

ENGINEERING

Developed by:



**BUILT
ENVIRONMENT
CAREER
STREAMS**

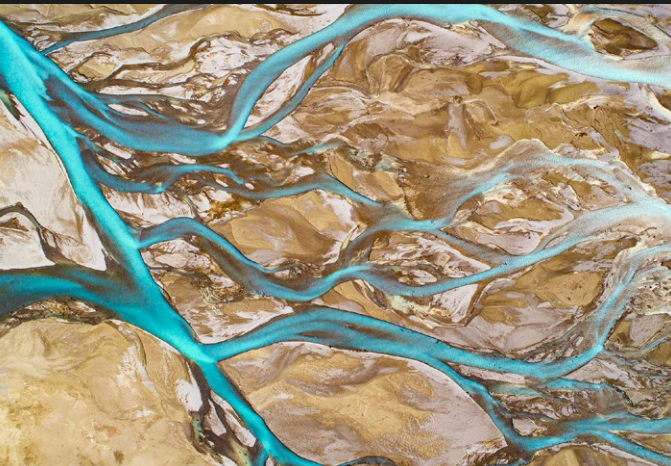
Ngā ara rerekē o te ao
hanga taiao

He ara whiria
A braided river



CHOOSING THE RIGHT CAREER STREAM FOR YOU

Inspired by Aotearoa New Zealand's many braided rivers, this helpful guide has been created for anyone entering or changing careers in the construction industry. Like a river, your chosen career stream may twist and turn throughout your career, but all streams can lead to rewarding and impactful roles – enabling you to make a tangible impact on New Zealand's built environments.



ENGINEERING

This guide gives you an overview of the opportunities and expectations within engineering careers – including typical career pathways, key skills required, what the role looks like day-to-day, and how to get started.

Engineering roles support the complete building lifecycle:

- Building system design including structural, mechanical, electrical, and specialist systems during planning and design phases
- Technical problem-solving and design coordination during construction
- System commissioning, testing, and performance optimisation at project completion
- Ongoing technical maintenance, system upgrades, and performance monitoring throughout building operation
- Regulatory compliance and safety assurance across all project phases

Design and Consultant Engineers work within engineering consultancies to design building systems, resolve technical challenges, and ensure compliance with engineering standards.

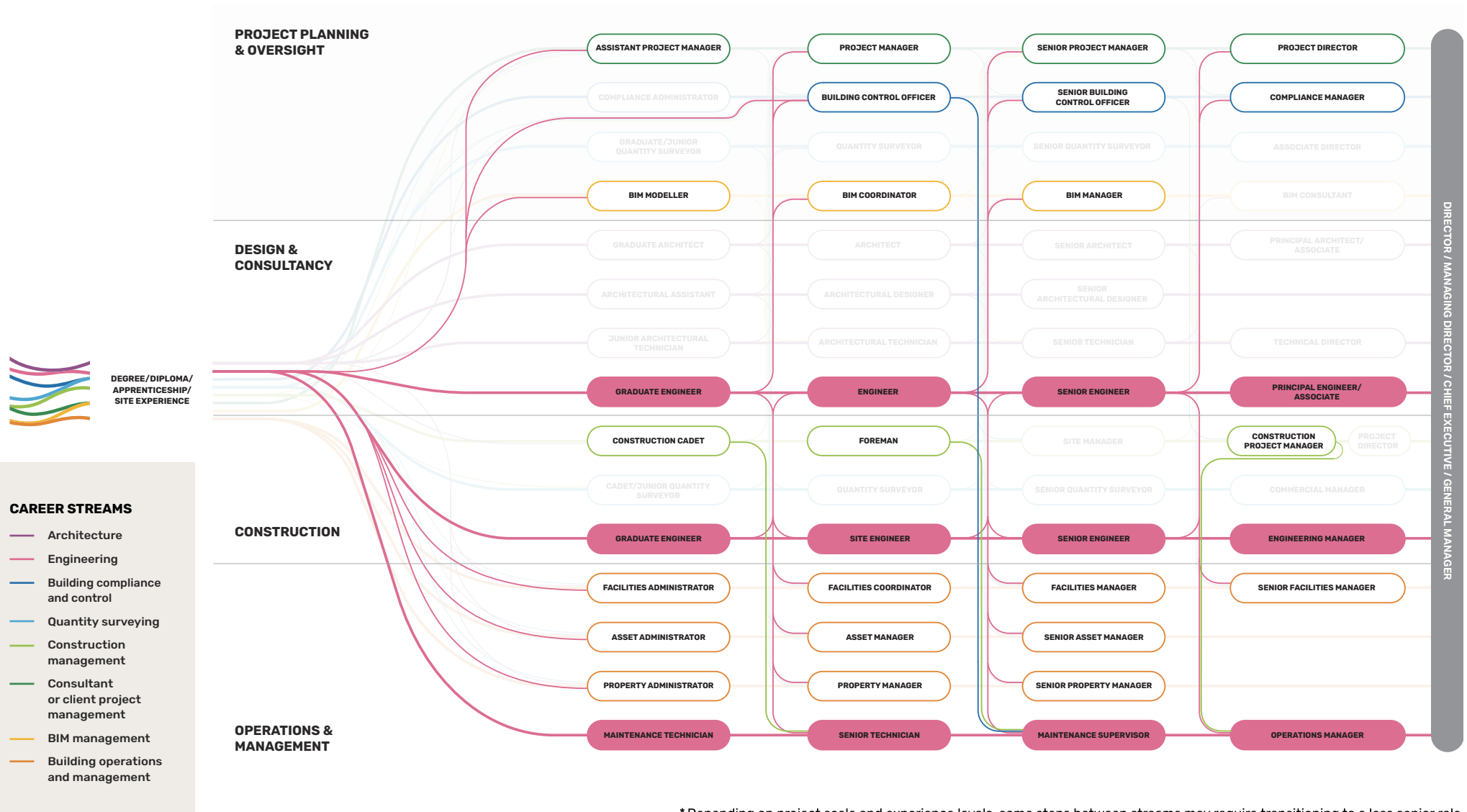
Construction Engineers provide on-site technical support to contractors and specialist subcontractors during construction, coordinate with design teams, and ensure that work is carried out according to specifications.

