Figure 1 505 University -west (Principal) elevation.

505 University Avenue, Toronto- Site investigation report

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Location:	505 University Avenue, Toronto, Ontario
Date of site visit:	September 16-25

Objective

To review the existing condition of the masonry cladding from the exterior of the structure and to record the findings from a series of investigative openings carried out in various locations on the interior of the building. This work is being carried out to determine the nature of the wall assembly, and the condition of the structural elements such as columns and masonry ties in advance of the potential redevelopment of the site.

Background

The building at 505 University formerly known as the Shell Oil Building, was built commencing in 1958, with the original 13 storeys built in 1958 and an additional 7 floors added in 1966. The exterior of this building is clad in Queenston limestone ashlar masonry cladding with aluminum framed windows. This building was designed and constructed in a modernist style with a low podium clad in granite and limestone with polished aluminum metal detailing. The main body of the building (the tower) rises to 20 floors in height with a series of decorative vent screens at the 13th floor with the added floors above. This structure was built for Shell Oil as its Canadian headquarters and offices.

The principal, west elevation of the building on University Avenue has window openings accentuated by projecting limestone mullion 'fins' and sills and lintels with flat spandrels all in Queenston limestone. The north and south elevations are detailed with punched window openings and the east elevation is a plain surface with no window openings and a full-height service vent shaft within.

Clifford Restoration Limited was engaged to survey the stone masonry cladding from the exterior and investigate isolated locations in the interior to determine the nature and condition of the wall assembly and details of the original construction of the 1958 portion and the 1966 addition.

The building was inspected on the exterior with the aid of a powered elevating work platform (cherry picker) reaching a height of 185 feet (approximately the 15th floor of the building). This machine provided access to the north and east elevations and the east end of the south elevation. The remainder of the south elevation and the entire west elevation were visually inspected from the ground using binoculars and a digital camera with a telephoto lens.

This report

This report includes a written summary of the interior and exterior observations and is supported by a series of annotated drawings and digital photographs. These findings are solely based on visual observation of the structure. No diagnostic or materials testing were carried out outside of some prima facie physical sounding of the limestone cladding (in obvious areas of erosion or deterioration) where it was accessed from the work platform. No mortar joints or stone units were removed from the exterior of the structure.

The interior openings were carried out using typical masonry diamond sawing, drilling and mechanical chipping techniques and hand tools to remove plaster, insulation and backup masonry. Care was taken to avoid damage to services and adjacent elements. Where openings were made in the backup masonry or fire barrier, the intent is to restore these areas when the investigation is concluded and make good any removed finishes.

1.0 Investigation openings

Openings were made from the interior in several locations as directed by the Heritage Architectural Consultant GBCA (Goldsmith, Borgal and Associates Architects) on behalf of the building owner (client). The openings were specified in several locations over 3 floors of the building on floor numbers 4, 16 and 18. These locations were selected to provide a cross-section of the existing built details with minimal tenant disruption. Typically, there were several openings in varied locations on each of the specified floors. The wallboard or cementitious/gypsum plaster was removed in each location to access the back of the exterior masonry wall or structural elements. Where insulation layers and masonry

backup walling were found, this was also removed to reveal the rear face of the limestone cladding. This was done to better understand the as-built details, determine the nature and condition of structural masonry ties and the typical conditions of steel and reinforced concrete structural elements such as columns, ring beams and slabs and how the masonry cladding is detailed around them.
In the service vent shaft areas on the east side of the structure, where only brick or clay tile masonry backup was found, isolated areas of the masonry backup were removed to provide visual access to the back of the limestone masonry cladding and determine the nature and condition of the masonry ties and structural elements. Any masonry ties found in investigation openings were left in situ for examination. Openings adjacent to windows (at mullions on the west and between windows on the north and south) were also included to determine the window anchoring and envelope details.

1.1 Wall masonry

The structural wall assembly typically consists of the Queenston limestone ashlar cladding with a brick masonry or hollow clay tile backup. The structure of the building is primarily a steel frame with reinforced concrete floor slab and ring-beam details (in the east vent shaft). The stone masonry cladding appears to bear on the floor slabs or beam sections. In the 1958 portion of the building, the cladding alternates between the larger 26" tall ashlar panels with a 4-6 inch depth and the shorter (12") bonder stones which are deeper (8-10") in width with brick masonry backup. The brick backup is 1 wythe thick behind the deeper bonder stones and 2 wythes behind the larger ashlar stones. This arrangement creates a solid block bonded veneer. On the interior face of the masonry, there is a bituminous moisture barrier (painted on) with a layer of insulating corkboard (approx. 1" thick) adhered to the masonry.
In the areas investigated in the addition portion of the structure, (above the 13th floor) where openings were made, the wall design is slightly different. The wall stone thickness is uniform and is consistent between the larger ashlar panels and alternating bands. No brick masonry backup was found outside of the east vent shaft area. The vent shaft on the additional 7 floors is consistent with the older portion of the building with stones of alternating depth of stone elements and a brick of clay tile backup. In the wall areas outside the vent shaft, the back of the stone masonry also appears to have been parged with a mortar layer and had a similar bitumen-based waterproof coating applied to this layer with a similar corkboard adhered (as in the original construction).

The openings were made in the following locations:
(marked elevation drawings (pages 10-13) are included showing locations)

18th floor #1- South elev. In the vent shaft wall
#2- South elev. Between windows 5,6 lower
#3- South elev. Between windows 5,6 upper
#4- South elev. Between windows 6,7 above sill
#5 -East elev. Vent shaft wall south side
#6 -East elev. Vent shaft wall north side
#7 -North elev. East side wall

16th floor- #8- North elev. east side wall

#9- North elev. west side wall
#10- West elev. between window 5,6
#20 South elev. East end upper wall
#21 South elev. East end below window 2

4th floor- #11- North elev. vent shaft wall
#12- East elev. vent shaft wall south side at the old louver opening
#13- East elev. vent shaft wall north side below the old louver opening
#14- South elev. West side beside the window
#15- South elev. West side between windows 3,4
#16- South elev. West side between windows 4,5 at column
#17- West elev. Window mullion between windows 2,3 from the south
#18-North elev. In the vent shaft wall underside of the ring beam
#19 North elev. Window mullion between windows 2,3 from the west

2.0 Findings (Interior openings)

Several of the openings that were carried out in the columns adjacent to or between the window openings reveal that the stone masonry is block-bonded into the brick backup with 4-inch projections creating alternating physical ties. In all the areas investigated, there was no evidence of water ingress or weather penetration. The envelope system of the masonry walls with a moisture barrier (bituminous layer) applied and an insulating layer of corkboard over top appears to be functioning as intended.

2.1 Backup Masonry

The masonry backup is typically 1-2 wythes of brick masonry or in some areas a combination of structural hollow clay tiles ('speed tile') laid in a standard masonry mortar. In all observed locations this backup walling was sound and typically well-constructed. In some investigation areas, it was necessary to remove fireproofing around structural steel elements such as columns to review their condition. This fireproofing was typically either a sprayed-on traditional fire barrier coating, 'Pyrobar' gypsum-based hollow blocks, hollow clay 'speed tile' or a wythe of brick masonry.

2.2 Wall ties

Masonry wall ties were found in some locations in openings in the original construction (on the 4th floor). These ties appear to be non-ferrous (likely bronze) flat ties 1.5" wide x 1/8" (38mm wide x 3.175mm) thick straps or cramps laid in ashlar masonry joints with 90-degree bends at the opposite ends within the backup walling. Where observed, these ties are in very good condition with a layer of dark surface oxidation and no signs of deterioration.

2.3 Windows

Where the window frames are attached, there is typically no moisture barrier. The window strap ties are anchored directly into the stone or backup walling with wall plugs and galvanized screws. In the observed areas, the window frame elements appear to be original. Within the interior partition (wall finish) light steel framing and cementitious wall plaster (at window mullions) there is some slight corrosion around the window openings, which is not unexpected, and likely from condensation within the wall as there is minimal (or no) insulation or moisture barrier layers present there. It was observed that some of the sealed, insulating glazing units (IGU) windows require replacement and many of the original aluminum frames are corroded on the exterior.

2.4 Structural columns

Where structural steel columns were observed, they were found to be in good condition with minimal corrosion and the original layers of surface coatings were present and generally serviceable. In the original construction, the steel has a layer of black-coloured paint over red primer. Where masonry fire protection was removed, some areas of this black coating were friable and flaking but, this could be related to impacts or abrasion from the masonry removal as there is minimal corrosion of the underlying surfaces evident. On the upper floor areas, the steel elements observed are coated with a yellow paint which is typically sound and in good condition.

2.5 Reinforced concrete elements

The reinforced concrete 'ring-beam' elements within the east vertical vent shaft (at each floor level) also appear to be in good condition where observed and appear to be functioning as intended. There were no obvious areas of deterioration of the concrete itself or evidence of reinforcement corrosion. This also appears to be the case where the slab was exposed in other investigation areas above and below windows although, this was not the primary focus of these openings and minimal exposure of the floor slab surface or soffit was carried out.

3.0 Exterior conditions

The exterior of the building is clad in Queenston limestone masonry. This stone is notable in Canadian architecture and is one of the most durable building limestones in North America with a compressive strength of an average of 14,500 P.S.I. and an absorption rate of .81-.97 %* (*From Building Stones of Ontario Part II Limestone* by D.F. Hewitt). Unfortunately, the extraction of this stone is no longer occurring and new material for repairs is unavailable. Some repairs and replacement of cladding blocks have been carried out in the currently available Indiana Limestone (which is evident in its lighter grey appearance compared to the dark grey-buff Queenston).

The exterior of this building is robustly constructed, well maintained and typically in good historic condition. There are some isolated surface repairs and unit replacements in Indiana limestone, some limited structural cracking passing through stones at the east and west ends and a few isolated cracked stones in other locations. The mortar jointing is typically sound and there are areas where re-pointing has been carried out in the past and some areas where more will be required in the future. The outward appearance of the building is generally uniform but there are some disfigurements in the form of soiled dark and washed clean light areas (where water runs over the surface) creating a contrast. This is not a structural concern and is typical of this cladding material and is primarily an aesthetic concern that can be remediated by cleaning.

There are isolated patches of surface decay where less durable clay or soluble mineral-containing deposits are weathering away creating blister-like patches on face-bedded ashlar stones or erosion that follows the natural bedding planes of the stone in natural or vertically bedded stones. These decay patterns are typical of the weathering of this stone and are not often a reason for concern as the decay tends to be superficial and rarely affects the structural integrity of the blocks. There are a few stones on the west elevation (sills and lintel stones) that have some more serious erosion occurring and may require an intervention in the future.

3.1 Vertical cracking

There are two areas where some significant vertical cracks have occurred. The most serious of these is at the northeast corner, primarily on the north side. There is a structural movement that appears in the cladding at grade and travels upward in a relatively straight line to the middle of the 5th floor. There is a slight displacement out-of-plane toward the north at this crack +/- 6mm at the lowest stone and to a lesser degree above. It is difficult to determine the cause of this movement and cracking as there may be several factors involved, including building settlement, thermal movement or perhaps some internal corrosion of embedded metals stressing the cladding (it was not possible to investigate this internally as there is a large boiler or incinerator flue directly behind this area).

This cracking and displacement are a concern, and some movement appears to have occurred more recently, evidenced by a spreading mortar joint that appears to have been repointed previously (not original). This crack is also open to the elements, passes directly through some bonder (12" high) stones and certainly allows water runoff to enter the wall assembly. This defect should certainly be monitored and should be repaired as soon as possible to limit additional decay and potential worsening. It would be prudent to carry out an investigation in this area and below grade to determine the cause of this and repair and remediate it to restore structural cohesion in this corner.

