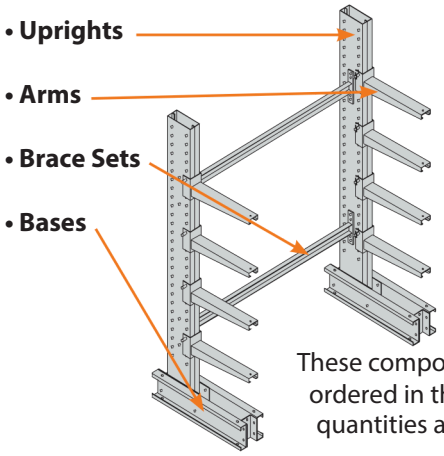
BARRON EQUIPMENT COMPANY INC. OVERHEAD DOORS

WHAT IS CANTILEVER RACK?

Cantilever Rack is a freestanding storage unit with horizontal load carrying arms extending outward from a single vertical column. The absence of a vertical support on the outboard ends of the arms permits uninterrupted storage of long lengths of material.

Cantilever Rack is the **ideal system for storing furniture, steel bars, pipe and tubing, lumber and other long, heavy items** that must be kept off the floor...provides instant accessibility to one piece or a full load. Forklift easily loads off and on arms and bases. Being modular in nature, additional arms, uprights and braces may be added as storage requirements change.

Cantilever Rack is comprised of four components:

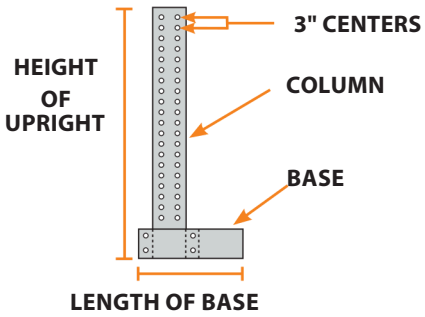


These components must be ordered in the appropriate quantities and capacities.

UPRIGHTS

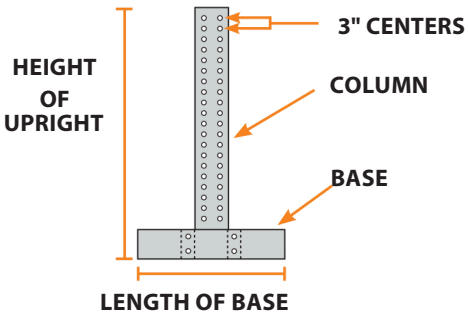
Uprights consist of a vertical column and a horizontal base which is bolted to the column. A minimum of two uprights must be ordered to form a storage bay. Each edge of the column is punched vertically on 3" centers so it may be used as a single or double sided upright depending on the base used. **NOTE:** The arms must never be placed on the back side of a single sided upright and base. Standard upright and base color is gray.

Single Sided Upright



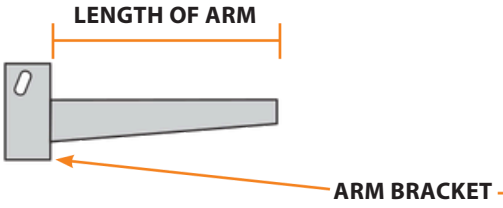
Holes are provided in the base to anchor the upright to the floor. Uprights must never be attached to walls, columns or other structures. Anchors are not provided by MECO.

Double Sided Upright



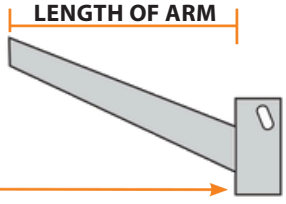
ARMS

Cantilever Arms are the heart of the rack system. Proper selection can make or break a successful storage plan. **MECO OMAHA** offers straight arms (generally used for storing stable loads such as lumber, steel sheets, cartons and skids) and inclined arms (for cylindrical objects or loads that tend to roll forward). Arms can be adjusted on 3" centers up and down the upright and are available in lengths from 12" to 60" in a variety of capacities. The hair pin keeper permits instant adjustability and is easily inserted and removed for adjustment of arm height. Lips are available on all **MECO OMAHA** arms. Standard arm color is gray.



