Building a Solar-Powered Home in a Historic Neighborhood

A Case Study with CVF Homes, the City of San Antonio Office of Historic Preservation, and the Lavaca Neighborhood Association

By: Kris Zebrowski, Build San Antonio Green
Scott Kertesz, Build San Antonio Green

This material is based upon work supported by the Department of Energy and the City of San Antonio under Award Number DE-EE0005702.

Background

The City of San Antonio has made tremendous progress in recent years in the area of solar energy installations on residences. These projects have been great successes, though not without the usual challenges associated with solar energy installations. The City has also seen an increased interest in solar energy systems in official "historic" neighborhoods. These installations have a potential for added challenges, as neighborhoods designated "historic" have additional restrictions, aside from standard building codes, about what changes and upgrades can be done to the exterior. This is in an effort to maintain the historic qualities of the homes and preserve the historical nature of the neighborhoods in which they are present. The purpose of this case study was to examine the construction of a new, single family home, with an included solar energy system, in an official historic neighborhood in San Antonio. Build San Antonio Green hoped to uncover what specific additional challenges the builder faced when working in a historic neighborhood and how those challenges were overcome, to serve as a model for other builders wishing to install solar energy systems in historic neighborhoods. This is of particular importance, as the City of San Antonio has more than 20 officially designated historic neighborhoods, and without proper knowledge of how to comply with the additional regulations, contractors, builders, and solar installers could potentially miss out on tremendous opportunities.

For this study, Build San Antonio Green looked at the home constructed by CVF Homes in the Lavaca Neighborhood. CVF Homes had previous experience with retrofit projects in the Lavaca neighborhood, but this home was the first new construction project they undertook in this area. The home is 1700 square feet of conditioned space and includes a 6 kilowatt solar photovoltaic array. The home was submitted for certification in June of 2011, before construction began. Construction was completed in late March 2012, and the home officially earned certification through Build San Antonio Green's Level 3 Solar Home program on May 10, 2012. After final energy testing was completed, the home achieved a HERS Index of 17, and is estimated to save more than 24,000 kilowatt-hours of energy per year.
This home was chosen for the case study as it was a new construction project with a solar energy system in addition to being built in a designated historic area. The Lavaca neighborhood, located immediately south of downtown San Antonio, is the oldest existing neighborhood in San Antonio and is an officially designated "historic district." Historic areas and districts, in most cases, have restrictions about the type of work that can be done to the buildings beyond the standard code and permitting process put in place by the City. The purpose of these additional regulations is to ensure the historical charm and character of the older neighborhood is not eliminated.

The Project Team consisted for this house consisted of:
Builder/Contractor: CVF Homes
Architects: Alberto Isunza and Juan Fernandez
Plumber: Hernandez Plumbing
Structural Engineer: Louis Faraklas, Jr.
Solar Installer: Lighthouse Solar

The construction and permitting process was examined for the purposes of this study. Interviews were conducted with the builder, the case manager from the City of San Antonio's Office of Historic Preservation, and with the President of the Lavaca Neighborhood Association. The home has several features that were examined to determine challenges and obstacles. These features are

- Location in an officially designated "historic area"
- Installation of a 6 kilowatt solar photovoltaic system
- Greywater recycling system

Builders Perspective:

CVF Homes project at 107 Leigh Street
The solar PV system is on the roof above the second-story outdoor living area

The home at 107 Leigh Street was constructed by CVF Homes, owned by Juan M. Fernandez. Because the home has a significantly different overall design aesthetic from a majority of the surrounding homes, the builder made sure to involve the Office of Historic Preservation from the very beginning. In conjunction with OHP, the builder studied the neighboring properties to ensure the design would be approved. The architect purposefully incorporated features that mirrored features of homes in the neighborhood. For example, the columns on the home were designed to match the columns found on other homes nearby. The front porch and driveway were also designed to be similar to the surrounding area.

After gaining approval from the Office of Historic Preservation, the remainder of the permitting process was the same as constructing a house in a non-historic neighborhood, with one exception. This home was designed to have a combination of metal and timber for the framing. Because of this unique feature, the permitting process did take longer than a more traditional construction job as it required a more in depth structural review and study process. However, this additional time was due to the unique features of this specific home, not because of its location in a historic area.

The other necessary permit was for the solar photovoltaic system. This is relatively simple in San Antonio, as it is included in the electrical permit. There was no additional or separate permit specifically for the PV system. The system did have to be approved by the Office of Historic Preservation. While the Office of Historic Preservation has significantly fewer regulations concerning new construction in historic neighborhoods, one that applies to both new and retrofit is the placement of a solar energy system on the house. These systems are not prohibited per se, but they are not allowed to be installed in such a way that they are visible from the street. Fortunately, in this case, because of the roof pitch and the design of the house, this was not a concern. The builder and architect had

Installation of the 6 kW PV system. The system is completely hidden from view from the right-of-way. This allowed the project to comply with historic designation regulations and ensured optimal exposure for the panels.

intended from the very beginning to place the PV System on the roof over the second floor outdoor living area. This was a two-fold victory for the builder. Placing the solar PV system in that location not only ensured that the project complied with Office of Historic Preservation regulations, but also ensured the efficacy of the system. The orientation of the lot and the design of the house dictated that the system be placed there for maximum exposure to the sun.

CVF Homes, prior to the construction of this project, had previous experience in historic neighborhoods through several retrofit projects also in the Lavaca neighborhood. The builder reported that, when compared to retrofit projects, this new construction projects was actually much simpler than retrofit projects. This was due mostly to the fact when retrofitting existing homes, there are often problems or issues the builder is not aware of until work actually begins on the project. With a new construction project, there are fewer, if any surprises during the construction process, as everything is done from the ground up. The only additional challenge faced was the longer permitting time which was due to the combination of steel and lumber for the framing of the house. Again, this longer permitting time was due to the unique characteristics of this particular project, not because of its location in a historic area. CVF Homes reported that this was an easily overcome challenge. It required several meetings with the framer and engineer during the course of the project so that all parties involved could be sure of what was required. The builder reported that for others facing a similar challenge, the key is to make sure that all parties are involved in the process as early as possible to that each knows what is expected.

The builder also made sure to mention the project to the Lavaca Neighborhood Association. While the Office of Historic Preservation does have guidelines and restrictions for solar PV installations, they do not have any clear rules about new construction projects in general. In the case of new construction, though, OHP does confer with the residents of the neighborhood to make sure they have signed off on the project. If the Lavaca Neighborhood Association had told Office of Historic Preservation they did not want the project, then they would have been able to prohibit the construction. While the Neighborhood Association does not have a legal means of prohibiting the project, they could have made it very difficult.

While there were additional costs associated with this project, they had more to do with the unique features of the lot rather than the fact it is in a historic area. Originally, the lot containing the home at 107 Leigh Street had an old garage and was part of the same lot as the adjacent property. When CVF Homes purchased the property, they decided to re-plat it into two separate lots and demolish the old garage that was there. The re-platting added an extra cost because of the associated engineering and impact fees that happen with any re-platting. San Antonio Water System and CPS Energy had to do some minor work re-routing the utilities to bring them to where the new home was to be built, but there was no cost associated with this as they were simply altering existing utility connections rather than installing new ones. San Antonio Water System did not charge impact fees or sewer connection fees for this project, again because it was an existing lot that had been subdivided into two lots, with sewer connection already in place that only needing a minor rerouting.

The greywater recycling system required a special permit, as do any such systems in the City of San Antonio, regardless of historic designation

The only other special consideration and additional permit that was necessary for this project was associated with the greywater recycling system. It required a permit for

reclaimed water and another for backflow preventer. The system installed at 107 Leigh Street takes water from the upstairs shower, upstairs sink and AC condensation line and uses that water to fill the toilets. The water recycling is not for potable water. There are also connections in place if the homeowner opts to use the greywater for landscaping purposes. This system required the plumber to pull a special permit from the City of San Antonio, but did not pose any serious challenge. This permit cost was less than $100. As per regulations, the pipes carrying the non-potable water are purple and required a backflow preventer , so that clean water will never mix with grey water.

The builder reported the only serious challenge was obtaining no-VOC primer and paints for the interior of the home. While Build San Antonio Green requirements allow for low-VOC paint, the builder chose to go further and opted for paint with no VOC's. They reported that this type of paint is somewhat difficult to find and is more expensive than low VOC paint, but he was willing to pay the extra price for the improved indoor air quality.

In summary, the builder reported very few challenges associated with building this solar powered home in a historic area. The builder made sure to meet with the Neighborhood Association so they would not raise any objections with the Office of Historic Preservation. The solar PV array was originally planned to be out of sight from the street view, so there was no challenge to its installation. The only additional fees, permitting and challenges came about because of the unique features of this particular home, namely the combination steel and wood framing, the re-platting of the original lot, and the installation of the greywater recycling system. Overall, the builder reported that it was easier to construct a new home in a historic area than the retrofit projects he had previously worked on, due mainly to the lack of surprises and hidden problems that are often uncovered in retrofit projects.

City of San Antonio Office of Historic Preservation Perspective:

The City of San Antonio Office of Historic Preservation's perspective was provided by Anna Glover, the caseworker assigned to the project at 107 Leigh Street.

OFFICE OF HISTORIC PRESERVATION san antonio

The Office of Historic Preservation is a department of the City of San Antonio that "protects the historical, cultural, architectural, and archaeological resources that make San Antonio unique."

The Office of Historic Preservation reported that while there are no clear-cut rules or regulations governing the construction of new projects in historic areas, they do evaluate them and, if approved, issue a "Certificate of Appropriateness." The Office of Historic Preservation (OHP) uses national standards when evaluating preservation and new construction in historic districts. The Secretary of the Interior Standards for Rehabilitation consist of 10 guidelines that help OHP staff and the Historic and Design Review Commission (HDRC) evaluate the appropriateness of new projects. Guidelines number nine and ten speak to new construction:

> ***9.*** *New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic*

materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. *New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

OHP staff uses these guidelines along with the FRESH Test as developed by Pratt Cassity:

- **Footprint** – new projects that have similar footprints to existing structures in the neighborhood are encouraged. Radically different footprints can dramatically change the feel of the neighborhood, or that particular part of the neighborhood. New footprints that are very large can easily dwarf existing structures and compromise the historic feel
- **Roof shape** – roof shape should be similar to other roofs in the neighborhood. A different roof shape, particularly when combined with a different footprint, can easily create a house that does not fit in with the historic homes in the neighborhood. Contrastingly, a roof on a new structure similar to existing ones can easily blend in with the neighborhood.
- **Envelope** – the outside shape of the building should match surrounding structures in size, shape, projections, and height-to-width ratio
- **Skin** – the exterior surface and cladding of the new structure should have similar physical and visual appearance to existing structures in the neighborhood. New construction projects can be uniquely styled and yet still have a skin and cladding that is harmonious with the other structures
- **Holes** – doors, windows and other openings ("voids") in the new construction project should visually match as well as follow the historic solid-to-void ratio of existing structures. For example, in a historic residential neighborhood, guidelines would not allow for a home clad entirely in glass.

See Appendix II, a presentation that the Office of Historic Preservation uses to train Commissioners in determing appropriateness of proposed designs for more information about the "FRESH Test"

These guidelines are subjective and not very prescriptive. As a result, the Office of Historic Preservation evaluates projects on a case-by-case basis to determine appropriateness of design for the historic neighborhood. In addition, while the above serves as guidelines, they are not necessarily code or regulatory, and in many cases substitutions can be made. The Office of Historic Preservation looks at the overall design of the home, and failure to meet one of the above guidelines is not necessarily cause for prohibiting the structure. For example, this home at 107 Leigh Street has a flat roof, while the other residences in the neighborhood have gabled roofs. The project was still approved because other criteria were met. The home has a similar-sized footprint to other homes in the neighborhood. While this home is two-stories and this could be a concern in some cases, Ms. Glover reported that it was not with this particular home as the home right next door is also two-stories. Had the adjacent home been one story, there could have been concern about the new structure overshadowing it or seeming out of place.

The Office of Historic Preservation uses the guidelines from the Secretary of the Interior when it comes to new construction in historic neighborhoods, but they are more a set of guidelines that set in stone rules. Most of the regulations OHP has in place govern the retrofit of existing structures. OHP also has a "repair rather than replace" standard. If at all possible, the existing structure and its components should be repaired – for example, windows can be re-glazed instead of installing new ones. If something is to be replaced, OHP requires "in kind materials" be used – materials that are as close to the original

historic materials as possible. The design aesthetic of material to be replaced should also match the original as closely as possible.

All exterior changes in historic districts are subject to OHP regulations, including certain renewable energy systems such as solar panels. They should, whenever possible, be hidden from view on the right-of-way. This can be accomplished in many different ways. In the case of this home at 107 Leigh Street, the design of the home itself allowed the system to be installed completely out of view from the street. Homeowner and builders might also try ground-mounted systems if a roof mounting will result in the system being visible. If none of these are viable options, then the approval of the system must go to the Historic and Design Review Commission. They are reviewed on a case-by-case basis.

The Office of Historic Preservation's main concerns with this project, being new construction rather than a renovation or retrofit, concerned the impact it would have on the surrounding area. Because of the "repair rather than replace" rule, if projects require demolition, even if the project is new construction, OHP is reluctant to approve the project. However, in this particular case, the lot contained two outbuildings in bad repair, one of which was a garage. The structures were determined to not be contributing to the historic district allowing for the removal of the structures. When it comes to empty lots, OHP is an enthusiastic supporter of in-fill development as it helps promote the continued viability of inner city neighborhoods and helps slow the push to develop green space in the suburbs. However, if something is present the lot, depending on the circumstances and what the structure is, they prefer to follow the "repair rather than replace" rule.

While these guidelines are general requirements for all historic areas, as is the "FRESH Test," each neighborhood has its own unique set of design criteria, based on the historic features, architecture, and materials found in that particular neighborhood. See Appendix III, the Lavaca Design Guidelines, for more detailed information about the specific regulations and requirements for the Lavaca Neighborhood.

Other concerns were related to the FRESH Test, but when the builder presented their plans OHP was happy to approve them. As mentioned previously, the height of the structure was initially a concern, but when determined that it would be a similar height as nearby structures, it became no problem. The square footage of the house (Footprint) was also a temporary concern, but the house is the same size square footage as many of the other houses in the neighborhood. Thus, in terms of its scale, it does not seem out of place by being either much larger or smaller than other structures. The materials to be used (skin) were the other primary concern, but the builder and architect opted to use similar materials to other houses and structures in the neighborhood. OHP found the design acceptable because the home uses similar materials, just in a more contemporary way. The builder was able to alleviate any possible concerns by involving OHP early on the process, submitting plans and drawings to the Design Review Committee, which is comprised of several architects, at the very beginning of the process. The Commission, after reviewing the drawings and meeting with the builder and architect, found the project to be appropriate for its site and setting.

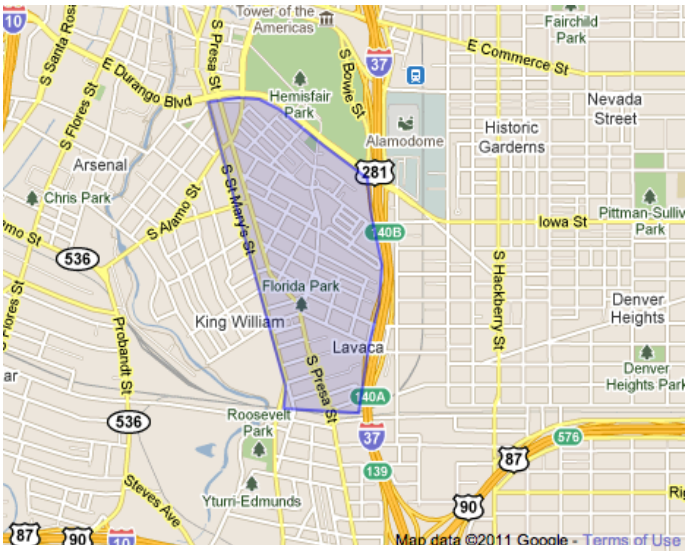
Two existing historic home in Lavaca (left) showing historic "skin" and the case study home (right) showing similar materials used in a more contemporary manner.

The Office of Historic Preservation is currently developing a set of Historic Design Guidelines that will apply to existing buildings and new construction in historic neighborhoods, and is specifically considering adding something about renewable energy to the regulations. As this is currently in development, no final decisions have yet been made. However, the rules preventing the system from being visible from the street still apply. OHP feels confident that as technology advances, it will facilitate the installation of solar energy on historic projects. Ms. Glover specifically cited technologies like building integrated photovoltaics as a technology that would be more in compliance with the FRESH test. As technologies advance and the footprint/silhouette of solar energy systems is further reduced, they are more apt to be incorporated in to the aesthetic design of the buildings and thus preserving historic character.

In summary, the Office of Historic Preservation had initial concerns over the design of this new construction project, but their concerns were alleviated by the builder and architect when presented with plans and drawings. The home was designed to not overshadow or dwarf surrounding and nearby structures, its footprint was similar in size to other homes in the neighborhood, and while the look of the home is much different, it uses materials similar in appearance and visual aesthetics to other homes in the neighborhood, but in a more contemporary fashion. OHP had very few major concerns about this project, and it proved relatively simple to receive the approval of the Office for the house at 107 Leigh Street.

