

MACHINE FOUNDATIONS
CAPABILITY STATEMENT

Terazzo Pty Ltd

Concrete Construction

DESIGN | MANAGE | CONSTRUCT

COMMERCIAL | INDUSTRIAL | CIVIL
Brisbane and South East Queensland
Established in 1930



COMPANY OVERVIEW

For nearly a century, Terazzo has been a trusted industry leader in commercial concrete construction specialising in the project management and successful execution of highly complex and detailed projects, such as heavy machinery foundations.

The Terazzo management team includes a qualified construction manager and project engineer. We have the experience to deliver jobs with the technical precision and structural integrity required to provide for optimum performance and longevity of all forms of machinery.

Our clients appreciate our quality-assurance commitment to delivering an exceptional finished product with structural integrity, that ensures it is fit for purpose and built to last.



WHAT OUR MACHINE FOUNDATIONS CLIENTS SAY

Just wanted to say a BIG thanks to you and your guys on your safety, following our process, and your professionalism when you were on site. Great job and thanks again.

- *Stephen, Service Centre Manager, Brisbane*

On a side note, the installers of the press said that it was the most accurate foundation they have come across. Considering they install them worldwide - that's a pretty big pat on the back!

- *Simon, Project Manager, Brisbane*

MACHINE FOUNDATIONS SPECIALISTS

Terazzo has the core competencies to design, manage and construct all forms of concrete machine foundations that provide the correct load bearing capacity, rigidity, and precision with respect to dimensions of pits, walls, conveyors etc. needed for heavy machines.

Capacity to implement engineering designs to exact specifications is critical. As experienced construction managers, we have the necessary skills to implement detailed engineering plans with exact precision.

Site soil core sampling is a useful tool to understanding how soil is likely to determine the amplitude of vibration of the machine during its working frequency. We are accustomed to working with engineers and geo-technical specialists to address the vital parameters of machinery performance that may be affected by sub-soil structure.

Site preparation often involves laying out and securing the site and cutting and removal of an existing slab in preparedness for concrete construction to commence. Terazzo is highly experienced in all elements of site preparation an always respectful of the operational, hygiene and safety requirements of any site in which we operate

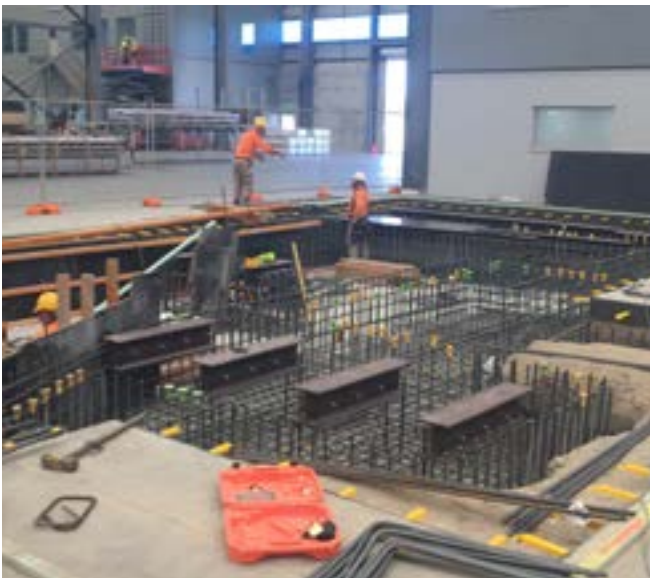
Precision of excavation and pit construction is vital to ensure the specific dimensions required for machinery pits & walls are achieved. We select specialist earthmoving contractors and are adept at using GPS technology to ensure accuracy of machinery foundations.





Correct load bearing capacity and structural rigidity is critical to maximise machinery performance and to minimise machinery deterioration and/or vibrational impacts to surrounding work environments. We are experts in managing the professional steel and formwork required to achieve necessary load bearing capacity and structural rigidity of machinery foundations.

