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Construction and Gluing of G10 Frames and Printed Circuit Boards to be used in COMPASS Drift Chamber 5 VIVEK BRITTO, University of Illinois at Urbana-Champaign — COMPASS is a fixed-target nuclear physics experiment at CERN which explores the internal structure of the proton. One specific area of research is the measurement of single transverse spin asymmetries in pion beam induced Drell-Yan production of muon pairs from polarized proton targets. The spin dependence of the Drell-Yan cross section may be indicative of contributions from quark orbital angular momentum to the spin of the proton. The University of Illinois at Urbana-Champaign (UIUC), in collaboration with institutes in Taiwan, France, Italy and Germany, is designing and building a new drift chamber, DC5, to replace an aging detector in the COMPASS spectrometer. The frames supporting the anode wires and cathode planes in DC5 are constructed from G10, a fiberglass-epoxy composite. Once the individual sides of each frame have been milled, they are glued together at the corner lap joints. Additionally, printed circuit boards are glued to the anode frames, where sense and field wires will later be soldered. To maintain optimal operation of the drift chamber, the frame thickness after gluing must be within 50 μm of the design value. This presentation will explain the methods employed to achieve the required tolerances for this precision gluing process.

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