Technical Services and **Maintenance Engineers** work in building operations management to manage complex building systems through hands-on technical expertise, preventive maintenance, and emergency repairs.

These roles all combine technical expertise, analytical thinking, and problem-solving skills. They suit professionals who value precision, continuous learning, and practical application of engineering principles. Engineers need to have strong analytical capabilities, attention to detail, communication skills across technical and non-technical audiences, and resilience under pressure when managing technical challenges.



ENGINEERING CAREER STREAM





KEY PARTS OF THE ROLE

- **Complex technical problem-solving** – Engineering requires analysing complex technical challenges and developing solutions under time constraints. You'll need to balance theoretical knowledge with practical constraints while considering safety, cost, and performance implications.
- **Professional accountability for technical decisions** – Engineers carry significant responsibility for public safety through their technical decisions. The design choices and technical recommendations you make will have lasting consequences for building performance and occupant safety.
- **Continuous professional development** – Engineering technology and building codes evolve rapidly. You'll need to maintain current knowledge through continuing education, professional development, and staying connected with industry advances and regulatory changes.
- **Multi-disciplinary coordination** – Engineers work closely with architects, contractors, and other consultants to deliver integrated solutions. You'll need diplomatic skills to navigate technical disagreements and coordinate complex interfaces between systems.
- **Detailed documentation and quality assurance** – Engineering work requires comprehensive documentation for regulatory compliance, contractor coordination, and professional accountability. You must balance efficiency with thorough record-keeping and quality control processes.

ALTERNATIVE CAREER PATHS

After you have gained experience in engineering, other roles that become possible include:

- **Moving between types of engineering roles** – Switching between engagement in design, construction and operations stages of the building life cycle
- **Project management** – Applying engineering knowledge to consultant or client project management roles
- **Building control and compliance** – Applying engineering knowledge to regulatory roles and consent processes
- **Asset and facilities management** – Using technical knowledge to manage building portfolios and maintenance programmes
- **Business development and sales** – Taking on technical roles with engineering suppliers, software companies, and equipment manufacturers
- **Education and training** – Sharing your knowledge in tertiary education, corporate training, or professional development roles

“Graduates will largely be doing calculations. They might do some basic modelling, not the more complicated stuff. They are likely to be given broken-down design tasks under the oversight of someone more senior. A senior role involves driving the projects, ensuring that everyone's on track for what they need to deliver and has the information they need, and attending coordination workshops with the different design consultants.”

