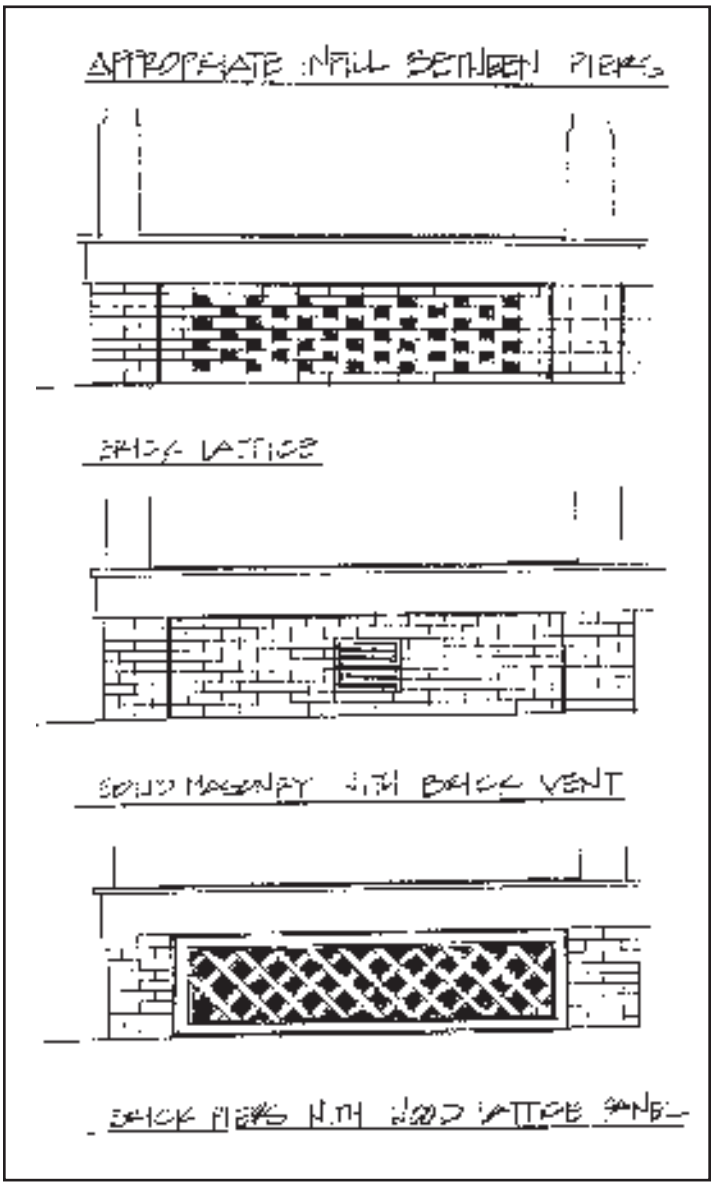
Foundations



A foundation is not only essential to maintaining the structural integrity of a building, but it also contributes to a building's historic character through its materials, height, features, and details. Some of the earliest foundations in St. Joseph's historic districts were constructed of stone. Stones were sometimes cut into block-like shapes that allowed for relatively uniform, close-fitting, horizontal mortar joints. In other cases, randomly dimensioned stones were mortared into a wall, creating a rather informal appearance. In the early 20th century, concrete block, both smooth-faced, and rusticated, became popular and widespread due to ease of production. This material was used for foundations and created a visual character reminiscent of stone foundations.

The foundations of most residential and commercial buildings in St. Joseph's older neighborhoods and commercial districts are constructed of brick. Often soft bricks were used in combination with a soft mortar mixture containing a high concentration of sand and lime. Refer to BRICK AND OTHER MASONRY MATERIALS for more information on the maintenance and repair of historic brick and masonry. Buildings of brick construction often had their foundations delineated through the presence of a water table with rowlock or by brick or stone banding. Brick bonding patterns in the foundation could also vary from the rest of the building's walls in an effort to distinguish the two. In some cases, rusticated stone was used in combination with the brick to create visual "texture" to the building surface. In other cases, windows and doors were incorporated into the foundation for illumination and access, respectively. Depending upon the height of the foundation above ground, window sizes varied from single light windows that were hinged at the top and could be pivoted open for ventilation to double hung sash that opened in the traditional manner.

