

DIGITAL CAREERS IN ARCHITECTURE

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DIGITAL CAREERS IN ARCHITECTURE

This guide provides a helpful overview of the digital skills required for architecture careers. Intended for anyone working in architect, architectural designer, and architectural technician roles, it's designed to help you understand:

- The digital skills you need for different types of roles and at different career stages
- How to develop these skills through education and practice
- How digital capabilities can accelerate your career progression
- Whether digital specialisation might be right for you

This supplementary document should be read alongside the main 'Architecture Career Stream' guide. Together, these guides offer a clear picture of how digital capabilities are reshaping architecture careers, while also maintaining the profession's core values of design excellence, technical precision, and client service.

WHY DIGITAL SKILLS MATTER IN ARCHITECTURE

The architecture profession is experiencing a significant digital transformation. Building Information Modelling (BIM), digital collaboration platforms, computational design tools, and emerging technologies such as artificial intelligence

are fundamentally changing how buildings are designed, documented, and delivered.

Every architecture professional now requires digital literacy – from graduate architects learning to model in 3D, to principals advising clients on digital delivery strategies. Meanwhile, specialist digital roles are emerging within the profession, offering new career pathways for those who can combine architectural knowledge with advanced technical capabilities.

THE DIGITAL SKILLS LANDSCAPE

Digital skills in architecture include:

Foundational capabilities – BIM software proficiency (Revit, ArchiCAD), digital collaboration tools, document management systems, cloud-based common data environments, and basic data literacy.

Construction documentation and coordination – Digital detailing and specification development, model-based construction documentation, coordination with structural and services engineers' models, digital design intent communication, building consent submission processes, and construction phase RFI management through digital platforms.

“Computer skills help with understanding both the architectural aspect of what I’m creating in the model and the computer requirements for defining elements, including the information engineers need when I send them a model.”

– Karl Frost, Senior Architectural Technician,
Studio Pacific Architecture

Collaboration and design communication – Presenting design concepts through digital media, facilitating multi-disciplinary BIM coordination, communicating technical requirements to consultants and contractors, managing client expectations around digital deliverables, and supporting digital adoption within design teams.

Strategic design delivery competencies – BIM execution planning for architectural projects, digital workflow optimisation, client advisory on design technology, practice standards and template development, technology evaluation for design applications, and mentoring team members in digital design methods.

Integration of digital and design thinking – Connecting BIM tools with conceptual design exploration, using digital platforms to test design options, digital design development platforms, parametric design tools, building performance analysis software, linking 3D modelling with regulatory compliance checking, coordinating digital

design information with construction methodology, and maintaining design intent through digital documentation processes.

INTEGRATING DIGITAL AND TRADITIONAL SKILLS

Digital skills in architecture don't replace traditional capabilities; they enhance and extend them. Digital tools help support core aspects of architectural roles such as design thinking, construction knowledge, and client relationships – and are invaluable for managing processes.

Digital skills needed for a career in architecture include:

Design development – BIM and 3D modelling tools allow architects to test multiple design options rapidly, visualise spatial relationships more effectively, and communicate design intent more clearly to clients and project teams.

Technical documentation – Digital platforms enable more accurate construction documentation, better coordination between disciplines, and faster responses to design changes. However, the quality of digital documentation still depends on understanding how buildings are constructed and detailed.

Regulatory compliance – Digital tools can automate certain building code checks and support consent application processes. Effective use requires knowledge of building regulations and the ability to interpret and apply standards within design contexts.

Client communication – Effective communication requires the ability to listen, interpret client needs, and explain

“There’s a lot of focus on the digital tools being the answer, but the answer lies within people using the digital tools to deliver what they need. The biggest skill set for architecture is problem solving and understanding how something goes together – I think that’s probably the overarching priority. And then for the digital aspect of it, understanding where the tools fit into the process.”

– Anton Shaw, BIM Manager & Automation Lead, Warren and Mahoney

design decisions in accessible language. Visualisation tools, virtual reality, and digital presentations can be useful for enhancing client engagement – and for making technical information accessible to non-technical participants.

Construction coordination – Digital collaboration platforms and model-based coordination improve information exchange with engineers and contractors. Successful coordination depends on understanding construction methodology, trade sequences, and practical site constraints.

