

OVERVIEW

At MMH Engineering our mission is to provide engineering design solutions and valued consultancy advice to industry leaders and venture partners. We are dedicated to providing client satisfaction by ensuring the highest quality and timeliness of deliverables to successfully achieve project goals.

We provide a range of engineering and consultancy services with expertise and capability in a variety of industry sectors including;

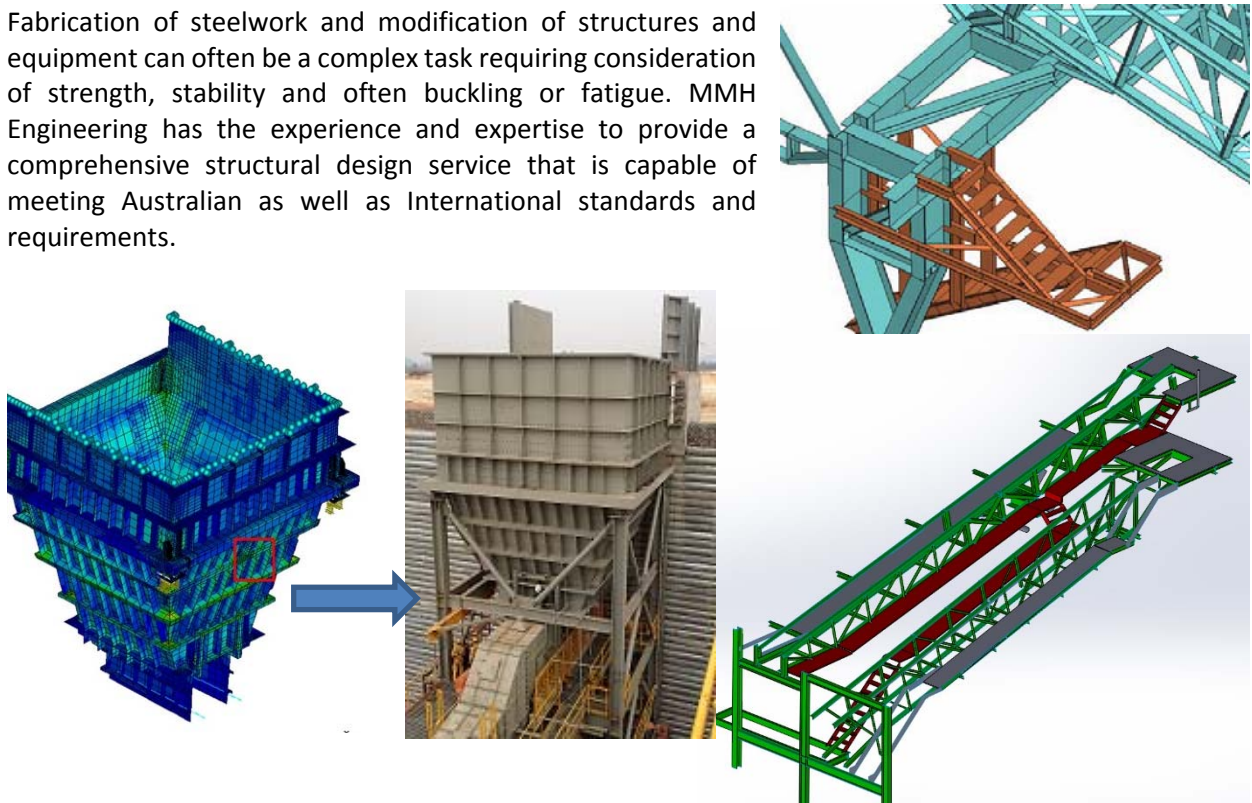
- Mining
- Materials Handling
- Commercial and Industrial Construction
- Oil and Gas
- Port and Coastal Infrastructure
- Manufacturing
- Defence
- Government Infrastructure

A brief sample of our design experience and capabilities includes;

- Permanent structures
- Portal framed buildings
- Equipment storage
- Vehicle protection/wash-down
- Cyclone safe structures
- Large signage and lighting
- Wharfs and berthing structures
- Fixed and mobile plant/equipment
- Conveyors and conveyor components
- Chutes and Hoppers
- Maintenance access platforms
- Heavy equipment support (Rock breakers, Feeders, Reels, etc)
- Heavy cable / pipe support structures

STRUCTURAL ENGINEERING DESIGN

Fabrication of steelwork and modification of structures and equipment can often be a complex task requiring consideration of strength, stability and often buckling or fatigue. MMH Engineering has the experience and expertise to provide a comprehensive structural design service that is capable of meeting Australian as well as International standards and requirements.