Lavaca Neighborhood Association Perspective

The Lavaca Neighborhood Association was the third group that was surveyed for the purposes of this case study. We spoke with Curtis Bowers, the current President of the Neighborhood Association, about their experience with this project and with CVF Homes. The Neighborhood Association had absolutely no problem with CVF Homes' proposed project before construction began. In fact, Juan Fernandez of CVF Homes, lives in the neighborhood and has been active in the Neighborhood Association for some time. As reported by Mr. Fernandez, he



The Lavaca Neighborhood, located just south of downtown San Antonio, is the oldest existing neighborhood in the City

involved the Neighborhood Association early on in the process, to keep them informed of what his plans were and to make sure that the neighbors were accepting of the design and construction of the home at 107 Leigh Street.

As CVF Homes had already been active in the neighborhood through the purchase and renovation of several existing projects, the Neighborhood Association enthusiastically supported his efforts to build the home at 107 Leigh Street. Mr. Bowers stated that the previous renovation projects have all been very well received by the Neighborhood Association, as each renovated home completed and new family that moves into these houses strengthens and improves the neighborhood and community. The Neighborhood Association saw the home at 107 Leigh Street as a continuation of CVF Homes' efforts to revitalize the neighborhood, and thus offered no objections to the project.

As stated previously, Mr. Fernandez made sure to involve the Neighborhood Association as early on as possible during the process to keep neighbors apprised of the plans for the lot and home, and to help ensure that when the Historic Design & Review Commission asked the neighbors for their opinion of the project that they would give the go-ahead and not voice any concerns. The key factor was eliminating surprise, and making sure that, as this project could have ramifications on the feel of the neighborhood and community, that the neighborhood was understanding and above all, supportive of the efforts to build the home at 107 Leigh Street.

Conclusions and Findings

The conclusions of this case study are very encouraging. The number of obstacles and challenges present when building a new, solar powered home in an historic area proved to be significantly fewer and much easier to overcome than what was believed at the start.

CVF Homes faced a few extra challenges during the course of this project, but those were due to the unique features of the project itself. These include the framing of the home, consisting of a combination of metal and timber, and the installation of a greywater recycling system. The advanced framing simply necessitated a longer study and review process with the City of San Antonio, resulting in a permit process that took slightly longer than typical. The greywater recycling system caused the plumber to have to pull an extra permit, but that was easily overcome and cost less than $100.

The design of the structure was subject to review by the Historic Design and Review Commission, part of the City's Office of Historic Preservation, but the builder was easily able to alleviate concerns by demonstrating that the footprint, skin, and envelope of the home would be similar to existing homes in the neighborhood. Aside from minor tweaks to the original design, the home was approved "as is" by the Historic Design and Review Commission as well as by the Lavaca Neighborhood Association. While the home does have a much more contemporary design aesthetic, it uses similar materials and techniques to the exisiting homes in a more contemporary fashion. The important lesson learned is to choose an architect who is willing and capable of incorporating identical or similar features and materials of the existing structures in the area, thus making approval of said design a much higher probability.

Perhaps the biggest challenge faced by the builder was the planned solar photovoltaic system. The normal City of San Antonio permit for this solar PV system was not an obstacle. In fact, the solar energy system did not even require a separate permit; it was included in the general electrical permit required for any new construction project. The only challenge was due to the historic designation of the Lavaca neighborhood. The Office of Historic Preservation and Historic Design and Review Commission usually

prohibit the installation of solar energy systems in historic neighborhoods when the system is visible from the right-of-way. CVF Homes was fortunate that the design of the home as well as the location of the lot enabled the system to be installed in compliance with OHP regulations. Since the completion of this project, the Office of Historic Preservation has released official guidelines with regard to the installation of solar energy systems in historic areas. The guidelines offer a variety of options for the installation of solar panels. Details of each option may be found in Appendix I of this document.
In order of preference, the Office of Historic Preservation recommends:

1) **Freestanding or Detached On Site – ground mounted, arbor, trellis or other detached structure**
2) **New Construction On-Site** - a new building in a historic area
3) **Historic Accessory Structures**, such as carriage houses or garages
4) **Primary Historic Resource – the historic home itself**

Each of the options has recommended practices for minimizing the solar panels' visibility from the right-of-way. For freestanding or detached installation, the first preferred method, they should be screened either with material consistent with established historical materials in the neighborhood or appropriate vegetation. For new construction on-site, the panels should be incorporated into the initial design of the structure. View from the right of way should be minimized either through the particular roof surface on which they are installed or installation on the far edge of the roof, or, if possible, behind an architectural feature such as a chimney or parapet. If installing on a historic accessory structure, it is easier to reduce the view of the panels from the right-of-way, as carriage houses, garages and other structures are typically set back from the street and much less prominent and visible. Care should also be undertaken to install on the far side of the structure and if possible, positioning the panels behind architectural features. The primary historic resource installation guidelines are similar to the historic accessory installation guidelines, but because the panels are installed on the primary building itself, it can prove more difficult to shield the panels from view. Again, the Office of Historic Preservation recommends installing on roof surfaces not visible from the right-of-way or on the far edge of the roof. Also recommended is installing the panels behind chimneys, parpets, or dormers to reduce visibility.

For future new construction projects in historic neighborhoods, the best options for builders, in order of preference of the Office of Historic Preservation, are to build a detached structure on which to mount the solar panels and screen from view or to design the home so the solar panels are included and as unobtrusive as possible.

For retrofit projects, the preferred method of installation would be to installed the solar panels on a detached structure and screen from view of the right-of-way. Secondary options and best practices, in order of preference would be use of secondary historic accessories, such as carriage houses, garages, etc. or installation on the primary historic resource itself. In each of these last two cases, the panels should be oriented and installed in such a way as to not change the shape or slope of the roof and to minimize visibility from the right-of-way.

In all cases, regardless of the option employed, original and historic materials are not to be removed for the installation of the system. Existing architectural features such as parapets, chimneys or dormers are to be retained, and in no cases should an installation procedure irreversibly change historic features or materials.

As previously mentioned, the house examined in this case study benefitted from circumstances that allowed the builder to easily comply with recommendations from the Office of Historic Preservation with regard to the installation of solar panels, namely that the lot location was ideal for southern-facing panels. The builder and architect worked diligently to ensure that the panels were incorporated into the

initial design of the structure to ensure compliance with historic regulations. Incorporating panels into the design is a much simpler task when embarking on a new construction project. Retrofitting an existing structure with solar panels could be problematic. A lot might be oriented in such a way, or a roof constructed in a particular manner, that the only way to achieve optimum exposure for the panels is to have them viewable from the right-of-way. Another option is using building-integrated photovoltaics, or other non-traditional solar technologies. However, this could also prove difficult in historic areas, as the recommendations state that if solar shingles, laminates, or glazing are used, they are not to replace any existing historical materials. While these alternative solar technologies could be attractive in other areas, it could prove difficult to install in historic areas with the additional regulations concerning replacement or irreversible change to historic materials and features.

Another crucial factor relating to the solar energy system is the size of the system itself. A smaller system would make it easier to comply with the regulations in place for historic areas, as fewer panels are necessary and thus, easier to install in a less-visible area of the home. Best practices for reducing the size of the solar energy system call for making the home as efficient as possible first, and then sizing a solar energy system appropriate to the home. In the case of the home examined for this case study, it was certified through Build San Antonio Green's Level 3 Solar Home program, the highest performing program in the Build San Antonio Green family of programs. To achieve certification at this level, the home was required to be at least 50% more efficient than San Antonio City Code calls for before the solar energy system is factored in. Because this home met these increased efficiency standards, it only required a 6 kW system to be near net-zero. This is in stark contrast to the average residential solar installation in San Antonio. These are primarily installed on existing homes, average approximately 5 kW per system, and account for approximately 40% of expected energy use. If CVF Homes had opted to build a home to code-minimum standards, or even 15% or 30% above code-minimum, to make the home near net-zero energy would have required a significantly larger solar energy system. A larger solar energy system would have been more difficult to incorporate into the design of the home and thus might not have obtained approval from the Office of Historic Preservation. If it failed to achieve approval, then a smaller system, hidden from view, could conceivably have been installed, but the home would be much further from achieving a near net-zero energy status.

For retrofit projects in historic areas, the same logic applies – increase the efficiency of the home as much as possible and then add the solar energy system. Again, this allows for greater flexibility in installation as the system required will be much smaller and easier to shield from view of the right-of-way. In addition, the homeowner will enjoy a much better return on investment through energy efficiency measures than they would if they had opted for a solar energy installation first. It is true that solar energy is very popular, and many homeowners believe that is their best option for reducing utility bills, but in the case of existing homes, the best option in terms of energy saved per dollar invested is to tighten the building envelope. We would recommend that the homeowner hire a HERS Rater to obtain a detailed examination and report as to the status of their home. The HERS Rater's report provides specific information about specific improvements that should be made, as well as how much of an improvement can be expected from each. The homeowner thus has a scientifically-based report on which to base improvement decisions. This is beneficial because in most cases, the areas that can cause the greatest increase in efficiency are not subject to regulations from the Office of Historic Preservation. OHP's regulations concern only architectural and other exterior features. Anything done to the inside of home, whether it be air-sealing, added insulation, duct repair or replacement, or other efficiency measures does not require approval. If work is to be done to windows, approval must be obtained from OHP. Usually windows are not allowed to be replaced, as they represent a significant aspect of the historical nature of the home, but window repair is allowed with approval. Again, the HERS Rater's

report is a valuable tool, as the cost of repairing windows compared to the increased efficiency may not prove feasible, particularly when compared to other recommended improvements. With a repaired, more energy efficient home, the homeowner can then consider installation of a solar energy system and enjoy a smaller system that is easier to install while complying with historic regulations.

In case where, for whatever reason or reasons it is not feasible to fully comply with the Office of Historic Preservation's recommended practices, the best option is to work with the Office of Historic Preservation to determine a mutually agreeable compromise. The Office of Historic Preservation determines the eligibility of systems that are visible on a case-by-case basis, and there are no flat-out refusals of a "Certificate of Appropriateness" based on this. The important factor, as with the Neighborhood Association, is to foster a good working relationship with the Office of Historic Preservation as early in the process as possible, and have a willingness to compromise and work with them to reach a mutually agreeable arrangement.

The results of this case study are very encouraging. They demonstrate that with the correct design and involvement of all interested parties, a solar energy system can be installed on a project in a historic-designated area with little to no extra work or permitting required for the project. This study should serve as an example to other builders and solar contractors as best practices should they decide to embark on a similar project in an historic area. By utilizing the lessons learned, there should be very few, if any, major obstacles to increasing the number of solar energy installations in older neighborhoods that are subject to the Office of Historic Preservation's regulations.

Appendix I

San Antonio Office of Historic Preservation Guidelines and Recommendations for Solar Installations in Historic Areas

Courtesy City of San Antonio Office of Historic Preservation & Solar San Antonio

World Trade Center
118 Broadway, Suite 621
San Antonio, TX 78205
P: (210)354-0236

www.solarsanantonio.org

SOLAR SAN ANTONIO

OFFICE OF HISTORIC PRESERVATION san antonio

City of San Antonio Office of Historic Preservation
Guidelines for Solar Panels for Locally Designated Historic Properties

When planning the installation of solar panels the overall objective is to preserve character-defining features and historic fabric while accommodating the need for solar access to the greatest extent possible. All solar panel installations must be considered on a case by case basis recognizing that the best option will depend on the characteristics of the property under consideration. Some guidelines apply to virtually all installation options and are repeated in each section.

All solar panel installations should conform to the Secretary of the Interior's Standards for Rehabilitation.

Applicable Standards are:

Standard Two: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
Standard Nine: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
For most properties, locating solar panels on the primary facade is not an option because it will adversely effect on the property's character defining features. All other options should be thoroughly explored. Options are listed on order of preference.

1: Freestanding or Detached On-Site

Freestanding or detached on-site solar panels should be installed in locations that minimize visibility from the public right of way. These systems should be screened from the public right of way with materials elsewhere in the district such as fencing or vegetation of suitable scale for the district and setting.

Placement and design should not detract from the historic character of the site or destroy historic landscape materials.

Consideration to the visibility of solar panels from neighboring properties should be taken, without infringing upon the required solar access.

2: New Construction On-Site

Solar panels should be integrated into the initial design of new construction or infill projects, when possible, to assure cohesion of design within a historic context.

Solar panels should be installed on rear slopes or other locations not highly visible from the public right of way whenever possible. Panels should be installed flat and not alter the slope of the roof.

Flat roof structures should have solar panels set back from the roof edge to minimize visibility. Pitch and elevation should be adjusted to reduce visibility from the public right-of-way.

Use solar panels and mounting systems that are compatible in color to established roof materials. Mechanical equipment associated with the solar panel system should be treated to be as unobtrusive as possible.

Use of solar systems in windows or on walls, siding, or shutters should be installed with limited visibility from the public right-of-way. *Freestanding solar panels should be installed in locations that minimize visibility from the public right of way.*

3: Historic Accessory Structures

Solar panels should be installed on rear slopes or other locations not highly visible from the public right-of-way. Panels should be installed flat and not alter the slope of the roof. Installation of panels must be reversible and not damage the historic integrity of the resource and district.

Flat roof structures should have solar panel installations set back from the roof edge to minimize visibility. Pitch and elevation should be adjusted to reduce visibility from public right-of-way.

Solar panel installations should be positioned behind existing architectural features such as parapets, dormers, and chimneys to limit their visibility.

Use solar panels and mounting systems that are compatible in color to the property's roof materials. Mechanical equipment associated with the photovoltaic system should be as unobtrusive as possible.

4: Primary Historic Resource

Solar panels should be installed on rear slopes or other locations not easily visible from the public right-of-way.

Utilization of low-profile solar panels is recommended. Solar shingles laminates, glazing, or similar materials should not replace original or historic materials.

Use of solar systems in windows or on walls, siding, and shutters should be avoided.

Panels should be installed flat and not alter the slope of the roof. Installation of panels must be reversible and not damage to the historic integrity of the resource and district.

Solar panels should be positioned behind existing architectural features such as parapets, dormers, and chimneys to limit their visibility.

Use solar panels and mounting systems that are compatible in color to established roof materials. Mechanical equipment associated with the photovoltaic system should be treated to be as unobtrusive as possible.

Not Recommended for Any Reason

Removal of historic roofing materials during the installation of solar panels.

Removing or otherwise altering historic roof configuration – dormers, chimneys, or other features – to add solar panels.

Any other installation procedure that will cause irreversible changes to historic features or materials.

When considering retrofitting measures, historic building owners should keep in mind that there are no permanent solutions. One can only meet the standards being applied today with today's materials and techniques. In the future, it is likely that the standards and the technologies will change and a whole new retrofitting plan may be necessary. Thus, owners of historic buildings should limit retrofitting measures to those that achieve reasonable energy savings, at reasonable costs, with the least intrusion or impact on the character of the building.

National Park Service. *Preservation Brief 3: Conserving Energy in Historic Buildings.*
Available from: http://www.nps.gov/history/hps/TPS/briefs/brief03.htm#Preservation%20Retrofitting.

The information above is adapted from guidelines developed by Kimberly Kooles, Program Associate, Center for State and Local Policy, National Trust for Historic Preservation, as part of her work directing the National Alliance of Preservation Commissions Sustainable Preservation Initiative in 2007 – 2009

Appendix II

Presentation about the "FRESH Test" used to train Commissioners in determining appropriateness in Historic Districts

Courtesy City of San Antonio Office of Historic Preservation

Determining Compatibility for New Structures in a Historic District

fresh is important…

Why?

- Growing development in existing neighborhoods.
- Needs, tastes, and desires of modern homeowners are often different than previous generations.
- Market pressure to "max out" the building lot.

New buildings can drastically change a neighborhood – for better or worse.

fresh is

- **F**ootprint
- **R**oof Shape
- **E**nvelope
- **S**kin
- **H**oles

fresh!

The FOOTPRINT of the new structure should be similar to the footprints surrounding it.

fresh!

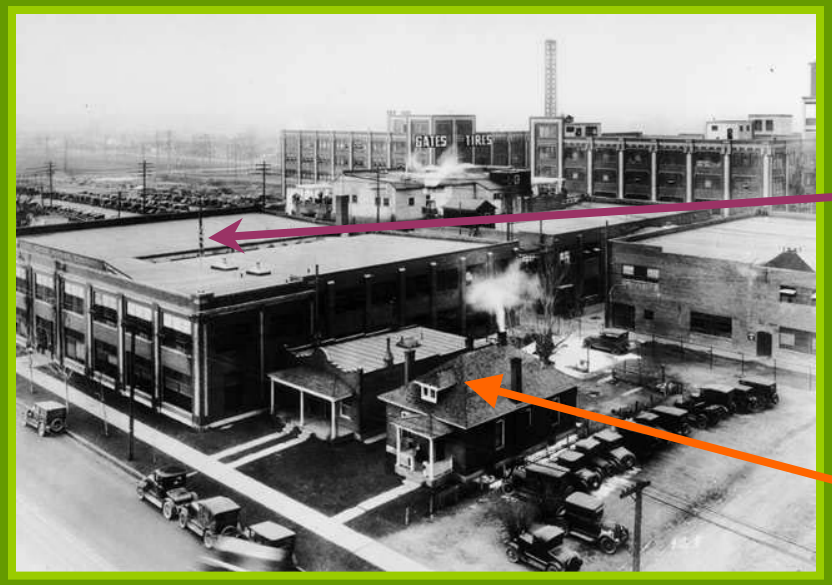
Footprints are often very similar in historic neighborhoods.

footprint

fresh!

