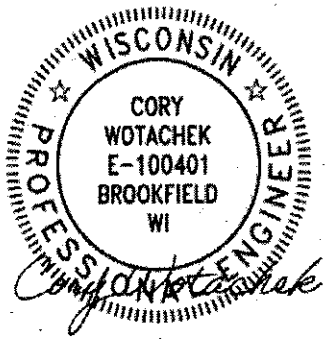
VM ENGINEERING STRUCTURAL INSPECTION REPORT

DATE: 7/30/26

CLIENT: Justin Hoffmann
414-350-3596
jjhoffmannre@gmail.com

PROPERTY ADDRESS: 2917 N Maryland Ave, Milwaukee, WI



Cory Wotachek, PE E-100401
(262) 282-8566
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SUMMARY AND RECOMMENDATIONS

The purpose of this inspection was to assess the foundation, the first floor main support beam, and the east front porch framing for structural stability and dampness/moisture. This property is a three story multi-family dwelling constructed in the 1900s with brick foundation walls and a concrete slab basement floor. A self-leveling laser was used to measure walls and structural members for lateral deviations from plumb vertical and elevation deviations from horizontal.

The foundation assessment was conducted following the Best Management Standards for Foundation Repair as outlined by the Wisconsin Association of Foundation Repair Professionals. Additionally, standards adopted by the Wisconsin Uniform Building Code, Chapter VI Foundation Repair & Damp Proofing were adhered to. The framing analysis was completed per the Wisconsin Administrative Code SPS 320-325 and IBC 2021.

Repair Note 1 - North Foundation Wall West Section and West Bump-Out Wall (See S1.0 for location)

The west 19' 2-1/2" of the north foundation wall, at the basement stairway, was measured with 1" of inward tipping and 2" of inward displacement. The brick below the stairway was found failed. The 9' 10" west wall of the bump-out was measured with 1-1/2" of inward tipping and was found with step cracking through its length, as noted on S1.0.

There is not a reliable method for reinforcing brick foundation walls with this magnitude of lateral movement and section loss.

It is recommended to rebuild these two foundation wall sections with new concrete footings and masonry block per the Wisconsin Administrative Code SPS 320-325 Standards (Uniform Dwelling Code). New foundation walls are required by SPS 320-325 to have drain tile that discharges to a sump crock and pump. The upper wood framing and the basement stairway will require shoring and support, responsible by the selected contractor.

Repair Note 2 - South Foundation Wall, North Foundation Wall East Section, Remaining West Bump-Out Walls and West Foundation Wall South Section (See S1.0 for location)

The full 52' 10" length of the south foundation wall was measured with inward tipping ranging from 3/4" at the east end to 1-1/2" toward the west end, along with up to 1" of inward displacement. The east 33' 7-1/2" of the north foundation wall was measured plumb at the northeast corner and with up to 1/2" of inward tipping and 1" of inward displacement through the remainder of its length. The 7' 6" north and south walls of the west bump-out were measured with 1/2" and 1" of inward tipping respectively, and the 7' 6" section of the west foundation wall south of the bump-out was measured with up to 1/2" of inward tipping and 1/4" of inward displacement, all as noted on S1.0.

Inward movement has occurred along these wall sections since original construction. Where inward deflection of a brick foundation wall reaches or exceeds 1", the Wisconsin Uniform Building Code, Chapter VI calls for site specific engineering; this report and the attached drawings serve as that engineering. No base shear was noted along these sections and the brick was found to remain intact, so these wall sections are able to be stabilized in place.

It is recommended to reinforce these foundation wall sections with steel braces at a maximum spacing of 36" on center per the Wisconsin Uniform Building Code, Chapter VI, without excavation.

SUMMARY AND RECOMMENDATIONS

Repair Note 3 - South Foundation Wall, West 12' 6" Section (See S1.0 for location)

The 12' 6" section of the south foundation wall toward the west end, where the largest inward tipping along that wall was measured, was found with window openings falling within the length to be reinforced as noted on S1.0.

It is recommended to reinforce this section with steel braces at a maximum spacing of 16" on center per the Wisconsin Uniform Building Code, Chapter VI, without excavation, and to block up the existing window openings within this section with masonry so that continuous bracing is able to be achieved. This section falls within the Repair Note 2 reinforcing length shown on S1.0; the closer brace spacing and the blocking of the openings govern within the 12' 6" section.

Wall Note 1 - East Foundation Wall and Remaining West Foundation Wall Length (See S1.0 for location)

The east foundation wall and the remaining length of the west foundation wall at and north of the bump-out were measured plumb with up to 1/4" of inward displacement. Isolated step cracking was noted along the west wall as shown on S1.0.

The measurements along these wall sections do not indicate concerning movement since original construction, and no reinforcing is found warranted for these sections.

It is recommended to monitor these wall sections. If new wall cracks form, existing cracks widen, or measurements increase, then reinforcing should be re-evaluated.

FOUNDATION ELEVATIONS AND SETTLEMENT

Elevation measurements were gathered from the underside of the floor joists adjacent to the foundation walls and along the main beam, with the reference datum set at the southeast corner of the foundation. The perimeter measurements ranged from the datum to -3/4" around the full foundation as noted with the blue callouts on S1.0. The interior main beam line measured from +1/2" where the beam bears on the east foundation wall down to -3-1/2" at its low point, for a total differential of roughly 4".

The elevation measurements gathered did not indicate concerning settlement of the foundation walls. The differential is confined to the interior support line rather than the perimeter, producing a floor profile that drops toward the center of the building. This is correlating with the condition of the main beam columns described below.