DIGITAL SPECIALISTS IN ARCHITECTURE

BIM MANAGEMENT AND COORDINATION

BIM managers and coordinators in architectural practices manage digital design workflows, coordinate models across project phases, maintain model quality and standards compliance, and ensure design information supports construction delivery.

Core responsibilities

- **Developing and coordinating design models** – Establishing BIM standards and templates for projects, coordinating architectural models with other disciplines to resolve design conflicts, and ensuring models contain appropriate information for each project stage.
- **Information management and quality control** – Managing information exchange between architects, consultants, and contractors, maintaining model quality and accuracy throughout design development, and ensuring compliance with client BIM requirements and industry standards.
- **Design collaboration and delivery** – Supporting design teams to work effectively within BIM environments, extracting drawings and schedules from models, coordinating model-based design reviews, and preparing digital deliverables for consents and construction.

COMPUTATIONAL DESIGN AND PARAMETRIC MODELLING

Computational design specialists use algorithmic design tools and parametric modelling to explore complex design geometries, automate repetitive design tasks, optimise building performance, and enable data-driven design decision-making.

Core responsibilities

- **Parametric design development** – Creating parametric models using visual programming tools (e.g. Grasshopper, Dynamo) that allow rapid exploration of design alternatives, automating complex geometric

modelling, and establishing relationships between design parameters.

- **Design optimisation and analysis** – Using computational methods to optimise building performance (e.g. daylighting, energy, structural efficiency), analysing design options against a range of criteria, and supporting evidence-based design decisions through data analysis.
- **Custom tool development and automation** – Developing custom scripts and tools to automate repetitive design tasks, creating practice-specific design automation workflows, and integrating computational design with standard BIM workflows.

VIRTUAL REALITY AND VISUALISATION

Virtual Reality (VR) and visualisation specialists create renderings, animations, and immersive virtual reality experiences that help clients, stakeholders, and project teams understand and experience architectural designs before they're built.

Core responsibilities

- **Visualisation and rendering** – Creating photorealistic still images and animations from architectural models, developing compelling visual narratives for design presentations, producing marketing materials and client communications from design data.
- **Virtual reality and immersive experiences** – Developing VR experiences that allow clients to walk through and experience designs at full scale, creating interactive design review environments, supporting design decision-making through immersive visualisation.

- **Real-time visualisation and design review** – Using real-time rendering engines for interactive design exploration, supporting design team reviews through visual feedback, enabling rapid visualisation of design alternatives.

BUILDING PERFORMANCE SIMULATION AND ANALYSIS

Building performance specialists use simulation tools to analyse and optimise building environmental performance, supporting evidence-based design decisions for daylighting, energy efficiency, thermal comfort, and sustainability outcomes.

Core responsibilities

- **Performance analysis and simulation** – Running building performance simulations for daylighting, energy, thermal comfort, and ventilation, analysing design options against performance criteria, supporting design teams to achieve sustainability targets and compliance requirements.
- **Design optimisation and iteration** – Using simulation to test and compare design alternatives, identifying design improvements that enhance building performance, balancing performance objectives with cost and constructability.
- **Sustainability certification and compliance** – Supporting Green Star, Homestar, and other certification processes with performance analysis, demonstrating compliance with building code energy and daylight requirements, documenting performance analysis for consent applications.

DIGITAL FABRICATION AND DESIGN FOR MANUFACTURING

Digital fabrication specialists bridge design and manufacturing, using digital tools to develop designs that can be efficiently fabricated, coordinating with manufacturers and fabricators, and ensuring designs translate successfully from digital models to physical components.

Core responsibilities

- **Design for fabrication and manufacturing** – Developing designs optimised for digital fabrication such as CNC milling, laser cutting and robotic fabrication, creating fabrication-ready digital models with appropriate tolerances and joint details, coordinating with manufacturers on fabrication constraints.
- **Fabrication coordination and prototyping** – Translating architectural designs into fabrication files and machine code, coordinating digital fabrication with builders and manufacturers, managing physical prototyping and mock-ups to verify digital designs.
- **Material and process innovation** – Researching emerging fabrication technologies and materials, exploring innovative applications of digital fabrication in architecture, developing practice expertise in advanced manufacturing methods.