There is also a slightly less concerning crack at the southeast corner on the south elevation mirroring the cracking on the north. This crack also seems to start near grade, passing through mortar joints and eventually through some stones at the 3rd and 4th floors, and terminating at the 5th floor. This cracking/ movement does not display any significant displacement in the veneer. This is a very similar pattern to the movement crack on the north and it is equally difficult to pinpoint the cause. This cracking also should be addressed soon and some additional investigation to determine and remediate the cause(s) would be prudent. The other corners of the building (southwest and northwest) were also visually examined to determine if cracking is occurring there, and one cracked (bonder) stone and some debonded mortar joints were noted at the southwest corner of the south elevation at the 4th floor similar to the east end but less severe.

This cracking and movement are not surprising on a masonry structure of this size that was constructed without movement joints. The entire east elevation is stone masonry with only a few isolated openings (door/ louvre etc.) this elevation does get full sun mid-morning, and the resultant heating and expansion of the cladding could be exerting stresses on the perpendicular north and south walls where the cracks are most severe.

There are also a few stones that are cracked in isolated locations on the west elevation One is a small vertical spandrel mullion section, and one is a window lintel which appears to have been previously repaired. Neither of these cracked stones are any reason for concern at this point but, they should be monitored and repaired to ensure that they remain stable.

3.2 Isolated areas of weathering erosion

There are numerous areas of weathering-related erosion on the cladding. It appears that the most seriously eroded stones have been either replaced with a new stone or have been surface patched. This erosion is a typical feature of this otherwise durable limestone. This erosion is most obvious in either in stones that are vertically or face bedded (parallel to the bedding planes) where it appears as a blister or area of surface loss or in stones that are naturally bedded (as in the ground) or vertically edge bedded where the erosion follows the natural bedding of the stones. This weathering-related erosion only affects stones that are prone to this decay, that contain areas of poorly cemented or reactive minerals, or clays that are water absorbent that swell and soften and are weathered away preferentially. This decay does not occur in most stones on this building but, there are several stones on the west elevation particularly naturally bedded sills and lintel stones that are displaying advancing decay of this nature. As this process continues, the stones can allow water to enter the wall assembly, lower features like drip edges and corners can be lost and the structural integrity of the stone unit can eventually become compromised.

3.3 Mortar joints

On review of the walling, it was noted that there were a few areas of de-bonded mortar joints, both in the original mortar and in re-pointed joints and a few isolated areas of mortar loss associated with the vertical cracking noted in 3.1. Generally, the cladding is sound and functioning as intended. There is evidence in the form of re-pointed areas (at least 2 distinct re-pointing mortars were identified in addition to the original) that maintenance of the exterior has been ongoing and timely. Some areas should be addressed shortly on all elevations but, generally, the cladding and mortar jointing are in good condition considering the age of the building.

3.4 The windows

The original aluminum framed IGU windows are typically quite oxidized, have lost most of their protective surface finish and are at the end of their reasonable service life. The sealant around many of the windows observed is also at or beyond its service life. It was noted by the building maintenance staff that the replacement of failed IGU glazing is ongoing and a regular maintenance issue and some leaks around the frames have occurred.

3.5 Other issues

The sealants at the openings and other material junctions are typically in need of renewal. This is most evident on the windows, podium and bottom floor of the structure. There are also some areas of typical metal corrosion around the entrances at grade on the south. On the north elevation above the parking area, there is an open soffit joint where the steel cover plate meets the masonry. There is evidence of some internal corrosion along this detail and weather is certainly entering the wall along this joint and accelerating decay.

Along the masonry at and above grade, some surface loss and decay are occurring. This is typical of buildings in the city and most often made far worse using de-icing salts on streets and sidewalks. Salt-laden melt water is often corrosive to porous materials particularly carbonate stones such as limestone. It is absorbed into the stone where it can build up and be transported upwards in solution through the material to where the liquid evaporates, and the salts crystallize within and on the material creating expansive stresses which weaken the stone and damage the surface. This is evident in powdery deposits (efflorescence) on the surface and a detached surface layer (crusts) with a friable surface underneath which is a progressive decay that slowly erodes the stone away in the worst cases. Salts are also hygroscopic and attract and hold moisture in the material which also accelerates decay.

There are also areas of surface loss on the east elevation above grade around the large louvred vent. This is most likely due to moisture in the expelled air from the vent accelerating the surface decay.

4.0 Conclusions

On review of the masonry cladding, we can conclude that this building is generally in good condition. There is very little movement in the masonry and very few issues that would affect its ongoing service.

Based on the conditions on the exterior and the investigation on the interior it can be noted that this building was robustly designed and constructed. The choice of thicker-than-average cladding in Queenston Limestone is serving the building well. The bronze ties used in the construction of the original portion of the building ensure that tie corrosion is not and will not be an issue in the future. The envelope details on the interior also appear to be simple and executed with robust materials (bituminous moisture barrier and natural cork insulation). The steel structural columns were in very good condition, where observed, and the protective coatings on them seem to be mostly intact and functioning well. The reinforced concrete elements also seem to be in good condition. There are some areas where material junctions require maintenance weatherproofing and sealant renewal such as the metal capping on the north elevation at the bottom of the second floor (sealant has failed and water is getting in) and most windows above the podium require re-sealing or replacement, generally. The building also would benefit from some maintenance on the podium at grade where deicing salts and water are accelerating decay.

5.0 Recommendations

5.1 Additional investigation

The primary recommendation currently is to carry out some additional investigation at the northeast corner where the vertical cracking is most severe. This should include some excavation to confirm the condition of the foundation and below-grade areas at this corner as the lowest ashlar block on the north is displaced down and outward here and this could be a sign of foundation settlement issues. It would also be beneficial to remove some stone units higher up on the structure (2^{nd}-4^{th} floor areas) to determine if there is a metal corrosion issue there stressing the cladding and forcing it outward.

5.2 Maintenance and repair

The exterior cladding does require some repair most notably, to address the vertical cracking on the east end, to consolidate some isolated cracked stones and to repair/ replace some eroding sill and lintel units on the west. The stones that are cracked on the north and south at the east end could be structurally repaired after the cause of the cracking and movement is identified and remediated. It would be a good conservation decision to pin and stitch these cracked stones back together with stainless steel rods as these stones are sizable and thick enough to allow for this type of repair and replacement material in Queenston limestone is not available and any other available repair material would be a compromise.

The mortar jointing will also benefit from some maintenance re-pointing. The sealants used on the windows and at some material junctions require renewal. It is also likely that there are areas at the top overhanging canopy where some maintenance of sealants would be prudent (these areas were not reviewed for this report).

5.3 Cleaning

The cladding would also benefit from cleaning to reduce the intensity of or remove, some of the dark streaking, and patches of soiling in sheltered areas which contrast with the washed clean areas where water runs over the surface. This is primarily an aesthetic concern although, if the soiling continues over the long term, this can lead to the formation of gypsum crusts as the soluble calcium carbonate in the limestone surface, under weathering can be dissolved and converted to calcium sulphate (gypsum) and be redeposited along with environmental carbon and other soils forming a dark, hard layer. This accretion of soiling can lower the permeability and drying potential of the stone surface and eventually create a harder surface than the underlying stone which can move differentially under thermal stress, form blisters, detach and move decay into the stone by trapping moisture behind it.

6.0 Annotated drawings

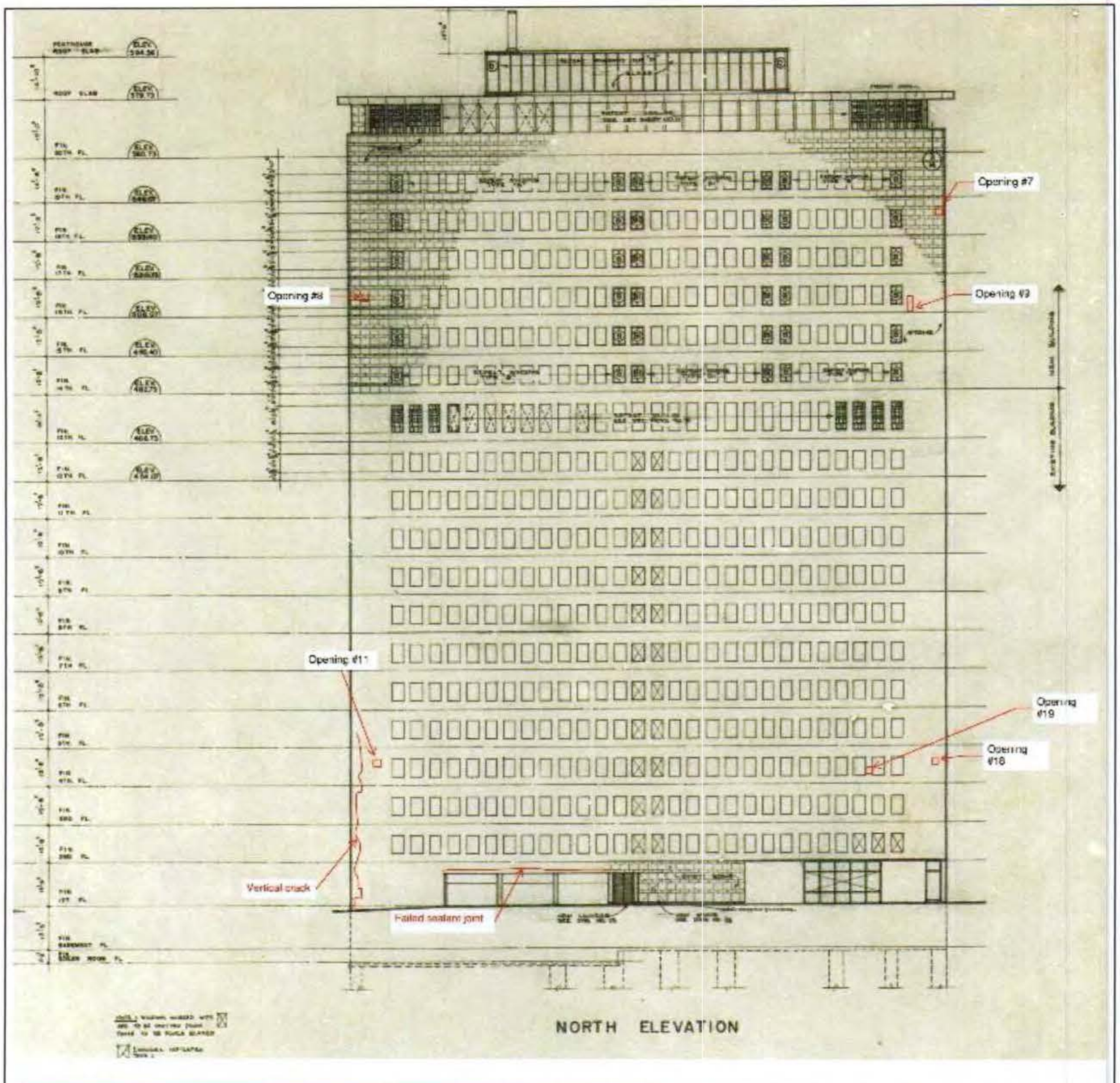

Figure 2 Excerpt of scanned drawing 11A with markup North elevation.