MAIN BEAM, COLUMNS AND FOOTINGS

Subject 1: Main Beam Columns and Footings (See S1.0 and S1.1)

The 6x10 timber main beam runs east to west the length of the basement with two beam splices, supported by a combination of original timber columns and steel columns added later, as noted on S1.0. The original timber columns were found placed directly on dirt with no footings, and the bottoms of the columns were found rotted. (2) steel columns were installed directly on the slab lifting up on the main beam above the timber columns. Where visible and accessible the timber beam itself did not display signs of deterioration or damage.

Timber columns set directly on soil without a footing draw moisture and rot at the base, allowing the beam and the interior floor framing to settle over the early decades of the dwelling. This accounts for the interior elevation drop measured along the beam.

It is recommended to replace the existing timber columns with new steel building columns supported on new concrete footing pads at the locations shown on S1.1, and to re-establish positive bearing between the main beam and the columns and between the floor joists and the main beam. See S1.1 for the column and footing details and plan notes. The contractor is responsible for temporary shoring of the existing structure and construction methodology.

FIRST FLOOR FRAMING AND EAST FRONT PORCH

Subject 2: Cantilevered First Floor Framing at the East End (See S1.0 and S1.1)

The east end of the building has two areas of cantilevered first floor joists that support bump outs with living area above, the north bump out and the southern section that is integrated within the front porch framing, as noted on S1.0. The first floor framing is 2x10 joists at 16" on center. The cantilevered joists supporting the north bump out were found not to extend far enough back into the basement, and a hump has developed in the first floor above. From what was visible there were no structural cracks in the floor joists or the floor system.

SUMMARY AND RECOMMENDATIONS

Cantilevered floor joists are required to extend back into the structure roughly two thirds of their length with no more than one third projecting beyond the support. With an inadequate backspan the cantilever rotates about its bearing point and lifts the interior end of the joist, which is what produces the humped floor above. This is an older style of construction that commonly creates this cosmetic humped floor condition, and it is not by itself an indication of structural instability.

It is recommended to reinforce the cantilevered joists by sistering new members back into the basement to the backspan shown on S1.1, with uplift restraints at each end. See S1.1 for the reinforcing details. Bringing this framing up to current code standards will also reduce the hump in the floor above. Several sections of the interior and exterior finishes will need to be removed to fully expose the cantilevered framing, and site specific engineering is needed for the final details once that framing is exposed.

Subject 3: East Front Porch and Porch Column Settlement (See S1.0, S1.1 and S1.2)

The porch foundation was concealed at the time of the inspection and was not able to be assessed. The east end of the porch was found settled, with cracking through the porch column finish and deteriorated masonry and debris visible below the porch deck.

Settlement of the porch columns indicates the porch supports are not bearing on stable soil. Because the porch framing is integrated with the southern cantilevered first floor framing, settlement at the porch corner draws down framing that also carries a portion of the first floor, so the porch settlement and the floor condition above are related rather than independent conditions.

Two options are provided for correcting the porch supports. Option 1 is to rebuild the east end of the porch with a new foundation as shown on S1.1. Option 2 is to rebuild the corner supports with either a Sonotube pier or a masonry column and footing as shown on S1.2. The existing deck framing must be exposed in order to verify either design, and the contractor is responsible for temporary shoring of the existing structure.

Subject 4: Floor Leveling

The first floor was found out of level consistent with the elevation measurements described above.

Elevating and re-leveling the structure is not recommended. The floor framing has been in its current position for many decades. Raising the floor joists and main beam will create cracking in the plaster and finishes on the upper levels.

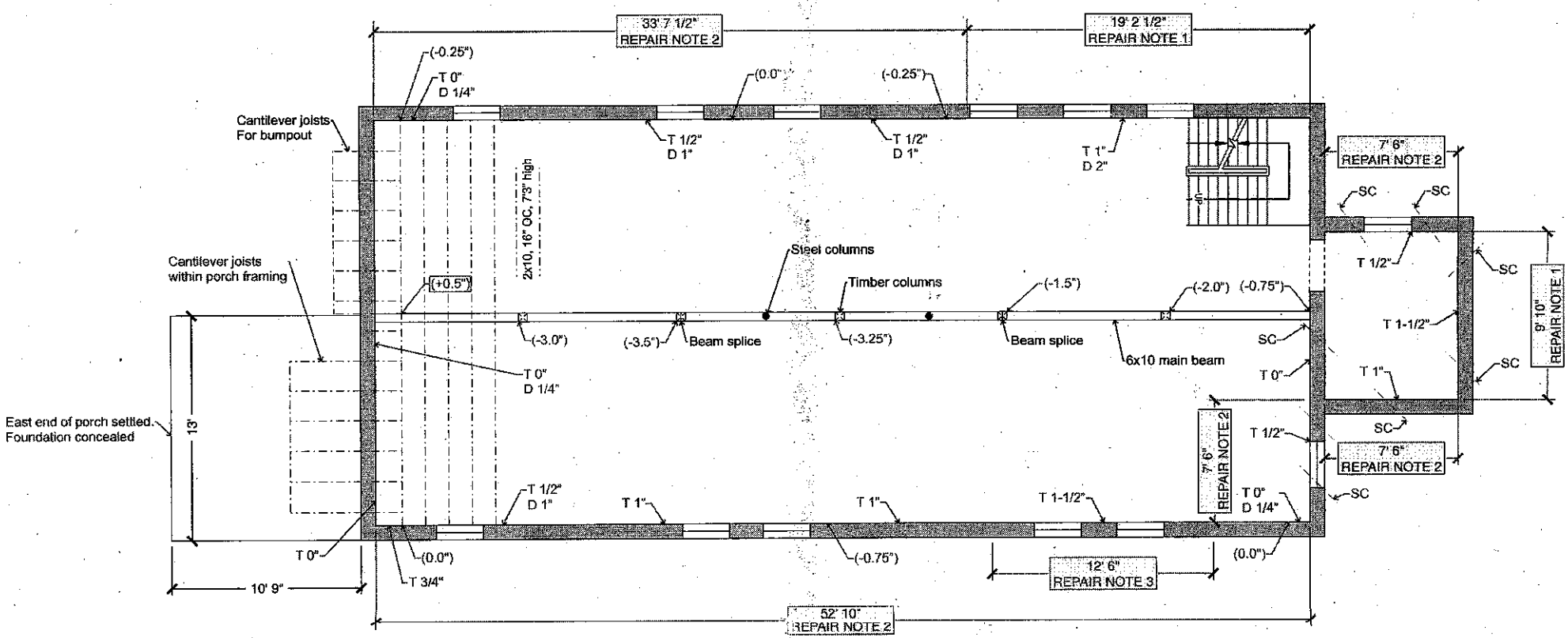
It is recommended to stabilize the structure in place with the column, footing and framing repairs described above. Any leveling of the floors should be completed above the subfloor, and it is recommended to contact a flooring professional for options.

