PATTON

ENGINEERING LTD

CAPABILITY DOCUMENT

OUR MISSION

At Patton Engineering we focus on structural steel fabrication and erection, as well as mechanical maintenance projects for a variety of medium to large businesses. The latter utilises not only our fabrication and machining workshops but also significant mobile resources for on-site works.

We provide a comprehensive service which encompasses all aspects of project works from design for both mechanical and structural engineering, through to procurement, completion, and commissioning.

"Our aim is to achieve total customer satisfaction and compliance under all governing bodies at a competitive cost."

We also ensure policies are successfully implemented, that our staff are trained to identify customer needs and that the correct procedures are followed to meet those requirements.

WHAT WE DO

We are the one-stop shop for all your engineering requirements.

- Drafting & Design
- Structural Engineering
- Structural Steel Building
- Mechanical Engineering
- Sheet metal, Steel and Stainless Steel
- General Fabrication
- Machining
- Sandblasting, Painting & Thermal Arc Zinc Spray
- On-Site Maintenance
- 3D Scanning
- In House Design Capacity
- Full commissioning and diagnostics
- On Call Engineering Support, 24 Hour / 7 days a week

OUR CAPABILITIES

Our workshop capabilities include aluminium and stainless steel fabrication, light and heavy fabrication of carbon steel structures, precision and heavy-duty machined components – all of which are completed by a comprehensive range of in-house surface treatments and finishes by our sister company, Hawke's Bay Sandblasting.

- We are capable of processing 15-20 tonne of steel per day through the fabrication workshop
- We can handle beams up to 30 meters long
- We have in-house abrasive blasting, painting and zinc spraying capability, as well as on-site wet-abrasive blasting and painting
- We offer light fabrication and stainless capabilities
- Our workshop is a 4,400 M² purpose built facility
- We employ 70+ staff and embrace the best and most current technology available

WHO WE ARE

Johno Williams
MANAGING
DIRECTOR

Johno has been with Patton's for the past 18 years and brings a wealth of knowledge and experience from a range of engineering industries. With a foundation in Fitting and Turning and Heavy Machining, Johno also undertook training and achieved accreditation in a range of welding disciplines. Coupled with these, Johno moved into site steel erection and running of maintenance and installation projects.

Mike Patton
DIRECTOR AND STRUCTURAL
ESTIMATOR

Mike's primary role is as a structural steel estimator, having been associated with the industry for the past forty-plus years.

Mike has earned a significant amount of respect over the years and continues to bring in new and repeat business for Patton Engineering as a result of his professionalism and the service that he provides.

Andrew Burn
DIRECTOR AND WORKSHOP
MANAGER

Andrew has been in the Engineering industry for the last 23 years, having served his time in the UK. He has been at Patton Engineering for the last 15 years as the Workshop Manager, an AS 2214 qualified Welding Supervisor and part of our Welding Co-Ordination Team. Andrew's can-do approach regularly ensures tight delivery lead-times are met.

Mark Wharekawa
ENGINEERING PROGRAMME
MANAGER

Mark comes from a heavy engineering background completing the NZ Certificate in Engineering Fabrication - Welding. Mark has spent five years in the role of Project/Design Engineer and has now furthered his learning completing a NZ Certificate in Project Management, and a Bachelor in Applied Management. With an eye to the future Mark is driven and determined to provide the best for our company and clients.

QUALITY ASSURANCE

PCCP

The PCCP is an accreditation program that minimises spending on maintenance of assets and infrastructure. It was started in 1992 as a joint initiative between the Commonwealth (as a major owner of assets and infrastructure) and industry. Its objective was to accredit painting contractors who could demonstrate compliance with certain defined minimum performance standards – quality systems, satisfied customers, skilled and experienced personnel etc. Adherence to these standards is ensured through a process of regular audits by personnel with appropriate skills, experience and knowledge of the industry. Organisations that want to make use of PCCP services apply to become Members and pay an annual subscription for the rights and privilege of PCCP Membership.

