CITY OF VANCOUVER

COUNCIL REPORT

Report Date: December 11, 2024
Contact: Saul Schwebs
Contact No.: 604.873.7040
RTS No.: 17701
VanRIMS No.: 08-2000-20
Meeting Date: December 18, 2024
Submit comments to Council

TO: Vancouver City Council

FROM: City Building Inspector

SUBJECT: Declaration of Dangerous Building at 500 Dunsmuir Street, Vancouver

Recommendations

A. THAT Council declare that the vacant, dilapidated building on the property located at 500 Dunsmuir Street, Vancouver, B.C., with the legal description of:

PID: 015-471-624, LOT 40 BLOCK 44 DISTRICT LOT 541 PLAN 210;

PID: 015-471-616, LOT 39 BLOCK 44 DISTRICT LOT 541 PLAN 210;

PID: 015-471-608, LOT 38 BLOCK 44 DISTRICT LOT 541 PLAN 210; and

PID: 015-471-594, LOT 37 BLOCK 44 DISTRICT LOT 541 PLAN 210, collectively the "Property";

is a danger to public safety pursuant to section 324A of the *Vancouver Charter,* S.B.C. 1953, c.55.

B. THAT Council approve the resolution attached as Appendix "A" to this report, and thereby order the registered owner of the Property to demolish the building, remove the demolition debris from the Property, and fill in the basement on the Property within 21 days of a copy of the resolution being served on the owner pursuant to section 324A and 324D of the *Vancouver Charter*.

C. THAT if the owner fails to comply with the order of Council within 21 days of being given notice of the resolution, Council further authorizes the City Building Inspector or the City Building Inspector's designates to take any and all actions necessary to do the required work, including entering onto the Property and engaging private contractors, to demolish the building on the Property, remove the demolition debris from the Property, and fill in the basement on the Property pursuant to section 324A of the *Vancouver Charter*.

REPORT SUMMARY

This report recommends that Council adopt a resolution declaring that a vacant, dilapidated building on the property located at 500 Dunsmuir Street (the "Property") is a danger to public safety. The resolution will help ensure that the danger is remediated, and enable the City to recover any costs it may incur in remediating the Property. This resolution will provide the City with the appropriate legal authority to step in and address this issue, should that become necessary.

COUNCIL AUTHORITY/PREVIOUS DECISIONS

Section 324A of the *Vancouver Charter* authorizes Council to declare by by-law or resolution that any structure or erection or any other matter or thing in or upon any private lands is a danger to public safety or a nuisance, and to order that the matter be dealt with in accordance with the by-law or resolution.

Sections 324A and 324D authorize the City to step in and take the action required if the owner fails to do the required work within 21 days of receipt of the notice.

Any expenses incurred as a result of action taken by the City after the 21-day period can be recovered as a debt against the owner of the Property pursuant to section 324B of the *Vancouver Charter*.

Sections 324A through 324D of the Vancouver Charter are set out in Appendix "B" of this report.

CITY MANAGER'S COMMENTS

The City Manager RECOMMENDS approval of the foregoing.

REPORT

Background/Context

The Property contains a 167-unit single room accommodation building built as a hotel in 1909. The building is commonly known as Dunsmuir House and has been vacant since 2013. The Property is owned by 500 Dunsmuir Property Ltd. The building is listed on the Heritage Registry, but is not otherwise subject to heritage protection. All the rooms in the building are designated as single room accommodation under the Single Room Accommodation By-law.

During recent inspections of the building, including by the City Building Inspector, significant rotting and deterioration of framing members, pigeon-guano inches deep in places, fallen plaster and broken windows were observed. Water was seen dripping from framing members in numerous locations and the sprinkler and fire alarm systems appeared to be inoperable. The observed conditions suggest the building has not been adequately maintained since it was vacated.

An engineering report related to the Property is set out in Appendix "C". An inspection report related to the Property is set out in Appendix "D".

The most significant area of neglect is the roof. Lack of maintenance has resulted in areas of ponding at the southeast and southwest corners of the building. Water has been entering the building in these areas for an estimated ten years at the southeast corner and five years at the southwest corner. This water ingress has had a significant deleterious effect on the wood structural members below. At the southwest corner, significant rot can be found 2-3 storeys below the roof. At the southeast corner, the damage extends all the way down to the ground floor of the building, which has collapsed into the basement. This collapse has occurred since the building was visited in February, 2024. Although the floors above the ground floor are still more or less intact, the structure is extremely compromised.

In buildings of this construction type, the exterior masonry walls are supported laterally by the floor framing. Because of the extremely deteriorated and weakened state of the structure in the southeast corner, the walls there are not laterally supported. Should another floor in that corner collapse, it may cause a partial failure of the masonry wall or lead to a catastrophic, cascading collapse. The condition of this corner of the building presents an imminent risk to the life safety of the public.

The City Building Inspector considers the building in its current state to amount to a danger to the public safety. It should be demolished as soon as possible.

Strategic Analysis

The City is not obligated to take any action under the proposed resolution. City staff anticipate that the owner may comply with the order, and avoid the possibility that the City enter onto the Property and undertake the necessary action.

If the proposed resolution is adopted and the City needs to take action, the City will be able to recover any expenses incurred under the resolution.

Financial

The proposed resolution authorizes the City to recover any expenses incurred as a debt against the owner.

Legal Implications

If the Recommendations in this report are approved by Council, Council will declare the building a danger to public safety and order it demolished. The resolution is authorized by sections 324A through 324D of the Vancouver Charter.

CONCLUSION

Staff recommend adoption of the attached resolution in order to ensure that the danger resulting from this vacant, dilapidated building is remediated in a timely and cost-effective manner.

