RJE

Transportable Switchroom Solutions

About Us

- Robin Johnson Engineering was established 1996
- RJE is a privately owned business turning over more than $75 million
- RJE has a Head Office which is located at Morphettville in South Australia
- RJE has a Manufacturing and Storage Facility located on 7 acres at Lonsdale in South Australia
- RJE has approximately 250 employees

About Us

Core Business

- Power system design, modeling and analysis
- HV Substation design, construction and commissioning
- LV, MV and HV Electrical construction of Mining, Heavy Industry and Process Plants
- Communications, PLC and SCADA capability.
- Transportable Switchroom solutions

Quality and Safety Endorsed Company

- AS/NZS ISO 9001:2008
- AS/NZS ISO 14001:2004
- AS/NZS 4801:2001
- OHSAS 18001:2008

Engineering & Design

We believe in delivering tangible results to our customers through use of innovative and smart engineering solutions. This is the foundation of RJE.

We are proud that our business has grown with our clients and as a result we have significantly developed our engineering and construction capabilities.

- The back bone of RJE is our strong Engineering capability which encourages problem solving and innovative solutions.
- Power System & Substation Design
- Protection System Design to latest International Standards.
- Electrical and Instrumentation Process Plant Design
- Motor Control Centre (MCC), Switchboard, Control Panel Design

Engineering & Design

- Outdoor HV Substation Design
- LV, MV and HV Protection System Design.
- Hazardous Area Electrical Installation Design
- Transportable Substation Design and Fit-out design.

Engineering & Design

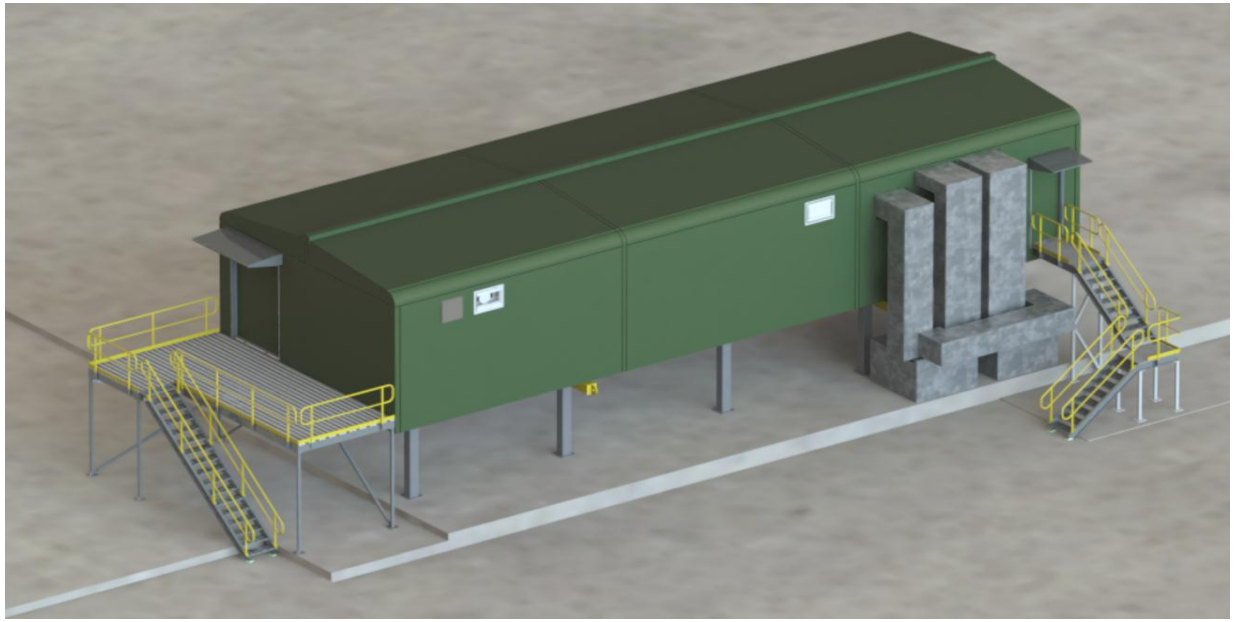
RJE are system integrators for a number of SCADA packages and have strong alliances with a number of PLC and control system providers, such as:

- Rockwell (Allen Bradley) Hardware and programming Packages including RSlogix500, RSlogix5000, Panel builder 32, RSView
- Citect SCADA
- Qantum and Modicon PLC Hardware and Software
- GE Fanuc PLC Hardware and Software
- BR PLC Hardware and Software
- Proficy HMI/SCADA
- GE Intellution Software, IFix SCADA

Transportable Buildings

Engineering and Design

- Structural Design concepts. Space Gas, SolidWorks 3D Modelling, SolidWorks Simulation Software for FEA, Beam Analysis.



Transportable Buildings

Engineering and Design

- Structural Certification – Fit for Purpose. Detailed Reports can be provided including calculations if requested. 3rd Party Certification as required.
- Standard deliverables include Column loadings , COG drawings for lift Study.
- Electrical Services, Fire Services and Air-conditioning all designed in-house.