FRESH infill projects have footprints which are compatible to surrounding buildings.

fresh!



Incompatible footprints can create unpleasant living conditions.

fresh!

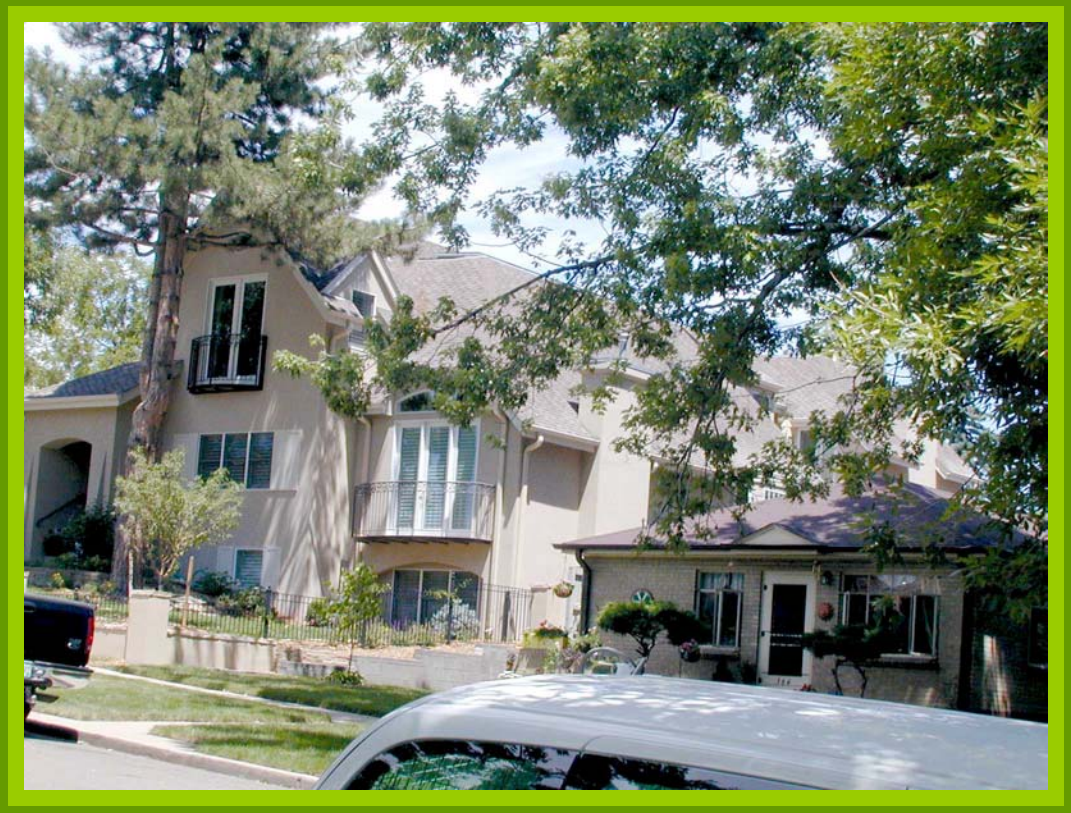
They can also create unusual or awkward relationships between buildings.

fresh!

On the other hand. . .
creative footprints can
protect nearby buildings
from demolition.

footprint

fresh!



Giant footprints easily dwarf nearby buildings, by taking up multiple lots or overshadowing their neighbors.

fresh!

The new ROOF should match existing roofs in pitch, complexity, and orientation.

fresh!

Roofs come in many shapes and sizes.

Gabled, hipped, and flat roofs are among the most common roof forms.

Changing the roof shape can make a big difference.

roof shape

fresh!

In many historic neighborhoods, the rooflines are fairly uniform.

fresh!

Combine the different footprint and the different roof shape, and you've got a house that just doesn't fit in...

roof shape

fresh!

New!

New buildings with compatible roofs blend easily into existing neighborhoods.

roof shape

fresh!

Downtown commercial areas are mostly made up of flat-roofed buildings.

roof shape

fresh!

Thus, in many cases a flat-roofed design is the best solution when constructing a new building in a downtown commercial district.

fresh!

"Pop-Tops" remove the original roof and add new floors to a building.

The original roof style is often changed during a "pop-top" renovation.

roof shape

fresh!

Large “pop-tops” can affect the entire neighborhood.

Smaller houses are overwhelmed by their newly-taller neighbors.

fresh!

The ENVELOPE of the new structure should match the existing in projections, bulk, height-to-width ratio, etc.

fresh!

The “envelope” is the outside shape of the building.

envelope

fresh!

If you shrink-wrapped a building and then removed everything but the shrink-wrap, you'd have the "envelope."

envelope

fresh!

old


new

New buildings can fit in by having similar envelopes to nearby historic buildings.

envelope

fresh!

If the envelope is too large, the infill building becomes the “monster truck” of the neighborhood.

envelope

fresh!

On the other hand, a modest-sized infill building fits right in.

fresh!

New structures should be clad in a visually and physically similar materials, or SKIN.

fresh!

What is the envelope clad in?

What is the surface material, and its characteristics?

FRESH buildings can be unique while remaining visually compatible with the rest of the neighborhood.

skin

fresh!

Building materials often played a critical role in 19th- and 20th-century architectural design.

They represent place, technology and ingenuity.

skin

fresh!

Materials can vary widely in style...

skin

fresh!

Inappropriate "skin" can make a big difference even when other FRESH elements are reasonably similar.

skin

fresh!

HOLES – doors, windows, and other openings – should mimic the style and pattern of openings used on surrounding structures.

fresh!

Doors and windows make "holes" in the structure.

Historic textile mill

holes

fresh!

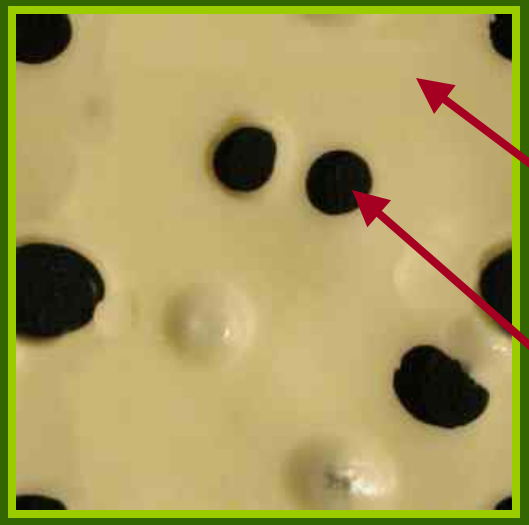
FRESH buildings
put the holes
where they belong!

New parking deck

holes

fresh!

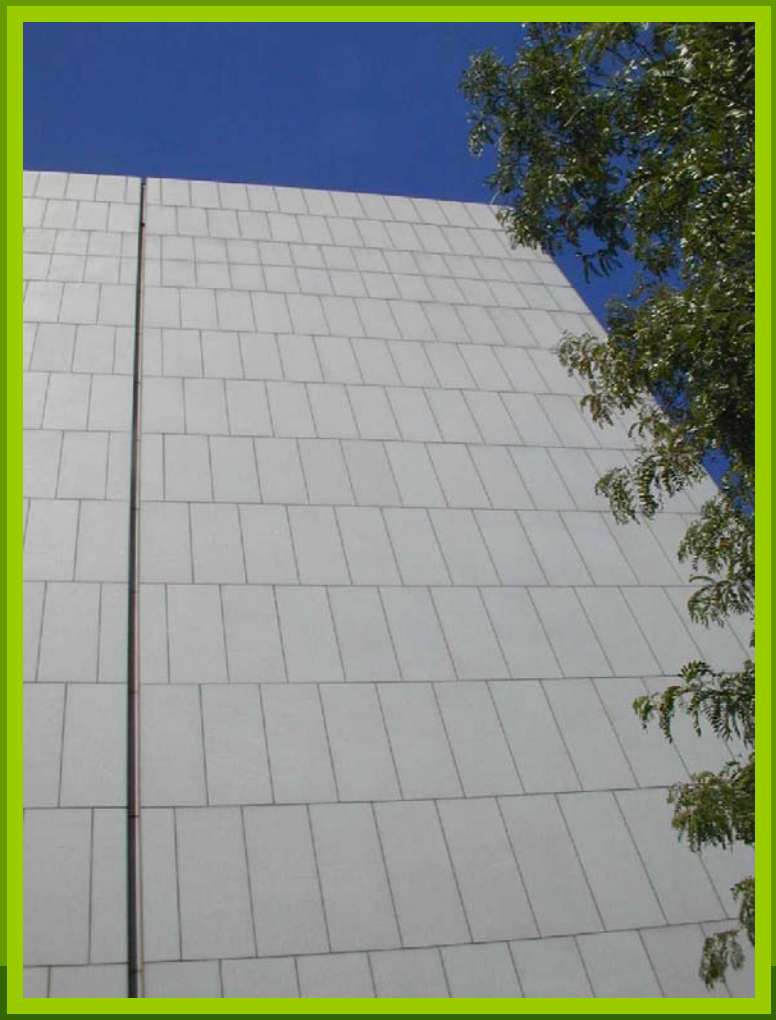
HOLES should follow the historic pattern of SOLID-TO-VOID RATIO:



The ratio between a building's WALLS (the "solid")
&
OPENINGS (the "void").

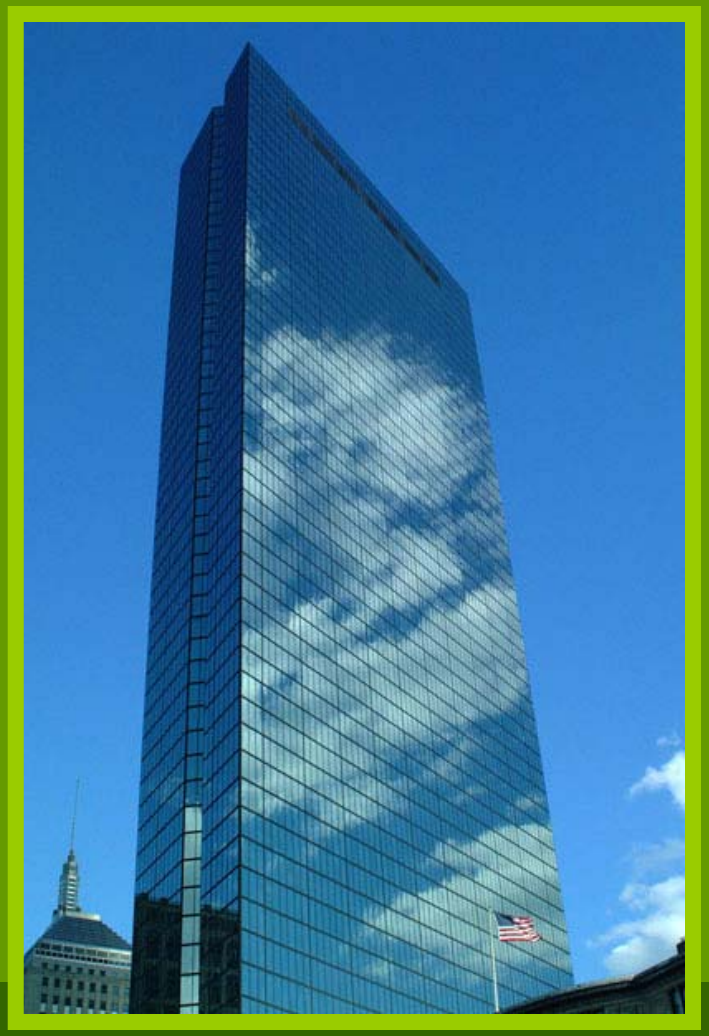
fresh!

Buildings can be 100% "solid", or...



holes

fresh!



…they can be 100% "void."

holes

fresh!

In most cases, however, the ratio is somewhere in between.

holes

fresh!

Doesn't this block look active and exciting?

A bad ratio can "kill" an otherwise healthy area.

holes

fresh!

In a FRESH building, the solid-void ratio is similar to the surrounding buildings.

But as we see here, it doesn't mean that the windows have to match exactly.

holes

fresh is…

- A way to remember the key components of good building design.
- A guide to creating compatible buildings for downtowns and neighborhoods.
- A means of encouraging new design while protecting historic resources.

enjoy!

Appendix III

Lavaca Neighborhood Design Guidelines

Courtesy City of San Antonio Office of Historic Preservation

The Lavaca Neighborhood Design Guidelines

San Antonio, Texas

Written and Illustrated by: Sue Ann Pemberton-Haugh, AIA
Mainstreet Architects Inc.

The Lavaca Neighborhood Design Guidelines for San Antonio, Texas has been made possible by the Community Partners Program of National Trust for Historic Preservation through a Grant from PEW Charitable Trusts in Cooperation with:

MainStreet Alliance of San Antonio
Southtown Urban Main Street Program
Lavaca Neighborhood Association
The City of San Antonio Historic Preservation Office and Housing and Community Development Department
The Texas Historical Commission

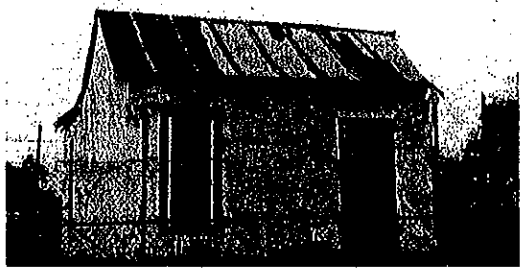
Thank you to the Lavaca Neighborhood Design Guidelines Task Force:

John Leith-Tetrault, Director, Community Partners Program, National Trust
Christine Viña, Executive Director, Southtown
Nathan Ratner, U. S. Department of Housing and Urban Development
Milton Babbitt, City of San Antonio Historic and Design Review Commission
Lucille Cockrell, San Antonio Historic and Design Review Commission
Jesse Flores, Neighborhood Housing Services
Roger Sanchez, San Antonio Development Agency
Lori Hall, City Housing and Community Development Department
David Ramirez, City Housing and Community Development Department
Edgar Lozano, City Housing and Community Development Department
Sharon Fleming, The Texas Historical Commission
Ron Bauml, San Antonio Conservation Society
Jody Williams, San Antonio Conservation Society
Katie Kosut, Alamo Architects
Irby Hightower, Alamo Architects
Ann McGlone, Historic Preservation Officer, City of San Antonio
Genie Cooper, City of San Antonio Historic Preservation Office
Rod Radle, San Antonio Alternative Housing Corporation

Table Of Contents

		Page
I.	INTRODUCTION	
	History of the Lavaca Neighborhood	1
	Map	3
	Neighborhood and Building Characteristics	4
	Secretary of the Interior's Standards for Rehabilitation	7
	Advisory Council Policy Statement	8
	Purpose and Rehabilitation Options	10
	Planning Process - Analysis and Evaluation of Buildings	12
II.	EXTERIOR REHABILITATION	
	Site Conditions	14
	Foundations and Skirting	15
	Exterior Wall Surfaces	17
	Historic Wood Windows	20
	Historic Porches	21
	Exterior Doors and Entrances	22
	Roofs and Roof Details	23
	Roof Edges and Gable Ends	24
III.	INTERIOR REHABILITATION	
	Interior Features of Significance	25
	Historic Floors	26
	Interior Walls and Ceilings	27
	Interior Millwork	28
	Unique Interior Details	29
IV.	APPENDIX	
	Lead Paint Abatement	31
	Glossary	33
	Federal Tax Incentive Program	37
	Section 106 Review	38
	City Enforcement and Jurisdiction	40
	Resources	41
	Preservation Briefs	42

Introduction



Early houses were constructed of soft local stone.

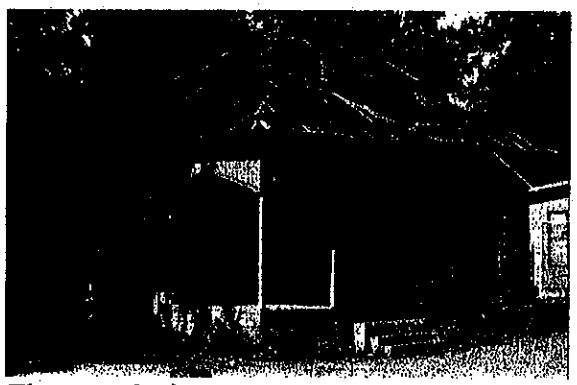
History of the Lavaca Neighborhood

The Lavaca Neighborhood is one of the oldest remaining residential areas in San Antonio. The neighborhood is generally bounded on the north by Durango Street, on the south includes the property facing Carolina Street, on the east by IH-37, and on the west by South Alamo and South St. Mary's Streets. The Lavaca area is defined by its small 19th century vernacular houses built primarily by working class families beginning in the early 1870s. This was approximately the same time that affluent San Antonians were building much larger homes several blocks away in the King William neighborhood. The neighborhood's original residents included carpenters, stonemasons, shopkeepers, clerks, tailors, bartenders, teamsters and butchers.