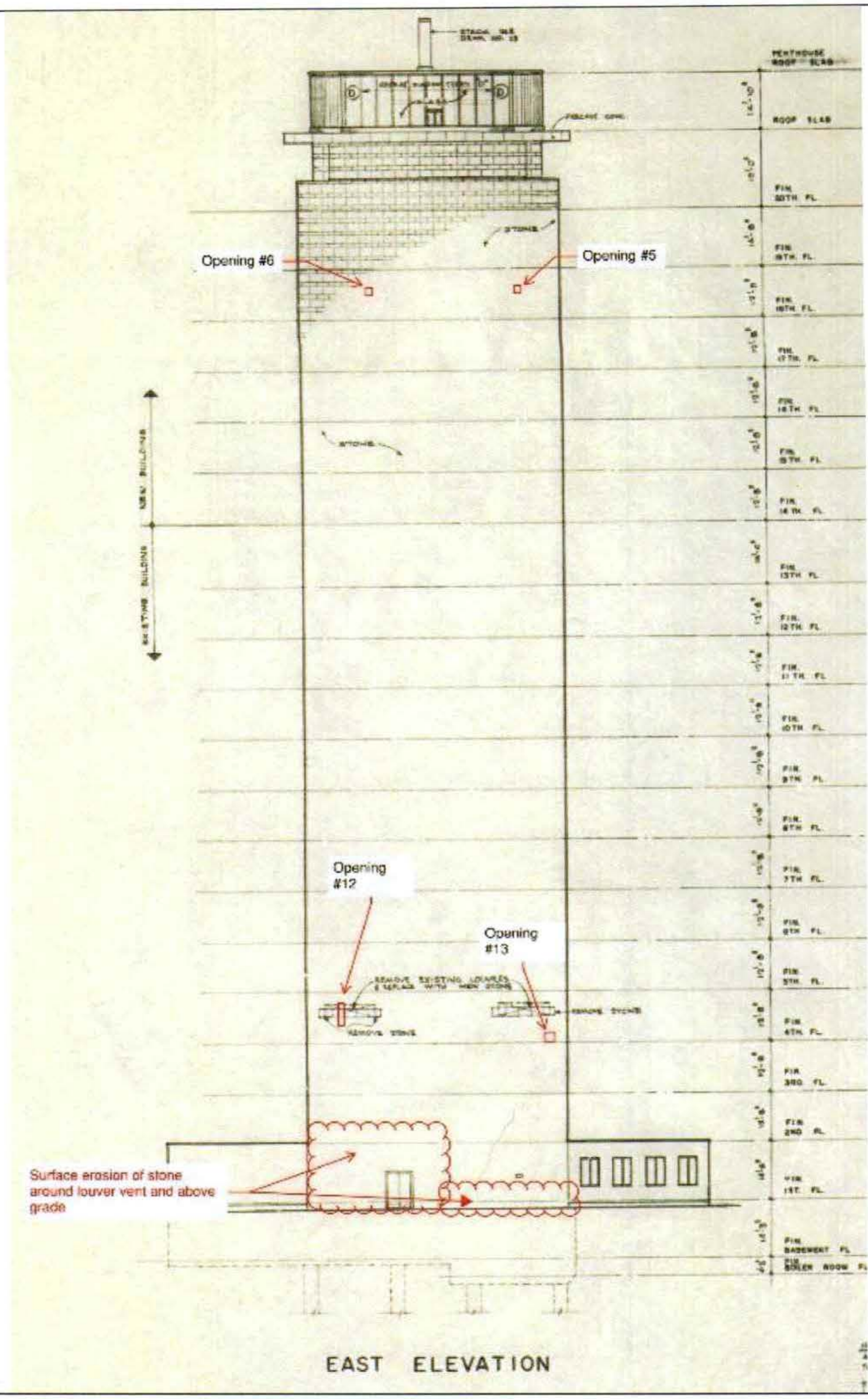

Figure 3 Excerpt of scanned drawing 11A with markup East elevation.

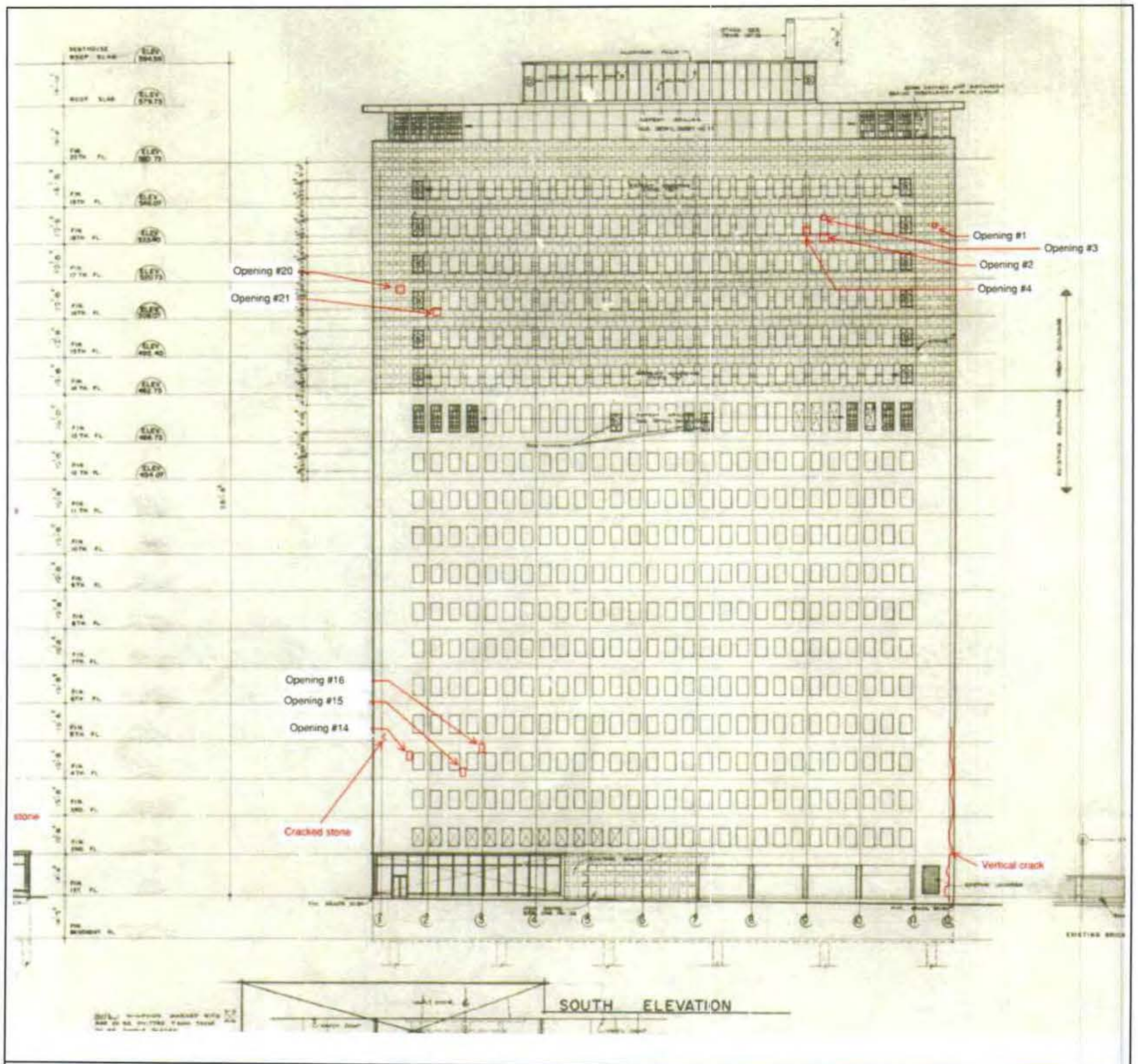

Figure 4 Excerpt of scanned drawing 10A with markup South elevation.

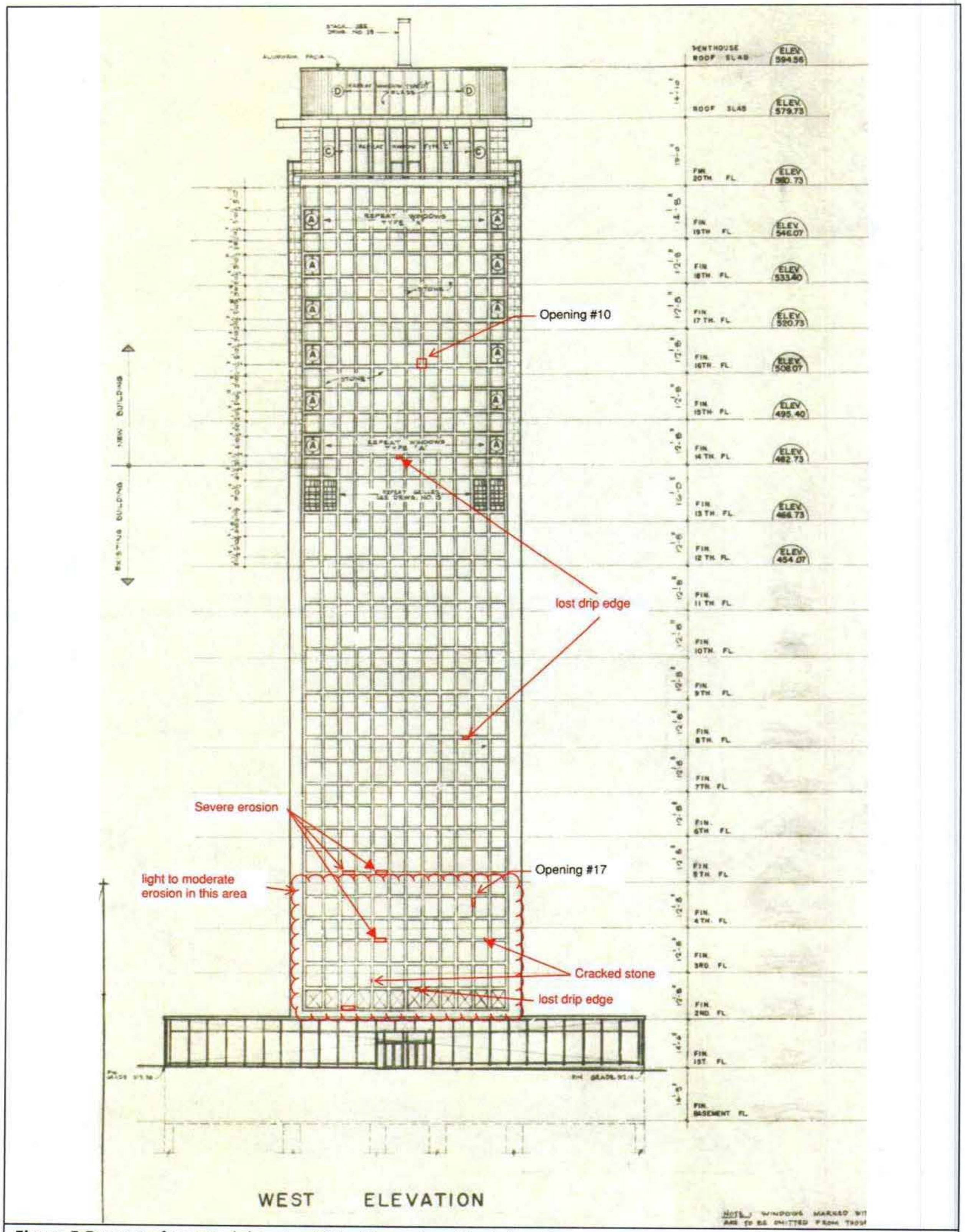

Figure 5 Excerpt of scanned drawing 10A with markup West elevation.

7.0 Photos

Figure 6 Overview of the south elevation.

Figure 7 Overview of the east elevation.

Figure 8 Overview of the north elevation.

Figure 9 Overview of the west elevation.

Figure 10 Investigation opening #1 in vent shaft. 2 wythes brick masonry to back of stone.

Figure 11 Investigation opening #1 Detail. Stone veneer is block bonded with brick backup. No ties were found here.

Figure 12 Investigation opening #2 at column location.

Figure 13 Investigation opening #2 Detail. Fire protection was removed. The paint coating is in good condition- very minimal corrosion was evident.

Figure 14 Investigation opening #3 at column and beam connection Fire protection was removed.

Figure 15 Investigation opening #3 Detail. The paint coating is in good condition.