– Liz Richardson, Technical Director & Manager of Auckland Building Structures Group, Beca



SALARY BANDS*

Design/consultant engineer	Graduate engineer	Building control officer	Engineer	Senior engineer	Principal engineer
Minimum time in role	2-3 years	3-5 years	5-8 years (destination role)	6-10 years (destination role)	(destination role)
Salary range	\$50,000-\$65,000	\$80,000-\$110,000	\$110,000-\$140,000	\$130,000-\$170,000	\$160,000-\$220,000
Construction engineer	Graduate engineer	Site engineer	Project engineer	Senior engineer	Engineering manager
Minimum time in role	2-3 years	2-3 years	3-4 years (destination role)	4-6 years (destination role)	(destination role)
Salary range	\$55,000-\$70,000	\$70,000-\$85,000	\$85,000-\$110,000	\$110,000-\$140,000	\$140,000-\$200,000+
Technical services and maintenance	Maintenance technician	Senior technician	Maintenance supervisor	Technical services manager	Operations manager
Minimum time in role	3-4 years	4-6 years	5-7 years (destination role)	6-10 years	(destination role)
Salary range	\$50,000 - \$70,000	\$65,000 - \$85,000	\$75,000 - \$105,000	\$95,000 - \$130,000	\$130,000 - \$180,000+

*Salaries and time in roles is indicative only and can vary significantly based on experience, performance, firm size and structure, regional location, specialisation, and market conditions.

ROLE OVERVIEW

KEY DAILY ACTIVITIES

- Designing building systems including structural, mechanical, electrical, and specialist systems
- Analysing technical requirements and developing engineering solutions
- Preparing engineering drawings, specifications, and technical documentation
- Coordinating with architects and other consultants on integrated design solutions
- Reviewing contractor submissions and responding to RFIs (Requests For Information)
- Conducting site inspections and technical assessments

WHERE YOU COULD WORK

Multi-disciplinary firms – Integrated design services combining engineering with architecture, quantity surveying, and project management

Engineering consultancies – Specialist engineering firms focused on technical design and advisory services

Contractor or sub-contractor organisations – Construction companies requiring technical engineering support and project delivery expertise

Facilities management or asset management consultancies – Organisations managing building portfolios and maintenance programmes

Directly with a client organisation – Government agencies, healthcare providers, property developers, or other companies with ongoing engineering needs

WHO YOU'LL WORK WITH

Other engineering disciplines, architects, quantity surveyors, contractors, subcontractors, project managers, building control officers, regulatory bodies, clients, and end users.

TYPICAL WORK ARRANGEMENTS

Design/consultant engineers

- Primarily office-based with computer-aided design and analysis work
- Regular site visits for inspections, measurements, and coordination meetings
- Standard business hours with flexibility for remote design work
- Extended hours during project deadlines and tender submissions

Construction engineers

- Site-based work with early morning starts to align with construction schedules
- Office time for documentation, design coordination, and contractor meetings
- Limited remote work opportunities due to hands-on site requirements
- Evening and weekend work during critical construction phases

Technical services and maintenance engineers

- Mix of workshop, plant, and office environments
- Physical work including climbing, crawling, and working in confined spaces
- Shift work may be required for continuous operation facilities
- Emergency call-out requirements for critical system failures





WHAT TO EXPECT

REWARDS AND SATISFACTION

- Professional recognition through registration and industry standing
- Tangible results through completed buildings and infrastructure projects
- Continuous learning opportunities through evolving technology and project types
- Strategic influence on building performance, safety, and sustainability outcomes
- Opportunities for international work and career advancement

WORK-LIFE BALANCE

Design/consultant engineers

- Predictable office hours with flexibility for remote design work
- Project deadline pressures create concentrated periods requiring extended hours
- Professional development activities require an investment of time alongside practice responsibilities
- Meeting-intensive schedule during design coordination phases

Construction engineers

- Early morning starts to align with construction schedules
- Long hours during critical construction phases including weekends
- Weather-dependent outdoor work affects daily scheduling
- Limited flexibility due to site-based nature of role

Technical services and maintenance engineers

- Variable hours depending on maintenance schedules and emergency repairs
- Possibility of shift work and emergency call-outs
- On-call responsibilities for critical building systems
- Physical demands require good fitness levels

GETTING STARTED

On-site experience provides valuable, hands-on knowledge that combines theory with practical reality, but engineering roles also require specific qualifications. Technical competency development occurs through structured professional development programmes, combining formal education with practical experience.