Flawless concrete pouring is also essential to the long-term load bearing capacity and rigidity and structural of machinery foundations. Our clients trust us to specify correct concrete mixtures and quantities to manage a flawless process that provide optimum long-term structural performance of the facility.



Site compliance is a crucial consideration when planning construction of machinery foundations. Much of our work is carried out safely within busy operating business environments and complies with specific operational, safety and hygiene standards.

Minimal downtime is an important budgetary factor for many clients. To minimise operational impact, we can operate 7 days a week and outside of normal business hours when necessary.



Operational safety is of paramount importance when constructing machinery foundations, especially in internal working environments. Terazzo holds all necessary OHS and site safety certifications and takes seriously the personal health and safety of all staff, contractors and related personnel in or around all project work sites at all times.



IMPORTANCE OF QUALITY MACHINE FOUNDATION CONSTRUCTION

All heavy machines typically have different requirements for their concrete foundations because they all operate at different speeds, hold different loads, and require specific operating conditions.

A recent technical study entitled the Systemic Review of Research Relating to Heavy-Duty Machine Foundations found that the quality of the concrete foundations of heavy-duty machines can drastically affect the operating life and working precision of machines.

The study reinforces the importance of selecting an experienced concrete contractor to manage the installation of machinery foundations because when it comes to constructing machinery foundations, there is no room for error.

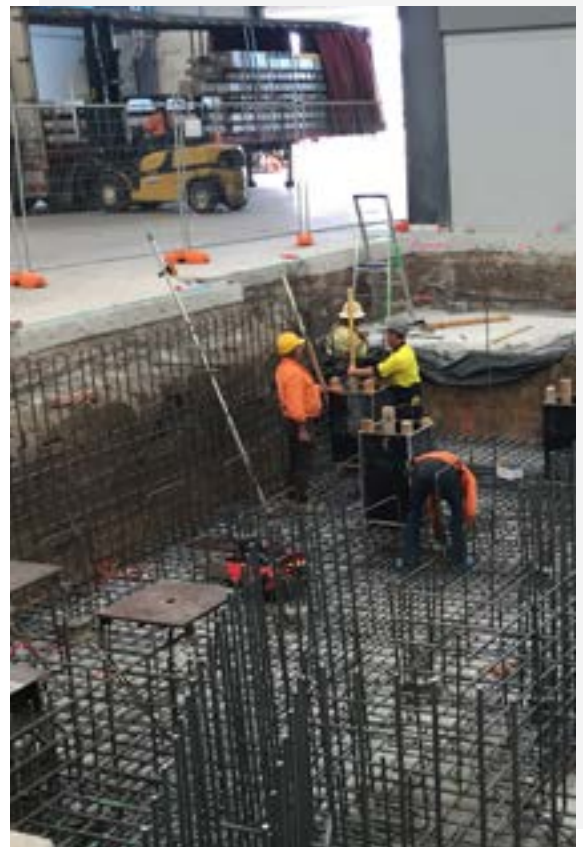
The study summarises numerous global technical papers and demonstrates that the quality of the foundation is integral to the potential return on the long-term investment in heavy machinery tools, including as follows.

The bearing capacity of the concrete foundation directly determines the rigidity of the overall mechanical structure and is integral to the processing precision of heavy machinery tools.

Foundation quality directly affects the operating life of machines - in particular, deformation can be caused by a lack of rigidity of the heavy machinery foundation, which can seriously affect machining precision, as well as the amount of maintenance required by the machine.

Due to interactions within the heavy machine and foundation, the entire array of characteristics of the foundation's integrity will directly determine the quality of work done by the machine and its ability to maintain precision.

Therefore, it is impossible to analyse and design the heavy machine tool-foundation system without regarding it as a whole system, including its foundation.



OUR PROVEN TRACK RECORD

Over its history of operation and service spanning three-generations, Terazzo has completed countless machinery foundations for a variety of clients. Below are some recent examples and we are always happy to provide further examples of previous work or the names of satisfied clients for reference.

Watch our video below to learn more.



