

KNAUF INSULATION

AUSTRALIAN PLANT

STEEL RIVER

**NEWCASTLE
NEW SOUTH WALES**

ARCHITECTS

DESIGN STATEMENT

PROVIDED BY:

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Context

The Steel River precinct has a long history of industrial lands usage. The Knauf Insulation building continues this industrial tradition. The landform is a flat site with a cross fall of 1% of approx 4.5m from south to north. The site is bounded by a railway line to the west that goes to Kooragang Island via bridge across the river. To the north of the site is the Hunter River (South Arm) with a 20m wide access corridor along the riverbank. There are other industrial unit sites and the balance of the Steel River Precinct to the east and to the south there is a 15m high escarpment with industrial lands located at the top, along a portion of Pacific Highway. The proposed buildings are located on the southern portion of the site adjacent to the escarpment along an east/west axis. Due to the length of the building, it is not able to be located in a north/south axis between the river and the escarpment. Keeping the building essentially parallel to the south boundary gives it a reference with a backdrop of the escarpment to the southern side. The railway line provides a physical break to the property to the west and the adjoining lands beyond are crossed by a series of overhead power lines and towers. The Steel River Precinct to the east will provide industrial units of a similar nature to the eastern end portion of the Knauf Insulation building.

Scale

The site for Knauf Insulation is a large flat site with a minimal cross fall from south to north, escarpment to river. A linear building along the east/west axis has some portions commencing at the west end as high bay areas with associated stacks and then stepping down to the low bay areas at the eastern end. The scale of the building matches the production process that generates it. At the western end the high bay is 33.5m above the ground and then steps down along the process line and packaging areas to a height of 10m above the ground. The eastern end will be similar to the heights of other industrial buildings within the Steel River Precinct whereas the high bay will be similar to the height of the overhead powerline towers along the escarpment. The high bay has a length 30m at 33.5m high and 60m at 21.5m high. The balance of the low bay process line of 260m is 10m high. Various ancillary buildings along the production generally relate to the main building with which they are associated and vary in height. Stacks for emissions are 60m and 40m high.

Built Form

The internal process determines the building form for its bulk and layout. As the process is a linear one, so is the building. It reduces in height and changes in width to envelope the process. Metal colourbond wall and roof cladding, all coloured to the European colour standard RAL 1015, a light cream colour; windows, doors and louvres, all reflect the industrial nature of the building with additional stacks, pipe bridges, ancillary tanks and plant buildings located around the high bay area. The doors are located only where access or egress is required to the process line, windows only where natural daylight is required and louvres where ventilation is required to supplement the ridge ventilators on the roof. Roof lights are to be located for additional daylight to the process line.

In all cases the building is set well back from the boundaries, building alignments and easements. When viewed from various vantage points around the site, the three dimensional modulation of the building will be quite evident. From Pacific Highway at the southeast corner, at a point approximately 10m above the floor level of the building, the high bay portion will be most clearly seen, but is still some 200m away. This is the most modulated part of the building as the internal process requires differing volumes and treatment.

Viewed from Pambalong Drive within the Steel River Precinct, the eastern portion of the building that is 10m high and is 120m from the road and the high bay portion that is 33.5m high is 380m from the road. Associated

with the high bay building are 40m high stacks and a 60m high stack. In both these cases there is a significant distance from the viewing point to the building so that although the building will dominate the view it will not fill the entire horizon and other features such as the escarpment, overhead powerlines, the river, distant views to Kooragang Island, will all come in to play in the viewers field of vision.

Density

The proposed site is approx 23 hectares. The buildings total approx 23,000 sq m and the roads, parking areas and hardstand storage areas total approx 50,000 sq m. This makes the total built area as approx 7.3 hectares. This shows that the site cover has not been over developed in relation to the total site.

Resources, Energy and Water Efficiency

This proposal makes use of an existing industrial site that is in the process of being cleaned up from previous industrial usage. The basic infrastructure is being expanded and renewed. This development will continue the industrial heritage of the area. The greater portion of the building will be constructed of steel, a material that can be recycled at a future time when the building has reached the end of its lifecycle.

