Improvements were designed for an existing emergency line stop design (operating on A-Line) for the Cornell High Energy Synchrotron Source (CHESS). These included a new support structure to allow table mounting and simplify manufacturing, an added tungsten backing block to attenuate higher-energy photons, widening the cooled copper absorber to accommodate the canting angle on F-Line, and improving limit switch position tuning. The photon absorber is a length of beam pipe made from copper, with a thick, water-cooled upper wall. When closed, one end of the pipe is lowered so that the upper interior surface blocks the beam path with a ramp to spread the deposited power over a wide area. The robust frame is made from two mirror-imaged aluminum plates and cross bars cut from 80/20© 15-Series extrusion. For security, features on the tungsten block engage with features on the copper absorber to hold the two together, while the added bolts are safety-wired to prevent tampering. NEG pumps and vacuum diagnostics connect to ports on the absorber section. The absorber is opened and closed by a pneumatic cylinder, and fails closed under loss of air pressure.

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