

The Personal Insurance Company of Canada  
3 Robert Speck Parkway  
Mississauga, Ontario L4Z 3Z9

**Attention:** Mr. Matthew Szuty

**Subject:** Vehicle Impact to a Residential Building – Structural Assessment  
**Your File:** R1032796  
**Loss Date:** April 07, 2024  
**Location:** 18 John Street South, Mississauga, Ontario  
**Reference:** Ryan McDonough & Paula Galli  
**Our File:** AC40404

**Report Date:** April 18, 2024  
**Prepared by:** Mr. Gustavo Estrada

## Structural Assessment Report



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Thank you for retaining us in relation to the above subject matter. At this time, we have completed our investigation into the incident captioned above. In the following pages, you will find a report of our investigation, structural assessment, and recommended scope of structural repairs.

## **1.0 INTRODUCTION**

We were informed that on or about April 07, 2024, an automobile impacted the side exterior wall of a residential building located at the captioned address, reportedly causing structural damage.

We were retained by Mr. Matthew Szuty, Claim Advisor for The Personal Insurance Company of Canada, on April 08, 2024, to examine and assess the structural damage sustained by the building from the vehicle impact incident and provide a report with a scope of repairs to reinstate the structure to its pre-loss condition. We were also retained to prepare structural repair drawings and apply for and obtain a building permit required for the restoration work.

## **2.0 INVESTIGATION**

On April 08, 2024, we responded to an email from Mr. Szuty confirming our attendance at a proposed site meeting with Mr. Szuty, the Insured, and the Insurance Contractor.

On April 10, 2024, we attended the site and met with Mr. Szuty, a colleague of his, and the Insured, who granted us access into the building, directed us to the affected area and provided related background information. The Project Manager for Paul Davis Systems, Mr. Wayne Kemp, subsequently attended the site and removed temporary exterior boarding to provide visual access into the affected area. We conducted a non-destructive visual assessment of the affected area of the building and documented relevant details of the building with sketches, measurements, and photographs. We provided oral instructions to Mr. Kemp for the installation of additional shoring to the affected area.

On April 11, 2024, we composed an email for Mr. Szuty and Mr. Kemp with recommendations for safety measures to be provided at the site.

## **3.0 REPORTED AND OBTAINED INFORMATION**

The Insured informed us that on or about the date of loss, his mother-in-law was parking her vehicle on a driveway at the side of his and his wife's property. Reportedly, she accidentally lost control of the vehicle, causing it to proceed forward and impact the side exterior wall of their dwelling, where the vehicle came to its final point of repose.

The Insured informed us that all related utility companies had been contacted to either suspend service or repair any damaged lines. Reportedly, a plumber had also been retained, but was unable to repair damaged lines in the affected area due to safety concerns and access restrictions from loose debris.

## **4.0 SITE OBSERVATIONS**

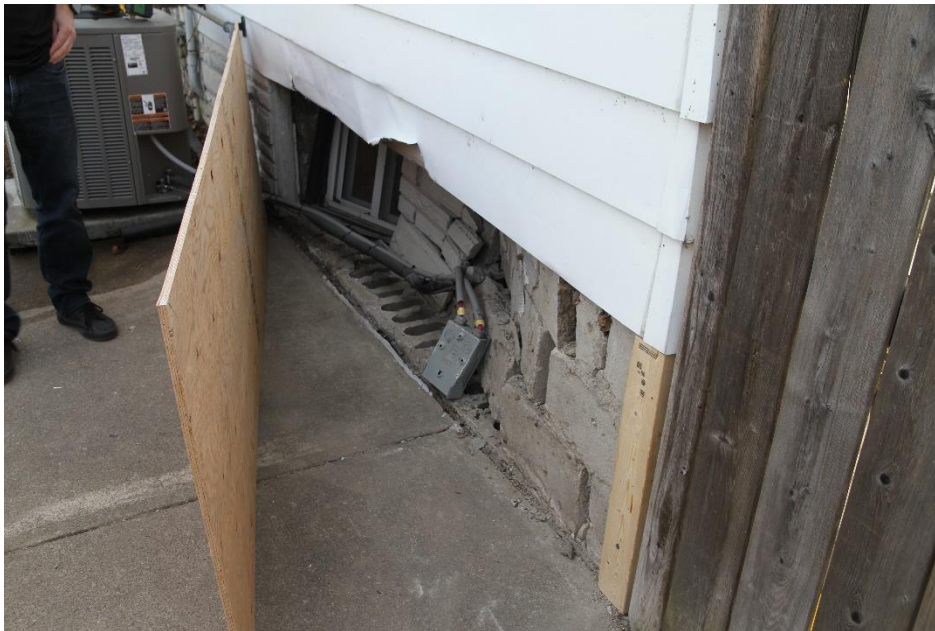
The residential building was located on the south side of John Street South, at the southeast corner of the intersection between John Street South and Port Street West in Mississauga, Ontario. The building was a



