



Civic Theatre Seismic Strengtheni

HOLMES CONSULTING GROUP

Tony Galavazi

General Background

Started working for HCG in the Wellington office in 1994



General Background

Started working for HCG in the Wellington office in 1994

Moved to the Auckland Office in 1996



General Background

Started working for HCG in the Wellington office in 1994

Moved to the Auckland Office in 1996

Spent 6 months designing the Civic Theatre in 1997 - 1998



General Background

Started working for HCG in the Wellington office in 1994

Moved to the Auckland Office in 1996

Spent 6 months designing the Civic Theatre in 1997 - 1998

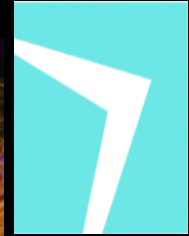
Spent 6 months on site as a full time Site Engineer for both the Civic Theatre project and the Metro Centre development next door





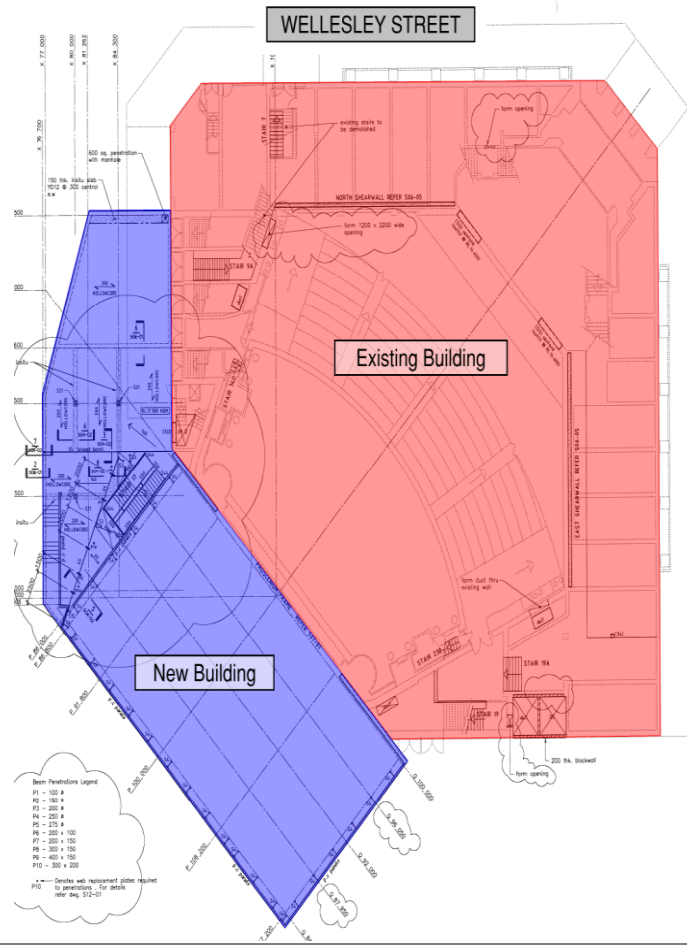






Extent of Work

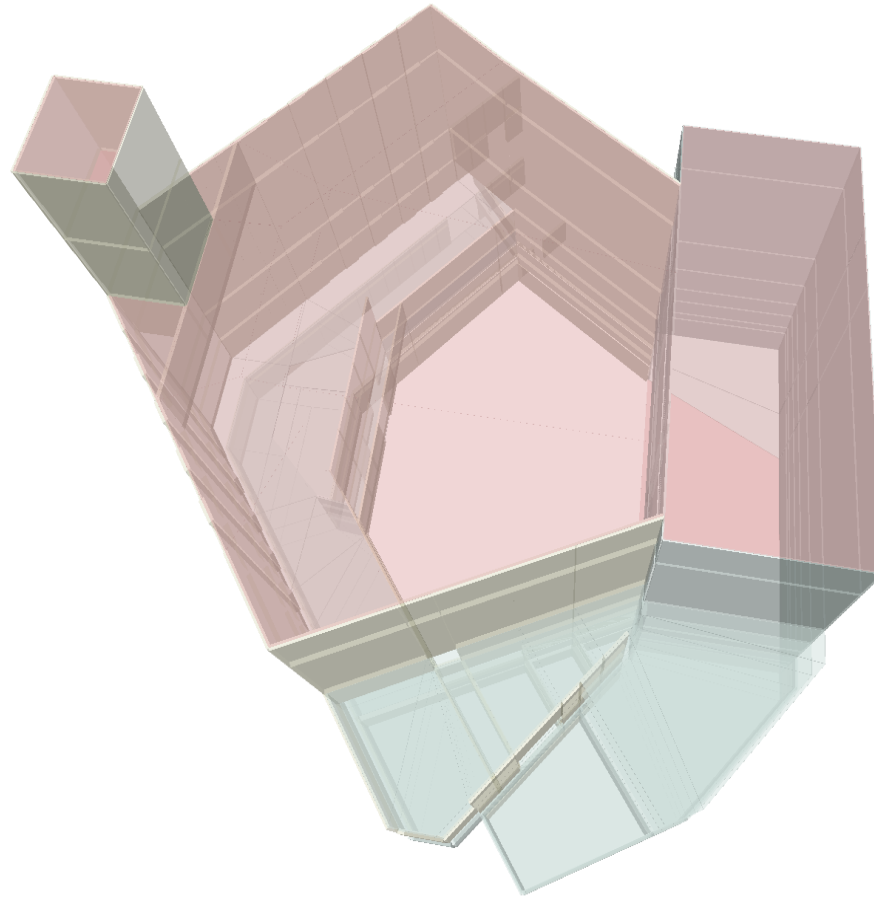
Extent of existing building and new building indicated



