

Port Dalhousie Heritage Conservation District

Guidelines for conservation and change

Prepared for the City of St. Catharines
March, 2001

Built Heritage, Cultural Landscape
and Planning Section



**ARCHAEOLOGICAL
SERVICES
INC.**

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The Conservation and Maintenance of Storefronts

Note to reader: The preservation briefs have been prepared by the Technical Preservation Services (TPS), Heritage Preservation Services Division, National Park Service, U.S. Department of the Interior. They have been prepared specifically for use in that country with respect to both legislative requirements and the variety of unique factors relating to architectural styles, heritage fabric, and climate. These preservation briefs have been downloaded from the world wide web (see source below) and are intended only for reference purposes to illustrate the conservation principles and practices used in determining appropriate courses of action. The unique architecture, building materials and craft practices evident in the Port Dalhousie Heritage Conservation District should be regarded in all proposed work. City staff and LACAC are available to provide further guidance

<http://www2.cr.nps.gov/tps/briefs/presbhom.htm>

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1.0 THE PORT DALHOUSIE HERITAGE CONSERVATION DISTRICT: GUIDELINES FOR CONSERVATION AND CHANGE

The Port Dalhousie Heritage Conservation District Plan follows on from the Port Dalhousie Heritage Conservation District Heritage Assessment Report that described the heritage characteristics of this Welland Canal port lakeside community in the City of St. Catharines. The report also provided a rationale for the boundary of the proposed district.

The purpose of this document ***Port Dalhousie Heritage Conservation District: Guidelines for conservation and change*** is to provide guidance in the care and protection of the heritage character of the Port Dalhousie Heritage Conservation District.

Section 2 provides a brief description of the heritage character of the Port Dalhousie District. Section 3 provides a short statement of conservation principles. The management of change in this special area is provided in a number of key areas, aimed at both private and public property owners, as follows:

- conservation guidance on appropriate changes to heritage fabric and features, (See Section 4);
- design guidelines for alterations and additions to existing buildings and infill development on vacant lots (See Section 5);
- landscape conservation guidelines aimed at both private and public property owners (See Section 6); and,
- planning and administrative guidelines for change in the district as a whole including public works undertaken by municipal government or other public agencies (See Section 7).

It is worth emphasizing that these are “guidelines”. They are intended to provide an objective minimum level of appropriateness for physical change over the coming years. The guidelines are not prescriptive in determining specific design solutions for each building or lot. Importantly, the guidelines steer away from matters of “architectural taste” which is often subjective in nature.

2.0 PORT DALHOUSIE HERITAGE CONSERVATION DISTRICT: DISTRICT CHARACTER AND CONSERVATION INTENT

DISTRICT CHARACTER

Port Dalhousie, located in the City of St. Catharines, is a compact settlement perched on the table lands of a small peninsula that separates Lake Ontario, to the north, from Martindale Pond to the south. The Martindale Pond is located at the mouth of the Twelve Mile Creek which, prior to Euro-Canadian settlement flowed unobstructed northwards from the Niagara Escarpment to the lake. Subsequent construction of the First Welland Canal in 1829, the Second Canal in 1851 and the Third Canal in 1881 together with dramatic changes to land form and natural water channels resulted in a unique pocket of human settlement in the Niagara Peninsula.

Port Dalhousie's historical growth and development around an elongated road grid - as the name suggests - is intimately associated with nineteenth century port activities of canal development, commerce, industry and Great Lakes shipping. Largely as a result of opening the Fourth Welland Canal and developing Port Weller at the expense of Port Dalhousie, fortunes changed in the twentieth century. A residual reliance on recreational activity and light industry eventually declined. Yet, towards the end of the twentieth century increased awareness of cultural heritage and the increasing amenity value seen in pleasant, diverse, living environments spurred an interest in the long term future and careful management of Port Dalhousie's sensitive heritage surroundings.

The heritage character of the Port Dalhousie heritage conservation district (See Map 1) is determined by a number of distinctive areas and key elements:

- **The Lake Ontario shoreline and Martindale Pond**
This northern and southern boundary of the Lake Ontario shoreline and Martindale Pond represents the remnant, residual landscape of the "original" environment prior to nineteenth century Euro-Canadian settlement and provides distinctive and obvious edges to the cultural heritage landscape of Port Dalhousie. The boundary "edges" to the Port Dalhousie heritage conservation district are emphasized by the significant height of the table land and steep banks that separate land from water.
- **Canal, port and harbour area**
Although altered from its nineteenth century origins, the "port" environment is a tangible reminder of the importance of the Welland Canal as a significant historical linkage through the Great Lakes shipping system. Port Dalhousie is one of only two locations where features from the Second and Third Welland canals co-exist together. Important remnant features include Lock 1 of the

Second Welland Canal (1845), Lock 1 of the Third Welland Canal (1887), the inner and outer range lights, the weir and the locktender's shanty.

- **The commercial core**

Inherently associated with the fortunes of the port, canal, local industry and residents the commercial area centred on Lakeport Road, Hogan's Alley and Lock Street is distinguished by its nineteenth century and early twentieth century architecture of two- and three-storey terrace blocks and individual hotels (former "Wellington Hotel" 1877, "Lakeside Hotel", 1896, the "Union House" and "Murray House"). These are built predominantly of red and buff brick in the Italianate style. Other buildings include the former Sterling Bank of Canada, the Port Dalhousie jail and several 1920s structures.

