



**Proposed Demolition of Existing Concrete
Structure Report
1005 W. Third Street
Dayton, Ohio**

Prepared for:

**City of Dayton, Ohio
Office of Economic Development**

Submitted by:

SHELL + MEYER ASSOCIATES, INC.

October 12, 2007

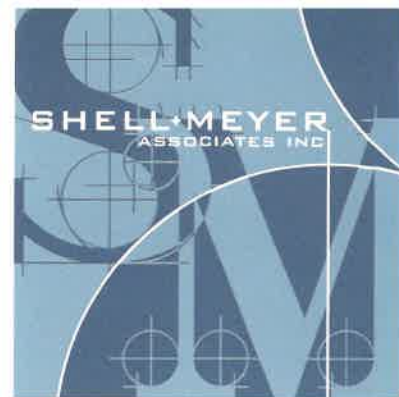
SMA# 07.400.333

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Attachments:

CD of Photographs
Sketch of Potential Floor
Reinforcing



October 12, 2007

Ms. Sheelah J. Moyer
Senior Development Specialist
City of Dayton
Office of Economic Development
101 W. Third Street
Dayton, Ohio 45401

Ref: Structural Evaluation Report of Proposed
Demolition of existing concrete structures
Gem City Ice Cream Building
1005 West Third Street
Dayton, Ohio

SMA # 07.400.333 / City of Dayton # CT 7-14550

Dear Ms. Moyer,

In response to your request and our agreement, Shell and Meyer Associates, Inc. has performed an evaluation of the proposal to demolish the existing concrete structures circa 1900 and circa 1914, while retaining the original building structure.

This report identifies the issues involved with the demolition and provides alternatives for your consideration.

Introduction

Shell and Meyer Associates, Inc. entered into a professional services agreement on July 27, 2007.

The purpose of the agreement is to provide an assessment of demolishing the concrete structures circa 1900 and circa 1914 while leaving all, or nearly all, of the original Wright Brothers Building intact. For convenience, I have included our original observations.

Gem City Ice Cream

Observations

OBSERVATION-ORIGINAL BUILDING

The original structure is a two (2) story wood framed building with both interior and exterior brick masonry bearing walls. The estimated date of construction is mid to late 1800's.

The floor framing consists of rough sawn 2x12 floor joists spaced at 16" on center. The joist span is approximately 20'-0" from the exterior masonry wall to an interior centrally located masonry bearing wall.

The joists supporting the ground level floor are damp and are showing signs of deterioration. It was also observed that some joist and sub-floor areas have already failed. The floor joists have been shored using a system of steel jack post and beams. The shoring is quite rusty indicating high moisture content in the basement.

The basement foundation walls appear to be rubble stone. The walls were generally damp indicating moisture penetration is ongoing. It was also observed that the northeast and southeast corners were very damp indicating the location of the main source of moisture. Along with moisture penetration, the mortar has deteriorated.

The second floor level framing and roof framing were generally not visible. However, I was able to observe that the roof has a downward slope toward the north, while the ceiling is level. This indicates that there are separate framing levels. The east wall also has brick vents located just below the roof line. These vents provide ventilation into the space between ceiling joist and roof rafters. Evaluation of the roof framing is not possible until the ceiling is removed. Given the deterioration that is visible, I would expect to see roof framing and ceiling joists that will require replacement. This will likely include replacing some part of the roof sheathing. Specifically, the northeast corner of the roof is not water tight. Water ponding was observed in this area, along with moisture entering the east wall resulting in deterioration of both brick and mortar. The second floor framing, specifically near the northeast corner, may require reinforcing and/or replacement. The condition and extent of any damage can be evaluated after the 1st floor ceiling material has been removed. The exterior walls in the east and south elevations show signs of moderate to severe weathering. Again the northeast corner seems to be the main source of water intrusion into the building. The grass area adjacent to the east wall of the building does not have sufficient slope away from the building. Ponded water was observed along this wall. The grade along the east wall appears to be at or above the bearing level of the floor joist. This condition provides a pathway for any moisture intrusion to enter the ends of the floor joist. The condition commonly referred to as dry rot results from alternating wet and dry conditions. The south wall appears to have been added later, providing a uniform facade to the front of the building. The facade has weathered mortar joints.

The west and south walls of the original building are visible from the interior only. The west wall appears to have bowed outward away from the floor framing. The 2nd floor joists

and the roof girders have less than adequate bearing and will need additional support framing installed.

