

Te Whare o Rehua Sarjeant Gallery: Lessons in future- proofing



Location: Whanganui, New Zealand

Employees: 13 FTE

Collection: Over 8,300 items

Potential natural hazards faced:
Flooding and earthquakes

Emergency assets: Spill kits, gloves, tarps, high-vis vests, shovels, brooms, quick dam flood bags

Main lesson learned: Emergency services are geared toward life and livelihoods, so it pays to be largely self-sufficient

In May 2014, the Sarjeant Gallery relocated to a temporary site to allow for the earthquake strengthening and redevelopment of its heritage building. A year later its temporary gallery flooded, leaving a caked-on layer of toxic dust. This case study outlines some lessons learned.

Rocky foundations

After the 2012 Canterbury earthquakes, the Sarjeant Gallery's Category I listed building was assessed as meeting only 5 percent of the building code, and classed as earthquake-prone.

ABOVE: The gallery experienced ground flooding following a severe rainfall which caused the Whanganui River to break its banks. Photo courtesy of Te Whare o Rehua Sarjeant Gallery



Gallery operations were relocated from Pukenui Queen's Park to a temporary site in Whanganui, so public programmes could continue and the collection be safely stored. This paved the way for earthquake strengthening at the heritage building and the construction of a new wing, Te Pātaka o Tā Te Atawhai Archie John Taiaroa.

'Due to the earthquake-prone nature of the heritage building and that, after closing to the public, the collection relocation took nearly two years, we had to ensure the temporary safety of the collection transition staff,' says the Sarjeant's Curator of Collections, Jennifer Taylor.

Quake pods were placed under desks and reinforced-steel quake tables installed in every space in the building. Underneath these tables were whistles, LED torches, and a supply of water.

'Staff also carried a whistle on their key/swipe fob in case of a seismic event. Once a building has been vacated, it's amazing how quickly it deteriorates. It wasn't a nice feeling working in this building for that period,' she says.

An existing building in Whanganui's central business district was selected as the temporary site, amidst

ABOVE: An example of a quake pod, a steel frame suitable for one person. The pod is designed to fit under an existing desk. Photo courtesy of Te Whare o Rehua Sarjeant Gallery.

a growing hub of galleries, artists' studios, and a vibrant weekend market, and named Sarjeant on the Quay. However, the site was close to the banks of the Whanganui Awa (River) and within a '100-year flood' zone. Measures were taken to mitigate the flood risk even though this was deemed to be relatively low during the length of the redevelopment period, which stretched to 10 years.

Accordingly, the collection was housed on the first floor while exhibition galleries were on the ground floor. Key gallery staff registered for automated river height warnings from upriver at Pipiriki, providing a six-to-eight hour notice of floods – this was deemed sufficient time to demount exhibitions and relocate items upstairs.

'Before we moved into Sarjeant on the Quay, the building was redeveloped and [earthquake strengthened to meet 100 percent of IL2 and two-thirds of IL3](#),' Taylor says. 'This was done by installing reinforced "ribs" across the ceiling and floor. On top of this, pillars were placed at regular intervals along

the length of the building, allowing these ribs to hold the structure together in a seismic event.'

Water, water everywhere

Unfortunately, despite the perceived low flood risk, on 21 June 2015, Sarjeant on the Quay experienced a 100-year flood event. Leading up to the flood, Whanganui received nearly three times its historical rainfall average in April and almost twice the average in May. In June, 48 hours prior to the disaster, more than double the average rainfall fell.

To compound matters, the entire Whanganui Awa catchment experienced this rainfall and, because the region was completely saturated, high volumes of water ran off the hills along the entire length of the river. Flood prediction calculations for Whanganui city typically rely on the river height at Pipiriki, located 79km upriver. However, these calculations unfortunately overlooked additional water inflows between Pipiriki and the city. When combined with a king tide that backed-up river flow, this led to an underestimation of the flood levels expected to impact the city.

BELOW: Artworks were removed from the ground floor gallery and placed on foam chocks in the upstairs collection store as a precaution when another flood event was predicted in 2017 which didn't eventuate. Photo courtesy of Te Whare o Rehua Sarjeant Gallery.

On the morning of Saturday 20 June, as gallery staff mopped up water leaking from the heritage building's roof, automated river notifications alerted them to rising levels. The notifications came with alarming regularity, informing staff that the river height was rapidly increasing at Pipiriki, by as much as one metre every half hour.