BASEMENT MOISTURE AND EXTERIOR DAMP PROOFING

Moisture, discoloration and water staining were found present along the lower brick courses of the basement walls as noted on S1.0. Due to the age and brick foundation construction, it is common for dampness and moisture to be present in the foundation walls, and it can be difficult to fully eliminate water intrusion into the basement. To help maintain a drier basement it is recommended to utilize a dehumidifier.

To reduce the total water volume entering the soils adjacent to the foundation, it is recommended to maintain a pitch of 1/2" per foot away from the foundation for the exterior grading and landscaping. All sidewalks, driveways and patios should be mud jacked or replaced as needed to maintain the proper pitch away from the foundation. All roof gutters should be clean and functioning as intended. The downspouts should be extended a minimum of 5 ft away from the foundation or past landscaping gardens. In areas of the yard that are relatively flat, downspout extensions should remain long enough to discharge at a point where water will naturally flow away from the dwelling, ideally toward a slope, drain, or low area that can handle excess water without causing pooling or damage to the foundation.

This report is composed of my professional opinions to a reasonable probability based upon my training and experience as an engineer. VM Engineering LTD reserves the right to change our opinions based on new information that may be discovered. Please contact me with any questions or if you would like to discuss this report.



KEY:

D - Measurement of wall displacement	VC - Vertical crack
T - Measurement of wall tipping	SC - Step crack
(X") - Differential elevation measurement	H x - Horizontal crack at course x from top of wall
WS - Water stains	BS - Measurement of base shear
EFF - Efflorescence	SP - Sump pump

Age:	Type:	Stories:	FND Walls:
1900's	Multi	Three	Brick
Moisture present?	**Water stains or discolorations?**		**Floor:**
Yes	Yes		Slab

Notes: Inspection on foundation, main beam, and east front porch

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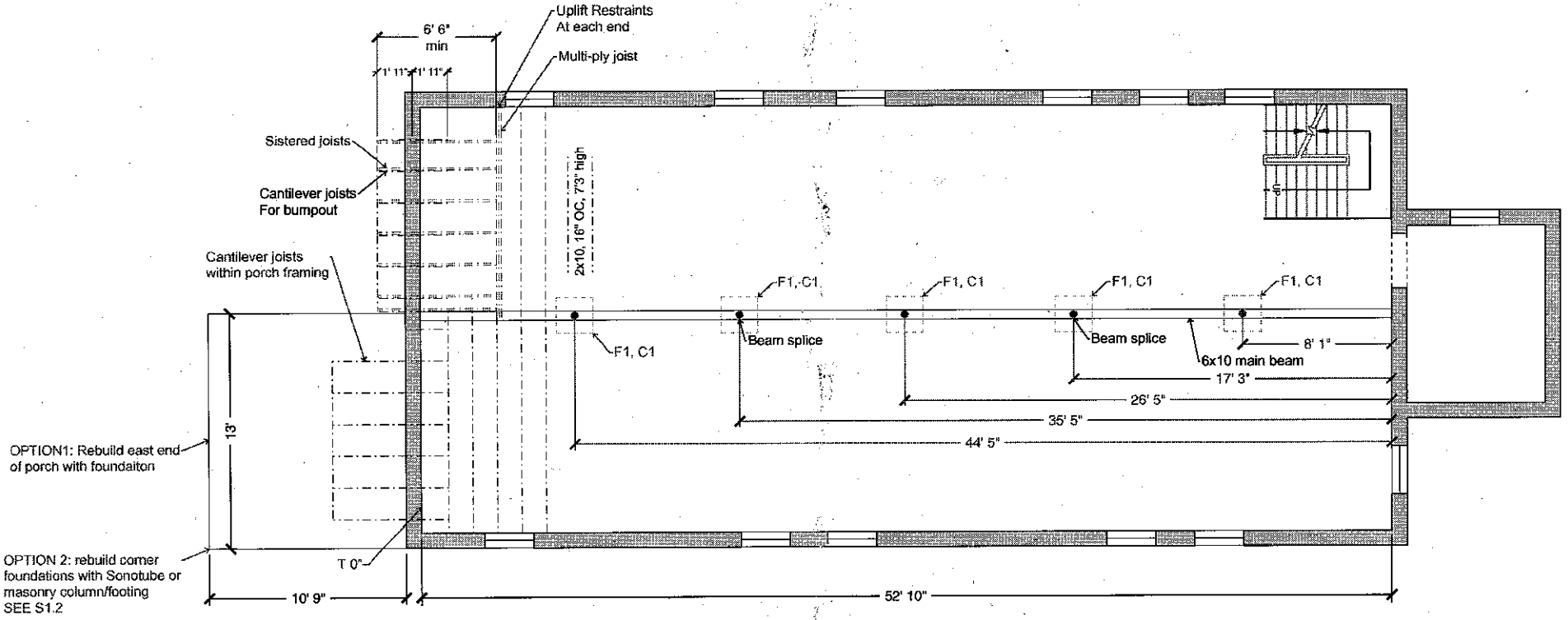
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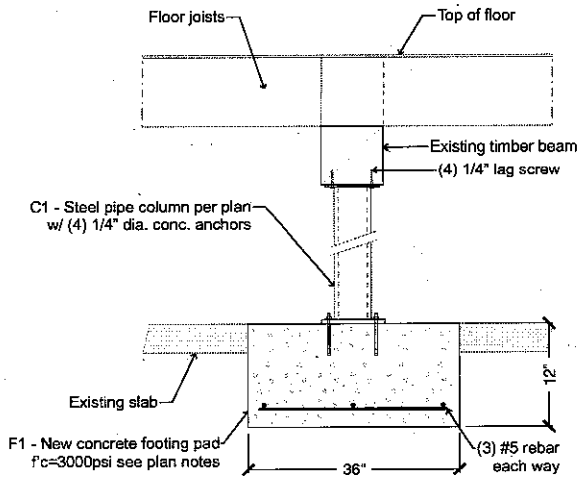
Address: 2917 N Maryland Ave, Milwaukee