Straight Arm

Straight arms upto 48" long have a minimum pitch of 3/8" per foot to compensate for deflection. 54" and 60" arms have a minimum pitch of 5/8" per foot.



Inclined Arm

Inclined armshaveapitch of 20° or approximately 4.36" per foot.

MECO OMAHA

Hair Pin Keeper

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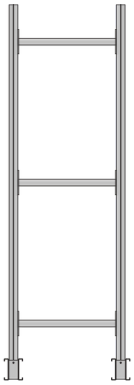
BRACE SETS

Braces are structural channel members that are bolted between pairs of uprights to provide lateral stability to the rack system. X-bracing is utilized to increase the lateral stability of the taller (15' to 20') uprights. Brace lengths are measured from centerline of upright to centerline of the next upright and are sold in sets rather than individual pieces. Standard brace color is gray.

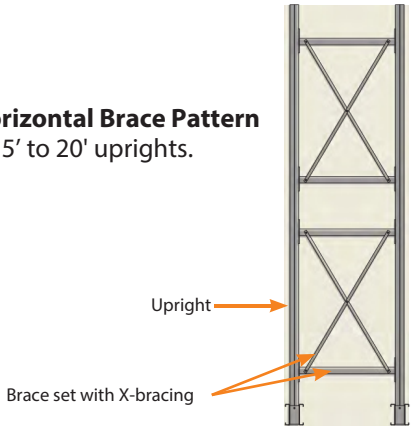
Standard MECO OMAHA Brace Patterns

"2B" Horizontal Brace Pattern
Used on 6' to 8' uprights.

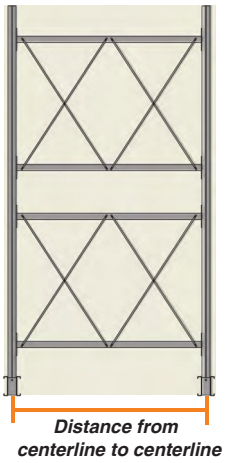


"3B" Horizontal Brace Pattern
Used on 10' to 14' uprights.

"4BX" Horizontal Brace Pattern
Used on 15' to 20' uprights.



"4BXX" Horizontal Brace Pattern
Used on 15' to 20' uprights when the brace length exceeds 84" centerline to centerline of upright.



MECO OMAHA cantilever rack application consisting of uprights, arms and braces.
Standard color for all cantilever rack components is gray. Custom colors available at additional cost.

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DESIGNING A CANTILEVER RACK SYSTEM

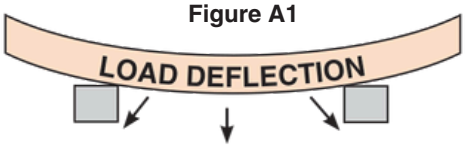
The key to a successful cantilever rack system is the answer to one question: **What is the product (load) being stored?** The answer must include the **length, depth, height** and **weight** of the product. Once this data is ascertained it becomes a simple matter to determine the required arms, uprights and braces.

A. DETERMINE THE NUMBER AND SPACING OF ARMS

The load must be supported by enough arms to prevent load deflection. Deflection may cause damage to the load being stored as well as the arms (figure A1). To detect deflection, place the load over two wooden blocks (to represent cantilever arms) as shown in figure A2. If deflection is not present, it is acceptable to use a two arm system as long as this does not create an overload condition. If the load shows deflection use three blocks as shown in figure A3 or four blocks as in figure A4.

IMPORTANT: The load should overhang the end arms by one-half the distance from upright centerline to upright centerline. Failure to observe this measure may cause an overload condition on the arms.

Figure A1



Improperly Loaded

(Not enough arms to prevent load deflection.)

Adhering to these guidelines will ensure that each arm supports an equal amount of the load's weight.

