H. Maintenance and Repair of specific materials

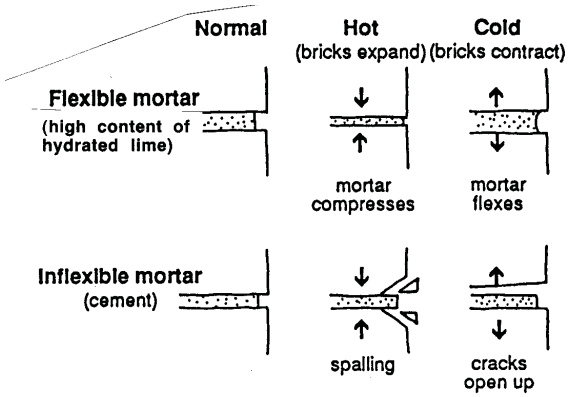
Preservation of architectural heritage entails more than simply restoring a building to its original look. As discussed in the previous section, many options for facade improvement exist. By far the easiest and most important is maintenance of the current structure. Maintaining a building that serves the community in a profitable capacity ensures the building's existence for future generations to enjoy.

A common occurrence in districts of historical significance is to try turning all buildings into museums. Once this happens, the building ceases to be a contributing part of the community. It is removed from tax rolls and usually only used for special occasions or during limited tour hours. As a result it usually doesn't generate enough revenue to meet operating expenses. Therefore, the best action plan for any building is maintaining it in its original capacity as an income producing business or rental units. Maintained properly, a building can become a living museum by providing a good example of architecture from the past while serving a new activity –- accessible to the public -- that benefits the community's future vitality.

Masonry: Chaska Brick and Minnesota Valley Limestone

Brick and stone are extremely durable building materials. However, they can deteriorate. Water is most often the cause of this deterioration. Routinely inspect the roof and flashing, gutters and down spouts of your building to ensure they are working properly. Eliminate conditions that cause water to be absorbed into brick. One instance of this kind of damage that is often overlooked and which can be easily corrected is to prevent condensation from air conditioner units or other mechanical equipment from dripping onto brick surfaces.

Tuckpointing: Prior to 1900, brick buildings used a soft mortar that was very high in its lime content. This type of mortar worked well with soft brick, like the kind found in so many Chaska buildings, but the mortar gradually erodes away as water runs over it and seasons change. If mortar joints are loose, crumbling or have receded more than 1/2-inch, they should be repointed. (Repointing and tuckpointing mean the same thing.) New mortar should match existing mortar in style, size, composition and color. Mortar should be softer than the bricks to allow for seasonal expansion and contraction of bricks. This also allows general building stresses to be relieved through the mortar joints preventing cracking or spalling of bricks. Modern mortars often have a base of Portland cement that is harder than older bricks. Therefore, consult a mason who is experienced with historic buildings of this period before you undertake a tuckpointing project on an old building.



When tuckpointing a building, the size and profile of the joints are vital to the character of the building. All joints should be cut by hand to a depth of 1", neatly repointed and tooled by hand. It is important to remember that tuckpointing periodically is much easier, less expensive and less damaging to the building than replacing bricks. Properly maintained joints should only need tuckpointing once every 50-75 years. A masonry contractor may be tempted to remove mortar using high-speed grinding tools, but this type of aggressive mortar removal is difficult to control and can quickly damage bricks, especially at the vertical "head joints".

Cleaning: When cleaning a masonry building, always use the gentlest means possible. Water spraying and hand scrubbing with a natural bristle brush followed by a moderate pressure rinse, (200 to 400 psi) is usually sufficient. The drawback to this method is that some types of limestone may be stained by impurities in the stone and may dry unevenly.

Steam cleaning has the advantage of removing dirt from ornately carved areas. However, it is usually slower and more expensive than water spraying.

If paint or heavy grime needs to be removed, chemical cleaners can be employed. Cleaners should be alkaline-based because limestone is sensitive to acid. Alkaline cleaners are comprised of a detergent and an alkali-ammonia or potassium hydroxide. Once cleaned, rinse the masonry material in a two-step process. First use a slightly acid rinse (acetic acid) to neutralize the alkali, followed by rinsing with water to remove all chemicals.

Whichever method is used, first "trial clean" a four by six foot section on a portion of the building that does not show. This section should be allowed to weather for a couple of weeks to a month to determine the effect cleaning will have on the entire building.

Sandblasting: **Sandblasting is a process that should never be used on a brick building.** This process can disqualify a project from being considered for federal tax credits and from being placed on the National Register of Historic Places. Although some masonry material suppliers advocate use of chemical sealers to try and rehabilitate brick that has been previously damaged, their performance is widely variable and often unreliable. Because the most important characteristic of Chaska commercial buildings is usually their Chaska brick, it is much preferable to avoid damaging the brick in the first place.