Figure 16 Investigation opening #4 spiral vent duct in front of mullion masonry

Figure 17 Investigation opening #4 Detail. The corkboard insulation was removed. A bituminous layer over parged stone masonry was found.

Figure 18 Investigation opening #5 in vent shaft.

Figure 19 Investigation opening #5 Detail. Stone veneer is block bonded with brick backup. No ties were found.

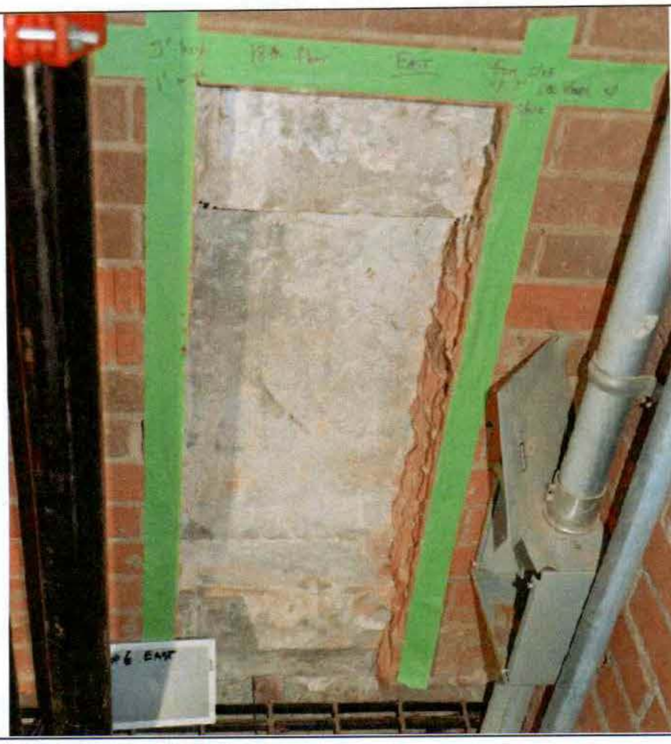

Figure 20 Investigation opening #6 in vent shaft.

Figure 21 Investigation opening #6 Detail. Stone veneer is block bonded with brick backup. No ties were found.

Figure 22 Investigation opening #7 in vent shaft underside of the ring beam.

Figure 23 Investigation opening #7 Stone veneer is block bonded with brick backup. No ties were found.

Figure 24 Investigation opening #8 in vent shaft.

Figure 25 Investigation opening #8 Detail. Stone veneer is block bonded with brick backup. No ties were found.

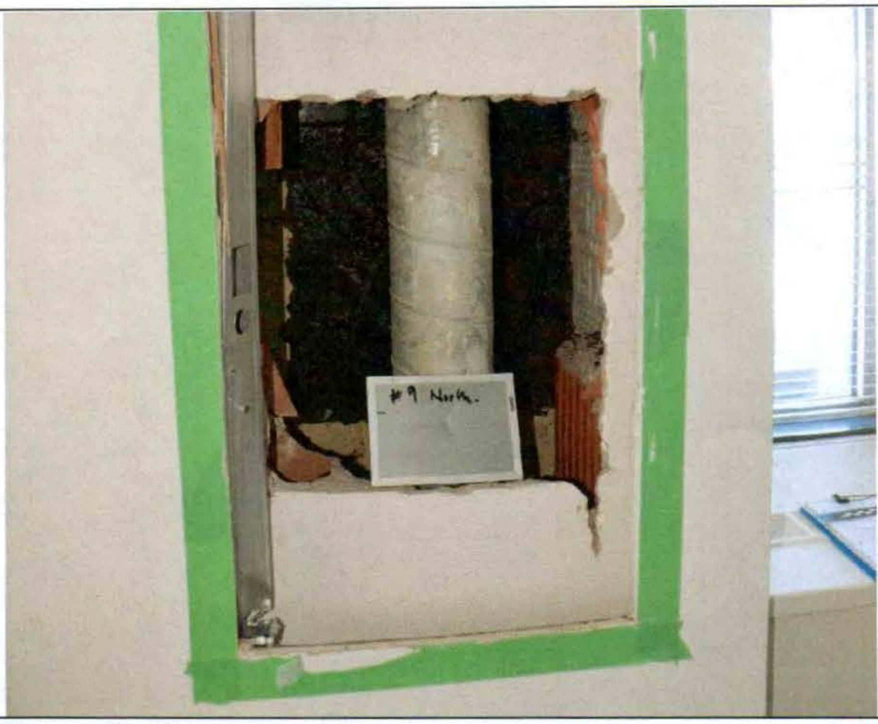

Figure 26 Investigation opening #9.

Figure 27 Investigation opening #9 Detail. The corkboard insulation was removed. A bituminous layer over parged stone masonry was found.

Figure 28 Investigation opening #10 window mullion.

Figure 29 Investigation opening #10 Detail. Stone window reveal mullion with brick backup. Window tie anchored with #12 Galvanized screw. No moisture barrier was found.

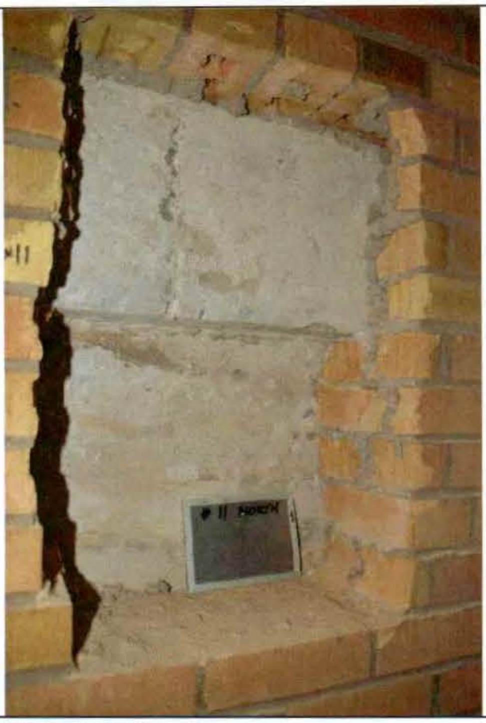

Figure 30 Investigation opening #11 in vent shaft.

Figure 31 Investigation opening #11 Detail. Stone veneer is block bonded with brick backup. One bronze wall tie was found (RHS).

Figure 32 Investigation opening #12 in vent shaft.

Figure 33 Investigation opening #12 in vent shaft Detail. Stone veneer with brick backup- replaced Indiana limestone (vent infill) at upper. No ties were found.

Figure 34 Investigation opening #13 in vent shaft.

Figure 35 Investigation opening #13 in vent shaft Detail. Stone veneer is block bonded with brick backup. No ties were found.

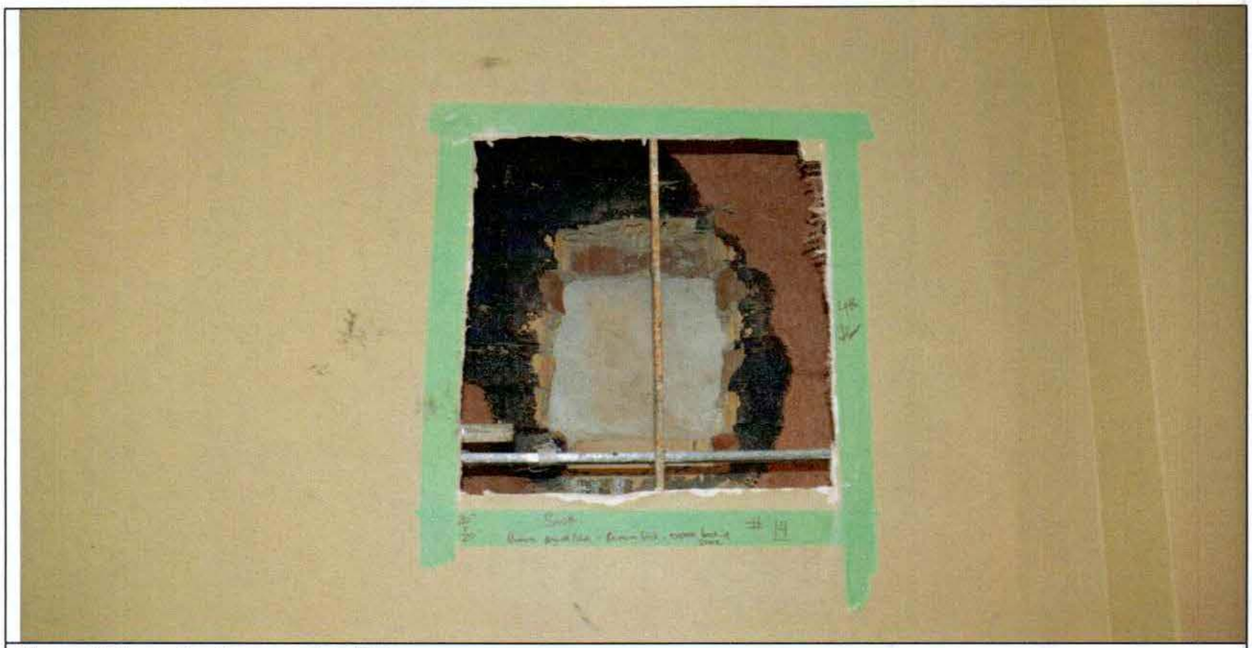

Figure 36 Investigation opening #14

Figure 37 Investigation opening #14 Detail. Corkboard and brick masonry were removed. Stone is block bonded into backup.

Figure 38 Investigation opening #15.

Figure 39 Investigation opening #15 Detail. Corkboard and brick masonry were removed. 2 ties were found- ties appear to be bronze (or similar copper alloy) and in good condition.

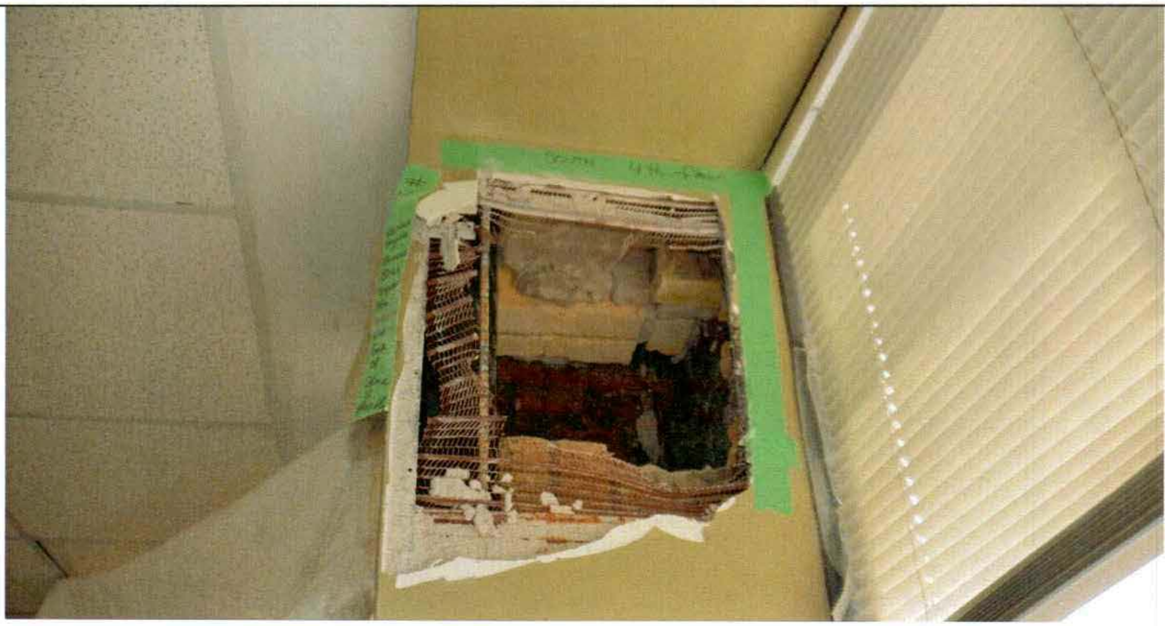

Figure 40 Investigation opening #16 at column.

