

**Established in 1964** as an electrical engineering practice, Norton Consultants Pty Ltd (formerly R. M. Norton & Associates Pty. Ltd.), is dedicated to providing clients and the general public with the safest, most efficient, cost effective and technologically advanced plant and equipment available.

Initially directing its interests to medium and heavy industries including mining, petrochemical and industrial process plants, in 1972 the practice expanded to form a building engineering services section offering full design, documentation and contract supervision services (electrical and mechanical) to private, government and institutional organizations, expanding again in 1988 to include Industrial Mechanical Services and Process Plant, whilst retaining specialised services in the fields of industrial process control automation and instrumentation.

In 2004, following the semi-retirement of the partners and the introduction of a new Director with experience in Aircraft Refuelling Systems and High-Reliability Process Plant, the practice has successfully completed works in the Automotive, Oil, Fuel, Petrochemical, Grain Handling and Aerospace Industries.

The company now comprises a full-time working Director, Mr. Cameron Dorrrough, supported by engineering, drafting and office staff and has close alliances with other specialist consultants in Chemical, Acoustic, Environmental, Civil and Structural Engineering, enabling us to provide total project solutions. Supplementary resources are engaged on Contract on an 'as-needs' basis.

We are approved by Energy Safe Victoria (formerly the Office of the Chief Electrical Inspector) for the Delineation and Classification of Hazardous Areas and Mr Cameron Dorrrough is also accredited as a Class 'H' (Hazardous Area) Licensed Electrical Inspector.

## **SERVICES AVAILABLE**

The following services are offered, tailored to suit individual client and project requirements.

- Engineering and Detail Design.
- Preparation of Tender and Contract Documents.
- Planning and Scheduling of Work and Expenditure.
- Feasibility and Economic Studies.
- Purchase - Expediting - Inspection.
- Construction Supervision.
- Testing and Commissioning.
- Hazardous Area Assessment, Hazard Identification.
- Energy Audits and Energy Management Programmes.

## PETROLEUM EXPERIENCE

- Principal Electrical Consultants to Shell Aviation since 2002.
- Electrical and Mechanical Consultants to Air BP (Australia) since 1985.
- Electrical and Mechanical Consultants to Caltex Australia Petroleum since 2001.
- Principal Electrical Consultants to Shell Co of Australia Limited from 1975 to 1992.
- Electrical and Mechanical Consultants to other petrochemical companies since 1969.

Our mechanical engineering resources also include design of landside and marine pipelines which have been used extensively by Shell and BP at various airports throughout Australia and the South East Pacific region.

## SPECIFIC PROJECTS

- ☞ Sydney Airport JUHI hydrant refuelling control and leak detection systems.
- ☞ Perth Airport JUHI hydrant refuelling control and leak detection systems including remote control of the unmanned JUHI Depot from the other side of the airport.
- ☞ Brisbane Airport JUHI hydrant refuelling control and leak detection systems including monitoring and control of remote bulk storage facilities transfer via pipelines.
- ☞ Darwin Airport JAFS hydrant refuelling control system.
- ☞ Mechanical and electrical design of bottom loading gantries for BP, Shell and Caltex.
- ☞ Pipeline design and flow calculations for fuel hydrant line at Changi Airport, Singapore.
- ☞ Automation of major fuel terminals for both Shell and BP in Brisbane, Adelaide, and North Fremantle including tank gauging, product pump to road and rail loading gantries and product additives facilities.
- ☞ Control systems for Adelaide Airport bulk storage and refueller tanker loading.
- ☞ Power, control, security and inventory monitoring and fuel management system for an unattended bulk fuel distribution centre.
- ☞ Power and Control systems for off-shore platforms in the Gippsland Basin.
- ☞ Assessment and re-design of hazardous material storage for Terminals Pty Ltd.

## **OTHER INDUSTRIAL EXPERIENCE**

- Site wide services, electrical and mechanical for explosives manufacturing plant of some 350ha including high voltage reticulation.
- Electrical and instrumentation upgrades for major tank farms at Geelong and Coode Island, Victoria.
- Mechanical, Refrigeration and electrical services for poultry processing plant, Thomastown.
- Design and commissioning of UPS and generator power back-up systems for major IT centres including 100 kVA dual UPS and 1 MW generators.
- Mechanical, Electrical design of 80,000 tonne wheat storage and fumigation facilities for S.A.C.B.H. in S.A.
- Mechanical, Electrical design of production facilities and tank storage facilities for a starch manufacturing plants.
- Mechanical, Electrical design of automated manufacturing line including automated gantries for aircraft component surface finishing and chemical milling plant.
- Research and development for solvent extraction of organic oils.
- Power and control system for unattended operation of a 12 tonne/hour flour mill.
- Mechanical and Electrical design of tanks for LPG. storage and outloading gantry from both horizontal and sphere tankage for Shell Pacific – Guam.
- Pressure vessel and associated pipeline design for a variety of chemical and industrial plants including steam reticulation and High Temperature Hot Water Systems.

## **TERMS OF ENGAGEMENT - FEES**

- Percentage fee based on project, discipline or actual installed costs.
- Fees generally in accordance with ACEA scale of fees.
- Hourly rates plus disbursements.
- Rates are set for categories of engineers, drafting, and support staff plus expenses associated with travelling beyond metropolitan areas, printing costs, and other agreed costs.
- Hourly rates for a particular project with a "no exceed" limit.
- Fees are normally billed on a monthly basis and/or as agreed on a fixed cash flow basis.