CARDBOARD FOLDER & GLUER MACHINE FOUNDATION

Visy, Carole Park

The installation of the machine foundation required for a Bobst 924 cardboard folder/gluer, required saw cutting the existing slab, excavation, steel fixing, formwork, placement and finishing concrete.

We were required to work within the busy operational facility. Only very small tolerances were allowed and the work had to be precise in order to be fit for future operation of the equipment.

We reduced impacts to the business with out-of-hours saw cutting.

All stages of work were cross checked with internal Inspection Test Plans (ITPs) tailored by Terazzo specifically to these types of work.

The project was successful and the satisfied client immediately booked Terazzo for a future similar project.



ALUMINIUM PRESS FOUNDATION

G James Glass and Aluminium Eagle Farm

Terazzo Concrete Construction was contracted to construct an aluminium press foundation structure located inside an existing, G James Glass and Aluminium manufacturing building.

This project involved a full spectrum of services from site establishment to concrete finishing. This had to be achieved through a deep excavation. This required under-pinning screw-pile foundations to approximately 20 metres.

We demolished and removed a section of existing internal slab and removed the spoil. We constructed detailed formwork to form, fix and place slabs, walls and plinths.

Achieving the required structural integrity for safety in and around the pit, during future operations, was of paramount concern. Steel fixings included preparation to securely cast concrete around steel plates and I-beams.

This was all within a facility that was still operational, during construction.

Terazzo directly engaged a Geotechnical Engineer to test and monitor the existing ground conditions, along with the walls. This provided a framework for a safe working environment.



For site safety inside an operating factory, we implemented a site Traffic Management Plan which was reviewed daily and tailored to the day to day activities.

Rubber mats were placed on the existing concrete floors to avoid and damage when working with earthwork machinery.

Our client was happy to have a project successfully managed and without incident, on time and on budget.

All required quality and functionality aspects required were delivered and all as-built handover documentation provided.



CONCRETE MACHINE FOUNDATION & TURNTABLE

Rocklea

Terazzo was engaged to complete various commercial concrete projects to allow for an upgrade to the client's existing facility. To construct the concrete machine foundation and turntable, we commenced by removing the existing foundation which was completed by Terazzo approximately 25 years prior.

We were awarded the project just prior to Christmas. Procurement of trades and suppliers was therefore required through the Christmas holiday period which was difficult. We needed to schedule concrete pours in and around the facilities busy Christmas trading period.

We were required to work with overseas based, machine installers, to ensure all facets of the project were met, with a focus on achieving the small machine installation tolerances, once installed.

Terazzo managed these challenges through experience stemming from a long history within this type of concrete machine foundation and turntable construction. This includes experience in working in busy facilities that continue to operate, while we do our work.

This experience enabled us to build effective working relationships with our clients, suppliers, and sub-contractors. Clear communication and consistent project review and planning enabled the concrete machine foundation and turntable to be completed with all of the required outcomes met, within the allocated timeframe and budget.



CONCRETE MACHINE FOUNDATIONS FOR SCRAP METAL PROCESSING FACILITY

Tall Ingots Metal Recyclers, Yeerongpilly

Tall Ingots is a large Brisbane scrap metal recycling company that required a competent professional to design and construct the foundations for new machines to process scrap metal recycling.

Terazzo was contracted for full design, management and construction of the foundations for the new scrap metal processing machines.

The machines to be installed weighed approximately 160 tons. The strength, structural integrity and rigidity of the foundations were therefore paramount for effective future operations and safety.

The concrete machines foundations included a 4-metre-wide x 3-metre-deep concrete pit to service the steel processing. This had to be robust enough to withstand immense operational impacts.

Stress and tie down points for the machinery had to be structurally re-enforced and located with exact precision to accommodate the installation and ensure the required load-bearing strength for future operations.

Terazzo planned and designed the project in close consultation with our consulting structural engineer. The design process was based on understanding the specifications and operational requirements of the machines.