ISO14001

ISO 14001 standard provides guidance on how to consider multiple aspects of your business procurement, storage, distribution, product development, manufacturing, etc. so that it reduces its impact on the environment. It also drives you to evaluate how you manage emergency response, customer expectations, stakeholders and your relationships with your local community.

ACCREDITED TO AS/NZS ISO 3834: CATEGORY 3

Welding is a so-called “special” process, which means that a complete verification of the welded join is not possible without destroying it. Therefore, to ensure the proper quality of the welded product and to optimise manufacturing cost, the whole welding process must be controlled from the very start. For structural steel applications, this is achieved by applying a quality management system ISO 3834.

3D LASER SCANNING

With the introduction of 3D scanning technology and the ability to utilize BIM within our company, we are able to provide a service ahead of our competitors who are not invested in 3D capture technology.

We are able to 3D document your site capturing detailed and highly accurate measurements of complex objects and buildings. As many of our sites are spread across the country, 3D scanning has enabled the job site to come to us by capturing a detailed scan model of the project environment eliminating the need for rework.

Our in-house designers then extract all the information including structures, piping and anything else relevant to a project to form a model which can be delivered across various BIM platforms.

Key Benefits of FARO 3D scanners include:

- Wide range of uses
- Point cloud creation, 360 imagery and photos
- Share2Go
- Identify obstacles
- Stakeholder participation

The results:

- More accurate results +/- 1mm accuracy
- Reduced labour costs
- Lessen the need for site revisits
- Reduced project time, meaning saving you money and adding value to the project

STEP 1: PLANNING

PROJECT REQUIREMENTS

Meet with the client to determine the scope of works and any other requirements critical to the project. We will then map scan positions and determine areas of high priority during a site walkaround, to utilize the best and most efficient time spent onsite without interfering in day to day operations.

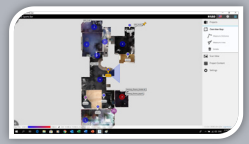
STEP 2: SCAN

CAPTURE THE PROJECT SITE

Begin by scanning the project site using a 3D laser scanner to capture real world information of buildings, infrastructure and industrial facilities into the digital world. Collect existing condition measurements from short and long range distances of complex geometries and structures within minutes for a complete recording of the current physical status.

STEP 3: PROCESS

MANAGE SCAN DATA



Once the existing conditions are captured into point clouds, the 3D data set is brought into a registration software used to align and manage individual point clouds. The registration software contains tools allowing users to process scan data, navigate through projects, visualize data in best colour detail, take first measurements and collaborate the project.

STEP 4: DELIVER

EXTRACT PROJECT DELIVERABLES

Extracting 2D and 3D data from point clouds is the most critical step in the laser scanning process. With extensive software tools we are able to generate 2D and 3D deliverables. Floor plans, profiles, elevations and 3D models can be efficiently generated by intuitive extraction workflows. Analysis tools allow comparison of as-built conditions with digital CAD models.

HEALTH & SAFETY

We are committed to the achievement of the highest levels of health and safety practices. We ensure the Health and Safety of all of our staff, clients, and contractors at all levels and in all aspects of our business – not only within our fabrication and surface treatment facilities but also on site.

See our full health & safety policy on our website at
www.patton.co.nz/health-and-safety

“Health and Safety remains our number one priority in everything we do.”

STRUCTURAL STEEL

Our core business focuses on design, fabrication and erection of steel buildings and industrial steel structures.

A small selection of such projects are outlined as follows...

FMG BUILDING

PALMERSTON NORTH

Palmerston North's largest inner-city construction project in the last 25 years saw us fabricate, surface treat, deliver and erect 500 plus tonnes of steel to Humphries Construction.

With the project nearing completion in May 2017, all time frames had been exceeded making the transition on-site for the remainder of contractor's works to be undertaken in a timely manner.

24 'K'-Frames weighing upwards of 7 tonnes each were required for this project and in some cases required as many as 70 weld passes to 50mm plate for Full Penetration welded joints.