detached, one-storey, single-family dwelling with a finished basement. There was a concrete paved driveway at the west side of the building accessed from Port Street West.

The building's construction generally comprised concrete block masonry perimeter foundation walls, with intermediate beam and posts, poured concrete slab-on-grade in the basement, and wood-framed floor, walls, and roof structure. The building was clad with aluminum siding, and the above-grade portion of the foundation with thin stone veneer. The roof surfaces of the building were finished with asphalt shingles.

The impact-related structural damage was localized at the west foundation wall, near the southwest corner of the basement. An approximately 8-foot-long section of the south foundation wall, comprising the above-grade top 3 concrete block masonry courses and a window assembly, had been dislodged and displaced several inches eastward (into the basement). Several masonry units, including fractured sections, were also laying on the basement floor adjacent to the affected area. Some of the mortar joints at a section of the south foundation wall adjacent to the affected area were cracked.



**Figure 1 – Exterior view of the affected area, debris in the basement, and mortar cracks at the south wall.**

In addition to the damage to the foundation wall, the floor joist adjacent to the rim joist above the affected west foundation was split and fractured. The bottom portion of the noted rim joist had been slightly displaced eastward, and an attached wood nailer for the aluminum siding was split. The bottom piece of aluminum siding was dented above this area; however, the Contractor tore and lifted this portion to access the framing behind. We could not confirm the condition of the wall sheathing above the affected area.



**Figure 2 – Views of damaged floor joist, slightly displaced rim board, and split wood nailer on the rim board.**

The interior side of the involved foundation wall was covered from grade-height down to the floor with a dimpled plastic moisture barrier. A section of the noted barrier was ripped within the affected area. Other



non-structural elements of the building included severed sections of plumbing pipes, and damaged exterior electrical outlets/connectors.



**Figure 3 – Views of some of the non-structural damage observed within the affected area.**

There was no additional impact-related damage reported to or observed by us to the remainder of the building during our site attendance.

## 5.0 RECOMMENDED SCOPE OF STRUCTURAL REPAIRS

Based on our site examination, the residential building sustained localized structural damage at the west foundation wall and adjacent floor joist caused by the vehicle impact. The overall structure of the building had not been compromised and the affected area can be repaired.

Our recommendations for structural repairs are as follows:

1. Any structure supported by the damaged foundation wall shall be provided with adequate shoring as required prior to commencing the structural repairs;
2. Any damaged concrete block masonry units in the affected area that still form part of the wall shall be removed, along with any displaced, undamaged units. Undamaged concrete block masonry units and new units of equal dimensions shall be used to reconstruct the damaged section of the foundation wall, matching the existing course pattern;
3. Any mortar cracking surrounding the affected area shall be repaired as required. The affected foundation area shall be provided with new thin stone veneer to match existing conditions prior to the vehicle impact;
4. The split and fractured floor joist shall be removed and replaced with either a new 2x12 wood member of equal length, ripped to match the original joist depth, or with a new 2x10 wood member of equal length, complete with wood blocking/shimming at the bearing points to ensure a tight fit;
5. The slightly displaced section of the rim board shall be re-aligned as required. New solid wood blocking at mid-span shall be installed between the rim board and the new adjacent floor joist;
6. The Contractor shall confirm the condition of the wall sheathing and air barrier above the affected area and repair or replace as required with new materials matching the existing performance level;

7. Any damaged or removed exterior and interior finishes within or surrounding the affected area shall be restored to their original condition prior to the vehicle impact incident.

