

# Somerville House, Brisbane

## VISUAL AND PERFORMING ARTS COMPLEX

### PERFORMANCE BASED FIRE ASSESSMENT SIMPLIFIED CONSTRUCTION AND PROVIDED SIGNIFICANT COST SAVINGS



#### THE NEW VISUAL AND PERFORMING ARTS COMPLEX AT SOMERVILLE HOUSE IN BRISBANE WAS AN EXCITING PRO- JECT TO CELEBRATE THE SCHOOL'S CENTENARY YEAR.

The new Centenary Building, designed by architects DEM (Qld) Pty Ltd and constructed by Barclay Mowlem Construction Ltd, is a hybrid structure. It contains different levels for performing arts and music rehearsal, as well as classroom facilities establishing a new Middle School.

Car parking and storage facilities are provided on the ground level. The hall subdivides into two 250 seat lecture theatres of tiered configuration, leaving a flat floor area for theatre in the round performances, examinations and school dances. An extensive stage area makes large-scale productions possible.

The variety of spaces and the proximity of the project to the heritage listed South Brisbane Town Hall was an initial challenge for the design team. The end result is a handsomely scaled building that tucks neatly into the steep contours of the school site and makes a high level connection to the existing pedestrian spine. From the upper north terrace of the building there are extensive views of the city and Brisbane River, while on the ground floor, a strong new identity and formal entrance has been created.



With the assistance of OneSteel's fire research conducted at the Victoria University of Technology, a performance based assessment was undertaken which demonstrated that the building satisfied the fire safety objectives of the Building Code of Australia (BCA).

The lower three levels of the building are a conventional concrete frame changing to a steel framed structure at the upper auditorium level. Graduated steel trusses span the auditorium to support the roof, architectural acoustic ceiling and operable walls which can divide the auditorium. Steel UB columns support the trusses.

The auditorium seating for 1,050 includes inclined seating at the rear, and portable seating that can be placed in the middle section of the room. The inclined seating is plywood based and the portable seating is stored below the inclined seating. Exits comply with BCA requirements.

The auditorium is constructed using structural steelwork. The outer cladding of the building is steel sheeting and at some locations the inside of the walls are lined with plasterboard. The roof consists of steel supporting members and roof sheeting.

If the building structure had been designed in accordance with the deemed-to-satisfy provisions of the BCA, the roof and columns would have required a fire-resistance of 120 minutes. A performance-based assessment was undertaken which demonstrated that the use of an unprotected roof and steel columns would still allow the fire safety objectives of the BCA and the associated performance requirements to be achieved.

According to design engineer Brian Wooldridge of McWilliam Consulting Engineers, "the opportunity to use an unprotected steel structure simplified the construction and provided a significant cost saving".

**CLIENT**  
Somerville House

**ARCHITECT**  
Devine Erby Mazlin  
(Qld) Pty Ltd

**DESIGN ENGINEER**  
McWilliam Consulting  
Engineers

**BUILDER**  
Barclay Mowlem  
Construction Ltd

**STEEL FABRICATION**  
MILFAB Pty Ltd

#### PERFORMANCE REQUIREMENTS MET

The overall objectives of the performance requirements, can be summarised as follows:

- The building shall be designed to allow safe evacuation of the occupants
- The building shall be designed so as not to put the fire brigade at risk in the exercise of their duty
- The building shall be designed to avoid the spread of fire to other buildings
- The building shall be designed to avoid damage to other buildings

Each of these requirements needs to be considered in order to demonstrate that an alternative solution satisfies the fire-safety objectives of the BCA.