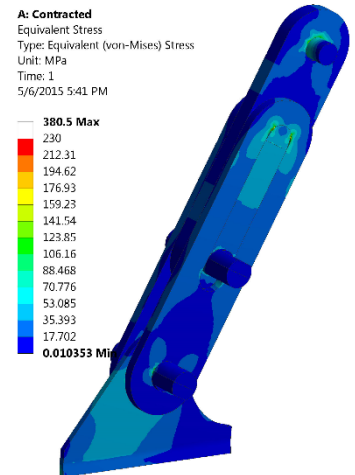
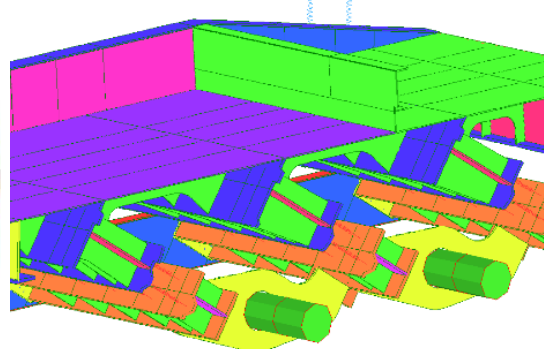
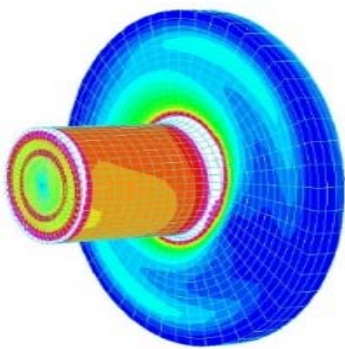
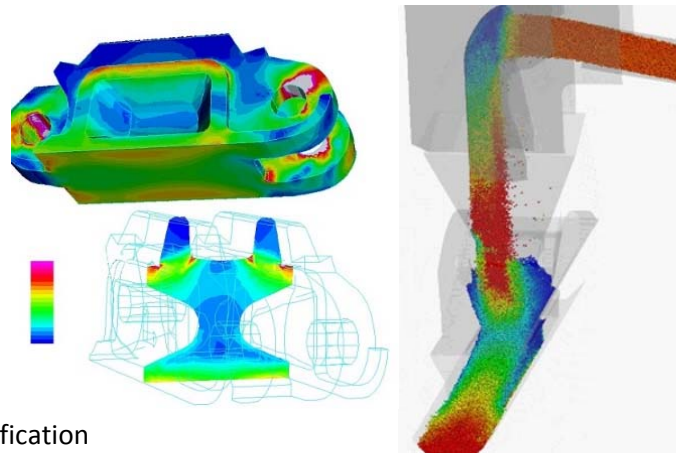


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ENGINEERING ANALYSIS

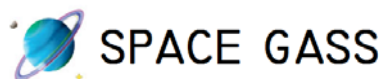
Structures have widely varying design influences and critical factors which must be identified and considered for successful design. Our expertise and technical resources enable us to perform a variety of assessments, for example;

- Advanced structural analysis
- Finite Element Modelling
 - Stress/Strain
 - Buckling
 - Natural and forced vibration
 - Thermal expansion
- Advanced material properties
 - High strength steels
 - Aluminium
 - Plastics and mouldings
 - Composite materials
- Operational and fitness for purpose verification
- Material flow analysis (Discrete Element Modelling)
- Remnant life assessment and life extension



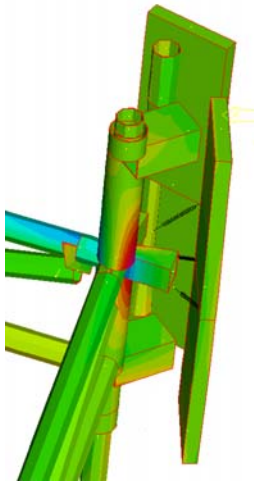
Analysis Software

MMH maintains licenses for numerous analysis packages and have also developed in house software to perform specific tasks efficiently and accurately. Our engineers are proficient designers who recognise and utilise task appropriate software and hold expertise in the following analysis packages;



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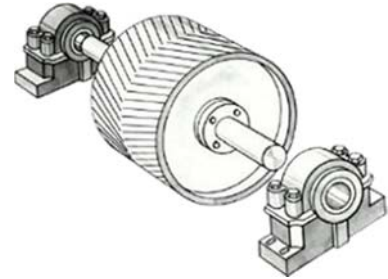
MECHANICAL ENGINEERING DESIGN



Design of mechanical systems and components requires a multi-disciplined approach involving structural and electrical and control engineering.