Date:	Scale:	Creator:
7/30/26	N.T.S.	CLW

FOUNDATION DOCUMENTATION PLAN

DRAWING No. S1.0





COLUMN/BEAM SECTION

FRAMING NOTES:

C1 - Steel building column min. 3-1/2" dia. SCH40 or load rated 16,000#s

F1 - Concrete footing pad 36"x36"x12", w/ (3) #5 rebar each way, f'c=3000psi

Notes:
Construction per WI UDC framing guidelines.

Fastener connections per WI UDC or manufacturer specs.

Wood framing to be DFL, SYP OR SPF #1/2 or better unless noted.
See member schedule for additional notes.

Contractor responsible for temporary shoring of the existing structure.

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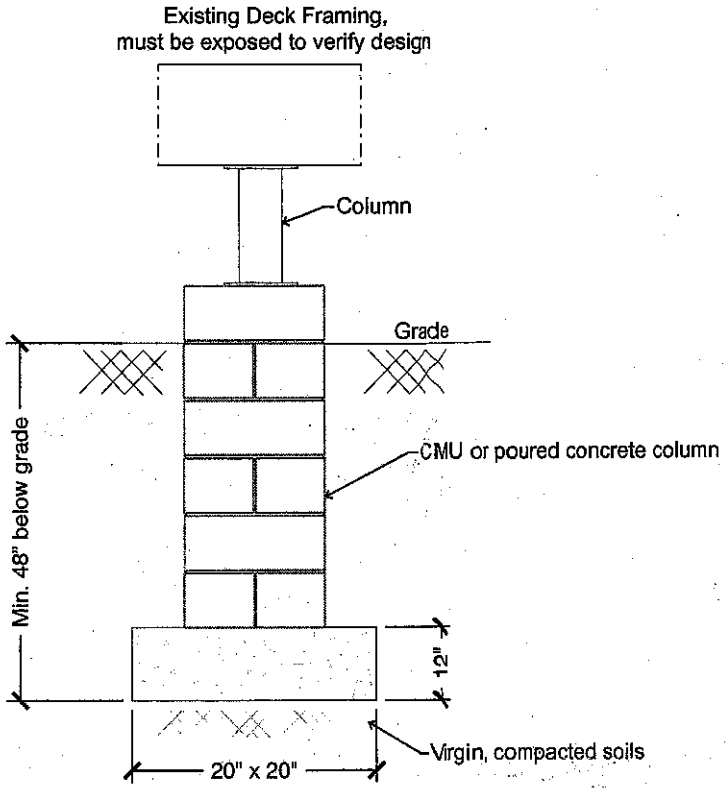
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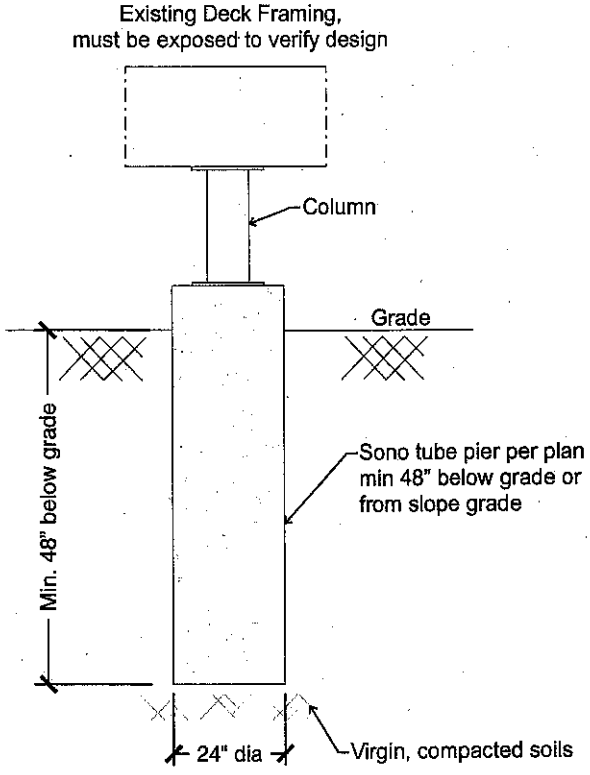
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FLOOR REINFORCEMENT DETAILS

DRAWING No. S1.1



PORCH
FOOTING AND COLUMN OPTION



PORCH
SONOTUBE OPTION

Notes:
Construction per WI UDC framing guidelines.

Fastener connections per WI UDC or manufacturer specs.

Wood framing to be DFL, SYP OR SPF #1/2 or better unless noted. See member schedule for additional notes.

