DARREN MITCHELL
DIRECTOR
CURRICULUM VITAE

DARREN MITCHELL CV

PROFILE

Darren has over 18 years of rounded experience associated with design, management, contract documentation and construction of small to very large building projects in a variety of sectors including health facilities, education, retail, residential, sports, corrections, industrial and commercial office buildings.

Darren has amassed a comprehensive knowledge of structural engineering design experience through his work on buildings projects in New Zealand, Ireland, Australia, Hong Kong and South East Asia. He is experienced with many international design practices and standards including British, European, New Zealand, Australian, ACI and UBC. Darren is skilled in the design of various building materials and systems, including reinforced concrete, precast concrete, timber, glazed facades and is particularly skilled in design of structural steel and post-tensioned concrete buildings.

He is also an experienced site supervisor, with the credibility and communications skills necessary to provide clear directives to the onsite construction team. Darren has proved that he is equally capable of building trusted relationships with clients and other stakeholders.

Darren enjoys applying his engineering brilliance to produce safe and robust structural designs that are tailored to meet the specific requirements of each individual project. He applies 'best practice' to deliver high quality solutions.

Darren's outstanding technical competence coupled to his natural management ability means that he co-led Aurecon's Buildings Structural Group in Auckland successfully for several years. Consequently, Darren is ideally placed to provide structural and civil engineering leadership and technical guidance to project teams. Darren has a positive outlook and team player attitude.

QUALIFICATIONS

BEng Civil (1st Class Hons) – Bachelor of Civil Engineering, University College Dublin 2000

Chartered Professional Engineer (CPEng) 2007

Chartered Member of Engineering New Zealand (CMEngNZ)

Kings Hospital School, Dublin 1996

CAREER HISTORY

2015 – Present, Director – Structus Consulting Limited

2015 – MSC Consulting, Auckland

2004 – 2015 Associate, Buildings – Aurecon, Auckland (including overseas placements)

2000 – 2004 Project Engineer, Arup Consulting Engineers, Dublin, Ireland

MANAGEMENT SKILLS

- Track record in successful leadership and guidance of structural and multi-discipline design teams on large projects
- Ability to relate well to clients, stakeholders and project teams, providing clear direction and advice
- Strong communication skills, can explain technicalities in simple terms when required
- Proven project and design management ability with a large portfolio of successful and timely outcomes
- Loyal client base with negotiated contracts common, and where tendering is required Darren has a history of high quality project submissions and successful contract negotiation Technical Skills

TECHNICAL SKILLS

- Comprehensive theoretical knowledge supplemented by wide variety of practical experience
- Specialist in the design of steel frame, precast and insitu reinforced concrete, post-tensioned concrete, timber, masonry, and composite structures
- Detailed knowledge of the complete design process and construction documentation
- Proven ability to oversee construction work onsite and act as Engineer's Representative
- Meticulous about meeting or exceeding design standards and safety requirements

PROJECT EXPERIENCE

RESIDENTIAL PROJECTS

39 Flat Bush School Road Terraced Apartments, Auckland, 2018-Present, $25m

68 no. new 3 storey terraced housing as Stage 1 of a larger urban development. There are 4 no. typical apartment types. The slab system is precast concrete rib and timber infill spanning onto the walls. The lateral system consists of steel sway frames in the along direction and precast concrete panels in the across direction.

110 Milford Apartments, Auckland, 2017-Present, $20m

New 6 storey apartment building with caparking and retail at ground level on street frontage. The structure is typically steel framed with precast concrete double tee floors. The lateral system consists of steel sway frames in the transverse direction and precast concrete panels in the longitudinal direction.

Eden View Apartments, Auckland, 2017-Present, $30m

New 6 storey apartment building with carparking and retail at ground level on street frontage. The structure is typically steel framed with precast concrete double tee floors. The lateral system consists of steel concentrically braced frames in the transverse direction and steel moment resisting frames in the longitudinal direction.

