



October 26, 2021

Mr. Timothy Bazarnic
Sedgwick | Delegated Authority
12650 Ingenuity Drive, Suite 200
Orlando, Florida 32826

**Re: Storm Damage Assessment
Harborview Homeowner's Association Property – New Orleans, Louisiana
Claim No.: 4186938
Date of Loss: August 29, 2021
SDII Project No.: 8125715**

Dear Mr. Kovel:

In accordance with your September 15, 2021 request, Sdii Global Corporation (SDII) conducted a Storm Damage Assessment at the Harborview Homeowner's Association property located at 500 Lake Marina Drive in New Orleans, Louisiana. Mr. H.J. Bosworth, Jr., P.E., Principal Engineer (Civil/Structural), performed the site visits on September 16, 2021 and September 29, 2021. SDII was requested to determine the cause of the possible lateral shift and other structural damage to the concrete and timber structure. This report provides a summary of the observed conditions as well as our evaluation and conclusions regarding the requested scope of work.

Evaluation Activities

SDII performed the following tasks to investigate the reported damage at the Harborview Homeowner's Association property:

- Interviewed the owner's property manager, Mr. Greg Johnson, and Ms. Erica Boerr, the Homeowner's Association President, to establish a timeline of the conditions and develop an understanding of the primary concerns;
- Conducted a visual, non-destructive assessment of the affected portions of the structure to document, photograph, and evaluate the site conditions;
- Utilized a Google aerial image, verified the configuration of the building shown on the image, and used the image to serve as a guide to locate our photographs and pertinent observations (Figure 1);
- Reviewed the documentation listed in the *Document Review* section of this report;
- Researched weather data recorded in the general vicinity of the project site to understand conditions during the time of primary concern;
- Performed an evaluation of the information provided, obtained, and gathered at the site to assess the observed conditions; and

- Prepared this report summarizing the results of the field investigation along with our evaluation, conclusions, and recommendations.

Site Description and Background Information

According to information obtained from Ms. Erica Boerr, the Homeowner's Association President, the four-story structure was designed as an apartment complex in 1971 and built in the following years. The complex contains 101 condos that are now individually owned. The building was constructed with a combination of cast in place and precast concrete ground-level construction that covers an open parking structure with a three-story timber structure above. The ground level provides covered parking and a space for the management and operations. The roof had a low slope and was covered with modified bitumen. For the purposes of this report, SDII references the north elevation of the structure as the front elevation. The right, rear, and left elevations proceed counter-clockwise, respectively, from this elevation.

Figure 1 is a Google aerial image provided to serve as a location plan for the photographs attached to this report. Overviews of the building elevations are presented in Photographs 1 through 14. The remaining photographs represent conditions observed during the site inspection or were excerpted from the provided or obtained information. All photographs and other information obtained by SDII will be retained in the project folder in accordance with SDII's document/file retention policies.

Mr. Johnson, Ms. Boerr, and Mr. Tyler Kovel of Sedgwick Delegated Authority were present during the field portions of the assessment and provided access to the property, information regarding the timeline of the damage, and the primary concerns. It was reported that the areas of primary concerns were the chipped tops of the concrete columns in the ground-level parking garage and the sagging beams beneath the west side balconies/galleries (for the purposes of this report will be referred to as galleries) of some of the units. There were roof leaks reported but a roof evaluation was not the focus of SDII's assignment.

Document Review

The following documentation was provided and reviewed as part of this assessment:

- Photo sheet – prepared by Mr. Tyler Kovel of Sedgwick Delegated Authority. This document consisted of 70 photographs on 36 pages and was dated September 14, 2021.

The photographs included in this document reflected conditions consistent with what was observed during SDII's inspections.

Researched Weather Data

SDII obtained weather information in the vicinity of the Harborview Homeowner's Association property on or around the date of loss from the following websites:

- National Centers for Environmental Information (NCEI) Local Climate Data and Storm Events Database; and
- National Weather Service (NWS) Preliminary Local Climatological Data and Storm Prediction Center (SPC).

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 29 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, along with three other hurricanes. Severe wind and large-scale flood damage has been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. New Orleans experienced over five hours of hurricane force wind gusts from the south and southeast through the afternoon and early evening of August 29. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

According to the NWS Preliminary Local Climatological Data for August 29, 2021, 3.7 inches of precipitation were reported at the NWS station at the New Orleans International Airport located approximately 8.9 miles west southwest of the Harborview Condominiums. Maximum wind and wind gust speeds were reported at 62 and 90 miles per hour (mph), respectively.