* * * * * * * * *

APPENDIX "A"

In the Matter of Sections 324A, 324B, 324C and 324D

of the Vancouver Charter, SBC 1953, c.55 and

500 Dunsmuir Street, Vancouver, B.C.

RESOLUTION

BE IT RESOLVED by the Council of the City of Vancouver in an open meeting:

1. THAT the building on the property located at 500 Dunsmuir Street, Vancouver, B.C., with the legal description of:

   PID: 015-471-624, LOT 40 BLOCK 44 DISTRICT LOT 541 PLAN 210;

   PID: 015-471-616, LOT 39 BLOCK 44 DISTRICT LOT 541 PLAN 210;

   PID: 015-471-608, LOT 38 BLOCK 44 DISTRICT LOT 541 PLAN 210; and

   PID: 015-471-594, LOT 37 BLOCK 44 DISTRICT LOT 541 PLAN 210,

   collectively the "Property";

   is hereby declared to be a danger to public safety pursuant to section 324A of the *Vancouver Charter,* S.B.C. 1953, c.55;

2. THAT the registered owner of the Property, 500 Dunsmuir Property Ltd., is hereby ordered to demolish the building on the Property, remove the demolition debris on the Property and fill in the basement on the Property, within 21 days of a copy of this resolution being served on the owner pursuant to sections 324A and 324D of the *Vancouver Charter*;

3. THAT if the owner fails to comply with this resolution of Council within 21 days of service of this resolution, Council hereby authorizes the City Building Inspector or the City Building Inspector's designates to take any and all steps necessary to do the required work, including entering onto the Property, demolishing the building on the Property, removing the demolition debris from the Property and filling in the basement on the Property pursuant to section 324A of the *Vancouver Charter*; and

4. THAT if the City Building Inspector or designates take any steps pursuant to section 3 of this resolution, the City may recover the cost of taking such action against the registered owner of the Property in accordance with section 324B (1) of the *Vancouver Charter.*

Appendix B
Sections 324A through 324D of the Vancouver Charter

Remedial action to address nuisance or danger

324A (1)The Council may, by resolution or bylaw, declare that any of the following is a nuisance or a danger to public health or safety and impose a remedial action requirement to address the nuisance or danger:

(a)a building, a structure, an erection of any kind, or a similar matter or thing;

(b)a natural or artificial opening in the ground, or a similar matter or thing;

(c)a drain, a ditch, a watercourse, a pond, surface water, or a similar matter or thing;

(d)a matter or thing that is in or about any matter or thing referred to in paragraphs (a) to (c);

(e)a tree;

(f)wires, cables, or similar matters or things, that are on, in, over, under or along a street;

(g)matters or things that are attached to a structure, erection or other matter or thing referred to in paragraph (a) that is on, in, over, under or along a street;

(h)any other matter or thing that is in or on any private or public land, street or road.

(2)A remedial action requirement may

(a)be imposed on one or more of the following:

(i)the owner or lessee of the matter or thing;

(ii)the owner or occupier of the land on which the matter or thing is located, and

(b)require the person to do any of the following in relation to the matter or thing:

(i)remove or demolish it;

(ii)fill it in, cover it or alter it;

(iii)otherwise deal with it as specified in the resolution or bylaw.

(3)A resolution or bylaw imposing a remedial action requirement must specify the time by which the required action must be completed.

(4)Subject to section 324D, the time specified under subsection (3) must not be earlier than 30 days after notice is given under subsection (7) or (8).

(5)The Council may, by resolution or bylaw, extend the time for completing the required action even though the time limit previously established has expired.

(6)A resolution or bylaw under this section may order that if the person subject to the remedial action requirement does not complete the required action within the time specified under subsection (3) or (5), the city may, by its officers or employees or other authorized persons, complete the remedial action at the person's expense.

(7)Notice of a remedial action requirement must,

(a)subject to subsection (8), be given by personal service or by sending the notice by registered mail to all of the following:

(i)the person subject to the requirement;

(ii)the owner of the land on which the matter or thing is located;

(iii)the occupier of that land;

(iv)any other person who, according to the records in the land title office, has a registered interest in that land, and

(b)if the resolution or bylaw under this section includes an order under subsection (6), advise that if the action required by the remedial action requirement is not completed by the date specified for compliance, the city may complete the remedial action at the expense of the person subject to the requirement.

(8)If the occupier of the land has no address to which the notice may be sent by mail, notice of the order may be given by posting the notice on or near the matter or thing to which the order relates.

Recovery of city's costs

324B (1)If the city completes remedial action pursuant to a resolution or bylaw made under section 324A, the city may recover its costs and incidental expenses incurred in carrying out the required action as a debt due to the city in any court of competent jurisdiction.

(2)A resolution or bylaw under section 324A in relation to a building, a structure, a tree or an erection may order that if the remedial action requirement has not been satisfied by the date specified for compliance, the city may dispose of the matter or thing in relation to which the requirement was imposed, or any part or material of the matter or thing.

(3)The earliest date on which the city may carry out a disposal referred to in subsection (2) is the later of

(a)the date specified for compliance, and

(b)60 days after the notice under section 324A (7) or (8) is given.

(4)If the city disposes of a matter, thing or any part or material of it under this section, the city

(a)may retain from the proceeds

(i)the costs incurred by the city in carrying out the disposal, and

(ii)any costs incurred by the city in completing the remedial action that have not yet been paid by the person subject to the remedial action requirement, and

(b)must pay the remainder of the proceeds to the owner or other person lawfully entitled.

(5)For certainty, the authority under this section is in addition to that provided by section 336 (b).

Remedial action to address dilapidated or unclean building, structure or erection

324C Sections 324A and 324B also apply in relation to a building, a structure or an erection of any kind that the Council considers is so dilapidated or unclean as to be offensive to the community.

Shorter time limit in urgent circumstances

324D If the Council considers that there is a significant risk to health or safety if action is not taken earlier, the Council may by resolution or bylaw set a time limit for taking remedial action under section 306 (1) (i), 323 (u) or 324A that is shorter than 30 days.

aDB ENGINEERING
A DINGLEY BOETTCHER COMPANY

November 23, 2024 aDB No. 240674

Saul Schwebs
Chief Building Official and Director of Building Policy
Inspections and Bylaw Services - City of Vancouver
453 West 12 Avenue, Vancouver, BC

Re: 500 Dunsmuir Street, Vancouver, BC – Building Structural Assessment

Scope

aDB Engineering conducted a visual review of the building at the address noted above on November 5th and again on November 7th, 2024, to assess the building's structural condition and discuss options for shoring the damaged areas.

The field review was conducted from the exterior and the interior of the building. The exterior assessment was limited to a visual assessment around the perimeter of the building from the ground level only, whereas the interior assessment provided access to all levels of the building including access to the roof. This condition assessment provides a summary of the structural integrity, building stability, and material degradation based on on-site observations and historical references as well as remedial scenarios for consideration. The photos included in this report were taken as part of the visual inspection.

Building Description

The building was designed by Parr & Fee and then built by contractor David Gibb in 1908. The building was originally built as a hotel, but later used as a manning pool (barracks for sailors) during World War II. After the war, the building was converted into a hostel as part of the measures to help with the housing crisis of returning veterans. Shortly after, the Salvation Army took over operations and managed the building as a men's shelter. More recently, the building was used as social housing run under the management/direction of several stakeholders (Figure 1).