Load-bearing capacities, environmental conditions, and specific structural stress points were considered to determine the amount, grade, types and locations of re-enforcement needed.



Solutions included:

- Bored piers to achieve a satisfactory bearing outcome
- Two structurally re-enforced and co-joined layers of concrete were placed at successive stages to achieve the required strength.
- Galvanized steel panel reinforcement was utilised for the walls of the pit to ensure the strength required to handle future operational impacts.
- Galvanized steel plate reinforcements were used at each machinery tie-down point and perfectly located.
- Concrete was poured into layers with use of vibrating tools to remove air pockets, ensuring integration around the rebar within the form-work.
- QA concrete strength testing was conducted through the process.

The concrete machines foundations for the scrap metal processing machines were designed and constructed with exacting precision and quality to ensure safe and efficient operations of the machinery for years to come.



CONCRETE MACHINE FOUNDATION FOR CARDBOARD MANUFACTURER

Brisbane

Terrazzo was contracted as the Principal Contractor by the client that required construction of a new machine foundation within a busy operating factory.

There was a 600mm mains stormwater line that had to be re-diverted with two new drainage pits installed. We had to build the new line while the old line was still in place and operating.

The project involved removing hundreds of cubic metres of spoil that had to subsequently be reinstated to accommodate the replacement stormwater line. The project was managed within a busy operating facility.

We engaged with a licensed plumber to work in conjunction with us to ensure that the process of installing a new stormwater line, was managed without disruption to the existing stormwater system, to minimize risk of flooding if it rained.

Protective hoarding was installed to isolate the work zone. Every stage was meticulously planned to minimize disruption while maintaining a safe work environment for all personnel. Primary pours were managed on Saturdays to avoid conflicting with normal operating hours.

The foundations were constructed with precision, enabling the overseas machinery provider to install the machine efficiently and within a timely manner.