OBSERVATION – 1st ADDITION

The first addition is a 2 story concrete structure located to the north of the original building. It is believed to have a construction date of early 1900's. In general the structure consists of 12"x 12" and 12"x16" concrete columns supporting a slab and beam framing system for both the 2nd floor and roof levels. The floor structure and the roof structure shows signs of deterioration with spalling concrete observed on beams, columns and slab areas. It should be noted that some areas remain covered with an insulating material and may also be deteriorated. A non-structural concrete topping has been placed on the 2nd level.

The east wall has full length window openings with the sills located at 5' to 6' above the floor. There is also one overhead door opening near the north end. The 1st level has 3 large dock door openings, along with various window and man door openings. None of the openings are secure from the elements.

The existing 1st floor slab on grade construction is extremely uneven, with sloping floors, floor drains and curbs. The north end has a loading dock area. The floor in this section is approximately 2'-0" below the first floor.

The second level of the north wall is the same as the east wall; full length windows with the sills at 5' to 6' above the floor level. The first level has a partial height masonry and stucco wall. The foundation for this wall has failed, as evidenced by the stair step cracking from east to west. None of these openings are secure from the elements.

The roof of this addition slopes from west to east. The four leader boxes and downspouts are missing along the east wall. The parapet at the southeast corner appears to be out of line with the remaining portion of the building and will need to have new anchors installed.

OBSERVATION – 2nd ADDITION

The 2nd addition was built west of the original building and the first addition. According to the City of Dayton's plan data records, this addition was built in 1914.

The construction of this building is similar to the 1st addition, consisting of a 2 story concrete frame structure. Columns are 16x16 and 18x18 supporting a concrete slab and beam structure. The floor and roof structure has concrete spalling from the columns, beams and slab elements. Some interior areas remain covered with insulation material and may also be deteriorated. A non-structural concrete topping has been placed on the 2nd level.

The roof structure also supports two penthouses. These penthouses have serious spalling of concrete along with deteriorated roof and walls. I also noted that the existing roof membrane is not secured along west wall.

Both levels of the west wall, like the east wall of the first addition, have full length window openings with sill heights 5' to 6' above the floor line. These openings are not secured from the elements. The west wall brick masonry infill areas are severely damaged from exposure to the elements. It appears that missing leader boxes and downspouts have allowed water to accumulate in the brick masonry resulting in separation of the brick wythes. Spalling has also occurred on the exposed concrete structure. The north wall has spalled brick masonry infill between the 2nd level columns. The ground level is similar to the 1st addition with partial height concrete block and stucco in-fill between columns. This wall is also showing signs of possible foundation problems.

Along the west wall, there is a one story appendage that is in poor structural condition with major deterioration of the masonry walls and pre-cast concrete roof planks.

Concerns with Demolition Process

As indicated in our original report, the two (2) story concrete structures were constructed adjacent to the original structure. See photos at the end of this report. Given the existing conditions, Shell and Meyer Associates, Inc. requested that R. L. Fender Inc. Construction and Steve R. Rausch Inc. Demolition, observe the structures, considering demolition of the concrete structures and the possible effect on the original building. As a result of our observations and concerns, we submit the following:

The original building, as previously indicated, will require the installation of a new full height bearing wall along the west elevation. This wall would not be capable of supporting the dead weight of debris or the impact due to falling debris.

Shoring and/or bracing this wall to sustain anticipated debris loads is not practical or cost effective.

Likewise the north wall of the original building would not be able to sustain anticipated debris loads. If either wall were to fail, total collapse would be a possibility.

Recommendations

Alternatively, a partial demolition could be accomplished.

We recommend that at least one (1) bay to the north and one (1) bay to the west of the original building remain intact. We believe that leaving these areas intact will reduce the likelihood of further damaging the original building. If the south façade is to be retained, two (2) bays to the west would remain intact.

The remaining concrete floor structure will be reinforced with structural steel beams and columns. I have included a sketch showing how the existing floor might be reinforced.

I have also included probable costs prepared by R.L. Fender Construction that addresses "Budgeting" the cost of demolition. Their scope of work is included:


Scope of Work

- Support the first and second floors and roof from the basement along the west wall where the joist are losing bearing.
- Tie the west masonry wall to the concrete structure.
- Install A-frame supports along the east and south walls
- Board up the south storefront.
- General cleanup of debris.
- Sawcut, separate and demolish the concrete structure west of Line E and north of Line 4.
- Steel reinforcing of the first floor columns and beams of the remaining concrete structure.
- Backfill to sidewalk level with clean fill.
- Supervision.
- Security fence.
- Testing of fill material.

Total this Budget estimate -----\$ 798,000.

Sincerely,

Shell + Meyer Associates, Inc.



Kenneth E. Isham, P. E.

Encl.

KEI/mtk