QUEEN STREET

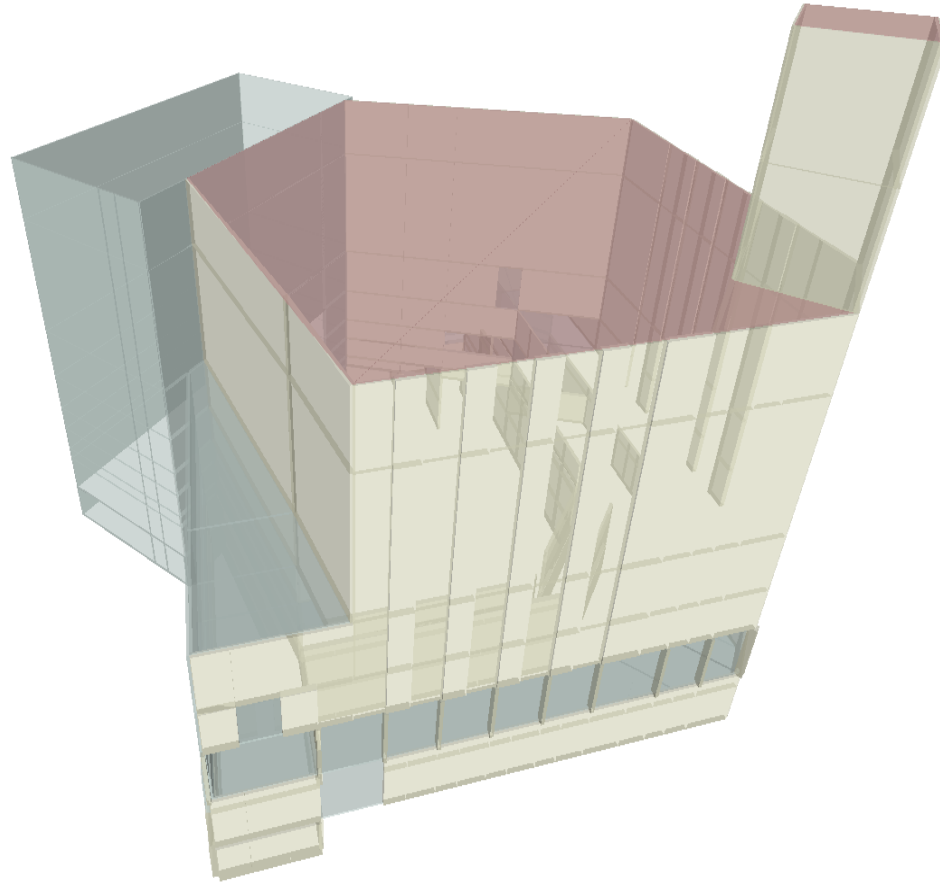
Structural Analysis

Non Linear Time
History Analysis
computer model



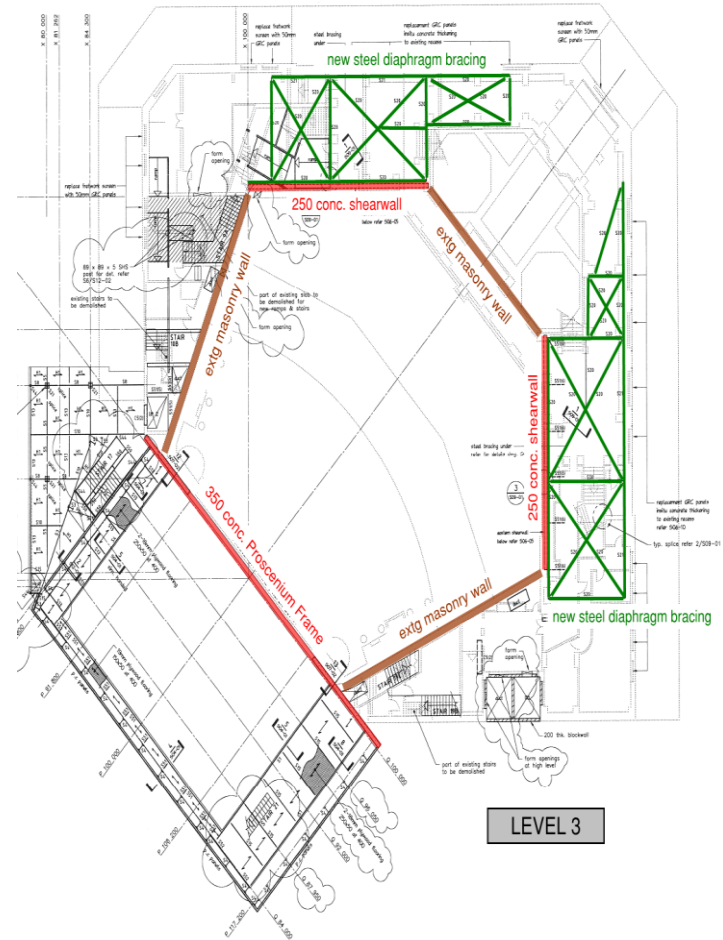
Structural Analysis

Non Linear Time
History Analysis
computer model



Lateral Load Resistance