Load - 2 Arms

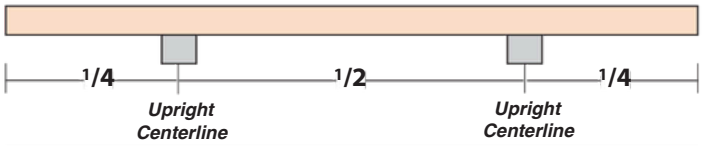


Figure A2

Load - 3 Arms

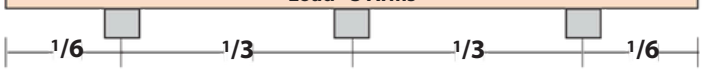


Figure A3

Load - 4 Arms

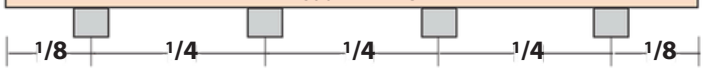


Figure A4

B. DETERMINE THE LENGTH OF THE ARMS

The depth of the load should never exceed the length of the arm. A 48" wide bundle of plywood requires a 48" long arm, bundles of steel 24" wide require a 24" arm and so on. Rated arm capacities may be seriously diminished if proper loading techniques are not observed. Figures B1, B2 and B3 illustrate correct and incorrect arm loading.

Correct

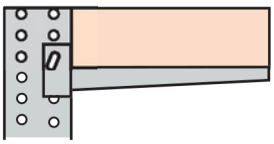


Figure B1

Incorrect

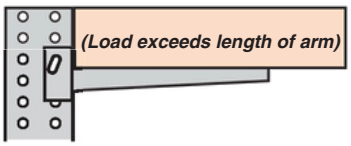


Figure B2

Incorrect

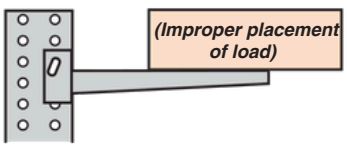


Figure B3

NOTE: All arm capacities are based on an evenly distributed load as in figures B4 and B5 below.

Evenly Distributed Load
(front to back)
Full rated arm capacity

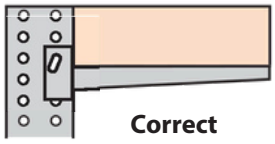


Figure B4

Centered Load
Full rated arm capacity

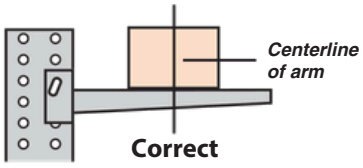


Figure B5

Tip Loading
Arm capacity may be reduced by up to 50%

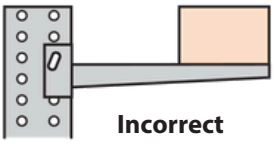


Figure B6

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C. DETERMINE THE HEIGHT OF THE UPRIGHT

When determining the height of the upright, it is important to consider the ceiling height, forklift reach, sprinkler systems. Local building codes could also affect the overall height.

The height of the upright in figure C1 is determined by adding the base height, the number of loads to be stored, the arm thickness plus 6" clearance between the load and next arm. Contact your **MECO OMAHA** sales professional for various rack dimensions such as base height and arm thickness.

IMPORTANT: The load placed on the base does not diminish the rated capacity of the upright. Thus, the heaviest loads should be placed on the base.

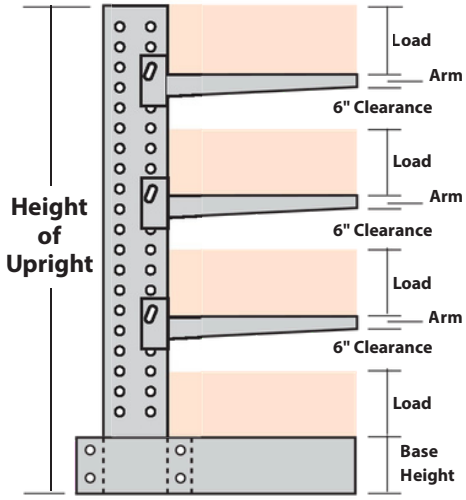

Figure C1

D. DETERMINE ARM AND UPRIGHT CAPACITIES

As previously discussed, each armsupports an equal amount of the load's weight. By determining the number of arms per level and dividing it into the weight per level, the required arm capacity can be determined (see example at right).