Figure 41 Investigation opening #16 Detail. The brick infill was removed. Some coating failure on steel and light corrosion are evident (black paint).

Figure 42 Investigation opening #17.

Figure 43 Investigation opening #17 Detail. Mullion stone is full depth- no backup masonry is present. Some light corrosion is evident on plaster framing elements. Window ties are anchored with #12 Galvanized screws into stone.

Figure 44 Investigation opening #18.

Figure 45 Investigation opening #18 Detail. Corkboard and brick masonry were removed. Stone is block bonded into backup.

Figure 46 Investigation opening #19.

Figure 47 Investigation opening #19 Detail. Corkboard and brick masonry were removed. Stone is block bonded into backup.

Figure 48 Investigation opening #20 at column.

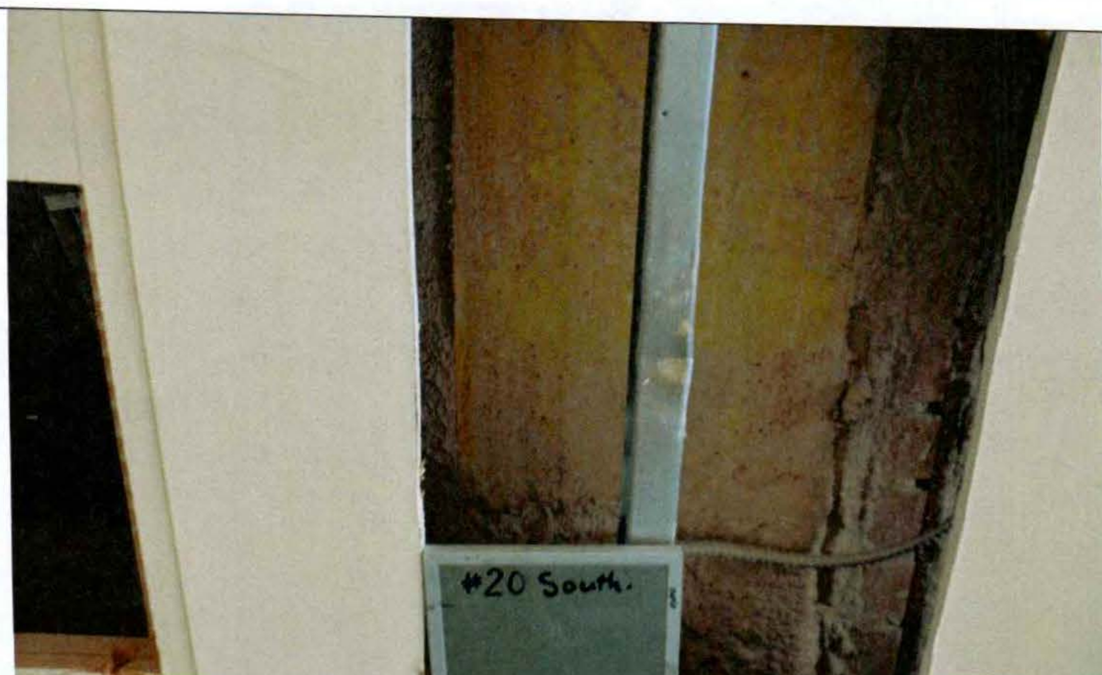

Figure 49 Investigation opening #20 Detail. Fireproofing was removed- and the paint coating is in good condition on the column.

Figure 50 Investigation opening #21.

Figure 51 Investigation opening #21 Detail. The corkboard was removed back of the stone was parged and bitumen paint coated.

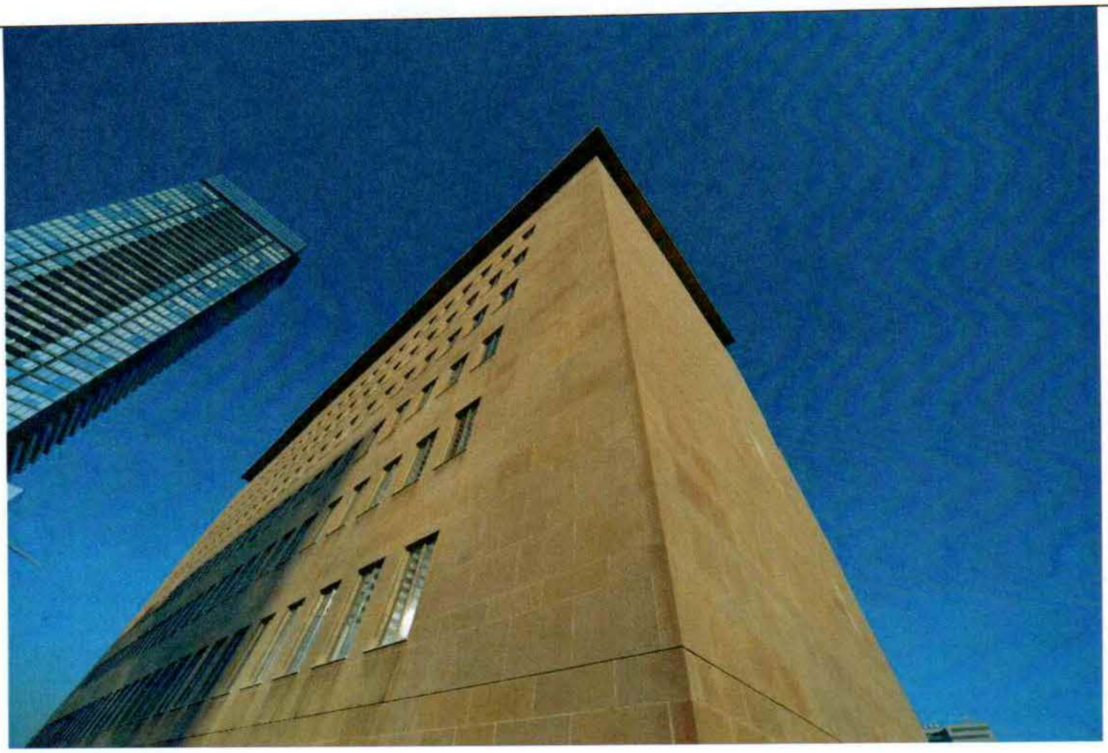

Figure 52 South and East elevations additional 7 floors above vent screens. The masonry is in good condition.

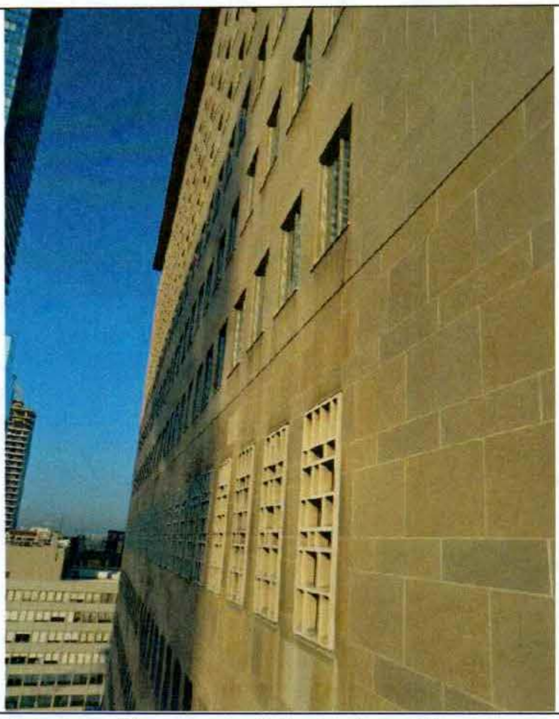

Figure 53 South elevation at vent screens. The masonry is in good condition.

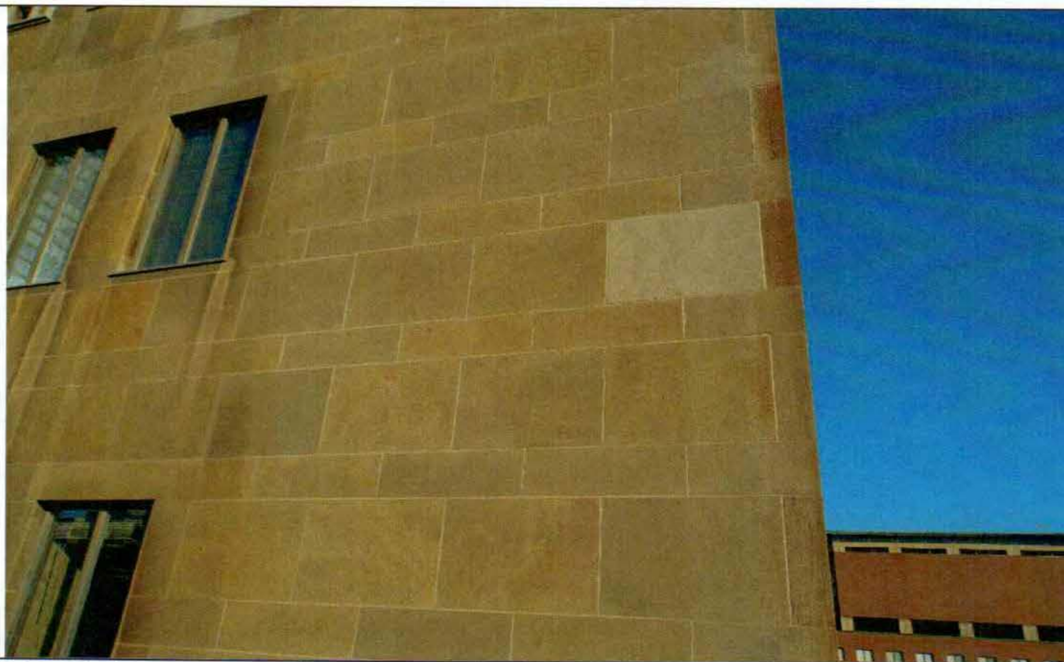

Figure 54 South elevation at the 12th floor. The masonry is in good condition. Note replaced (lighter appearing) veneer ashlar panel- Indiana limestone.

Figure 55 South elevation at the 5th floor. The masonry is in good condition. Note replaced window mullion panel- Indiana limestone and surface mortar patch (RHS).

Figure 56 Southeast corner elevation at 4th floor. Note cracked stone and debonded joints.

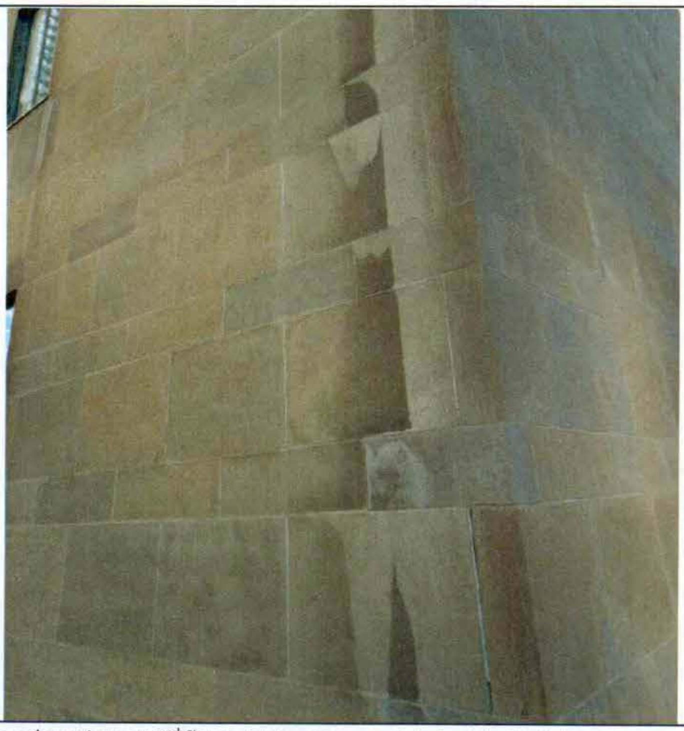

Figure 57 Southeast corner elevation at 3rd floor. Note open and debonded joints.