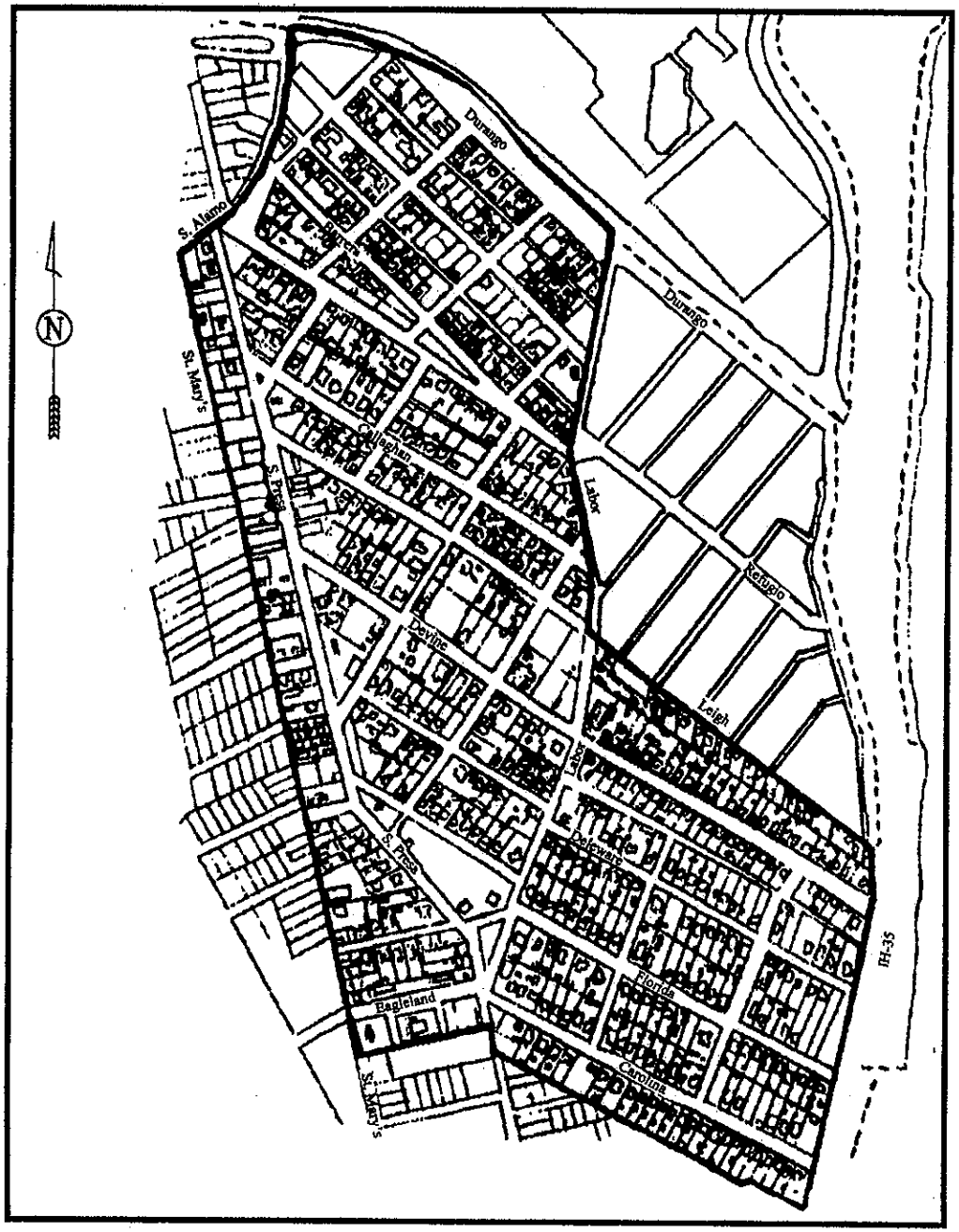
The area was originally part of the Labor de Afuera, the farmlands of Mission San Antonio de Valero (the Alamo) which were watered by the Acequia Madre, an irrigation ditch built by the Spanish in the 18th century. The mission lands were subdivided into suertes (arbitrary division of land based on a lottery system) in the early 19th century, and the property was owned by individuals. By the middle 19th century, land speculators including Thomas J. Devine and Sam Maverick had purchased large tracts in the Lavaca area.

When the Augustus Koch Bird's Eye View map of San Antonio was published in 1873, development in the Lavaca neighborhood was well underway, with construction along Lavaca and Barrera Streets. The later 1886 Bird's Eye View map documents further development in the area. Subdivisions of land made in 1877 on Barrera and Camargo Streets, and in 1888 on Callaghan Avenue, indicate the area's ongoing development. In the 1890s, Robert and Sarah Eager and William Leigh subdivided land south of Callaghan Avenue and along Leigh Street. Along the western boundary of the neighborhood on South Alamo Street, a firehouse, meat markets and beer gardens stood alongside residences. In the early 20th century, 1 and 2-story commercial buildings were constructed.

The first City Directory for San Antonio was published in 1877, and at that time, Lavaca Street residents included families with German, Polish, and Hispanic surnames. Of those listed, Germans were by far the predominant group. African Americans also resided in the area, primarily at the eastern end of the neighborhood that came to be known as *Baptist Settlement,* named for the New Light and Mount Zion Baptist churches, both founded there. In 1941 the housing in that portion of the neighborhood was razed for construction of the Victoria Courts public housing project.



This simple frame structure is found in the eastern portion of the neighborhood.



The Lavaca Neighborhood

is located just to the south of Downtown San Antonio. The area to the North of Durango Street was an Urban Renewal area which became the site of the 1968 Worlds Fair. The east is bounded by a Public Housing Project and an Interstate Highway. To the West of Lavaca lies the King William Historic District.

One and two-story houses of stone and wood frame line the streets of Lavaca.

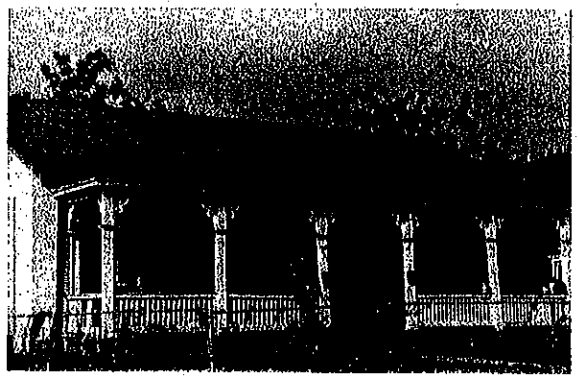
Many of the roofs are covered in standing seam metal.

Dormers are common roof features.

The Lavaca Neighborhood - Neighborhood and Building Characteristics

The majority of houses in the Lavaca Neighborhood were built from the early 1870s through the first quarter of the 20th century. Houses are primarily 1-story with some 2-story buildings interspersed and range from the very simple to the highly detailed. Notable styles include the vernacular stone or caliche block cottage, Victorian cottage, 2-story Victorian, Craftsman and a few of Neoclassical origin. While each style has its own unique characteristics, there are certain features which generally need to be recognized and maintained. The character defining elements include:

- Roof pitch and shape - generally, roof pitches are 8 inches in rise and 12 inches in run, or steeper, with many front facing gables and combination hip roofs.
- Roof material - Many roofs are covered with metal, whether standing seam, pressed shingle or V-Crimp. Some of the metal is installed over wood shingle. Some composition shingle roofing has replaced various materials such as wood shingle or standing seam metal.
- Roof edge/soffit, details, brackets - exposed rafter ends are found on craftsman and bungalow styles and boxed eaves are seen on Victorian cottages, many with brackets and decorative bargeboards, but the stone cottages generally have no overhang.
- Dormers, windows, vents, shingles - These features add to the character, with scale and details at the roof level, and distinction of period and style.
- Siding materials, drop siding, shingles, plaster - the predominance of drop siding and shingles on frame structures breaks down the scale of the facade and provides shadows to accentuate the detail of the house. Plaster over soft limestone is a common material used in houses of the late 1800s.
- Window proportions, materials, trims and surrounds - the vertical orientation and proportions of the windows and their corresponding trims and details add to the character of the neighborhood.



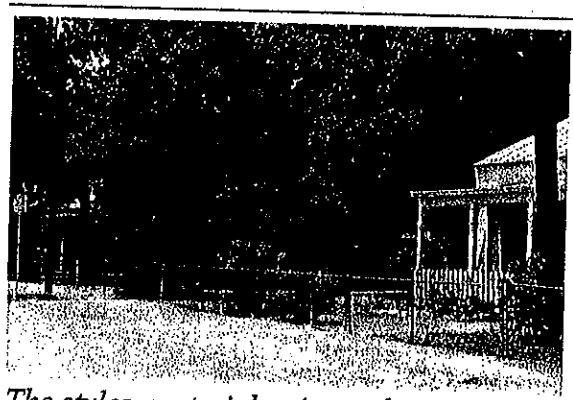
Porches frequently span the full front facade with columns, brackets and railings.

Front facing gables and porches establish a presence on the street.

- Decorative screens for windows or doors - Some of the windows are further defined by the use of decorative wood screens, again adding a sense of scale to the houses.
- Porches, columns, capitals, bases, brackets and railings - The many porch styles add to the variety and character of the details which enhance each facade in the neighborhood. Porches are generally used as an extension of the living room.
- Steps - Almost all houses are elevated above grade and require the use of steps to access the porches. These steps and corresponding hand rails add to the overall character of the house and neighborhood.
- Gable end treatments, shingles, windows, vents - A predominance of front facing gables offers other character defining elements such as decorative shingles, attic vents and windows, often with detail.
- Chimneys, number and detail - Multiple chimneys, usually brick, are characteristic of the houses in this and other older neighborhoods. Frequently the chimneys have corbeled caps.

There are also certain characteristics which must be recognized as important to the overall streetscape:

- Set back from street and orientation to street
- Height of the building in relationship to street and surrounding structures
- Configuration and massing
- Composition of facade elements
- Height of entry or porch to street level
- Driveway access, front or rear
- Out buildings
- Landscape features such as planting, sidewalks, fences and grottos



The styles, materials, size and periods of construction vary in the Lavaca Neighborhood.

While the exterior is noticeably different in style and material, the interiors have similar and notable characteristics which should be retained, especially in the more public spaces inside a residence are:

- Wood Floors
- Baseboards and Trim
- Special Ceiling and Wall Finishes
- Staircases
- Fireplaces
- Notable Built-in Features and Woodwork

Income producing properties in a National Register historic district may be eligible for a 20% federal income tax credit on rehabilitation costs if the work is in conformance with the Secretary's Standards.

The Secretary of the Interior's Standards For Rehabilitation and Guidelines for Rehabilitating Historic Buildings

The U.S. Department of the Interior developed ten national standards which address the rehabilitation of historic buildings. The standards describe appropriate preservation treatments. The Standards recommend ongoing maintenance and protection of historic properties to minimize the need for more substantial repairs and, recommend repair over replacement of historic features.

1. A property shall be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, space, and spatial relationships.
2. The historic character of a property shall be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, shall not be undertaken.
4. Changes to a property that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and where possible, materials. Replacement of missing features shall be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.
8. Archaeological resources shall be protected and preserved in place. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and shall be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

In issuing this policy statement, the Council seeks to promote a new, flexible approach toward affordable housing and historic preservation which is embodied in the following Principles for Implementation.

Advisory Council on Historic Preservation Policy Statement:

Affordable Housing and Historic Preservation

Principles for Implementation

I. Emphasize consensus-building
Section 106 reviews for affordable housing projects should emphasize the interests, desires, and values of affected communities, neighborhoods, and residents.

II. Elicit local views
Identification of historic properties should include discussions with the local community and neighborhood residents to ensure that their views receive full consideration.

III. Focus on the broader community
When assessing the effects of affordable housing projects, focus on the overall preservation potentials of the broader community, neighborhood, or "target area."

IV. Adhere to Secretary's *Standards* when feasible
Rehabilitation and abatement of hazardous conditions associated with affordable housing projects should adhere to the recommended approaches of the Secretary of the Interior's *Standards for Rehabilitation* and *Guidelines for Rehabilitating Historic Buildings.*

V. Include adequate background documentation
Proposals for non-emergency demolition of historic properties should demonstrate that rehabilitation is not economically or structurally feasible, or that retention would jeopardize the implementation of an affordable housing project.

VI. Emphasize exterior treatments
The Section 106 review process for affordable housing rehabilitation projects and abatement of hazardous conditions should emphasize the treatment of exteriors and be limited to significant interior features and spaces.

VII. Coordinate with other reviews

Where appropriate, Section 106 reviews for affordable housing projects should be conducted in conjunction with the Historic Rehabilitation Tax Credits and other State and local reviews to ensure consistency of reviews and to minimize delays.

VIII. Avoid archeological investigation

Archeological investigations should not be required for affordable housing projects which are limited to rehabilitation and require minimal ground disturbance.

IX. Develop programmatic approaches

State, county and local governments are encouraged to develop Programmatic Agreements that promote creative solutions to implement affordable housing projects and to streamline Section 106 reviews.

X. Empower local officials

Certified local governments that employ qualified preservation professionals, should be allowed to conduct Section 106 reviews on behalf of the Council and/or the SHPO for affordable housing projects when the local government has executed a Programmatic Agreement with the Council and SHPO.

The goal is an affordable rehabilitated house that contributes to the unique character of the Lavaca Neighborhood.

This house has unique features which should be preserved as rehabilitation takes place.

Purpose Of The Design Guidelines

The goal of the Lavaca Neighborhood Guidelines is to promote use of historic properties for affordable housing. It is intended to encourage the preservation of the character defining elements and unique features of housing in this inner city neighborhood without sacrificing affordability. These Guidelines will be used by the City of San Antonio's Housing and Community Development Office to plan the rehabilitation of Lavaca Neighborhood houses through its federally assisted affordable housing rehabilitation programs. Rehabilitation projects that conform with these Guidelines will be exempted from review typically conducted by the State Historic Preservation Officer (Texas Historical Commission) as mandated by the National Historic Preservation Act of 1966. Voluntary use of the Guidelines is encouraged for property owners in the maintenance and renovation of their properties.

These guidelines and recommendations are intended to focus on maintaining the character of the street facades with less emphasis on secondary elevations and interiors. Rehabilitation is often the least costly option. The condition of individual elements on each house will often determine the actual repair or replacement option and the end cost of repair.

Some of the recommendations outlined in this report are a direct response to the proposed HUD regulations for the abatement of lead-based paint. These pending regulations require the inclusion of alternatives which may not be sympathetic to traditional approaches to the preservation of historic building fabric and may not retain those characteristics which define the Lavaca neighborhood. However, deteriorated lead paint surfaces and lead paint dust should be treated carefully to produce a safe environment, especially if children under the age of six will be living in the house. The Appendix provides important information on how to address with lead paint hazards.

The options for repair or replacement outlined in these guidelines are numbered with the following relationship to condition:

- Option #1 recommends the retention and repair of original materials and is consistent with historic preservation practices. This option is recommended for portions of the house which are visible from the street and, if altered, would have a negative impact on the overall character of the neighborhood.
- Option #2 recommends replacement in kind and would be used when the original architectural element is missing or too badly damaged for repair.
- Option #3 allows replacement with alternative materials, thus changing to some extent the character of the original structure. Option #3 may be considered if Option #2 proves prohibitive in cost or if necessary to respond to lead-based paint hazards. Option #3 should be reviewed carefully with regard to the character of the structure and the neighborhood.

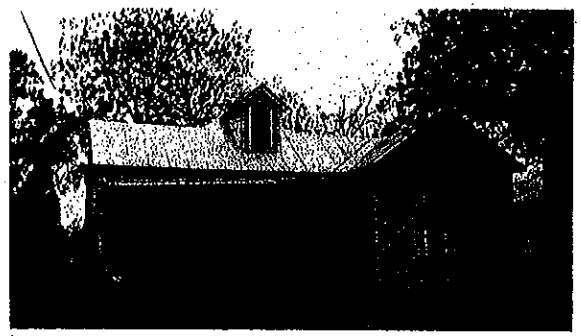
In some cases, utilizing Option #3 may not meet the Secretary of the Interior's Standards for Rehabilitation and therefore the project may not qualify for federal income tax credits as a certified rehabilitation. The City of San Antonio encourages preservation through an Ad Valorem Tax Exemption for buildings that have been substantially rehabilitated and meet the Standards. This exemption freezes City taxes on a property at a pre-rehabilitation value for a period of years.

It should also be noted that Option #3 may not be the least expensive alternative.

Through the use of options, the Owner has an opportunity, when planning the rehabilitation of the house, to weigh several different objectives including historic character, energy efficiency, maintenance costs, security and environmental hazards abatement.

The selection of Options 1 through 3 should be based primarily on the budget and condition of the specific building elements. The total scope of work and choice of options for each element should be viewed as a creative process involving the homeowner, contractor and City Historic Preservation review staff.