Contractor responsible for temporary shoring of the existing structure.

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Date:	Scale:	Creator:	DRAWING No.
7/30/26	N.T.S.	CLW	S1.2

PORCH CORNER SUPPORT OPTIONS

VM | ENGINEERING

SITE INSPECTION TERMS AND CONDITIONS

This agreement is between VM Engineering Ltd. ("VME") and the Client. By accepting the site visit and inspection, the Client agrees to the following terms and conditions.

1. Scope of Services
For the fee stated herein, the following will be provided to the Client: a single site visit, a limited visual inspection of the foundation of the home or building identified above, a report with measurements, observations, and recommendations, and a limited visual inspection of exposed framing or relevant structural members. Any additional inspection scope or charges will require prior written agreement between VME and the Client.

2. Extent of Visual Inspection
The inspection is limited to a basic visual assessment of portions of the foundation system that are visible and accessible on the day of the inspection. The inspection is restricted to areas of the foundation visible without moving or removing obstructions. No excavation, removal of finishes, or other obstructions will be conducted during the inspection. VME cannot and does not render any opinion regarding the condition of portions of the foundation system that are not reasonably visible during the inspection.

3. Limitations of the Inspection
VME is not responsible for identifying any defects or problems that are not visible during the inspection. VME will not be liable for any foundation issues that are hidden from view or cannot be detected through a reasonable visual inspection. VME does not provide any warranty or guarantee on the condition of the foundation or its performance over time.

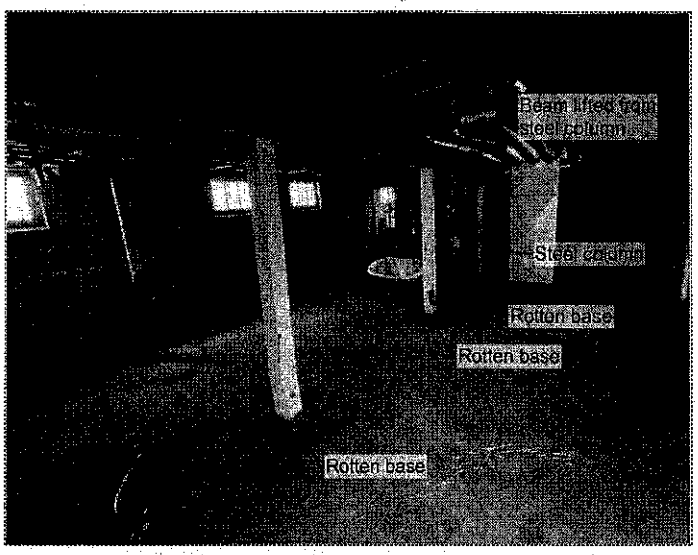
4. Exclusions from the Inspection
The following are not included in this inspection and report: determination of compliance with original construction plans, specifications, or building codes; material testing or determination of material properties; soil borings, soil testing, or geotechnical analysis. VME cannot render opinions regarding soil properties or stability; such assessments must be conducted by a geotechnical engineer. Detection of hazardous materials, including asbestos, radon gas, mold, insects, or pests. Warranties or guarantees related to foundation performance. Advice regarding property purchase, sale, or value.

5. Disclaimer of Future Conditions
The Client understands that foundation problems may develop or worsen over time, and such changes cannot be predicted. VME does not guarantee the foundation's condition or that it will not deteriorate further after the inspection. Repair recommendations are based solely on the professional opinion of VME from the limited visual inspection performed and are not a guarantee that repairs will fully resolve all issues.

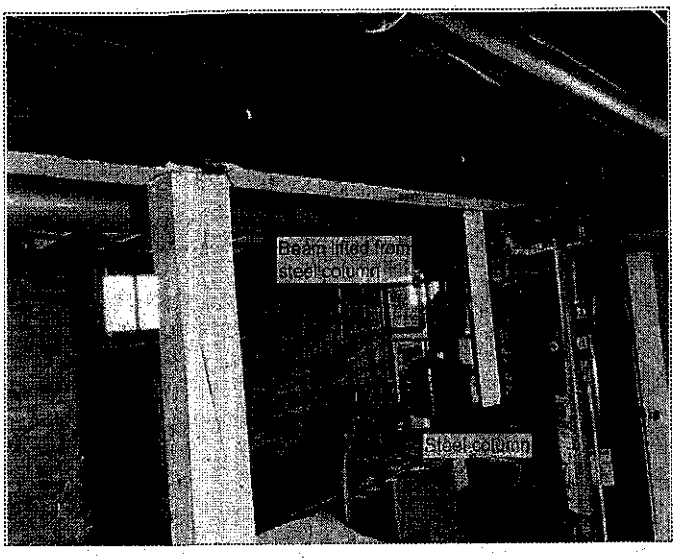
6. Agreement and Client Acknowledgment
By accepting the site visit and inspection, the Client acknowledges that they have read, understood, and agreed to these terms and conditions. The Client further acknowledges that this agreement and any subsequent report are not a warranty or guarantee of the foundation's condition or future performance.

7. Notice of Lien Rights
Pursuant to Wis. Stat. § 779.02, VM Engineering, hereby notifies you of our lien rights for engineering services. If unpaid, we may file a construction lien to secure payment, per Wisconsin law. Contact us for questions and retain this notice for your records.