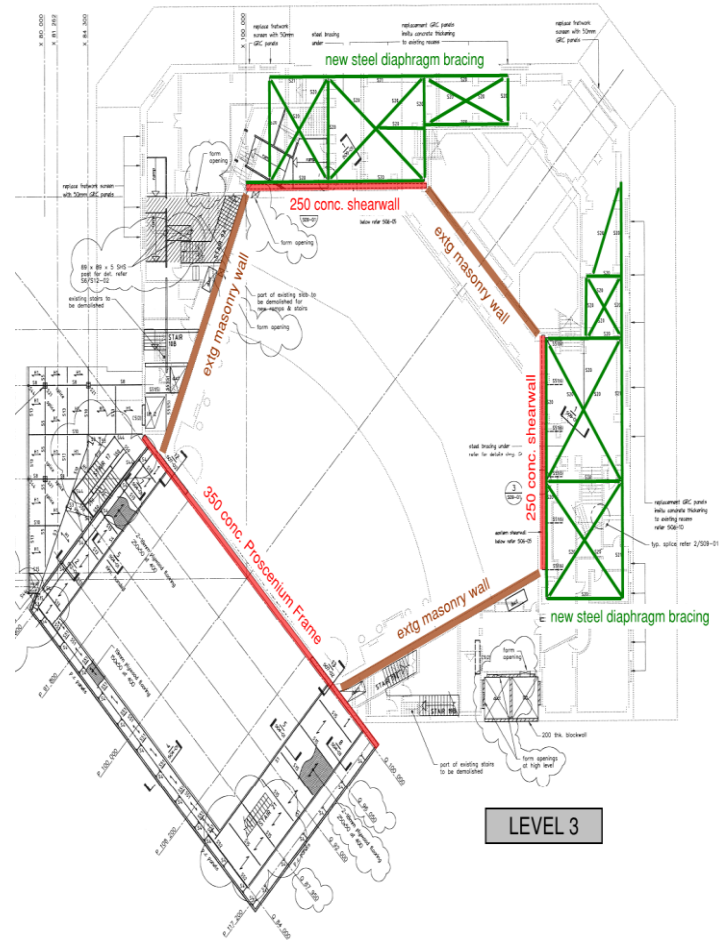
New concrete shearwalls



Lateral Load Resistance

New concrete shearwalls

New concrete proscenium

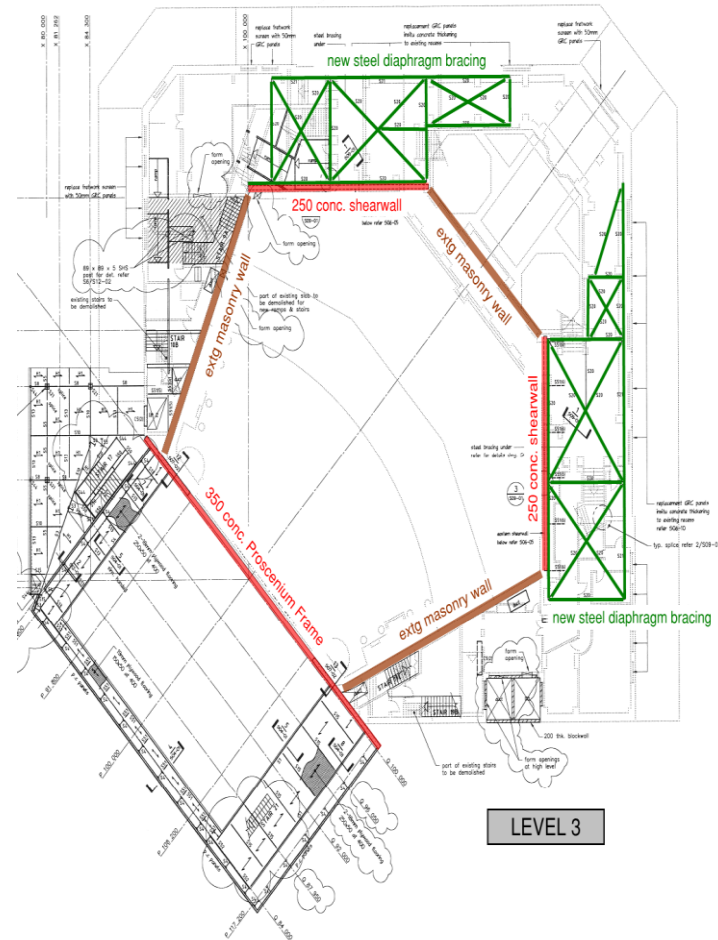


Lateral Load Resistance

New concrete shearwalls

New concrete proscenium

Existing masonry walls



