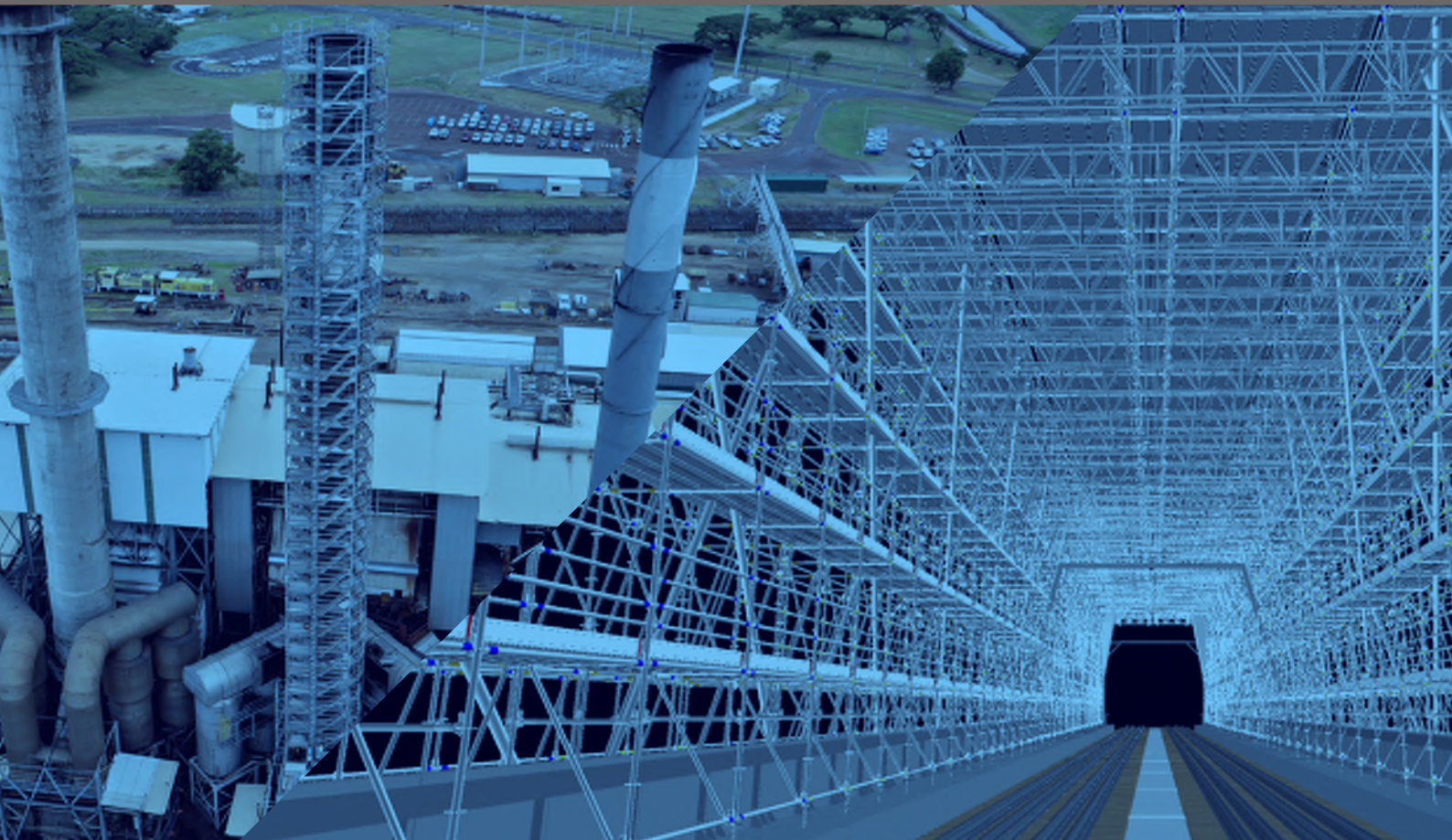




CAPABILITY STATEMENT

SCAFFOLD DESIGN & ENGINEERING



FIRM NAME

**FortisEM Consultant
Engineers & Managers**

ABN

12 764 681 783

YEAR ESTABLISHED

2013

MAIN CONTACTS

Principal Engineer Bill Hutton RPEQ BEng
Civil (Hons 1st Class). MIEAust

PHONE

07 4740 4686

EMAIL

bill@fortisem.com.au

WEBSITE

www.fortisem.com.au

POSTAL ADDRESS

PO Box 4, Townsville Qld 4810

BUSINESS ACTIVITIES

Drafting, structural engineering, scaffold design,
3D modelling, animation, realistic rendering,
project management.