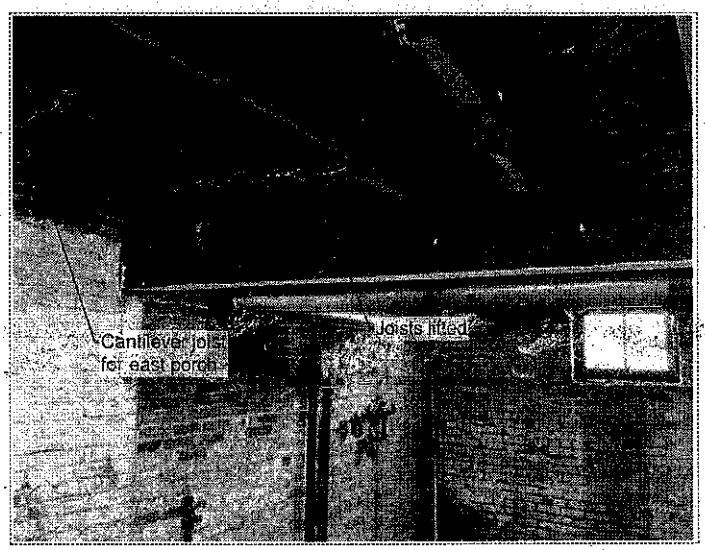
Client Acceptance
Acceptance of these terms occurs by signing this document, returning a confirmation email, accepting a meeting invite with these terms attached and authorizing the inspection, or otherwise proceeding with the inspection after receiving these terms.



Main beam east section



Lifted main beam east section



Joists lifted off main beam



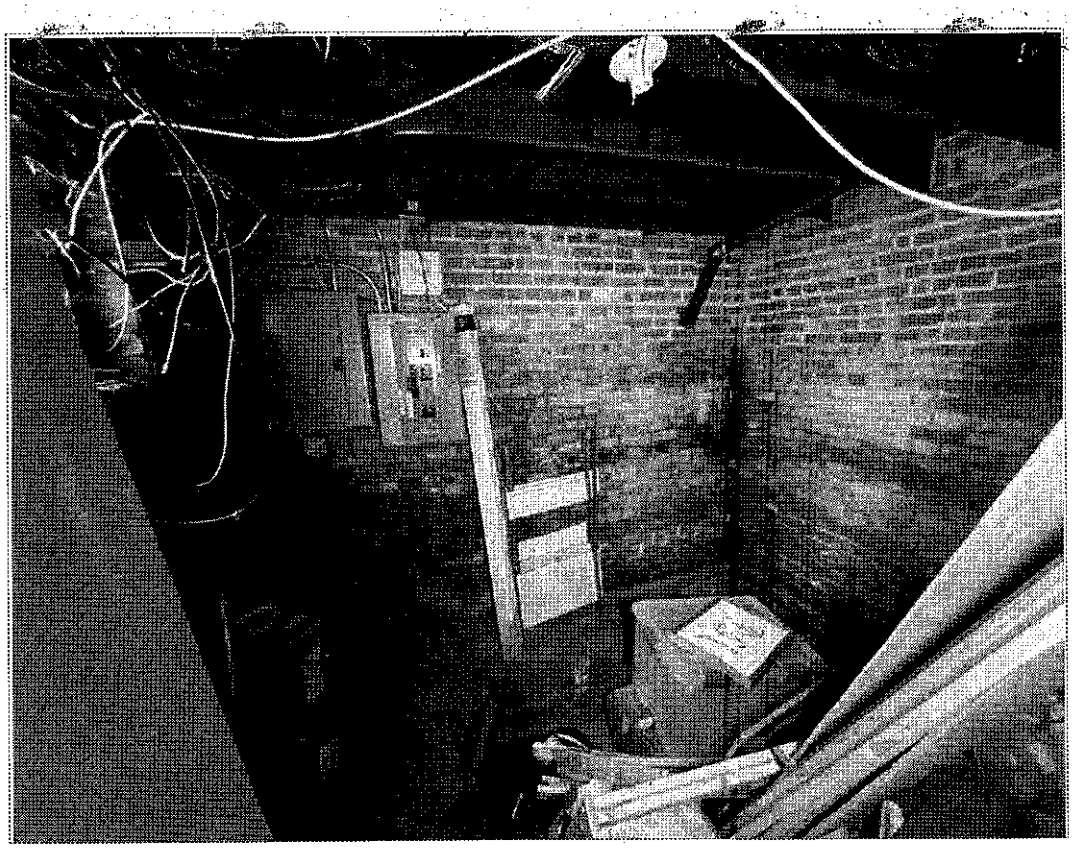
Column bases rotten

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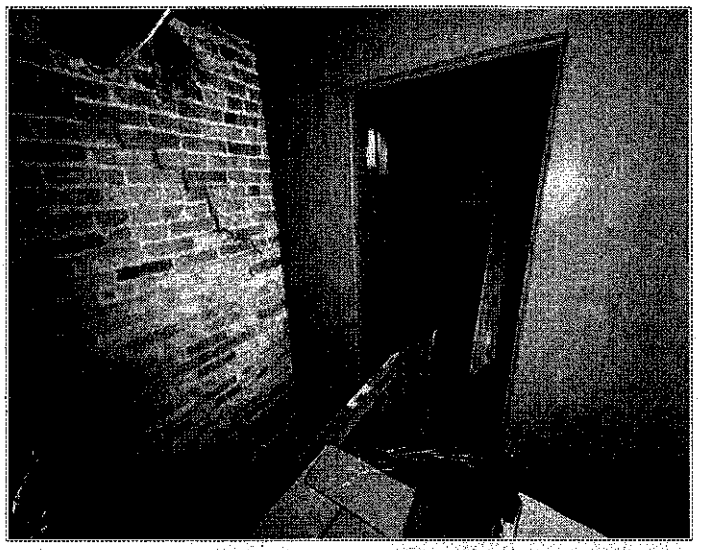
Failed section under stairs, southwest interior