Figure 1, Original building circa 1910, photo left. Building at time of this report, photo right.

The building is a five-storey structure with exterior walls of multi-wythe brick, interior framing using dimensional lumber and a basement encompassing the full footprint of the building. The building footprint is 120ft by 100ft (Figure 2) with the main floor 15ft high and the upper floors 9ft high each for a total height of 51ft (plus an additional height of approximately 6ft for roof slope, parapet edge and cornice). The main floor is comprised of large open spaces requiring the second floor to be a structural transfer level supporting the upper floors. The upper floors are comprised of long hallways running down the middle of each of the three primary wings with numerous rooms located off each side of the hallways.

At the time of our review, no structural or architectural drawings for this building were available. It is suspected that structural and architectural drawings for this building may no longer exist.

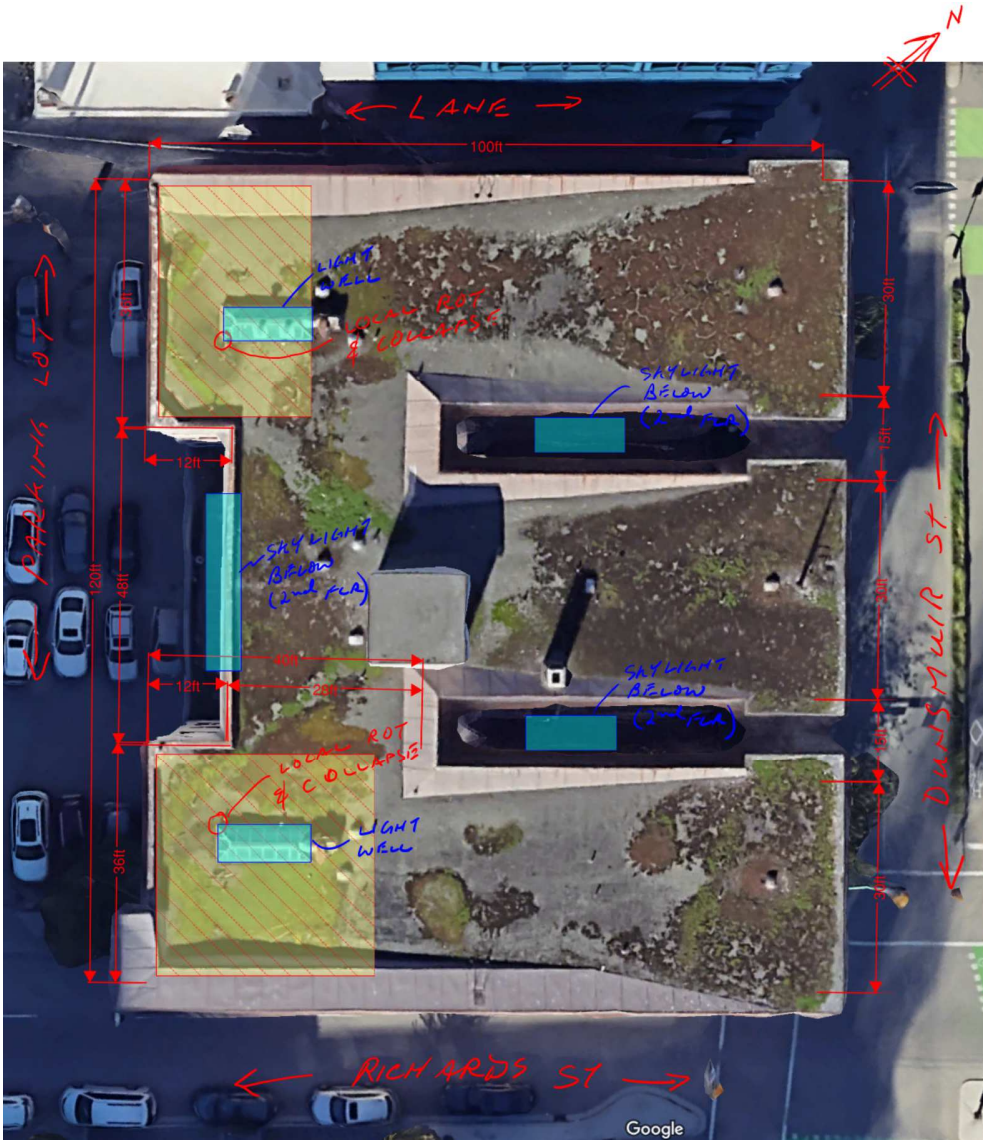

Figure 2, Site plan with estimated measurements shown and building elements for reference, N.T.S.

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Observations

Roof:

The roof is comprised of built-up timber-framed construction with 2x roof rafters on 2x pony walls (Figure 3) creating a roof slope running from the Dunsmuir Street side (north) down to the parking lot at the rear (south) of the building. The roof had significant moss coverage (Figure 4) and visible water ponding at each of the two skylights (Figures 5 and 6) at the south side of the building. The entire roof coverage would appear to have only two points of drainage for removal of precipitation with each drain located adjacent to each of the two skylights.

Figure 3, Roof rafters on pony walls.

Figure 4, Roof with moss growth and cornice.

Figure 5, Southeast skylight with water ponding.

Figure 6, Southwest skylight with water ponding.

The roof at each of the two skylight locations is visibly lower than the drainage scuppers preventing the area from fully draining and thus allowing ponding (the accumulation of water) locally in these areas. This water ponding can create significant structural issues for the supporting timber assembly due to the added weight of the accumulating water.

The perimeter of the roof has a substantial overhang with an architectural detailed cornice made of sheet metal. Due to the unknown and questionable condition of the roof, the cornice could not be accessed for closer inspection. There are areas of rust visible on various locations of the cornice. This rust may indicate water ingress that could have effects on the supporting structure of the cornice and/or the integrity of the cornice. Further investigation would be recommended to verify the condition and supporting structure of the cornice.

Top (5th) Floor:

The top floor ceiling had significant ceiling damage from water ingress. The amount of water damage varied from the front of the building (north) towards the back with the most pronounced damage at the back (south) of the building where the two roof skylights were located (Figures 7 through 10).

Figure 7, Top floor ceiling, north end hallway.

Figure 8, Top floor ceiling, north end hallway.

Figure 9, Top floor ceiling, south end hallway.

Figure 10, Top floor hallway, south end hallway.

At the time of our inspection, water was actively dripping through the ceiling in many locations indicating that an extensive area of the roofing membrane is likely compromised allowing water into the building.