Anzac Lofts, Auckland, 2015-present, $25m

Residential development consisting Terraces and Apartment blocks. Terraces – residential townhouse Units to the rear of the site, comprising 4 no. blocks of buildings of 3-4

storey units. Apartments – mixed use development at the front of the site consisting of retail at the lower floor, plus 4 no. additional floors of apartments above, with insets at the upper storeys requiring complex transfer structures. Typically precast concrete intertenancy walls, with steel sway frames in the longitudinal direction, Comflor slab and deep foundations. Full design, documentation and construction monitoring structural and civil engineering services.

26 Poynton Terrace, Auckland, 2013 - 2014, $12m

Prestigious 10 storey apartment building over 2 level basement in a prominent position near Queen St and Karangahape Road. This building will be an attractive addition to Auckland's skyline. Basement consists complex engineering challenges and incorporates a car stacker system. Darren won and led this project for structural, civil and geotechnical engineering services.

Gloucester Street Apartments, Christchurch, 2007

Design and documentation of new 23 storey building comprising mixture of apartments, hotel, carparking, retail and offices. Proposed structure consisted predominantly of insitu reinforced concrete frame with insitu reinforced concrete stair and lift core walls, steel infill framework and precast concrete cladding. In addition, stability was enhanced using insitu reinforced concrete outrigger walls. Darren was Structural Team Leader for this project.

North Gheran, Libya, 2009

Darren was Structural Team Leader for preliminary design and documentation of multiple apartment, hotel, commercial and retail reinforced concrete buildings ranging from 2 storeys up to 10 storeys high on a 1km^2 urban development site in Tripoli, Libya. This project was designed and documented from the New Zealand offices for the Structus Brisbane office.

Le Trong Tan / Dragon Hills / Diamond Island, Vietnam, 2009-2010

Various projects in Vietnam: Le Trong Tan – Developed design and documentation of 4 no. 30+ storey residential insitu RC towers over single level basement carpark podium. Dragon Hill – Developed design and documentation of 2 no. 30+ storey residential insitu RC towers over single level basement carpark podium. Diamond Island –developed design of 24 no. 20-40 storey apartment blocks over two level basement carpark.

Belle View Residence, Waiheke Island, 2016-present

Three storey high end residential development including outdoor pools, cantilever roof and floor structures, tiered pile retaining structures on very steep slope. Full structural design and documentation services.

J & K Finlay Apartments, Tauranga, 2005

Detailed design and documentation produced for three stories over basement apartments at Mt Maunganui. Precast prestressed concrete plank flooring stabilised by reinforced masonry and timber frame walls.

Albany Block C Apartments, Auckland, 2015

Concept structural design for Resource Consent submission of 3 no. 5 storey 2-wing apartment blocks.

12 Stanmore Street, Auckland, 2015-2016

3 storey high end residential development including basement carpark, outdoor pool,

complex transfer structures and large retaining structures. Full structural design and documentation services.

11 Keridale Lane, Kerikeri – Northland, 2016

Single storey high end residential development including outdoor pool, exposed engineering timber roof structures. Full structural design and documentation services.

118 Mangakahia Drive, Whangapoua, 2017

A new 2 storey beach house located in Whangapoua, Coromandel. The latest in timber design technology has been utilised with long span exposed glulam beams and plywood shear walls to maximise open areas.

COMMERCIAL PROJECTS

Van Den Brink Development, Auckland, 2007-2012, $40m

This development consists of a four-storey Office building over a basement carpark, large Supermarket building with post-tensioned slab over basement carpark, and separate two storey Retail Building. Darren provided leadership for structural, fire and civil engineering services on this development project, from the initial concept through to completion of the construction effort.

City of Dreams Casino, Macau, 2007, NZ$5b

This project consists of six 40-storey residential and hotel towers rising from a multi-level podium incorporating 500,000m² of casino, entertainment, and retail precincts. It includes a single level basement carpark under the entire podium. Darren spent four months in Hong Kong as Structural Leader for the podium and energy centre during the design phase. The structural team operated as part of a JV consortium and were based in a project office.