MARKETS SERVED

Marine, mining, industrial, commercial, residential,
bridge maintenance, tunnelling, events and general
construction and maintenance industries.

OTHERS

Virtual reality, scaffold audits, cost estimates for scaffold work.



BILL HUTTON, PRINCIPAL ENGINEER

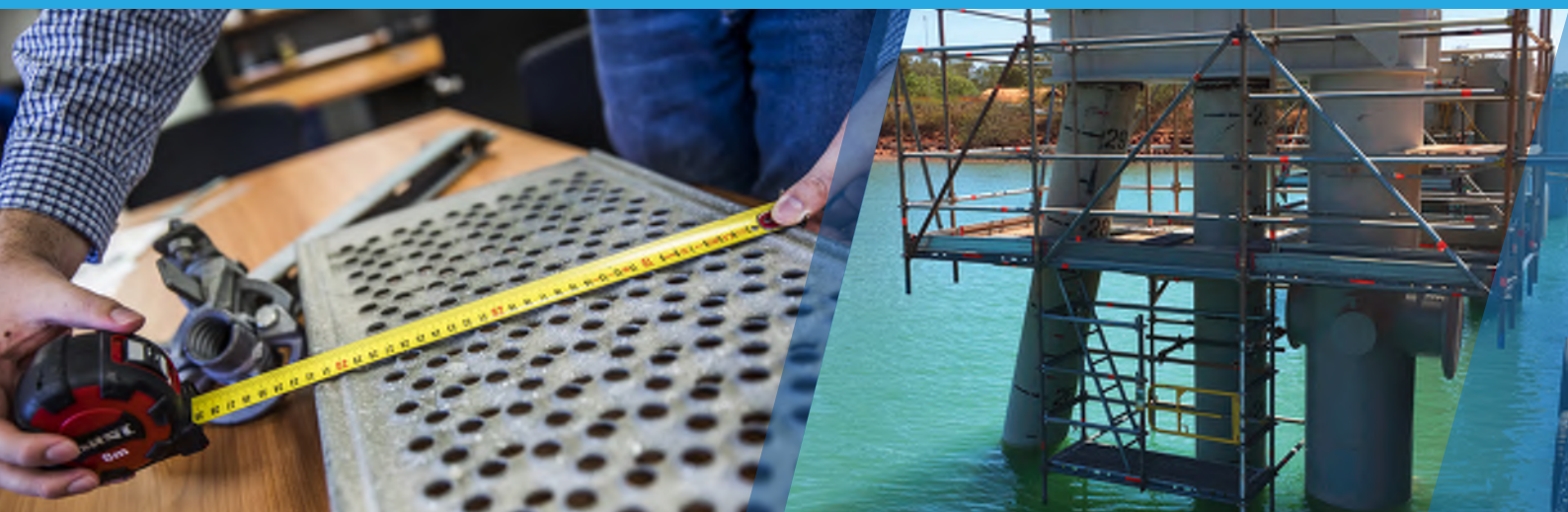
BEng Civil (Hons 1st Class),
MIEAust, CPEng, NER, RPEQ



GLOBAL CERTIFICATION PTY LTD
QUALITY MANAGEMENT SYSTEM CERTIFIED



AS/NZS ISO 9001:2008
Registration Number:
275





MERIVALE BRIDGE, BRISBANE QLD

Engineering is to scaffolding like accuracy is to advice. It can only improve the outcome.

FortisEM design, draft and digitally render scaffolding and supporting structures.

We have a positive track record and are able to apply processes and technology to the individual demands of each sector and service including:

- Marine
- Industrial
- Mining
- Sugar/Processing
- Construction
- State Government
- Residential
- Commercial
- Industrial
- Theatrical
- Special projects
- See where your needs fit with our supply at our case studies file

While we are more than happy to do small projects, our capabilities are best illustrated when we develop solutions requiring scaffolding access on complex structures.

