



Mother of Good Council Church, Innisfail, Scaffold certification.

Thirkell Consulting Engineers is a trading name of Redgate Building Solutions PL .
abn 35144589426
acn 144589426
Year established 2004

Main Contact:

Senior Engineer: George Thirkell

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Main services:

- Structural and civil engineering
- Certification, forms 15 & 16
- Feasibility studies
- Inspections
- Tender management
- Contract administration
- Development applications
- Insurance reports
- Expert witness service
- Building design & documentation

COMPANY PROFILE

Thirkell Consulting Engineers & Building Design provides professional structural and civil engineering consultancy services. Based in Cairns, Australia, we service the tropical region of Queensland, Papua New Guinea and the South Pacific. We also work in partnership with other consultants where our skills add value to larger projects.

Our services include concept and detailed design, documentation, feasibility studies, inspections, certification, contract administration, planning and development applications, insurance reporting, expert witness and legal reporting. In addition, we also hold QBSA design licences and provide an architectural design service to deliver 'whole of building' solutions.



*Bana Yirriji Arts and Cultural Centre for the Wujal Wujal Aboriginal Shire Council
2014 Regional BDAQ Award winner: Public Building. Finalist Australian Building Design Awards.*

We are a dedicated and experienced team that deliver a broad range of engineering solutions for the following building and infrastructure types:

- Residential, Commercial and multi-use low & medium rise buildings
- Steel & tilt –up industrial buildings
- Temporary structures, transportable and pre-fabricated buildings
- Recreational sporting fields, stadiums, grandstands and club houses
- Swimming & diving pools
- Marine jetties & shelters
- Aerodrome & Commercial pavement design
- Soil & water retaining structures
- Rural & small urban land subdivisions
- Pedestrian bridges & cane train bridges
- Earthworks & stormwater design

Main clients are private developers, builders, other design and engineering firms and local Councils. Clients with difficult land sites, complicated structures, refurbishment that requires detailed engineering knowledge or using new building technology will benefit from our depth of experience.



Mundoo Aerodrome Master Plan, Cassowary Coast Regional Council



Teece Residence, Earlvile, 26m propped span over steep slope. 2011 HIA Australian Finalist



Casa Fotea house, Innisfail: Design and Engineer



Cyclone Larry & Yasi recovery



West Cairns Bowls Club roof collapse, legal reporting and expert witness



Office building, Lae, PNG

Specialist Tropical Sustainable Building Expertise:

- Cyclone and storm damage reporting & restoration services.
- Custom engineering for special structures.
- Repairs and additions to heritage buildings using local and recycled materials.
- Specification of 'green' technology suitable for tropical climates.
- Design that limits disturbance of natural terrain and protects water quality.
- Design for maintenance and 'whole of life costs' consideration including remote buildings.
- We own and operate www.greenbuild.com.au a resource for building sustainably in the tropics. Recently we have been instrumental in collaborating with James Cook University to compile a series of 45 Case Studies detailing projects.

Brief History:

George Thirkell founded the company in 2004 and in 2010 the company changed its name to Redgate Building Solutions PL trading as Thirkell Consulting Engineers.

During this time the company has carried out over 700 projects, remaining flexible enough to carry out small projects for private clients through to complex projects in the public sector.

Key recent Australian projects has included:

- Cyclone Larry and Yasi recovery of over 200 structures. Extensive experience in assessment and reporting to Councils and insurance companies.
- 'Bana Yirriji' Arts and Cultural Centre, Wujal Wujal for the Aboriginal Shire Council, including all architectural services.
- Mundoo Airport Master Plan: Cassowary Coast Regional Council. Subconsultants to Cummings Economics.
- Legal reporting and expert witness for the West Cairns Bowls Club roof collapse and many domestic buildings.
- Infrastructure inspection and reporting service for Department of Transport and Main Roads.
- Design and consulting for Polocrosse fields and clubhouse at Gordonvale.
- Renovation of IGA Innisfail.
- Design & Engineer of Rio Tinto 911 sqm Mess Hall, Evans Landing near Weipa. Includes commercial kitchen, dining space & gym with 24/7 access.

