

Report of Damage and Repairs to Ice Rink

Steve Maurer, CR

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The following is a technical document detailing the assessment of damage and chronological order of emergency services and final repairs undertaken in the restoration of a fire damaged structure

**REPORT OF DAMAGE AND REPAIRS TO
STRUCTURE AT
#18-31105 FORT GARY ROAD
ABBOTSFORD, BRITISH COLUMBIA**

Landlord: 646024 B.C. Ltd.
#4-41500 Eastbridge Street
Abbotsford, British Columbia
V3G 1J9

Claim #: S-52671
ERS ID #: A4SM649

Tenant: National Hockey Trainers
#18-31105 Fort Gary Road
Abbotsford, British Columbia
V1R 1L8

Claim #: DB-94/311
ERS ID #: A4SM648

Prepared by

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THE BACKGROUND AND INVESTIGATION

The following information is compiled from discussions with Mr. Bill Knight and from a report produced by Andy Bowman of Independent Investigators and Consultants Ltd. who was hired by the landlords adjuster to investigate the loss.

Site plans and information regarding the building was provided by Dave Batten from Woodside Construction in Abbotsford.

Interior floor plans were prepared by the writer of this report.

All photographs in the photo exhibit were taken by the writer of this report.

During the late evening of October 12, 1994, Mr. Bill Knight, franchise owner of the NHT was working alone at the premises at Unit #18 - 31105 Fort Gary Road in Abbotsford. Mr. Knight advised that he left the premises a few minutes after midnight on October 13, 1994. Prior to leaving he had "shoveled in" the corners of the rink after the last occupants had left the ice around 11:00 p.m.. Then at approximately 11:40 p.m. he turned the exhaust fan on to the 30 minute setting and proceeded to "dry scrape" the ice area utilizing the Zamboni. On completing the task, he then parked the Zamboni and proceeded to flood the ice. After doing this he turned the inside lights off and left the building through the front doors.

The fire department was called to the scene at 1:06 am on October 13, 1994 responding to a sprinkler alarm. Once on location they noted water running from under one of the rink doors. They were able to gain entry through the large bay door and discovered that a fire had been burning on the floor above the ice plant room which was located in the southeast corner of the arena. The sprinkler system had subsequently extinguished the fire prior to its discovery.

Mr. Knight was notified of the fire at approximately 1:30 am the same day and was advised to attend and ensure the building was secure.

At approximately 8:30 am on October 13, 1994, the fire scene was attended by Abbotsford Fire Department Lieutenant Mark Caul and Art George the Local Provincial Gas Inspector. Their prime focus was the inspection and investigation of the fire loss in an attempt to determine its origin and cause. During this time, the fire department advised Mr. Knight that the exhaust fan he had utilized the night before not be used again until the exact cause of the fire was determined. The gas inspector was suspect of the exhaust fan as it had been installed by an HVAC sub-contractor after the building occupancy to remove exhaust fumes when the Zamboni was in operation.

THE INSPECTION

The initial inspection of the premises was made by the writer at 12:15 p.m. October 13, 1994. Also present with me at this time was Bill Knight. At the time of the inspection the local weather conditions were overcast skies, a temperature of 10° C., and a slight rain was falling. The following general observations were made during this inspection:

- The large overhead door at the north wall was open and remained open during the attendance.
- The ice making plant was still in operation.
- The dehumidification system was inoperable.
- The HVAC system was still operable and running.
- No attempt had been made to wash any surfaces.
- A large exhaust fan at the east end of the rink was not operable.

A further detailed inspection was done by the writer at 5:00 p.m. the same day. The following describes the area and to the degree which they were contaminated or damaged.

1.1 The structure at Unit #18 - 31105 Fort Gary Road is located in a predominantly commercial area. This building is a concrete tilt-up structure. The majority of the buildings in the vicinity of the loss are of concrete block or precast concrete tilt-up construction.