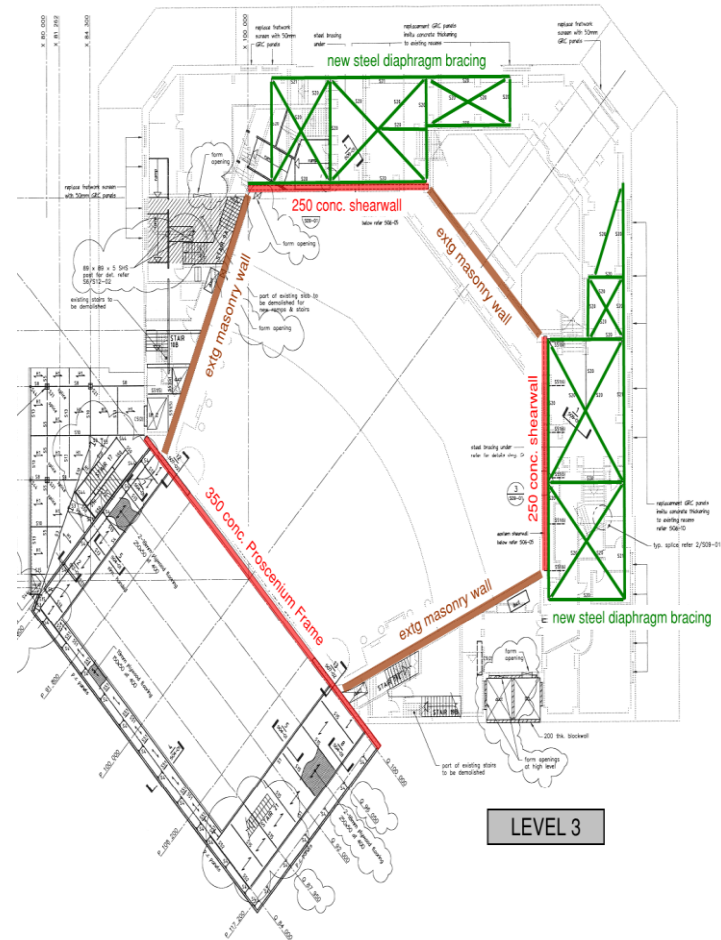
Lateral Load Resistance

New concrete shearwalls

New concrete proscenium

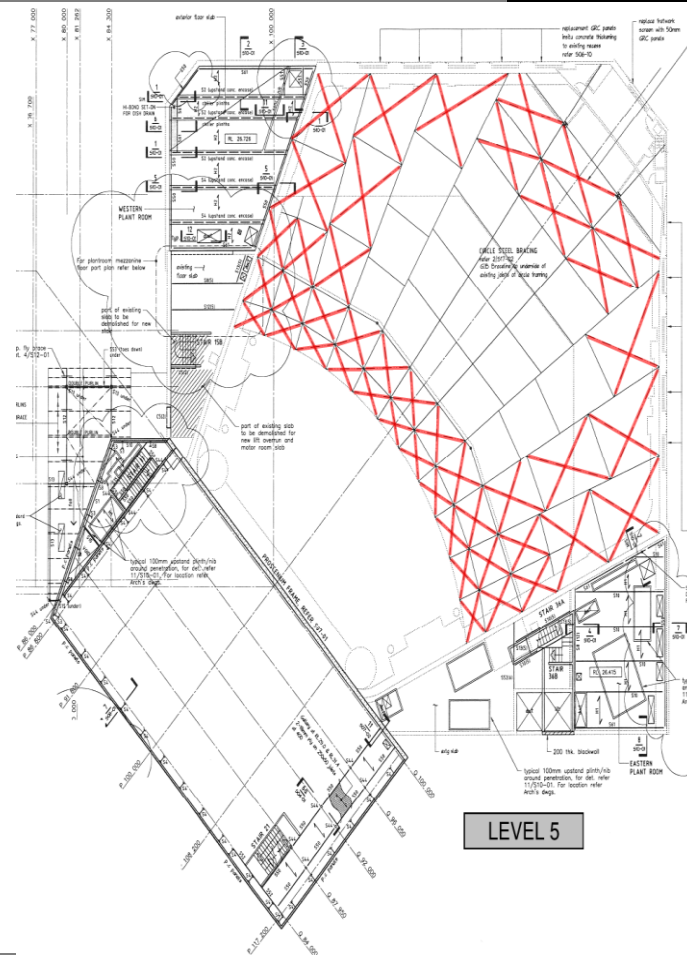
Existing masonry walls

New steel diaphragm bracing



Lateral Load Resistance

New steel rod bracing under the circle seating