To determine the required capacity of each upright, multiply the number of arms per side by the load on each arm. In figure D1, each arm holds 2,500 lbs. Twelve arms per side times 2,500 lbs. per arm equals 30,000 lbs., which when divided by three uprights, results in a required minimum capacity of 10,000 lbs. per upright.

The correct upright can be selected by matching the minimum upright capacity of 10,000 lbs. with the upright capacities set forth on the following pages. Assuming a 48" arm, the U1061-NS on page 26 with 10,200 lbs. capacity, the U1061 on page 27 with 12,600 lbs. capacity and the XU1064 on page 28 with 17,700 lbs. capacity are the only uprights that will handle the load. **NOTE:** The Series 1000 MU1057 has only 3,100 lbs. capacity while the Series 2000 2U1062 has 8600 lbs. capacity.

Theproper48" arm (requiring 2,500lbs. of capacity) can be found on page 28: either the XHDSA48 at 2,500 lbs. or the XHDSA483M at 3,000 lbs. capacity.

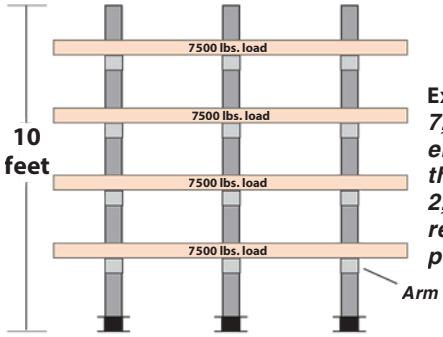

Figure D1

Example:
7,500 lbs. per level divided by three arms = 2,500 lbs. required capacity per arm.

NOTE: Total arm capacity must never exceed total upright capacity.

E. DETERMINE BRACE LENGTH

Brace length is defined as the horizontal distance from centerline of upright to centerline of the next upright. Refer tothe variousbrace set charts for the brace length that most closely matches the arm spacing determined in step A.

The following pages set forth MECO OMAHA's wide range of cantilever racks – beginning with the Series 1000 Medium Duty on page 24 through the Series 5000 Extra Heavy Duty on page 28. MECO OMAHA representatives will work with you to develop the most feasible and economical rack system for your unique situation.

BARRON EQUIPMENT COMPANY INC. OVERHEAD DOORS

SERIES 2000 MEDIUM-HEAVY DUTY CANTILEVER RACK

SINGLE SIDED UPRIGHTS

HEIGHT OF UPRIGHT	LENGTH OF BASE	LENGTH OF ARM	WEIGHT (LBS)	CAPACITY (LBS)	MODEL NO
6'	38"	12" & 18"	154	18,100 & 15,300	2U638
	38"	24"	154	13,300	2U638
	50"	30" & 36"	167	11,800 & 10,600	2U650
	62"	42" & 48"	180	9,600 & 8,800	2U662
8'	38"	12" & 18"	180	18,100 & 15,300	2U838
	38"	24"	180	13,300	2U838
	50"	30" & 36"	193	11,800 & 10,600	2U850
	62"	42" & 48"	206	9,600 & 8,800	2U862
10'	38"	12" & 18"	208	17,400 & 14,900	2U1038
	38"	24"	208	13,100	2U1038
	50"	30" & 36"	222	11,500 & 10,300	2U1050
	62"	42" & 48"	235	9,400 & 8,600	2U1062
12'	38"	12" & 18"	234	16,800 & 14,500	2U1238
	38"	24"	234	12,600	2U1238
	50"	30" & 36"	248	11,200 & 10,200	2U1250
	62"	42" & 48"	261	9,300 & 8,500	2U1262
14'	38"	12" & 18"	261	16,200 & 14,100	2U1438
	38"	24"	261	12,300	2U1438
	50"	30" & 36"	275	10,900 & 9,800	2U1450
	62"	42" & 48"	288	8,900 & 8,300	2U1462
16'	38"	12" & 18"	290	15,800 & 13,800	2U1638
	38"	24"	290	12,100	2U1638
	50"	30" & 36"	303	10,600 & 9,400	2U1650
	62"	42" & 48"	317	8,400 & 7,500	2U1662
18'	38"	12" & 18"	317	15,700 & 13,700	2U1838
	38"	24"	317	11,900	2U1838
	50"	30" & 36"	330	10,400 & 9,200	2U1850
	62"	42" & 48"	344	8,200 & 7,400	2U1862
20'	38"	12" & 18"	344	15,600 & 13,600	2U2038
	38"	24"	344	11,700	2U2038
	50"	30" & 36"	357	10,200 & 9,000	2U2050
	62"	42" & 48"	371	8,100 & 7,300	2U2062

