



**SANDY LIAO**  
STRUCTURAL ENGINEER  
CURRICULUM VITAE

# SANDY LIAO CV



## PROFILE

Sandy is a structural engineer with over 4 years of experience in New Zealand. After completing his degree in civil engineering at Canterbury University in 2016, Sandy worked as a structural engineer. In 2020, Sandy attended Auckland University to obtain a Master of Engineering Studies in civil engineering.

Sandy is highly motivated to use the knowledge obtained from studies and work to deliver high quality projects.

## QUALIFICATIONS

BE(Hons) – Bachelor of Civil Engineering with Honours, University of Canterbury, 2017

MEngSt – Master of Engineering Studies, University of Auckland, 2021

Member of Engineering New Zealand

## CAREER HISTORY

November 2020 – Present, Structural Engineer – Structus Consulting Limited, Auckland, New Zealand

February 2017 – February 2020, Graduate Structural Engineer – WSP – Palmerston North, New Zealand

## TECHNICAL SKILLS

- Experience in Structural design of concrete, timber, steel structures and structural elements
- Knowledge of engineering design process and consent documentation
- Experience in construction supervision of structural works
- Knowledge of New Zealand Design Standards and Codes

## **PROJECT EXPERIENCE**

### **RESIDENTIAL PROJECTS**

#### **Line Epping & Derna Tobruk, Auckland, 2020-present**

Large two storey terraced housing residential developments for Fletcher Living in Glenn Innes and East Tamaki. Predominantly plywood portal frame and GIB braced timber frame structures, with rib raft floor slabs and some steelwork, plus pipe bridging structures and site retaining walls. Structural engineering design and construction monitoring.

#### **MYLA, Auckland, 2020-present**

Two storey terraced housing and apartments residential development for Fletcher Living in Stonefields. Predominantly plywood portal frame and GIB braced timber frame structures, the Apartments are precast flat slab and reinforced masonry walls, with rib raft floor slabs to all buildings and some steelwork. Structural engineering design and construction monitoring.

#### **Nissan Namata Auckland, 2021-present**

Two storey terraced housing, duplex properties and standalone properties in a residential development for Fletcher Living in Oranga. Predominantly timber framing, with rib raft floor slabs and engineered joists and timber roof trusses to all buildings. Structural engineering design and construction monitoring.

### **EDUCATION PROJECTS**

#### **Kamo High School, Northland, 2020-present**

A new two storey 22 no. teaching space classroom block, two storey Blomfeld block

and Whare building connected with covered walkways and canopies. Structus is providing full structural engineering design, documentation, and construction monitoring services.

### **HEALTHCARE PROJECTS**

#### **Waitakere Hospital SCBU, Auckland, present, \$10m**

Refurbishment and extension to the existing Special Care and Birthing Unit at Waitakere Hospital, consisting of single level building with both existing building refurbishment and extension to provide additional facilities. This is an Importance Level 4 structure. Structus services comprise structural engineering on this project, from the initial concept through construction. Sandy has been involved in providing construction monitoring.

### **RETAIL PROJECTS**

#### **Supermarket Refurbishments, NZ wide, 2021-present, \$2-10m**

Refurbishment of 3 no. Countdown supermarkets to date for Woolworths NZ, including new pharmacy, mezzanines, concrete slabs, extensions, canopies, store frontages, structural bracing, rooftop plantrooms, bulkheads, partition walls, pylon signs, building component seismic restraints and floor trenches and setdowns. Structural engineering design, Revit documentation and construction monitoring.

### **INDUSTRIAL PROJECTS**

#### **RNZAF Base Ohakea NH90 Simulator Building, Ohakea, 2018-2019**

New steel warehouse building with lean-to structures. The central tower provides space for the NH90 simulator and the surrounding lean-to buildings for office and other training

purposes. The overall dimension is approx. 25m x 30m x 12m. Main design feature includes moment resisting steel frame, steel connection design, compression/tension bracing, RC slab/floor and RC shallow foundations. Sandy produced the structural design and construction monitoring.

#### **NZDF Linton Camp Mobile Weapon Training Simulator building, Palmerston North, 2017**

Structural design of a new steel warehouse building used for military training purposes. The structure is approx. 18m x 18m x 6m. The building consists of a main hall and a lean-to office area with canopies.

#### **NZDF Linton Camp Vehicle Servicing Facility Extension, Palmerston North, 2017**

An extension to the existing steel portal frame structure used for vehicle servicing. The extension design is approx. 28m x 18m x 10m. Key design features include steel moment frames, precast concrete shear walls, cable bracing and RC pile foundations. Sandy provided structural design and construction monitoring services.

### **DETAILED SEISMIC ASSESSMENTS AND STRENGTHENING**

#### **30 Bennett Street DSA and Strengthening Design, Palmerston North, 2019**

Detailed seismic assessment of a warehouse building initially constructed in the 1980's. The structure consists of a mixture of construction materials and structural components added after initial construction. The assessment/strengthening design covers glulam portal frames, reinforced concrete blockwork perimeter walls, shallow RC foundations and light timber frame walls.

#### **St Mary's Anglican Church & Parish Hall DSA, Levin, 2017**

Detailed seismic assessment of the church building (reinforced concrete) and the parish hall building (combination of steel portal frame, timber frame and reinforced concrete masonry).

#### **Leonard Road, Auckland, 2019 - 2020**

Structus has completed a comprehensive Detailed Seismic Assessment (DSA) of 2 no. industrial / commercial buildings, including single and two storey offices, at Leonard Road, Auckland. The DSA was completed to provide the client 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. Structus also provided full LoD300 as-built Revit modelling and documentation of the buildings, seismic strengthening design and construction monitoring services for the buildings.

#### **409 Manukau Road, Auckland, 2016 – 2020**

This is a two storey unreinforced masonry building. The building is currently used as mixed use retail and offices. The client required that the seismic performance of the building be assessed against the current building standards. To detailed assess the seismic performance advanced techniques were used to accurately quantify the building response in during an earthquake. Seismic strengthening of the building was fully documented in Revit for building consent. The building has also undergone a significant refurbishment, for which Structus fully designed and documented the structural works.