This includes big projects from stack maintenance on sugar refining plant to complex marine infrastructure.

Our consultancy with Central Scaffolding and Queensland Rail on the Merivale Bridge in Brisbane is a case in point. The bridge crosses the Brisbane River between the stations of South Brisbane and Roma St.

The Merivale Bridge makes an architectural statement and is a complex bridge structure. In 1980 it was named the most outstanding engineering project from the Association of Consulting Engineers of Australia.

It consists of a double-track railway line, twin arches curving in the horizontal and vertical planes, multi-angled cable stays and has high-voltages cables running mid-height under the arches.

Our client required an access scaffold system to allow washing and repainting of the bridge whilst allowing full operation of the bridge to continue.

FortisEM designed a complex scaffold system that perfectly fitted between all elements of the bridge, was 27m tall at its high point, supported on only two points either side of the bridge and clear spanned across the width of the bridge.

To ensure the geometry was correct, FortisEM undertook 3D laser scanning to accurately map the location of the arches, cables and HV cables prior to commencement of design.



The scaffold was designed using Layher scaffolding with structural capacity at 100 per cent utilisation to ensure the most efficient use of materials.

Given the complexity of installation this was critical to delivery of the project

FortisEM combines the draft, design and engineering of scaffolding under one roof.

This is done simultaneously, which results in a quick turnaround.

It not only makes for a more professional presentation, it allows an effective use of labour, scaffolding and materials, which means greater returns.

We first introduce technology and laser-scan the site. That image is superimposed on to the building design. The designers work with draftsmen who are also experienced scaffolders and present the model in a 3D format.

Now technology is tied in with the practical and the creative.

The image is rendered, which gives the client a 3D appreciation of the final structure, allowing the opportunity to review and make changes in real time.

The plans are certified by an engineer who is recognised at state and national level with Registered Professional Engineer-Queensland and National Engineering Register qualifications.

Our advice is also insured.

Better data, better technicians, experienced tradesmen and professional oversight, advice and certification. Expect to win more work from advanced documentation, create more profit from better systems and rest easier when the result is certified.

This is the difference in scaffolding.

INDUSTRIES SERVED

- Scaffold companies
- Builders - principal contractors, particularly Tier 1 and 2 (including Lend Lease, Hutchinson Builders, Paynter Dixon)
- Mining/refining business (Including Queensland Sugar, Incitec Pivot)
- Marine infrastructure - (Including Abbot Point, Amrun's Hey River facility)
- Theatres and event planners
- Quantity surveying (i.e. concept design on complex projects and costing of scaffolding)
- Project managers, asset managers and maintenance managers
- Bridges (Queensland Rail)
- Dolphin berths (Bechtel, Qld Ports, Qld Sugar)
- Processing plants (Qld Sugar)
- Tunnels

SERVICES

- Animations
- Drafting
- 3D Modelling
- Engineering site inspection
- Virtual Reality
- Safety Audits
- Cost Estimates



Our preferred business is adding value to the building process. We do this in in three areas.

The first is in lean quantity surveying. The contractors know exactly how much scaffolding needs to be on site, which is employed by accurate labour resources. This means a competitive price and bigger margins.

The work is certified by a Registered Professional Engineer, which is the recognised authority by Workplace Health and Safety. So when audits are conducted, the contractor has no worry that the site will be shut down.

Also delivering technical drawings enhances the contractor's reputation as a professional capable of contributing to the solution.

We lift the expectations of the capacity and capability of safely delivering scaffolding solutions and aim to be world leaders in professional development.

We've developed a design team of accredited and experienced practical and technical specialists that all add to effective scaffold design.

Our team engineers outcomes which lift the integrity of scaffolding to a new level and at the same time makes the industry safer and the building process less expensive.

We have the best engineers, best designers, the best draftsmen and best software interpreters who work as a close team. Each member has industry and professional accreditation.

We respect each other's practical, technical and professional contribution and expect the best results.

We not only design to satisfy all requirements, we can also certify the end result.

It's quick. Every angle is covered in-house, from the survey to the design to the certification.

