

1 d) Structure

Heritage Council Comment 1 d)

Limited information has been provided regarding the proposed strengthening of the structure to accommodate new performance spaces and mechanical services. The introduction of new structural members must be undertaken sensitively and with minimal impact to significant fabric and spaces. Further design details must be provided to the Heritage Council for assessment prior to approval of this project.

Response

While the piers were originally designed to take heavy loads, some structural strengthening is required to accommodate the new uses. This is proposed to be undertaken in a sensitive manner, to minimise impact on significant fabric and spaces. Where strengthening is required, new steel beams are typically paired about the original structure, with the new structure clearly identifiable. This approach has already been implemented within Pier 2/3 and Wharf 4/5 and is proposed to be continued for the new work. Structure associated with new mezzanines will be independent and reversible.

The SoHI discusses the approach to structure as follows: (p.179)

6.10.6 Structural

Pier 2/3, Wharf 4/5 and associated shore sheds were built in the early 1900s as an operational cargo wharf and storage shed. Over time the building usage has changed and they are now predominately used or proposed to be used as cultural venues for theatrical and dance groups, commercial, restaurants, and public cultural events.

The existing substructure consists of turpentine piles driven through the seabed down to bedrock. The existing superstructure is a framework of heavy ironbark columns, beams, and floor joists, all sheltered by existing oregon roof truss frames and purlins.

Both substructure and superstructure have been subjected to a number of structural maintenance and upgrading programs over their lifetime. Apart from general repairs to the old structure, other structure changes involved the removal of internal columns with new steel transfer framing, new steel framed stairs and lift shafts, new steel and timber framed mezzanines floors, roof plant platforms, and addition of an external apron slab all round.

The proposed upgrade and alterations involve removal of additional internal columns, replacement of some columns previously removed, additional stairs, lifts and mezzanine floors throughout, raised roof profile in parts, and some additional roof plant platforms.

The underlying structural design intent is to treat the existing structure and heritage fabric with a high priority and to minimise the structural impact whilst expressing the existing structure where possible.

Different structural approaches and systems have been considered, with the least invasive adopted. With the proposed upgrade and alterations it is inevitable that loading on the existing structure would increase. At locations where existing structural members become overloaded, where possible the existing structure is utilised by strengthening with steel plates and members in a manner acknowledging their heritage, rather than removing and replacing with new.

For the proposed performance and theatre type building use and increased number of occupants, a number of acoustic and fire safety related design aspects require upgrading. Similar to the structural alterations and strengthening, a number of approaches and systems were considered. Where achievable, the existing timber structure was reviewed and deemed adequate to provide the required

insulation and protection. For existing structural elements that require fire protection, intumescent paint is specified for its minimalist impact on the existing form.

The structural design of the Walsh Bay Arts and Cultural Precinct and STC50 alterations acknowledges the history and heritage aspects of the existing structure and environment in which it is located.

Structural solutions will be adopted based on the most minimalist impact on the existing structure and heritage fabric. Existing structure will be sensitively re-used where possible, and all new structure will be detailed to compliment and express the existing.



