AusAID Building – Civic, ACT

"A Design and Construct Approach"

AUSTRALIAN STEEL INSTITUTE

Steel in Buildings CASE STUDY

Structural steel delivered:

- **Earlier occupation - Speed of construction**
- **Larger column free space**
- **Reduced risk - Reduced on site workforce**

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AusAid Building London Circuit , Civic ACT
The client London 11, provided a brief to produce a building with very little formwork due to the shortage of large formwork contractors in Canberra. K-Built, considered steel construction as the logical answer and thru the effective design by Murtagh Bond Structures, met other challenges such as Commonwealth tenant criteria & car parking capacity.

Engineer Ken Murtagh from Murtagh Bond Structures commented "The project is an example of the 'Design & Construct' approach. When the engineer takes a leading role in producing shop drawings during the design phase of the project and liaises with the fabricator on preferred techniques and product availability at that time. This avoids the lead time gap which can sometimes make the steel option uncompetitive. (Murtagh).. produced all shop detail drawings using Strucad which retained control over the whole process"

The design incorporated primary steel UBs heavily penetrated supporting Ultrafloor system pretensioned precast slabs on steel box columns. This achieved a grid of 10.4 m in both directions and maintain low framework height with maximum service space.

Fire Engineer, Stephen Wise & Associates provided fire engineered solutions in conjunction with the design which avoided externally fixed protection completely. In the ACT, all projects are referred to the ACT Fire Brigade for comment in addition to the necessity to comply with the certifier's requirements. The aim was to achieve a FRL rating of 120 minutes without sprinklers & 60 minutes with. To this end, steel box columns were used generally with special composite columns at the building perimeter. Steel perimeter beams were designed to eliminate scaffolding completely and incorporated the facade fixing points which initially supported the external safety rails. The complex façade features were easily and accurately incorporated into the structure with steel support elements.

WeldCraft Engineering was nominated early as the preferred fabricator/erector and provided valuable input into the constructability of the 450 tonnes of steel within this building. The sloping box steel columns used to avoid transfers in the design also assisted in achieving the car parking capacity required. CNC output by the steel merchant's beamline machine provided an accurate and fast delivery of sections to the fabricator. Offsite fabrication provided the basis for a small 'onsite' labour force.

Steve Mosely from GMB Architects commented *"The project commenced as a speculative development but as soon as AusAID was identified as the tenant the design was crafted to their requirements. The planning was developed with their interior designers and the external envelope was upgraded to achieve a 5 star ABGR rating. This introduced state of the art mechanical engineering and required a more articulated facade with sun screens and high performance glazing playing their part in the overall design".*

Further, the selection of the structural system was driven by a series of factors in the Canberra market place and the programme. The construction manager was concerned to limit their exposure to trade shortages in formwork and reo fixing and the fairly tight programme period in order to meet the guaranteed occupation date. The structural engineers saw great merit in steel's flexibility to overcome larger than average spans and complex basement planning.

"The resultant building is a sophisticated and elegant addition to Canberra's commercial built environment and a fitting headquarters for AusAID"

The AusAID building is a benchmark in Canberra & is attracting lots of interest from other builders. It demonstrates why the trend towards using steel in the design & construction of multi-level buildings is experiencing resurgence in Australian capital cities.

Project Team:
Client / Developer
London 11 Pty Ltd
Architect
Guida Moseley Brown Architects (GMB)
Engineer / Steel Detailing
Murtagh Bond Structures
Fabricator
Weldcraft Engineering
Builder
K-Built Pty Ltd
Fire Engineer
Stephen Wise & Associates
Fire Certifier
BCA Solutions Pty Ltd

Consultation, Communication & Co-Operation

'The AusAID building commenced construction in April 06, 4 weeks behind schedule. However, by the end of September 06, the builder K-Built Pty Ltd had pulled the project to 8 weeks ahead of schedule! How was this achieved?'