Third party weld testing including MPI and Ultra-Violet examination, as well as in-house visual inspection and examination by our two in-house AS/NZS2414 qualified Welding Supervisors was conducted throughout fabrication.

Due to limited space on site, and lack of lay down areas, delivery of components to site needed to be extremely well co-ordinated. This saw us utilising flat-racks for transport, and scheduling loads in such a manner that allowed our erectors on site to stand and erect steel as it was unloaded.

Post project completion, Humphries Construction have been effusive in their praise for Patton Engineering, stating their satisfaction at our professional approach to this project, the quality of our workmanship and the manner in which we have met and even exceeded our delivery time frames.

FOODSTUFFS

PALMERSTON NORTH

A new 35,700m2 dry storage building for Foodstuffs based in Palmerston North was required, which would service their supermarkets in the Lower North Island region. This facility was required to handle up to 500 truck deliveries and pickups per day.

We were contracted for the initial design and costing stages through to manufacture and erect of all the structural steel work, a job that took a year to complete.

The on-site work for the erection involved careful planning and precision execution, especially the roof installation where a co-ordinated approach between crane driver and rigging staff was required. These roof installations were undertaken in a staged approach.
The building was constructed using 900 tonne of steel including truss section columns and rafters.

This building was the biggest project to that point for us. The project ran extremely well and was completed ahead of schedule despite the very wet and windy Manawatu winter.

In July 2008, a Health and Safety audit was conducted by the Department of Labour for the Foodstuffs project, with our procedures/staff being praised by Bruce Lambie; the Inspector for the Department of Labour – “From my discussions with Mainzeal, and from my observations, your crew on this site is to be congratulated, from the management and placement of steel, the wearing of PPE, the use of safety harnesses to the use of MEWP’s.

PATTON ENGINEERING LTD

MCLEAN PARK GRANDSTAND

HAWKE'S BAY

We have were involved in the redevelopment of McLean Park, working with Mainzeal Construction as the subcontractor providing painted structural steel and site erection for the construction of the new Graeme Lowe Grandstand in Napier.

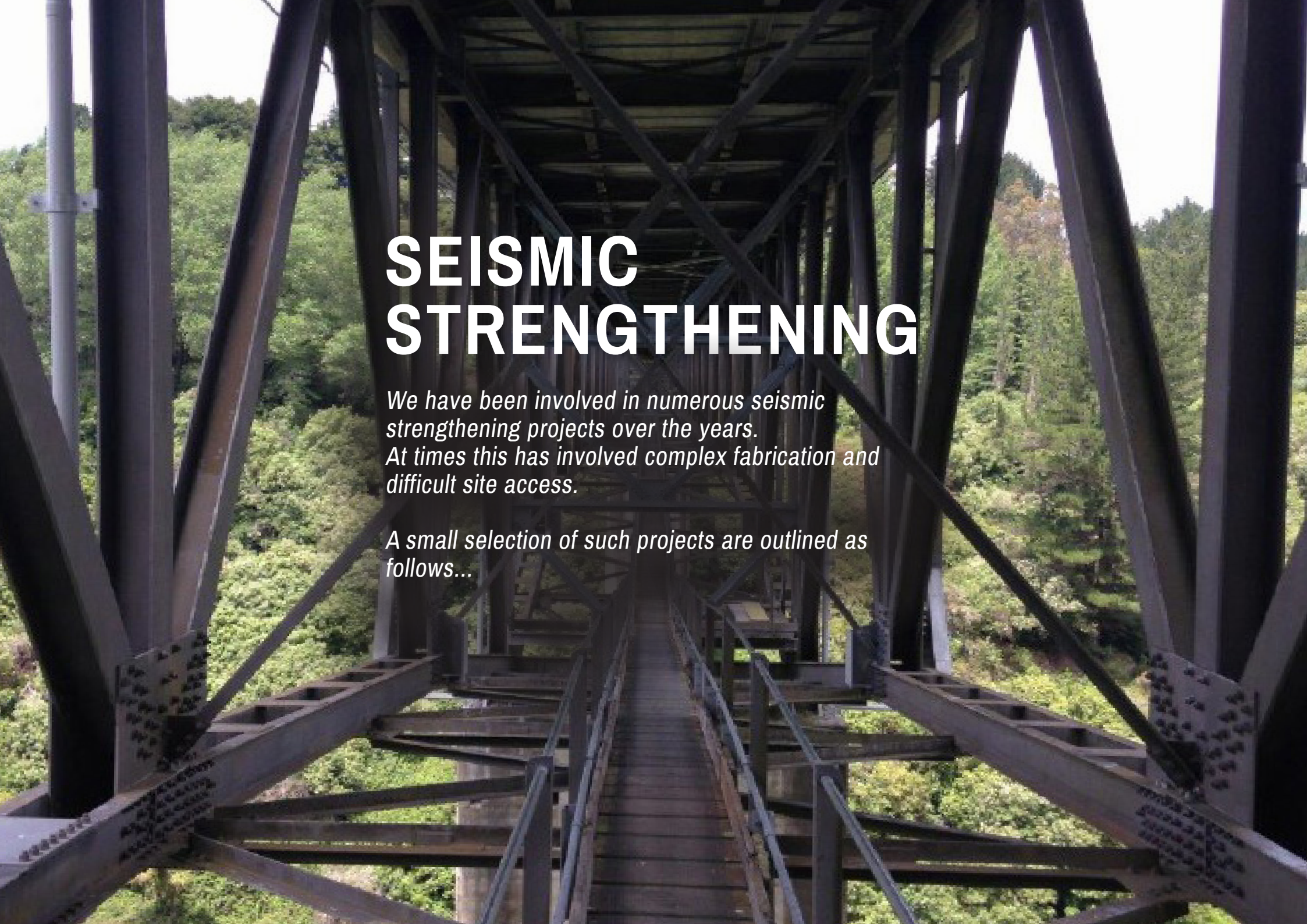
This stand replaced the old McKenzie stand and now has a capacity of over 3000 including corporate hospitality boxes.