The National Institute of Standards and Technology working with Applied Research Associates developed a rapid response estimate of surface-level windfield for Hurricane Ida that is displayed in maps. SDII obtained the maps from CompuWeather. The data is identified as preliminary and the map is subject to change. The map illustrates the estimated surface level peak wind gust (3-second) in mph at 10 meters (33 feet above ground) over flat, open terrain with a stated accuracy of plus or minus 20 per cent. Wind maps were studied and the maximum sustained wind speeds at this location were determined to be between 60 and 70 mph and the maximum wind gusts at this same location were said to be between 90 and 100 mph.

SDII obtained Local Climatological Data (LCD) weather information from the Southern Regional Climate Center (SRCC) for the date of August 29, 2021 with regard to wind speeds and precipitation. The observed data for the specified period from the following weather stations is noted in the table below.

Observed Conditions from August 29, 2021						
Weather Station	Max. Sustained Wind (mph)	Peak Wind Gust (mph)	Peak Wind Direction (Degrees) 0/360 = North 180 = South	Total Precipitation (inches)	Distance from Site (miles)	Direction from Site
New Orleans International Airport (MSY)	62	90	150	3.7	8.9	West Southwest
New Orleans Lakefront Airport	66	84	110	NA	5.8	East Northeast

SDII's primary focus during this investigation was on the physical conditions of the Harborview Homeowner's Association property and structure, and whether the conditions observed were the result of wind forces. If requested, SDII can perform more detailed weather research, including obtaining site-specific weather information.

Summary of Observed Conditions

The following is a summary of the conditions observed during our site visit to investigate the reported damage at the Harborview Homeowner's Association property:

Building Roof

The inclination ratio on the roof slopes was less than 1:12 (i.e., 1 units of vertical rise on 12 units of horizontal run). Specific descriptions are presented for selected photographs, not all photographs. Selected roof slope areas are described by compass directions. To better understand the descriptions, see Figure 1:

- The roof covering on the low-slope roof was covered with modified bitumen roll roofing with granule surfacing. The modified bitumen roofing was top coated with lighter colored substances in certain areas and tarped in other areas. Ponding areas of over 100 square feet were observed and no tarps were removed to allow careful examination of the areas beneath. Mechanical equipment, including condensing units, were located across the roof surface. For overviews of the roof, see Photographs 15 through 31.

Building Ground-Level Structure

- The ground-level portion of the building consisted of five rows of concrete columns mostly at 18 feet on center with the rows being positioned at an average of approximately 39 feet on center. These were supported by foundations below paved surfaces with precast concrete beams supported by the columns. Upon the precast beams were precast concrete double-tee beams spanning between the column rows with an approximate 39 feet average span (Photographs 32 through 39); and
- The concrete was spalled at the top of nearly every one of the 80 (approximate) columns. There was evidence of repairs on approximately 30% of the columns and the column tops appeared to have been constructed with a mild steel-bearing plate embedded in the column tops. Bearing plates were also cast into the precast beams as well as into the ends of the double tees where they contacted the precast beams. The exposed areas of these plates were rusted. The column bases were typically in serviceable condition with exceptions. There was one column along the south edge of the building that had spalled concrete at the base with an exposed steel base plate and anchor bolts. Another column base along the east edge of the building was also a potential steel column encased in concrete (Photographs 40 through 58).

Building West Side Galleries

- The building was designed with one bedroom units along the east side and two bedroom units along the west side wall. Each level of the three-story apartment had nine side galleries along the west wall. An original set of architectural drawings was made available by the homeowner's association president and a detail section of the gallery is provided as Photograph 59. Not all galleries were available for our inspection. These galleries had a variety of floor surfaces ranging from outdoor carpet to concrete to ceramic tile (Photographs 60 through 67);
- There was evidence of deflection of the floor in some of these galleries as the plinth of the two outside corners was found to be above the level of the floor (Photographs 68 through 71); and

- Several of the timber supports of the second and third floors of these galleries were found to have failed timber framing and rotted wood was visible (Photographs 72 through 77).

