



**Particle Physics Division
Mechanical Department Engineering Note**

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Project Internal Reference: None

Project: MINOS Service Building Banner Support

Title: MINOS Service Building Banner Support

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Reviewer(s):

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Abstract Summary:

Reidar Hahn wants to hang some banners on the MINOS service building walls and needs a support to hang them from. This document details the design and serves to transmit the loads to FESS in accordance with director's policy 18.

Applicable Codes: Director's Policy 18

Along column line B (west wall) between column lines 2 and 3, at Minos service building, a W12 by 40 wide flange section is located at elevation 765'-0 (top of steel). From this elevation, Reider wants to hang a series of printed banners down to the window elevation. Wind girder above window is at elevation 755'-8³/₄". Because of the welded bracing connections on the

top of the W12 section, the width of the banner(s) may only be about 20 feet wide.

Heavy weight banner material weighs about 20 ounces (1¼ pound) per square yard. Assume a banner 7 yards wide, 3 yards tall, give a weight of about 26.25 pounds.

Banner support needs to extend approximately 12 inches to the east (towards the center of the building) from the center line of the W12 section. This puts torsion of about 27 foot pounds on the W12 by 40 section.

Use four lengths (each 18 inches long) of P1000 unistrut material to make four brackets. Attach each bracket to the W12 with two P 2785 beam connector brackets. Sketch:

