



There are 12 "spider" mechanisms that provide structural support for the membrane above the platform area within the terminal. Each spider has 8 "legs" and a center support mast. The detail to the right shows the cable system that regulates both the angle of the legs from the base and the overall length of the leg. The purpose of having two cables to regulate the angle is due to the inability of the pulley to be located directly in the center of the leg because of the hindrance it would cause during the extension and retraction of the smaller interior leg. A single cable on one side would cause unbalanced torque on the components leading to premature wear of both the cables and the pulleys and creating a dangerous situation for the occupants of the space below.

The mechanics for the rotation of the spiders is contained in the base. Both the entire turret mechanism and each individual leg is capable of rotation through the use of two individual motors. One very large high torque low speed motor provides the rotational power and a smaller low torque low speed motor provides power to shift the drive shaft through the vertical stack of gears located within the turret at the base of the legs. The entire turret is capable of 45 degrees of rotation in either direction off center (90 degrees total) and each individual leg is capable of 10 degrees of rotation in either direction off center (20 degrees total).

spider detail

CITY PROVIDENT

100 Year Rail Transit Terminal

1836 39th St. S.W.
Fargo, ND 58103

DRAWN BY

Steve Martz

ISSUE

4.28.2014

DESCRIPTION

details

A 5.1