



# Rhodes Waterside Shopping Centre

135,000 SQUARE METRES OF SHOPPING AREA  
ENCLOSED BY A STEEL-FRAMED STRUCTURE.



This is a 135,000 m<sup>2</sup> project incorporating below ground carparking over the entire site with a retail complex including two levels of specialist shopping malls, mini-major retail tenancies (Coles® & Bi-Lo®), bulky goods retail (IKEA®), food courts, cinemas and 4 levels of commercial tenancy above the cinemas. A full height carpark structure adjacent to the retail tenancies provides carparking over 9 levels including the basement. Carparking is also available over the top of IKEA®, as part of the 2,000 overall car spaces provided in the shopping centre.

The fire-safety engineering design for this complex considered each of the individual areas within the complex and incorporated specific measures to minimise the likelihood of a severe fire. Sprinkler zoning was selected such that separate zones were provided for the mini-major stores and bulky-good areas and other key areas in order to maximise the reliability of the sprinkler systems.

- OWNER/DEVELOPER**  
Walker Corporation
- ARCHITECT**  
The Buchan Group
- STRUCTURAL ENGINEER**  
Van der Meer Consulting
- BUILDER/PROJECT MANAGER**  
Walker Group Constructions
- FIRE ENGINEERING**  
Lincolne Scott
- BUILDING CERTIFIER**  
McKenzie Group

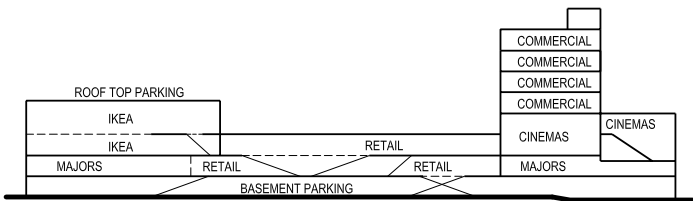
BUILT AT A REPORTED COST OF \$150 MILLION DOLLARS IS A SHOPPING CENTRE THAT INTERACTS WITH THE RESIDENTIAL BUILDINGS AROUND IT, PROVIDING NOT JUST SHOPPING BUT MEDICAL SERVICES, BUSINESS OFFICES RESTAURANTS, AN EIGHT-SCREEN CINEMA COMPLEX AND A BULKY GOODS RETAIL STORE AND WAREHOUSE.

This was necessary since speciality stores are far more subject to change and modification than major stores and therefore it is more likely that sprinklers would be isolated in the speciality shops to allow tenancy upgrade works. In addition, particular sprinkler management protocols were required for the shopping centre in order to minimise extended sprinkler isolation. Also, end of line taps are provided for each sprinkler zone to allow the checking of water flow both during commissioning and annually.

The fire-resistance levels within the building have been generally specified as 60 minutes. However, in the case of 300PLUS® structural

steel members, it was successfully argued that these members had sufficient inherent fire resistance associated with their surface area-to-mass ratios to allow evacuation of the particular areas. In addition, it was recognised that as this building is a highly redundant building, the effects of an unsprinklered fire will be localised. Accordingly, there is little protection of structural steel members within this building other than that associated with ceilings and architectural cladding, where such is provided.

The following diagram gives a schematic section through the commercial part of the building:



RHODES WATERSIDE – FIRE RESISTANCE REQUIREMENTS SUMMARY		
BUILDING ELEMENT	ELEMENT REQUIREMENT	
	DTS	Alternative Solution
fire-resistant walls	180/180/180	60/60/60
floor slabs	180/180/180	60/60/60
beams	180/-/-	$k_{sm} \leq 30m^2/tonne$ if steel or 60 /-/-
columns	180/-/-	$k_{sm} \leq 26m^2/tonne$ if steel or 60 /-/-
sprinklers	YES	YES