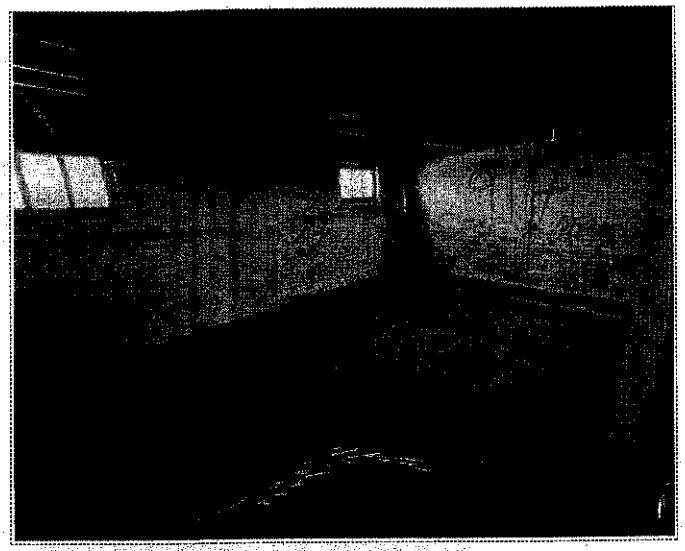
West Section

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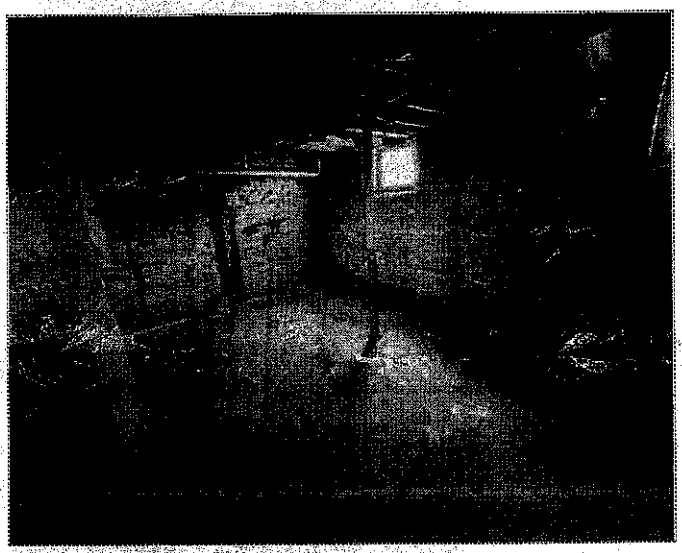
Northwest Interior