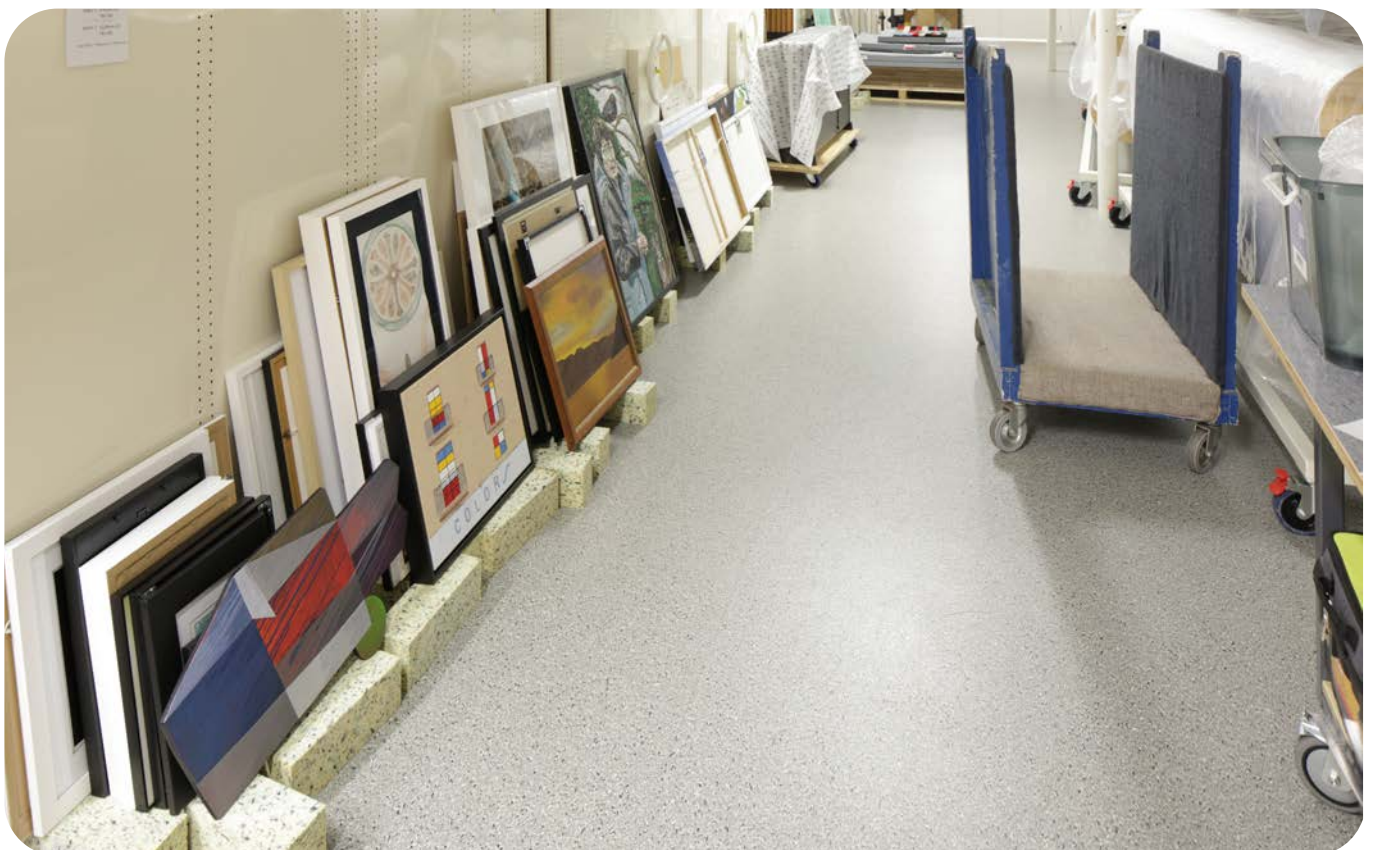
'We then arranged a meeting at Sarjeant on the Quay to assess the situation,' Taylor says. 'The river looked swollen and angry, with whole trees speeding past and a huge amount of debris hitting the bridges.'

'Although Civil Defence and the District Council felt that our building would not be affected, based on their usual predictions, we decided to err on the side of caution and deploy our disaster plan regardless.'

Staff were mobilised to demount the ground floor exhibition, relocating items upstairs, exhibition lenders were notified, and the gallery concert scheduled for that night cancelled.

'By the time we had finished, several hours later, water was lapping over the riverside walkway across the road from the gallery,' Taylor recounts.

Despite assurances from Civil Defence staff that it would be unnecessary, and that water would not make it across the road to the gallery's front door, staff submitted a request for sandbags as a precaution.



‘We also discussed which staff would be able to access the gallery the following day, as the majority live on the other side of the awa, and we were aware the bridges were likely to close overnight with the dangerous river height.’

Despite the request, no sandbags arrived, so the front gallery doors were left exposed. Shortly after midnight, in the presence of Civil Defence staff, the awa entered the gallery and filled the entire ground floor with muddy contaminated water to a height of at least 10cm.

‘The next morning, it was very quiet and very surreal. A senior council manager and I found ourselves standing in the gallery by torchlight with water lapping at our toes. Air was bubbling up through the floorboards and water was dripping constantly. It felt like a dark watery cave,’ says Taylor.

‘All I could think of was how we would have felt if we hadn’t made the right precautionary decisions the day before. From the first-floor windows at the front of the building, we saw a muddy river where the road had been the day before. After surveying the site and taking photographs, we left the building, though at the time we didn’t realise that we wouldn’t be allowed back in for several weeks.’

