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The PRad-II experiment at Jefferson Lab aims to provide a new, high-precision measurement of the proton electric form factor at very low momentum transfers, down to $Q^2 \approx 10^{-5}\,\mathrm{GeV}^2$. The experiment is scheduled to start in January 2026 and is expected to improve the overall precision by about a factor of three compared to the original PRad experiment. The experimental setup includes a windowless hydrogen gas target, two planes of GEM tracking detectors for improved vertex and angle reconstruction, a high-efficiency and high-resolution calorimeter (HyCal), and a new cross-shaped veto scintillator detector. The veto scintillator, consisting of four thin panels with a central opening, is mainly used to separate Møller electrons from elastic ep events at very forward angles, up to 0.5°, where energy-based separation is difficult. To minimize extra material and reduce possible backgrounds, thinner scintillators were carefully chosen and optimized through simulations and tests. In this talk, I will focus on the design and expected performance of this veto scintillator, its integration with the rest of the experimental setup, and its importance for achieving a precise proton radius measurement.