Brookfield Place, Perth, 2008, AU$500m

This slender commercial building consists of a 47-storey office block over a 4-storey basement and is the tallest in Western Australia. It uses a lateral stability system consisting of steel megabraced frames and an offset reinforced concrete core. Darren spent six months in Perth, leading the structural design team from the initial design phase through to production of the construction documentation.

Liffey House Office Building, Dublin – Ireland, 2001-2003, €14m

This award-winning landmark building in the city centre consists of an eight-storey office block over single level basement carpark. Darren steered the development from the initial scheme design through to construction completion, and spent six months onsite as the Engineer's Representative.

67 Customs Street, 2013

Redevelopment of this 12 storey building by adding 3 levels, refurbishing, extending and recladding to create a top class 5+ Star hotel in Auckland's CBD. Darren managed the façade engineering component for the recladding.

Five Mile, Queenstown, 2007

Structural design of the first phase of a long term multi-phase 'whole new town'. First phase included retail, offices, carpark and residential buildings typically 3 stories over basement. Mixed use of steel, timber and concrete frame structure. Darren led a structural team in the Auckland office while regularly travelling to Christchurch for

meetings and liaising with the client and Structus team there.

Westfield Downtown, Auckland, 2008

Preliminary design of 30+ storey office building, with retail podium over 5 level basement carparks in Auckland's CBD. This building was proposed to replace the existing Westfield retail and carpark building. Precast concrete floor system, insitu RC columns and offset post-tensioned concrete stair and lift core. The defining element of this project was the proposed underground rail link from Britomart to Eden passing through basement levels 2 to 4 on a tight radius. Significant transfer structure was designed to support the Southern end of the concrete core, which oversailed the rail tunnel. Top down basement construction with contiguous pile diaphragm walls. Darren provided the design and documentation of the basement structure and rail tunnel within the basement for Westfield and Ontrack.

85 Customs Street, Auckland, 2009

Design and Construct 40+ storey office building, with retail podium over 4 level basement carparks in Auckland's CBD. Darren provided structural engineering construction advice and alternative designs/improvements to the incumbent developed design solution for tender submission with Mainzeal.

35 Barrow Street, Dublin – Ireland, 2004, €18m

Nine stories over basement city centre office block which Darren carried through to detailed design and documentation for construction stage. Insitu reinforced concrete frame and post-tensioned concrete slabs. Flood protected to 3 metres above ground level.

Twilfit House, Dublin – Ireland, 2003, €16m

Preliminary design of multi-story steel framed city centre office block with hanging glazed conference room. Detailed design and site supervision of intricate three story steel frame terraced infill building incorporating cantilevered concrete foundations, masonry walls and timber framing.

54 Clarendon Street, Dublin – Ireland, 2000-2003

Detailed design and site supervision of intricate three story steel frame terraced infill building incorporating cantilevered concrete foundations, masonry walls and timber framing.

Marble Mountain, Danang – Vietnam, 2009

Developed design in Auckland for the superstructure of 12 and 10 storey insitu RC shear wall (longitudinal direction) and sway frame (transverse direction) buildings. Construction documentation in Auckland of the 3m thick insitu RC raft foundations. Collaboration between Auckland, Wellington, Christchurch and Hanoi offices to analyse, design and document these buildings. Site monitoring of the raft foundation settlements, including precast block and sand kentledge, provided results that matched very closely with the analysis. This project was an Aurecon internal awards submission.

INDUSTRIAL PROJECTS

5-11 Selwood Road, Auckland, 2017 - 2018, $20m

New high specification warehouses – 7 no. in total – with associated single storey offices, constructed in a constrained site with challenging site conditions. The warehouses typically contain large spans for the Steltech portal frames or steel rafters on precast concrete panels. There are canopies to each warehouse. Site retaining walls required to

overcome the site topography. Hard stand paving through the development for heavy vehicles. Structus are engaged for structural engineering design and construction monitoring from concept through construction.