DOUBLE SIDED UPRIGHTS

HEIGHT OF UPRIGHT	LENGTH OF BASE	LENGTH OF ARM	WEIGHT (LBS)	CAPACITY (LBS)	MODEL NO
6'	59"	12" & 18"	182	36,200 & 30,600	2DU659
	59"	24"	182	26,600	2DU659
	83"	30" & 36"	209	23,600 & 21,200	2DU683
	107"	42" & 48"	236	19,200 & 17,600	2DU6107
8'	59"	12" & 18"	208	36,200 & 30,600	2DU859
	59"	24"	208	26,600	2DU859
	83"	30" & 36"	235	23,600 & 21,200	2DU883
	107"	42" & 48"	262	19,200 & 17,600	2DU8107
10'	59"	12" & 18"	237	34,800 & 29,800	2DU1059
	59"	24"	237	26,200	2DU1059
	83"	30" & 36"	264	23,000 & 20,600	2DU1083
	107"	42" & 48"	291	18,800 & 17,200	2DU10107
12'	59"	12" & 18"	263	33,600 & 29,000	2DU1259
	59"	24"	263	25,200	2DU1259
	83"	30" & 36"	290	22,400 & 20,400	2DU1283
	107"	42" & 48"	317	18,600 & 17,000	2DU12107
14'	59"	12" & 18"	290	32,400 & 28,200	2DU1459
	59"	24"	290	24,600	2DU1459
	83"	30" & 36"	317	21,800 & 19,600	2DU1483
	107"	42" & 48"	344	17,800 & 16,600	2DU14107
16'	59"	12" & 18"	318	31,600 & 27,600	2DU1659
	59"	24"	318	24,200	2DU1659
	83"	30" & 36"	345	21,200 & 18,800	2DU1683
	107"	42" & 48"	372	16,800 & 15,000	2DU16107
18'	59"	12" & 18"	345	31,400 & 27,400	2DU1859
	59"	24"	345	23,800	2DU1859
	83"	30" & 36"	372	20,800 & 18,400	2DU1883
	107"	42" & 48"	399	16,400 & 14,800	2DU18107
20'	59"	12" & 18"	372	31,200 & 27,200	2DU2059
	59"	24"	372	23,400	2DU2059
	83"	30" & 36"	399	20,400 & 18,000	2DU2083
	107"	42" & 48"	426	16,200 & 14,600	2DU20107

MECO OMAHA SERIES 2000 UPRIGHTS, ARMS and BRACE SETS are not interchangeable with any other rack series.

ARMS below can be used on SERIES 2000 uprights only. Capacities are based on an evenly distributed load. Note that arm lips are not intended to bearany portion of the load.