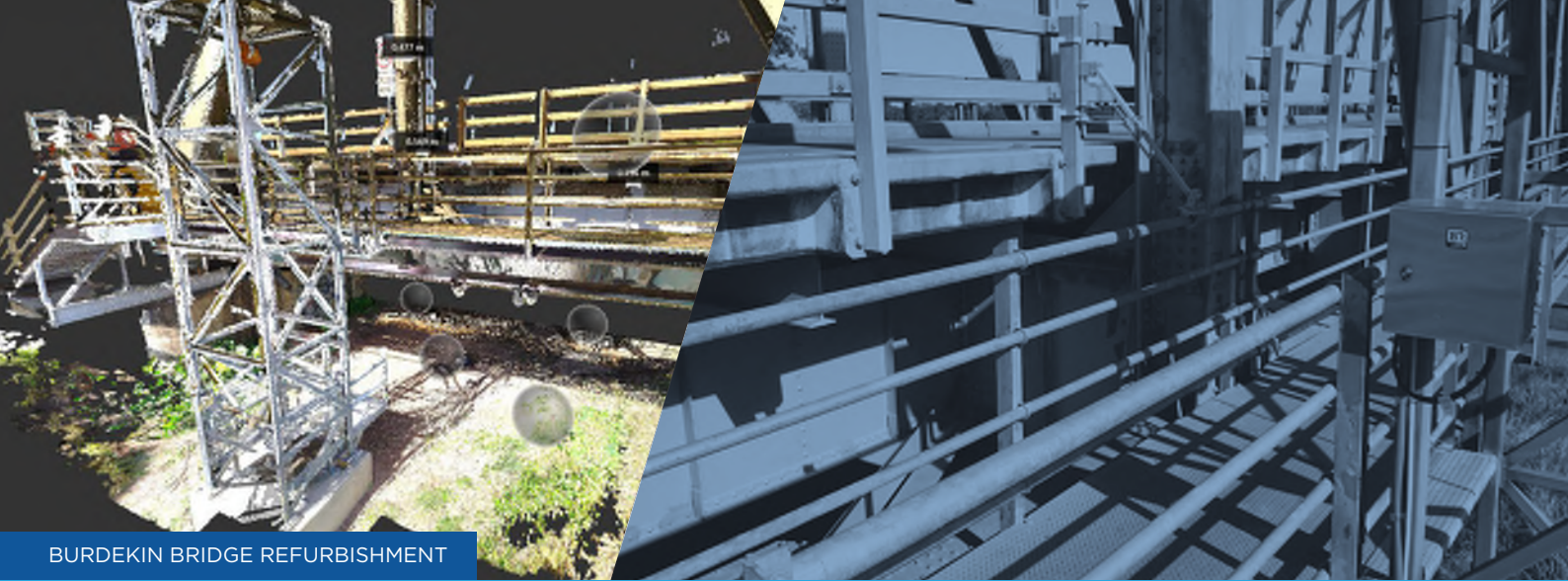
Moreover FortisEM is fully insured. That alone makes us stand out.

This is the whole package that covers all angles and every solution. There is no need to go further.

We also have an extensive library of scaffolding specifications detailing the connection technology and describing the load-bearing capacity of each scaffolding product.

This reference means we can accurately advise on the required material needed for each project.





BURDEKIN BRIDGE REFURBISHMENT

1. EQUIPMENT

- Faros XD130 laser scanner
- AutoCAD
- 3ds Max
- Navisworks
- A360
- SkyCiv cloud engineering
- Scaffold Component Library
- SPACE GASS

2. SPECIALISED CAPABILITIES

- Adding value to tender submissions
- Drafting
- Laser scanning
- High-quality 3D modelling
- Structural engineering design
- Interpretive graphics
- Integrated processes
- Certification
- Communications systems