Energy and water are a major part of the manufacturing process to be carried out on this site. To maintain the building and the site, outside of the manufacturing process, very little energy and water are required as the landscape will be low maintenance, there is no flood lighting of the building, only road lighting and some lighting to the storage area is required. As the plant operates 24 hours per day energy and water will be required to run the plant. During the day the lighting will be augmented by rooflights to provide additional natural light to the interior. Rainwater harvesting will be carried out for use in toilet areas and some areas of landscaping. It is not possible to harvest rainwater for the manufacturing process. Generally it is proposed that the native grasses will be subject to the seasonal climate cycles.

Landscape

A concept landscape plan provides for screening landscape along the street boundaries of Pambalong Road and Pacific Highway to the requirements of the Steel River Strategic Assessment Study. This is to provide the interface of the site and public space a discrete division between private and public lands. It will provide a corridor ecosystem for flora and fauna to develop within these zones that are compatible to the area. Side boundaries are to be landscaped to the east, south and along the railway line. Generally the balance of the site and the infill spaces between the roads and ancillary buildings is to be planted with low maintenance native grasses in order to keep the soils in place, keep down weeds and allow overland flow of stormwater on the site to be drained away to the filtering ponds adjacent to the site.

Safety and Security

Safety is provided by not allowing cars to enter the main portion of the site. Staff and visitors are required to park in a restricted parking area and then enter the site on foot via the gatehouse. Discrete pathways are provided for pedestrian traffic throughout the site. Truck movements are also controlled by the gatehouse. There is a truck parking area outside the main circulation of the site so that trucks may queue without affecting the local street. Trucks are given site time slots for arrival and access. Access to and from the site is controlled by the gatehouse. The site is secured by a 2 m high perimeter fence around the boundaries and a fence between the parking areas and to main factory.

Social Dimensions

This development will provide a substantial number of jobs during the design and construction phase both on site for the building contractor and off site for manufacturers and subcontractors for the various components that make up this building. There will also be an ongoing role for at least 120 staff to run such a plant on a daily basis, working a series of shifts over a 24 hour period, 7 days a week. Additional contractors would be required for maintenance and repairs on an ongoing basis. Transport infrastructure and drivers would also be required for supplying raw material and distribution of the finished product to areas throughout Australia.

Amenity

This building is designed around a manufacturing process. It accommodates and provides for the amenity of those that people that run and maintain the plant on a daily basis. Everything is designed and engineered around this process to ensure that the plant performs to the optimum requirements without inducing stress into those that are commissioned to run it. The well being of the staff and the local area is taken into account in the continuing study of the workplace, the monitoring of emissions and wastes, the monitoring of noise from the process and the controlled truck movements to and from the site.

Aesthetics

The building itself consists of concrete floor slabs with structural steel framed walls and roofs and clad with colourbond steel wall and roof cladding equal to BlueScope Lysaught Klip-lok 700 Hi-strength wall and roof cladding. All Knauf Insulation buildings elements are coloured RAL 1015 both internally and externally. Architecturally the building envelope is determined by the processes that are being carried out inside the building. High Bay areas enclose raw materials, furnace, formers and tanks. Low bay areas enclose process lines and packaging lines.

Wall penetrations are required to portions of the process with large overhead doors giving access for forklifts, doorways for fire egress, louvres for air ventilation and windows for light. Large pipes and ducts bridges connect some external plant and equipment with the manufacturing process inside. Roof penetrations are required for ventilation and exhaust. Rooflights allow light into the process areas. Stacks are required for exhaust emissions.

The buildings in the Steel River precinct are set within an industrial environment. From Steel River the building will be viewed mostly in the short end view with steps rising to the high bay area and set adjacent to the escarpment. From the river and Kooragang Island the building will be set against the escarpment. From the west the high bay portion of the building will be seen across railway line and high tension power lines and towers which also run along the escarpment.

This is an industrial building that is to be finished in colourbond steel for both roof and walls. The resolution of the built form enabled by the different processes that occur within the building. This is the architectural form that the building takes.