- **Industrial remnants**

Directly associated with the port environment and shipping this area contains a number of remnant industrial structures including the former administrative and service building for the Muir Brothers Dry Docks (*circa* 1865), 1890 warehousing (now the Royal Canadian Legion) and the former Maple Leaf Rubber Company factory constructed in 1900 (now Lincoln Fabrics). Rennie Park marks the location of the former Muir Brothers Dry Docks.

- **The residential area**

The residential area, which comprises a substantial portion of the proposed *Port Dalhousie Heritage Conservation District*, is arranged around an elongated road grid with Main Street and Dalhousie Avenue serving as major east-west spines with many north-south cross streets. This area comprises predominantly dwellings occasionally interspersed with commercial, institutional and open space features. Residential buildings are for the most part an eclectic range of single detached residences that historically accommodated an equally eclectic mix of inhabitants including sailors, canal workers, carpenters, industrialists, business people, locktenders, rubber workers, store owners and farmers. Most were built as year round dwellings although some were originally constructed as late nineteenth century and early twentieth century seasonal summer homes (see **Cottages** following). Representative examples of Port Dalhousie citizens who built houses and lived here included:

- William Muir (Dry Docks owner "Muir Brothers' Ship Yards") at 43 Ann Street;
- Harvey Neelon (Tugboat owner) at 34 Bayview Drive;
- Annie and Margaret McNally (Dry Goods Store owners) at 7 Brock Street;

- William Mossop (Carpenter), at 10 Canal Street;
- Johnson Gregory (Post Master), at 30 Canal Street; and
- William Hutchinson (Owner of Coal docks and lumber yard) 10 Dalhousie Avenue;
- R. F. Foote (General Manager, Maple Leaf Rubber factory) at 30 Dalhousie Avenue;
- Alexander Muir (Founder of Muir Dry Docks) at 43 Dalhousie Avenue;
- Byron Cain (Teamster) at 176 Dalhousie Avenue;
- Thomas Read (Captain) at 58 Main Street;
- Michael Henry (Blacksmith) at 73 Main Street;
- Dr. McDonald (Physician) at 95 Main Street; and,
- William Smith (Engineer) at 9 Simcoe Street.

Building and architectural styles within this residential area include Classic Revival, Neo-classical, Gothic Revival, Italianate, Colonial Revival, Period Revival, Bungalow and many vernacular frame construction seen in the modest single storey cottages.

The majority of dwellings are less than two storeys in height: approximately forty five per cent (45%) are single storey and thirty-three per cent (33%) are one-and -a-half storeys. Approximately eighteen per cent (18%) are two storeys. Roof types include front gable (29%), side gable (27%), hipped (24%) cross- or centre gable (15%), and a small number of flat or gambrel roofed structures.

Approximately half of the residences are characterized by three bays (48%), typically accommodating an entranceway and two windows, and the remainder are either two (32%) or four bays or more (19%). The four bay structures are typically more recent structures that also contain a garage in the main facade.

Historical or traditional building materials used in construction include stucco, rough cast or pebble-dash (21%) and brick (14%). Wood is used in a variety of forms including clapboard, board-and-batten and shingles but only in a small proportion of buildings (6%).

Synthetic materials such as metal and vinyl siding have also been used extensively in many structures (58%), either in whole or in part, to patch and cover former historical cladding. Stone and concrete are used sparingly. Small verandahs and porches are distinguishing building features. Decorative wooden detailing is apparent both in these features as well as in some gables

and window surrounds.

Other notable buildings within the residential area that survive in their original use or in adaptive re-uses include the Star of the Sea Roman Catholic Church (1871) constructed of stone in a Gothic Revival style; St. John's Anglican Church (1868) of red brick in the Gothic Revival; St. Andrew's United Church (1894); a former dormitory residence (1915, 48 Main Street) of three storeys for female workers of the Maple Leaf Rubber Company; the former Port Dalhousie Canning Company building (1913, 201 Main Street); the St. John's Rectory of decorative concrete block (1904, 100 Main Street); the Merritt family grocer store (1894, 50 Main Street) and the former Customs House (1845, 34 and 36 Lock Street).

- **The cottage enclave**

The cottage area, generally bounded by Paxton Avenue, Bayview Drive and Shelley Avenue contains numerous small cottages established as summer homes at the turn of the twentieth century. Considine, Abbey, Masefield and Paxton Avenues in particular formed a compact grid of narrow (now one-way) laneways serving a variety of one storey, vernacular frame, structures clad in a variety of materials.

- **Sport, recreation and open space areas**

St. Andrews Cemetery, the Henley Regatta facilities, Lakeside Park, Ann Street War Memorial boulevard and the Port Dalhousie Lawn Bowling Club are all important and unique community spaces. St. Andrews Cemetery, established as early as 1838 includes the burial sites of many prominent families including those of Alexander and William Muir and serves as a terminal point along Johnston Street.

Lakeside Park was established in 1902 by the Niagara, St. Catharines and Thorold Railway on land reclaimed from marsh land and the remnant area of the First Welland Canal. Following its demise as an amusement park in 1969 the park is now an important part of the Waterfront Trail and marina environment, as well as a component of the municipal parks' system. Originally founded in 1880 the Royal Canadian Henley Regatta, now a pre-eminent North American rowing event, established a permanent home in Port Dalhousie in 1903 due in part to the facilities afforded by the "Old" Welland Canal. It has enjoyed considerable success as a world class rowing events venue for over a century. The banks of Martindale Pond, (accessed by lands from Main Street between Brock and Ann Streets that were acquired in 1931), now accommodate the grandstand along Martindale Pond. The event is celebrated with a provincial plaque.

