

PHD Manufacturing, Inc. –

follows the guidelines of the Metal Framing Manufacturers Association in the manufacture and recommended use of strut systems. In all design applications using strut systems and accessories, proper engineering design practices should be applied and load limits observed. The following pages include helpful information to assist the user in the proper design of strut systems.

Appropriate beam and column loading information is provided with the dimensional tables accompanying each channel. In addition, the following discussion and tables

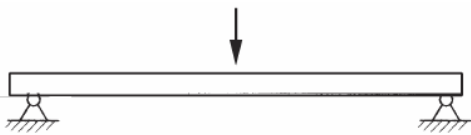
are designed to assist in the proper selection and use of PHD strut products. Basic engineering information is provided to define the concepts needed to design a safe and economical strut installation.

Design of Strut Systems

PHD struts are often installed to serve either as beams or columns in structural applications. A brief discussion of these types of structural elements and their safe design follows:

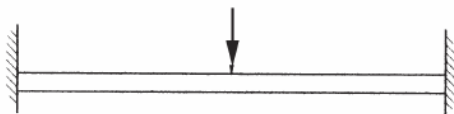
BEAMS

Structural members installed in a horizontal attitude and subject to vertical and/or horizontal loads are known as beams. The method by which a beam is mounted affects the load-carrying capability of the beam. Common mounting methods include:



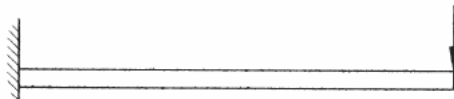
Simple Beam –

A simple beam is one that is supported at both ends without being restricted from bending or flexing. Most beams are analyzed as simply supported beams, even though they are often rigidly fixed at their supports. PHD beam load data are based upon simple beam configurations unless otherwise noted.



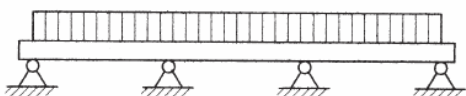
Fixed End Beam –

A fixed end beam is supported at both ends in such a way that motion or bending of the beam is restricted. An example of a fixed end beam is a strut welded at both ends to a very rigid structure. The result is a beam capable of carrying greater loads, but subject to large bending moments at the supports.



Cantilever Beam –

A cantilevered beam is one that is fixed at one end and completely unsupported at the other end.



Continuous Beam –

A continuous beam is supported at three or more points along its length. Continuous beams act similarly to simple beams, particularly at the end spans. However, the counter-balancing effect of adjacent spans restricts movement at the support, much like a fixed beam.