



DESIGNING A CANTILEVER RACK SYSTEM

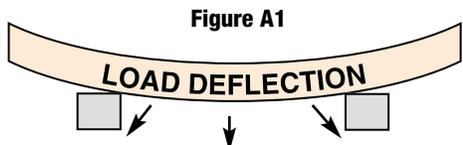
The key to a successful cantilever rack system is the answer to one question: **What is the product (load) being stored?** The answer must include the **length,**

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.



Improperly Loaded
(Not enough arms to prevent load deflection.)

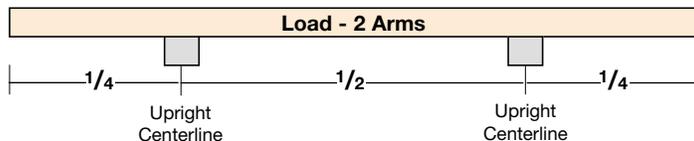


Figure A2

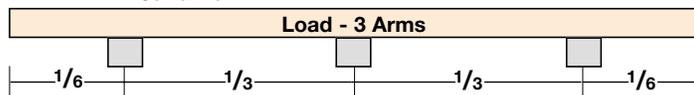


Figure A3

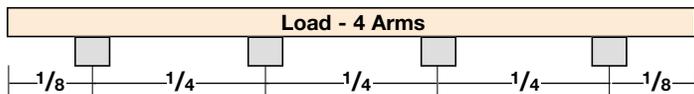


Figure A4

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

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.

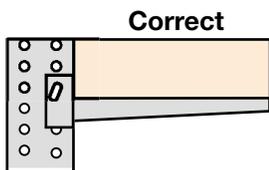


Figure B1

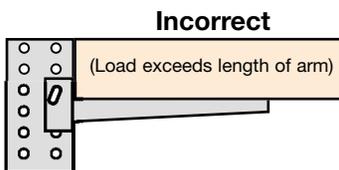


Figure B2

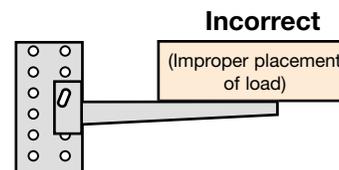


Figure B3

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

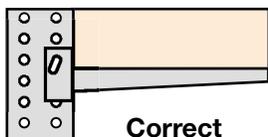


Figure B4

Centered Load
Full rated arm capacity

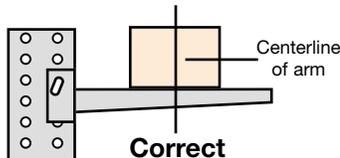


Figure B5

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

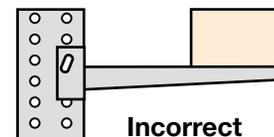


Figure B6



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 and other factors, such as local building codes that might 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 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.

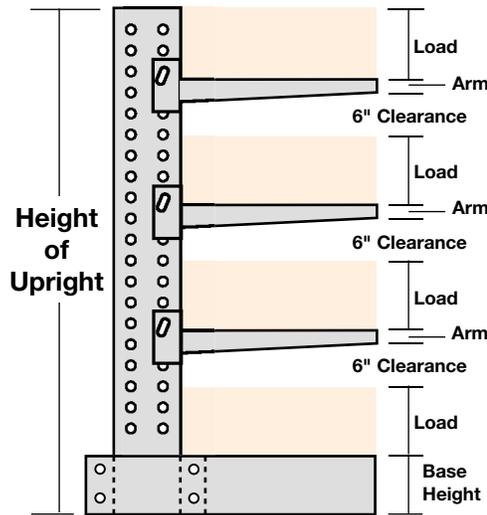


Figure C1

D. DETERMINE ARM AND UPRIGHT CAPACITIES

As previously discussed, each arm supports 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 2500 lbs. Twelve arms per side times 2500 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 22 with 10,200 lbs. capacity and the U1061 on page 23 with 12,600 lbs. capacity are the only uprights that will handle the load. **NOTE:** The Series 1000 MU1057 has only 3100 lbs. capacity while the Series 2000 2U1062 has 8600 lbs. capacity.

The proper 48" arm (requiring 2500 lbs. of capacity) can be found on page 24: either the XHDSA48 at 2500 lbs. or the XHDSA483M at 3000 lbs. capacity.

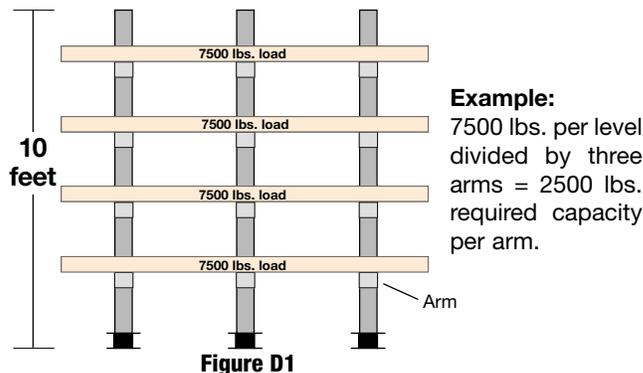


Figure D1

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

to the various brace 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 20 through the Series 5000 Extra Heavy Duty on page 24. MECO OMAHA representatives will work with you to develop the most feasible and economical rack system for your unique situation.