The only central street boulevard in Port Dalhousie is found in Ann Street and contains a War Memorial (erected in 1924) to those men and women who died in World Wars I and II and the Korean War. It also serves as a terminating view to Ann Street from the north.

- **Supporting and contextual landscape features**

While buildings are often the most obvious evidence of human activity in heritage landscapes a number of other distinctive features often enhance environmental amenity and special areas. Heritage landscapes may contain deliberately planted trees, shrubs and hedgerows that define individual properties and enhance the public streetscape. In the *Port Dalhousie Heritage Conservation District* these landscape features include wide grass boulevards, generally narrow sidewalks and a rich variety of street trees, hedges, ornamental fencing and mixed shrub borders that define property boundaries.

CONSERVATION INTENT

The former Town of Port Dalhousie has a long and multi-faceted history. One facet of this past is bound up with the construction and operation of the first three Welland Canals, for which Port Dalhousie was the Lake Ontario terminal. As a town, it played a similar role with respect to the waterway as did, for example, Thorold, Port Robinson, Allanburg and Port Colborne. This role as “canal town” was manifest in the physical properties and characteristics of each town and must have affected the daily life in each town substantially. However, Port Dalhousie stands out above all these other similar towns today, largely because its past is still so evident in the form and appearance that the town displays.

Michelle Greenwald et al; The Welland Canals; 1976

The conservation intent within the *Port Dalhousie Heritage Conservation District* is to maintain the existing stock of residential, commercial and industrial heritage buildings whether of high style architectural design or of vernacular construction. It is recognized that the heritage building stock is in various states of repair and maintenance. It is not the intent within the *Port Dalhousie Heritage Conservation District* to force property owners to restore their property. On the contrary the *Port Dalhousie Heritage Conservation District* seeks to ensure that when change is considered heritage buildings and their defining features and/or materials are **protected** as part of that process of change and development.

3.0 PORT DALHOUSIE HERITAGE CONSERVATION DISTRICT: CONSERVATION PRINCIPLES

3.1 Introduction

It is anticipated that change within the *Port Dalhousie Heritage Conservation District* will be guided for the most part by advice contained in sections 4 to 7 inclusive of these guidelines. Inevitably situations may arise in future years that have not been anticipated at the time of the preparation of this document. For instance, in 1975 when the *Ontario Heritage Act* was proclaimed, and the concept of heritage conservation districts introduced, domestic satellite dishes were unheard of. Within a number of years during the 1980s large dishes started to dot front and rear yards and rooftops in urban and rural landscape. These intrusions usually affected the character of heritage landscapes.

Changing technology in recent years resulted in the appearance of much smaller satellite dishes. Smaller dishes had visual benefits in that they intruded less upon the character of areas. On the downside, however, large dishes that had once been located in front or rear yards or on their own “stand-alone” poles started to intrude upon individual building character by being attached to building facades damaging both visual character and heritage building fabric.

Accordingly, it is useful to provide the following principles of conservation and change to assist in setting the tone and context for the future of the Port Dalhousie. They should always be consulted if the more detailed guidelines do not appear to specifically address an issue or problem.

3.2 Port Dalhousie Heritage Conservation District Priorities

The designation of the *Port Dalhousie Heritage Conservation District* seeks to ensure the wise care and management of the heritage character of the area. Physical change and development are to be managed in a way that the component buildings, streets, beach and open spaces are either ***protected*** or ***enhanced***.

Conservation priorities are:

- the protection of all remnants of the Welland Canals as significant elements of industrial archaeology in the landscape;
- encouraging the current vitality of the commercial area by promoting its unique architecture and contemporary commercial adaptive reuse as well as continuing to protect its distinctive heritage fabric;

- maintaining the low profile, compact building forms of the cottage and residential areas by encouraging any future changes to develop in depth or in width on lots rather than vertically in height;
- maintaining and enhancing existing open space, sport and recreation areas in a manner consistent with protecting distinguishing heritage features;
- ensuring that supporting and contextual landscape features such as grass boulevards, street trees, hedgerows, front yard plantings and many mature boundary plantings such as trees, mixed shrub borders and hedges are conserved and managed; and
- encouraging new development, construction and any public works where it is clearly demonstrated that such changes will have no adverse effects upon the heritage attributes of the district and will positively contribute to the character of the area.

4.0 PORT DALHOUSIE HERITAGE CONSERVATION DISTRICT: GUIDELINES FOR ALTERATIONS TO HERITAGE BUILDINGS AND SITES

4.1 Introduction

The *Port Dalhousie Heritage Conservation District* has witnessed considerable change over the past two hundred years. Just as change has occurred in the past, change will obviously occur in the future. The intent in guiding and managing future change is to try and ensure that alterations and additions do not detrimentally affect the overall character of the district and its component building stock.

Within the district are a variety of heritage buildings. For the purposes of these guidelines a heritage building is considered to be any structure built prior to 1950. This section provides guidance relating to building alterations to heritage structures. Changes to more recent structures, constructed later than 1950, are considered in Section 5.

The guidelines should be considered by those owners contemplating future work, the Port Dalhousie District Committee, the St. Catharines Local Architectural Conservation Advisory Committee, planning staff of the City of St. Catharines and by Council.

4.2 Alterations to heritage buildings and sites: guiding principles

Alterations to heritage buildings may be pursued for a number of reasons. Re-siding facades, insulating wall surfaces, cutting new window openings, enlarging entrances have much to do with providing a fresh look to a building or improving interior comfort levels. Where alterations are necessary every attempt should be made to make changes on the least visible facades, in discreet locations, away from the street presence of the building.