El Kobar and 2500 Units, Auckland, 2018 - present, $20m

New high specification warehouses – 3 no. for the El Kobar project and 1 no. for the 2500 project – with associated two storey offices for each warehouse, constructed on high profile sites along Highbrook Drive. The warehouses typically contain large spans for the rolled section portal frames and precast concrete dado panels. There are canopies to each warehouse. Site retaining walls required to overcome the site topography. Hard stand paving throughout the development for heavy vehicles. Structus are engaged for structural engineering design and construction monitoring from concept through construction.

Project Diego, Auckland, 2016 - 2018, $16m

A new high specification 8,100m2 warehouse with 3 no. two story offices, constructed within an existing industrial complex. The new facility is located at 25 O'Rorke Road, Penrose, Auckland. The warehouse is to contain a high specification post-tensioned slab throughout. The warehouse width varies from 75m to 100m resulting in large spans for the steel portal frames.

189 Captain Springs Road, Onehunga, Auckland, 2016-2017

130m2 extension to an existing building, The new building was seismically separated to ensure the two buildings acted independently. Perimeter block walls provided the permanent retaining to the 2m high external soil levels.

Corinthian Drive / CDB Goldair / UD Trucks / Daniel Silva / Bishop Dunn, Auckland, 2004-2015

Large format warehouse and associated office buildings consisting predominantly of steel portal frames and precast concrete wall structures with 2 storey adjoining office facilities.

Pallet Racking Design – multiple projects, 2015-present

Design of pallet racking presents unique challenges in New Zealand due to the high seismic forces. Structus has worked closely with Pallet Racking Solution to develop design software and processes for the design of these racks. This included laboratory testing of structural components in order to develop ductile seismic systems which lead to safer and more cost effective designs. Multiple racking design projects nationwide.

RETAIL PROJECTS

Tauranga Crossing, Tauranga, 2013 - 2014, $30m

Stage 1 of landmark retail development consisting two major stores, two mini-majors and multiple specialty retail stores. Darren won and led the structural engineering component of this landmark project, with engineering and drafting services delivered out of Bangkok, Thailand.

Pak'nSave Wairau, Auckland, 2017-present, $20m

Refurbishment and extension of the existing store for Foodstuffs North Island, including new Stock Room and Cool Room structures, loading dock canopy, new mezzanines, new entry area, new canopies, floor modifications and a soldier pile retaining wall that also underpins adjacent buildings. Structural

engineering design, Revit documentation and construction monitoring.

Pak'nSave Botany Refurbishment, Auckland, 2018-present, $5m

Refurbishment and extension of the existing store for Foodstuffs North Island, including new entry area structure. Structural engineering design, Revit documentation and construction monitoring.

Supermarket Refurbishments, NZ wide, 2016-present, $2-10m

Refurbishment of over 25 no. Countdown and Fresh Choice supermarkets to date for Progressive Enterprises, including new mezzanines, concrete slabs, structural bracing, rooftop plantrooms, bulkheads, partition walls, pylon signs, building component seismic restraints and floor trenches. Provided structural engineering design, Revit documentation and construction monitoring.

Countdown Tawa, Wellington, 2012, $8m

The supermarket building consists of 4,200m2 of Countdown Supermarket with further on grade parking space for 248 cars. Long span steel portal frames form the superstructure. Striking Precast concrete panels form a visually stunning façade. The site was developed by the Vendor and a review of the Vendor's civil works design formed part of the scope of works. Provided civil, structural and geotechnical engineering construction monitoring through the Wellington office for this project, while the structural and civil design and client liaising was located in Auckland with the project design team.

Fresh Choice Te Ngea, 2016-2017, $4m

Single-storey Supermarket building in Rotorua. Mezzanine floor and rooftop plantrooms. Total floor area approximately 1,300m2. Provided all structural engineering design and Revit documentation, plus construction monitoring.

Fresh Choice Oxford, 2015, $3m

Delivered by Darren Mitchell while at Aurecon. Provided all structural engineering design and documentation. Single-storey Supermarket building to replace existing Supermarket heavily damaged in the Christchurch earthquakes. The build was required to be staged around the existing building in order to maintain continuous operations of the Supermarket. New carpark and site works, including temporary housing of plant, etc., Mezzanine floor and rooftop plantrooms. Total floor area approximately 1,300m2.