Chaska brick is essentially a soft baked clay. When brick is sandblasted its outer layer is eroded. Once that protective layer is damaged or removed, the remaining brick is highly susceptible to erosion and deteriorates rapidly. If such deterioration has already started it may be minimized with paint or a clear sealer. Paint is preferred because it allows the natural migration of moisture. Some clear sealers tend to reduce the migration of moisture and allow sub florescence -- formation of salt crystals -- which may

cause spalling. Consult a professional for the best approach to combat deterioration if your building was previously sandblasted. Further detailed recommendations about maintaining historic brick and mortar are also available through the *Preservation Briefs* series of publications available on-line and linked through the National Park Service web page.

Removing stucco. Several historic buildings in downtown Chaska have a coating of stucco applied over their exterior brick that was not original to the building. Occasionally this was done as a "quick fix" for soiled brickwork or as a way of creating a fresh, "new" appearance. Unfortunately, the stucco creates a much more "monolithic" appearance and conceals one of a Chaska brick building's most desirable characteristics; the brick itself. Illustrations of restoration potential for several Chaska buildings shown at the back of this manual are based on stripping away of stucco. Before proceeding, experiment with removal in a less-visible test area.

Though modern stucco is often applied over metal lath with penetrating mechanical fasteners, the stucco on most Chaska buildings is simply applied as a thick coating and should be removable by careful hand-tool methods. Several Chaska brick buildings have already received this kind of restoration treatment, and while the work can be accomplished with hand labor, property owners are encouraged to consult a technician who has performed this kind of stucco removal previously. Stucco removal will often be followed up with a general repointing and masonry cleaning treatment to restore the building's original appearance and material character.

Wood

Decorative facade elements were often made of wood. Wherever possible, original woodwork should be retained and missing pieces should be replaced to maintain the building's integrity. Wood should be cleaned with the gentlest method possible. Check for soft, rotted or split areas. Always maintain a good coat of paint or sealer to protect wood from the weather.

Sandblasting and water blasting: Both processes are equally damaging to wood. Sandblasting erodes the soft fibers on the wood surface leaving the harder fibers. A pitted surface with ridges and valleys is the result. Water blasting forces water into the wood rather than -- sometimes in addition to -- removing paint.

A surprising amount of wood trim can be observed on Chaska's side and rear porches, as with the stairs that provide egress from upper stories. Historically, many of Chaska's downtown buildings also had bracketed, projecting front balconies of wood, with wood trimmed railings. In a large number of instances, these features have been preserved. Wherever possible, it is most desirable to continue them and to rehabilitate them using the same type of materials. Generally-speaking, substituting new synthetic materials like vinyl or metal siding should be avoided whenever possible.

Metal/Cast Iron; especially locally-made cast iron

First determine the metal composition of your facade. You may want to consult an architectural professional because this can be tricky.

Cast iron and iron alloy: Remove paint build up and all rust. If not severe, this can be done with hand scraping and a wire brush. Extensive paint buildup can be removed with dry grit blasting at 80 to 100 psi. This method is effective, economical and provides a good surface for painting. However, all adjoining masonry and wood should be protected. Re-caulk and putty heads of screws and bolts before painting to prevent moisture from reentering the joints.

Soft, sheet and plated metals: Softer metals such as tin, lead and copper should never be cleaned mechanically because they can be easily damaged by abrasion. These metals are best cleaned with a chemical method.

After cleaning any metal, apply a rust-inhibiting primer coat. Once dry, apply the final coats in a color that is appropriate for your facade design and local context. *Rustoleum*™ produces an excellent line of penetrating rust-inhibiting coatings, as do other commercial paint manufacturers.

Storefront Design Considerations

When improving your facade, you should base your plan on traditional storefront design. A "well-defined" storefront is one characteristic. Bounded by piers or pilasters on the sides, storefront cornice above and sidewalk below, storefront design plays an integral part in defining your building. Look at historic photographs to determine the original configuration of your building's storefront. Use that as your guide in determining what improvements are appropriate.