In all cases the following guiding principles should be consulted:

- Historical, architectural and landscape features and building materials should be maintained and enhanced.
- Any proposed change to a heritage property should be based upon a clear understanding of the particular problem with the building or site. Wherever possible proposed alterations should be based on a sound knowledge of the building type, materials and form.
- Contemplated work should attempt to limit wherever possible extremes of

over-enthusiasm, replacing too much; cleaning too well; or adding inappropriate historic detailings or building fabric.

- “Quick fix”, “maintenance free” and “magic remedies” should be avoided as they may be simply ineffectual or at worst may be capable of causing irreparable damage to a significant building. (Appendix A should be consulted as a reference for detailed discussion and information on aluminum and vinyl siding.)

4.2.1 Features and spaces around heritage buildings and sites

Features and spaces around heritage buildings and sites are important in providing the context or setting of a heritage property and enhancing the presence of the building in the streetscape. Accordingly, every effort should be made to:

- Maintain traditional views of property by avoiding the masking or hiding of prominent building features. Ensure that front lawns, tree plantings, hedges and fences are given adequate care.
- Keep parking areas and outbuildings including garages and utilities such as heat pumps and satellite dishes to the side or rear in those areas traditionally set aside for domestic activities, uses and structures.
- Continue to use historic means of access: drives, paths and doorways. Encourage required new entrances to be installed on secondary elevations, generally those at the side or rear. Where external staircases are proposed they should be located at the rear.
- Maintain proper site drainage in any work so that water does not collect or drain towards foundations.

4.2.2 Heritage building fabric

Much has been written on the care and conservation of heritage building fabric. Publications and web sites are now easily accessible to the homeowner and residents are encouraged to review these sources for detailed advice. The City of St. Catharines LACAC and staff are also capable of providing guidance in this regard. Specific information about two key issues within the *Port Dalhousie Heritage Conservation District* (notably the care of stucco and the impact of installing synthetic sidings on heritage fabric) is found in Appendix A to these guidelines.

A variety of international charters establishing a number of conservation principles have also been adopted in various forms by numerous countries, including Canada, over the past few decades. These general principles provide the context for the

following guidelines. These should be considered in any work that potentially involves work on heritage building materials:

- Attempt to repair rather than replace.
- Base all designs for replacement or restoration of former features on dependable documentary evidence and try to avoid guessing the size, shape and materials of former features.
- When undertaking repairs, replacement or restoration, use the same materials as the original. New or repair work should not confuse the historic character of an area by creating an impression of greater age or of a different region or even country.
- Signs of age or irregularities found in older work and materials should be respected and should not be covered up or obscured.
- Maintain the symmetry or other important features of architectural design, particularly on the main elevation(s).
- Avoid moving heritage structures either into or out of the heritage conservation district.

4.2.3 Roofs

- Decorative roof features and original roofing materials should be retained and conserved wherever possible.
- Ensure that vents, skylights and other new roof elements are sympathetic in type and material and that they are discretely placed out of general view from the street and public rights-of-way.

4.2.4 Foundations and walls

- Protect original wall surfaces from cleaning methods that may permanently alter or damage the appearance of the surface or give a radically new look to the building, for example, sandblasting, strong liquid chemical cleaning solutions and high pressure water cleaning.
- Attempt to avoid application of new surfaces or new coatings that alter the appearance of the original material, especially where they are substitutes for repairs. This may include the application of waterproof and water repellent coatings, paint, aluminum or vinyl siding and stucco. (See also Appendix A)

4.2.5 Windows

- Protect and maintain original window openings as well as their distinguishing features such as materials, frame, surrounds, shutters, sash, muntins and glazing.
- Modifications to the size, type or shape of window openings, removal of muntins, installation of snap-in muntins, replacement with sealed units or single pane clear glass units or covering of trim with metal or other material is discouraged.
- Avoid removing or blocking up windows that are important to the architectural character and symmetry of the building.
- New windows should be installed sensitively, in an area that is inconspicuous. New window design that is compatible with the original in terms of material type, proportions, rhythm and scale is encouraged; however, the new should not attempt to replicate the original in terms of historical details.

4.2.6 Entrances

- Protect and maintain entrances, verandahs and porches notably on principal elevations where they are often key elements in defining the character of the building. Avoid enclosing porches. Retain the historic means of pathway and/or stairway access and conserve important features such as doors, glazing, lighting, steps, balustrades and door surrounds.
- Restoration of a missing verandah or porch should be based wherever possible upon accurate research using both pictorial and physical evidence.
- Where documentation does not exist, the design and construction of a contemporary entrance, verandah or porch sympathetic and compatible with the character of the building is preferred over a conjectural design of the original.
- Where new entrances are required, they should be installed on secondary elevations.

4.3 Alterations to heritage buildings and sites: special considerations

4.3.1 Introduction

The Port Dalhousie Heritage Conservation District comprises a variety of buildings and structures, of which the majority are residential structures. The previous sections contained guidance that should assist many of the

residential property owners in managing change in and around their properties. There are several types of feature, however, that present different conservation issues, namely commercial structures, religious and institutional structures, cemeteries and ancillary buildings. These are discussed in more detail below and should be consulted as appropriate.