For complete details regarding the vehicle impact damage and repairs, please find structural repair drawings located in Appendix A of this report.

## **6.0 CONCLUSIONS AND CLOSING COMMENTS**

The impact damage to the building was localized and shall be repaired as noted in this report in conjunction with the repair drawings.

Our review of the building did not reveal any additional impact-related structural damage outside of that already stated in this report. Repair of the damaged area as noted in this report and repair drawings will reinstate the structural integrity of the building to its pre-loss condition.

Please be advised that a building permit is to be applied for through the Building Department at the City of Mississauga. The Contractor is responsible for notifying the City for all applicable inspections and shall supply all needed information and drawings required for any electrical and plumbing work if necessary. Should a General Review letter be requested by the City's Building Inspector, Arcon Forensic Engineers shall be notified by the Contractor in a timely manner so that we may review the structural portion of the repair prior to adding finish materials. Failure to do so will result in Arcon being unable to provide a Structural General Review letter to the Building Inspector.

The extent of damage and scope of repairs were based on visual observations and the extent of damage and assumed construction may differ slightly from that stated once the repair has begun. Therefore, please notify Arcon Forensic Engineers if damage beyond that stated on this report is discovered so we may verify existing conditions and make modifications as required.

Please note that we were retained in relation to the above-mentioned vehicle impact damage and were not retained to inspect the remainder of the building for compliance with building code or bylaw requirements. This report is solely for the repair of the impact-damaged portion of the structure and shall not be used for any other purpose or by third parties. The repairs shall be carried out in conformance with the latest edition of the Ontario Building Code and the Occupational Health and Safety Act.

The findings in this report are limited to our observations and conditions made visible at the time of our inspection, and to information disclosed to us by the interested parties. Our file contains photographs taken during our investigation in addition to those in this report and will be provided upon request.

We trust this report meets your needs at this time. If you have any questions, or require any further assistance on this matter, please feel free to contact us.

Thank you for the opportunity to be of service.

Prepared by:



Gustavo J. Estrada, A.Sc.T., M.A.A.T.O.



Michael Livingston, P.Eng



Engineering review by:



## APPENDIX A

### STRUCTURAL REPAIR DRAWINGS



**GENERAL NOTES:**

- Prior to beginning work, the contractor shall verify all dimensions and site conditions, check permit drawings, and coordinate all work with the building owner. Any discrepancies to be reported to Arcon Forensic Engineers.
- Ensure existing members are not loaded beyond their load-bearing capacities.
- Do not scale drawings.
- Ensure all new construction is level and plumb.
- All work to be conducted in accordance with the latest edition of the Ontario Building Code and Occupational Health and Safety Act and Regulations for Construction Projects and local Building By-Laws.
- All member dimensions are nominal size unless noted otherwise.
- All framing members to be continuous length. No splicing is allowed unless indicated.
- All dimensions are Imperial except as noted.
- All nailing and framing to conform to the requirements of the Ontario Building Code, unless otherwise noted.
- All existing building elements shall remain in serviceable condition.

**SPECIFIED LOADING:**

Floor:  
Dead: 10 psf  
Live: 40 psf

**TIMBER FLOOR FRAMING:**

- Floor joists shall be S-P-F No. 2 or better. Sizes shall be as noted on the drawing.
- Floor joists to have 2x2 cross-bracing or full-depth 2x blocking no greater than 6'-10" from each support and other rows of cross-bracing.
- Floor joists to have a minimum bearing of 1½".
- New floor joist(s) shall not be drilled or notched without the permission of Arcon Forensic Engineers.