The most extensive areas of water ingress and material saturation were found around the two skylights. In these areas, the ceilings had locally collapsed, and the exposed roof timbers had been structurally compromised because of rot. Also found in these areas, the stud walls were rotten and had buckled under the weight of the roof and in some locations punched through into the rotten floor below (Figures below).

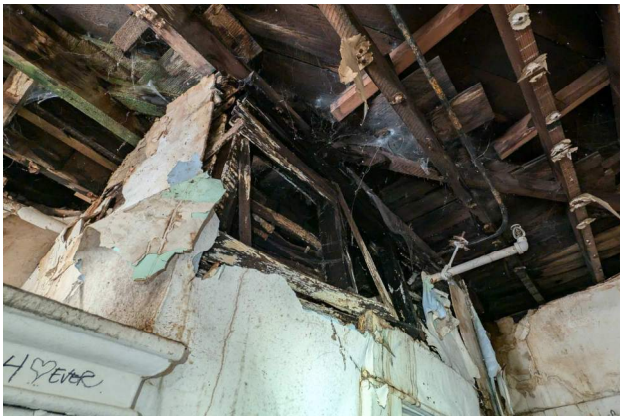

Figure 11, Buckled rotten wall under roof.

Figure 12, Failed roof rafter due to rot.

Figure 13, Ceiling/roof with broken rafter visible.

Figure 14, Collapsed ceiling/roof members onto floor.

Based on the condition of this floor level, in particular the compromised structural condition of the walls and roof around the skylight areas, it can be assumed that the ponding of water at the roof is a result of the structural failure of the walls that support the roof in turn allowing the roof to locally sag creating a condition for water ponding. Given the extent and significant structural deterioration of the roof, walls, and floors in the areas of the skylight, it is further concluded that the structural tensile-membrane action of the roofing material has prevented the roof in these areas from fully collapsing into the space below.

Floors 2, 3 and 4:

Like the observations regarding the top floor, similar conditions were seen at the 2nd, 3rd, and 4th floors. The most extensive areas of rot and material saturation were found at the back of the building with the most degraded areas concentrated around the areas under the roof skylights.

It was noted that these floor levels are built differently from the roof. The floors of these levels are comprised of parallel laminations of 2x members creating a solid timber floor supported by load-bearing 2x stud walls. This type of floor construction is visible in photos 15 through 18 with similar degrees of rot, saturation, floor collapse and wall failures as seen from the underside of the roof.

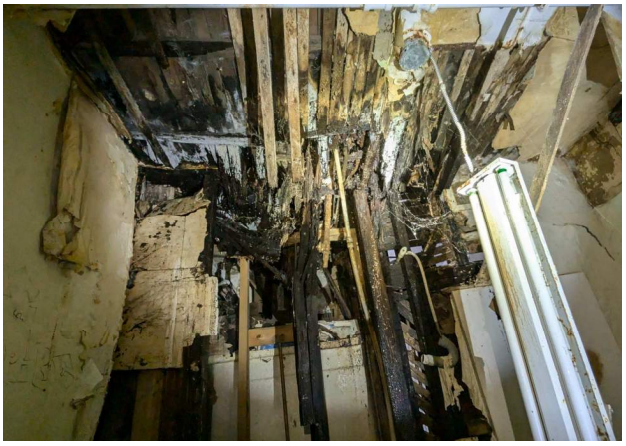

Figure 15, Structural collapse of floor and failed supporting wall due to rot at 4th floor.

Figure 16, Saturated ceiling and floor system.

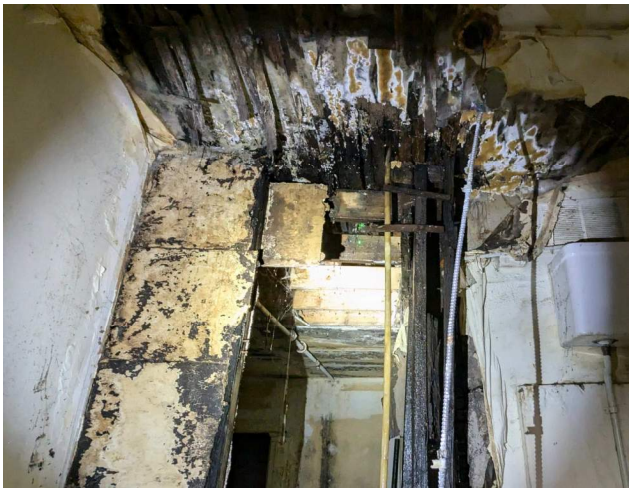

Figure 17, Structural collapse of floor and failed supporting wall due to rot at 3rd floor.

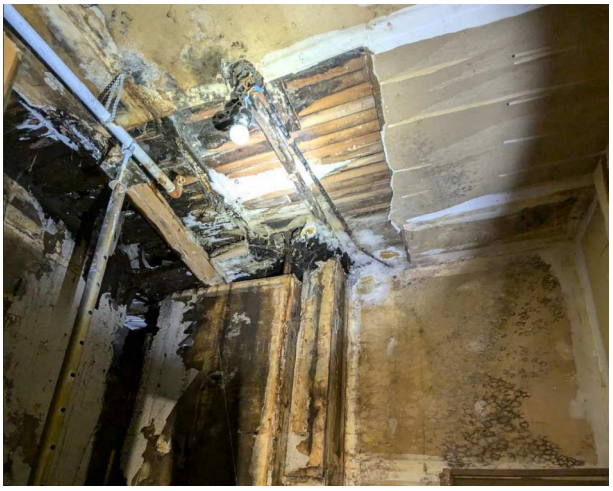

Figure 18, Previously installed steel shoring post to support rotten collapsing floor.

Main Floor:

The main floor is comprised of large open spaces (Figure 19) requiring the second floor to be a structural transfer level supporting the upper floors (i.e., the upper load bearing stud walls do not continue to the main floor but are terminated at the 2nd floor). This transfer system is made up of a laminated 2x solid floor, likely 8" thick, supported by beams which in turn are supported by columns. These beam and column lines would also support all the multi-wythe brick walls including the exterior brick walls of the three building wings (the brick walls at the lane and the rear parking area are the only brick walls that are directly supported by the basement foundations walls).