4.3.2 Commercial structures

Lakeport Road and Lock Street are distinguished by a number of important nineteenth century commercial structures. The traditional facade of these buildings was divided into two main parts, the upper and lower facade. The upper facade was usually a flat wall surface with window openings and applied decoration such as boldly decorated cornices and window hoods. It may have been divided into vertical bays by the window placement and horizontally emphasized by stringcourses. The lower facade comprised the storefront that was distinctively different from the upper facade. It was usually separated horizontally from the upper facade by a continuous fascia that covered a structural beam. This fascia was often used as a signboard. The storefront was primarily composed of large display windows and was visually contained within the facade.

Although storefronts must strongly represent their retail use on the outside of the building this is usually accomplished with little or no regard for, and often in spite of, the rest of the building's architectural and historical character. The conservation of commercial structures requires maintaining a balance between the needs of changing commercial uses and prevailing retail styles within the storefront area and the overall architectural heritage of the building.

The division between the storefront and the upper main street facade has always been clearly drawn in commercial architecture. It is necessary to distinguish between the pressures for change to the storefronts and the stable upper streetscape facades when contemplating conservation measures. When assessing a storefront for conservation purposes, it is essential to distinguish and maintain a balance between the overall permanent architecture of the storefront and the ever-changing retail displays within the storefront. This ensures that the prevailing retail fashion does not destroy the heritage value of the architecture above and adjacent.

The following conservation principles for commercial structures attempt to resolve the conflict between the modern needs of a commercial enterprise and the conservation of the overall architectural character of a structure.

Inspect the entire of a facade of the building, preferably from across the street, to note the building's proportions, construction materials, detailing, missing architectural

elements and cumulative changes to the facade. Distinguish the permanent or established storefront from the changing store display.

Maintain and repair rather than replace existing storefronts that are physically sound and compatible with the overall building facade through design, details and proportions even if they are later additions.

Maintain the general character of a storefront by removing extraneous additions in front of or within the framework of the storefront unless it is original or restoration work based upon historical evidence.

Consider replacing an existing storefront that does not fit the historical character of the structure. It may be replaced by revealing and rehabilitating an earlier design beneath the present storefront; by installing a more complementary modern design; or by restoring a storefront based upon historical documentation.

Use older photographs to establish appropriate sign styles and types. Avoid the use of back-lit fluorescent sign boxes against the fascia that project from the historic frame of the building. They are usually not properly flashed to prevent water penetration behind the sign that may lead to the deterioration of the building fabric. Retain, repair and maintain operable canvas awnings if they survive and consider restoring operable awnings to their original location if they are historically documented. Maintain the characteristic setbacks, recesses, framing, materials and details of storefront windows when repairing, replacing or restoring.

Retain the original proportions of glass to solid in the storefront as well as the glazed transoms above entrance doors. Avoid replacing window areas with air conditioning units on the front facade. Retain and conserve decorative glass. Clean, conserve and maintain painted non-ferrous metal surfaces with particular attention to copper and bronze fixtures.

Retain, repair and maintain the original architectural detailing of the upper facade with particular attention to the cornice, fascia, window proportion and placement and window sash. Restore these elements when missing using historical photographs. Missing elements such as balconies and second storey porches should be restored where possible. Secondary entrances to the upper floors should be differentiated from the primary retail entrance.

If a storefront cannot be restored using existing or hidden building fabric without extensive replacement, and it is considered appropriate to recover an earlier appearance, restore using existing materials, building archaeology and archival photographs. Inspect carefully for hidden finishes and details, assess for missing

design details such as cornices, brackets, pilasters, transoms and window divisions. Reproduce materials, colour and detailing as much as possible.

Conjectural storefronts are not appropriate. Do not give a storefront a period look that predates the existing building. More detailed and technical advice can be found in the accompanying Appendix A.

4.3.3 Religious and institutional structures

There are several important community buildings within the Port Dalhousie Heritage Conservation District. These large structures present a variety of conservation issues usually not encountered in smaller residential properties.

Although much of the foregoing advice on conservation also applies to these buildings and structures, their size may make even basic tasks, such as inspection or painting, difficult and expensive projects. It is important therefore, to establish regular maintenance routines on a monthly, quarterly, semi annual, annual and five year cycle or as required to maintain a sound state of repair.

Ongoing maintenance is vital to the conservation of churches and other larger buildings. Negligence in this area may contribute to the development of serious problems in the future, accompanied by high financial costs. Accordingly, the following steps should be considered by the appropriate owners:

- establish a permanent building committee;
- obtain advice from a professional experienced in larger structure conservation;
- identify the building's problems;
- establish and implement a plan of repairs and maintenance.

As a minimum action, full reports should be made every five years in order to revise and update the established maintenance program.

4.3.4 Cemetery conservation

Grave markers and monuments and the associated landscape are important cultural heritage resources. Cemeteries reveal the artistic and social concerns of past generations and are valuable sources of historical information. The St. Andrews Cemetery within the *Port Dalhousie Heritage Conservation District* contains a variety of grave markers in various materials and state of repair. No specific work is suggested at this time but should future work be contemplated the following conservation guidance is provided.

It is important to carefully record and inventory all grave markers, graves and monuments in a cemetery before carrying out any repair work. Age, inscription, type and condition of the stone, degree of tilt, old repairs and an overall assessment of the artwork should be noted for each marker. A site plan or map, which may be available from the local cemetery authority, should be used to illustrate the relative placement of each marker. Photographs should be taken prior to any repair work.