STRAIGHT ARMS

LENGTH	CAPACITY	WEIGHT	MODEL NO WITHOUT LIP	MODEL NO WITH LIP
12"	2,000 lbs	7 lbs	2SA12	2SA12L
18"	1,500 lbs	8 lbs	2SA18	2SA18L
24"	1,200 lbs	10 lbs	2SA24	2SA24L
30"	1,000 lbs	12 lbs	2SA30	2SA30L
36"	800 lbs	13 lbs	2SA36	2SA36L
42"	700 lbs	15 lbs	2SA42	2SA42L
48"	600 lbs	17 lbs	2SA48	2SA48L

INCLINED ARMS

LENGTH	CAPACITY	WEIGHT	MODEL NO WITHOUT LIP	MODEL NO WITH LIP
12"	2,000 lbs	7 lbs	2IA12	2IA12L
18"	1,500 lbs	8 lbs	2IA18	2IA18L
24"	1,200 lbs	10 lbs	2IA24	2IA24L
30"	1,000 lbs	12 lbs	2IA30	2IA30L
36"	800 lbs	13 lbs	2IA36	2IA36L
42"	700 lbs	15 lbs	2IA42	2IA42L
48"	600 lbs	17 lbs	2IA48	2IA48L

HEAVY DUTY AND EXTRA HEAVY DUTY STRAIGHT ARMS

LENGTH	CAPACITY	WEIGHT	MODEL NO WITHOUT LIP	MODEL NO WITH LIP
24"	2,400 lbs	14 lbs	2HDSA24	2HDSA24L
30"	2,000 lbs	16 lbs	2HDSA30	2HDSA30L
36"	1,500 lbs	18 lbs	2HDSA36	2HDSA36L
	2,400 lbs	22 lbs	2XHDSA36	2XHDSA36L
42"	1,500 lbs	21 lbs	2HDSA42	2HDSA42L
	2,400 lbs	25 lbs	2XHDSA42	2XHDSA42L
48"	1,000 lbs	21 lbs	2HDSA481M	2HDSA48L1M
	1,500 lbs	23 lbs	2HDSA48	2HDSA48L
	2,000 lbs	29 lbs	2XHDSA48	2XHDSA48L

STRAIGHT ARMS *have a minimum pitch of 3/8" per foot to compensate for deflection. Arm capacities are based on an evenly distributed load.*

INCLINED ARMS *have a pitch of 20 degrees or approximately 4.36" per foot. Arm capacities are based on an evenly distributed load.*

	BRACES FOR 8' UPRIGHTS – SET OF TWO		BRACES FOR 10' - 14' UPRIGHTS – SET OF THREE		BRACES FOR 16' - 20' UPRIGHTS – SET OF FOUR INCLUDING X-BRACING	
LENGTH*	MODELNO	WEIGHT	MODEL NO	WEIGHT	MODEL NO	WEIGHT
23"	22B24	21 lbs	23B24	31 lbs	24B24X	65 lbs
35"	22B36	28 lbs	23B36	41 lbs	24B36X	80 lbs
41"	22B42	31 lbs	23B42	47 lbs	24B42X	88 lbs
47"	22B48	35 lbs	23B48	52 lbs	24B48X	96 lbs
59"	22B60	42 lbs	23B60	62 lbs	24B60X	113 lbs
71"	22B72	49 lbs	23B72	73 lbs	24B72X	130 lbs
83"	22B84	56 lbs	23B84	83 lbs	24B84X	147 lbs
95"	22B96	63 lbs	23B96	94 lbs	24B96XX	181 lbs
119"	22B120	113 lbs	23B120	170 lbs	24B120XX	282 lbs

** Length of braces is measured from center of upright to center of upright.*

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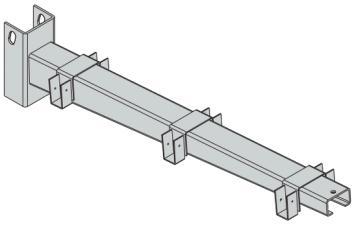
BARRON EQUIPMENT COMPANY INC. OVERHEAD DOORS

CANTILEVER RACK ACCESSORIES

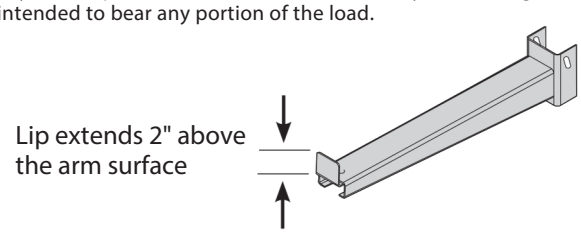
Drop-In DeckSupportSaddles

Add a plywood deck to the cantilever system to store bulky items suchas boxes, cartons and furniture. **MECO OMAHA** will pre-engineer the saddles to accommodate 2x4 cross supports. Saddles must be positioned along the arm to ensure equal distribution of weight. Deck support saddles can also be provided for the bases. Saddles must be fastened to the arms and bases. Field drilling is required. Fasteners are not included. Other saddle styles available. Please inquire.