The project commenced in September 2008, using over 220 tonne of steel in developing the stands structure. The grandstand was completed for the opening game of the Air New Zealand Cup.

We were contracted to manufacture and erect the new 4,250 grandstand, which included all the stairways and handrails requiring approximately 250 tonne of steel.

All departments of Patton Engineering were utilised for this project. A big effort was put in by all staff to help ensure the grandstand was completed in time for the first game of the Hawke's Bay Magpies 2009 Air Zealand Cup campaign – a convincing 47-13 victory over Auckland.

With a great sporting culture at Patton Engineering all staff enjoyed working on and watching this project come together over the 10 months of construction.



SEISMIC STRENGTHENING

We have been involved in numerous seismic strengthening projects over the years.
At times this has involved complex fabrication and difficult site access.

A small selection of such projects are outlined as follows...

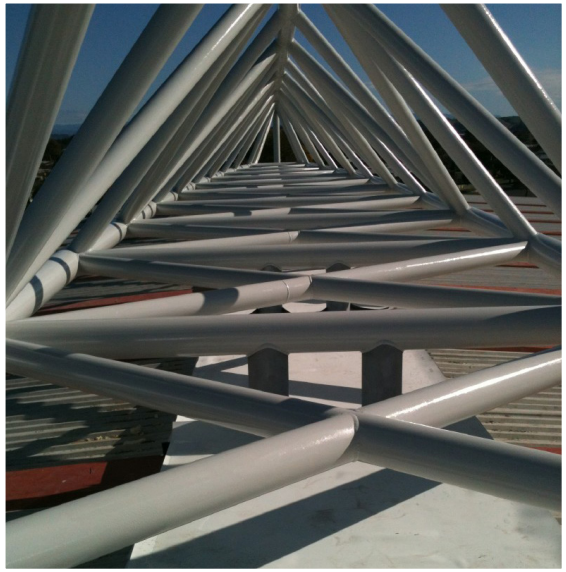
HEINZ WATTIES

HAWKE'S BAY

Complex and heavy with very close tolerances, these K-Braces saw a need for us to fabricate the K-Brace frames as segments before assembling them to large diameter; heavy wall circular columns and final welding.