IMMEDIATE ACTIONS

- **Gain relevant qualifications** – Engineering degree or diploma from accredited programme such as: 4-year Bachelor of Engineering (Honours) for Professional Engineer; 3-year Bachelor of Engineering Technology for Engineering Technologist; or 2-year New Zealand Diploma in Engineering for Engineering Technician
- **Join Engineering New Zealand** – Includes student and emerging professional memberships and provides pathways for structured development
- **Develop construction industry knowledge** – Provides an understanding of design and construction processes, building systems, and industry practices
- **Build professional networks** – Connect with engineering consultancies and professional associations

HOW TO GET INTO AN ENGINEERING ROLE

- Graduate entry programmes with engineering consultancies providing structured development
- Cross-crediting from related technical degrees with additional engineering study
- International engineering qualifications with local recognition through Engineering New Zealand

ESSENTIAL SKILLS

- Engineering design and analysis fundamentals across relevant disciplines
- Construction methodology and sequencing knowledge
- Risk assessment and management for engineering applications
- Quality control and assurance systems specific to engineering practice
- Project coordination and multi-disciplinary collaboration
- Professional communication across technical and non-technical audiences
- Building code interpretation and regulatory compliance

CAREER STORY



Krish Shekaran – Senior Technical Director
– Structural Engineering, Beca

“I don’t go for glory projects, I go for projects where I can work with one client repeatedly because I understand them and what they want. If something doesn’t go well, I’m standing in front of them. I try to think of them as family because I have the power to make their day go really well or upset the apple cart.”

Krish Shekaran started in New Zealand as an immigrant engineer, arriving from India after graduating from engineering school. Recognising that he needed a local qualification to establish himself in the construction industry here, he completed postgraduate studies at University of Auckland, while gaining practical experience through student employment.

His first role at a small consultancy involved everything from soil reports to structural design for houses and small buildings. After four years, he realised he needed bigger challenges to progress his career. “I felt I was in control of the knowledge for those things and needed to move to the next step – bigger structures, bigger buildings, bigger projects,” he says.

His move to a regional consultancy in Hastings proved transformative. There, Krish learned a crucial lesson from his boss, who said “you don’t need to know everything, you just need to know how to find it”. Working in a tight-knit provincial community taught him that business relationships are personal. “They weren’t doing business with partners, they were doing business with family,” he explains. His project portfolio expanded dramatically, from wineries to schools and hospitals, and from single houses to complex commercial buildings.

After six years in the provinces, Krish recognised the limitations of smaller markets and joined Beca to get across larger-scale projects. The transition to a major consultancy opened new possibilities – including access to expertise across all disciplines, international opportunities, and collaborative team structures. The 2011 Canterbury earthquakes became a career-defining moment, leading to major seismic assessment portfolios with banks, power companies, and retail chains. This experience and ability to solve problems in challenging environments eventually took him to Thailand as an integration manager for the firm’s largest acquisition at the time. “Thailand was a good change because it showed me things we could do better by learning from other parts of the world,” he says.

Now a senior partner after nearly twenty years with the same firm, Krish’s philosophy centres on helping others succeed. His practical advice to young engineers is direct. “Find somebody in your network who’s doing what you want to do and spend the day with them. Ask them what they do on a regular basis, so you don’t end up thinking, ‘Is this what I’m supposed to be doing 40 hours a week for the next 35 years?’”

CAREER STORY



Mariana Richtman – Project & Pre-Construction Engineer, Naylor Love

“My role is an interesting one because I’m involved in the very practical side of how the building goes together, but also very involved in the digital role, I automatically use both. ”

Mariana’s career journey illustrates how diverse technical experience can become a competitive advantage in New Zealand’s construction industry. Starting with architecture aspirations in Brazil, her early exposure to AutoCAD as a draftsperson provided skills that would prove invaluable throughout her career. Following encouragement from a professor who recognised her broader capabilities, she pivoted to civil and structural engineering.

Her move to New Zealand required strategic career repositioning. Despite having worked as a consultant engineer in Brazil, Mariana faced the classic immigrant challenge. “Companies kept saying you need New Zealand experience,” she explains. She initially took a step backwards, accepting a draftsperson role to enter the market, but her diverse background quickly distinguished her. “When I came here, I suddenly realised I could use all of that experience together” she reflects, noting how the variety of roles she had worked in became an asset rather than a liability.

Mariana’s hybrid role combining practical construction knowledge with digital technology expertise reflects the industry’s evolving needs. However, she acknowledges the challenges of defining such positions. “This type of work that I do, which is a

mixture of engineering and design management, it’s still new in New Zealand.” She emphasises the need for practical site experience to develop essential knowledge. “Even if you go through the degree program, you need to step back to site and get your hands dirty.”