Lateral Load Resistance

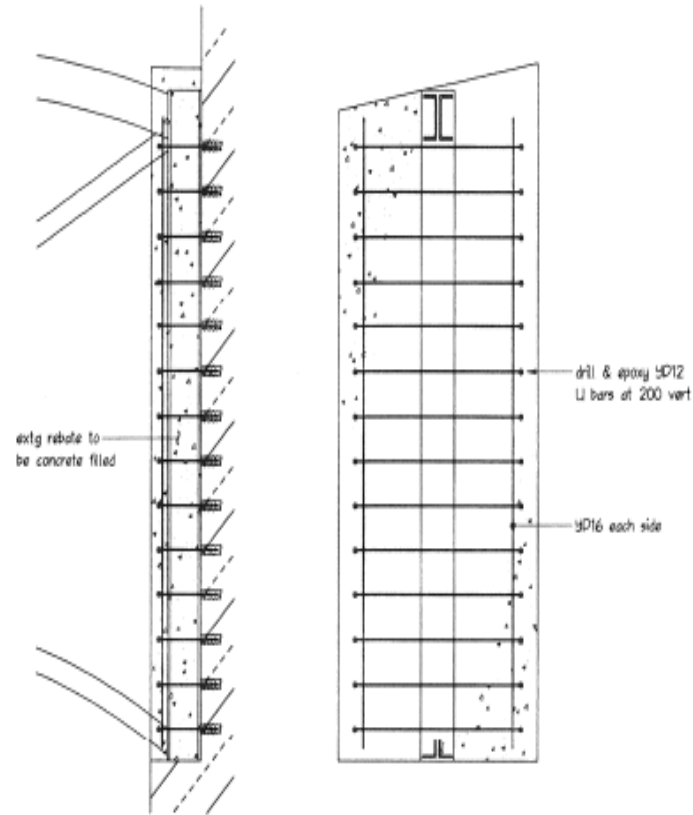
New steel rod bracing at roof level to brace the top of the masonry walls



ROOF LEVEL

Lateral Load Resistance

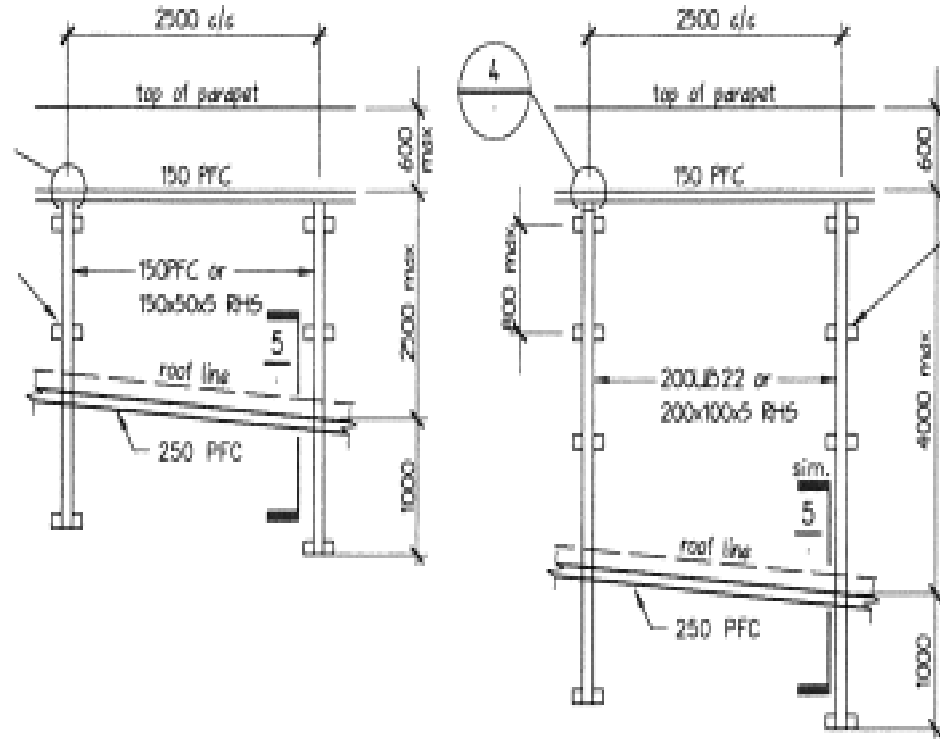
Truss end connection to brickwork strengthening



