



Panel discussion

An attractive mix of plain and exposed aggregate concrete panels have been used to finish a new Auckland hotel complex.

The new 247 room Novotel/Ibis Hotel complex at Ellerslie in Auckland, a design/build project for Accor Asia Pacific, features a mix of exposed aggregate and plain painted concrete panels as exterior cladding for the two buildings. The panel finishes were chosen by architects Group CDA to complement the bluestone veneer columns and walls, and to contrast the hard shiny glass and steel of the exterior.

In conjunction with main contractor Mainzeal Construction, the architects chose precast panels ahead of other exterior cladding systems. In addition to meeting the aesthetic requirements of the project, the panels offered cost effectiveness, simplicity, practicality (thanks to off site manufacture, just-in-time delivery and pre-finished quality), durability, quality, and acoustic performance.

The team, including engineers Buller George and panel fabricators Busck, worked together to counter any challenges, such as the weight of the structure, limitation on panel sizes and weight due to transportability and lifting, the difficulty of changing incorrect panels, and waterproofing.

To assist in coordination and address issues of delivery sequence, on site finish, and panel erection, Mainzeal project manager Colin Smith appointed two key staff. One a precast coordinator to follow through design, shop drawing approval and coordination with consultants and subcontractor; the other a site supervisor, who controlled delivery, storage, cleaning, painting, and erection.

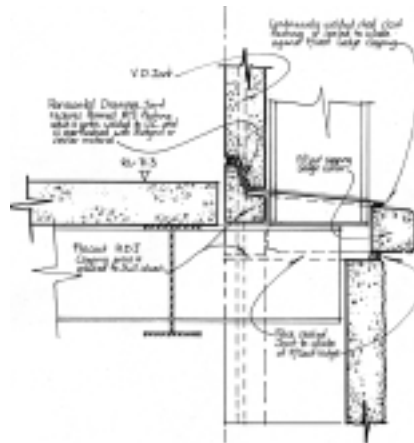
The sheer size of some panels required correctly scaled aggregate and carefully planned relief joints and detailing to add interest to the façade. Further to this, Group CDA focused on panel detailing at edges and transition areas (from exposed aggregate to fair faced finish). These details are an important element in the weathering of openings, sealing joinery against painted or clear sealed, fair-faced surfaces, which is preferable to finishing against heavily textured surfaces.

The Novotel façade has fully drained horizontal and vertical joints, using a combination of membrane seals (at horizontal joints) and stainless steel baffles (in vertical joints); and the Ibis façade panels are face sealed, a system which better suited the panel configuration and construction sequence for this building.

The panel finishes include:

- Plain concrete F5 paint finish;
- Plain concrete F5 clear finish;
- 7-14 mm exposed aggregate complete with waterproofing admixture and black oxide;
- 14-19 mm exposed aggregate complete with waterproofing admixture and black oxide;
- 19-40 mm exposed aggregate complete with waterproofing admixture and black oxide.

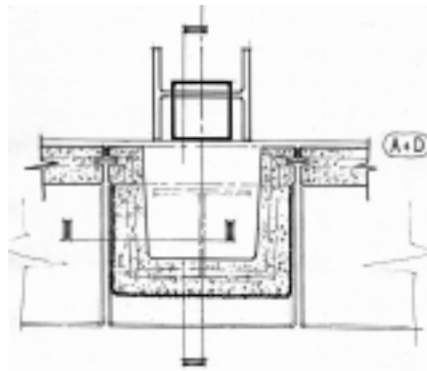
The supplier of the 552 precast panels used in the project, Busck Prestressed Concrete, based their tender on local Whangarei greywacke aggregate. The elimination of transport costs ensured a competitive price.



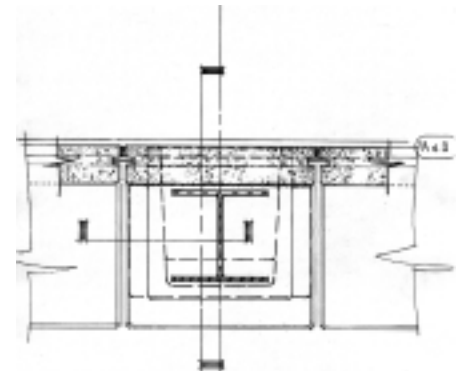
Novatel typical shell column Section at Level Five



Typical Section at Level One



Typical Section Levels One to Four



Typical Section at Level Five

As the accuracy and detailing of shop drawings is essential to the successful outcome of a contract, Busck became a proactive member of the shop drawing team, suggesting practical solutions that did not add cost or unnecessary complexity which could be incorporated before drawings were finalised. In addition, thanks to its specialist knowledge of this area, Busck was able to suggest potential savings for the architect, builder and engineer's consideration; small compromises with the potential for large cost and time savings.

A variety of sample finishes were cast to establish the quality and evenness of the finished product, and some mix modifications were carried out - an aggregate size of 19-40mm was used and the oxide percentage was varied to provide the desired surface finish.

Variations in temperature and humidity were closely monitored during manufacture because these factors were found to influence the consistency of the retarded exposed aggregate surface finish. The retarder is chosen based on the

particular decorative finish application, with an eye to achieving best consistency, cutting depth and therefore uniformity.

Quality control was stringently monitored through manufacturing, with any remedial work carried out immediately at the factory. Special packing was designed to eliminate damage during transport, and support frames were supplied to the construction site to assist protection during site storage.

"Precast concrete architectural cladding panels are a very effective material, so long as strict quality control is adhered to during manufacture, transporting and site handling, waterproofing details and finishing," said Mainzeal's Smith.

The coordinated approach of this team - in design, manufacture and construction - ensured that these issues were successfully addressed. **C**

Architect: Corporate Design Associates

Engineer: Buller George

Contractor: Mainzeal

Precaster: Busck Prestressed Concrete Ltd

Ready Mix Supplier: Ready Mixed Concrete