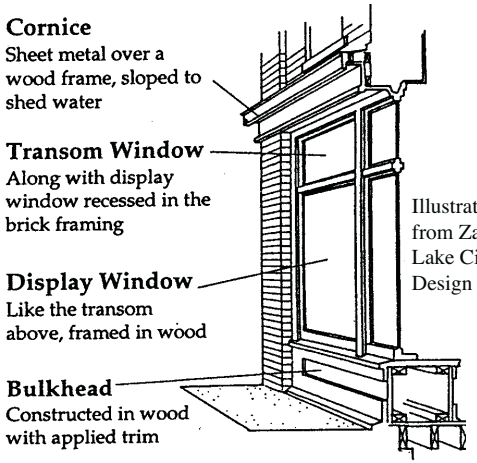


Illustration adapted from Zahn & Associates' Lake City Preservation Design Manual

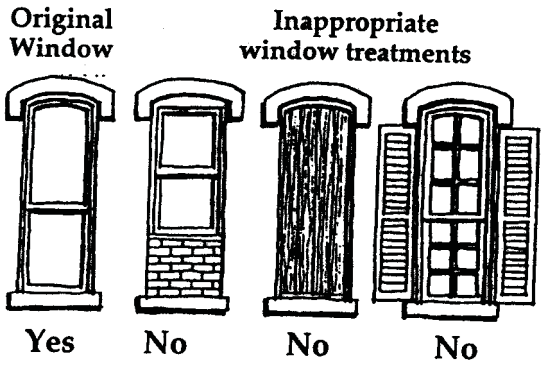
Windows and Doors

"Transparency", achieved with large display windows, was a predominant feature of traditional storefronts. Large glass areas provide maximum light to the display area while opening the facade to the street. Storefronts should be composed primarily of glass. The upper facade should be more solid with smaller evenly spaced windows.

Uncover boarded up windows and repair the original sash. Retain as much as possible of the original. In historic buildings original windows contribute character and probably fit the opening better than modern replacement windows. Storm windows are preferred to replacement when concerned about energy and insulating. When adding interior or exterior storm windows consider the following:

1. Exterior storms are more efficient but have a greater visual impact. This can be reduced by choosing an appropriate color enamel finish for the aluminum frame.
2. Interior storms have little exterior impact and can be hidden with interior window treatments. However, they should be sealed to prevent interior air from entering the space and causing moisture buildup.

If window replacements are necessary, they should match the original in size and shape. Never replace multi-pane windows with a single large pane of glass. Select a window that completely fills the masonry opening, rather than relying on standard-sized replacement windows and filler panels that reduce the area of glazed opening. Many manufacturers now make excellent replacement windows and replacement sash units that are easier to install and, in many instances, very low maintenance materials with high energy efficiency.



Remove all damaged putty from wood frame windows that will be repaired being careful not to damage the wood. Re-glaze by laying a bead of putty around the perimeter. Press the glass panel into place and insert glazing points to hold it. Bevel a final seal around edge of the glass. Metal frame windows require a glazing compound. New glass should match original in size, shape, color and reflective quality.

Retain original entry doors as well. When replacing, match the original appearance and materials as closely as possible. Wood panel doors with a large glass panel were most common at the turn of the century. Wood is therefore the preferred material for replacement doors, however, steel or aluminum with a baked enamel finish may be used. Colonial, Early American or extremely decorative doors are inappropriate and should be avoided. Keep in mind the practical, almost "industrial" character of Chaska's early commercial buildings.

Shutters

Late-19th and early 20th century buildings seldom used shutters as part of the window treatment. However, because of its earlier date, Chaska is again an exception to this general rule. Unless they were original features of the building shutters should be avoided since they would create a false sense of the building's historical character. Often, evidence that shutters originally existed can be confirmed by historical photos or by evidence of shutter attachment hardware on the brick or window surrounds.

If shutters were original, new shutter panels should exactly match the size and shape of the window opening. This means that the shutters are one-half the width of the masonry rough opening around the window, and in most instances, with a curved top to match the opening. Shutters from the period of the 1860s and 1870s would be expected to be of a "panel and frame" type.

Architectural Ornaments

Architectural ornaments were usually the first casualty over time. Consult historic photographs to determine what ornaments were original to the facade. Since many commercial facades were similar, the ornamented areas were often replicated in easily reproduced materials like pressed metal. If pieces are missing, new ones may

be fabricated. If pieces are damaged or decayed, repair the cause of the damage as well as repairing or replacing the ornament with similar materials. The original First National Bank building at 214 North Chestnut Street (now Amooré *Aveda*™ cosmetics and salon) affords an excellent example of how metalwork can be custom-manufactured to match the appearance of historic materials.

A variety of decorative features may have existed on a building in the past. Such features may include awnings, window hoods, brackets, cast-iron columns, and shutters. Examine the building carefully to see whether any evidence of such "lost" items can be detected. Elements like these were often used to emphasize lines, composition, and texture of the facade. Awnings and projecting balconies were used extensively on Chaska's historic buildings to provide sun control, advertise the business name, and add interest and color to the streetscape.