Her experience highlights the importance of relationship building as a knowledge development strategy. “To keep up with what’s happening in the industry, you’ve got to talk to people, you’ve got to make friends, or you won’t know what’s out there,” she explains. Mariana actively cultivates relationships across companies, regularly asking contacts about new technologies and methodologies. When facing unfamiliar challenges, she makes use of her network. “I just call someone and ask them, ‘Hey, have you done anything like this? How would you do it?’”

Mariana’s approach of staying curious has created a valuable learning network. “I think you need to be humble and say you don’t know, don’t pretend that you know everything,” she advises. This relationship-based learning approach has proven essential in an industry where formal training often lags behind technological advances.



EMPLOYMENT OPTIONS

EMPLOYER TYPE

Multi-disciplinary firms

- Diverse project experience across building types and engineering disciplines
- Structured professional development programmes with clear advancement pathways
- Comprehensive benefits and potential international opportunities
- Less specialised technical focus due to broader service offerings

Engineering consultancies

- Deep technical specialisation within specific engineering disciplines
- Direct client relationships and involvement in business development activities
- Partnership opportunities in smaller practices with equity participation
- Greater individual responsibility for technical delivery and quality

Contractor and sub-contractor organisations

- Hands-on project delivery focus with practical, problem-solving emphasis
- Direct involvement in construction processes and site-based challenges
- Performance-based compensation structures with project completion bonuses
- Limited design responsibilities but strong implementation experience

Facilities management and asset management consultancies

- Long-term relationship building with focus on operational performance
- Preventive maintenance programmes and emergency response capabilities
- Specialist knowledge of building systems and equipment life cycles
- Regular client contact with building occupants and facility managers

Client organisations

- Single sector expertise with deep knowledge of specific building types
- Stable employment with structured internal progression opportunities
- Direct involvement in organisational strategic planning and capital investment
- Limited project variety but comprehensive understanding of business requirements

REGIONAL VARIATIONS

Main centres

- Higher concentration of large consultancies and complex commercial projects
- Greater specialisation opportunities and professional development resources
- Higher salary potential but increased living costs

Regions

- Broader role scope combining design and project delivery activities
- Closer client relationships with local businesses and government agencies
- Lower living costs but potentially limited advancement opportunities

NEXT STEPS AND RESOURCES

BUILDING YOUR PROFESSIONAL NETWORK

Industry connections and professional networks

- Join Engineering New Zealand and relevant technical groups
- Contribute to construction industry associations and technical committees
- Participate in engineering conferences and professional development events
- Engage with professional mentoring programmes and industry groups
- Connect with engineering professionals across different specialisations
- Build relationships with other consultants and contractors in your region

Upskilling and continuing education

- Continuing Professional Development (CPD) is required to maintain registration
- Technical specialisation training in emerging technologies and building systems
- Building code updates and regulatory interpretation
- Project management and business development skills

Industry resources

- Engineering New Zealand
<https://www.engineeringnz.org/>
- Association of Consulting Engineers New Zealand (ACENZ)
<https://www.acenz.org.nz/>

MAKING YOUR DECISION

Engineering provides access to diverse career paths across the construction industry. Your technical foundation opens up opportunities in design consultancy, construction delivery, project management, building compliance, asset management, and business development.

This rewarding profession offers a range of specialisation options including structural, mechanical, electrical, geotechnical, environmental, seismic, acoustics, sustainability, and digital engineering. You can focus on specific building types such as healthcare, education, or commercial projects, or develop expertise in emerging areas like Building Information Modelling and smart building technologies.

Career progression allows movement between consultancy, contracting, and client organisations throughout your professional development. Engineers often transition between technical specialist roles and management positions, with many choosing to remain in technical leadership rather than pursuing business management paths.

This guide draws from research including in-depth interviews with construction professionals across New Zealand, industry surveys, and analysis of career progression patterns. For the complete research report and additional career pathway information, visit buildinginstitute.nz/resource/file/27



IS THIS THE RIGHT CAREER STREAM FOR YOU?

A career in **engineering** is more than just a job. It's a pathway to professional growth, community contribution, and long-term job satisfaction. Whichever career stream you choose, you'll be playing an important role in protecting communities, contributing to high-quality construction, and making a tangible and lasting difference to New Zealand's built environment.



GET THE GUIDE

Use the QR code to download the full Built Environment Career Streams guide and explore the many rewarding pathways in the construction sector.

Or head to the website using this link:
buildinginstitute.nz/resource/file/27