Albany Mega Centre Tenancy 14, Albany. Auckland, 2017

Alterations to an existing shopfront involving the removal of a large loadbearing precast panel. Andrew the undertook the structural design working closely with the client, architect and contractor to safely provide the temporary and permanent support while considering the relevant load combinations at the various stages of construction.

460 Maunu Road Development, 2016-present, $3 million

Single-storey Supermarket building in Whangarei, including mezzanine floor. Total floor area approximately 1,000m2. Provided all structural engineering design and Revit documentation.

EDUCATION AND SPORTS PROJECTS

Unitec Tranche 1 – Hub, Trades and Infrastructure, Auckland, 2015-2017, $50m

Darren tendered for and led the structural and civil engineering design for both these projects, as the first Stage in many on the Unitec campus redevelopment. The Hub project is a Social Learning space and consists two new suspended floors within an existing plaza area, with a Glulam diagrid timber roof oversailing the space, spanning onto 'tree' columns. The Trades building is a large format single storey long span structure to house Trades education spaces, and includes large mezzanine structures and part basement. The Trades building is futureproofed for a 4 storey Performing and Screen Arts building oversailing the Trades structure. New wetland that also functions as stormwater detention pond.

Hub – Gold Winner – Master Builders New Zealand Commercial Project Awards

Hub and CET – Merit Winner – Property Council NZ Property Industry Awards 2018, Education Property Award

Wintec Block D Redevelopment, Hamilton, 2012 and 2016

Redevelopment of existing Block D into Laboratory facilities, plus the inclusion of an additional floor for student accommodation. Integration of the Block with surrounding existing buildings, including site infrastructure. Considering of buildability and operational issues in busy Wintec City Campus. Revisited the feasibility of extending Blocks D and E through development of preliminary designs for 2 no. concrete and steel floors, or 3 no. Cross Laminated Timber and steel floors on top of the existing 4 storey concrete structures.

Trinity College Dublin Arts Building, Dublin – Ireland, 2000-2002, €6m

Detailed design and site supervision of high profile, elegant additional steel frame level with curved steelwork roof over existing multi-level reinforced concrete building. The existing building remained in service throughout construction.

Kings School New Sports Dome and Teaching Facility, Auckland, 2005-2007, $13m

Darren led the structural, civil and building services teams in Auckland, Wellington and Christchurch offices for detailed design and construction phases of these buildings. Multi-level teaching building consists of reinforced concrete frame and precast concrete walls. Large gymnasium with double basement built into steep slope, and mezzanine viewing platforms. Precast concrete floor systems, masonry walls. Cantilevered bored pile retaining walls with ground anchors and spray concrete infill.

Christ the King, Auckland, 2007

New single storey classroom facilities, church, parish, pool facilities and presbytery. Structure consists of lightweight steelwork frames, timber framing, reinforced masonry walls and precast concrete walls. Darren supervised all building services and structural disciplines during the design phases.

Auckland Korean Catholic Church and Community Centre, Auckland, 2004-2005

Detailed design and site supervision of church and associated hallway, offices and classroom block from scheme stage through to construction completion. Lightweight steelwork roof and frame, precast concrete wall panels, and timber framing. Darren also provided project management services on this project.

St. Dominic's College New Gymnasium, Auckland, 2005-2006

Darren led the detailed design and document production of gymnasium and associated adjoining facilities, and construction observation. Lightweight steelwork roof and frame, precast concrete wall panels and steelwork facilities areas. Lightwork steelwork and glazed foyer area

Liston College Classroom Block, Auckland, 2006

Darren led the detailed design and construction monitoring of this two storey ten classroom block. Insitu and precast reinforced concrete frame and precast prestressed concrete floor system. Lightweight steelwork cranked roof over.

Queensland University of Technology / Advanced Engineering Building / Queensland Police Academy / Brisbane City Hall and Prince Alfred College, Australia, 2009-2010, AU$10-200m

Darren was manager of Revit modelling projects from the Auckland office for the Brisbane, Adelaide and Melbourne offices. Revit modelling and documentation was typically produced to For Construction level. The AEB project was detailed with all steelwork and timber connections documented in 3D.