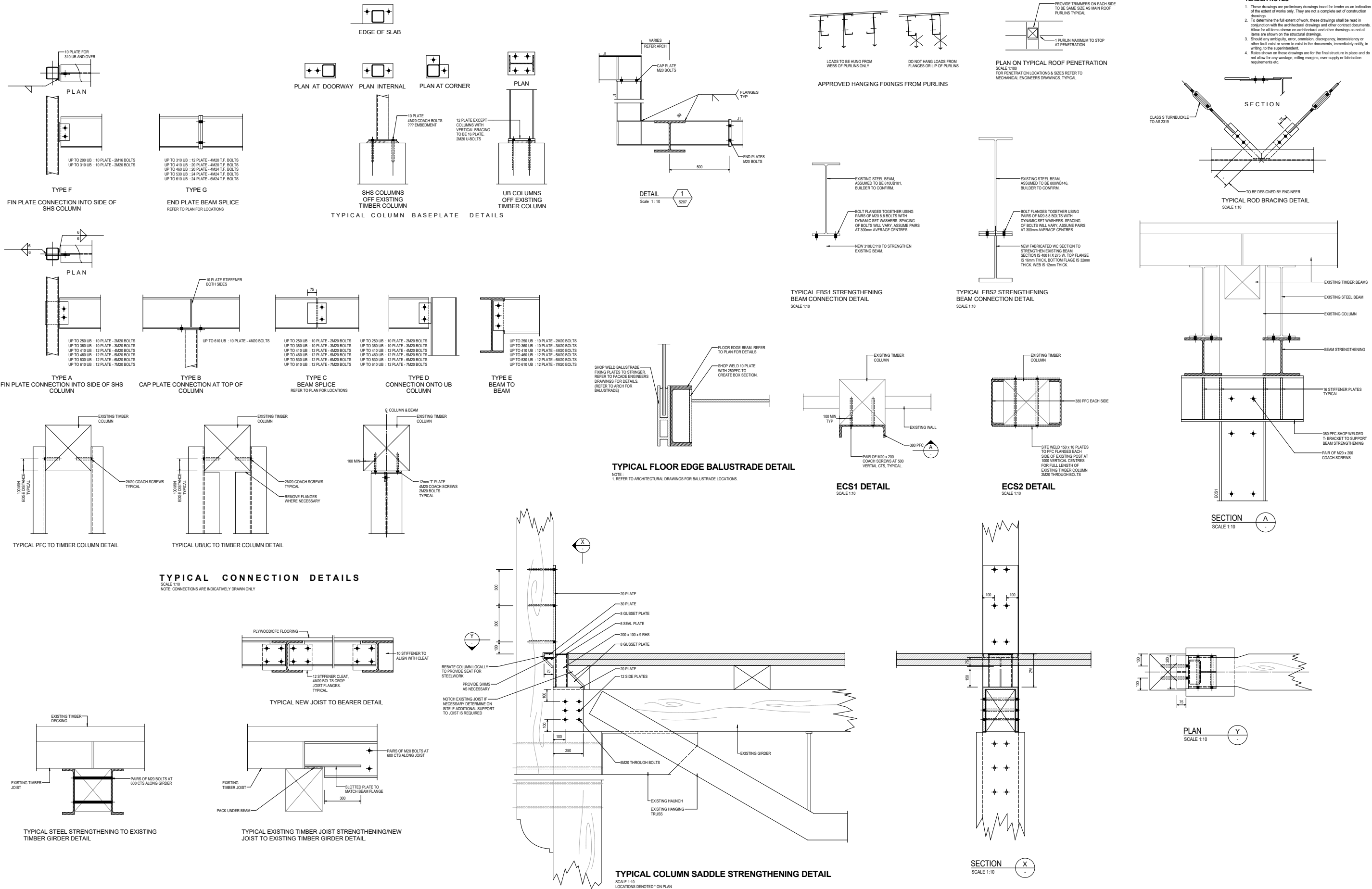
Figure 23: ACO Performance Space perspective.
Source: David Duloy 2017



Figure 22: ATYP Theatre perspective.
Source: David Duloy 2017

TENDER NOTES

- These drawings are preliminary drawings issued for tender as an indication of the extent of works only. They are not a complete set of construction drawings.
- To determine the full extent of work, these drawings shall be read in conjunction with the architectural drawings and other contract documents. Allow for all items shown on architectural and other drawings as not all items are shown on the structural drawings.
- Should any ambiguity, error, omission, discrepancy, inconsistency or other fault exist or seem to exist in the documents, immediately notify, in writing, to the superintendent.
- Notes shown on these drawings are for the final structure in place and do not allow for any wastage, rolling margins, over supply or fabrication requirements etc.



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