



Rhodes House Camperdown
100% EV Ready Building – Case Study



5th July 2023

Introduction

Rhodes House is a residential apartment building comprised of 147 terrace apartments across 5 levels. The building has 141 residential parking spaces and 18 visitor spaces.

In June 2021, ChargeWorks was engaged as part of the NSW government Electric Vehicle Ready Buildings Program to conduct a technical feasibility study of the site. This site was identified as a candidate for “flat cable” backbone charging infrastructure. Following this report, ChargeWorks was engaged directly by the owners committee to assist with procurement and implementation.

The flat cable system, installed by KarChargers, provides equitable EV charging access to all residential parking spaces in the building. This system is lower cost than conventional electrical infrastructure (i.e. cable tray) and has a lower final cost to residents wishing to connect a charger. Rhodes House is the first building under the EV ready buildings program to feature a flat cable system. This site also has a shared 25kW DC charger in one of the visitor spaces.

On the 23rd of June 2023, ChargeWorks inspected and tested the system to verify satisfactory completion of the installation. The system appears to have been installed in compliance with AS/NZS 3000:2018 and the equipment complies with all recognised international product standards for EV charging.

This site is now **100% EV ready** and is an excellent case study for how residential apartment buildings can implement EV charging.

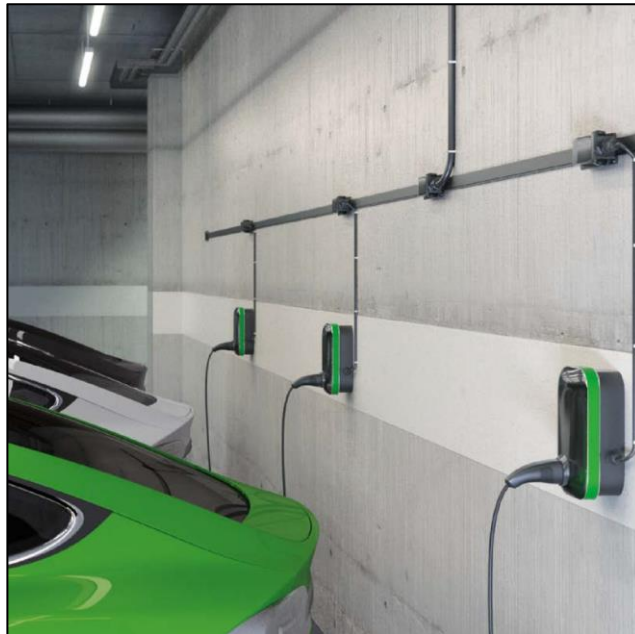


DC Fast Charger – Visitor Parking

Weiland Podis Busway

The Weiland Podis Busway (flat cable) is a cabling system that facilitates easy connection of EV chargers using a tap-off module. Modules may be clamped on to the busway at any point, negating the need for long cable runs back to centralised distribution boards.

The intent of using this system is that residents anywhere along the busway may connect a charger in their own parking space.



Example – Weiland Podis Busway

Installation

The Weiland Podis busway system has been installed throughout Rhodes House such that all residential carpark spaces have access to EV charging.



Rhodes House – Weiland Podis Busway

This system features a secure commercial Wi-Fi network to facilitate networking and active load management of all chargers.

The Wi-Fi system features a:

- Secure network for charge management, monitoring and simple charger onboarding.
- Public network for residents for **any** use, including vehicle over-the-air updates.