Porch foundations often consist of an open masonry pier system that is infilled with wooden lattice. These masonry piers were also infilled with brick to create a completely enclosed porch foundation. In cases where this treatment is desired, recessing the infill brick back from the wall plane of the piers (usually 1"-2") will help to ensure that the visual character of the original pier system is preserved. Vents should be installed in the wall area to provide for needed ventilation.

Foundations

Maintenance and Repair

The newly reconstructed front porch on the August Nunning house, 1401 Jules Street, Museum Hill Historic District, rests on brick piers that are in-filled with frame lattice panels in the traditional style.

Careful monitoring and maintenance of brick and masonry foundations are essential to ensuring structural soundness and watertightness. Problems, if discovered early, can usually be corrected with simple procedures and minimal expense. Left untreated, foundation problems can cause irreversible damage including excessive settlement of the building or insect infestation.

Foundation deterioration is most commonly caused by improper drainage or inadequate ventilation. If the ground around the building is not properly sloped, water will travel towards the foundation wall, collect in pools, and gradually erode the mortar joints of the wall. The problem can be compounded by the presence of vegetation growing against the wall surface that traps moisture and may result in root systems pushing into or under the foundation. Prolonged exposure to moisture will also contribute to the dry rotting of wooden structural members which serves as an ideal habitat for molds and insects such as termites and carpenter ants that attack or nest in wood fibers. Grading the site so that the ground slopes away from the foundation will help to eliminate these problems. Installing drainage tiles near the foundation will also help to eliminate surface water problems.

Inadequate ventilation can be addressed by installing vents and openings in the foundation wall that will improve air circulation under the house in cases where crawlspaces are present. Moist air is frequently trapped in the crawl space and can cause damage to both the masonry and wood framing system of the house if left unabated. Basement windows should remain operable and be opened during the summer months.

In addition to drainage and ventilation problems, failure of masonry joints can also lead to foundation deterioration. Cracked and powdered mortar should be carefully raked out of the joint by hand or approved mechanical means and new mortar inserted through a process known as repointing. Care must be taken to choose a mortar mixture that matches the original in terms of composition, color, texture, strength, and appearance. In cases where bricks have deteriorated to a point where they begin to crumble, said bricks should be carefully removed and new bricks inserted that match the existing brick in terms of composition, color, texture, strength, and appearance. Parging or stuccoing brick foundations may be an acceptable treatment if the level of brick deterioration is severe or if evidence suggests that the treatment was used historically on the building. Care must be taken to use a mortar or stucco material that is not too hard and will not cause additional damage to the masonry. Refer to BRICK AND OTHER MASONRY MATERIALS for more information and guidelines.

Foundations

Foundations: Guidelines

1. Retain and preserve the original form, pattern, natural masonry color, and texture of historic foundations. This includes features such as decorative vents, grilles, water tables, windows, banding, etc.

2. Retain original foundation materials to the extent possible. When replacement is necessary, choose materials that match the original. (Note: Certain synthetic products may be allowed by the Commission for lattice skirting beneath the porch given the nature of this material to deteriorate and promote insect infestation. Said skirting shall have a minimum 4" frame.)

3. Maintain historic foundations through a routine program of inspection and maintenance.

    •Provide sufficient drainage by grading the site so that water is carried away from the foundation.

    •Monitor vegetation at the foundation wall to ensure that it does not trap moisture and undermine the structural integrity of the foundation.

    •Provide for ventilation to the crawl space and basement areas of the building to prevent moisture problems that lead to rot and insect infestation.

    •Replace deteriorated brick with new brick that matches the original in terms of color, texture, strength, and appearance.

4. Avoid painting previously unpainted brick and other masonry foundation surfaces.

5. When infilling between brick piers, recess the brick curtain wall 1"-2" so that the original piers are still visually prominent.

6. Use traditional materials when constructing new foundations. Regular concrete block may be used in brick/stone/stucco foundation applications but should be sheathed in a veneer of brick/stone/stucco, or other appropriate masonry materials.

7. Avoid adding foundation features such as vents and access doors in areas that will detract from the overall integrity of the resource. If possible, center vents and access doors between piers or align with windows.

8. Locate new utility and mechanical connections through foundations in rear areas if possible. Paint utility/mechanical devices the color of the foundation to make them less visible.