As with all seismic strengthening projects, a high percentage of NDT was required to our welds, with zero defects returned, testament to the abilities of our welding staff.

The frames were designed and built expressly for ease of installation on-site as a 'mono-unit'.
We did accurate surveying to attach them to precast building mountings, securing the building in six places and all fixings were tightened to exact standards to ensure compliance with codes.



FLAXMERE WATERWORLD

HAWKE'S BAY

An exciting and complex project involving parabolic curves to large diameter – heavy wall pipe; this project certainly provided its share of challenges for our fabrication team. As this was a seismic strengthening structure, welding was to an extremely high standard and required a significant level of UT. There were a large number of complex joints incorporating coping to large numbers of intersecting members. Overall the main truss was around 30 meters long and presented challenges even just in handling.

Once fabrication was completed the entire structure received a hi-spec surface treatment of Thermal Arc Aluminium spray, followed by a coat of Epoxy and two coats of Polyurethane for UV protection. The structure needed to be handled with the proverbial kid gloves throughout transportation and installation.

PATTON ENGINEERING LTD

HISTOLOGY

HAWKE'S BAY

We were engaged by the Hawke's Bay District Health Board to undertake significant seismic strengthening to their Acute Assessment (Histology) Building.

The initial stage of the work was conducted in association with Opus Consulting and involved large section members being integrated into the existing structure, which had originally been built in a manner that fell well short of current building codes.

The nature of the work was such that it needed to be undertaken in a piecemeal fashion as the building remained largely in use during the workshop fabrication and site installation stages– meaning that a lot of the essential sit measuring could not be undertaken until each stage of demolition work was done by civil contractors.

The final outcome of the first stage of the work received effusive praise from both the Hawke's Bay District Health Board and Opus Consulting who commented specifically on our professionalism and the degree of skill that was bought to the site installation in a very difficult and hard to access site.

Our work resulted in no disturbance to the adjacent floors, nor to the staff and patients within the wards below.

MECHANICAL ENGINEERING

We offer a full range of services, from simple and cost effective structural and mechanical repairs to complete complex turn-key project installation works.

A small sample of mechanical engineering projects are as follows...

OPERA HOUSE

HAWKE'S BAY

Winner of 'EXCELLENCE IN STEEL CONSTRUCTION' at the
INAUGURAL STEEL CONSTRUCTION (SCNZ) AWARDS

We assisted in design, and in turn manufactured and installed a retractable roof to cover the exterior plaza adjacent to the newly refurbished HB Opera House in Hastings. The structure consists of 3 steel trusses (each weighing 6 tonnes) that are curved across the plaza.
The trusses provide support for the retractable canvas roofing – which is opened and closed by engaging the electric drives (also built by Patton Engineering).

We won a national award for this arched retractable plaza roof in the 'Buildings up to three Stories category. The award recognises excellence in steel fabrication, construction, innovation, sustainability, teamwork, safety and best practice.

The arched roof has been dubbed an architects dream but an engineer's nightmare. The roof, which covers the 27 metre long plaza courtyard, was for a mechanical opening structure that retained the openness of the plaza while making it an all-weather venue.

PAN PAC
STAINLESS CYCLONES

HAWKE'S BAY

We worked closely with Pan Pac to design, fabricate and install a replacement Drying Tower, Cyclone; Return Air Duct and Inlet Duct; all in stainless steel; as the first phase of upgrade to Pan Pac's Dryer #1.

The scope of work included demolition and removal of redundant equipment and installation of new large structural components in tight spaces and tight time frames.

Following successful completion of the first phase of the drying tower and cyclone replacement, Patton Engineering immediately commenced workshop fabrication of the next phase of stainless steel fabrication to the No. 1 dryer, which in effect was a new drying tower and cyclone for the dryer 1 first stage, along with all new ducting and also a new Cooling Stage Cyclone. Site installation which involved cyclone lifts in excess of 40 meters from the crane base, was once again completed ahead of schedule, resulting in positive feedback from the client.