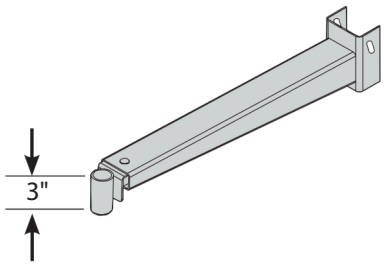
Bolt-On Arm Lips

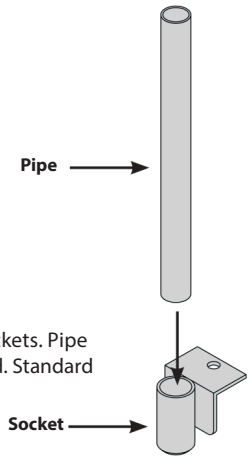
All **MECO OMAHA** cantilever arms arefactory punchedtoaccept a bolt-on lip at any time. Lips can also be removed when they are no longer required. Lips are not intended to bear any portion of the load.



Bolt-On Pipe Sockets

Pipe sockets can be field installed or removedas needs dictate—just like bolt-on lips. Inside diameter of the socket is 13/8". Removable pipe is not included. Pipe sockets are not intended to bear any portion of the load.



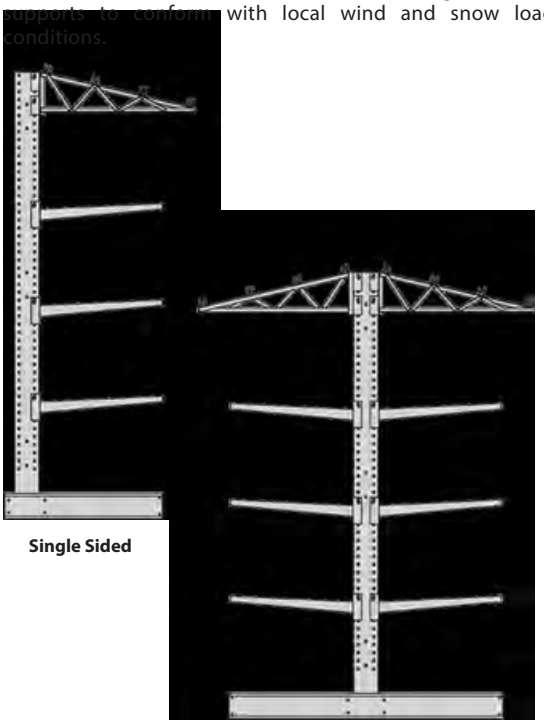


Pipe

Removable pipe used in conjunctionwith bolt-on pipe sockets. Pipe and socket are not intended to bear any portion of the load. Standard sizes include 6", 9" and 12" pipe.

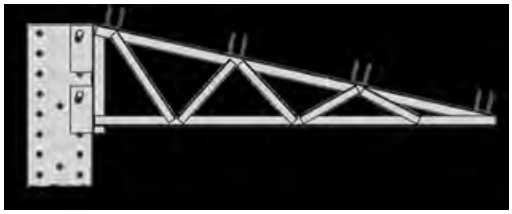
RoofSupports

Turn your **MECOOMAHA**cantileverrack system into covered storage with roof supports. Can be used as single or double sided roof (depending on length of base used). Purlin clips included. **NOTE:** The use of roof supports can significantly reduce the rack's capacity due to wind and snow loads. **MECO OMAHA** will custom design the roof supports to conform with local wind and snow load conditions.



Single Sided

Double Sided



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