Key recent International projects has included:

- PNG commercial office building designed for earthquake loading.
- Hotel in Somoa designed for earthquake and cyclonic wind loadings.

Commercial building renovations and additions, where we have also provided architectural design services includes:

- Historic White Horse Hotel building, Innisfail.
- Highlander Hotel, Julatten.
- Goondi Hill Hotel, Innisfail.
- Kewarra Beach Resort and Double Island Resort.
- Dunk, Bedarra and Fitzroy Island Resorts.
- Casa Fotea mixed use building, Innisfail



Social housing Thursday Island, construction inspection and certification.



Portal frame de-construction and re-location



Reece Plumbing Centre, Jimboomba



Warrina Lakes bridge re-construction



Russell River Pontoons, regulation compliance inspection



Evans Landing, Weipa

Industrial projects include:

- Bundaberg Foundary Engineers Ltd South Johnston Mill foundations of a 5,100 m² Effet Evaporator Vessel of 1200 tons in weight.
- Weipa: Rio Tinto: Mining trommel platform.
- Groote Eylandt for BHP Billiton Gemco: structural inspection and remedial works report for storage building and facilities.
- Extentions for Rio Tinto shed, Weipa.
- Wash down slabs and Bulk Waste Depots for Torres Strait Islands: Boigu, Dauan, Saibai, Darnley (Erub), Yorke (Masig), Moa (St Pauls), Saibai, Stephen (Ugar), Coconut (Poruma), Sue (Warraber). Subcontracted by PDR Engineers
- Reece Plumbing Centre, Jimboomba (Brisbane), an engineered 1,425 m² steel portal frame and tilt up wall construction.

Marine infrastructure projects include:

- New boat shed for VMR, Weipa.
- Evans Landing wharf extension, Weipa.
- Russell River pontoon regulation compliance checks.
- Shelter at Marlin Wharf for Fitzroy Island Ferry.

Civil works and land subdivisions, bridges, stormwater design, culverts and open channel, bulk earthworks, flexible and rigid pavements. Projects include:

- Steel footbridge for the Weipa Town Authority
- Warrina Lakes bridge re-construction (post Cyclone Yasi 2011) including abutments to reinforced concrete bridge.
- Cane train bridge strengthening (post Cyclone Larry 2006) of timber and composite steel girder and reinforced deck bridges for Bundaberg Sugar.
- Reinforced concrete ramp/bridge to 15m span for BBC hardware building in Newcastle. Design for earthquake loadings.
- Assessment and review of remote Far North Qld existing prestressed bridge girders and decks.
- Wet crossing at Cardwell quarry
- Contaminated land remediation works at Port Douglas with sheet piling and underpinning of adjoining buildings.
- Land Subdivision, Atherton. In 2012 we provided an engineering and environmental report for a Development Application for a 26 lot rural subdivision to be constructed over 3 stages. We designed the subdivision and provided a site based management plan (SBMP) including water quality and quantity management.
- New polocrosse fields at Gordonvale: Design and consulting.



Cairns, House on the Hill Apartment complex



Yorkeys Knob Marina and boatclub



Skyrail Stations



Cairns Convention Centre



Port Village Shopping Centre, Port Douglas



Royal Harbour Hotel, Cairns

Experience of interest while George was with Colefax Clayton Smith of Cairns, now known as Cardno CCS includes:

- **Yorkeys Knob Marina and Boat club (1993)** : A wealth of experience over a broad range of work was obtained by working with Peter Smith on the breakwaters, marine structures and civil infrastructure. Structural work on the clubhouse was carried out with Bob Colefax.
- **Skyrail (1995)**: the longest continuous cable car in the world. As design engineer the challenges covered environmental and transportation issues. George was responsible for the design and inspection of two of four stations. An interesting aspect of the design was the prefabricated roof steel space frames which were designed for 80m/s cyclonic wind loads, helicopter transportation and placement. Major considerations were weight and tolerances of specifically designed connections for placement by helicopter. The remaining structure was primarily of composite steel and reinforced concrete design.
- **House on the Hill Apartments (1995)**: Six buildings, each of twelve luxury apartments, valued at A\$14M. Each building was of three storeys plus basement level. Careful design considerations were applied to roof truss hold-down connections for cyclonic winds of 75 m/s. The transfer slab was designed as a flat plate without drop panels.
- **Royal Harbour (1996)**: Construction inspections and reports of most aspects of this ten storey mixed use building. Major structural items were piled foundations, reinforced concrete slabs, reinforced concrete masonry walls and steel feature roof trusses.
- **Cairns Convention Centre Stg 2 (1997)**: Site works including exhibition slab, stadium seating, temporary work and roof structure as project engineer. Carried out design, documentation, procedures and inspection of temporary works for most parts of this project including four day stripping and reshoring techniques using table-forms and stacked frame construction for stadium seating.
- **Port Village Shopping Complex, Port Douglas (1998)**: Initial construction being the roof structure over a third of the developed area to aid construction commencing during the wet season. The steel roof trusses were supported by temporarily braced, slender steel columns, which were then concrete encased after all structural steelwork was complete. Reinforced concrete floor slabs and reinforced masonry walls were constructed in sheltered conditions.
- **Various concrete tilt-up structures** in the Cairns region.



McLarens Technology Centre, Woking



Kings Road, Reading



Iconic Swiss Re building under construction (the Gherkin) City of London.



Iconic Swiss Re building



Sir John Gielgud & Queens Theatre, Soho, London

International work of interest while George was based in London from includes:

- **McLarens European Head Quarters** (F1 car manufacturer) for Research and Development (1999). Civil works: responsible for external works involving design development, detailed design and specifications, including 18m spacing vertically supported retaining walls over tunnels, causeways and rills. Intricate co-ordination and liaison required between Architects and construction team to fulfil the clients objective of a 'State of the Art' environmental development.
- **University College London & Royal Marsden Hospitals** (2000): Planning and design of transporting and supporting 20 t MRI scanners on existing upper floors. Each required the strengthening of floors for transport. Rooms were internally lined with 20mm thick metal plates to contain the magnetic fields.
- **Dulwich College** (2000): Suspended piled diving pool built on clay of high plasticity and high shrinkage potential as well as high water tables. The substructure required tension piles. The two-storey superstructure is of steel framing with exposed steel architectural roof trusses.
- **Azimuth Airport Control Towers** (2000), for various international airports. New design research and development on behalf of a consortium of developers that required expertise in earthquake, high wind events and flood resistant design.
- **Kings Road, Reading** (2001), for Berkley Homes. £7.5M, eight storey residential development consisting of reinforced concrete frame, on piled foundations. Steel roof canopy structure over penthouse to top floor.
- **Stockley Park** (2001): Business Park office refurbishment valued at £3.7 M . Super structure build of steel framing and composite reinforced concrete floor slabs. The alterations required the relocation of all existing bracing and the addition of a new lift.
- **Swiss-Re iconic building in City of London** (2002): Engaged by project managers Skanska UK to design and co-ordinate electrical and mechanical services within the structure. Consultation with Skanska, suppliers of all electrical & mechanical plant and services and lead engineers, ARUP and Foster and Partners Architects. Design of significant service shafts, plenums and transformer enclosures were for wind gust speeds of 88m/s and blast containment to the basement areas. The project was delivered on time and within the budget allocated by Skanska's project package managers.
- **Sir John Gielgud & Queens Theatre** (2003): Extensive renovations to modernise and increase seating of these steel and wrought iron historic buildings. Extensive analysis and consultation with architects & acoustic engineers. The fabric of the Gielgud structure is retained by top down hung structures. The Queens Theatre had more design flexibility (bomb damage WW II) allowing new internal structures for more seating.



Mundoo Airport site inspection



At work



On an inspection

Our Approach:

Our service is personal, dependable and targeted to outcomes that contribute towards projects we can be proud of. We have developed strong working relationships with allied professionals and collaborate easily with industry peers.

Meet the Team:

We have a base team of six although expand project by project for additional engineering, design and drafting technician services as well as specialist consultancies as required. Our team is dynamic. We can evaluate problems, understand the technical abilities required to solve them and communicate the problem solving methods and solutions to team members, clients and other professionals in order to get the job done.

