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## **Effects of cold joints in blast resistant structural concrete**

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With the rising concern of terrorist activity around the globe today, blast resistant design is becoming a necessity. Stay-in-place formed concrete is becoming a popular building technique, as this technology has exhibited outstanding results in blast resistant applications, containing the fragmented concrete and preventing it from entering a building and endangering those within. A test has been designed to determine the effects of cold joints in walls of this type, as there will undoubtedly be interruptions of a pour. A solution commonly used in the field to alleviate the effects of cold joints in structural concrete involves applying a bonding agent between the hardened concrete and the fresh. The test was developed using ASTM standards C78 and C1042 as guides, to accurately predict the behavior of wall sections containing cold joints when exposed to pure moment. The basic test design is to submit a sample to bending to determine its moment capacity and maximum deflection, inducing an equal moment within the loading span. While the test is in progress, mid-span deflection will be recorded at incremental loadings, noting the maximum deflection and load as the section fails. Cold joints within samples will be located center span, in the region where uniform moment will be induced. This should force the break to the center, to the joint in question. The results from samples with the bonding agent should shed some light on the overall applicability of a bonding agent. In this sort of application, the strength of the wall derives more from the mass of concrete within, rather than the strength of such, so samples with cold joints are expected to have comparable ultimate behavior.