The use of power lawn mowers in cemeteries is a major cause of damage to the stones. Hand clippers should be used around markers or protective barriers erected around the markers to prevent chipping and damage to the stones. If stones have been lying on the ground for a long time and if they are sound and not deteriorating, leave them alone and protect their perimeters from damp and vegetation. Cemetery markers on the ground are very susceptible to the freeze and thaw cycle, therefore water must drain away from the perimeters quickly to avoid penetration of the stone surface.

Conservation efforts should focus on the maintenance, stabilization and the arrest of deterioration of the markers and monuments. Repairs should only be undertaken in the gentlest manner and with the least intervention possible when dealing with the stones.

Retain and conserve markers in their original position and in an upright position if at all possible. Only consider removal of markers to a protective shelter of a commemorative wall or a new location if there is no other means of protecting them from further damage in-situ. Do not set markers in concrete as this will hasten their deterioration; concrete is subject to frost heave and contributes to the migration of damaging salts to the historic marker. Previous repairs should be left alone if they are not causing a problem.

Landscaping and drainage problems should be corrected to protect monuments from moisture and vegetation before conserving a stone; this can be achieved by simply adjusting the grade and slope of the surrounding soil rather than raising stones on plinths. Stones that do not tilt more than 10 degrees should not be straightened. Righting stones tilting between 10 and 20 degrees should be accomplished by using plastic coated or wooden tools, excavating the base of the stone, tilting upright by hand and backfilling the hole with a soil/sand mixture.

Seek professional advice from a trained stone conservator for any major repair work such as resetting a marker in a stone base, repairs to obelisk style markers, replacing missing portions of the stone, repairs to snapped markers and the consolidation of the stone. Missing portions of stones should be replaced with matching stone. Never use concrete or strong cement mortar.

Cleaning of stone markers is not generally recommended since it often does more harm than leaving the soil or organic growth in place. However, light soiling may be removed by gentle washing with clean water and non-ferrous tools and brushes. Paint and graffiti can be removed by poulticing in conjunction with the professional advice of a trained stone conservator. Treatment of stones in the form of protective coatings designed to prevent weathering or the loss of inscriptions is not recommended since it may accelerate deterioration.

On a final note the Ministry of Citizenship, Culture and Recreation has prepared a publication, "Landscapes of Memories: A Guide for Conserving Historic Cemeteries". In Ontario all cemeteries and cemetery owners are subject to the Cemeteries Act. Therefore, before undertaking any major work in a cemetery, the legal requirements of the provincial Cemeteries Act must be met.

4.3.5 Ancillary buildings

Ancillary buildings such as coach houses and garages may be important heritage features in their own right. Every attempt should be made to conserve and protect these structures following the conservation guidelines outlined previously.

5.0 PORT DALHOUSIE HERITAGE CONSERVATION DISTRICT: DESIGN GUIDELINES FOR NEW CONSTRUCTION

5.1 Introduction

The *Port Dalhousie Heritage Conservation District* comprises a mix of building forms, types and functions. As in many heritage districts throughout Ontario, residents and property owners of the Port Dalhousie are encouraged to work with existing buildings through sensitively adapting and altering them rather than demolishing and constructing new structures. While not prohibited by the *Ontario Heritage Act* the demolition of existing heritage structures and the creation of new buildings will be actively discouraged within the *Port Dalhousie Heritage Conservation District*.

Guidelines for alterations to heritage buildings are contained in Section 4. Guidelines for wholly new construction and additions to heritage and non-heritage buildings are contained in the following subsections and described in the accompanying case studies.

5.2 Additions to heritage buildings and sites

While alterations are usually undertaken to improve comfort levels in an existing house (more light or heat for example), additions are usually undertaken to provide needed living space, such as additional bedrooms for growing families, separate kitchens, and so on. Accordingly the following guidelines provide advice on how best to fit desired space into an existing heritage structure.

5.2.1 Location

- Exterior additions, including garages, balconies and greenhouses are encouraged to be located at the rear or on an inconspicuous side of the building, limited in size and scale to complement the existing building and neighbouring properties. Additions at the rear should always be slightly lower than the existing roof ridge line and stepped in at the sides in order not to overpower or dominate the existing heritage building and the view from the street. Additions so constructed will also tend to be more neighbourly with adjoining property owners.
- Multi-storey exterior additions are best set back as deeply as possible from the existing front wall plane in order to be unobtrusive in the streetscape and differentiate the addition from the older structure.
- Additions to structures with symmetrical facades should avoid creating asymmetrical arrangements (imbalance) in building form.

5.2.2 Design

- New additions are best designed in a manner that distinguishes between old and new; and that avoids duplicating the exact style of the existing heritage building or imitating a particular historical style or period of architecture. This does not preclude the imaginative use and interpretation of historically derived styles.
- Contemporary design for additions is appropriate when such additions do not destroy significant architectural, historical or cultural material and when the design is compatible with mass, ratio of solids to voids, colour, material, and character of the property, neighbourhood or environment.
- New additions should be designed in such a manner that wherever possible the essential form and integrity of the existing building would be unimpaired if the addition were removed in the future.
- Additions are encouraged to be located at the rear or on an inconspicuous side of the building, limited in size and scale to complement the existing building and neighbouring properties. Keep the height and bulk of the new addition smaller than the existing building.
- Attempts to add to the height or roof of an existing heritage building should be avoided as changes to the roofline alter the character of a building significantly. Dormers should be located at the side or rear rather than on principal facades.

5.3 Additions and alterations to non-heritage buildings

Work undertaken to non-heritage buildings should respect the overall character of the *Port Dalhousie Heritage Conservation District* and be sensitive to any neighbouring heritage buildings.