**CONCRETE BLOCK MASONRY:**

- All masonry construction shall be in accordance with the requirements of the latest edition of CSA standard A371, "Masonry Construction for Buildings".
- Concrete block masonry units shall adhere to the requirements of CSA Standard A165 Series 14, "Concrete Block Masonry Units".
- Mortar and grout for concrete masonry shall adhere to the requirements of CSA Standard A179-14, "Mortar and Grout for Unit Masonry".
- Concrete block masonry units for foundation walls shall be hollow 10" wide Type I-25 (actual size - 240 mm wide x 390 mm long x 190 mm high) with a minimum compressive strength of 15 MPa over net area with concrete density of the block greater than 2000 kg/m<sup>3</sup>.
- Mortar for the concrete block masonry shall be Type S by property specification with a minimum compressive strength of 5 MPa at 7 days and 8.5 MPa at 28 days.
- All joints on masonry are to be tooled.
- Grout for filling the concrete block masonry shall be fine by property specification with a minimum compressive strength of 6 MPa at 7 days and 10 MPa at 28 days.
- Provide 8" minimum of 100% solid masonry units for the bearing of steel or concrete, or reinforced masonry lintels.

**WALL SHEATHING AND AIR BARRIER:**

- Existing wall sheathing to be minimum ¼" (match existing thickness) exterior grade plywood or OSB with end joints staggered and a gap of not less than 3/32" between sheets.
- Replace any damaged air barrier with a continuous air barrier such as Tyvek over exterior wall sheathing (match existing performance level).
- Maintain continuity of air barrier around openings and lap all joints at least 6". Tape all joints with Tuck tape.

**WINDOWS:**

- Exterior windows to meet the requirements of OBC Part 9.
- Window sizes and styles (match existing size, style and same performance level) to be confirmed by the Contractor with the Homeowner.
- All windows shall be lockable type.
- Caulking shall be done between window frames and exterior masonry.

**INTERIOR FINISHES:**

- All interior finishes, including trim, wall treatments, and floor surfaces, specified by others and to be confirmed by the Contractor with the Homeowner.

**EXTERIOR FINISHES:**

- All exterior finishes, including windows, trim, and wall surfaces, to be confirmed by the Contractor with the Homeowner.

**ELECTRICAL (AS OCCUR):**

- Location of electrical outlets, switches, fixtures, and specification by others.
- Contractor to obtain electrical permit from the Electrical Safety Authority (ESA) and shall call for all applicable inspections.

**PLUMBING (AS OCCUR):**

- Location of plumbing piping, drains, fixtures, and specification by others.
- Contractor to obtain plumbing permit as required from the Building Department.

**MECHANICAL SYSTEMS (AS OCCUR):**

- Mechanical duct work and specification, to be confirmed by the Contractor with the Homeowner.
- Contractor to obtain mechanical systems permit from the Building Department.

**FLASHING AND COUNTER-FLASHING, CAULKING:**

- All sheet metal flashing to be 0.013" thick galvanized steel and counter flashing of the same thickness, painted. Thickness for other materials shall be per OBC table 9.20.13.1.
- Provide flashing around window openings with 2" extension under air barrier, with a drip edge on the exterior.
- Provide non-hardening, exterior type, caulking around window openings, including sills to prevent entry of rain.

**TEMPORARY SHORING:**

- Contractor responsible to provide temporary shoring as required to support the existing undamaged floor joists prior to any repairs.