PORT CONVEYOR

HAWKE'S BAY

In conjunction with Australian based company, 'Cortex', we designed, fabricated and erected a huge mobile conveyor for loading wood chip to ships for export.

This was done in the days prior to the invent of 3D modelling, so Cortex spent an evening in their motel room 'crafting' a model of what they required from toilet roll cores, before presenting this to our drafting team to extrapolate out to a comprehensive design and drawings from which we could fabricate.

The result was a huge mobile structure that has seen many years reliable service in an aggressive coastal environment.

PATTON ENGINEERING LTD

HAWKE'S BAY
SANDBLASTING
LIMITED

Our aim is to maintain ongoing improvements in our processes and systems, with the goal of becoming Hawke's Bay's leading Surface Protection provider by offering cost-effective and high-quality surface finishes to our clients.

OUR CAPABILITIES

Hawke's Bay Sandblasting was purchased by Patton Engineering in 2006. More recently, Hawke's Bay Sandblasting has gained certification under ISO 14001 (Environmental Standards) and PCCP (Painting Contractors Certification Programme).

This assures our clientele that we are committed to giving them the best advice, service, and quality in their surface treatment requirements.

CAPABILITES:

- Our abrasive blasting booth dimensions are 8m wide x 6m high x 26m long, allowing for a large range of jobs to be processed through our in-house facility
- 2 painting booths
- Thermal arc zinc spraying booth
- We are well equipped for small to large abrasive blasting and painting jobs

Our services extend not only to steel and structures fabricated by Patton Engineering, but increasingly include surface treatments to externally fabricated structures, equipment and components to a number of diverse clients, in a range of industries.

WINERY & RESTAURANT

ELEPHANT HILL, HAWKE'S BAY

Elephant Hill is one of the signature restaurants and wineries in New Zealand, but saw its beginnings as a green-field site upon which Patton Engineering in association with Alexanders Construction erected 600mm diameter columns and huge 30 meter rafters to form the skeletal structure for this iconic establishment.

Roof components were assembled at ground level in segments and then lifted into place during multi-crane lifts.

A very high-specification paint system was applied, not only due to the aggressive coastal environment, but also for aesthetic reasons as final color was to blend effortlessly with tarnished copper building cladding materials.

The owners residence, which was built to overlook the winery formed part of the project, and also contained the high-specification copper appearance for it's surface treatment finishes.

PATTON ENGINEERING LTD

LYVE SYSTEMS TANK

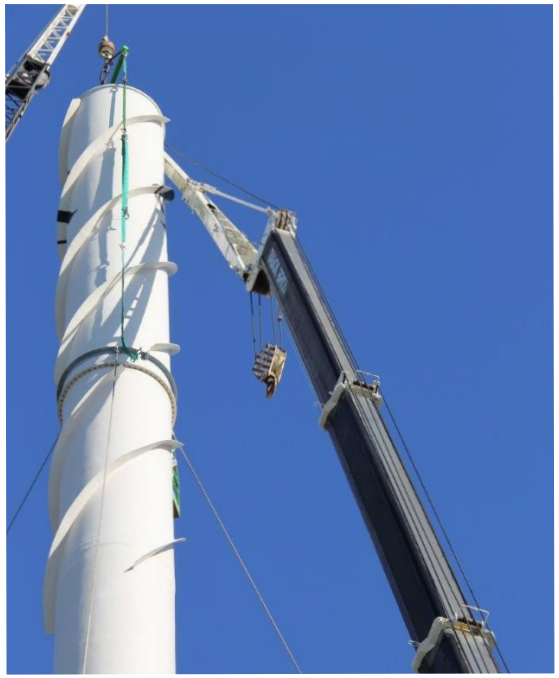
CALIFORNIA, USA

We were highly involved in the establishment of this company‘s winery wastewater treatment solutions in the Napa / Sonoma wine regions in California.

We designed and fabricated the main components of the system utilising our in-house sandblasting and protective coating. This in-house capability helped streamline the production of the systems ensuring installation deadlines were met.