The following should be considered in the design and placement of alterations and additions to existing non-heritage buildings:

- Non-heritage buildings should not attempt to create a sense of being “old” by using historic forms and features that would be inappropriate on a new building such as snap-in muntins, shutters, decorative window surrounds, gable ends and barge boards.
- Locate skylights and roof vents to the rear and side, away from the main

elevation.

- Locate new garages and parking spaces in unobtrusive areas, normally to the rear and side yards.
- Additions should be sensitive to the character of adjacent buildings (especially heritage property) in size and height.
- Upper storey additions should not be out of scale with neighbouring buildings. Heights of existing roof lines, predominant roof profiles and configuration of adjacent buildings should be maintained.
- If dormers are to be located on principal facades, their placement should attempt to reflect the pattern and position of existing windows and doors below, as well as use similar roof forms as the main building.

5.4 New lots

Where new lots are to be created within the *Port Dalhousie Heritage Conservation District* they should be of similar width and depth as adjacent occupied lots.

5.5 New construction

Construction on newly created lots or vacant lots will be required to be compatible with the character of adjoining properties and the streetscape.

As each existing building within the district is unique in appearance each new structure to be constructed within the *Port Dalhousie Heritage Conservation District* will be constructed in a manner that **avoids replication** of any single style, type or appearance whether of heritage or contemporary design. The intent is that no two buildings should look exactly alike.

New construction should also appear to be “new” and not pretend to be historical or simply old by copying historic details that are inappropriate in contemporary construction such as shutters and multi-paned sash windows.

5.6 Design considerations in new residential construction

General factors governing visual relationships between an infill building, its neighbours and the streetscape should be reviewed carefully and used as the basis for new construction including consideration of: building height, width, setbacks, roof

shape, number of bays, and materials. Specific guidance is described below:

Height: The majority of buildings within the residential area are two storeys or less. Accordingly to maintain this profile new buildings should be no higher than two storeys, particularly if there are high basement and foundation walls. Required living space should be provided in a building mass that extends rearwards in depth on the lot rather than upwards in height.

Width: New dwellings should be designed in a manner that provide living space in a building mass that extends rearwards in depth on the lot rather than in horizontal width across the lot. Cross-gable or "L" plans may be used where appropriate.

Setback: Existing residences have a variety of setbacks and vary from street to street. Accordingly, in streetscapes of similar building setbacks new construction should match existing.

Where adjacent buildings are staggered from one another the new intervening building facade should be:

- located so that it does not extend beyond the front facade of the forwardmost building, or
- located so that it does not sit behind the front facade of the rearward building.

Proportion and massing New infill should be developed with horizontally rectangular to square proportioned facades with three bays comprising an entranceway and two window bays. Facades with a vertically rectangular emphasis should be avoided.

Roofs Roof types encouraged in new construction are front gable, side gable, hipped and cross- or centre gable. Asphalt or wood shingles are appropriate for new construction. Concrete, clay tile, slate, metal or composite materials are discouraged.

Roof vents, skylights, satellite dishes, solar panels, metal chimneys and flues, other venting devices and roof features are best located to the rear of new buildings.

Cross or centre gables with windows may be appropriate in front

elevations provided that they do not overpower the facade. Dormers should be encouraged at the rear or side elevations.

Materials The majority of buildings in the *Port Dalhousie Heritage Conservation District* are of frame construction with a variety of cladding materials. Cladding materials include stucco, rough cast and pebble-dash, clapboard, board-and-batten and wood shingles. Synthetic materials such as metal or vinyl siding have also been used, either in whole or in part, to patch or cover former historical cladding. Brick and stone are used sparingly and are typically used in institutional or commercial building.

Wall materials for use in new construction are encouraged to be stucco and pebble-dash or rough cast, wood cladding, (either as clapboard or shingles) or brick. Limited use or small areas of synthetic cladding may be permitted on secondary facades or when used with traditional materials on principal facades. Use of concrete, stone or artificial masonry units should be used sparingly.

Windows: A range of window and entrance types are evident in the existing late nineteenth and twentieth century architectural styles represented in the *Port Dalhousie Heritage Conservation District*. The overall appearance of building facades is more wall surface (solids) than windows (voids). Generally window openings are vertical and rectangular. There are also examples of semi-circular, segmental and round headed openings. The windows are arranged in a variety of ways, either individually, pairs, groups or composing a bay. New window designs that generally reflect vertical and rectangular dimensions are encouraged. On facades that face the street, windows should maintain proportions of neighbouring properties. Large, full-length, multi-storey or picture windows are best avoided.

Entrances: Entrances are usually an important element of the principal elevation, frequently highlighted with architectural detailing such as door surrounds and porches and recessed or projected from the wall face for emphasis. Accordingly, full size double doors and large amounts of glazing in entranceways should be avoided.

Garages and ancillary structures Garages and ancillary structures are best located away from the main facade and should be located in traditional areas for these functions, usually towards the rear of the lot. Garages, in particular, should not form part of the front facade of the main building.

5.7 Design considerations in new non-residential construction

General factors governing design consideration for new commercial, institutional or industrial construction either as additions or freestanding buildings are similar to those for residences. The significant difference is one of size. Commercial, institutional or industrial infill or building additions may simply be bigger than their residential counterparts. Issues of multi-storeys, long continuous facades, setbacks, roof shapes, numerous bays, and variety of materials (glass, plastics and metals) are of key concern here.