**SPECIAL NOTE:**

- These drawings are provided for building permit purposes for the building at the noted address and are null and void for any other property. If used for construction without the involvement of Arcon Forensic Engineers, it is done so at the user's risk, with Arcon assuming no liability for such use.
- These drawings are for the repair of the impact damage at the noted address. Arcon assumes no liability for the as-constructed state of the remainder of the building for compliance with the Ontario Building Code or By-Law requirements.
- Extent of damages and scope of repair were based on visual observations and the extent of damages and assumed construction may differ slightly from that stated once demolition and cleaning are completed. Therefore, please advise Arcon Forensic Engineers if damage beyond that shown on the plans is discovered so we may verify existing conditions and make modifications to the drawings as required.
- The Contractor is responsible for calling for all required city inspections. In addition, Arcon shall be notified in a timely manner for us to perform our structural inspection prior to covering the structure with finish materials.
- These drawings are to be read in conjunction with our written report dated APRIL 18, 2024.

| 0    | APRIL 18, 2024 | ISSUED FOR PERMIT |
|------|----------------|-------------------|
| Rev. | Date           | Description       |

THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE DESIGNER.

THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS AND REPORT ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

THIS DRAWING IS NOT TO BE SCALED.



**ARCON**  
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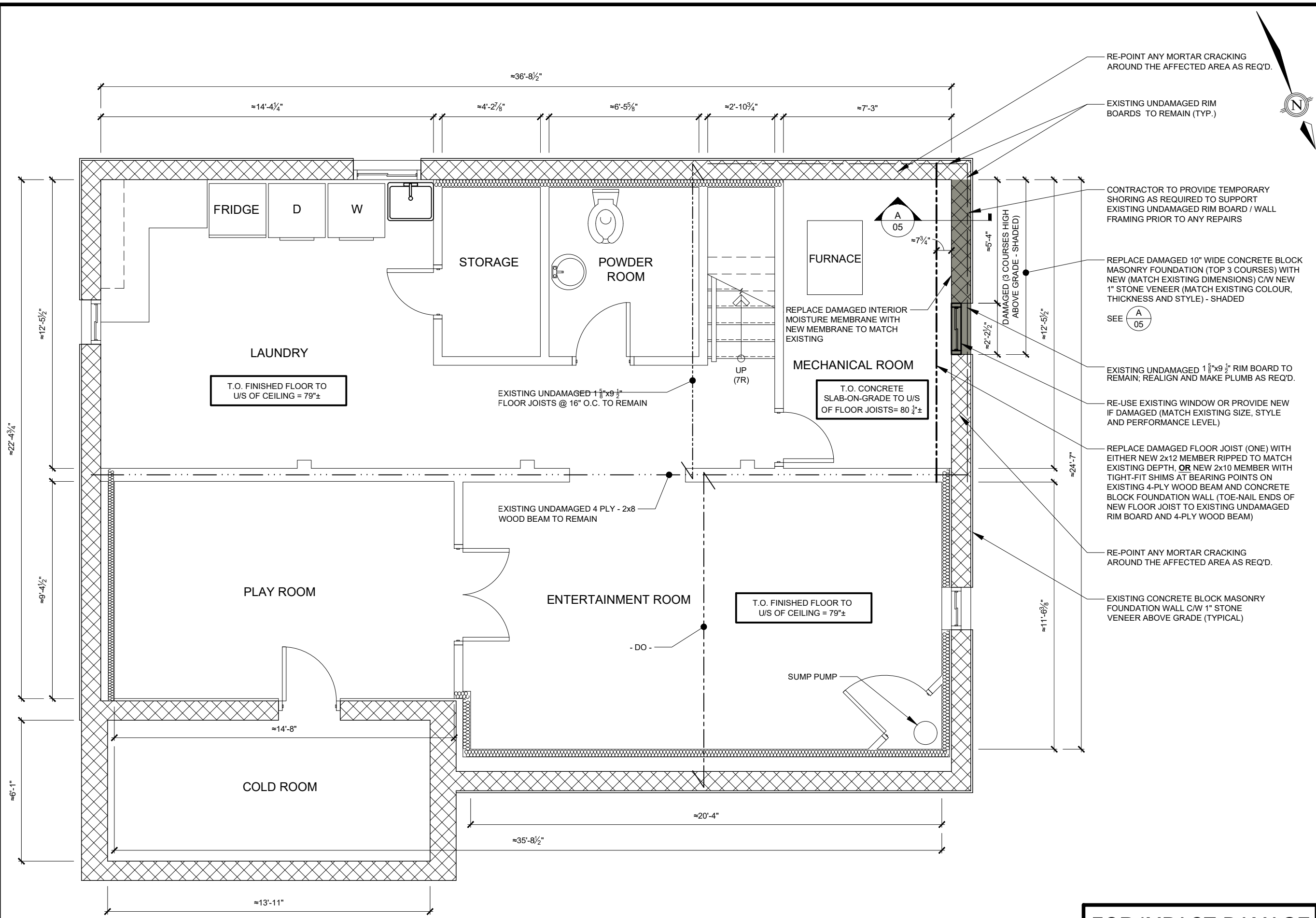
Drawing Title  
**STRUCTURAL REPAIRS TO IMPACT DAMAGED DWELLING**  
**18 JOHN STREET SOUTH**  
**MISSISSAUGA, ONTARIO**

