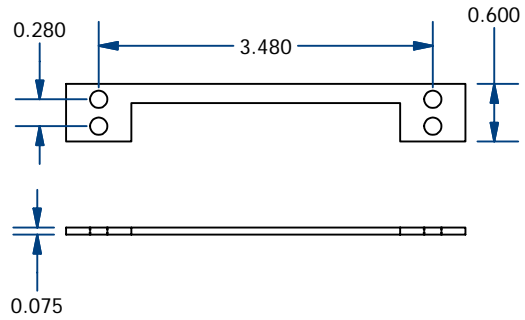
GRANDE BACKER PLATE

PART #	FINISH
PO-2300-BP	CLAY



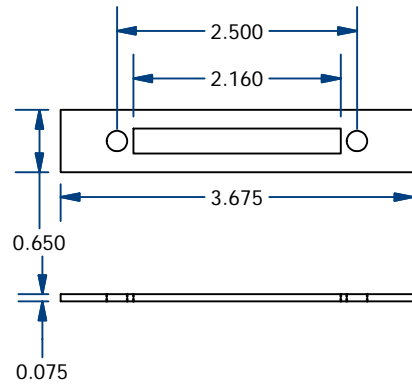
HORIZON BACKER PLATE

PART #	FINISH
PO-2350-BP	CLAY



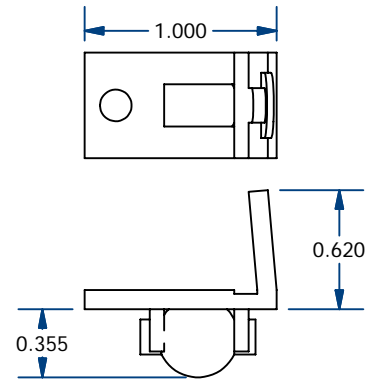
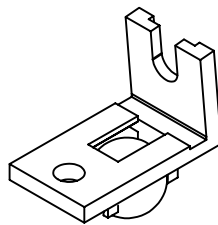
PO-2310 BACKER PLATE

PART #	FINISH
PO-2310-BP	CLAY



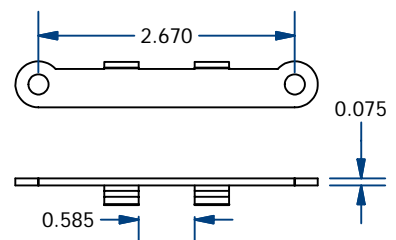
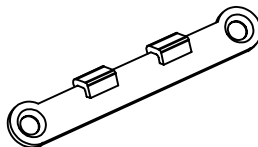
LIFT WHEEL

PART #	MATERIAL
RC-001	NYLON



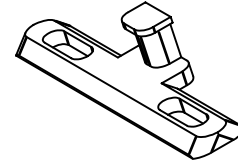
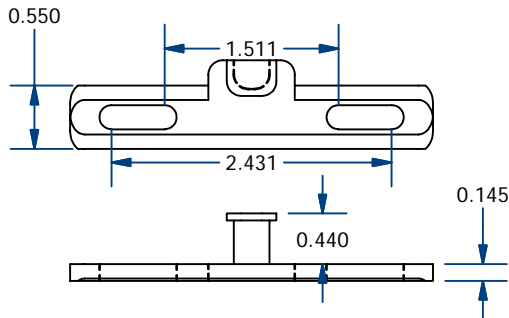
AWNING HOOK

PART #	FINISH
OP-10400	CLAY



SINGLE POINT KEEPER

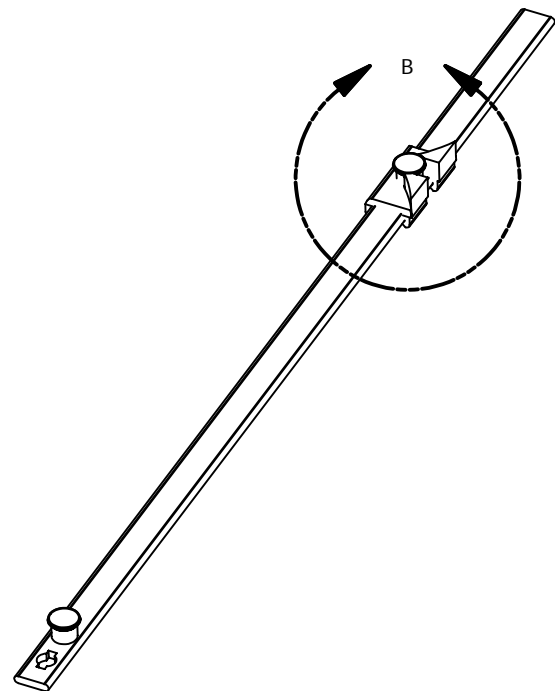
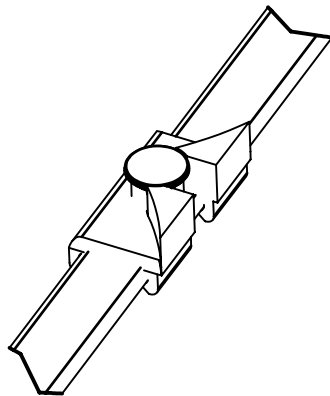
PART #	HAND
PO-2310G	NO



TIE BAR RAMP

PART #	DESCRIPTION
FM-1300	TIE BAR RAMP FOR 1300 TIE BAR SERIES
FM-13000	TIE BAR RAMP FOR 13000 TIE BAR SERIES

DETAIL B
SCALE 0.80 : 1



ADJUSTABLE CASEMENT WINDOW SNUBBER

PART #	FINISH	HAND
SB-002	ZINC PLATED	NO
SB-003	ZINC PLATED	NO