Evaluation

The roof was found to have aged surfaces with evidence of re-coated areas throughout. There were also ponding areas of over 100 square feet on the roof, each indicating that the insulation had compressed over time or that the roof was not properly installed. Historical aerial images indicate that the areas of resurfacing had been added piecemeal since 2015.

The concrete columns were almost all found to have spalled tops and some of the exposed surface irregularities and voids had been painted over. This spalling was the result of the embedded, uncoated steel baseplates, which were gradually corroding over the almost 50-year-life of this building and occurred before the last time the building was painted. This long-term deterioration of the concrete columns was not caused by the recent storm. There was no lateral shifting of the concrete structure observed.

One column along the south wall of the building, found to have steel base plates and anchor bolts, did not match most of the other columns and was likely a repaired or replaced column. Another column along the east edge of the structure was also of dissimilar construction and was likely a steel column encased in concrete. All other concrete columns are assumed to be conventionally reinforced concrete with embedded plates on top. No original structural drawings of the concrete portion of this building were available.

A spall is defined as flakes of material that are broken off of a larger solid body. Concrete spalling typically begins when the steel embedded within the concrete member rusts. Contrary to popular belief, concrete is porous. Rusting of the embedded steel occurs when that steel is exposed to water and air; without both of these elements, the steel does not rust. When exposed to both of those elements, a chemical reaction takes place wherein iron oxide (rust) is produced. The production of iron oxide includes a volumetric expansion of rebar by up to 6 times the original volume, and that increase in volume imposes significant expansive forces upon the surrounding concrete. These expansive forces can cause the concrete to delaminate or to crack, spall, and break off.

Delamination and spalling of a concrete member are both undesirable conditions; not only do they represent a potential struck-by hazard in the scenario where the spalled concrete falls and strikes a person, but they also reduce the cross sectional area of the concrete member and decrease its ability to safely carry imposed loads. An additional consideration is that both delamination and spalling offer increased access of air and water to the reinforcing steel within that member; thus creating a cycle of corrosion and increased access of the corrosive elements exacerbating the process with each subsequent cycle. The evaluation of the long-term loss of support capacity caused by the spalled concrete at the tops of the columns and the corrosion of the bearing plates and reinforcement is beyond the scope of this evaluation.

Several of the west side galleries on floors number three and four were found to have failing support framing and should not be used until they are repaired. Not all of the units with these galleries were accessible during SDII's inspection so fewer than half of the 18 galleries with the failing structures were documented. The original design detail called for wood framing and a plywood deck covered with a membrane and exterior carpet. The membrane had failed, and the framing had deteriorated due to exposure to moisture over the approximate 50 years since they

were constructed. Galleries on the first level (second floor) of the residential portion of the structure appear to be supported by the concrete structure and were not found to be sagging.

Unsafe Conditions

During the site inspections, SDII advised Ms. Erica Boerr (Harborview HOA President), Mr. Greg Johnson (Property Manager for Harborview HOA), and Mr. Tyler Kovel (Representative for Sedgewick Delegated Authority) that unsafe conditions existed at the property. A separate “Unsafe Conditions” letter was also prepared and submitted outlining the areas of concern.

SDII observed that the structural integrity of the galleries along the west side of the building on the third and fourth floors is questionable, and that in some cases those galleries are in imminent danger of collapse. The supporting timber framing has decayed, making the members no longer able to properly support the intended loads. SDII was not provided access to the galleries along the north side of the building during our site inspection and therefore cannot opine on the condition of those galleries.

The observed damage to the timber framing beneath the galleries along the west side of the building is an unsafe condition that poses a danger to the occupants and anyone that may access these areas at the property (including the galleries below the third and fourth floors). SDII recommends that repairs to the structural elements that support the galleries be initiated as soon as possible and prohibit the use of these galleries by the residents until temporary support or permanent repair of the damaged floor framing is completed, which should be performed in the immediate future.

SDII's inspection also identified damaged concrete foundation columns, which appear to be deteriorating where they connect to and support precast concrete beams that support the upper floors of the structure.

The damaged concrete columns pose a potential danger to the occupants and anyone that may access these areas of this building, and SDII recommends that the homeowner's association hire a structural engineer as soon as possible to evaluate the concrete structure beneath the residential portion of the building.