1.2 Unit #18 forms part of a 14 unit strata title complex. The age of the complex is approximately 6 months.

1.3 The overall condition of the structure prior to the loss was very good due to the age and recent completion of construction. It is to be noted that there are a number of units yet vacant in the complex.

1.4 Unit #18 is approximately 12,032 square feet and is divided into three areas:

- main ice arena
- dressing rooms, office and entry
- viewing mezzanine

1.4.1 Main Ice Arena

This area is approximately 8,400 square feet or 70% of the entire structure. There is a 22 foot high ceiling with open web steel joists with a shop primed finish and corrugated galvanized metal decking at the ceiling. The walls are concrete and have been painted with a latex paint by the tenant.

Lighting in the arena is mercury vapor. At the time of the inspection, this area was very dimly lighted as a result of the smoke residue on the lights and the dark soot contaminated ceiling.

In the southeast corner of the arena is the ice plant. This area is approximately 335 square feet with 10 foot ceiling height. The ice plant room has concrete block walls and conventional stick framed 2x12 wood joists and plywood to form the roof/floor of the storage area above. The deck area above the ice plant is used primarily for limited storage. The floor of the deck is clad with 2 layers of 1 1/2" rigid insulation. The insulation is to provide sound deadening of the ice plant. Located on this deck is a large water heater tank, a 300 cfm dehumidifier and the glycol overflow chambers.

The temperature in the main arena is maintained at a constant 4° C. with the exception of the ice plant room where the temperature is somewhat higher due to the natural heat buildup of the equipment.

There is a 12' x 14' overhead door in the east end of the north wall. At the east end of the rink surface is a concrete driveway used to park the Zamboni (mobile ice scraping machine). There is a large floor drain grate present in this area.

The hockey rink is of typical construction. The rink boards are welded aluminum frames with a polyresin composite cladding. The upper boards are impact resistance glass set in aluminum stanchions.

NOTE: The north wall below the glass of the mezzanine viewing area is clad with painted plywood. This area has existing mold growth according to the tenant and is a warranty problem to be corrected by the builder.

1.4.2 Dressing Rooms, Office and Entry

This area is approximately 2,116 square feet or 18% of the entire structure. All interior partitions in this area are constructed from standard concrete block and sealed with a block filler and high gloss epoxy finish. All areas with exception of the office, pro shop, front entrance and shower room have thick rubber matting loose laid directly on the concrete floor. The office and pro shop have direct glue down carpet. The shower room and front entrance have ceramic tile floors.

NOTE: There is damage to the ceramic tile in the shower floor and discolored grout in the ceramic tile in the front entry. Both conditions existed prior to the fire according to the tenant and are to be rectified by the builder.

The ceilings in this area are painted plywood. Lighting in all areas is fluorescent tube. This area is very well lit and the brightness of the fluorescent lights was not noticeably diminished by the smoke residue.

The HVAC system in this area which is a tenant improvement, is contaminated with smoke residue.

*There is direct open access from the dressing room hall to the ice arena.

1.4.3 Viewing Mezzanine

This area is directly above the office and dressing rooms and is approximately 1,516 square feet or 12% of the entire structure. The ceiling is open web steel joists with shop primed finish and corrugated galvanized metal decking. The joists are continuous from the arena area.

The north wall overlooking the arena is built using conventional stick framing with painted drywall cladding on the interior. There are 9 - 8 foot wide aluminum framed windows in this wall. All other walls are concrete with latex painted surface. The flooring is direct glue down carpet which is continuous on the stairs to the lower level and on the emergency exit stairs. The lighting is fluorescent tube. This area like that of the dressing rooms, office and entry is very well lit and the brightness of the fluorescent lights was not diminished by the smoke residue.

THE DAMAGE

1.5.1 Main Ice Arena

The fire originated in this area on the storage floor above the ice plant. Severe smoke residue is present throughout with heaviest contamination in the east half of this area. All surfaces have been affected to varying degrees. Structural fire damage is limited to a small portion of the storage area floor and adjacent concrete wall.

