A Review of High Beam Current RFQ Accelerators and Funnels*, J.D. SCHNEIDER, LANL - This paper will review the design features of several high-current (>20 mA) and high-power (>1 mA average) proton or H- injectors, RFQs, and funnels. It will include a summary of observed performance and will mention a sampling of new designs, including the proposed incorporation of beam choppers. Different programs and organizations have chosen to build the RFQ in diverse configurations. Although most RFQs are either low-current or very low duty-factor, several versions have included high-current and/or high-power designs for either protons or H- ions. The challenges of cooling, handling high space-charge forces, and coupling with injectors and subsequent accelerators will be covered. In all instances, beam tests were a valuable learning experience, because not always did these 'as-built' structures perform exactly as predicted by our earlier design codes. We will summarize the key operational parameters, indicate what was achieved, and highlight what was learned in these tests. Based on this generally good performance and high promise, even more challenging designs are being considered for new applications that include even higher powers, beam funnels and choppers.

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