**GENERAL NOTES**

|           |                |          |     |
|-----------|----------------|----------|-----|
| CHK. BY:  | MWL            | DWG. BY: | DHY |
| SCALE:    | N.T.S.         |          |     |
| DATE:     | APRIL 18, 2024 |          |     |
| FILE NO.: | AC40404        |          |     |
| DWG. NO.: | A02 (02 OF 05) |          |     |

**FOR IMPACT-DAMAGE REPAIR WORK ONLY**





RE-POINT ANY MORTAR CRACKING AROUND THE AFFECTED AREA AS REQ'D.

EXISTING UNDAMAGED RIM BOARDS TO REMAIN (TYP.)

CONTRACTOR TO PROVIDE TEMPORARY SHORING AS REQUIRED TO SUPPORT EXISTING UNDAMAGED RIM BOARD / WALL FRAMING PRIOR TO ANY REPAIRS

REPLACE DAMAGED 10" WIDE CONCRETE BLOCK MASONRY FOUNDATION (TOP 3 COURSES) WITH NEW (MATCH EXISTING DIMENSIONS) C/W NEW 1" STONE VENEER (MATCH EXISTING COLOUR, THICKNESS AND STYLE) - SHADED

SEE (A) 05

EXISTING UNDAMAGED 1 5/8"x9 1/2" RIM BOARD TO REMAIN; REALIGN AND MAKE PLUMB AS REQ'D.

RE-USE EXISTING WINDOW OR PROVIDE NEW IF DAMAGED (MATCH EXISTING SIZE, STYLE AND PERFORMANCE LEVEL)

REPLACE DAMAGED FLOOR JOIST (ONE) WITH EITHER NEW 2x12 MEMBER RIPPED TO MATCH EXISTING DEPTH, OR NEW 2x10 MEMBER WITH TIGHT-FIT SHIMS AT BEARING POINTS ON EXISTING 4-PLY WOOD BEAM AND CONCRETE BLOCK FOUNDATION WALL (TOE-NAIL ENDS OF NEW FLOOR JOIST TO EXISTING UNDAMAGED RIM BOARD AND 4-PLY WOOD BEAM)

RE-POINT ANY MORTAR CRACKING AROUND THE AFFECTED AREA AS REQ'D.

EXISTING CONCRETE BLOCK MASONRY FOUNDATION WALL C/W 1" STONE VENEER ABOVE GRADE (TYPICAL)

FRIDGE D W

LAUNDRY  
T.O. FINISHED FLOOR TO U/S OF CEILING = 79"±

STORAGE  
POWDER ROOM

FURNACE  
MECHANICAL ROOM  
T.O. CONCRETE SLAB-ON-GRADE TO U/S OF FLOOR JOISTS = 80 1/4"±

PLAY ROOM

ENTERTAINMENT ROOM  
- DO -

T.O. FINISHED FLOOR TO U/S OF CEILING = 79"±

SUMP PUMP

COLD ROOM

**FOR IMPACT-DAMAGE REPAIR WORK ONLY**

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| Rev. | Date           | Description       |