Conceptual Scope of Recommended Repairs

The following conceptual repairs are recommended due to damage from long-term degradation of the structures. SDII's focus is primarily on the structural components of the building and the noted conceptual repairs do not address all cosmetic, electrical, mechanical, or other non-structural damage that may have been present:

- The loose and spalled concrete found at the tops of the concrete columns should be chipped away to expose the rusted steel. The steel should be abrasive blasted and quickly coated with a zinc-rich primer and a suitable topcoat finish. An engineer should be brought in to inspect all steel exposed during this repair project. A concrete bonding substance should be applied to the cracked concrete surface and a Portland cement mortar should be used to repair the tops of the columns. Any other exposed steel should be similarly cleaned and coated to prevent future corrosion.
- The original structural drawing of the concrete portion of the structure were not available and any demolition to the tops of the columns should be accomplished under the

supervision of a structural engineer. The engineer should be able to evaluate what is discovered and establish a detailed protocol for these repairs.

- The gallery floors, support framing, and lower wall sheathing and siding should be removed and the floor should be reframed with pressure-treated framing and pressure-treated plywood. A suitable waterproof membrane should be installed and flashed under the wall sheathing. The floor and wall finishes should be restored in kind.

All repairs to the building shall be conducted in accordance with the requirements of applicable codes and regulations adopted by the authorities having jurisdiction. Structural members surrounding the damaged portions of the structure should be inspected during all repairs by an engineer or architect. If additional damage is discovered during repairs, proper precautions shall be taken to ensure the structural integrity of the members exhibiting the newly discovered damage. Temporary support of the existing structure should be provided as required. The repair recommendations provided herein are not intended to represent all possible means of repairing the structure, but are intended to represent some of the ways in which the damage can be repaired.

Conclusions

Based on the observations at the Harborview Homeowner's Association property and our subsequent evaluation of the information provided and obtained, it is SDII's professional opinion that:

1. The coverings/claddings on the roof areas of the building did not exhibit damage caused by wind during weather events on August 29, 2021. Any leaks through the various roof sections were related to a lack of weatherproofed coverings and claddings as a result of long-term wear and aging of the roofing materials and other building materials that were used to weatherproof the roof and/or rooftop equipment.
2. The spalled tops of the concrete columns were the result of a lack of coating to embedded steel at the tops of the columns and long-term exposure of the steel to warm, moist air from the nearby lake. No shifting of the structure was observed.
3. The deteriorated structural timber framing of the galleries was the result of failed waterproofing membranes used in the original construction and was not caused by this recent storm.
4. The observed damage to the timber framing beneath the galleries along the west side of the building is an unsafe condition that poses a danger to the occupants and anyone that may access these areas at the property (including the galleries below the third and fourth floors). SDII recommends that repairs to the structural elements that support the galleries be initiated as soon as possible and prohibit the use of these galleries by the residents until temporary support or permanent repair of the damaged floor framing is completed, which should be performed in the immediate future.
5. The damaged concrete columns pose a potential danger to the occupants and anyone that may access these areas of this building, and SDII recommends that the homeowner's association hire a structural engineer as soon as possible to evaluate the concrete structure beneath the residential portion of the building.

Limitations

The conclusions, analyses, and opinions expressed herein have been prepared within a reasonable degree of professional certainty. They are based on the results and interpretations of the testing and/or data collection activities performed at the site, the information available to SDII at the time the report was issued, and the education, training, knowledge, skill, and experience of the author and/or licensed professional noted.

The contents of this report are confidential, are intended for the use of Certain Underwriters at Lloyd's, London and its representatives or clients, and may also be privileged or otherwise protected by work product immunity or other legal rules. SDII assumes no liability for the misuse of this information by others and reserves the right to update this report should additional information become available.

This document has been signed and sealed in accordance with applicable state statutes. If not signed and sealed by the licensed professional(s) named and shown as its author(s), the observations, conclusions, and opinions cannot be relied upon; as such, the document has been provided for information purposes only. This report was technically reviewed in accordance with SDII's standard practice.

Sdii Global Corporation appreciates this opportunity to be of service to you. If we can be of further assistance in this or other matters, please do not hesitate to contact us.