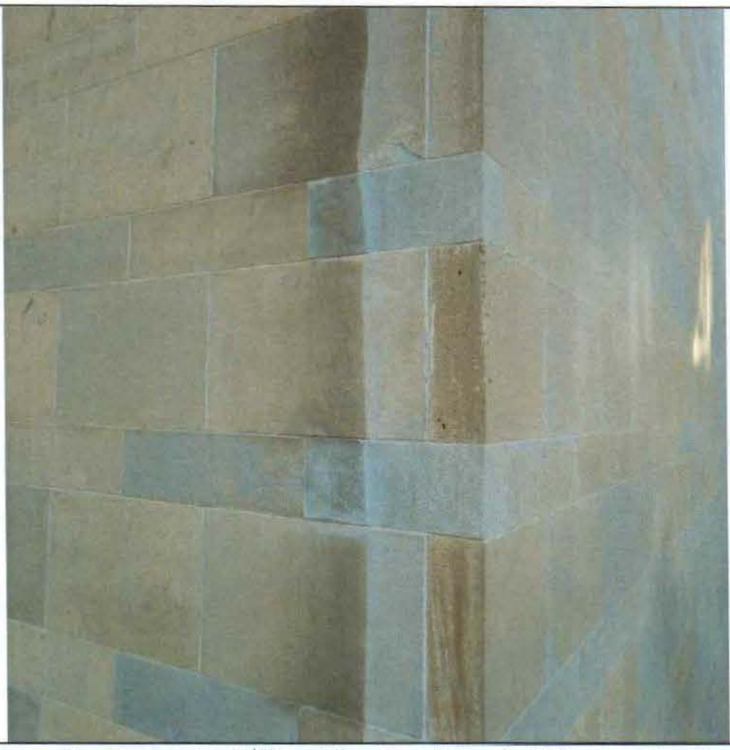

Figure 58 Southeast corner elevation at the 2nd floor. Note that debonded joints continue to grade.

Figure 59 South elevation southwest corner cracked stone and debonded joints at 4th floor.

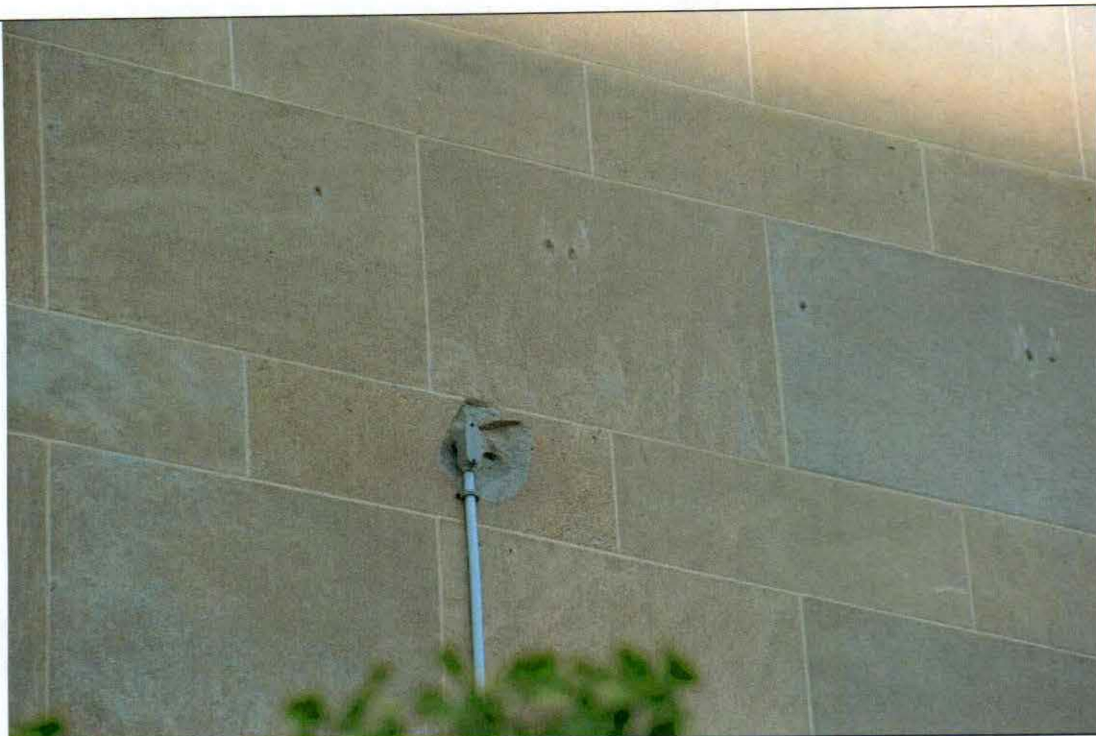

Figure 60 South elevation-west side spalled stone at electrical service penetration and holes in cladding from fixings.

Figure 61 East elevation floors 12-20. The masonry is in good condition.

Figure 62 East elevation access door and old signage mounts.

Figure 63 East elevation floors 7-10. The masonry is in good condition.

Figure 64 East elevation floors 4-9. Some superficial erosion patches are evident.

Figure 65 East elevation ground to 2nd floor. Surface erosion/ exfoliation related to moisture from the vent above.

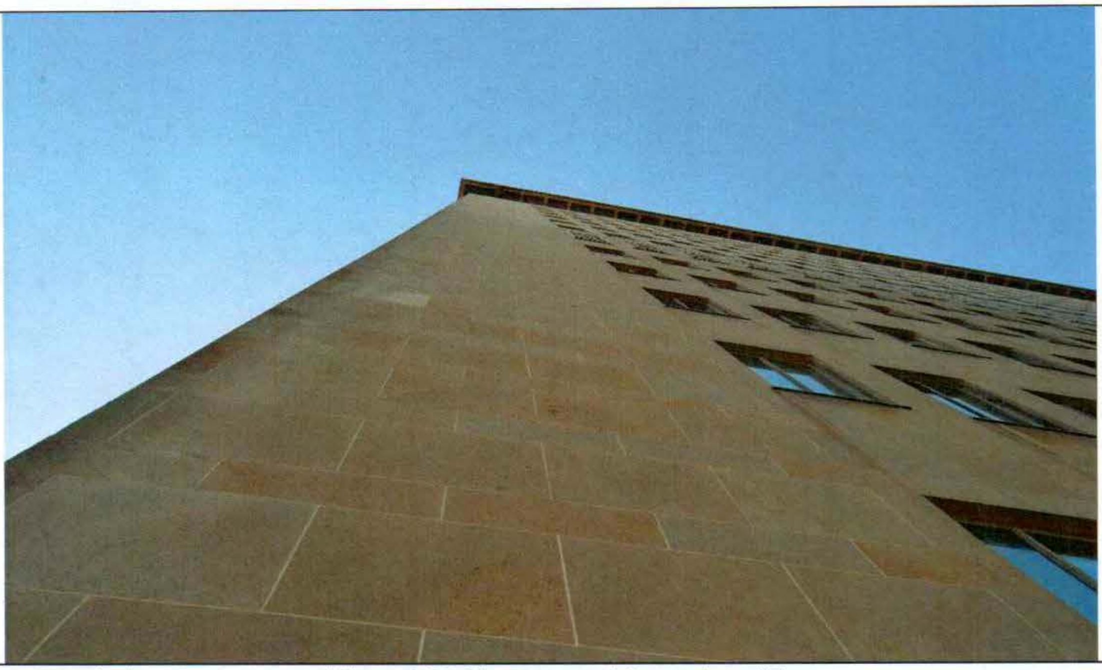

Figure 66 North elevation at east end floors 8-20. The masonry is in good condition.

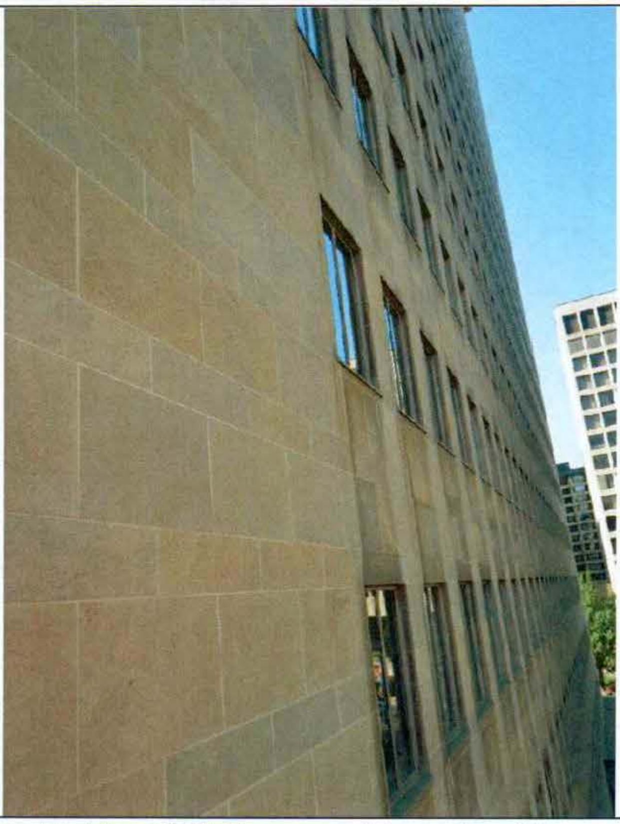

Figure 67 North elevation at east end floors 7-10. The masonry is in good condition.

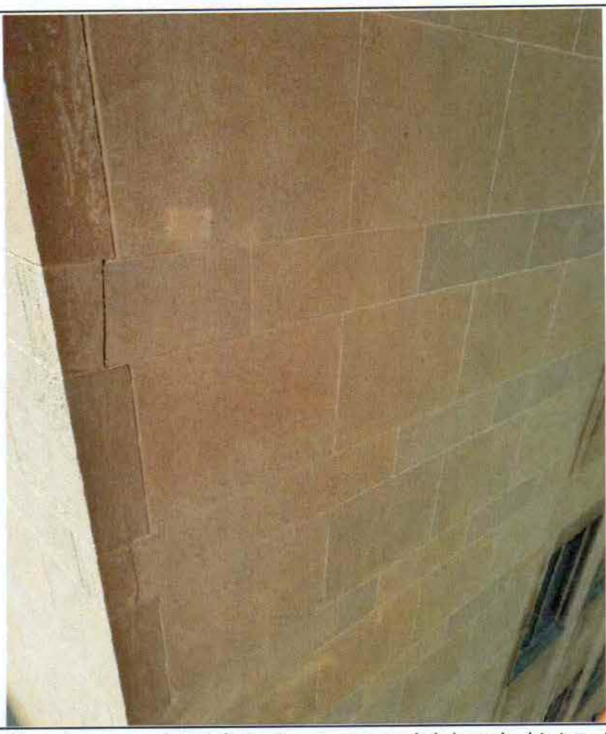

Figure 68 North elevation northeast corner. Crack/ displacement and debonded joints from the 5th floor to grade.