Qualifications, Memberships and Key Skills:

George Thirkell

Managing Director and Senior Engineer

RPEQ Registered Professional Engineer QLD 7279

MIEAust Engineers Australia (Civil & Structural)

Bachelor of Engineering (Civil) University of Queensland, graduated 1993

QBSA Design Licence 1211127 (medium rise)

Building Designers Association of Queensland

BEDI Endorsed Sustainable Building Designer

Since 1993, George Thirkell has had Australian and international design and engineering experience in the Cairns region, Torres Strait Islands, Samoa, Papua New Guinea, Virgin Islands, Mauritius, New Zealand and London and other parts of the United Kingdom. He has technically applied a range of codes and standards including Australian, New Zealand, British, European and Papua New Guinean. His depth of experience underpins innovation and excellent engineering judgement that can value-add to projects.

Past employers are Colefax Clayton Smith of Cairns, now known as Cardno CCS; WSP, Carter Clack, Alan Connisbee & Assoc. and other London based engineering practices. Since 2004, George has directed his privately owned company based in Cairns, Australia.

Sann Tun Lin

Senior Designer and Document Control

Engineering Drafting Technician

Diploma in Shipbuilding and offshore Engineering

Ngee Ann Polytechnic, Singapore

Sann has over 15 years' experience preparing detailed design drawings including marine engineering for companies based in Singapore. Sann also prepares bill-of-material documentation and manages document control for Integrated Management Systems and Standards compliance.

Computer Software:

- Engineering software
- Drafting software
- Solidworks
- Corel Photo-paint
- Paint Shop Pro
- Adobe Pro, Reader, Photo Shop, InDesign, Dreamweaver, Flash
- MS Word, MS Excel, MS Project, MS Powerpoint
- Various cloud shares i.e.dropbox, sky drive, google drive
- NBN
- Skype
- Accounts: Xero & Harvest

Computer Hardware:

- Multiple PC's
- Laptops
- Tablets
- Multiple terrabyte servers in-house & off location for document back ups.

Equipment & Technology:

- Laser measures
- Moisture metres
- Generator backup

Emma ThirkellAdministration

Bachelor of Business (property development, valuation & land economics), University of Queensland

Chartered Surveyor: Royal Institution Chartered Surveyors MRICS 1114355
HIA Greensmart Professional

Member: Urban Development Institute of Australia (UDIA)

Emma has over 20 years of experience in the property industry and is a qualified property valuer. She applies her knowledge of property development processes, planning, finance and law. She carries out development and building approval processes and assists in insurance and expert witness reporting services. Emma operates the company's quality management system along with administration duties. Emma is also founder of the Tropical Green Building Network and operates GreenBuild.com.au. a tropical eco-building and living resource.

Capacity

We service projects with construction values up to \$2M and by agreement with our Insurance provider can increase this amount to \$10M project by project. Key-man insurance is provided by income protection and business overhead insurance.

INSURANCE COVERS	INSURER	POLICY NUMBER	EXPIRY DATE	VALUE OF COVER
WORKERS COMPENSATION	WORKCOVER QLD	WPA 100949909	30-06-17	STANDARD
PROFESSIONAL INDEMNITY	Lloyds of London	07PLL 02277/04	18-04-18	\$2,000,000 or agreed project by project
PUBLIC LIABILITY & RISK	AAMI	SMD 011063030	28-11-17	Public Liability \$10,000,000

Integrated Quality, Safety and Environmental Management Systems ISO 9001:2008 compliant verified by 2nd party auditor. Audit report available on request.

Thirkell Consulting Engineers recognises its moral and legal responsibility to provide a well managed **safe and healthy work environment** for workers, contractors and employees of contractors, clients and visitors that **places a high value on our environment**. This commitment extends to ensuring that operations do not place the local community at risk of injury, illness or property damage.

Our objective is to actively work towards elimination of risk. Our target is to maintain our record on NO injuries and incidents.

We seek the co-operation of our business partners in ensuring our organisational practices are conducted with minimal environmental and social impact.