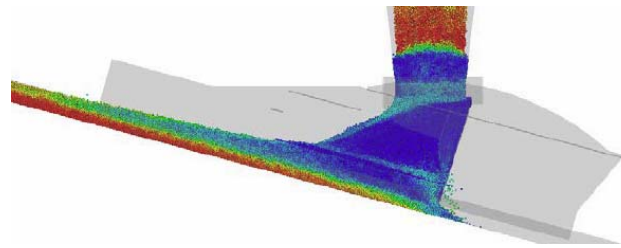
MMH has multidisciplinary expertise enabling the specification and design of efficient and effective mechanical solutions for example;

- Conveyor systems
- Conveyor components
- Feeders and screens
- Transfer and discharge chutes
- Hoppers
- Hydraulic systems
- Impact buffers and fenders



Transfer Chutes

Transfer chutes between conveyors is a vital element of the conveyor system and a successful arrangement is crucial for overall conveyor performance. We use traditional design techniques and advanced analysis, such as discrete element modelling, to design new conveyors and transfer points. We perform inspections and engineering assessments to recommend improvements to performance of transfer points. By directing feed appropriately and ensuring correct material velocity we can optimise flow as well as better match the velocity of material and conveyor speed reducing wear and extending belt and component life.

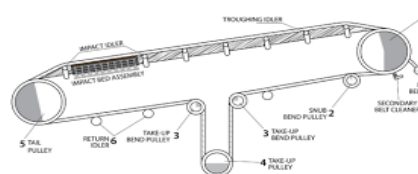
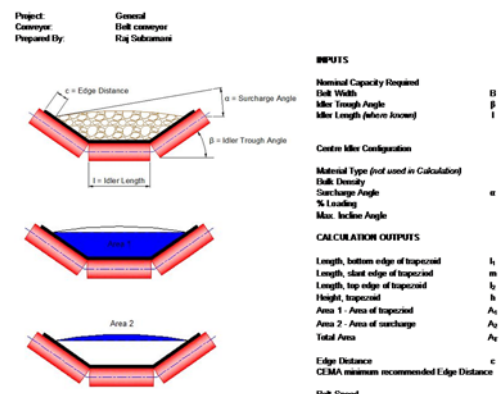


Operations and Maintenance

We develop engineering solutions to modularise components to reduce inventory and aid in replacement with minimal interruption to operation. We optimise existing mechanical systems to solve common problems faced during operation such as;

- Maintenance difficulty
- Poor component life
- Premature failure
- Excessive spillage or blockages
- Wear
- Performance

MMH Engineering can assess and improve existing fixed plant conveyors. Most conveyors have the potential to increase capacity with little change on overall geometry. Design assessments are performed on a variety of roller configurations to validate and improve capacity, efficiency and reliability of existing conveyors.

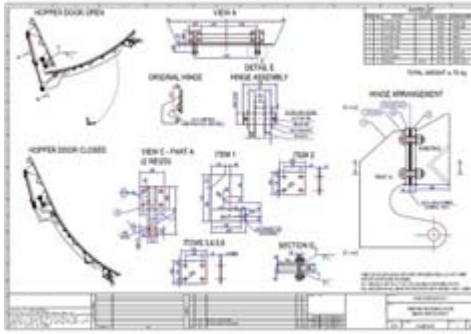


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DESIGN DRAFTING

Drafting

Our designers produce engineering drawings in accordance with internationally recognised standards and client specifications. Drawings are revision controlled and contain all required information such as bill of materials, material specifications, welding and machining notations.



Our drawings can serve many functions;

- Fabrication and manufacturing
- Shop detailing
- Conceptual design
- Layouts and overview
- Informative documentation

Sample drawings can be provided on request.