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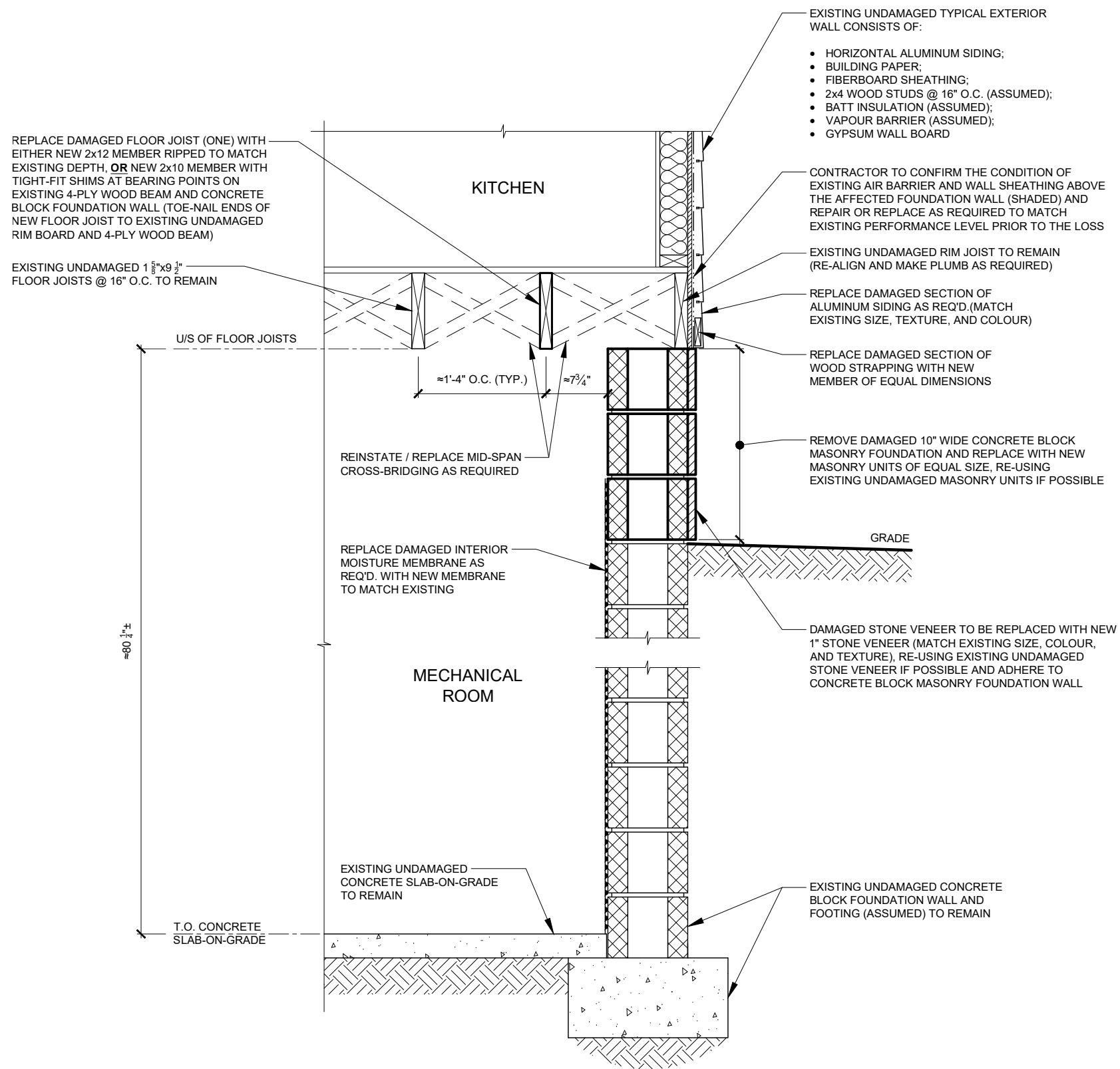