CIVIC PROJECTS

Manukau Precinct Project, Auckland, 2010-2014, $50m

Property Council NZ Property Industry Awards 2016 – Winner Excellence, Special Purpose Property Award

This project required full multi-discipline design for the refurbishment of the existing Manukau Courts building and a proposed new multi-storey building adjacent to it. Darren successfully tendered this project, was project director and leader of the structural, civil, geotechnical, building service and fire engineering detailed design effort and construction works, and also acted as client relationship executive for the Ministry of Justice.

Gasometer Carpark, Auckland, 2018-present, $25m

This project consisted of a 15 split level carpark in Takapuna, Auckland. The structure is the main component of the project cost; therefore, a significant effort was spent ensuring the structural efficiency was achieved, with the final design being reinforced concrete piles and ground beams in potentially liquefiable soil, long spanning composite steel beams spanning 17m and composite CHS columns. Early contractor engagement meant that buildability issues were resolved early, ensuring the final design provided a practical and efficient structural scheme.

Westhaven Marine Centre, Auckland, 2013, $25m

Westhaven Marine Centre consists 3 no. two-storey buildings to house commercial, retail, food and beverage, and sail-making facilities. Darren delivered the structural and civil engineering services for Auckland Waterfront Development Agency. Development of an industry first application of sustainable multi-storey timber design that significantly reduces construction programme and cost, while also providing effective durability in marine environment and enhanced aesthetics. Striking features of the building form, including cantilevered external cross timber laminated stairs and upper storey structures.

Maroochydore Government Office Building, Queensland, 2009-2010, AU$50m

This project required detailed design and production of construction documentation. This high-profile 10-storey post-tensioned concrete building over single level basement carpark achieved a five star Greenstar rating. Darren led the structural design team operating from Auckland.

Mt Eden/ACRP Redevelopment, Auckland, 2010-2011, $180m

This project redeveloped the existing prison and included two multi-storey accommodation units, a 4-level support building, gatehouse and car park building. Darren managed the civil and structural engineering works during the construction stage.

Auckland Regional Women's Correctional Facility Enhancement Project, Auckland, 2014-present, $10m

Risk mitigation, security upgrade and sundry buildings for this complex enhancement project. Darren won this project and is project director for services including structural, civil, geotechnical engineering, Safety in Design and Flashfire Protection (both provided via Australian resources).

Paremoremo High Security Corrections Facility, Auckland, 2006, $7m

This project involved construction of the At Risk and Health Unit at this operational maximum security prison in Auckland. Darren provided monitoring services during the construction works, which incorporated structural steelwork and precast concrete wall panel buildings.

Hanoi Museum, Hanoi – Vietnam, 2010

Engineering report on rectification of defective concrete on 10m deep x 8.4m span concrete cantilevers at roof level. The building is constructed with four lift/stair shafts and concrete deep beams cantilevering at the top floor level. These beams support steel trusses cantilevering a further 16.8m with 3 levels of hanging steel frame and concrete slab. Site visit in Vietnam to assess the defects and develop a remedial solution, which was to remove the concrete in places, grout inject in others and carry out further investigation on the concrete.

HEALTHCARE AND AGED CARE PROJECTS

Aria Bay, Auckland, 2016-present, $30m

New retirement village development in Browns Bay, Auckland. 2 no. 5 storey apartments blocks and 4 storey day clinic block form the development within an existing operational retirement village campus. Structural engineering design and construction monitoring from concept through construction.

North Shore Hospital Taharoto, Auckland, 2013-2014, $25m

Mental Health Unit at North Shore Hospital, consisting of single and two level building with 2 no. basement areas. Darren tendered this project and was project leader for structural, building services (mechanical, hydraulics, electrical, ICT/Security, Acoustics and Fire Protection) and civil engineering on this development project, from the initial concept through construction.