3. POINT OF DIFFERENCE

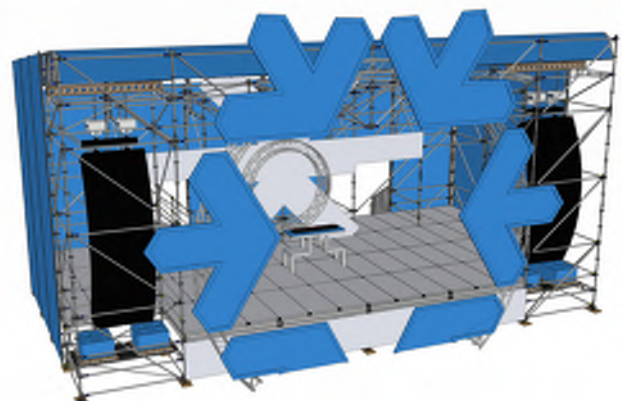
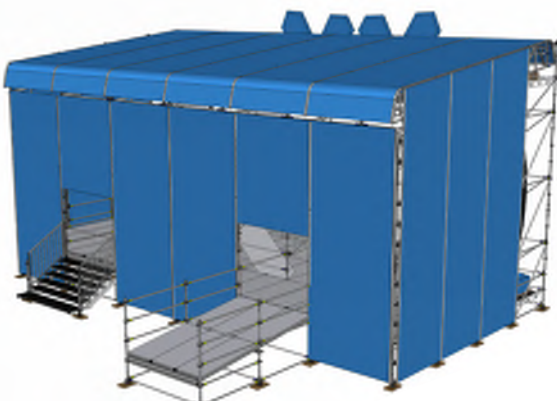
The difference is our people, our process and use of technology which results in a better and cheaper solution. We can laser-scan a site for accuracy and produce a high-quality three-dimensional model.

The process eliminates variations and disputes as plans change and the laser scanning will detect any changes to the structure.

We've provided cut-through by streamlining the process under one roof.

Our systems are accredited and we can come to site and complete third-party independent scaffold audits on behalf of the principal contractor or Workplace Health and Safety.

Moreover, the engineering is RPEQ-certified and insured.



THEATRICAL STAGE DESIGN



PIVOT SHED PROJECT

4. CERTIFICATIONS HELD

- Bachelors Degrees in Civil and Structural Engineering including first-class honours
- Chartered Professional Engineer
- Registered Practising Engineer Queensland
- National Engineering Register
- Advanced Scaffold Ticket
- Working at Height
- Confined Space Entry

5. AREA OF OPERATION AND SUPPLY AND EXPORT CAPABILITIES

We are connected to the Internet of things and can provide design solutions anywhere in the world. Our certifying engineer is not only RPEQ recognised, he is also on the National Engineering Register.

FortisEM manages projects Australia wide, out of offices in Sydney, Perth and Townsville.

6. SOFTWARE USED

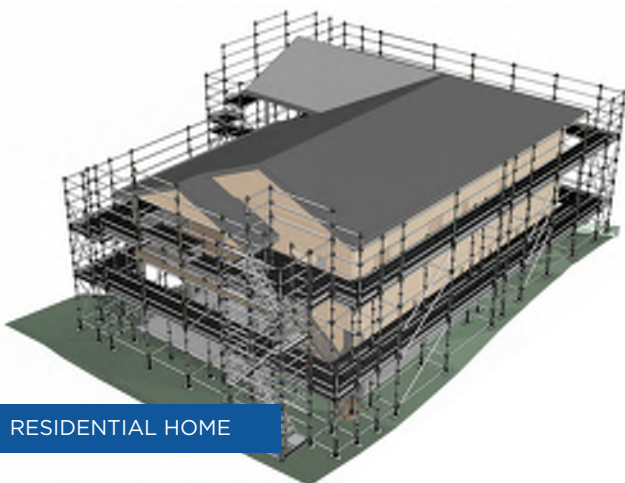
- AutoCAD
- Revit
- SkyCiv
- Cloud-based systems
- Microstran
- Bluebeam
- Microsoft Office Suite

7. TRAINING AND CAPACITY LEVELS

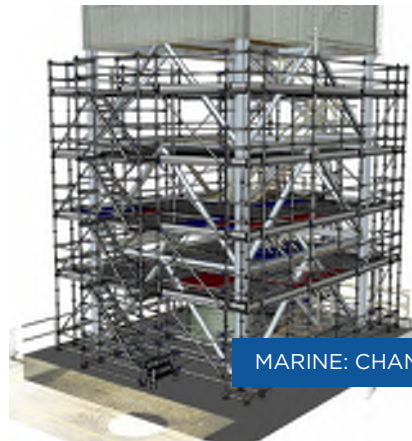
FortisEM has a 3rd Party Accredited ISO9001 QA system which is audited annually. As part of our system we have a process whereby all staff have the benefit of senior management mentoring in their professional development.