Sincerely,

SDII GLOBAL CORPORATION

4509 George Road, Tampa, Florida 33634
Louisiana Certificate of Authorization #EF.0003352



Figure 1
Google Aerial Image

Representative Photographs



Photograph 1 - Front (north) elevation of building – 1 of 2



Photograph 2 - Front (north) elevation of building – 2 of 2



Photograph 3 - Northwest corner of building – Note upper side galleries and deflection indicated



Photograph 4 - West side of building – Note upper side galleries – 1 of 3



Photograph 5 - West side of building – Note upper side galleries – 2 of 3



Photograph 6 - West side of building – Note upper side galleries – 3 of 3



Photograph 7 - West side of building – From southwest corner



Photograph 8 - South side of building – 1 of 2



Photograph 9 - South side of building – 2 of 2



Photograph 10 - Southeast corner and east side of building



Photograph 11 - Northeast corner and east side of building



Photograph 12 - Interior upper hallway galleries – west side of pool area



Photograph 13 - Interior walls of central building area



Photograph 14 - Interior upper hallway galleries – North and east sides of pool area



Photograph 15 - Rooftop from northeast corner – Note standing water



Photograph 16 - Rooftop from northeast corner – Note patched area



Photograph 17 - Rooftop from north edge – Note light-colored patched area



Photograph 18 - Rooftop from northwest corner – Note color and tarp to right



Photograph 19 - Rooftop from west edge – Looking north – Note roof colors and tarp to right



Photograph 20 - Rooftop from west edge – Looking north – Note roof colors and ponding



Photograph 21 - Rooftop from west edge – Looking east – Note blue tarp



Photograph 22 - Rooftop from west edge – Looking south – Note varying roof colors



Photograph 23 - Rooftop from west edge – Looking south – Note varying roof colors and ponding



Photograph 24 - Rooftop from west edge – Looking southeast – Note ponding



Photograph 25 - Rooftop from west edge – Looking north – Note varying roof colors



Photograph 26 - Rooftop from southwest corner – Looking east



Photograph 27 - Rooftop from south edge – Looking west



Photograph 28 - Rooftop from south edge – Looking east – Note ponding



Photograph 29 - Rooftop from southeast corner – Looking north at light-colored roof areas



Photograph 30 - Rooftop from east edge – Looking west over open area below



Photograph 31 - Rooftop from northeast corner – Looking south



Photograph 32 - Concrete structure above parking level



Photograph 33 - Concrete structure above parking level – Wall along office area



**Photograph 34 - Concrete structure above parking level – Wall along office area -
Note precast elements**



**Photograph 35 - Concrete structure above parking level – Wall along office area -
Note precast elements**



Photograph 36 - Concrete structure above parking level – Note precast elements



Photograph 37 - Concrete structure above parking level – Note some precast elements were not centered on the bearing plates.



Photograph 38 - Concrete structure above parking level – Note off-center precast elements



Photograph 39 - Concrete structure above parking level – Note precast elements



Photograph 40 - Concrete column below precast elements – Note bolted repair and corrosion



Photograph 41 - Concrete column below precast elements – Note spalling at top



Photograph 42 - Concrete column below precast elements – Note spalling at top and coating over the spalled pieces



Photograph 43 - Concrete column below precast elements – Note spalling at top and coating over the spalled pieces



Photograph 44 - Concrete column below precast elements – Note spalling at top



Photograph 45 - Concrete column below precast elements – Note spalling at top



Photograph 46 - Concrete column below precast elements – Note bolted repair



Photograph 47 - Concrete column below precast elements – Note corroded bolted repair



Photograph 48 - Concrete column below precast elements – Note spalling at top and coating over the spalled pieces



Photograph 49 - Concrete column below precast elements – Note section loss at base



Photograph 50 - Concrete column below precast elements – Note section loss cracking at base



Photograph 51 - Concrete column below precast elements – Note typical base



Photograph 52 - Concrete column below precast elements – Note spalling at top



Photograph 53 - Concrete column below precast elements – Note spalled piece from top



Photograph 54 - Concrete column below precast elements – Note spalled top and steel plate



Photograph 55 - Concrete column below precast elements – Note spalled top and steel plate