Whangarei Hospital, Whangarei, 2008-2014, $30m

New $16m Mental Health Inpatient Unit at Whangarei Hospital. Civil and structural engineering design and construction monitoring from concept through construction. 100m long x 4.5m high bored concrete pile retaining wall with ground anchors and Shotcrete finish. New $15m Maternity unit

and site wide infrastructure upgrade (including Energy Centre upgrade), provided structural, civil, ICT and acoustic engineering services plus construction monitoring including management of a local sub-consultant. Provided engineering services on several other projects for Northland District Health Board including civil and building services infrastructure review, a new road and on grade 200 space carpark, CT scanner refurbishment, new temporary carparks / building platforms and seismic assessments on multiple buildings at 4no. Northland hospitals. Darren was Project Director, Leader and Client Relationship Executive for all work with Whangarei Hospital and NDHB.

Norfolk Southern Cross Hospital, Tauranga, 2005-2006, $30m

New multi-level private hospital facility on greenfield site. Darren was responsible for leading the structural team from scheme stage through to detailed design and document production for construction stage. Incorporates insitu and precast concrete frames with prestressed concrete ribbed slab system, with a structural steel portal frame operating theatre block. Provisions made for future additional lightweight steel frame storey and extension of operating theatre block. Darren spent 6 months in Aurecon's Tauranga office overseeing all disciplines during construction.

St. Vincents University Hospital Main Block, Dublin – Ireland, 2003, €65m

Large-scale insitu and precast reinforced concrete multi-story building on a hospital campus. Long span composite castellated steel beams, steel frame links, cantilevered steel scissor stairs and glazed curtain gable walls laterally stabilised by curved catenary cable trusses. Darren provided extensive computer modelling, analysis and design of the glazed gable walls and vibration of the structure below the operating theatres.

Caughey Preston Trust Rest Home, Auckland, 2009-2011, $7m

Civil and structural engineering services for this new extension to the existing Caughey Preston Hospital Campus. Single storey steel and timber frame structure over part basement level. Cantilever 4m high bored concrete piles supporting an existing brick two storey building. Darren was Project Leader and Client Relationship Executive for this project from concept design.

Mercy Ascot, Auckland, 2007

Darren provided preliminary designs of a two level Cancer Care unit including 2 no. large concrete bunkers for linear accelerators and a two level carpark structure. Predominantly precast and insitu RC design.

Hermitage Clinic, Dublin – Ireland, 2003

Darren provided preliminary design for this major hospital project. Building structure schemes consisted of insitu reinforced concrete frame and of composite steel and concrete frame.

Galway Clinic, Ireland, 2003, €53m

Large hospital complex consisting of steel frame, insitu reinforced concrete and composite steel/RC structures. Features include central atrium with long span steel truss roof, three level glass fin wall façade and helical stair. Darren provided preliminary design for this project.

DETAILED SEISMIC ASSESSMENTS AND STRENGTHENING

Central Park, Auckland

Structus has completed a comprehensive Detailed Seismic Assessment (DSA) of five reinforced concrete multi story commercial buildings at Central Park, Auckland. The DSA was completed to provide the client, Goodman Nominee Ltd, with an accurate %NBS for their buildings. The assessment was completed in accordance with the latest Seismic Assessment methodology and utilized 3D finite element analysis to understand how the buildings perform in an earthquake.

87-89 Albert Street, Auckland, 2016

The building is a 13 storey reinforced concrete moment resisting frame designed and constructed in the 1980's. The building is currently used as an office building. The client wished to consider changing the use of the building, which required that the seismic performance of the building be assessed against the current building standards. In order to assess the seismic performance of the tower advanced computer analysis techniques were used to accurately quantify the building response during an earthquake. Stair remedial works to allow for sliding to accommodate building drifts.

1135 Arawa Street, Rotorua, 2016-2017

1135 Arawa Street is a 10 storey reinforced concrete shear wall building located in Rotorua. The building was designed and constructed in the 1980's. The building is currently used as an office building. The client wishes to consider changing the use of the building, which requires that the seismic performance of the building be assessed against the current building standards. In order to assess the seismic performance of the tower advanced computer analysis techniques were used to accurately quantify the building response in during an earthquake. Strengthening of shear walls through the use of fibre reinforced polymer and stair remedial works to allow for sliding to accommodate building drifts.