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Drawing Title  
**STRUCTURAL REPAIRS TO IMPACT DAMAGED DWELLING  
18 JOHN STREET SOUTH  
MISSISSAUGA, ONTARIO  
EXISTING BASEMENT / GROUND  
FLOOR - FRAMING PLAN**

|           |                |          |     |
|-----------|----------------|----------|-----|
| CHK. BY:  | MWL            | DWG. BY: | DHY |
| SCALE:    | 1/4"=1'-0"     |          |     |
| DATE:     | APRIL 18, 2024 |          |     |
| FILE NO.: | AC40404        |          |     |
| DWG. NO.: | S01 (03 OF 05) |          |     |





- EXISTING UNDAMAGED TYPICAL EXTERIOR WALL CONSISTS OF:
- HORIZONTAL ALUMINUM SIDING;
  - BUILDING PAPER;
  - FIBERBOARD SHEATHING;
  - 2x4 WOOD STUDS @ 16" O.C. (ASSUMED);
  - BATT INSULATION (ASSUMED);
  - VAPOUR BARRIER (ASSUMED);
  - GYPSUM WALL BOARD

CONTRACTOR TO CONFIRM THE CONDITION OF EXISTING AIR BARRIER AND WALL SHEATHING ABOVE THE AFFECTED FOUNDATION WALL (SHADED) AND REPAIR OR REPLACE AS REQUIRED TO MATCH EXISTING PERFORMANCE LEVEL PRIOR TO THE LOSS

EXISTING UNDAMAGED RIM JOIST TO REMAIN (RE-ALIGN AND MAKE PLUMB AS REQUIRED)

REPLACE DAMAGED SECTION OF ALUMINUM SIDING AS REQ'D. (MATCH EXISTING SIZE, TEXTURE, AND COLOUR)

REPLACE DAMAGED SECTION OF WOOD STRAPPING WITH NEW MEMBER OF EQUAL DIMENSIONS

REMOVE DAMAGED 10" WIDE CONCRETE BLOCK MASONRY FOUNDATION AND REPLACE WITH NEW MASONRY UNITS OF EQUAL SIZE, RE-USING EXISTING UNDAMAGED MASONRY UNITS IF POSSIBLE

DAMAGED STONE VENEER TO BE REPLACED WITH NEW 1" STONE VENEER (MATCH EXISTING SIZE, COLOUR, AND TEXTURE), RE-USING EXISTING UNDAMAGED STONE VENEER IF POSSIBLE AND ADHERE TO CONCRETE BLOCK MASONRY FOUNDATION WALL

EXISTING UNDAMAGED CONCRETE BLOCK FOUNDATION WALL AND FOOTING (ASSUMED) TO REMAIN

EXISTING UNDAMAGED CONCRETE SLAB-ON-GRADE TO REMAIN

REPLACE DAMAGED INTERIOR MOISTURE MEMBRANE AS REQ'D. WITH NEW MEMBRANE TO MATCH EXISTING

REINSTATE / REPLACE MID-SPAN CROSS-BRIDGING AS REQUIRED

REPLACE DAMAGED FLOOR JOIST (ONE) WITH EITHER NEW 2x12 MEMBER RIPPED TO MATCH EXISTING DEPTH, OR NEW 2x10 MEMBER WITH TIGHT-FIT SHIMS AT BEARING POINTS ON EXISTING 4-PLY WOOD BEAM AND CONCRETE BLOCK FOUNDATION WALL (TOE-NAIL ENDS OF NEW FLOOR JOIST TO EXISTING UNDAMAGED RIM BOARD AND 4-PLY WOOD BEAM)

EXISTING UNDAMAGED 1 1/8"x9 1/2" FLOOR JOISTS @ 16" O.C. TO REMAIN

**A SECTION**  
Scale: 3/4"=1'-0"

**FOR IMPACT-DAMAGE REPAIR WORK ONLY**

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|--------------------------|--------------|
| <b>SECTION</b>           |              |
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| SCALE: AS SHOWN          |              |
| DATE: APRIL 18, 2024     |              |
| FILE NO.: AC40404        |              |
| DWG. NO.: S03 (05 OF 05) |              |