BUILDING DIGITAL CAPACITY

For architecture professionals, building digital capability requires curiosity and willingness to learn, as well as practical application and continuous skill development. Education and training opportunities specific to digital skills in architecture are currently limited, but many successful digital specialists have built careers based on practical experience and self-directed learning without any specialist digital qualification.

SELF-DIRECTED LEARNING

Most digital learning happens through curiosity or need-driven learning, rather than formal training programmes. If you enjoy exploring tools and solving problems independently, self-directed learning will generally be the best approach to develop your digital capabilities more quickly. Options include:

- **Online tutorials** – free resources for most architectural software, searchable for specific tasks.
- **Software vendor resources** – most major software providers provide free trials or educational licences, as well as structured learning paths.
- **Industry webinars** – regular sessions from software vendors and industry organisations.

FORMAL EDUCATION AND TRAINING

Tertiary education organisations, including vocational providers, wānanga, and universities increasingly include digital construction skills in their programmes.

Institutions offer courses, diploma and degree options that cover digital documentation, BIM model development, digital project delivery concepts, data management and emerging construction technologies.

PROFESSIONAL DEVELOPMENT

Alongside your own exploration of digital tools and skills, it's important to connect with broader digital architecture communities. This will provide access to a wider range of resources for your self-directed learning, give you insights into how these tools are being applied within the industry, and develop your network for mentoring or other opportunities.

- **Industry conferences** – Building Institute Aotearoa's DigiComm conference with digital streams, vendor-run conferences, and buildingSMART Australasia events.
- **Workshops** – hands-on technical training sessions, software-specific deep-dive courses, and computational design workshops.
- **User groups** – BIMinNZ and other user groups in major centres, software user communities, and informal knowledge sharing.
- **Online communities** – LinkedIn groups and software-specific forums where practitioners share knowledge and solve problems together.

“Everything progresses, so you’ve got to stay in front of it. We’ve started using AI for rendering, just small things, playing around with it when we have the chance, or scripting so that we’re speeding up super-intense processes that are really slow. It’s a matter of being aware that the processes we do today will look very different in ten years.”

- James Heerdegen, Architectural Graduate, Designgroup Stapleton Elliot

GET THE GUIDE



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

Or head to the website: **BECareerStreams.nz**

CAREER STORIES



Melanie Tristram – Digital Delivery Lead,
Jasmx

Melanie Tristram joined Jasmx as a technician, and her attention to technical standards quickly distinguished her work. Her ability to produce quality documentation led to early mentors accelerating her progression, involving her in leadership within her first few years. When Jasmx began investigating 3D modelling platforms, Melanie positioned herself strategically. “I was on the periphery of that, listening in on the conversations,” she explains. When the practice chose Revit, she volunteered to work on the implementation team, transforming from project-focused work to practice-wide digital strategy. This initiative demonstrated the personal drive that would characterise her career progression.

Self-directed learning proved essential, requiring significant personal commitment. Melanie’s progression relied on learning “on the job or through conferences, through sitting down and having conversations with people.” Beyond her formal qualification, a certificate in architectural drafting, she also pursues continuous learning. Networking through user groups and international conferences has provided the primary pathway for upskilling. “For digital, those user groups and networking opportunities are nearly the only way to upskill,” she says.

Melanie explains that curiosity drives her approach. “Curiosity and my ability to research, the fact that I like to investigate things – that and an open mind.” She notes that adaptability separates those who progress from those who stagnate. “I think those who are rigid

about ‘this is the way we’ve got to do it for all of our projects’, they’ll hit those roadblocks. But saying, ‘Yep, this is our process, but we need to be able to flex it because all of our projects are different’ – having that fluidity has helped.”

Her role now encompasses the full scope of digital delivery management, including developing BIM processes and documentation standards, coordinating workflows with engineering consultants, and working with contractors to understand how they use design information. She evaluates project information management systems, explores AI applications for design and documentation, and oversees quality assurance frameworks across multiple digital platforms. Her team manages the integration of Revit, Rhino, SketchUp, and other tools within the practice ecosystem.

Technology’s evolution has created opportunities she never anticipated. “I wasn’t expecting such rapid growth in my roles,” she reflects. Her adaptability allowed her to embrace change, as her role expanded from CAD to BIM management, to encompassing knowledge management and innovation. Melanie’s rapid progression demonstrates how technical expertise, combined with curiosity and strategic relationship-building, can create new career pathways in architecture’s digital future.