“Patton Engineering’s involvement in creating the main components of our systems to the highest quality, on time, is a credit to their organisation and proficiency.

We are proud to install our Patton manufactured wastewater treatment systems in some of the most prestigious wineries in the USA and we look forward to continuing our 10 year association.”
- Wayne August, Director



RAVENSDOWN ACID PLANT EXHAUST STACK

AWATOTO, HAWKE'S BAY

In 2015 we were engaged to design, fabricate, abrasive blast, paint and install a replacement 55 meter tall exhaust stack for Ravensdown's Awatoto Acid Plant.

The existing stack was of fibreglass construction, which as a result of the corrosive emissions, was suffering from significant internal delamination.

The top section of approximately 12 meters in length included some rather tricky fabrication as it incorporates spiral wound flights to aid exhaust extraction.

Installation was by 3 cranes with our staff working out of suspended 'man-cages'.
The cranes were the largest available in the Hawkes Bay.

PATTON ENGINEERING LTD

TESTIMONIALS

"I would like to thank both you and your staff for your efforts over the past four years on $8 million dollars of Capital improvements at our Awatoto Works Site. I have always found Patton Engineering a highly motivated professional company without question by the quality of all their work. I look forward to working with Patton Engineering in the near future and without reservation recommend your services to others."
JOHN PERRY, PRODUCTION MANAGER, RAVENSDOWN FERTILISER COOPERATIVE

As a result of our involvement in the Hawke's Bay Opera House Opening Roof project; Hastings Mayor Lawrence Yule said "A worldwide search for an engineering firm that could construct the roof eventually led the council back to its own district. It turns out that, right on our doorstep we have some of the best brains, the best engineering and the best technology in the world. The architects had all the ideas and these guys transformed them into reality. It had to work but it had to look good too."

LAWRENCE YULE, MAYOR OF HASTINGS

Hawke's Bay Opera House
"Pattons did a great job right from early on in the planning and pricing stages. They had lots of good ideas, suggestions and were able to turn these into reality once the contract commenced."
JOHN PATTEN, CONTRACTOR

"I would recommend Patton Engineering for any major (and minor) installation work, always accommodating and professional. They will get the job done on time."
NORIKO CROFSKEY, UTILITIES COORDINATOR (BOILERS), PAN PAC FOREST PRODUCTS WHIRINAKI

TESTIMONIALS

"I would like to thank the team at Patton Engineering for the outstanding service during the Dryer 1 Part Replacement Project. All services including the safety systems, communication and shift hand over systems were delivered to a very high standard despite the very tight time frames. I look forward to the challenge of the next stage of the replacement."
DENNIS WHEATLEY, PAC PAC FOREST PRODUCTS

"I would personally like to thank you and your team for your outstanding efforts and commitment to the FMG project. My team have advised me Patton Engineering staff were professional and knowledgeable, and the management of the build was excellent. (The words my team actually used were "awesome", "super-easy to deal with" and "realistically priced.") We genuinely look forward to working with you again and have no hesitation in recommending Patton Engineering."
PAUL HUMPHRIES, MANAGING DIRECTOR, HUMPHRIES CONSTRUCTION

"Patton Engineering was the main mechanical contractor for Ovivo on the Waste Water Treatment Plant Upgrade at Pan Pac. The quality of workmanship both on site and with pre-fabricated materials was outstanding. Their overall Project Team was knowledgeable, hard working, trustworthy, and a huge asset to Ovivo's ability to meet a very tight project schedule."

- HALEY, ENGINEERING MANAGER, OVIVO WASTE WATER

"I would like to thank Patton Engineering for providing Pan Pac with a magnificent example of fine engineering craftsmanship. The quality of finish cannot be surpassed and at a level that I would describe as world class."
BRUCE AYLING, PLANT ENGINEER, PAN PAC FOREST PRODUCTS

PATTON
ENGINEERING LTD

32 Rangitane Road, Whakatu
Hawke's Bay, New Zealand
06 872 7120

www.patton.co.nz