The goal of the design guidelines is to allow an affordable rehabilitation of a house that contributes to the unique character of the Lavaca Neighborhood.



Evaluate the existing condition and the extent of work required for the rehabilitation.

Retain as much of the original detail as possible.

Identify the character defining features.

Planning Process - Analysis and Evaluation of Buildings

An evaluation of the existing structure is necessary to establish the actual extent of work required. Each project presents its unique problems and outlines a different set of options and scope of work. It should be noted that retaining as much of the original building material and detailing is the goal, but at the same time the rehabilitation needs to be affordable. If there is a way to retain the original design intent at a comparable cost, this is the optimum solution. Part of the decisions of what, how much, and with what material will become evident as the condition of each element is determined. This evaluation should include the extent of lead paint encapsulization or abatement required for each house. Required treatment will be subject to change as HUD's regulations are finalized and implemented.

Evaluation Process

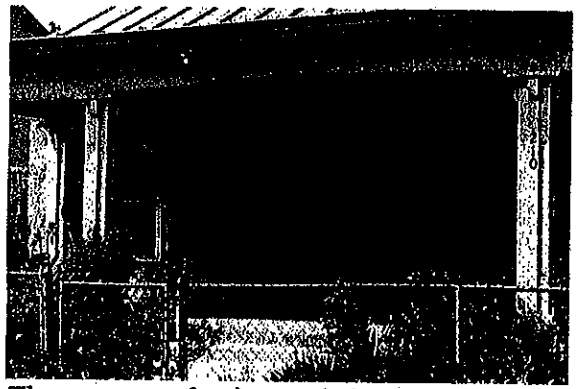
First, it is important to identify the "character defining" features of the historic building and relate their importance to the overall character of the street and the house. Refer to the previous section titled Neighborhood and Building Characteristics to help identify those features. Rehabilitation options chosen should reflect, in part, the location of the specific element. Prioritize the features with relationship to the street. Where practical, Options #1 and #2 are preferred for exterior elements that are visible to the street.

Second, review the Options outlined for each feature:

1. Retain and repair the original material or features.
2. Replace the original feature with new material to match the original in dimension, profile, and where possible, material.
3. Replace the original material with a substitute material or simpler design as recommended in each of the following sections.

Third, develop the overall scope of work by determining the quantity of each feature that must be repaired or replaced to establish what has to be done. Remember! Preservation is usually cheaper. If one window is beyond repair there is no need to replace all windows in the house; if there is a roof leak in one part of a standing seam metal roof, you may be able to repair the leak, without replacing the roof.

Repair or replace only those feature which must be replaced.



The stone on the front of this house is being restored through a grant from the San Antonio Conservation Society.

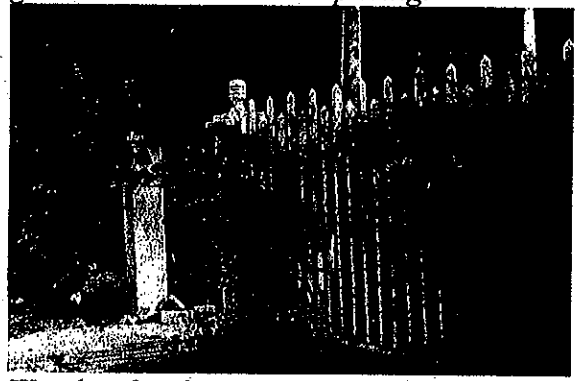
Last, add up the overall cost to determine whether it is within your budget. If not, revisit step three.

If compromises must be made with regard to budget and existing conditions, replace those features and facades which are the most visible from the street and have the most impact on the streetscape. For example, retaining the front porch is more important than retaining the wood siding on the rear elevation. Consider utilizing Option #1 on the street facade and use a substitute or alternative approach at the sides and rear.

It should be noted that there may be opportunities for limited financial assistance through loan and grant programs. The San Antonio Conservation Society has two limited funding programs available for the restoration of historic buildings. They are the Community Grant Program and the Revolving Fund Loan Program. The Division of Architecture of the Texas Historical Commission administers the Texas Preservation Trust Fund Program which awards grants for projects which meet certain preservation criteria. Please contact these agencies for more information. Their addresses and telephone numbers are listed in the Resources section of the Appendix

Exterior Rehabilitation

This concrete tire path driveway is a good alternative to solid paving.



Wood picket fences should be restored.

Garden loop wire fence is a preferred alternative to chain link fencing.

Rehabilitation of Historic Site Conditions

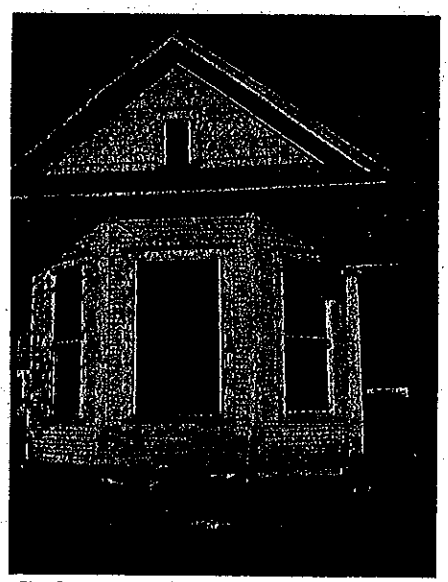
The Lavaca Neighborhood is typically flat land with small lots. The houses are close to the street without many site improvements, such as landscaping, fencing, driveways, and sidewalks. Some streets are very narrow and driveways are understated if they exist. Rear alley access is sometimes provided for cars. Front access driveways frequently had concrete strips, ribbons or tire paths. Tire paths or ribbons are recommended as an alternative to dirt or a completely solid surface on the driveway area and is less expensive than a solid concrete driveway. Other acceptable applications would be the installation of a hard edge, such as metal, filled with decomposed granite, pea gravel or asphalt.

Front yards are often fenced, some with wood picket and others with chain link. If wood fences exist they should be maintained and repaired. Chain link fence is not a historically appropriate fencing material for Lavaca. A garden loop wire or welded "hog wire" is a more appropriate fencing material than chain link, especially for front yards. Please note that the maximum height fence allowed by local code for a front yard is four feet.

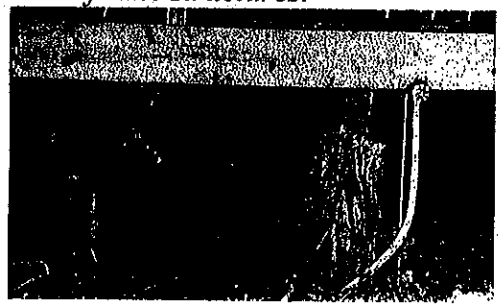
Most sidewalks are not elaborate but some may flair out at the porch and some of the walks are scored with a diamond patterned. These features should be maintained.

Options

1. Retain and repair as necessary any deteriorated historic original site materials and features.
2. If historic driveway ribbons, sidewalks or original fencing are deteriorated beyond repair, replace with new material to match the existing in scale and detail.
3. If repair or replacement is cost prohibitive, or if a feature no longer exists, the alternative materials listed above are considered appropriate. Consider installing the alternative material if located in a less visible location on the property.



Cedar post foundations are common to wood frame structures.



Pier and beam construction can be repaired with new wood members.

Lattice skirts allow for ventilation.

Rehabilitation of Foundations and Skirting

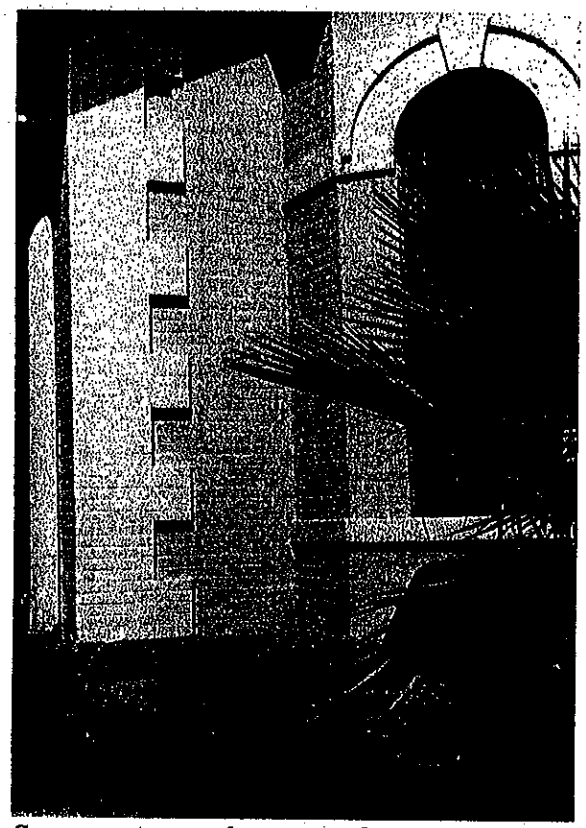
The majority of houses in the Lavaca Neighborhood are of frame construction with foundations consisting of cedar posts set into the ground. This type of construction raises the house above the ground and the space between house and ground is closed in with a wood "skirt". The posts have a tendency to fail over time causing the house to shift. The skirts also deteriorate over time. The best method to repair the foundation is to install new posts of cedar or chemically treated wood. This allows for leveling of floors and the addition of extra supports if needed.

There are, however, a number of masonry structures with masonry perimeter beams. The brick masonry structures have brick perimeter beams and interior supports similar to the pier and beam construction with interior posts of cedar, brick or stone. The most unique foundation is found on the soft limestone or caliche block houses. With this type of construction, all walls are load bearing, meaning the stone wall continues into the ground. Therefore there are perimeter stone beams as well as interior stone beams. Both stone and brick foundations may have deteriorated mortar and may require repointing. It is imperative to use mortar which is softer than the masonry. Ideally the replacement mortar will match the original in color and composition.

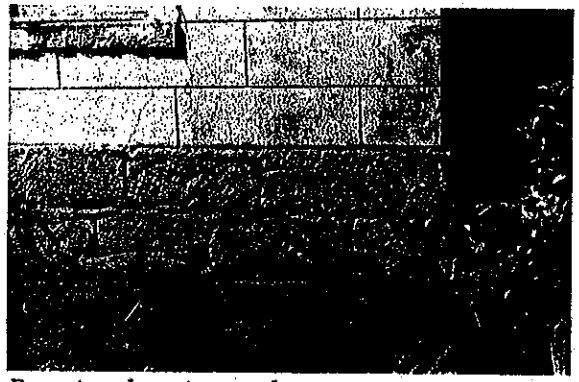
The skirting has a major visual impact on the structure. It transitions the structure to the ground and may have been lattice of a distinctive vertical and horizontal pattern. Ideally, the skirting should be maintained if possible or remade to match the original in design and material. Chemically treated 2x4's can be ripped into thin strips and used to create s new durable lattice. If the skirting must be replaced and there is a concern with wood rot, consider PVC lattice as a durable alternative to maintain historic appearance. Skirts of solid materials such as cement board siding or stucco are discouraged as a first choice because it changes the historic appearance and does not provide the essential ventilation of pier and beam foundations.

Options for the Rehabilitation of Cedar Posts and Skirting

1. Retain and repair deteriorated historic materials which can be seen from the street, for example, skirting. Replace deteriorated cedar posts and install new cedar posts as necessary for proper support.



Stone perimeter beams or foundations last well over a hundred years if well maintained.



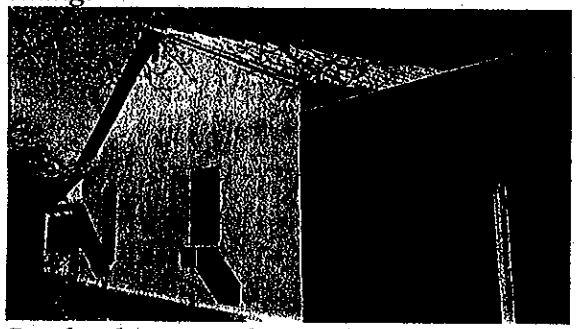
Repoint deteriorated masonry.

2. If the skirting is missing or deteriorated beyond repair, remove deteriorated material and replace in kind to match the original appearance.
3. If repair or replacement is cost prohibitive, consider replacing skirt with a substitute material such as cement board siding which is properly ventilated. Consider installing a stucco skirt only on the side and rear facades.

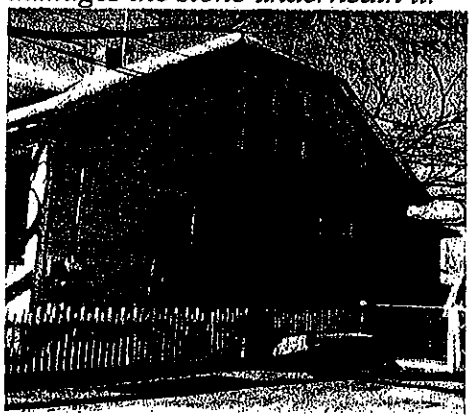
Options for the Rehabilitation of Masonry Foundations

1. Retain and repair deteriorated masonry in the foundation on all sides of the building. Replace deteriorated mortar to match original in color and composition.
2. If the masonry or mortar is deteriorated, replace mortar, stone or brick to match original. The mortar should include sand which matches the color of existing sand, white portland cement and at least as much lime as cement.
3. If repair or replacement is cost prohibitive, remove deteriorated material and replace old stone or brick with new or salvaged stone or brick to match as closely as possible in color and proportion. If the stone was originally covered with a soft plaster, reapply a soft lime plaster to the surface of the stone. If the foundation is not visible from the street and is badly deteriorated, consider installing an alternative material such as concrete block. Re-plaster foundation if previously plastered.

Many houses have horizontal wood siding.



Portland cement plaster or stucco damages the stone underneath it.



Deteriorated paint on wood siding should be properly removed during rehabilitation. The siding can then be primed and repainted for added life.

Rehabilitation of Exterior Wall Surfaces

Stucco, limestone, painted brick, board and batten and numerous profiles of horizontal wood siding cover the houses of Lavaca. The majority of the frame houses retain their original siding but a few of the houses have been covered with synthetic sidings such as asphalt, asbestos, vinyl or aluminum and occasionally, stucco. It is important to retain the original siding and its dimension, profile, and shadow lines. Most of the siding profiles are still manufactured and available locally. These should be used for repairs or, if the dimension varies, original material might be relocated to the primary facades and new material installed on less prominent facades. Many of the wood sidings have been on the houses for one hundred years and may well last another hundred if properly maintained and painted.

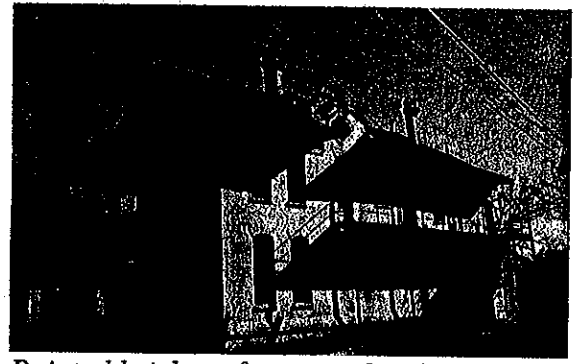
For the integrity of the neighborhood and the house itself, it is not recommended that any synthetic siding be installed over existing wood siding. This not only changes the appearance of the house but may also cause deterioration of the historic material which it covers. Additionally, synthetic sidings often conceal many of the original details. **However,** the abatement of deteriorated lead base paint may change the current thinking on the installation of these sidings. This will depend on the final regulations issued by HUD and in effect in 1998.

Limestone and caliche block houses in Lavaca were historically covered with a soft lime plaster to protect the soft stone from deterioration. Some of these houses have been covered with a modern portland cement plaster which is detrimental to the stone. This portland cement plaster should be removed and replaced with soft lime plaster if applied over caliche. The harder limestone structures may not require the plaster coating.

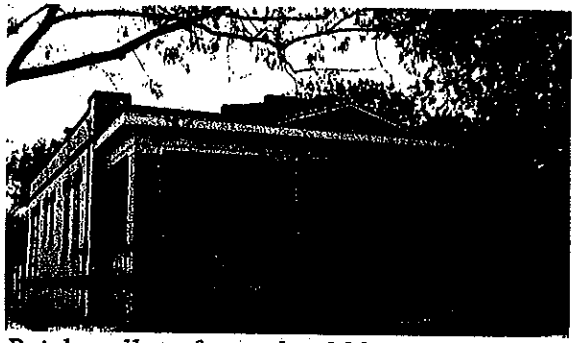
Options for the Rehabilitation of Wood Siding

1. Retain and repair existing wood siding and trim. Remove any non-original siding material and repair the underlying original siding. Reinstall trim of matching profile and dimension if missing or damaged.
2. If parts of the original siding and trim are deteriorated beyond repair or if trim is missing, replace with new wood to match in dimension and profile.

This existing synthetic siding could be removed and the wood siding beneath it could be restored.



Painted brick surfaces can be cleaned and missing brick replaced to restore the wall.



Brick wall surfaces should have deteriorated mortar replaced to keep moisture from entering the wall.