Color Selection

Color selection is more than just a matter of personal preference. As a general rule historic buildings should reflect colors that were available at the time the building was constructed. Earth tones were more popular during the later half of the 19th century and lighter shades were popular in later decades. In Chaska, there is substantial evidence of a "cream" color of paint for trimwork, accented by dark burgundy or dark green paint that created a kind of visual "lightness" for the openings in relationship to their cream-colored brick surrounds. Research the history of your building to determine the appropriate colors. Sometimes vestiges of the original paint color can be detected under later coatings.

Keep color schemes simple by choosing two or three colors; a base color, a second color for major trim and a third color to highlight minor trim. Choose the base color first. (Again, a cream color would be most typical on Chaska brick buildings.) If the building is brick or stone, the natural masonry material will most often be the base color. Then choose trim colors to complement the base color. Most paint manufacturers have a line of historically-appropriate paint colors for various historical periods. In developing the color views of Chaska buildings "after renovation" (which can be viewed on digital "pdf files" retained by the City of Chaska Community Development office), the authors of this study worked from a palette of historic colors by Benjamin Moore, which employed a cream surround, burgundy or green for accents, and often black for the inner muntins (divider strips) on windows and doors. Excessively bright or contemporary color schemes should be avoided.

Awnings and projections

Historically, many commercial buildings used awnings for practical purposes of shading merchandise and operations on the interior, and for brightening up the building exterior to show activity. Awnings were often retractable. As discussed earlier, many early Chaska buildings also featured

projecting upper balconies on their front facades (in lieu of awnings) as a way of providing egress from upper-story rooms. Consult with the building inspector or Community Development Department about code restrictions for any projections that could potentially extend over public sidewalks.

Awnings, particularly awnings of a canvas type, can provide a nice, high-contrast appearance that brightens a brick building by their contrast. Awnings can afford appropriate sun-shading, particularly on south- and west-facing facades, and can substantially reduce energy costs for air conditioning. Canvas awnings also provide an excellent location for advertising signage and logo-type that can draw attention to the business activity inside. In working with an awning manufacturer or subcontractor, avoid rigid, fixed "pent canopies" or fixed awnings using incompatible materials like cedar shakes or back-lighted translucent awning fabric.

Signs and Graphics

Signs are an integral part of a storefront and should be considered during the first stages of planning improvements. Signs and other graphics should complement the architecture, not overpower it. During the 19th century, signs were designed to be read by pedestrians not by motorists. Today, there is a need for signs that highlight a business at both a pedestrian and automobile level. Excellent examples of how this can be achieved are found on buildings like the MeGusta Market at 108-110 East Second Street.

Graphics and projecting signs can be appropriate depending on placement, size and message. Consult historic photographs to determine appropriate designs. Advantages to these types of signs are that they eliminate the need for excessive lettering. (People retain images longer than words.) Some company logos, like the *RedWing*™ shoe logo are both historic and show an important connection with the region. Signs of this type, or like the one projecting from the Chaska Bakery, are appropriate and should be emulated on other historic properties.

Materials for signage should be adaptable. In the long run, wood is the least expensive. Not only are plastic illuminated signs inappropriate but they tend to crack and discolor. Lights inside break and the paint peals. Maintenance on plastic signs can be costly. By contrast, a consistent typeface that is appropriate to the historical period, could help unify many of Chaska's historic buildings while attracting attention to current commercial usages.

Americans with Disabilities Act (ADA) and Its Impact on Facade Improvement

The ADA, signed on June 26, 1990, has basically redefined disability to encompass anyone with "permanent or temporary physical or mental impairment that substantially limits one or more major life function." Accessibility requirements under this act apply to public accommodations, commercial facilities, and state and local

government entities. It is important to determine whether your building falls into one of these categories in order to determine what actions are necessary to make your building accessible.

The ADA requires that any new building designed or constructed after Jan. 26, 1993 and any buildings that are altered after Jan. 26, 1992 must, "to the maximum extent feasible, be readily accessible to and usable by individuals with disabilities." An alteration is any change to a building that affects or could affect its usability. Thus, alterations that will help bring a historic property into compliance with public accessibility standards should be a high priority in applications for preservation funding incentives.

In cases where the alteration or removal of barriers would destroy the historical significance of a building certain minimum accessibility standards may be applied. Consult an architectural professional, the City of Chaska, and the State Historic Preservation Office early in your planning process to determine what will be necessary for your building to comply with the ADA.

Endnote References:

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3. Historic District: Identification, Social Aspects and Preservation. (Washington, DC.: National Trust for Historic Preservation, 1973), p. 3.

4. "The Impact of the Americans with Disabilities Act on Historic Structures." Information Series No. 55. Washington DC.: The National Trust for Historic Preservation, 1991. p. 1.

5. "The Impact of the Americans with Disabilities Act on Historic Structures." p. 2.