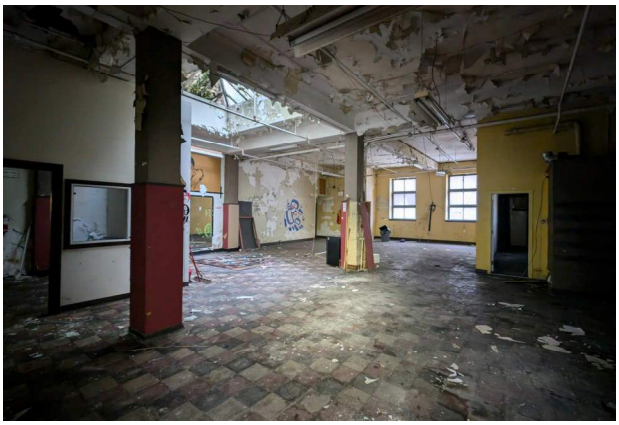

Figure 19, Example of open areas on main floor.

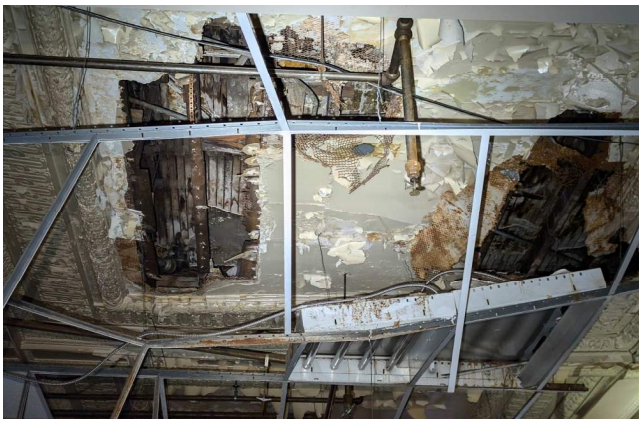

Figure 20, Main floor ceiling water ingress.

Like the upper floors and roof, this floor level has extensive water damage and rot (Figure 20). Ceiling debris is observed throughout this floor level and large ceiling openings exposing the floor structure are evident where the saturated ceiling has fallen away.

The most significant area of structural damage is in the vicinities under the skylights at the back of the building. The floor at the southeast corner is severely compromised with a substantial portion having fully collapsed into the basement (Figures 21 through 24). The ceiling directly over this area is saturated and was also actively dripping water at the time of our inspection. The collapsed areas have significant damage to the structural members with some larger timber beams and columns completely severed due to the extent of rot. This location aligns with the most severely degraded and structurally compromised areas on the floors above. It is evident that the steel beam spanning over this collapsed area is under significant load due to the saturated materials above and further stressed during periods of precipitation when the weight from ponding is applied. The condition of these steel beams is unknown as they were concealed in wooden laths and remnants of plaster. Further assessment of these steel beams is recommended.

Figure 21, Complete floor structural collapse.

Figure 22, Complete floor structural collapse.

Figure 23, Complete floor structural collapse.

Figure 24, Localized floor collapse.

Basement:

The basement has low headroom of varying height. Most of the basement structure was of a height that did not permit standing without stooping over. The building structure at this level consists of perimeter, poured in place concrete walls (large aggregate with extensive honeycombing), handset stone foundations, support lines of timber beams and columns and larger concrete columns likely matching the location of the main floor columns. The main floor visible from the underside is made up of laminated 2x lumber creating a solid timber floor spanning from the supporting lines of beams and columns.

Like the upper floors and roof, this floor level had extensive water damage and rot. The damp environment of the basement has allowed extensive growth of mold on the walls and ceiling of the basement. This has also likely exacerbated the extent of rot in these timber members especially in areas exposed repeatedly to water ingress (Figures 25 through 28).

Figure 25, Floor rot, mold and compromised beam.

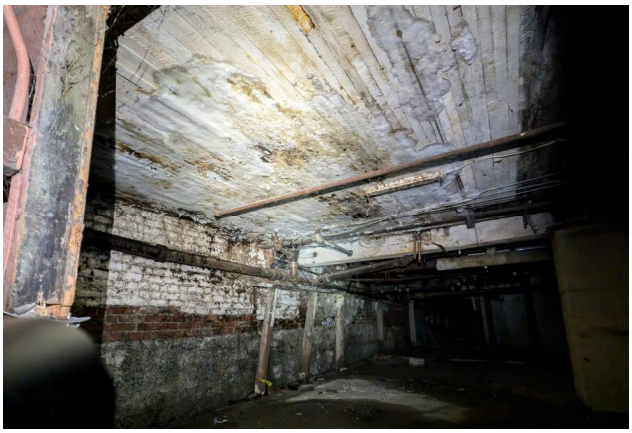

Figure 26, Floor rot and mold.

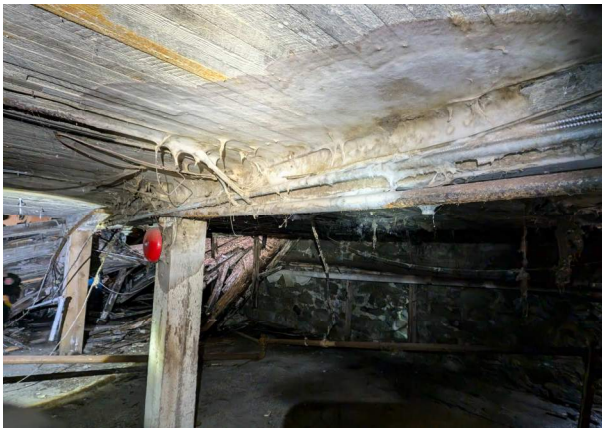

Figure 27, Floor rot, beam rot and mold.

Figure 28, Collapsed floor, and rotten floor.

The collapsed area visible from the main floor could be clearly seen and further inspected. A fully rotten timber beam was noted (figure 29) as well as a crushed rotten timber. It is interesting to note that this collapsed floor area does not support any weight from the upper floors. The collapse of this area would have been triggered only by its self-weight, hence an indication of very extensive structural decay caused by rot.

The extent of the 2nd floor damage/rot was more apparent from the basement vantage point (Figure 30). Unlike the main floor, as noted in the previous paragraph, the 2nd floor does support significant weight accumulated from the upper floors and the roof. Further localized floor collapse and possibly cascading floor collapse of all the upper floors in this area is to be expected and possibly imminent.

Figure 29, Fully failed rotten beam.

Figure 30, 2nd floor rot as seen from the basement.

Figure 31, Deflection with red line for reference.

Figure 32, Failed beam due to notch for wire.

Figure 33, Failed beam due to side notch for pipe.

Figure 34, Deflection with red line for reference.

Several timber beams had signs of structural distress because of beam modifications such as notches for plumbing and electrical (Figure 31 through 33). Some of these beams also had pronounced deflections further indicating structural overload and/or creep caused by moisture and rot (Figure 34).