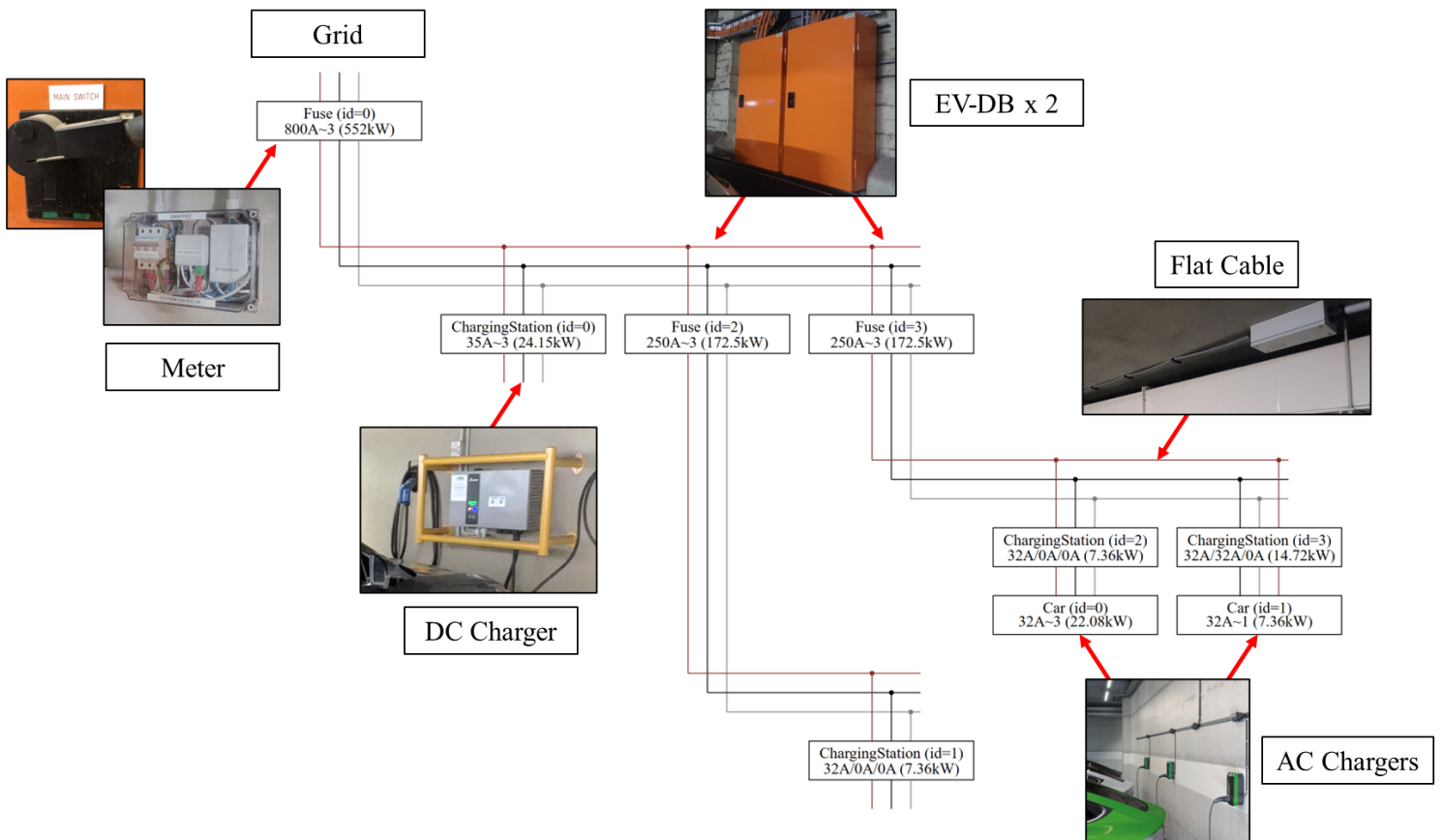


Rhodes House – Carparks, Flat Cable, and Wi-Fi

Load Management and Cost Recovery

This system, managed by CasaCharge, ensures that all cables, switchboards and the grid are not overloaded.

The schematic below shows the load controller logic for this site, namely the constraints at each part of the circuit. Charging power is managed by the system to maximise charging speed and the state-of-charge of all connected vehicles.