1.5.2 Dressing Rooms, Office and Entry

Light to medium soot contamination is present in this area. The open air passage from the arena to the dressing rooms contributed to the extent of the contamination. All surfaces are affected to varying degrees.

1.5.3 Viewing Mezzanine

This area is relatively well sealed from the remaining structure with the exception of the open stairwell. The contamination in this area is very light. Affected areas are horizontal surfaces and glass.

TEST CLEANING

During inspection of the damages the following tests were performed:

1. Wipe tests of various surfaces using a clean white cloth. See photos 21 - 26.
2. The Zamboni was utilized to test clean an area of the contaminated ice surface. Results were excellent and the entire surface was scraped.
NOTE: During this procedure the blade of the Zamboni was damaged when it came in contact with aggregate melted into the ice surface in the vicinity of the ice plant. The aggregate resulted from the spalling which occurred from the intense heat near the origin of the fire. See photos 3, 4, and 17.
3. A dry sponge wipe test was performed in two areas of the structure. It was found that humidity levels and resulting condensation in the arena made this type of cleaning ineffective. The dry sponge was however utilized in low humidity areas such as the offices, dressing rooms and viewing mezzanine.
4. On aluminum surfaces in the rink area, a two stage dry cloth wipe was effective. First, a dry cloth was used to remove excess smoke residue held in suspension by excessive condensation. Then a second dry cloth was used to clean and dry the surface. See photos 11 and 12.
5. Degreaser and a dry cloth was utilized to test clean the damp concrete walls of the arena area. This proved effective and was ultimately used throughout this area. See photo 8.

THE SCOPE OF REPAIRS

Since the actual fire damage to the structure was minimal, the major focus of the restoration was cleaning and deodorization of the structure and contents.

The nature of this loss was similar to one attended by Edenvale Restoration Specialists in a large shopping mall in December of 1993. The similarity being the tall ceiling height, heavy smoke damage to open web roof joists and corrugated decking and a difficult floor surface from which to work.

I called Phil Limoges who is the Technical Advisor for Edenvale Restoration Specialists, to discuss the use of a process designed and implemented by him for such situations. The process involves spanning large specially designed tarps from the roof trusses. The tarps serve many purposes including a catch basin and funnel for water and cleaning agents, protection of the floor surface below, a visual break for workers high up in trusses performing the cleaning and as a safety net to aid in the compliance of Workers Compensation Board requirements.

My mandate was to implement the most cost effective and efficient method of cleaning the ceiling of the main ice arena so other alternatives had to be considered as well.

An alternate method of cleaning the high structure above the ice surface involved the use of mobile scissors lifts to provide the platforms to perform the necessary structural cleaning. The question was posed to Mitch Brooks, one of the franchise owners, with regards to the durability of the ice surface and the feasibility of removing the ice surface. Mr. Brook indicated that the glycol tubes which form the ice were laid directly on the earth as opposed to being laid on the concrete slab. Therefore removing the ice to utilize a concrete surface as a work platform was not feasible nor was it practical from a time standpoint. He suggested the scissors jacks would not adversely affect the ice surface at all. I suggested the ice could be covered by a layer of plywood for protection but this was deemed to be unnecessary as well as time consuming.

A system of planks was built using 2x10 and 2x4 and was design to span between two trusses to allow workers to clean the ceiling decking between the trusses without the use of the scissor lift. These planks were then utilized to support air movers during the dehumidification process.

The tarp method was abandoned due to the length of time it would take to set up the tarps relative to the actual cleaning time that would be required. The scissor lift alternative was deemed most effective and rental of four scissor lifts was secured immediately thereafter.

The question regarding duration of cleaning was addressed with Mr. Knight. Mr. Knight was concerned with when he could again be open for business. Initially a time frame of four full working days was set as a reasonable period of time required to accomplish all cleaning of the structure and contents. With sealing and painting anticipated in the main arena, two days were allowed for this process. Cleaning was to commence at 8:30 am Friday, October 14. Allowing six working days to complete the cleaning and painting process and one day to prepare the ice, a re-opening date of Friday, October 21st was set.