Exterior Facade:

The exterior of the building façade consists of multi-wythe brick walls and brick clad steel columns (Figure 35, note this figure is not of this building but is an example of multi-wythe brick construction and typical steel beams with steel columns supporting upper levels of brick facade). The upper levels of brick walls along Richards St. and Dunsmuir St. are likely supported by steel beams (not visible, but typical construction for a building of this age). The skylight alcove at the rear of the building is clad with stucco and suspected to not be a brick substrate but likely terracotta infill and/or 2x wood stud walls (Figure 36).

Figure 35, Example of steel beam/column support.

Figure 36, Rear alcove façade at parking lot.

Localized areas of brick showed signs of in-plane vertical shear stress, failed mortar and brick spalling (see figures 37 through 40). Further investigation would be required to determine the full depth and extent of these cracks. The stucco clad alcove at the rear of the building also has cracking both vertical and horizontal (Figures 41 and 42). As the substrate for the stucco is assumed to be a different material than brick, these cracks are likely the result of movement seen between dissimilar materials (i.e., vertical cracks between brick and terracotta infill and the horizontal cracks from shrinkage of wood at each floor level).

Figure 37, Vertical shear cracks and mortar loss.

Figure 38, Mortar loss and degraded brick.

Figure 39, Diagonal shear cracks.

Figure 40, Diagonal shear cracks.

Figure 41, Vertical interface cracks.

Figure 42, Vertical and horizontal interface cracks.

As previously noted, the brick façade along Richards St. and Dunsmuir St. is supported by steel beams on steel columns (see Figure 35 as an example). The base of these steel columns are clad with a single wythe of brick. At the base of some of these columns, the bricks are cracked, spalling and in some locations, bricks are missing (Figure 43). In some locations, the steel base plates of the steel columns are exposed and rusting (Figure 44). At one column location, the brick cladding has laterally buckled out of plane from the face of the building exposing the steel column behind (Figure 45 and 46). The extent of lateral movement is approximately 2in, as seen in Figure 46, using the vertically plumb column in the foreground. The cause of the brick cladding movement is unknown but suspected due to degradation at the base of the steel column.

Figure 43, Cracking, spalling of column cladding.

Figure 44, Steel column baseplate exposed & rusting.

Figure 45, Rivet of steel column seen through crack.

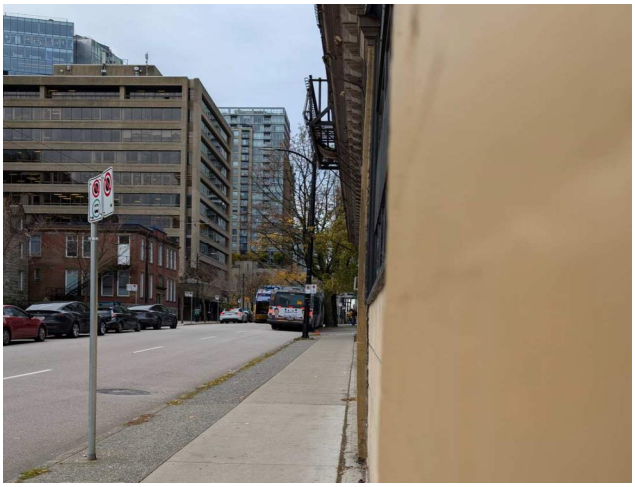

Figure 46, Laterally buckled brick column cladding.

Discussion of Hazards/Issues

The building has many localized areas of damage as a result of rot caused by water ingress primarily from the roof. Prolonged environmental exposure and material degradation throughout the building has rendered the building to a structurally compromised condition. Key hazards/issues are as follows:

Southeast Corner Collapse:

The southeast corner of the building is structurally compromised in its ability to carry the self-weight of the floors, the roof loads (both ponding and/or snow loads) and any imposed floor live loads (see Figure 2, area highlighted yellow, southeast corner). These multiple floor levels are currently supported by a single steel beam at the 2nd floor spanning 25ft with a tributary area of 450 sqf per floor. The condition of the steel beam is unknown so the probability of failure for this steel beam cannot be determined at this time. However, considering the extent of rot and mold in this area, the integrity of the steel beam should not be overestimated and must be considered insufficient to carry the code prescribed loads. There is also a second mode of failure in this area being the collapse of the laminated 2x solid wood floors and/or the supporting 2x stud walls. Failure of any one of these elements or combinations thereof would result in a cascading collapse scenario, as it is unlikely that any one floor would have the capacity to support the impact forces from a floor above. It is further postulated that the progressive collapse of any floor and the resulting impact forces could also compromise the steel beam resulting in the complete loss of all floors and roof in this corner of the building.

Southwest Corner Collapse:

Like the southeast corner of the building (see comments above), the southwest corner is subject to the same conditions and hazards. Although the main floor of this area does not have the extent of visible damage (i.e., collapsed main floor), this area is still water saturated with indications of rot at all levels of the building. As such, the concerns noted for the southeast corner are the same for the southwest corner.

Façade Main Floor Columns:

The lateral out of plane buckling of the brick cladding at the steel column indicates that some vertical movement of the steel column has occurred. The exact cause of this movement is unknown; however, the brick cladding at the column on Richards St. has the potential to fully buckle and collapse onto the sidewalk.

A secondary concern with the steel columns is damage to these columns in the event of a floor collapse, particularly in the southeast corner. Collapsing debris has the potential to impact an adjacent column causing structural damage that could impair the ability of the column to support the brick façade above.

Brick Facade:

The extent of rot throughout the building and particularly in the southeast and southwest corners has likely impacted the connection of the floor to the brick walls. The lateral stability of the façade is dependent on ties from the brick wall to the wood floor (i.e., the floor diaphragm). This connection between the wall and the floor is vital for the performance of the brick wall to carry both vertical loads (i.e., self-weight, live loads, dead load, etc.). and lateral loads (i.e., wind and seismic). The exact configuration of this connection (i.e., nailed, bolted, friction, etc.) is not known; however, considering the severity of rot in some locations, no connection configuration type would have adequate structural capacity in a rotten wood member.

Seismic:

We have not completed a seismic assessment of the building nor completed any reference to the various codes that would be used to complete an assessment for a building of this age and construction type (masonry façade and timber interior framing). Based on observations and experience with this type of building construction, the building would not comply with the current seismic design code. Moreso, this building has a soft-storey where the upper floor walls (both masonry and timber) are supported on a taller main floor that is significantly more flexible being comprised of interior and exterior columns. Soft-storey buildings are known to have extremely poor seismic performance. The rotten floors further compound the seismic integrity of the diaphragm system needed for the building in any seismic event. Even in its original condition, the building likely would not survive a moderate seismic event without significant damage or collapse.