85-101 Alexandra Street, Hamilton, 2016-2017

85-101 Alexandra Street is a reinforced concrete office and car parking building located in Hamilton. The building is comprised of four separate structures including 4 storey carpark podium and two 10-14 storey Office towers. The building was designed and constructed in the 1980's. The seismic bracing for the building consists of reinforced concrete moment resisting frames. In order to evaluate the seismic capacity of the building Structus developed a computer programme to analyse the frames. This resulted in an accurate determination of the buildings seismic capacity. Structural strengthening works to allow for 100% NBS performance of the building were designed and construction monitored by Structus.

165 The Strand, Auckland, 2016-2017

The building is a 2 storey reinforced concrete moment resisting frame with a 2 storey newer steel structure above. The building is currently used as office and retail tenancies. In order to assess the seismic performance of the building advanced computer analysis techniques were used to accurately quantify the building response during an earthquake. Structural strengthening works to allow for 67% NBS performance of the building were designed and construction monitored by Structus.

Millennium Centre, Auckland, 2016-2017

Millennium Centre comprises 7 no. mainly office buildings (typically 4 storeys) in total over two level basement carparks, part of which are combined over several buildings. The structures generally comprise reinforced

concrete frames and precast concrete shear walls, with the 5 storey carpark a steel k-framed structure. The development was designed and constructed in the early 2000's. In order to evaluate the seismic capacity of the building Structus developed computer programmes to analyse the structures. This resulted in an accurate determination of the structures seismic capacity. Seismic strengthening was implemented to local areas.

2-4 Kitchener Street, Auckland, 2017

The building is a 14 storey reinforced concrete moment resisting frame designed and constructed in the 1980's. The building is currently used as offices, retail and carparking. To assess the seismic performance of the tower advanced computer analysis techniques were used to accurately quantify the building response during an earthquake. The building is on a sloped site with the two lower levels being underground on the eastern side.

65 Main Highway, Auckland, 2017

Comprises 2 no. office buildings (4 storeys) over three level basement carparks common below the two buildings. The structures comprise reinforced concrete frames to the upper floors and precast concrete shear walls to the basement levels. The development was designed and constructed in the early 2000's. To evaluate the seismic capacity of the building Structus developed computer programmes to analyse the structures. This resulted in an accurate determination of the structures seismic capacity.

75 Queen Street, Auckland, 2013-2014

Seismic assessment, structural strengthening and substantial tenancy refurbishment for this 4 to 6 level heritage building at a prime location in Auckland's CBD. Darren won this project and was project director for structural, geotechnical and fire engineering services through a staged development of the building.

135 St Asaph St / 221 Annex Road, Christchurch, 2015

Design management of detailed seismic assessment and structural strengthening of large format warehouse and associated office buildings consisting predominantly of steel portal frames and precast concrete or masonry wall structures.

Ministry of Education, seismic assessments, 2012

Seismic assessment and reporting for roughly 60 school buildings in the Auckland region. Darren managed a team of engineers to provide fast-tracked response to MoE requirements for brief seismic assessments for a range of school buildings across the region.

PEER REVIEWS

Peer Reviews, Auckland, 2015-present

Structural peer reviews for the following projects – 30-40 Enfield Street ($25m 5 storey residential development), 52 Sale Street ($13m 9 storey residential development) ***Property Council NZ Property Industry Awards 2018 – Winner Excellence & Best in Category, Multi-Unit Residential Property Award***, Pinesong Block G (8 storey retirement village development), Crest Apartments (5 storey development), Fisher & Paykel Building 4 (30,000m^2 warehouse, distribution centre, offices and laboratory facility), Greenwich Gardens Stage 3, 9 & 10 (6 no. 4 Storey retirement village buildings), Copper Crest Retirement Village (3 blocks up to 4 storeys) and Ministry of Education school peer reviews.