

# CASE STUDY: SYDNEY FOOTBALL STADIUM

**Architect:** Cox Architecture **Builder:** John Holland **Contractors:** Sydney Plaster

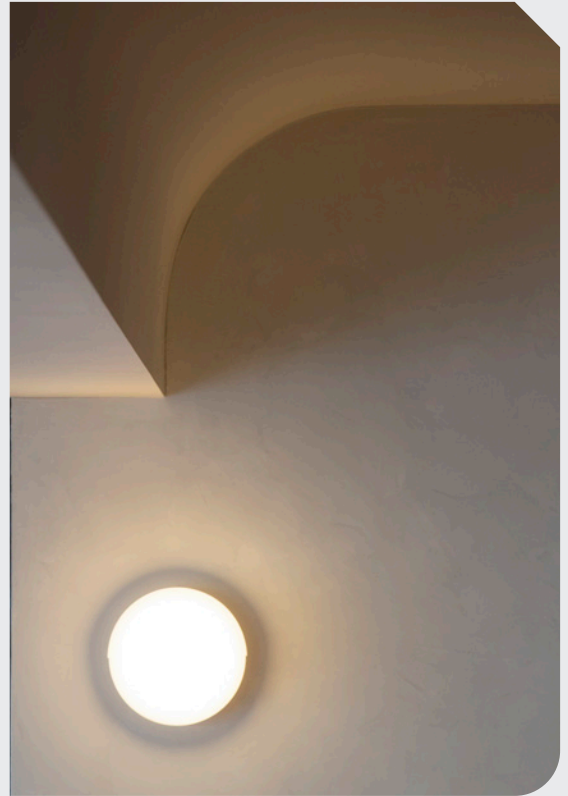
**Products specified:** Gyprock Rigitone 8mm, Gyprock Flexible 6.5mm, Gyprock Impactchek 13mm, Gyprock Fyrchek, Gyprock Aquachek, Rondo Steel Stud & Track Framing System, Rondo MAXIframe® External Wall Framing System, Rondo KEY-LOCK® Concealed Ceiling System and Rondo DUO® Exposed Grid Ceiling System

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## Background

In October 2018, plans for the new stadium to replace the original Sydney Football Stadium were released by the Government of New South Wales. Fast forward to 2023, and the newly redeveloped SFS (known commercially as Allianz Stadium) is open, and has already catered to thousands of sports fans, along with other major events.

As a project of high public interest, it was essential that the new stadium showcased the latest and greatest in design – from cutting-edge architecture by Cox Architects, all the way down to innovative seating, and state-of-the-art media facilities.

## Challenge

In a project as large as this, it goes without saying that there are a vast number of needs and multiple uses that must be designed for and met - and this creates significant complexities that must be managed. Nowhere is this more true than in the interior walls and linings. Within the various areas of a stadium, walls might be subject to heavy pedestrian traffic, significant furniture, fixture and equipment requirements, and be required in a range of sizes, shapes and configurations. They must meet a higher requirement set by the standard, based on the predominant functions of the space, and must have adequate acoustic and thermal properties in order to adequately insulate the area they're being applied in.

Rondo was tasked with the design and manufacture of steel wall systems that would be able to withstand pressures like wind and seismic loads which increased, to match the building's importance and function. These walls were then to be installed with Gyprock, requiring a close and meticulous approach to ensure each room was fit for purpose.

"In addition, this project happened right in the middle of the Sydney COVID lockdowns," says Stu Farrelly, NSW Commercial Segment Sales Manager at CSR. "To manage the site, the builder basically split the stadium up into zones. At the same time, Sydney's lockdowns were particularly heavy in some LGAs - including where our manufacturing site is, and a lot of our contractors are based. So we had to work to isolate our own teams both in manufacturing and logistics, and then obviously slot into the supply of this job during the heaviest part of COVID."

## Solution

With decades of experience under their belt, Rondo's expertise in customised and compliant wall designs left them perfectly placed to cater to this project's crucial elements such as crowd pressure, and Furniture, Fixtures & Equipment (FF&E). Rondo's design engineers needed to factor in the National Construction Code's sections relating to crowd movement and horizontal imposed actions in order to produce bespoke designs that could meet the non-standard load requirements of certain areas of the stadium. These designs were created with Gyprock in mind, intended to work harmoniously with their versatile, functional, and aesthetically advanced range of products.

Contractor Sydney Plaster implemented the Rondo designs, which included back-to-back Steel Studs at 250mm centres installed with two rows of double punch nogging tracks for MAXIjamb® Studs. This allowed heavy loads to be transferred from Gyprock's Impactchek™ 13 mm thick plasterboard, directly into the Steel Stud frame. Impactchek is a high-strength plasterboard with a reinforced core that is ideal for use in high impact areas such as hallways and the 'Rev Up' Room. In addition, the ease of installation and safety profile of combined Rondo and Gyprock walls make them ideal for crowd pressure walls.

Gyprock 8mm Rigitone was specified for the ceilings of the corporate areas, VIP entrance and Eastern side main concourse. Rigitone strikes a careful balance between aesthetics and functionality, offering exceptional acoustic performance while delivering a visually appealing, perforated pattern. Some rooms (such as the Corporate Platinum room) required curved ceilings - and for this, Gyprock's premium Flexible plasterboard was ideal. The 6.5mm thick Gyprock Flexible enables specifiers to easily create curved walls and ceilings through an enhanced gypsum core which is designed to bend, enabling convex curves with a 250mm radius and concave curves with a 450mm radius.

In certain areas, the attachment of FF&E also contributed to loads on the walls, where hardware weighing up to 65 kg was attached to 5.7m high walls. In most wall scenarios, the wind load would exceed seismic forces, but in this case, the added weight of FF&E was required to be included in load calculations, which greatly increased the seismic load, causing it to surpass standard wind load forces. Rondo Engineers designed security room steel stud walls to meet the higher load to ensure seismic requirements and compliance were met.

The complexity of this project highlights just how important it is to work with experienced, knowledgeable teams who are adept at designing customised, innovative solutions to meet the specifics of any given application. By virtue of their expertise, combined with premium-quality products, the teams at both Rondo and Gyprock were able to manage this complexity - along with the added limitations of stringent COVID lockdowns - to deliver this project to the highest standard, on time and under budget.



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