**Blast strengthening of an historic congress building**

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The client for the project and the name of the building are both confidential, however, that this does not detract from engineering content and validity of the paper. The congress building in question was designed and constructed in the 1960s to provide a meeting place for all African Nations. Given its cultural, historic and architectural significance, the client decided to re-life the building and upgrade it to meet present-day conference, design, and security standards.

Built Environment Collective (BEC), an Australian-based and owned multi-national engineering and project management consultancy has delivered projects in 5 African countries, including embassies in Ethiopia and Kenya and multiple projects for an international NGO (Non-Government Organisation). BEC was appointed to provide multi-discipline engineering from concept design through to defects liability for the USD70 million project.

The congress building is sited atop an incline, and near a public roadway. It is predominately circular on plan, with basement and ground floors under 2 plenary hall levels. A glazed clearstorey elevation supports a circular, disc-profiled roof. Cantilevered balcony and roof elements project towards the nearest street entry. The client's security department undertook a risk assessment and quantified the risk level utilising the industry metric of kilograms of ANFO (ammonium nitrate/fuel oil). ANFO is a bulk industrial explosive marginally more potent than TNT (trinitrotoluene). Cantilevers, ribbed slabs on beams & stone/masonry walls presented as unique design challenges.

This paper presents consideration of calculated blast forces and the subsequent protective measures designed by BEC.