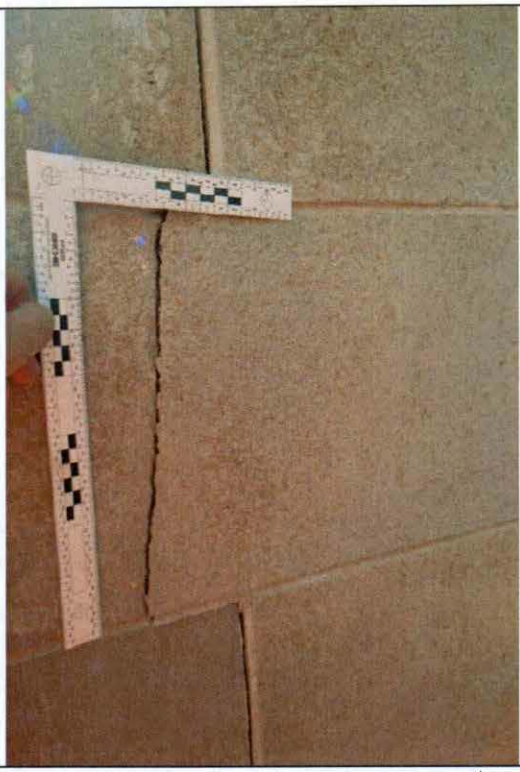

Figure 69 North elevation northeast corner. Detail of Crack/ displacement at 4th floor.

Figure 70 North elevation northeast corner. Detail of Crack/ displacement at 4th floor.

Figure 71 North elevation northeast corner. Detail of Crack/ displacement at 3rd floor.

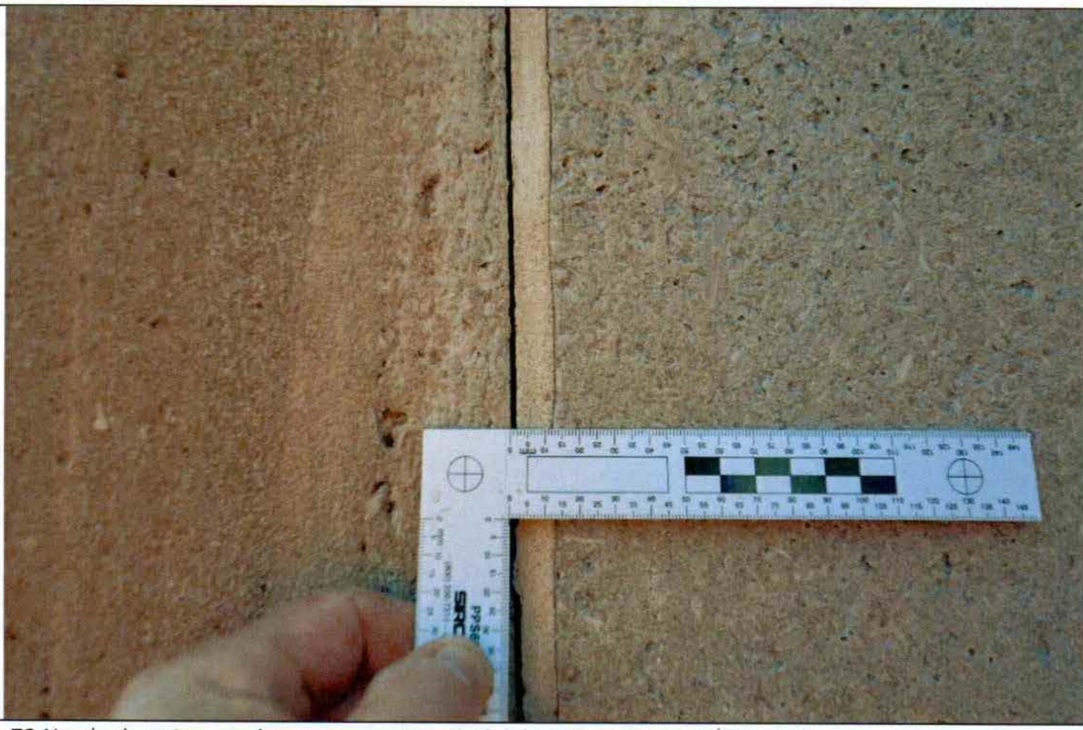

Figure 72 North elevation northeast corner. Detail of debonded joint at 2nd floor.

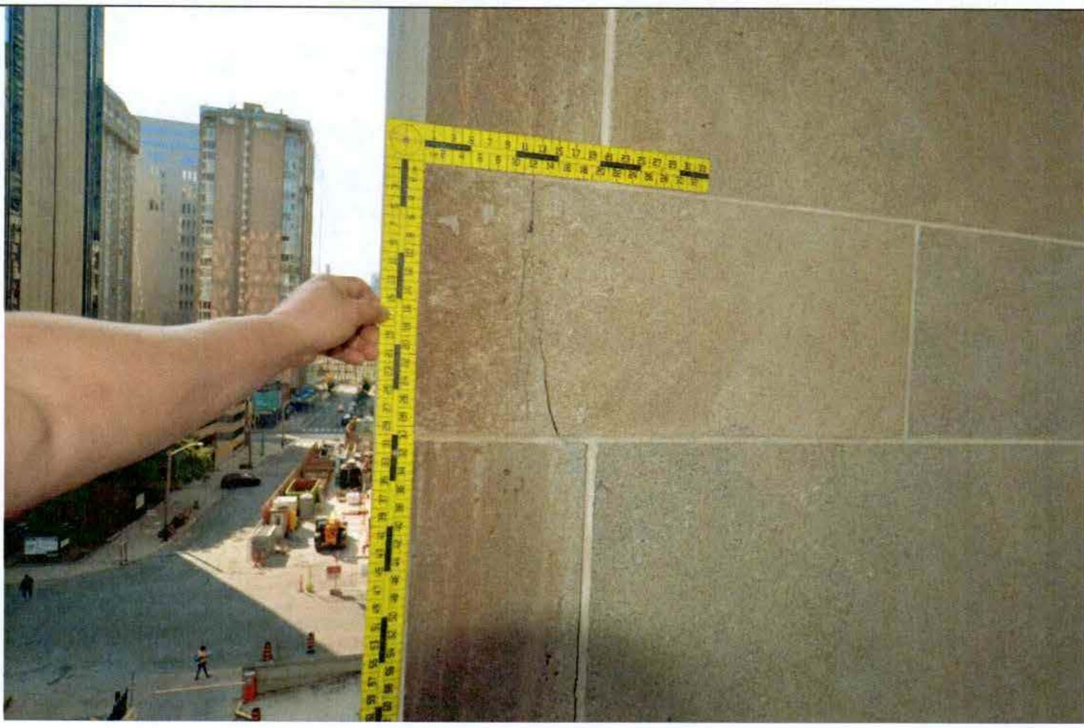

Figure 73 North elevation northeast corner. Detail of Crack/ displacement at 3rd floor.

Figure 74 North elevation typical condition of masonry and windows at the 7th floor.

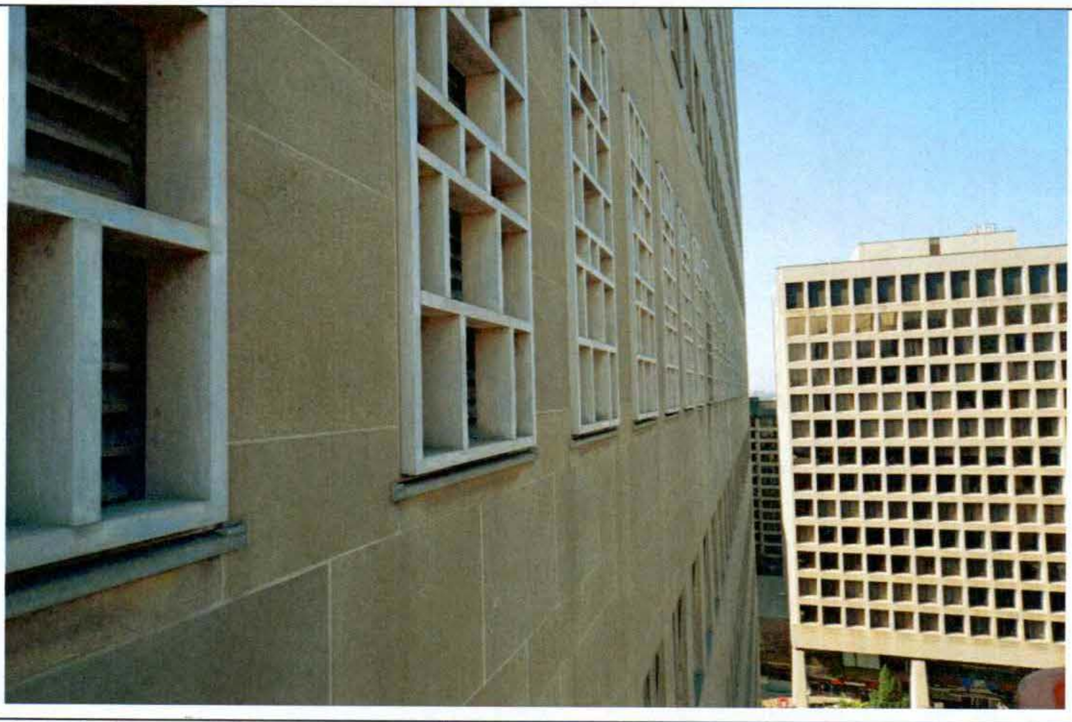

Figure 75 North elevation vent screens at the 13th floor. The masonry is generally in good condition.

Figure 76 North elevation typical window condition- sealants failing and window frames heavily oxidized.

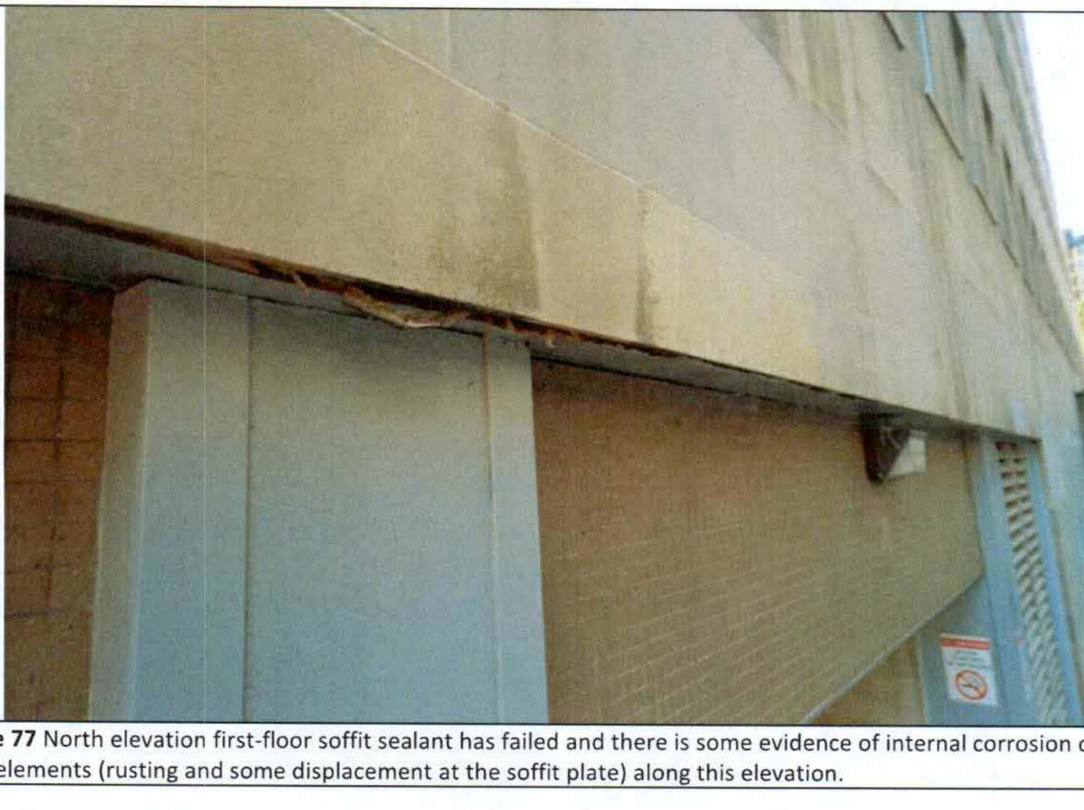

Figure 77 North elevation first-floor soffit sealant has failed and there is some evidence of internal corrosion of steel elements (rusting and some displacement at the soffit plate) along this elevation.