1 auditorium roof truss end connection reinforcing

Lateral Load Resistance

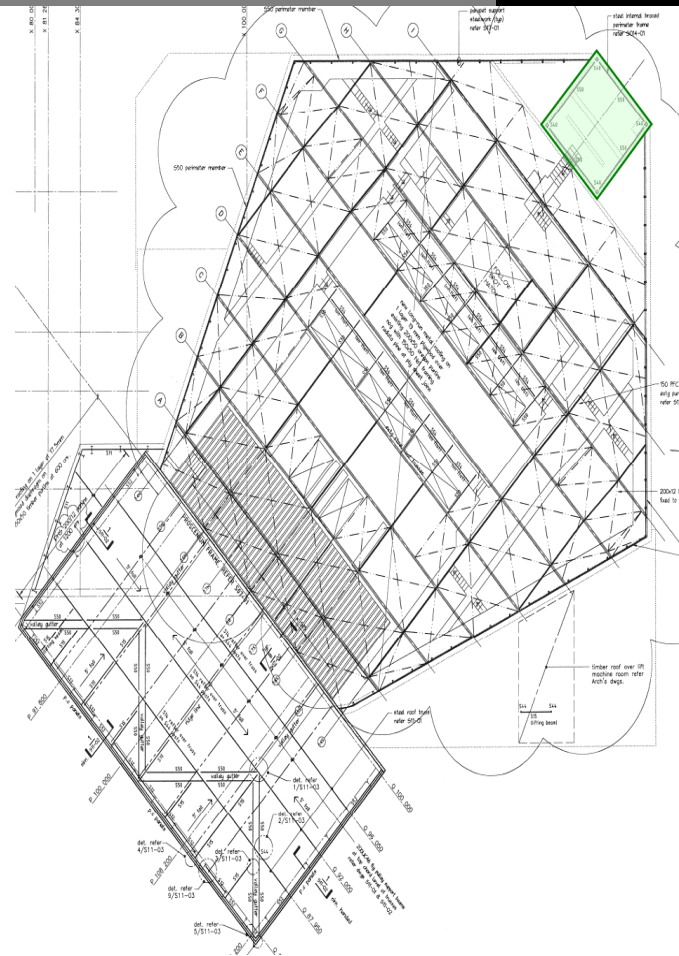
Parapet bracing details



1 parapet strengthening

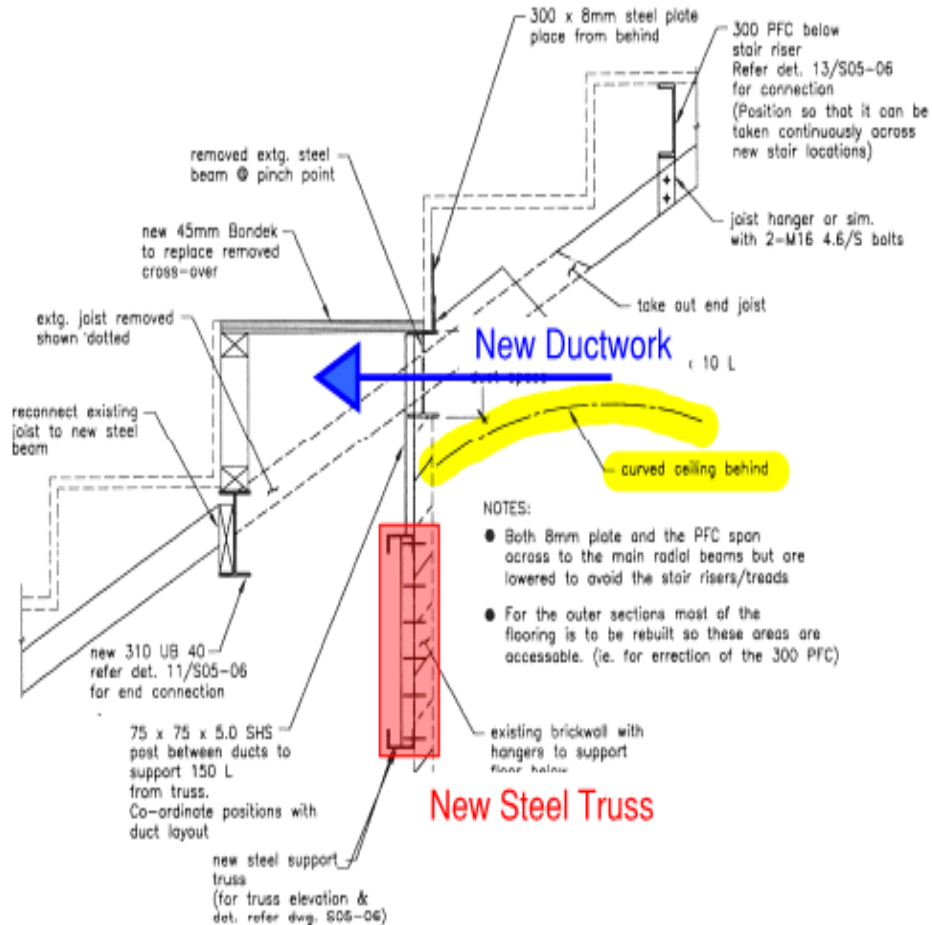