3. If portions of the original siding are deteriorated beyond repair, consider installing non-matching siding on the less prominent facades. Salvaged original siding should be reinstalled on the more visible sides of the house. Alternative siding should have the same basic profile as the original and may include newly milled wood, cement board siding with no "wood grain", or other composite board siding, again without "wood grain".

Options for Houses with Existing Synthetic Siding

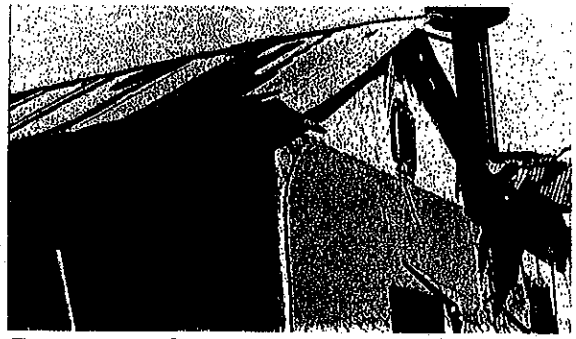
1. Remove existing synthetic siding and repair original siding and trim underneath.
2. If existing synthetic siding is in good repair and does not obliterate all original detail, consider retaining the synthetic siding. If original detail is concealed by the synthetic material, consider removing that material which covers the detail or reinstall trim and detail that has been removed. For example, reinstall corner boards that were removed when asbestos siding was installed.
3. If the synthetic siding is badly damaged or it is cost prohibitive to restore the original siding, consider removing the siding and replacing it with an alternative material of the same dimension and profile. Alternative sidings might include such products as cement board siding, or other board siding, etc.

Options for the Rehabilitation of Painted Brick Wall Surfaces

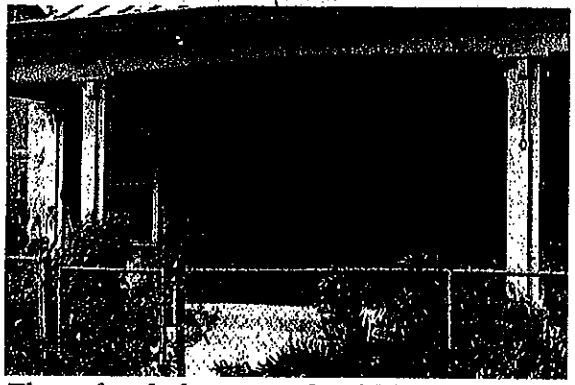
1. Retain and repair the original brick of the house including all detailing. Clean paint from brick using the gentlest means possible, such as low pressure water wash or chemical stripper. Replace mortar to match the original in composition, color, and profile. Replace any missing or damaged brick with salvaged brick of the same color and proportion.
2. If painted surfaces are in basically sound condition and it is cost prohibitive to remove existing paint, consider making any necessary repairs or repointing of the masonry wall and repaint with a breathable latex paint.

Options for the Rehabilitation of Stone and Stucco Wall Surfaces

1. Retain and repair deteriorated stone and mortar. Remove any non-original mortar and cement plaster from the wall. Replace mortar to match original in composition, color and profile. If the majority of the building is plastered and/or the stone is soft limestone or caliche, reinstall a soft lime plaster over the stone.



Deteriorated stone can be replaced and new mortar installed.

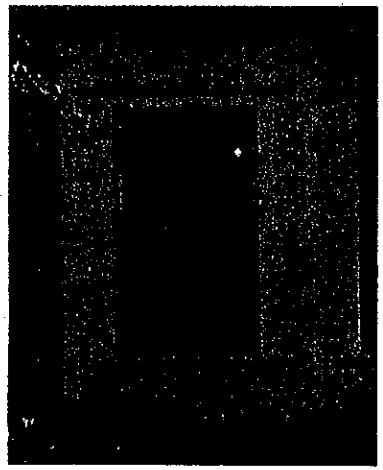


The soft caliche stone should be covered with a soft lime plaster to protect it.

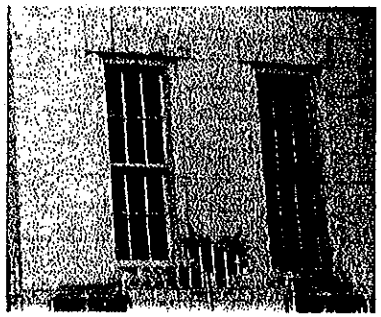
This limestone house requires no plaster coating.

2. If portions of the stone are deteriorated, remove damaged areas and replace with stone to match in color, texture and size. If only the face of the stone is damaged, consider removing the deteriorated face and installing a soap or shallow stone face to the stone. Replace mortar as necessary, matching original in composition, color and profile.

Windows are a very significant character defining feature.



The multiple pieces of glass in a single sash are important to the character of this house.



This 6 over 6 true divided light sash is important to the period of the house.

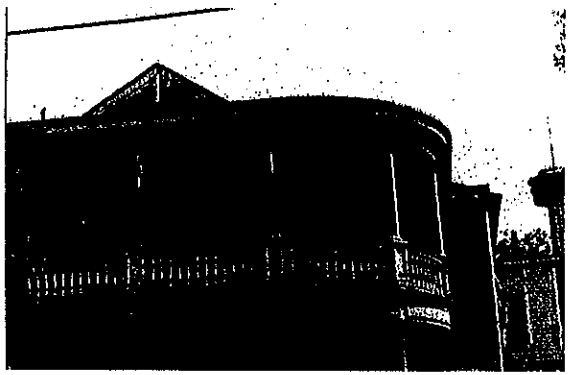
Rehabilitation of Historic Wood Windows

The windows of the Lavaca Neighborhood houses are the traditional wood, double hung, rope and pulley system. Many of the houses have a simple one over one configuration while others have the multiple pieces of glass in a single window sash. They play an important role in the character definition of the houses and the overall neighborhood. These windows should be retained and maintained if at all possible. Proper fit, weather stripping the sash, new glazing compound, and sealant around window frames at siding improves the energy efficiency of these windows substantially. It is most often not necessary to replace an entire window if only a portion is in need of repair. If a portion of the window is beyond repair, consider replacing the deteriorated portion only. If windows are missing or if frames are deteriorated beyond repair, then their replacement should have the same basic dimension and profile as the original. If a divided light sash must be replaced and a true divided light sash is too costly to reproduce, a simple light sash may be installed. No "snap-in" mullions or imitation dividers should be installed. Aluminum windows are not considered an option, except in existing additions that appear as additions. It has also been demonstrated that a well maintained wood window outlasts and outperforms an aluminum window in terms of lifespan and energy efficiency.

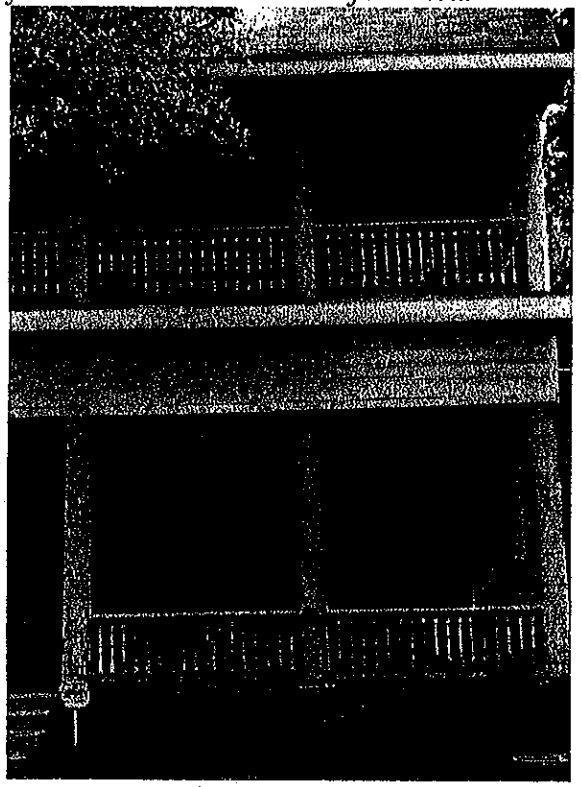
If the presence of lead paint, especially on the friction surface of the window, is the reason for window replacement, eliminate the friction surface by installing vinyl jamb liners and replacing the moveable bottom sash only. There will be more discussion regarding the influence of lead paint and the restoration of wood windows within the next two years as federal regulations are defined and put into place.

Options for Historic Wood Windows

1. Retain and repair all original window sash and frames.
2. If all or portions of the window are deteriorated beyond repair, replace the window or the deteriorated components with wood of the same dimension and profile.
3. If repair or replacement with an exact match is cost prohibitive, then consider replacing the deteriorated window with a compatible replacement. Generally, not all windows in a house will need to be replaced. Replace only those windows which are absolutely necessary.



Porches are the most prominent feature on all the houses of Lavaca.



Retain and repair turned wood railings, columns and porch deck.

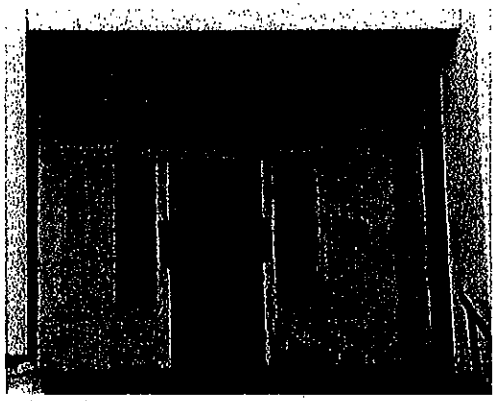
Historic Porches

The most prominent feature in Lavaca Neighborhood houses is the front porch, which is used as an extension of the living space and contributes to the character of the street and the neighborhood. While most of the porches are elevated above grade, some of the older structures are at grade. This is especially true of the stone structures. Many of the porches have been altered and original columns removed and replaced with fabricated metal or other inappropriate material and design, but the majority of the porches retain their character from elaborate gingerbread to bungalow brackets. Wood porch floors and column bases are usually the first things to fail on historic porches, but porch boards can be replaced with chemically treated boards of the same or similar dimension. Chemically treated No.1 yellow pine which has been back painted and properly primed works well. Frequently, the wood front steps and porch floor have been replaced with concrete. While the installation of concrete does eliminate some of the maintenance, it may also change the character of the house. At no time should the porch elevation be lowered to grade and the steps reconfigured.

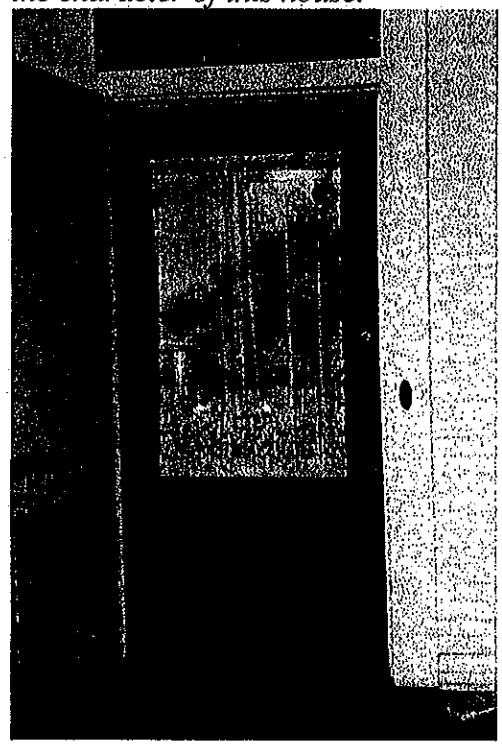
Many of the materials can be salvaged and repairs completed with the use of epoxy patching material, thus eliminating the replacement of original materials. If porches have been drastically altered, or if there is no clear idea of what was originally in place, they can be sympathetically redesigned. It is important that the overall character of the details be retained, even when incorporating a simpler replacement.

Options

1. Retain original material and repair to original configuration including porch floor, columns, railings and steps.
2. If all of the original material is missing or if part of the original is too badly deteriorated to repair, remove deteriorated materials and replace with new materials to match the profile of the original.
3. If repair or replacement is cost prohibitive, or if the feature no longer exists, consider replacing the original with an alternative design which retains the overall character of the porch design and details. For example, if turned wood spindles are too expensive, use simple square pickets.



This detailed arched entrance with transom and side lights is important to the character of this house.



This is a typical historic front door with the upper glass panel, wood screen door and transom.

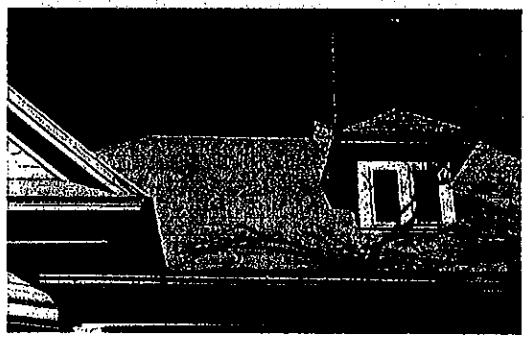
Rehabilitation of Exterior Doors and Entrances

The houses of Lavaca have a wide range of entry treatments corresponding to the variety of housing styles. Even the simplest of houses have a well defined entry. Many of the houses have multiple entrances and most house have transoms, frequently with side lights. Historic front doors usually have glass upper panels and should be repaired if at all possible. In cases where doors are damaged beyond repair or are completely missing, a salvaged door may be appropriate. A new entry with a simple but compatible design may be an acceptable solution. Another important feature is the wooden screen door, often with decorative inserts which is present on most houses. Screen doors should be repaired when possible or replaced with new wooden screen doors which have wider stiles and rails than their contemporary aluminum counterparts. If a full panel aluminum storm/screen door is the only affordable solution, a baked-on painted finish is more appropriate than a shiny aluminum "mill" finish.

It is important to maintain the multiple components of the entry doors, including glass panel doors, transoms, sidelights and screen doors. Transoms have often been boarded up rather than repaired. In the case where synthetic siding has been installed the transoms are frequently covered over. Covering a transom distorts the strong vertical proportions of the windows and doors.

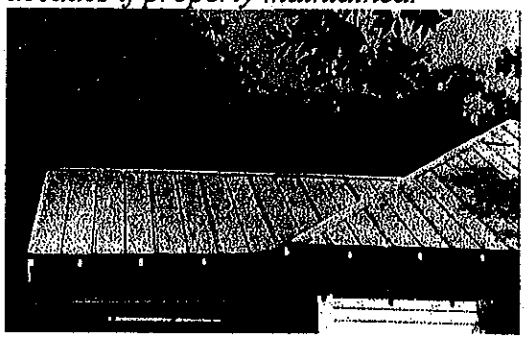
Options for the Rehabilitation of Entrances and Front doors

1. Retain and repair deteriorated entrance doors and screen doors. Ensure proper operation and install secure hardware. Repair damaged transoms and sidelights and replace any broken glass. Expose boarded up transoms when possible.
2. If the door is badly damaged or missing, replace with a salvaged door from a house of the same period or a new door of the same design. If a screen door is missing or too badly damaged to repair, replace with a new wood screen door of appropriate dimensions.
3. If repair or replacement with a door of the same kind is cost prohibitive, replace with a new wood door of a compatible design. If installation of a matching wooden screen door is cost prohibitive or if the screen door is to be replaced with a combination storm/screen, install a factory painted aluminum door.



This house is covered in pressed metal "fish-scale" shingles.

Standing seam metal roofs are common to the neighborhood and last for decades if properly maintained.



"V-crimp" metal roofing is an affordable alternative to composition shingle or a new standing seam roof.

Historic Roofs and Roof Details

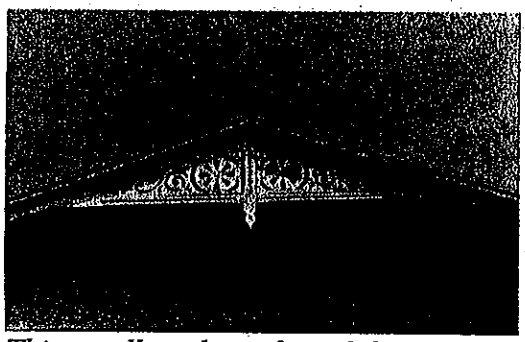
The Lavaca neighborhood is dominated by standing seam metal roofs with a few pressed metal shingles, a few wood shingles and of course composition shingle roofs. The standing seam metal roof adds a very distinctive vertical line to the roof of the house. Metal roofs are usually painted with a lead based paint and should be repainted to encapsulate the toxic lead paint. The condition of the paint and the future regulations regarding lead paint and its removal will be discussed at a later date as regulations are finalized.

Standing seam metal was often an early replacement for wood shingles and was installed directly over the wood shingle. If the metal roofing were to be removed and replaced with an alternative material it must be noted that a solid wood deck should be installed prior to new shingles. The composition shingle is currently the most common replacement material but another replacement option is "V-crimp" metal which is more similar to the appearance of standing seam metal. Multiple chimneys and dormers are also prominent features which add character and date the house. Dormers and vents are often neglected and dormer windows broken, allowing birds to nest in attics and rain to enter. Dormers, chimneys and vents should be retained, repaired and new flashing installed if necessary.

Pressed metal shingles give a unique dimension to the roof of a structure and if maintained, have a life of 60 or more years. New metal shingles are still available in the same profile as historic shingles if replacements are needed. Another alternative is to salvage metal shingles and reinstall them on the primary facades, and use an alternative material, "V-crimp," on less visible roof surfaces.

