

### 3.4 Edgar Centre Indoor Courts



The Edgar Centre is a 1970's wool store converted to a sport centre in 1996. This case study highlights the significant environmental benefits resulting from the adaptive re-use of existing buildings.

In order to demonstrate the potential scale of carbon emissions avoided through the re-use and re-purposing of an existing building, the impact of the Edgar Centre conversion was estimated and compared against an equivalent new building of the same size and function.

#### Client/Location:

Dunedin City Council  
Dunedin

#### Construction Value:

N/A

#### Features:

- 7 basketball courts, or
- 10 volleyball courts, or
- 21 netball courts, or
- 14 tennis courts
- 16 football/futsal courts, or
- Serves as a multifunctional sport and events facility, accommodating community events, weddings, conferences as well as indoor sport.
- 14 'Tiger Turf' synthetic grass courts allow the space to be reconfigured.
- Each has markings for tennis and indoor football/futsal.
- Well-connected to public transport and active transport options.

#### Key Metrics:

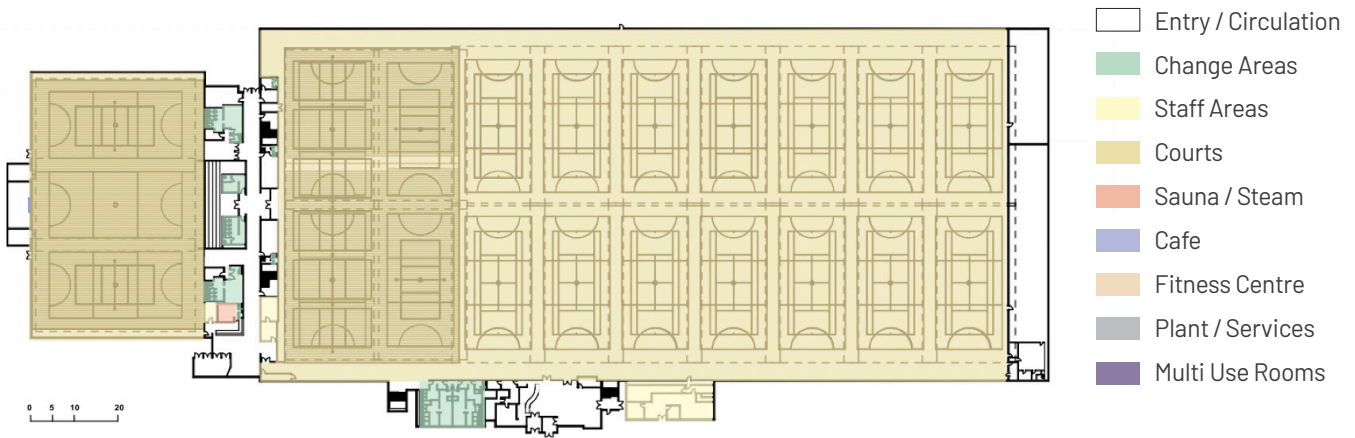
Climate Zone: 5

Floor Area: 19,350 m<sup>2</sup> / 14,400 m<sup>2</sup> usable court space

Occupants: Up to 1,600

#### Modelling and Assumptions:

- The new materials required to undertake the conversion and refurbishment were taken from historic project drawings, and assumed to largely comprise of minor structural strengthening, re-clad (roof and walls), and the addition of some sprung timber flooring for the courts.
- The building is assumed to be an unconditioned space, with the majority of energy consumption being from lighting. This is assumed to be the same between the new build and refurbished options so has not been incorporated into the Whole of Life comparisons.



### Key Information

The table below compares the carbon impacts from building reuse when compared with an equivalent new build over a 50-year lifespan. Re-purposing buildings generally results in significant carbon emissions reductions associated with new materials and transportation.

	Adaptive re-use	Equivalent new-build	Avoided emissions
	tCO <sub>2</sub> e		
Demolition emissions	~6	~30	~24
New materials and construction	~1,000	~3,600	~2,600
Replacement and refurbishment over life	~1,000	~1,000	0
End of life	~30	~30	0
Total Embodied	~2,100	~4,700	~2,600 (55% reduction)

The saving in carbon emissions are significant. An adaptive re-use strategy is estimated in this case to save 2,600 tonnes of CO<sub>2</sub>e when compared with an equivalent new build facility of the same size.

When considering the re-use of an existing facility, careful attention should be paid to the condition of the existing building. For modelling purposes, the above assumes that replacement and refurbishment over the life of the building is equivalent between a new and re-used building. The reality is that older building fabric is likely to require additional maintenance.

Adaptive re-use is more applicable to indoor dry sport facilities. It is not considered applicable for aquatic facilities due to the particular envelope and servicing requirements of these buildings.

In many cases, adaptive re-use significantly reduces the programme time associated with bringing facilities into service. It is typically better suited to community facilities where there can be greater discretion given to such things as court run-off requirements, lighting and seating capacities when compared with a competition facility.

Adaptive reuse avoids the disruption / degradation of existing ecosystems.