Lateral Load Resistance

New steel internal bracing
to the clock tower



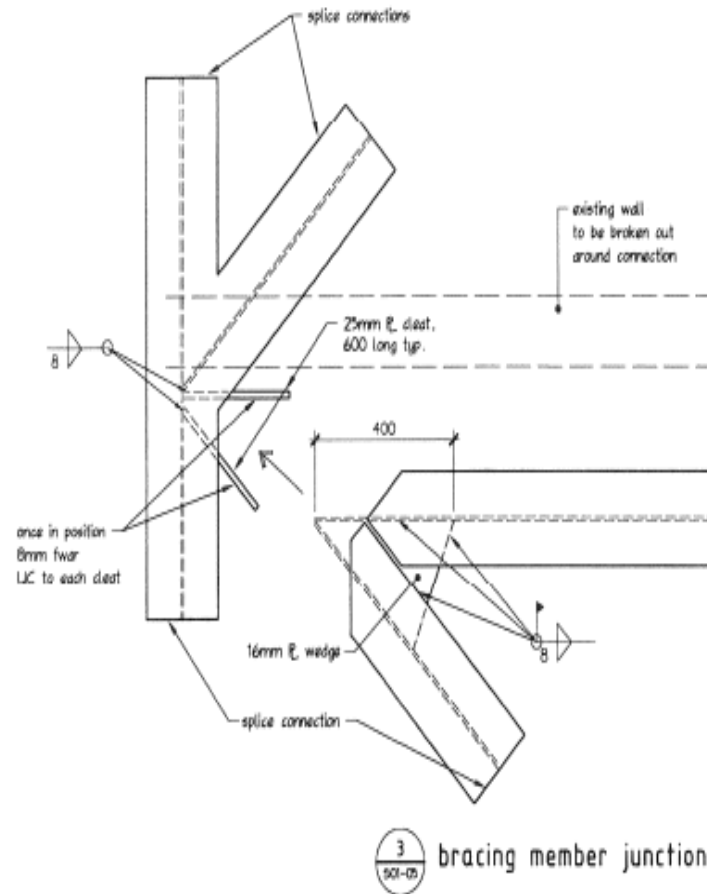
Structural Gymnastics

Removing an existing steel beam to create room for new ductwork to the auditorium