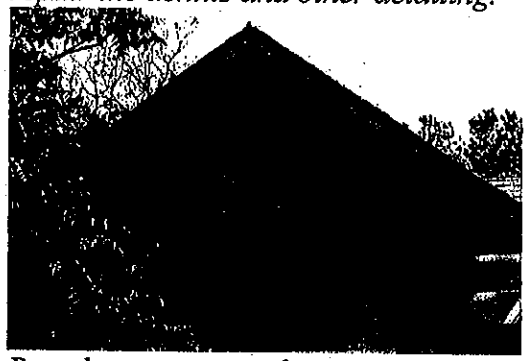
Options

1. Retain and repair original roofing material and features such as dormers, vents and chimneys.
2. If all or portions of the roofing material are beyond repair, replace only the severely damaged material with material to match the original in composition, dimension and profile.



This scroll cut bargeboard decorates the gable end of this roof.

The deteriorated wood in the soffit should be replaced and the horizontal brackets reinstalled. Retain and repair the dentils and other detailing.



Boxed eaves, or overhang, are a typical detail in the neighborhood.

3. If repair or replacement of a metal roof with an exact match is cost prohibitive, consider replacing the deteriorated material with an alternative replacement such as "V-Crimp" metal roofing or composition shingle.

Roof Edges and Gable Ends

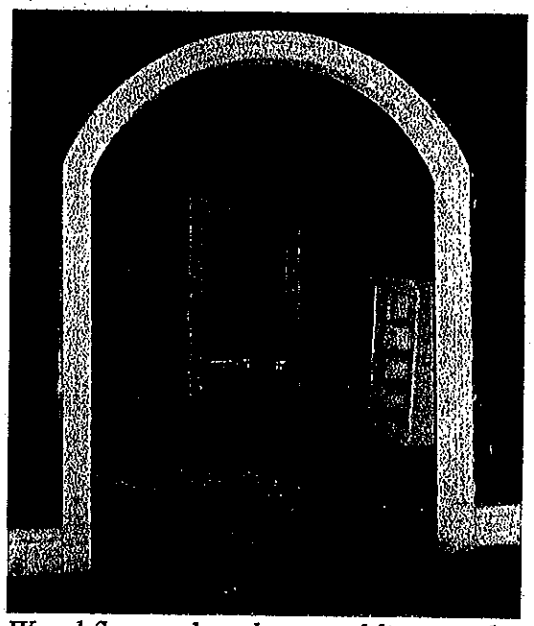
Roof edges and front facing gable ends are normally an area for decorative features on the houses of Lavaca. Gable ends frequently have shingled wall surfaces with decorative vents or windows and decorative barge boards. Frequently the triangle of a gable end is completed by a small portion of roofing which should be treated as roofing. Boxed eaves are sometimes accentuated with dentils and brackets or consoles. These features are important to the period of the houses whether Victorian, Classical or Craftsman. These details are also prone to damage and deterioration if a structure is not maintained.

The majority of houses in Lavaca do not have gutters and downspouts, but if installed, they must be anchored securely, painted to match the house and maintained.

Options

1. Retain original details and repair to original condition. Use epoxy repair as an alternative to replacing wooden elements if possible. Prime and repaint metal roofing in that area.
2. If all or portions of the original details are missing or are beyond repair, remove deteriorated elements and replace to match original in dimension and profile.
3. If repair or replacement is cost prohibitive, consider replacing the original using an alternative material which retains the overall character of the details. If the details are completely missing from the structure, consider replacing the detail using an alternative material and a sympathetic design.

Interior Rehabilitation



Wood floors, deep base moldings and arched openings are some of the interior features that should be retained during the rehabilitation of a house. The interior walls of this house have solid wood sheathing.

Interior Features of Significance

Architectural reviews for Housing and Community Development Office Loans will exclude interior spaces except for entrance hallways and stairwells. With the exception of these spaces. Voluntary compliance is encouraged.

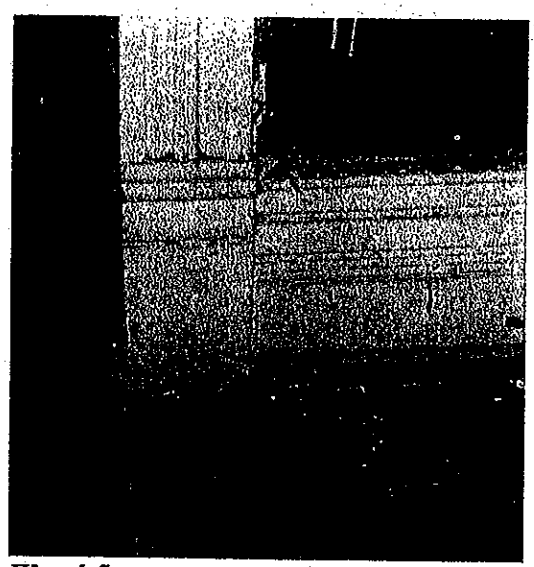
The houses of Lavaca, as in most other historic neighborhoods, have significant interior detailing which contributes to the character and identity of the house. The details found in most houses include wood floors, baseboards and trim. Some houses have significant features such as staircases, fireplaces, built-in cabinetry, beamed ceilings, interior transoms, fretwork, etc. Frequently, historic houses are remodeled on the interior to create additional closets, bathrooms and modern kitchens. These renovation changes should ideally maintain the overall floor plan and any historic features of the house.

The portions of the house which are most important to retain are the spaces seen by visitors such as entry halls, living and dining rooms and stairways. If these spaces have already been unsympathetically altered, consider returning them to their original character and configuration. More flexibility can be applied to less public spaces such as kitchen, baths, upstairs and bedrooms.

Most of the houses of frame construction had interior walls of wood boards covered with cheesecloth and wallpaper. This makes access to install insulation, plumbing and electrical wiring easily accomplished by removing some of the boards to gain access to the wall cavity. A few frame houses were constructed with wood lath and plaster walls and ceilings and the load bearing stone walls are nearly always plastered, making the addition of electrical and mechanical systems difficult.

Mechanical, electrical and plumbing system upgrades are common in the rehabilitation of historic houses. It is, however, important to control the visual impact on significant interior features.

Exterior modifications which may have an adverse impact on the interior of a building includes the replacement of windows, which affect the interior sill and trim.



Wood floors are one of the desired interior features of historic houses. The deep base moldings and trim along with the plinth blocks at the base of the door trim are a significant feature to retain and restore.

Rehabilitation of Historic Floors

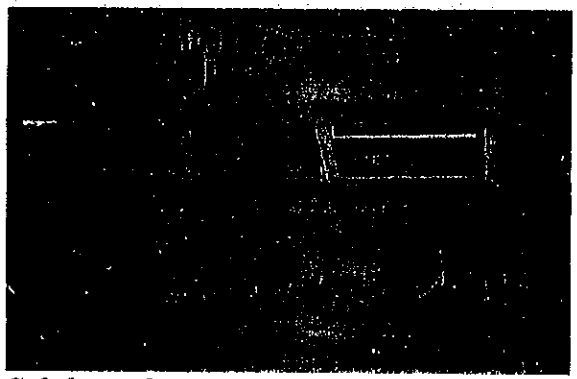
The wooden floors of the Lavaca Neighborhood houses are a warm and inviting feature. Although the floors are frequently given the term "hardwood," most are actually pine, often a long leaf pine, which is known for its strong, straight grain. One of the appeals of older housing is the existence of wood floors which, in this climate, are considered a cooler alternative to wall to wall carpet. Many of the floors have been covered with other materials such as carpet, vinyl, linoleum and tile which have, in some cases, protected the floors. Refinished wood floors are usually considered an asset to the property and should be retained especially in spaces seen by visitors. Floor boards which have been badly damaged can be removed and replaced with salvaged flooring or newly milled flooring which matches the original. Sanding and refinishing is appropriate for old wood floors but care should be taken in sanding.

Alternative materials, such as sheet vinyl or tile, may be appropriate in some rooms from a maintenance standpoint and can be installed over a new subfloor which allows for possible wood floor refinishing at a later date. Use a minimal amount of adhesives or fasteners if installing new flooring over good wood floors.

Wood flooring in the houses of Lavaca was sometimes painted in the service areas such as the kitchen and porch. This condition requires special attention during the refinishing process if the paint is lead-based.

Options for Wood Floors

1. Retain, repair and refinish existing wood floors, including thresholds and shoe molding. Apply a protective varnish or polyurethane finish.
2. If all or portions of the flooring are too badly damaged to retain, remove deteriorated portions and replace with newly milled tongue and groove flooring or salvaged wood with the same proportion, similar grain and color. Refinish the floor to blend old and new material. Mill new thresholds and shoe mold as necessary to match original.
3. If repair and refinishing are cost prohibitive, consider the installation of alternative materials over existing wood floors or install an alternative material over a new subfloor. These materials may include sheet vinyl, tile, or carpet.



Solid wood interior siding was installed over studs. When opened, this cavity can easily house wiring and insulation. Gypsum wallboard can be installed over these boards.

Solid wood walls and ceilings were originally covered with cheesecloth and wallpaper.

Rehabilitation of Interior Walls and Ceilings

Walls and ceilings play an important role in the visual appearance of the interior of a house. The type of construction found in Lavaca provides three different kinds of wall finish. The limestone and caliche block houses have plaster directly applied to the inside surface of the stone. Frame construction sometimes utilized the traditional wood lath and plaster finishing system, but more frequently, a solid wood ship lap was installed over the studs, and cheesecloth and wallpaper were applied over the wood.

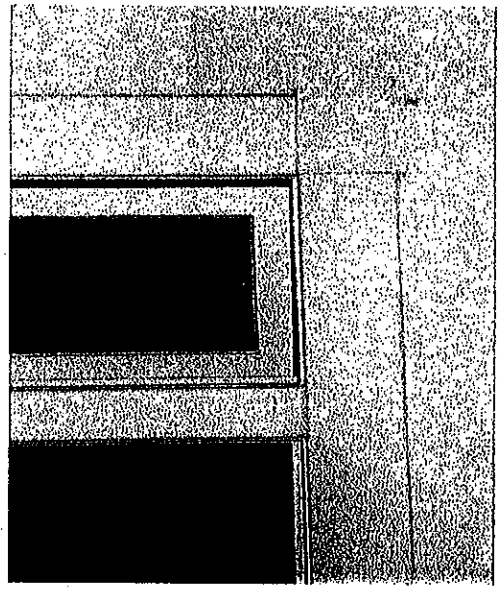
The rehabilitation of plaster on stone can only be achieved by removing any unsound plaster and installing new, compatible plaster on the stone.

If plaster on wood lath exists and is not beyond repair, it is recommended that the plaster be repaired and floated and finished to match the adjacent finish. However, if the plaster is badly deteriorated, remove the damaged plaster and lath and install new metal lath and plaster over the studs and joists OR consider installing gypsum wall board over the studs. Both of these replacements open the wall cavity for installation of new wiring and insulation. If wallboard is installed, two layers may be required to bring the surface plane out to its original location.

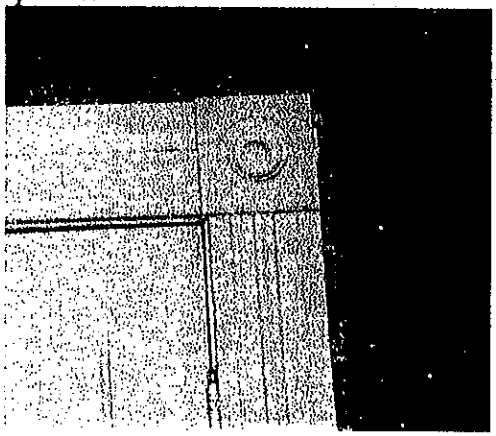
While the wallpaper and cheesecloth system is still reproducible, it may be more desirable to have a smooth painted surface for the wall finish. Gypsum wall board may be installed directly over the shiplap but attention should be paid to the profile and depth of the trim. Normally, the installation of ¼" wallboard does not drastically reduce the depth of the trim and provides an acceptable alternative application.

Options for Interior Walls and Ceilings

1. Retain and repair original wall and ceiling material. Match original finish.
2. If portions of the original walls and ceilings are too badly damaged to retain, remove deteriorated portions and replace with new material of the same composition. Finish to match the original finish.
3. If Option #2 is cost prohibitive, consider replacing severely damaged wall surfaces with gypsum wallboard. Install flush with original wall plane.



Interior transoms and corner blocks add to the character of the interior spaces.



This "bulls eye" corner block and carved wood trim should be retained and repaired.

Rehabilitation of Interior Millwork

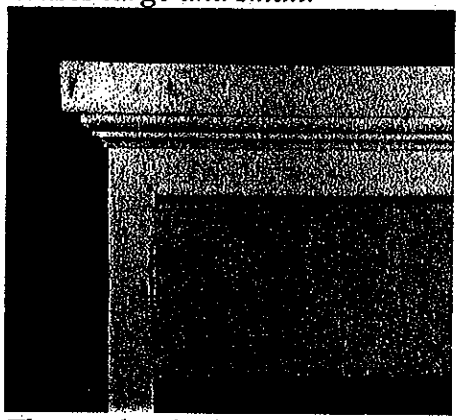
Most historic houses have distinctive interior trims and moldings and Lavaca is no exception. Most houses have multiple piece baseboards, door and window casings with corner blocks, plinth blocks and multiple panel doors. A few of the houses have detailing such as wood paneling and beaded board wainscot, beamed ceilings, crown moldings and fretwork. These details add to the character of houses of Lavaca. While much of the trim remains with its original varnish, many houses have had these trims painted, often with lead-based paint. The presence of lead-based paint may require extra precautions during rehabilitation. Most of the details can be repaired if damaged and replaced with similar detail if missing or beyond repair. Many of these elements are still available from lumber yards.

Doors, an important component of interior spaces, should be repaired if damaged or replaced if beyond repair or missing. Historic stile and rail doors have different panel configurations and may vary from those in entrance ways and living rooms to doors in bedrooms and baths. Doors can often be purchased from salvage companies or relocated from private spaces of the house to the more prominent public spaces. Flush panel or hollow core doors are not an acceptable option.

Options for Interior Millwork

1. Retain and repair original millwork, including doors, trim and detailing.
2. If portions of the millwork are damaged beyond repair or are missing, replace those areas with new material to match the original in dimension and profile.
3. If replacement in kind is cost prohibitive, or if the original detail no longer exists in the house, consider a simplified design which is reminiscent of the original design. Some details can be sympathetically replaced by using a composition of simple stock items.

This staircase has turned wood spindles which are common details in houses large and small.



This modest built-in cabinetry is useful and appealing. The doors are missing but were probably wood frame with glass panels.

Rehabilitation of Unique Interior Details

While the majority of houses in Lavaca are modest in construction, a few of the houses have unique interior features such as fireplaces, built-in cabinetry, staircases and spindle work. This detailing helps define the overall character of the house and quality of the interior spaces should be retained and repaired. Interior cabinetry provides visual appeal as well as functional storage space. This cabinetry was frequently constructed with glass panel doors which can be easily repaired. Often covered with multiple coats of paint, the removal of this paint may require additional precautions with regard to the existence of lead-based paint. Use caution when removing paint from these features to avoid damaging the detail.

While fireplaces add physical warmth to a space, they also add visual warmth and should be retained. There are two types of fireplaces in Lavaca. Traditional fireplaces feature tile faces and hearths with decorative wood mantels and surrounds. The fireplaces in the older limestone cottages are more modest in detail, frequently plastered to match the walls with some featuring modest tile detailing. If the fireplaces are no longer functional, they should still be retained, especially in the primary rooms of the house.

A few of the houses are two-story and the staircases and railings are an important part of the design. If a few pieces of the railing are missing it is worth having them milled to match. If "one of a kind" pieces such as newel posts are missing, consider constructing a new post in a simpler design that is compatible with the original.

Options for Interior Features

1. Retain and repair original features including their material and detail.
2. If portions of these features are missing or too deteriorated to repair, replace those areas with new material which matches the original in dimension, detail and profile.
3. If replacement in kind is cost prohibitive or if the elements are completely missing, consider replacing the feature or portions of the feature with a new compatible design which emulates the original in dimension and profile. New tile

may be installed around fireplaces and hearths which is of similar proportion to the original. Surrounds and mantles of a simpler design may be installed. Important detailing may be relocated from less prominent to more prominent locations in the house.

Appendix

Lead Paint Abatement

In the United States today, the most common environmental health hazard for young children is lead poisoning from lead-based paint and the contaminating dust it produces.

The Environmental Protection Agency estimates that three-quarters of the country's housing stock built prior to 1978 contains lead-based paint. The quantities range from 90 percent of housing units built before 1940 to 62 percent of units built between 1960 and 1978. While it is no longer used in paint, having been banned in 1978, lead is a toxic substance. It poisons the human body, attacking both the organs and every system. Lead poisoning is especially damaging to the early development of the brain and nervous system which places young children under the age of six and unborn children at the highest risk.