Our engineers maintain their registered status by undertaking in excess of the required professional development.

Post-graduate studies are also being undertaken by staff. Our draftsmen and technicians are constantly enrolled in professional development from TAFE and other institutions.



RESIDENTIAL HOME



MARINE: CHANGE DIRECTION SHED

Management Systems & Risk Management

Safety, Environment and Quality - FortisEM has an internal quality system including a Quality Policy Statement and documented Quality Management System.

The system's development is overseen by a senior manager responsible for quality management.

These systems and procedures are ISO_9001 compliant. FortisEM Scaffolding Consultants will achieve third-party accreditation in 2017.

Our workflow is charted and processes standardised allowing for continual improvement.

We encourage client feedback as part of our standard operating procedures and have responses to address all comments.

This is collated into a monthly report, which charts the company's progress and helps plan its development.

Our safety and environmental procedures are consistent with office environments functioning at optimum levels.

Insurances - We are fully insured.

- Specifically insured for scaffold design
- \$20m public liability
- \$10m professional indemnity
- Workcover

Risk Management Approach

Safety and design is critical in what we do and we are constantly upgrading our compliance.

Our risk management approach is consistent with the ISO_9001 series. It includes built-in redundancies where drawings are reviewed by third-party senior draftsmen and designs certified by an RPEQ-recognised engineer.

Our activities are governed under various regulations and we are compliant with each including:

- Workplace Health and Safety Act
- Australian Standards
- Building Code of Australia
- Scaffolding Code of Practice

Our engineers complete technical requirements to maintain certified status in their specialties. That includes more than 250 hours a year professional development in civil and structural engineering for the business principal.

We are developing a process for senior managers to pass on knowledge throughout the organisation.

Our professional staff are undertaking post-graduate studies and our technical staff continually undertake allied TAFE and other courses and are required to share the knowledge.

This is to maintain currency with industry-specific requirements and regulatory obligations.

As leaders in the field of engineered scaffolding we are educating the industry not only on the capabilities of scaffolding but also on the obligations to do it right the first time.



WE WALK THE WALK

By having engineers, designers and draftsmen in the same office we can address the technical as well as the practical aspects of each project. Better design means better communications, means quicker decisions, means on time, on budget, means better profits.

WE ARE SOLUTIONS BASED

Scaffolding is a dangerous industry with fatalities recorded each year. We can show you how to be better project managers.

WE BACK OUR CLAIMS

Our services are audited to the point where we are one of the only engineering companies in the country that is insured to certify scaffold design.

WE BACK OUR PEOPLE

Our succession planning is allowing for staff to come through the system and take more responsibility. This means we maintain our commitment to maintain standards and be responsive. Designs are all signed off by an RPEQ.



Case study

One of the challenges is educating the industry on evolving technology and engineering in scaffolding. This includes regulatory bodies.

Workplace Health and Safety recently questioned one of our decisions to certify a design, which was unusually complex. They thought it failed to comply with the scaffolding code of practice.

We were able to go in there and make our case and went as far as flying in national representatives from Layher to explain the product's capabilities to them.

We went through the whole process with them to educate the client's workplace health and safety officers.

One of the challenges in the scaffold industry is that it is stuck in the '70s and the industry officers have only ever seen Kwikstage.

When a company uses a new product, like Layher scaffolding, they look at it and assume it is not compliant.

We changed their minds to prove that Layher is compliant to the code of practice.

Working with industry and others

Our professional staff members are members of one or all of the following peak industry groups:

- Consult Australia
- Engineers Australia
- Steel Association Australia
- Concrete Institute of Australia

LONG-TERM RELATIONSHIPS

FortisEM has secured long-term relationships and repeat business in a short amount of time since incorporation.

We are the default provider for established businesses servicing Tier 1 providers in mining, construction and infrastructure and event management.

In terms of repeat business, the test is in the taste.

We've had to prove ourselves and can cite numerous clients that have tried us, gone back too old sources, only to return to FortisEM as repeat clients.

References are available on request.