Transportable Buildings

Special Options

- Fire Rating – External GRC 2hr in accordance with BS 476.
- Blast Proof Walls – Suitable for Transformer Bays. Petrochem and Refineries.
- A/C options, Duct Penetrations, Ceiling Plenums for Air Distribution
- Removable Walls for large equipment access.
- Cyclone Rating (Up to Category 5, 280kph winds), Seals and Foundations
- Columns Modified to accommodate below switchroom cable supports
- HV Termination/breakout drop down boxes.
- Design lends itself to larger, heavier rooms. 30m x 7m weighing 100+ tonne can be achieved.
- Switchroom subfloor (fire rated) to facilitate inter-building non armoured cabling.
- Extended baseframe and platforms to house outdoor A/C units as required.

"RJE's roots lie in Engineering and Design. As the company has grown we have significantly developed out construction capability - but it is smart engineered solutions and innovation that remain key to our success".

Transportable Buildings

Small Buildings housing large drives with removable side wall and inspection hatches.

Construction

- Manufacturing process lends itself to Modular Construction using standard parts.
- Manufacturing process lends itself to short construction period (nom. 10 – 12 weeks)
- RJE stock wall and roof sections as well as all components excluding base frames.
- RJE has an established Quality Systems implemented at various stages of construction to ensure a quality deliverable. This includes
- identifying and testing GRC panels for tensile strength.
- Manufacture techniques have been developed to ensure a high level of Quality can be achieved with minimal controls eg. Riveting, Lonsdale construction facility, level construction slab.

Construction

- Construction technique minimises potential delays due to environmental conditions
- Buildings erected and protected from the environment in 1-2 days to enable continuity of works.

Construction

- Safe construction aided by using innovative construction techniques/equipment. ie. Truck lift jacks, skates, aluminium movable access platforms.

- RJE has in house expertise for build services, Fire detection, VESDA, Fire Suppression, A/C. These important services can be fully tested and commissioned prior to dispatch.
- RJE draws upon in-house manpower (site construction personnel) and engineering resources to accelerate or resolve technical issues “on the run”. E.g. Space for HV breakout and terms.

Construction

- RJE has the equipment and expertise to handing large electrical equipment safety into switchrooms – items 8+ tonne. Rollers, air skates, 2 x 20 tonne Franna Cranes.
- Before loading for transport the buildings are weighed and the COG confirmed to assist with the transport and site lifting plans. RJE loads the buildings onto specialised trailers in a safe and controlled manner using failsafe electric jacks where possible.

Construction

- Client review and manufacture liaison is encouraged and facilitated by constant review and updating of the 3D model, especially when there is site interaction with other structures. RJE is happy to accommodate 3rd party personnel and contractors for final programming and testing of specialised electrical and control equipment housed and connected within the buildings. RJE at all times maintains a proactive and vigilant approach to the safety of personnel and equipment during construction.

Discussion Points

Q. What is GRC?

Glass Reinforced Cement. Product developed by the Soviets in the mid 1940's. Has been used extensively since, mainly in commercial applications. Product displays elastic tensile stress-strain characteristics (opposed to metal beyond yield, exhibits plastic deformation), non-corrosive, high damping capacity and low co-efficient of thermal expansion. It has high impact resistance, Inherent fire rating, easy to repair, excellent thermal and acoustic properties and formed to meet architectural designs if required.

Q. Has the Product been proven for Transportable Switchrooms?

Yes – RJE have fabricated 40+ buildings in the last 3yrs. The product has met and surpassed all expectations.

Q. Are the buildings Inconveniently Heavy?

Although the building look like "Tilt-up Concrete" buildings the GRC wall system is 90% lighter than solid concrete walls. The GRC cladding is heavier than traditional iron cladding but for buildings of a substantial size housing equipment, the additional weight of the GRC as a proportion of the over all building weight is minimal (<10%)

Points of Difference

Why use RJE's Transportable Switchroom Solution?

- Use of GRC - Stronger, better finished and sealed, non-corrosive material. (E.g. Transport damage repairs. Bridge handrails, trees)

Colorbond Clad buildings are:

- Difficult to seal
- They require flashings, cappings and trims
- Dirt ingress due to fluting of panels
- External fixings
- Corrosion potential in certain environments
- Difficult to waterproof
- If damaged difficult to repair.

Points of Difference

Why use RJE's Transportable Switchroom Solution?

- One Stop Shop. RJE self perform all aspects of the Eng/Design and construction with the exception of the large steel baseframes (3-4 endorsed preferred suppliers).
- Short Lead time and potential delays minimised. Due to modular construction, pre-fabricated parts, self delivery all complemented by RJE's in house transport capabilities.
- Leading Electrical Engineering and Construction Business.
- Switchrooms fundamental requirements always considered, smart layout/design.

Points of Difference

Why use RJE's Transportable Switchroom Solution?

- Complete fit-out and all internal wiring installation testing and commissioning (VSD-HV Sw Gear). If required, this can extend to HV/MV primary and secondary injection and relay testing, Control system, SCADA and comms programming and testing.

RJE is a local innovative, responsive and dynamic company.

Transportable Buildings

Safe, timely transport of the buildings is crucial to meet project schedule and cost constraints. RJE manage all aspects of the delivery using our specialised equipment. This ensures that we can meet client expectations and allows RJE to plan the transportation and incorporate this into smart design.

Transportable Buildings

Image Left: Building being craned into position. Traditional unloading method

Image Above: RJE encourages the use of jacks for the unload, where possible.

Transportable Buildings

Purpose built RJE owned and operated transport Equipment.

96 Wheel platform trailer and prime Mover.

Transportable Buildings

RJE GRC Buildings. The Smart Switchroom solution