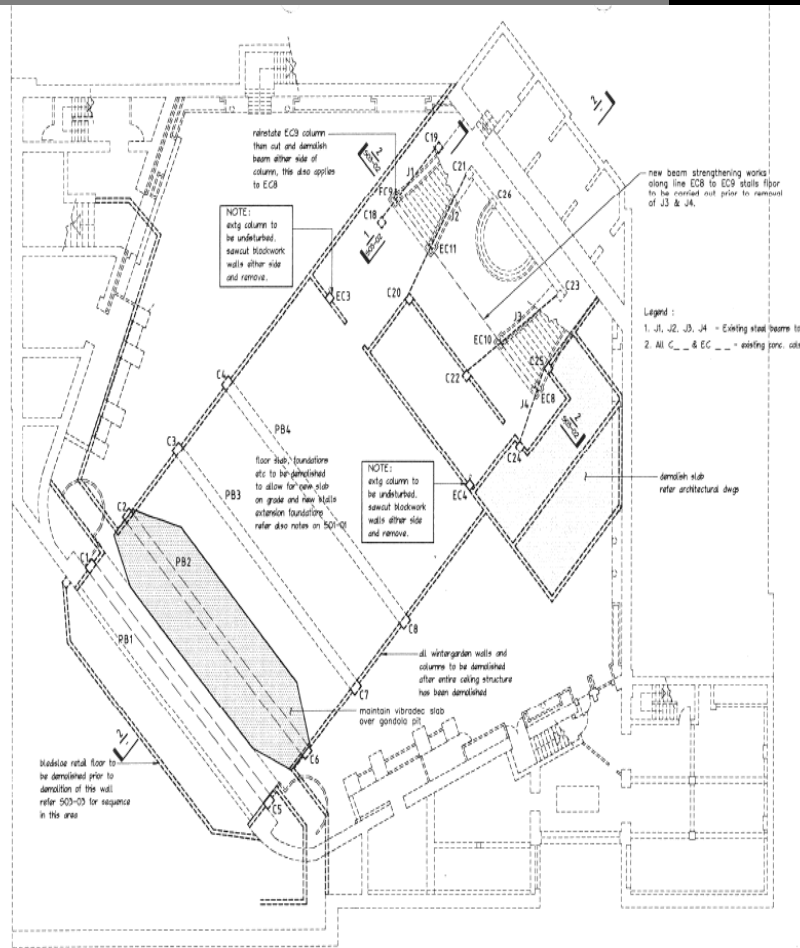
Structural Gymnastics

Specific connection detailing to enable construction around existing structure



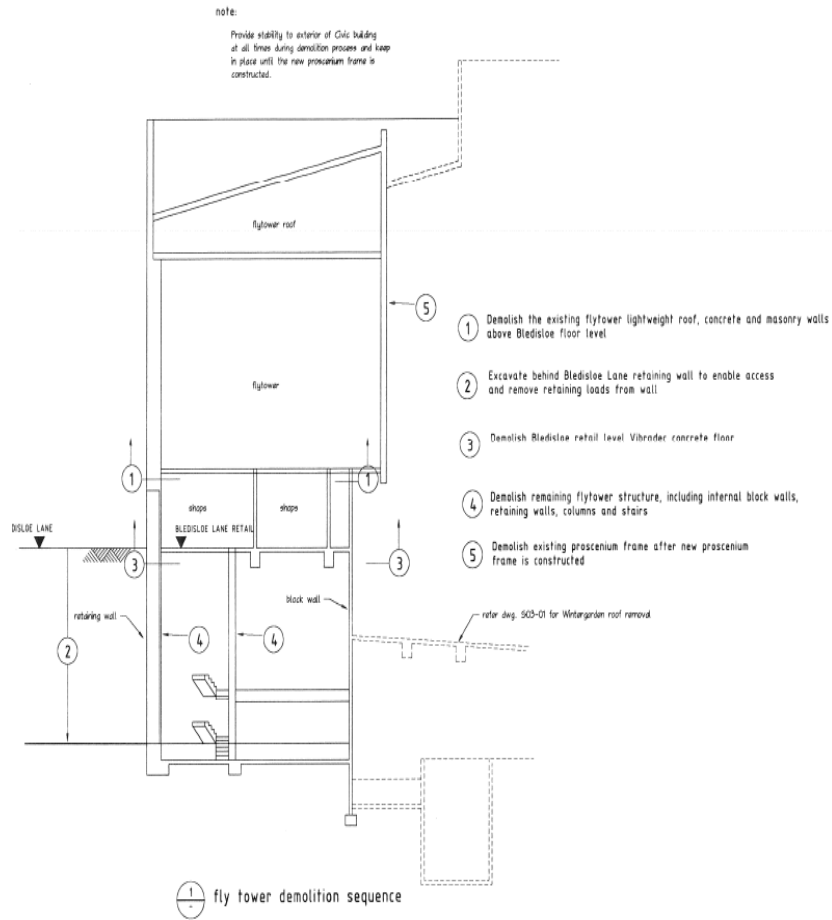
Deconstruction Sequencing

Deconstruction of the Wintergarden cinema floor



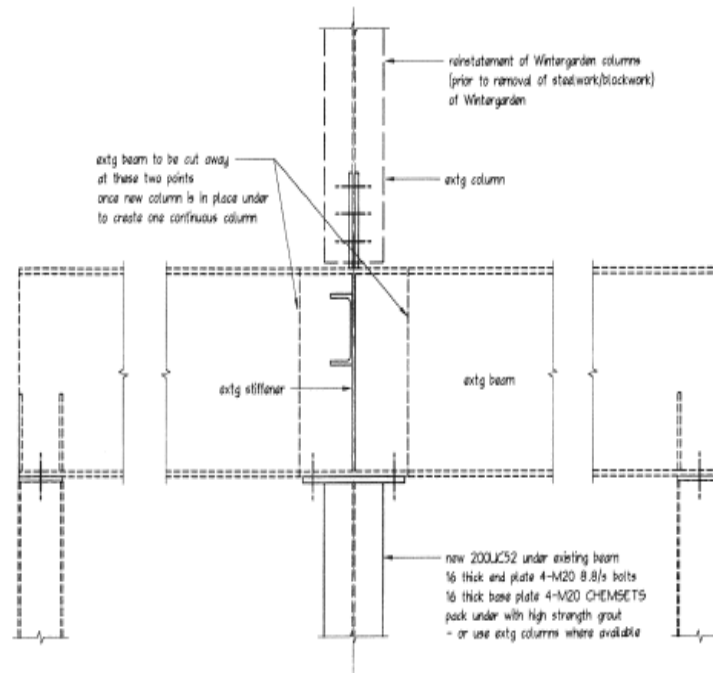
Deconstruction Sequencing

Existing flytower deconstruction sequence



Deconstruction Sequencing

Reinstatement of the existing Wintergarden columns



reinstatement of Wintergarden columns

scale 1:10

Alternatively provide temporary props to existing beam and retain until the stalls floor framing has been removed. Replace new column at a level to suit the regraded primary steelwork of the existing stalls. Provide new timber framing and flooring for stalls to suit new profile - Refer Architect.



An original photo during
demolition of the existing
stage and back of house area