3D Modelling

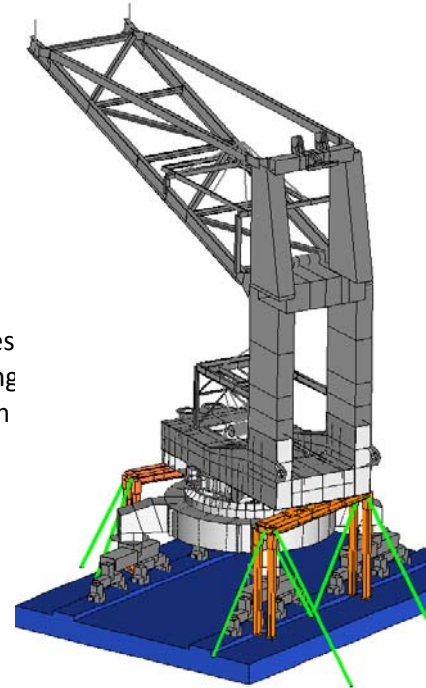
We work closely with our clients to develop 3D models during conceptual or early stage design to enable visualisation of the structure or component. 3D modelling allows the design to be visualised, including its interaction with the local environment, before proceeding to detailed design.

We make use of 3D modelling through the detailed design phases using CAD, FEA and DEM computer packages. Modifications arising from analyses are easily implemented in the 3D model which can then be used check fits and clearances.

Modularisation and Transport

Modular design of plant structures allow for efficient construction schedules and reduced transport and erection costs. MMH Engineering are experienced with layouts of modular structures thus allowing our partners to fully realise the schedule and cost benefits of modular design and construction.

Transportation of structures via road and ship imparts dynamic forces which can be significant and often require specialised transportation frames and protection systems to avoid loss and damage to the structures arising from transport.



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INSPECTION AND AUDITING

Equipment Inspection and Auditing

An engineering audit aims to create, collect, and review information from a wide variety of sources. This information is used to evaluate the machine to determine if any systemic issues are present which are not readily apparent.

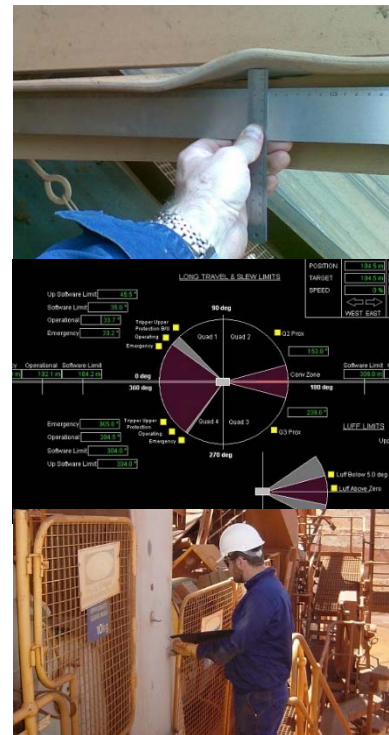
- Visual inspection
- Instrumentation and monitoring
 - Acceleration, Strain, Thickness, Temperature, etc.
- Control system audits
- Safe working platforms audit
- Incident investigation
- Operational data
- Design and fabrication documentation

The focus of these audits is on personnel safety and structural integrity, however this comprehensive approach often leads to other tangible and beneficial results such as increases in productivity or efficiency.

Design Documentation Audit

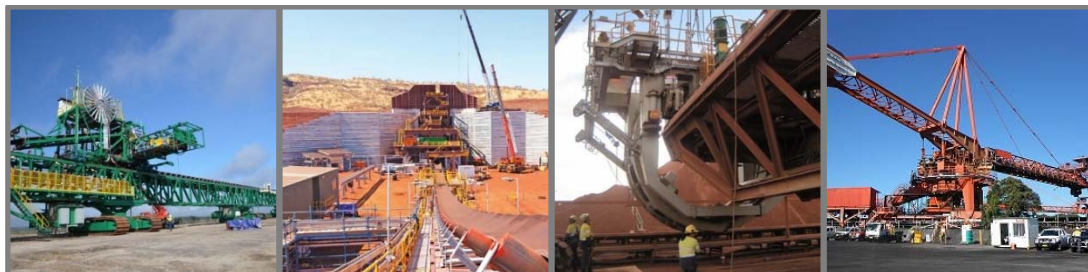
MMH Engineering can work with designers, suppliers and end users in the auditing of designs for new equipment and upgrades. An audit would include checks for compliance to relevant standards and specifications, use of current and correct information as well as omissions or errors in calculations.

Completing a design audit gives all parties greater confidence that the design that has been produced is satisfactory



MATERIALS HANDLING SERVICES

MMH Engineering specialise in bulk materials handling including fixed and mobile plant for mining and bulk import and export. If you are interested in our services for this industry please refer to our industry capability and services statement titled "Bulk Materials Handling" for further information.



For further information, employee resumes, project experience and developments please visit;

www.MMHEngineering.com

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