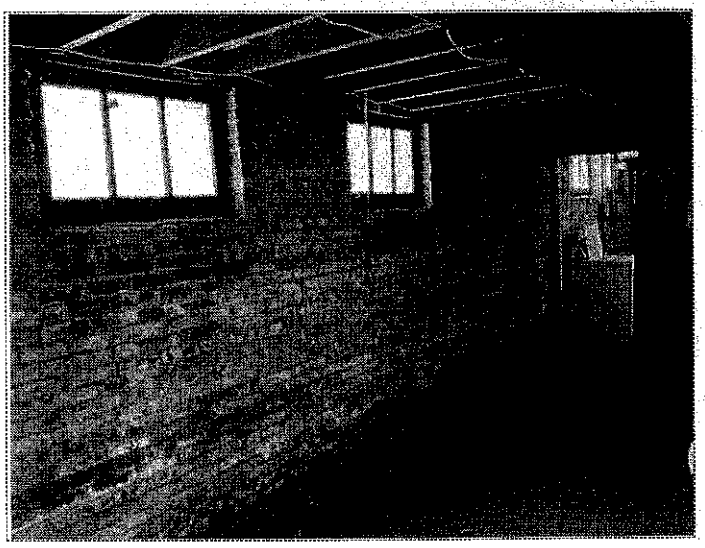
Northeast Interior



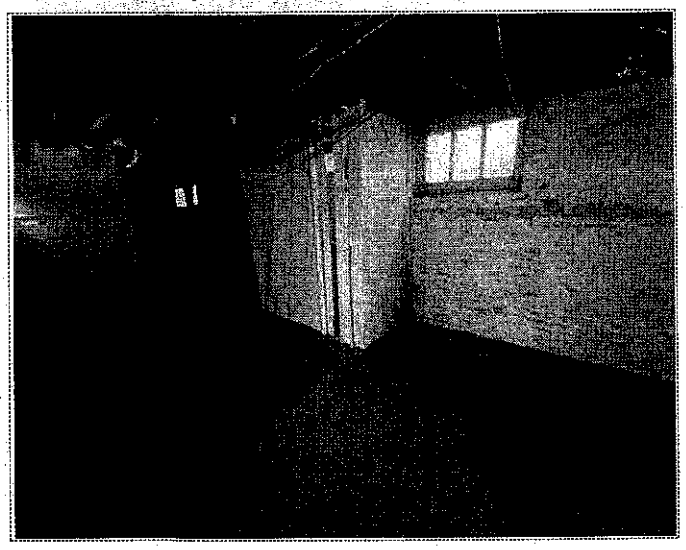
Southwest Interior



Southeast Interior



South Interior



North Interior

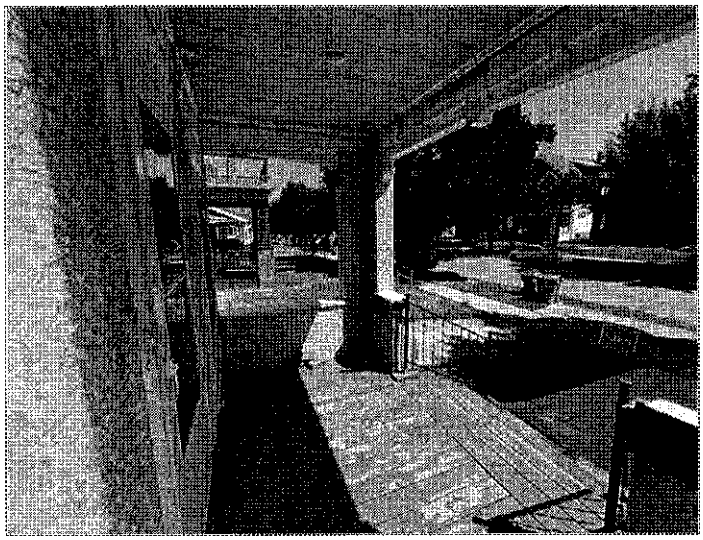
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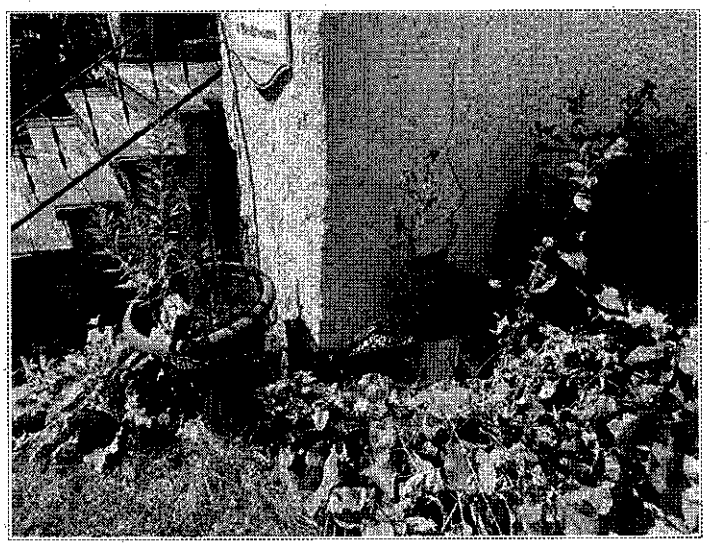
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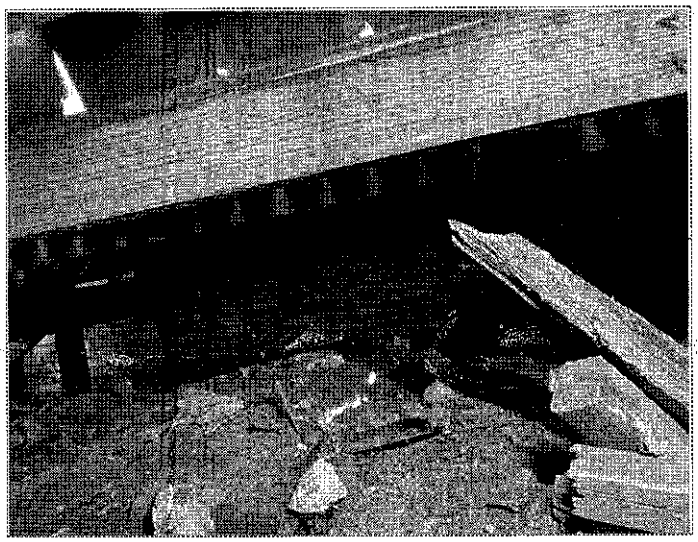
Front porch



Northeast Exterior



Front porch

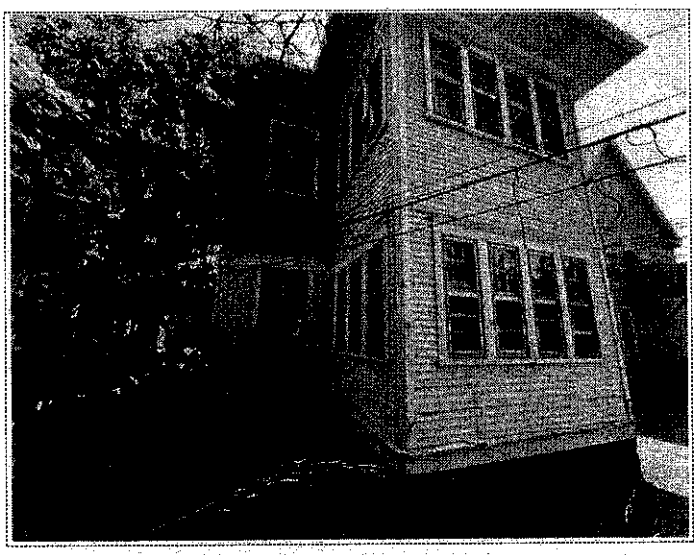


Front porch

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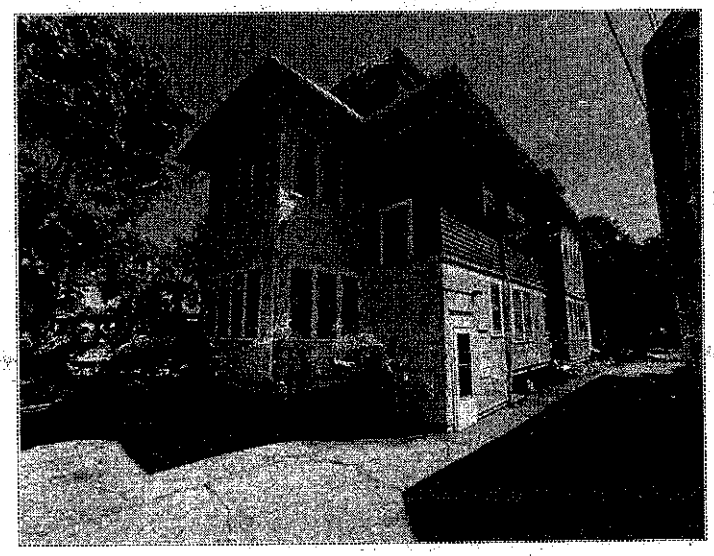
P2



Northwest Exterior



Northeast Exterior



Southwest Exterior



Southeast Exterior

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