During the cleaning process it would be necessary to open and close the overhead door many times. Also, a large amount of moisture would be brought into the environment due to the cleaning activity of a crew of sixteen men working 10 hours per day. A factor that could affect the schedule for re-opening was the condition of the concrete walls after cleaning. The humidity level was increasing rapidly due to the disruption of the controlled environment and the presence of condensation on the concrete walls could hinder the sealing and painting process of the walls.

The dehumidification system in place to handle day to day humidity control in the arena was a Munters Cargocaire HC300. This unit was capable of processing 300 cubic feet of air per minute. As this unit was rendered inoperable due to the fire, a HC600 dehumidifier was temporarily installed to control the humidity level. Even though this unit was capable of handling twice as much air volume as the existing unit, it was found to be ineffective. After 1 1/2 days of operation the humidity level remained very high in the ice arena.

Initially there was a concern with raising the temperature beyond a safe level in the arena and affecting the ice surface. It was felt that if too much heat was introduced during dehumidification, the integrity of the ice would be lost.

I spoke with Peter Holland of Fraser Valley Refrigeration (original installers of the ice plant) regarding the operation of the ice plant in relation to the ambient air temperature of the rink. I asked if the ice plant would be overburdened by increasing the air temperature of the rink area. Mr. Holland indicated that this particular rink commenced operation in July 1994 and operated during the summer months when outside temperature reached 28° and higher. He said that the rink tends to "coffin" itself much like a large freezer found in a grocery store where the air temperature of the store is 18-20°C. and the freezer remains stable at -2°C. He assured me that an air temperature of 10° C. inside the rink was not a problem.

With this in mind, a 2250 cfm desiccant dehumidifier was installed by Munters Moisture Control. Munters was sub-contracted to assist in the humidity control of the rink with the objective to reduce the humidity in the structure to a state where condensation was no longer present on the concrete walls.

After two days of operation the humidity level in the ice arena was brought down to virtually 0% RH at 8:00 a.m., October 21st as noted on the hygrothermograph.

During the drying process, the tenants adjuster indicated that she would be calling for bids to perform the painting to the arena structure. Bidders were Edenvale Restoration Specialists and Cromwell Restoration.

Upon completion of cleaning the upper four feet of the concrete walls remained quite smoke stained. The objective of sealing the stain in as well as sealing any potential odor off-gassing was the fore front of my concern in completing this segment of the restoration process. I researched the types of sealers and paints available to do this on the porous concrete walls in a relatively cold environment. Any alkyd sealers would not dry quickly enough to allow for the second finish coat to be applied in the same day.

During the bidding process for painting, the original painter, Danyluk and Sons Painting contacted Mr. Knight regarding warranty work he was to do. Mr. Knight asked if Mr. Danyluk would be interested in bidding on the job.

Bids were received by the Adjuster on October 21st and the painting was subsequently awarded to Danyluk and Sons. The painting subcontractor was asked to submit his invoice directly to the tenant for payment.

Of note is the fact that Mr. Danyluk has been painting for 47 years. Mr. Danyluk scoffed at the idea of needing alkyd or other special sealers to seal the smoke stains and odor and proceeded to paint the entire structure with flat latex paint. He also guaranteed his work to the point of saying if any smoke bled through or a smoke odor became present, he would paint the entire structure again at no charge. The painting commenced at 8:00 am Friday, October 21st and finished at 4:30 p.m. the same day. The ice surface was prepared by the tenant through the night of the 21st.

Dehumidification control continued to be maintained by the temporary HC600 dehumidifier until a new HC300 could be installed. Initially, investigation was done and an estimate prepared for restoration of the original HC300 but costs proved to be high and no warranties could be issued for a fire damaged restored unit.