Hazardous Materials:

Based on the age of the building, there will be hazardous material such as asbestos containing material (ACM) and lead paint. Also, due to the rot and saturated materials, there is extensive mold throughout the building. With broken windows, pigeons have made entry into the building and roosted for an extensive period. As a result, pigeon guano was present throughout the building, accumulating to inches thick in some locations. The building will need to be assessed by a hazardous materials consultant to identify all hazardous materials.

Fire:

Broken sprinkler lines were observed throughout the building, particularly in the collapsed areas of the southeast corner. Sprinkler line hangers are pulled out of rotten wood and sprinkler heads covered and/or broken by falling debris. It is not known if the observed broken elements of the sprinkler system are redundant and if the sprinkler system is functional. Without an operating sprinkler system, there is a risk of building fire. Any fire would have the potential to spread quickly in a building of this condition where the plaster and gypsum wall board, which would normally help to limit direct exposure to the wood framing, has fallen off the walls and ceiling leaving the wood framing exposed.

Remedial Scenarios and Considerations

The following are briefs of possible actions that can be implemented to mitigate some of the hazards outlined in the previous section of this report. These are being presented at a conceptual level and the selected action to be implemented will still need to be fully designed, detailed, costed, and evaluated. Each scenario will present its own pros and cons which will need to be considered with respect to various stakeholders. Remedial scenarios and considerations are as follows:

Complete Demolition:

The complete demolition of the building will, by its nature of removing the building, resolve all the hazards outlined in the previous section of this report. A detailed engineered demolition plan will need to be developed to ensure the safe and controlled demolition of the building. A full hazardous material assessment will need to be completed, and the building further assessed to determine the practicality of abatement prior to demolition. As it is anticipated that abatement of the building (in part and/or in whole) will be very challenging, it is a likely conclusion that the building will need to be demolished as *fully containing*, thus the demolition of the building will need to be completed in collaboration with the hazardous materials consultant.

With the building bordering the busy streets of Richards and Dunsmuir, sidewalk hoarding will be required. Also, road lane closures and/or sidewalk closures will be expected during phases of the demolition work. Ideally, demolition machinery access would start in the parking lot at the rear of the building with additional space required for debris handling, loading and trucking. However, considering the weak soft-story temperament of the column supported main floor, machinery access into the building may need to start at the Dunsmuir St. and/or Richards St. side of the building and work towards the stronger back corner of the building.

Selective Shoring:

The southeast and southwest corners of the building are the most structurally degraded. With the installation of scaffold at each floor level, the rotten floors and roof can be supported, thus using the scaffold to restore the gravity load carrying capacity (self-weight, snow load, rain load, live load, etc.) of the building. This scenario would require an intensive collaborative process involving multiple trades and consultants such as structural consultant, shoring engineer, scaffold installation contractor, demolition contractor, hazardous materials consultant and WCB.

This scenario of work would help mitigate several hazards. As the scaffold is installed, the scaffold would serve to support the floor weight but also provide a cover for the workers to work under, mitigating the risk of falling debris. Also, as each floor is shored, the hazardous materials contractor would be able to complete the abatement of the shored areas. Ultimately, the shoring would support the roof, allowing safe access to the structurally comprised areas around the skylights, permitting the roof membrane to be repaired/replaced stopping further ingress of water. As each floor is shored, the floor to brick wall ties can be inspected and remedial connections developed as required to help reinstate the lateral restraint of the brick walls to the building.

For the implantation of this remedial scenario, it is likely that all workers involved would need a minimum of level 2 abatement training (including scaffold crews, demolition crews, etc.). All work inside the building would be completed in full PPE including Tyvek suit and half-mask respirators. The entire process would be very fluid, and plans adjusted as each level is shored allowing the next level to be more closely inspected.

This remedial option does introduce new hazards and considerations. Paramount would be worker safety. During the installation of the scaffold, full protection of the workers from falling debris is not guaranteed. Even with full PPE including Tyvek suits, the install of scaffolding in a narrow workspace with debris around will be very slow and must be executed carefully to prevent damage to PPE. Prior to the start of this option, the steel beam and overhead floor structure of the 2nd floor will need to be closely inspected to verify that the structural integrity of these elements is sufficient to ensure the safety of workers for execution of this remedial scenario.

Once the shoring is completed in the areas of the building that have degraded, this would allow for the full abatement of the building and the repair of the fire suppression system as well as other building systems as required.

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Facade Retention:

A typical steel façade support system could be installed around the perimeter of the building allowing for the retention of the façade and the subsequent demolition of the interior wood structure. It is anticipated that only the Richards St. and the Dunsmuir St. sides of the building would be retained; however, retention of all sides could also be implemented.

Interior access into some areas of the building would be limited for the interior anchor system of the façade retention system. As such, nontypical steel member connections allowing for the sandwiching of the brick walls between the interior and exterior steel support system would need to be considered. Also, for the installation of the interior components of the façade support system, localized areas inside the building will need to be abated to expose specific areas of the interior face of the brick wall.

Conclusion

Given the severe structural degradation observed in the southeast and southwest corners of the building, the integrity of the building is compromised, and remedial action is required to remove and/or reduce the current hazards imposed by the building's condition. Further degradation is anticipated in the existing compromised areas and new areas can be expected to degrade without significant remedial work to the building.

Each proposed remedial scenario will need to be considered. Complete demolition would remove all of the hazards; however, with the weak soft-storey of the main floor, the demolition plan will need to be developed accordingly. Shoring of the degraded areas of the building will require a detailed coordinated plan with a large team of trades and consultants with the understanding that not all hazards can be eliminated. Lastly, the retention of the façade with limited access to the building will utilize a traditional steel façade support frame on the exterior of the building with the development of nontypical interior steel members to hold the brick façade.

We trust this report is sufficient for your needs at this time. If you have any questions or require additional information, please do not hesitate to give us a call.

aDB Structural Engineering Inc.

Digitally signed by Andrew Boettcher
Date: 2024.12.08 11:32:26-08'00'

PROVINCE OF BRITISH COLUMBIA
A. D. BOETTCHER
PROFESSIONAL ENGINEER
27474
DESIGNATED STRUCTURAL ENGINEER
December 08, 2024
EGBC Permit to Practice 1002836

Andrew Boettcher, P.Eng., StructEng., MIStructE.