SHARPE ENGINEERING MACHINE FOUNDATION

Tingalpa

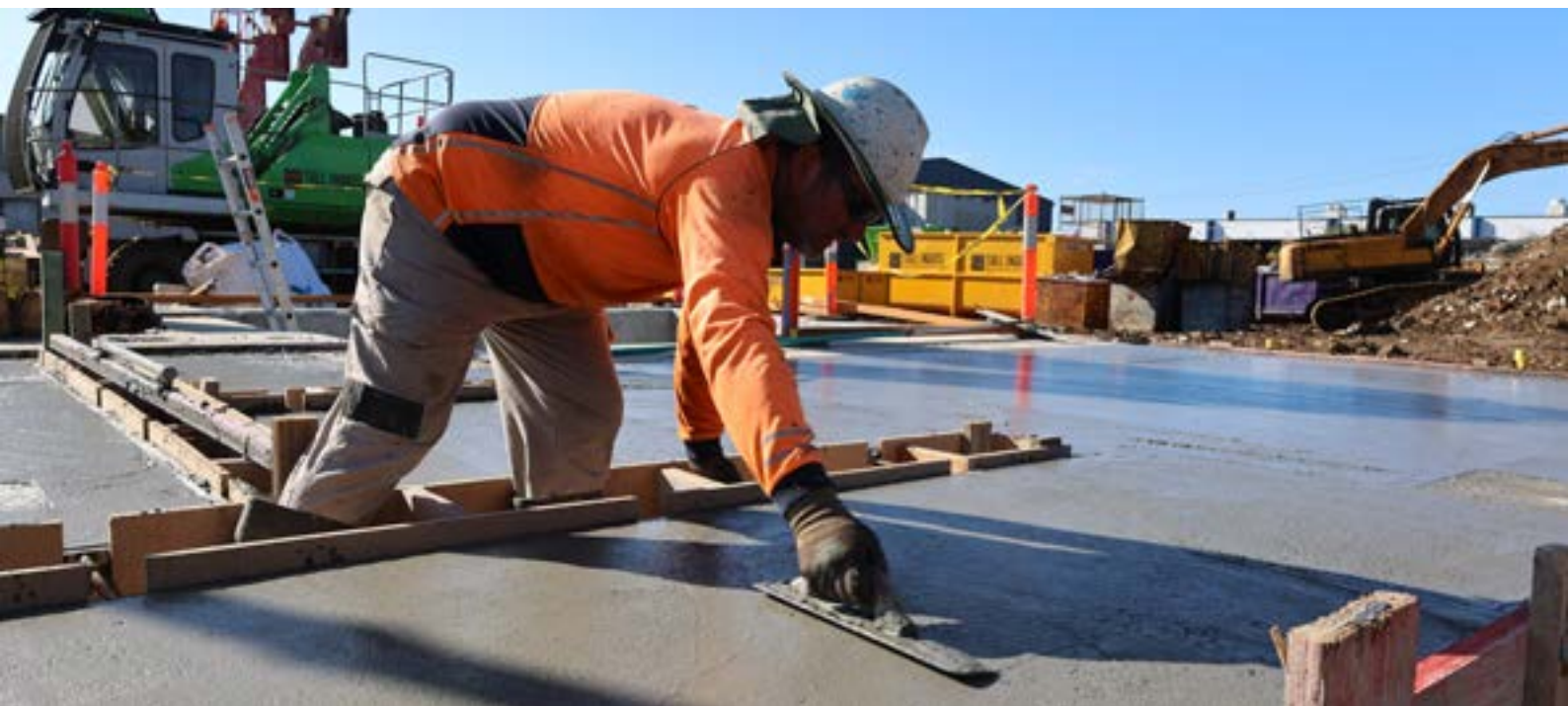
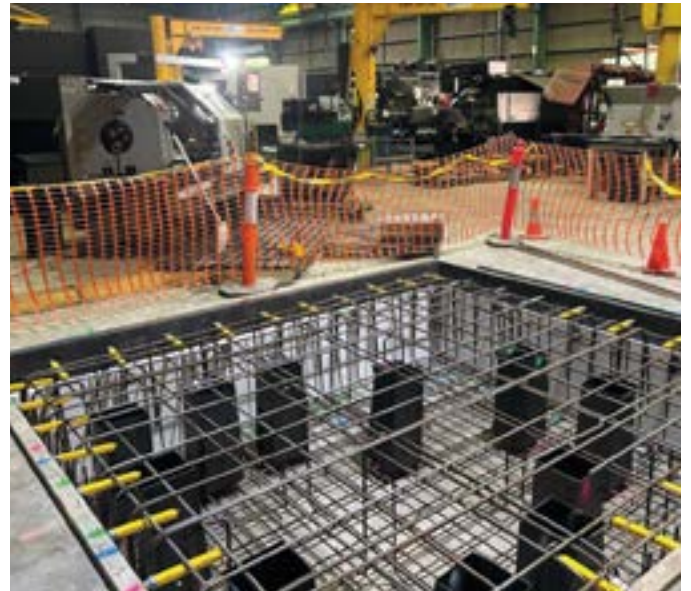
Terazzo was approached initially to consult on this project and provide design and construct budgets for a Sharp Engineering Machine Foundation.

Following this, the project was awarded to Terazzo to design and construct the following aspects:

- Geo Technical soil report
- Saw cut, demolition and excavation of existing concrete slab
- REPQ Structural Designs
- Installation of reinforcement and anchor points
- Concrete placement and finishing

The machine to be installed weighed 40 tons, therefore consideration to correct load bearing capacity was paramount. Consideration was also required to manage machine vibration.

Upon investigation of how the Sharp Engineering Machine Foundation functioned, it was identified that a vibrational barrier needed to be installed to accommodate lateral movement and vibration of the machine.



OUR TEAM



Anthony Giugni | Managing Director

Anthony has over 20 years' experience within the construction industry, holding a degree in Construction Management and his medium builders' license.

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Nick Bazin | Project Manager

Nick has a degree in Civil Engineering and has developed extensive concreting project management experience within the Terazzo team.

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CONTACT US

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