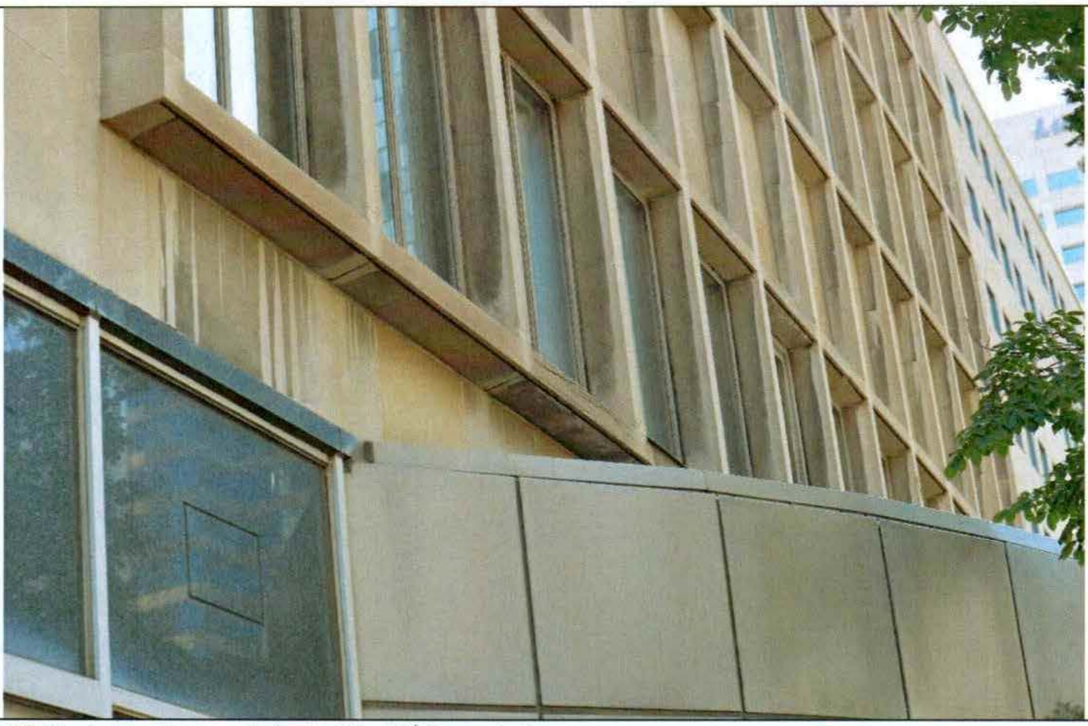

Figure 78 West elevation eroded sill at the 2nd floor window.

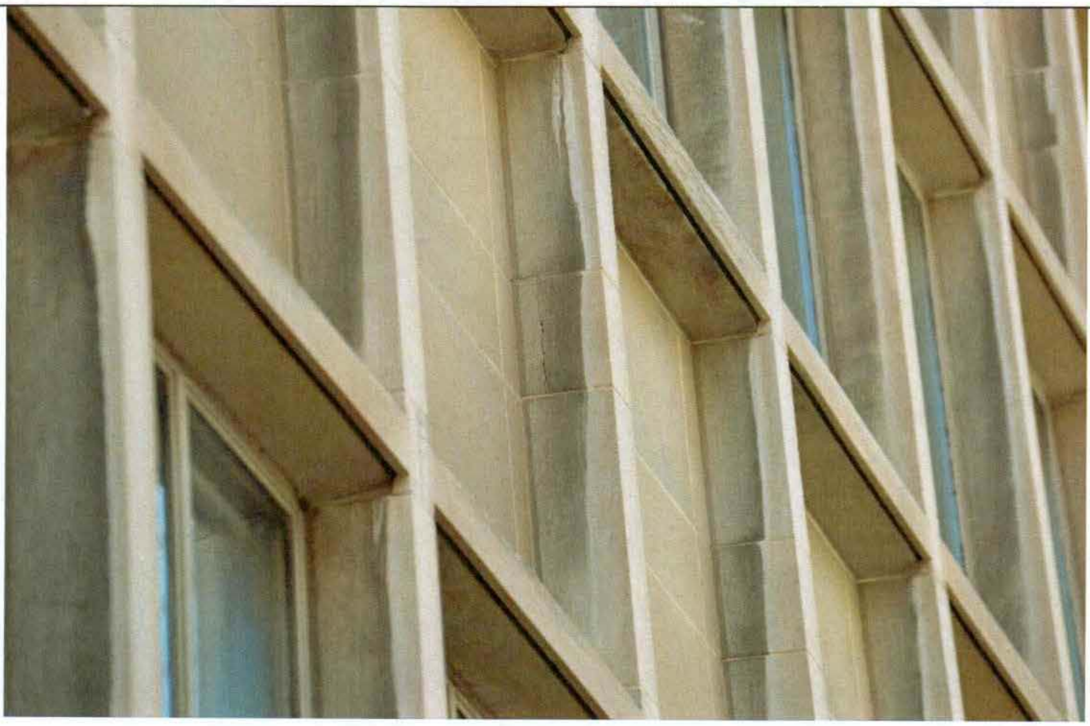

Figure 79 West elevation cracked small mullion stone in spandrel and eroded sill at the 3rd floor window.

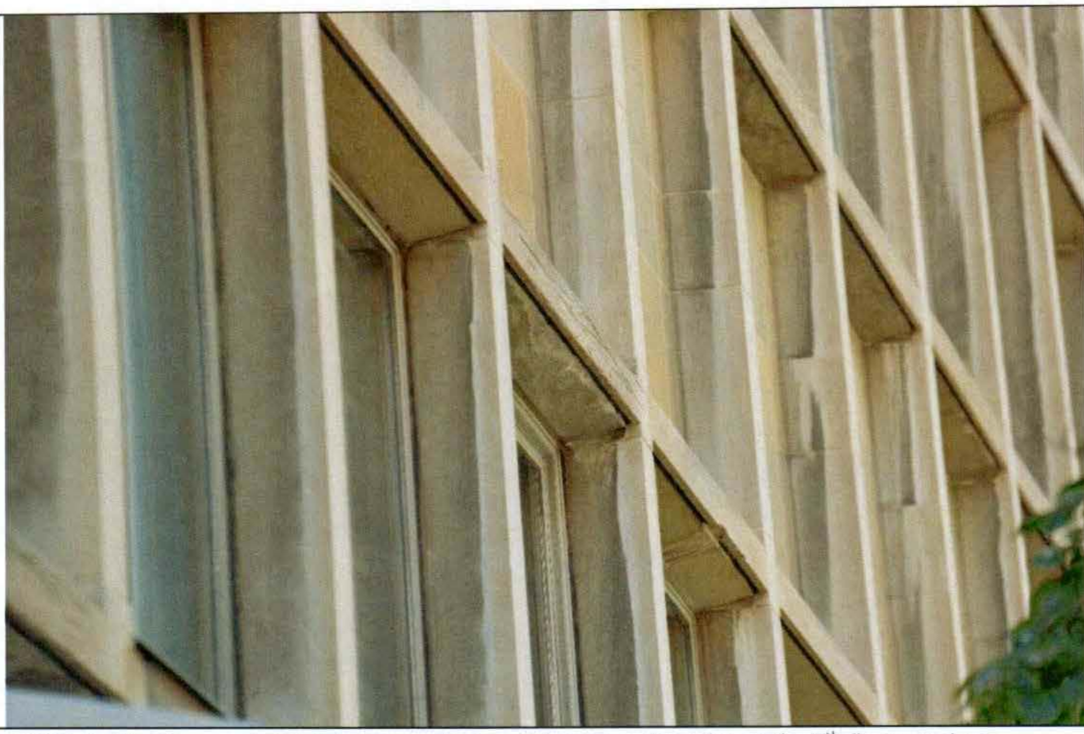

Figure 80 West elevation eroded lintel stone and area of damaged drip edge at the 5th-floor windows.

Figure 81 West elevation cracked/ repaired lintel stone in at 2nd floor window.

Figure 82 West elevation lost section of drip edge on the sill at the 11th floor.

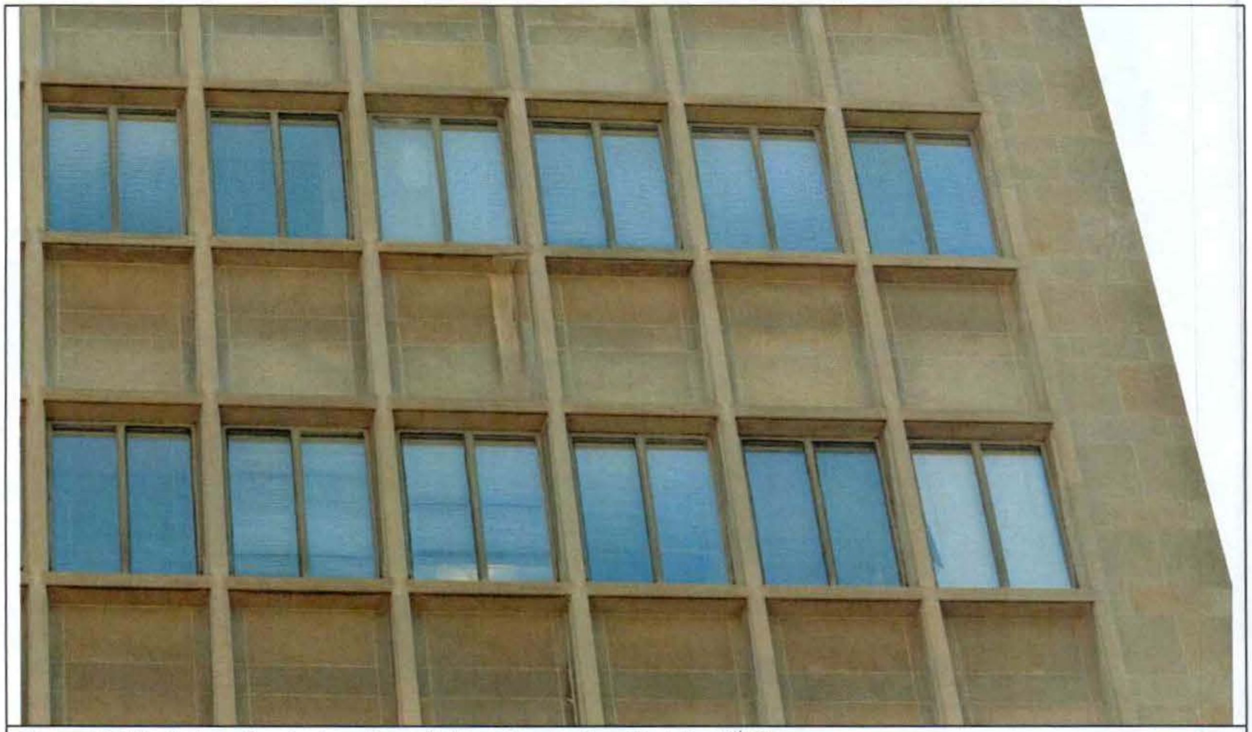

Figure 83 West elevation lost section of drip edge on the sill at the 9th floor.

Figure 84 West elevation lost section of drip edge on lintel and typical sill/ lintel weathering erosion at the 4-5th floors.