Addendum

Subsequent to this initial report, on December 4, 2024, we returned to the site with Emma Gibson, a hazardous material consultant with Enviro-Vac, to visually assess the main floor and basement, with particular focus on the collapsed areas of the southeast corner.

Discussion points from this site meeting:

- **Material Hazards:** Given the building's age, it was agreed that the structure contains various hazardous materials, including asbestos, lead, mercury, and PCBs. These materials are in a more disbursed and exposed state due to significant damage to the paint, plaster, drywall, insulation, flooring, and other building components. The extent of rot and biohazards, such as extensive mold, rodent, and bird guano, further complicates the situation.

- **Remedial Scenarios:** The remedial scenarios discussed previously were revisited, considering logistical, scheduling, access, safety, procedural, and WorkSafeBC requirements, as well as structural and material hazards. The significant extent of material and biohazard contamination, combined with known and unknown structural conditions, and the risk of further collapse in the southeast and/or southwest corners of the building, make safe investigation and remediation impractical.

- **Structural Integrity:** The building's condition has compromised its structural integrity, redistributing loads and stresses to materials and members not designed to support them. For example, plaster walls, while capable of bridging loads, are not suitable structural materials. Any attempt to abate or modify these walls for further assessment could trigger sudden, unpredictable collapse.

- **Safety Concerns:** The building's lack of maintenance has created an unsafe environment for workers to access and remediate. Efforts to stabilize collapsing floors could further weaken the structure, increasing risks to workers. As the building continues to deteriorate and winter weather approaches, including anticipated snow loads, the potential for collapse and damage to perimeter walls and supporting columns grows. A potential collapse within the interior of the structure has the potential to affect the perimeter brick walls and supporting columns. This could result in material falling onto adjacent sidewalks and streets, endangering the public.

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Conclusion: Given the significant risks to worker and public safety posed by the building's deteriorating condition, we recommend immediate demolition. The building's structural integrity is compromised, and the presence of hazardous materials and biohazards further exacerbates the situation. Attempts to stabilize the structure or remediate hazardous materials would be both potentially dangerous and logistically impractical. While this decision is not taken lightly, considering the significant risks to worker and public safety, we concur that immediate demolition of the building is warranted.

CITY OF VANCOUVER

CE - Inspection Report - Building

Main Address	500 Dunsmuir St	**Case Number**	CF-2024-011339
Specifics and/or Suite #		**Date of Inspection (yyyy/mm/dd)**	
Number of Storeys	4 plus basement	**IA Number**	
Building Name	Dunsmuir House	**Permit Number**	
Approved Use of Building/Land	N/A	**Owner & Contact Info.**	500 DUNSMUIR PROPERTY LTD 200-1111 GEORGIA ST W VANCOUVER BC V6E 4S4
Present Use of Building/Land	Vacant, formerly hotel/SRA	**Owner's Rep & Contact Info.**	
Zoning	DD	**Tenant & Contact Info.**	
Strata Titled Building	☐ **Yes**: ☐ Common property ☐ Individual suite ☐ **No**	**Business Licence**	

Reason for Inspection - ☐ Complaint | ☐ IA | ☐ Permit | ☐ Referral | ☐ Routine | ☒ Re-Check | ☐ 1 Year Access:

In Attendance

PUI		**Owner/Rep**	
Plumbing/Gas/ Sprinkler		**Fire**	
Electrical		**VPD**	
Building	Saul Schwebs	**Other**	Andrew Boettcher, aDB Engineering Emma Gibson, Enviro-vac

Inspection Overview/Narrative:

The building appears to have been neglected since it was vacated ~13 years ago. The floors are covered in pigeon guano – inches deep in many areas. The sprinkler system does not appear to be operational and the condition of the fire alarm system is uncertain. The building is of wood construction with unreinforced masonry walls.

The most significant area of neglect is the roof. Lack of maintenance has resulted in areas of ponding at the southeast and southwest corners. Water has been entering the building in these areas for an estimated ten years at the southeast corner and five years at the southwest. This water ingress has had a significant deleterious effect on the wood structural members below. At the southwest corner, significant rot can be found 2-3 storeys below the roof. At the southeast corner, the damage extends all the way down to the ground floor of the building, which has collapsed into the basement. This has occurred since I visited the building less than nine months ago in February. Although the floors above are still more or less intact, the structure is extremely compromised.

In buildings of this construction type, the exterior masonry walls are supported laterally by the floor framing. Because of the extremely deteriorated and weakened state of the structure in the southeast corner, the walls there are not laterally supported. Should another floor in that corner collapse, it may cause a partial failure of the masonry wall. The condition of this corner of the building presents an imminent risk to the life safety of the public.

Building assessments have been provided by Barry McGinn, P.Eng & Architect AIBC; Andrew Boettcher, P.Eng; and Emma Gibson, B.Sc., CSS, CRSP

Pictures Taken?
☒ Yes
☐ No

Notice Posted?
☒ No
☐ Stop Work Order
☐ Do Not Occupy
☐ Unsafe to Occupy

Violation Details:	
Violation Number: VI-2024-05675 **Violation Date:** Dec 08, 2024 **Related Bylaw:** Vancouver Building Bylaw No. 10908 **Violation Status:**	**Violation Description:** Level of deterioration represents an unsafe condition **Violation Photo(s):**  Water ponding on roof near SE skylight  Ground floor collapsed into basement below SE skylight

Typical Condition below SE skylight

Administrative Request:

Please select the required correspondence type for this case file:

☐ 30 Day Letter ☐ 7 Day Order ☐ 14 Day Order

☐ 60 Day Letter ☐ 10 Day Order ☐ 30 Day Order

☐ Immediate Action

☐ Other - Please Specify Preferred Action: _____

Please specify any permits that are required:

☐ Development Permit ☐ Sign Permit

☐ Building Permit ☐ Tree Permit

☐ Electrical Permit ☐ Occupancy Permit

☐ Plumbing Permit ☐ IA (Special Inspection)

☐ Gas Permit

☐ Sprinkler Permit

☐ Sewer Permit

Please provide specific instructions/information (i.e. actions needed for the owner/applicant/tenant to comply with observed violations) that you would like included in the letter/order:

Issue a demolition order either under CBO authority or via a 324a Nuisance designation by Mayor and Council

Date Report Made: December 8, 2024

Saul Schwebs (604) 873-7040
Case File Manager

Supervisor Notes:

[sign]image:SigningUserSignatureDocumentId

Manager / Supervisor Approval