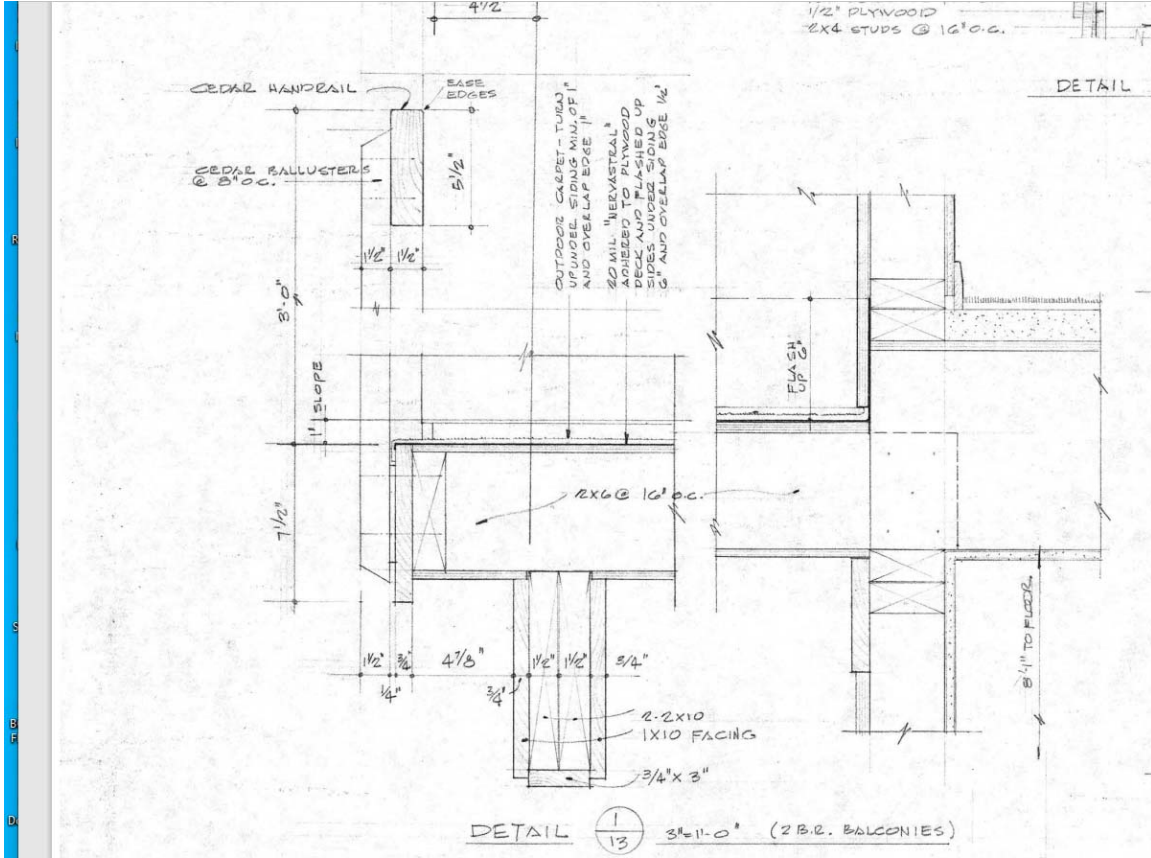
Photograph 56 - Concrete column below precast elements – Note spalled base, anchor bolt, and steel plate



Photograph 57 - Concrete column below precast elements – Note spalled base, anchor bolts, and steel plate



Photograph 58 - Concrete column below precast elements – Note spalled base, anchor bolt, and steel plate



Photograph 59 - Architectural cross section detail of west side galleries



Photograph 60 - West side gallery floor – Concrete topping



Photograph 61 - West side gallery floor – Concrete topping



Photograph 62 - West side gallery floor – Tile over concrete topping



Photograph 63 - West side gallery floor – Tile over concrete topping



Photograph 64 - West side gallery floor – Tile over concrete topping



Photograph 65 - West side gallery floor – Outdoor carpet over deck



Photograph 66 - West side gallery floor – Concrete topping



Photograph 67 - West side gallery floor – Tile over concrete topping



Photograph 68 - West side gallery floor – Note gap between surface and plinth



Photograph 69 - West side gallery floor – Note gap between surface and plinth



Photograph 70 - West side gallery floor – Note gap between surface and plinth



Photograph 71 - West side gallery floor – Note gap between surface and plinth



Photograph 72 - West side gallery floor support – Note deflected shape



Photograph 73 - West side gallery floor support – Note deflected shape



Photograph 74 - West side gallery floor support – Note deflected shape and damaged support beam



Photograph 75 - West side gallery floor support – Note deflected shape



Photograph 76 - West side gallery floor support – Note decayed wood beam



Photograph 77 - West side gallery floor support – Note decayed wood beam