Lead dust, the primary source of all lead poisoning is either inhaled or ingested. Young children are most likely to contract lead poisoning from ingesting the lead contaminated surface dust that is generated from the deterioration of lead based paint. Lead is released due to moisture damage, friction and impact on impact surfaces, and of course disturbance during the course of residential renovation and repair work. It may also be carried into the home from contaminated exterior dust and soil. Children who inhale or ingest this dust run the risk of developing high blood lead levels which may cause brain and nervous systems damage, lower IQ scores, slower development and shorter attention spans. Ironically, the vast majority of childhood lead poisoning cases go undetected and untreated since there are no obvious symptoms of high lead levels in the blood.

While additional safety precautions are necessary during rehabilitation, historic properties can be made lead-safe without destroying their character.

Adults may also suffer harm due to inhalation of lead dust. Difficulties during pregnancy, reproductive problems in both men and women, high blood pressure, digestive problems, memory and concentration problems and muscle and joint pain are all physical ailments that may be attributed to high levels of lead in the blood.

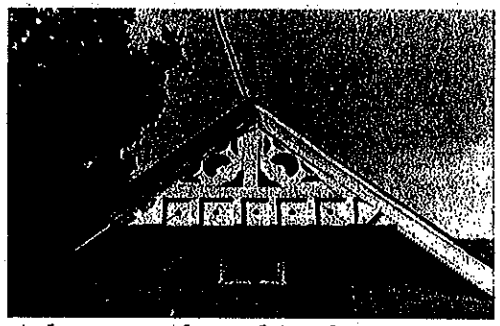
However, there are many practical and immediate safeguards in protecting one's home, family and health against the presence and potential physical damage of lead- based paint that exists in older homes. Weekly cleaning of floors, window frames, window sills and other surfaces; frequent washing of children's hands, especially before they eat or sleep; preventing children from chewing window sills or other

painted surfaces; and serving nutritious, low fat foods high in iron and calcium (children with good diets absorb less lead) are all relatively routine and easy methods of reducing the risk of lead hazards in the home.

There are basically two thoughts on mitigation of lead paint hazards in older houses. The first is to control the danger and the second is to completely eliminate the source. The lead paint hazard can be controlled by removing deteriorated lead-based paint, encapsulating or covering it, eliminating the friction and impact surfaces producing lead dust, planting over contaminated soil, etc. Complete abatement requires the total removal of the lead-paint on all interior and exterior surfaces

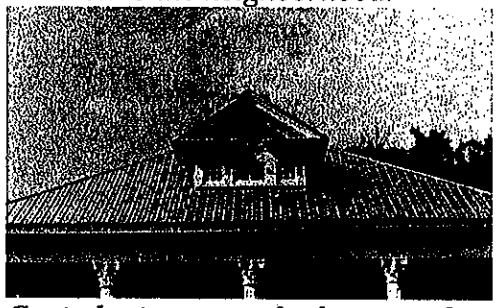
Abatement usually occurs during the rehabilitation of a house. Rehabilitation is also the time when walls and surfaces are most likely to release lead dust into the air. The owner should inform workers that the potential lead hazard exists. The contractor should use appropriate precautions and comply with applicable laws when removing and disposing of lead contaminated material.

The goal of lead paint mitigation is to have a renovated, lead-safe house which contributes to the Lavaca Neighborhood.



A decorative bargeboard appears on a gable end.

This roof form has a combination of hip, gable and dormer which is common to the neighborhood.



Capitals sit on top of columns and support the roof. The dormer projects above the roof the metal roof.

GLOSSARY OF TERMS

Bargeboard - sloped boards at the edge of a projecting overhang at the gable end; often decoratively carved or scrolled

Base - lower part of a column or pier, wider than the shaft, and resting on a plinth, pedestal or podium

Board and Batten Siding - a siding consisting of long vertical boards and thin strips, or battens; the battens are used to conceal the gaps between the siding boards

Brackets - projecting support members found under eaves or other overhangs; may be plain or decorated

Built-in - cabinetry or furniture that is built as an integral part of the larger construction

Capital - the topmost member of a column (see photo - this page)

Combination Hip Roof - a composition of more than one hipped element at the roof or a combination of hipped and gable roof forms

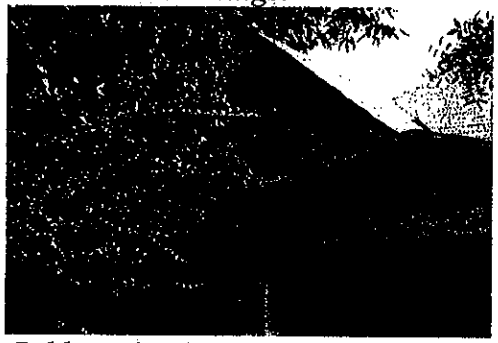
Composition Shingles - shingles made from a mixture of binder materials with fibers, also called asphalt shingles

Console - a decorative bracket in the form of a vertical scroll, projecting from a wall to support a cornice, a door or window head etc.

Corbelled Chimney Cap - a brick or stone capping at the top of a chimney that has a series of projections, each stepping out further than the one below it.

Corner Block - a square block used to trim casing at the upper corners of door or window surrounds; typically decorated with a milled bull's eye, known as rosettes

This house has fabricated metal porch columns and railings.



Gable ends often have decorative shingles, windows or vents.

Garden loop wire fence is an appropriate alternative to non-historic chain link fencing.

Dentils - one of a band of small, square, tooth like blocks found in a series on cornices, molding etc.

Dormer - a vertical window which projects from a sloping roof

Divided Light Sash - a window with glass divided into small panes

Drop Siding - a type of wood cladding characterized by overlapping boards with either tongued and grooved or rabbetted top and bottom edges

Fabricated Metal - any kind of building component manufactured of metal, often decorative in nature and frequently used as columns and railings

Fretwork - ornamental wood which is usually carved or turned and installed over doorways and openings

Front Facing Gable - the end wall of a building with a gable roof that faces the street

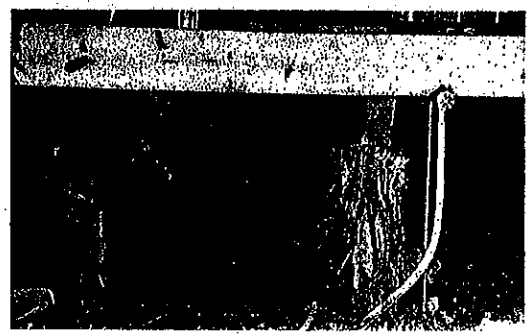
Gable end - an end wall having a gable (vertical triangular portion of the end of a building having a double sloping roof) from the level of the cornice or eaves to the ridge of the roof

Garden Loop Fence - a woven wire fencing which is distinguished by the loop at the top and mid height

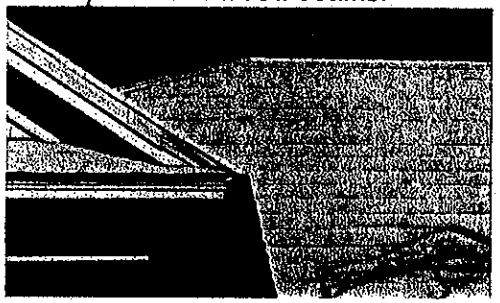
Lath and Plaster - a metal mesh or wood strips with plaster, a paste-like material, applied to surfaces such as walls or ceilings

Load Bearing Wall - a wall capable of supporting an imposed load in addition to its own weight. These walls frequently run the full height of a building from foundation to roof

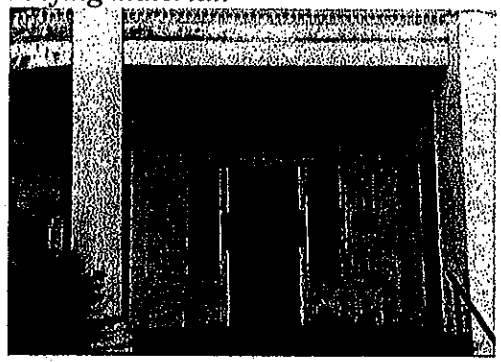
Mortar - a paste-like mixture installed between masonry units, such as brick or stone. It is usually made of cement, lime, water and sand



Pier and beam foundations are typical in Lavaca and are constructed with cedar posts and wood beams.



Pressed metal shingles are a common roofing material.



Transom and side lights are common at entry doors.

Out Building - a building detached from the main house or structure but all located on a single lot

Pier and Beam - a foundation system consisting of rows of posts spaced at appropriate intervals and supporting beams which form a base for the house built on it

Plinth Block - a small, slightly projecting block at the bottom of the door trim, extending to the finished floor

Pressed Metal Shingle Roofing - a roofing unit or shingle which is pressed from sheet metal and frequently has a decorative pattern

Repoint - the removal of mortar from between the joints of masonry units and the replacing of it with new mortar. Mortar should match the original in composition

Shiplap - horizontal wood sheathing which butts together. When used on the interior walls it was frequently covered with cheesecloth and wallpaper

Side Light - a narrow window adjacent to a door or wider window, and the height as the door or window, most often one of a pair flanking an entrance door

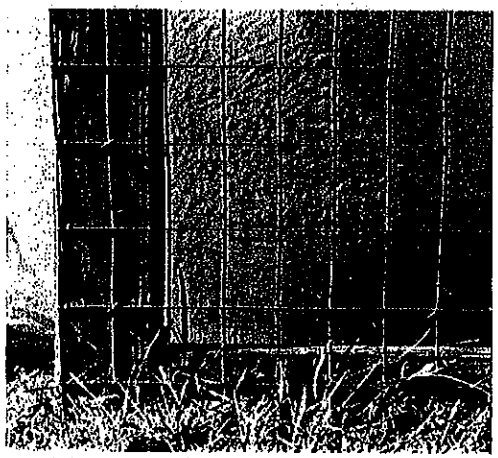
Soap - a replacement stone face about 2 inches in thickness

Soffit - the exposed, often flat, underside of a roof overhang

Standing Seam Metal Roofing - a sheet metal roofing with vertical folded seams running parallel along the slope

Stile and Rail Door - components of a door; the stiles are the upright structural members and the rails are the horizontal framing members at top, middle and bottom of the door

Tongue and Groove - a joint composed of a rib (tongue) received by a groove, frequently seen in wood flooring and paneling



Welded wire fence called "hog wire" is an appropriate alternative to chain link.

Transom - a small window or series of panes above a door or window, frequently used with side lights at an entry door

Turned Wood Railing - a railing whose architectural components are turned on a lathe to create a spindle

V-Crimp Roofing - sheet metal roofing which is folded to create a "v" in profile and laps at a "V" joint

Welded Wire Fencing - a welded wire fencing comprised of square or rectangular openings also known locally as "hog wire"

In order to encourage investment in historic buildings and the revitalization of historic districts, the Tax Reform Act of 1986 established a 20% and 10% federal tax credit for the rehabilitation of historic buildings.

FEDERAL TAX INCENTIVE FOR REHABILITATION

Tax credits are available for income producing properties such as offices, for commercial enterprises or for rental housing. The Federal historic preservation tax incentives program is jointly administered by the Internal Revenue Service and the National Park Service through the State Historic Preservation Office which, in Texas, is the Texas Historical Commission.

To be eligible for a tax credit, a project must meet certain requirements of the Internal Revenue Code. The rehabilitation costs must exceed either $5,000 or the value of property, minus the land, whichever is greater. The project cost must be incurred within 24 months of 60 months if the project is phased and plans are completed before the first rehabilitation begins. The owner must hold the building for five years after rehabilitation.

The tax credit lowers the amount of income subject to taxation. The 20% tax credit rehabilitation investment tax credit equals 20% of the amount spent in a certified rehabilitation of a certified historic structure. The 10% rehabilitation investment tax credit equals 10% of the amount spent to rehabilitate a non-historic building built before 1936.

The 20% tax credit is available for rehabilitation work on the affected portion of a building listed in the National Register of Historic Places (NR) or located in a NR District and considered to be "contributing" to the district. Owners seeking to have a project certified must complete Parts 1, 2, and 3 of the Historic Preservation Application and submit it to the Texas Historical Commission. The proposed work must meet the Secretary of the Interior's Standards for Rehabilitation. Please note that conformance with the Lavaca Design Guidelines does not necessarily constitute acceptable work for a certified rehabilitation project.

The 10% tax credit does not apply to rental housing units or properties of historic significance. Owners of properties in National Register districts may claim the 10% credit if they file a Part 1 with the Park Service and receive a determination that the building does not contribute to the district.

Section 106 of the National Historic Preservation Act requires Federal agencies, such as the U.S. Department of Housing and Urban Development (HUD) to "take into account" the effect of their undertakings on historic properties and afford the Advisory Council on Historic Preservation the opportunity to comment on such undertakings.

THE NATIONAL HISTORIC PRESERVATION ACT: "SECTION 106" REVIEW

Background

During the 1950s and 1960s Federal projects – such as highways, dams, and urban renewal – were completed with little regard to toward historic resources and, as a result, Federal projects destroyed or damaged thousands of historic properties, to the dismay of local citizens and policy makers. Congress recognized that new legislation was needed to ensure that Federal agencies considered historic properties in their planning.

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA) was passed to address this need. It is the cornerstone of our country's historic preservation policy. Section 106 refers to the federal review process designed to ensure that historic properties are considered during project planning and execution.

Basic Section 106 Steps

Generally, Section 106 review occurs on a project by project basis and will involve the Federal agency and the State Historic Preservation Office (SHPO), which in Texas is the Texas Historical Commission (THC). The process consists of several basic steps.

The first step is to identify historic properties and evaluate their historic significance. Any property listed in or eligible for the National Register of Historic Places is considered historic.

If a historic property will be effected by the proposed undertaking, the agency consults with the SHPO to determine the effect of that undertaking. The undertaking will have **no adverse effect** if the work conforms to the Standards and Guidelines to Rehabilitating Historic Buildings developed by the Secretary of the Interior.

If the agency or the SHPO finds that the effect of the undertaking will be **adverse**, the agency consults with the SHPO and interested parties, to seek agreement on ways to reduce or avoid the effects. Local governments, affected properties and others concerned should be involved in the consultation and be given the opportunity to express their views.

Section 106 Compliance for the Lavaca Neighborhood

HUD has delegated its responsibility for Section 106 compliance to the City of San Antonio Community Development Department. They are responsible for ensuring that federal undertakings, such as housing rehabilitation, will have no adverse effect on historic properties. Through a Memorandum of Agreement, HUD, the Texas Historical Commission, the City's Community Development Department and Historic Preservation Office have agreed that federally funded projects executed in accordance with the Lavaca Neighborhood Design Guidelines will have no adverse effect and will not require further consultation. Projects not conforming to the Guidelines will be reviewed by the CoSA Historic Preservation Office and may be appealed to the State Historic Preservation Office.

This section is incomplete as of this printing.

RESOURCES

The following agencies and associations are helpful resources for technical assistance and guidance in the rehabilitation of old houses. The Texas Historical Commission and the San Antonio Conservation Society also have grant and loan programs in place for limited financial assistance.

Historic Preservation Office
City of San Antonio
Planning Department
P.O. Box 839966
San Antonio, Texas 78283-3966
210-207-7900

Department of Housing and Community Development
City of San Antonio
419 South Main, Suite 200
San Antonio, Texas 78204
210-202-3650

Texas Historical Commission
Division of Architecture
P.O. Box 12276
Austin, Texas 78711-2276
512-463-6268

San Antonio Conservation Society
107 King William
San Antonio, Texas 78204
210-224-6163

National Trust for Historic Preservation
Community Partners Program
1785 Massachusetts Avenue, N.W.
Washington, D.C. 20036
202-588-6054

Helpful Preservation Publications are available through the U.S. Department of Interior, National Parks Service Preservation Assistance Division

PRESERVATION BRIEFS

Brief No.1 The Cleaning and Waterproofing of Masonry Buildings
Brief No.2 Repointing Mortar Joints in Historic Brick Buildings
Brief No.4 Roofing for Historic Buildings
Brief No.6 Dangers of Abrasive Cleaning to Historic Buildings
Brief No.8 Aluminum and Vinyl Siding on Historic Buildings: The Appropriateness of Substitute Materials for Resurfacing Historic Wood Frame Buildings
Brief No.9 The Repair of Historic Wooden Windows
Brief No.10 Exterior Paint Problems on Historic Woodwork
Brief No.14 New Exterior Additions to Historic Buildings: Preservation Concerns
Brief No.17 Architectural Character - Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character
Brief No.18 Rehabilitating Interiors in Historic Buildings - Identifying Characteristic Defining Elements
Brief No.21 Repairing Historic Flat Plaster - Walls and Ceilings
Brief No.22 The Preservation and Repair of Historic Stucco
Brief No.24 Heating, Ventilating, and Cooling Historic Buildings: Problems and Recommended Approaches
Brief No.33 The Preservation and Repair of Stained and Leaded Glass
Brief No.37 Appropriate Methods for Reducing Lead-Paint Hazards in Historic Housing

Additional Publications
The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitation and Guidelines for Rehabilitating Historic Buildings

These documents are available through the Texas Historical Commission or the U.S. Department of the Interior, National Parks Service
Preservation Assistance Division, Technical Preservation Services
P.O. Box 37127, Washington, D. C. 20013-7127
202-343-9578