CHARLES STURT UNIVERSITY SCHOOL ACADEMIC ACCOMMODATION STAGE 3, (AA3) THURGOONA NSW

Overview
The main objective of AA3 is to provide additional office accommodation for the School of Business and Information Technology academic staff. The building configuration has been designed to link with the existing office accommodation on site as well as present a strong corporate image that encourages further linkage with the local business community.

Structure
Structurally, the building incorporated precast concrete panels to provide thermal mass in conjunction with the special Ecological Sustainable Development (ESD) linings. The extensive use of Isoboard (2 layers typically) in conjunction with a 95mm air gap, sarking, cladding and double glazed windows provide for an excellently insulated envelope and contemporary architectural aesthetic.

The high level internal atrium complimented by minimalist and unique interior design touches provide for a building that maximises ESD principals and contemporary design. 20% recycled concrete aggregate and 20% flash supplied by Hanson Concrete were used in concrete slabs and precast panels to embellish thermal performance.

The 50mm concrete topping to ground and first slabs was also embedded with Micronal, Styrofoam and Luminten; this is to act as an oversize radiator similar to the Phase Change Materials (PCM) SmartBoard. Products were also through BASF Global and are a world first. Samples of local cement, sand and aggregate were sent to BASF Global in Germany so the correct formula could be derived.

Services
The building is serviced by two dedicated plant rooms, the first of which includes switchboards, a centralised boiler and the Hydronic pumps and manifolds. A second plant room houses a cooling tower. Hydronic pipes have been placed in the ground floor, first floor and first floor ceiling slabs and have the role to re-charge the phase change materials.

A network of temperature sensors have been strategically positioned throughout the building, some are connected to the BMS and control the Hydronic pumps and others are for monitoring the actual performance of the various materials. With no ceiling voids, the project's services including all electrical, data, hydraulic, mechanical, Hydronic piping and BMS control system are cast into and concealed in the concrete slabs. As there is no direct connection between the Northern and Southern Wings first floor concrete ceiling, this required all services to be brought down an internal partition into the ground floor ceiling and across to the plant room between the steel stairs and atrium void. This required precise set-out accuracy and coordination and cooperation between management and all trades.

Ecological Sustainable Development (ESD)
The AA3 building was conceived by the client as a world's best practice ESD building that would target a 6 Star Australian Building Greenhouse Rating (ABGR) rating. The project included the first ever use in Australia of PCM SmartBoard 23oC as a ceiling and the world's first use of Micronal in the floor screeding and became known as the "Esky" due to the heavily insulated box like first floor appearance. The Green Star rating requirements demanded sustainable re-use of materials, eg recycled concrete, minimised use of the traditional Unplasticized Polyvinyl Chloride (UPVC) in piping, sustainable timber utilised and a comprehensive waste management system.

Client
Charles Sturt University
Stephen Butt
Facilities Director
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Value
$2.7m

Construction Period
January 2007 to
December 208

Location
Thurgoona, NSW

Awards
1. 2009 MBA NSW Excellence in Regional Building Awards Winner of Best Sustainable Project
2. 2009 MBA NSW Excellence in Regional Building Awards Winner for Best Commercial Project over $10m
3. 2009 MBA NSW Excellence in Construction Winner of Best Commercial building up to $10m