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Final Construction Phase of the CLAS12 High-Threshold Cerenkov Counter SHANE MILLER-SMITH, JOHN PRICE, Cal State Univ-Dominguez Hill — The CLAS detector at the Thomas Jefferson National Accelerator Facility in Newport News, VA (JLab) is currently undergoing an upgrade. A significant part of the particle-identification system for this detector is the Čerenkov counter, used to distinguish electrons from other particles in the detector. At the energies that will be available upon completion of the upgrade, the existing Čerenkov counter will be insufficient. To alleviate this situation, a new, high-threshold Čerenkov counter (HTCC) is being built. This new detector will utilize a mirror assembly to direct the Čerenkov photons into a region of the detector with a low magnetic field. The construction of the mirror assembly required a clean-room environment that approximated the actual laboratory conditions as closely as possible to prevent mirror warping after installation. The clean-room environment, which was built specifically for this purpose, had to be continuously monitored for temperature, humidity, and particle count. The mirror assembly was prepared by attaching previously fabricated and tested mirror segments to a center ring in such a way that the entire structure was self-supporting and rigid, while minimizing the amount of material used in its construction. Because the transport of the finished detector into the laboratory is expected to apply stresses to the mirrors, a half-sector assembly was constructed to test the effects of this transport. Additionally, a significant effort was spent in the preparation and installation of the shields for the photomultiplier tubes used to detect the Čerenkov photons. This talk will discuss the final stages of the assembly and construction of the HTCC, and will show the present status of the detector.

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