Load Control Schematic

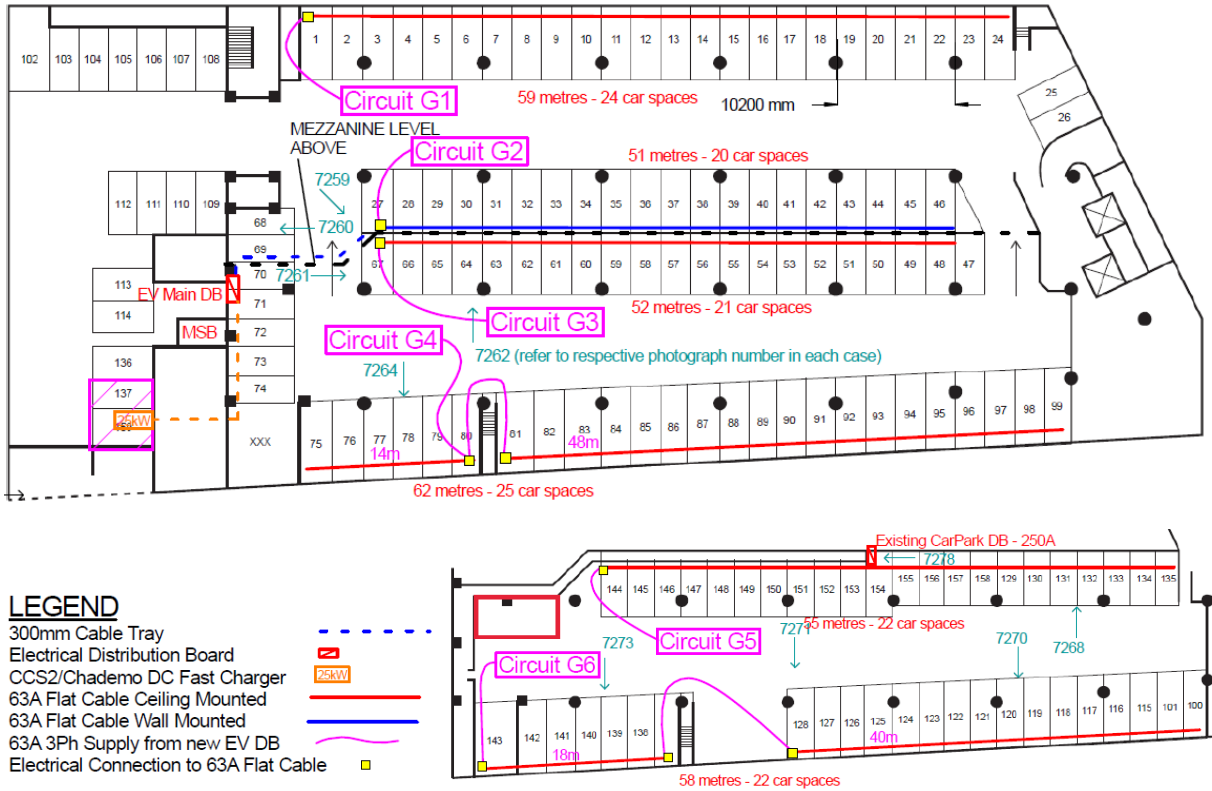
This system, in monitoring all electricity usage, is also able to accurately record the exact energy and cost associated with each charging session. Cost recovery is achieved by linking the user's credit card to their charger during commissioning.

CasaCharge collects payment on behalf of the body corporate and refunds the cost to the building in real time. Electricity rates (for charging) are solely set by the body corporate to recover the fair cost of electricity from residents.

Customer Experience

The infrastructure has been designed to provide equitable access to every unit lot. Residents may install a charger in a practical location within their lot and run a final circuit to the nearest busway (or load centre).

The layout has been designed such that the final cost to residents is **comparable to any free-standing residential home**.



Carpark Layout

To connect to the system, residents are required to purchase an Open-Charge-Point-Protocol enabled charger (which is all but standard for chargers available in the market). The resident’s installer of choice (any electrician) can then onboard the charger to the building’s charge management system over the secure Wi-Fi network.

Once commissioned, residents will be able to plug-and-charge their vehicle at their convenience. A resident’s credit card will be assigned to their charger to automatically facilitate cost recovery for their usage. The building management committee pays for the electricity that is supplied to the charger but under this arrangement the fair cost is immediately recouped based on actual usage.

Summary

This system is fully operational and ready for individual chargers to be connected to the charging network.

The installation at Rhodes House represents industry best practice in being able to provide fair and equitable EV charging to 100% of residential lots.

This charging system design:

- Allows individual residents to affordably install charging in their own parking spaces.
- Provides a lower capital cost than conventional electrical infrastructure (i.e. cable tray) and also has a lower final cost to residents installing their chargers.
- Avoids the administratively complex challenge of sharing of common area chargers.
- Has automatic cost recovery and monitoring.
- Provides the maximum charging power within the electrical constraints of the site.
- Delivers an internet connection for vehicle over-the-air updates and resident's mobile devices.
- And, provides visitor charging.

This building is an excellent case study in EV readiness for thousands of other strata buildings in NSW as electric vehicle adoption increases.