It was only later that Jennifer would discover the extent of the damage – the entire region was inundated with slips, impassable roads, and power outages, with rural communities severely affected, isolated, and struggling, and Whanganui city itself completely cut off from the rest of the region.

The floodwaters receded, leaving a deposit of contaminated silt behind, and a red zone was established around the gallery, restricting staff access. Jennifer says that ‘after purchasing gumboots and emergency supplies, I visited the Civil Defence emergency centre to find out how soon our team could access the gallery and begin the clean-up.

‘I was gently reminded their focus at that time was on saving lives and the gallery clean-up could wait, so I volunteered for the remainder of the day in the emergency centre. It was hard to comprehend the scale and widespread impact of the event until much later.’

The following Monday, staff were given just one hour, overseen by security teams, to wade through the mud and enter the gallery building, assess the damage, collect laptops, and vital equipment and files, then leave.

A temporary office was set up at the region’s heritage library and, once staff had established the safety of their own homes and families, they were redeployed in the emergency response centre – fielding calls from concerned citizens, phoning residents in rural areas to see what assistance they needed, and preparing food packages for helicopter drops. After several weeks, they were finally allowed to reoccupy the first floor and offices of the gallery building.

Mopping up after the floods

Departing flood waters left the ground floor covered in silt that had been contaminated with sewage, which dried into a fine, toxic dust, and contrary to staff expectations, they were not allowed to remove it. Instead specialist teams in protective gear were employed.

In total, the clean-up took three months – to clear the toxic dust, remove silt from under the floorboards, replace the flooring, and install new wall linings. Measures were also taken to future-proof the building, including installing ducting on the ground-level air vents to prevent water and silt infiltration, and designing replacement cabinetry for the gallery shop so it was on wheels for easier relocation.

Jennifer says, ‘To be completely honest, if sandbags had been available to us at the time it would not really have made any difference to the impact of the flood on our building. After the event, we learnt that the use of sandbags is a lot more complicated than we had anticipated.’

Sandbags have a tendency to rot in storage so have to be stored empty and then filled when needed, she says. The logistics involved with gaining access to enough sand and manpower to fill them, then to distribute the incredibly heavy bags to where they are most needed, makes them a difficult and impractical resource in difficult conditions.

‘They require a lot of strength to move and knowledge on how to stack them correctly. If you are placing them against doors, you can increase their effectiveness by sealing the doors first with large sheets of polythene and tape – then place a large sheet of ply against the doors, and stack the sandbags against the ply.’

But that’s not all. The bags then need to be stacked in the correct manner – staggered like bricks in a wall – otherwise the barrier is ineffective. The gallery has since invested in a stock of silica gel bags, which

are compact and light when dry, and expand once submerged in water. Twice more, the Sarjeant team has activated the disaster plan at Sarjeant on the Quay in response to flood warnings, but thankfully no further flooding occurred after 2015.

Now Te Whare o Rehua Sarjeant Gallery has reopened at the top of a pā – Pukenamu Queen’s Park, and river flooding is no longer a risk. Preventive measures are in place to mitigate significant rainfall events that could affect basement areas, and the heritage wing is earthquake-strengthened with post-tensioned rods tying the roof diaphragm to new foundations. The new wing, Te Pātaka o Tā Te Atawhai Archie John Taiaroa, has added gallery spaces, classrooms, function rooms, workshop areas, café and shop facilities, as well as a new collection store.

Jennifer Taylor is the Curator of Collections at Te Whare o Rehua Sarjeant Gallery in Whanganui, New Zealand. From 2014 to 2015, she managed the relocation of the gallery’s collection of 8,300 items from the earthquake-prone heritage building to Sarjeant on the Quay.

Top tips for future-proofing

- **Establish clear disaster plans:** Ensure you know how to obtain sandbags and understand their limitations and proper usage.
- **Maintain contact lists:** Keep up-to-date personal contact details for staff and consider creating a phone tree for emergencies.
- **Plan for building access restrictions:** Accept that access may be denied for extended periods; implement remote monitoring systems and climate control mechanisms where possible.
- **Train staff for emergency responses:** Encourage staff to become familiar with your disaster plans and Civil Defence processes.
- **Consider practicalities:** Evaluate staff availability and their wellbeing during emergencies.
- **Safer than sorry – err on the side of caution:** Don’t hesitate to take precautionary actions, even if official advice suggests that prevention is unnecessary.
- **Patience is key:** Emergency response efforts may seem slow, but it’s crucial to remember that different priorities come into play, with saving lives being the primary focus. It’s important to be patient during a disaster, as things often move more slowly than we’d like. Recognising that various priorities exist in these situations can help ease frustration.
- **Support staff wellbeing:** Regularly check in on staff, understanding their living situations and adjusting workloads as needed.
- **Be adaptable:** Stay flexible in chaotic situations, acknowledging that external support and resources may take time. Insurers, tradespeople, and many others are navigating a changeable environment just like you and your team.



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