

# ComFlor Case Study

## ComFlor 80: Chews Lane



ComFlor allows quick simple construction on the Chews Lane project.

### Why ComFlor?

#### Performance:

Large spans meant that the apartment's large uninterrupted interior grid was easily created, with fewer beams than would otherwise have been needed, saving weight.

#### Simplicity:

ComFlor was able to be installed quickly. Loads were able to be slung directly from the delivery truck to the floor under construction, reducing central city traffic disruption and overcoming a lack of ground level storage.

#### Cost efficiency:

The speed with which the project was finished meant that tenants could start moving in earlier, giving earlier access to rental revenue.

#### Sustainability:

Corus use 12% recycled material in the manufacture of ComFlor.

### Project Summary

Project name: **Chews Lane**

Location: **CBD, Wellington, NZ**

Structural engineers: **Dunning Thornton Consultants**

Designed by: **Athfield Architects**

Main Contractor: **LT McGuinness**

Project type: **Apartments**

Mid-floor: **ComFlor 80**

Tonnes of ComFlor used: **13,000sqm**

### ComFlor simplifies construction at Wellington's 'Chews Lane'

One of Wellington's original entrepreneurs, John Chew, established a successful timber yard in Chews Lane in the 1880's. By the turn of this century the lane, which runs between Willis Street and Victoria Street, had become neglected. A development team, consisting of Willis Bond & Co. Ltd, a Wellington-based investment bank, L.T. McGuinness Ltd, a third generation family firm of building contractors, and Athfield Architects Ltd, saw an opportunity for the regeneration of this historical part of the capital and embarked on a project to rejuvenate what they now call Chews Lane Precinct.

It will contain 90 apartments, a 200-bay car park for the residents, offices for 600 employees, food and beverage outlets and, on its adjacent streets, numerous leading retailers. As Katherine Dean of Athfield Architects says: "To liven up Chews Lane Precinct at street level, we're deliberately introducing mixed use to create a new urban hub."

"Loads are slung directly from the Corus delivery truck and craned to level eight for allocation to the floor under construction. Not only is this a rapid process, but it also makes for a very safe method of construction."

With an overall site footprint of almost 4500m<sup>2</sup>, the development includes four strengthened/refurbished buildings and a large new "building" consisting of three separate structures. The main new development was begun with the construction of two, eight storey concrete podia on opposite sides of Chews Lane. The north podium houses Land Transport New Zealand in premium office space with ground level retail. The south podium predominantly houses car parking with office 'pods' utilising the premium street front spaces. On top of the two podia and spanning across Chews Lane is a 12 storey steel framed tower.



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Composite floor decking

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The structural engineers for the project are Dunning Thornton Consultants. Director Adam Thornton comments: "A significant challenge was to find a common structural grid that suited the multi-use nature of the main building. Apartments, offices, car parks and retail spaces typically have very different planning requirements and as a result have differing optimal structural grids and framing layouts. In this case the different 'uses' are stacked vertically. The result is a happy amalgam of structural materials and framing systems that utilises long span concrete for the podia and lighter, steel structure for the tower apartments. Within the tower, longitudinal, moment resisting ductile structural steel frames provide resistance to wind and seismic loads while maintaining maximum openings for the spectacular views. In the transverse direction, inter-tenancy, eccentrically braced K-frames provide the strength and stiffness required. There is a novel load transfer system that provides for shorter floor spans in the tower and regular bay widths for the steel moment resisting frames while still providing larger open spans necessary for car parking and offices in the podia below. Comflor 80 was specified for the composite steel/concrete tower floor decking. All the tower framing and floors were designed to be constructed un-propped and, apart from the column base connections, all joints are bolted. There is a progressive lightening of the steel frame in the upper levels."

L.T. McGuinness took advantage of the speed with which Composite Floor Decks Ltd was able to install the Comflor 80 system. Loads are slung directly from the Corus delivery truck and craned to level eight for allocation to the floor under construction. "Not only is this a rapid process," says the L.T. McGuinness's Health & Safety Officer, Leo Comesky, "but it also makes for a very safe method of construction. Because of the Wellington wind, we fence the perimeter of each new level on our way up to the top floor."

For the steel tower, craning is the critical programme activity, with very restricted site access and no ground level site storage. The

tower crane is supported within the car park structure and is tied into the apartment tower structure at Level 14. The podia are now complete and occupied and Chews Lane has been reopened while construction continues aloft. The tower structure is scheduled to be finished by August 2008; fitout of the apartments will take a further 12 months.

Brian McGuinness, director of L.T. McGuinness, says the steel structure was started just before Christmas in 2007. "Using steel makes for a faster construction programme and it's nice to be finishing with a spring in our step. The entire project involved two thirds of a city block, starting with the demolition of some buildings, the strengthening and refurbishing of others, and the construction of the concrete office buildings and steel structured apartments, together with their car parks, in all about 100-million dollars' worth of construction work.

"Even though each floor of the apartments building has a large 1,000m<sup>2</sup> floor plate, the Comflor 80 steel decking from Corus was up to it and we are reaching our targets."

"Access was extremely tight, and we had to contend with noise and dust issues while protecting the health and safety of the public as well as our workforce. Then there was the Wellington traffic..."

Working in structural steel has been the best in terms of progress on our time-table – only seven months for the steel programme. And even though each floor of the apartments building has a large 1,000m<sup>2</sup> floor plate, the Comflor 80 steel decking from Corus was up to it and we are reaching our targets." (Main article text sourced from SCNZ magazine, July 2008).

**To learn more about ComFlor, the Chews Lane project, or other projects that have used ComFlor to their advantage call +64 (0) 271 7180 to arrange an in-practice presentation from one of our representatives.**