General guidance is described below:

- Placement of building mass on the street and setbacks should place emphasis on pedestrian rather than vehicular approaches and access. Parking and unloading spaces should be located to the rear wherever possible.
- Signage should be sympathetic in size, shape, materials, placement and lighting to traditional motifs.
- In multistorey buildings contrasts between street level (and hence pedestrian level) and upper second and third floor level facades should be emphasized through design treatments such as fenestration, floor to floor height and material selection.
- Flat or low slope roof forms with parapets are preferable to the predominantly pitched roof forms of residential structures
- Required mechanical equipment should be ideally placed well out of public view, either set back on roofs or at the rear of buildings, and suitably screened.

6.0 LANDSCAPE CONSERVATION GUIDELINES

6.1 Introduction

The *Port Dalhousie Heritage Conservation District* contains seven distinct areas each with unique character defining landscape features. Within each of the seven areas, the responsibility for the important landscape features is shared between the public realm and private property owner. The significant landscape features have been described more fully in the *Port Dalhousie Heritage Assessment Report*.

The following conservation guidelines are intended to guide decision making by public and private property owners. The guidelines are based on an understanding of the importance of **maintaining and enhancing** the significant existing landscape features within the *Port Dalhousie Heritage Conservation District*.

6.2 Summary of Existing Conditions

Port Dalhousie consists of a wide variety of building types and land uses. Large areas of parkland and natural shorelines are found around the edges of the *Port Dalhousie Heritage Conservation District*. Within its boundaries is a rich collection of vegetation on the public road allowance and within front yards of the residences.

The street trees flourish in wide grass boulevards with narrow sidewalks. In general, there are no curbs and gutters except in the commercial area and the cottage enclave. The majority of driveways crossing the boulevard are single car width and are concrete, asphalt or natural coloured aggregate. Newer installations tend to be double car width and are crushed red brick or precast concrete interlocking pavers.

The residential and cottage landscapes both contain extensive planting beds with a wide variety of trees, shrubs, perennials, and ornamental grasses within the front yards. These yards are frequently edged along the street and the side property lines by decorative wood or iron fencing, low stone walls covered with ivy or clipped coniferous and deciduous hedges.

6.3 Landscape Conservation Guidelines

The following guidelines focus on different areas of responsibility, based primarily on ownership:

- existing built private properties
- public realm responsibilities including streets, parkland, shoreline, and harbour

The guidelines are based primarily on the analysis of the character defining features of the existing landscape.

The landscape within the *Port Dalhousie Heritage Conservation District* although made up of a variety of components creates a cohesive visual quality that unifies this distinctive area. Given the significant variation in building forms, materials and colours, it is essential that the existing “non-building” landscape components described previously, be retained and managed in a way that continues to tie and link all component features. It is also equally important that where new landscape elements are to be added to the Port Dalhousie environment they should be incorporated in a manner that enhances and complements the existing landscape character.

6.3.1 Guidelines for private properties

- Property owners are encouraged to retain and preserve existing shrubs, hedging and ornamental fencing along the sideyards and frontages.
- New trees and shrubs added to front and sideyards should be selected from the species of trees already found in the neighbourhood (except Norway Maple and Manitoba Maple-*Acer platanoides* and *Acer negundo*, which are not suitable for replanting) and listed below.

Trees

<i>Acer ginnala</i>	Amur maple
<i>Acer palmatum</i>	Japanese maple
<i>Acer saccharinum</i>	silver maple (including cutleaf varieties)
<i>Acer saccharum</i>	sugar maple
<i>Aesculus hippocastanum</i>	horse chestnut
<i>Aesculus glabra</i>	Ohio buckeye
<i>Betula papyrifera</i>	white birch
<i>Carpinus caroliniana</i>	ironwood
<i>Cercis canadensis</i>	eastern redbud
<i>Elaeagnus angustifolia</i>	Russian olive
<i>Fraxinus pennsylvanica</i>	green ash

Trees

Ginkgo biloba	ginkgo (male only)
Gleditsia triacanthos var. inermis	honey locust
Gleditsia triacanthos var. inermis 'Sunburst'	sunburst honey locust
Juglans spp.	walnut
Larix laricina	larch
Malus spp.	crabapple
Morus alba	white or common mulberry
Morus rubra	red mulberry
Picea abies	Norway spruce
Picea pungens 'glauca'	Colorado blue spruce
Pinus strobus	white pine
Pinus sylvestris	Scots pine
Platanus x acerifolia	London plane tree
Quercus rubra	red oak
Robinia pseudoacacia	black locust
Salix spp.	weeping willow
Sorbus aucuparia	mountain ash
Thuja occidentalis	white cedar
Tilia spp.	linden
Ulmus rubra	red or slippery elm

Shrubs

Buddleja	butterfly bush
Forsythia x intermedia	forsythia
Hibiscus syriacus	Rose of Sharon

Shrubs

Hydrangea spp.	white flowering varieties such as 'Annabelle', 'Peegee' and 'Snowhill'
Rhus typhina	staghorn sumac
Spiraea prunifolia	bridalwreath spirea
Syringa vulgaris	common lilac
Viburnum spp.	viburnum

- Garages and sideyard parking should be retained and ideally set back from the front line of the houses.
- Where possible, historic photos should be used to guide the re-establishment of landscape features such as fences, gates, and arbours. Appropriate hedge species include yew, cedar, privet, alpine currant, and lilac.
- Driveways should be narrowed at the boulevard and should ideally be separated from the adjacent lot driveway by a green space to reduce the visual impact of the hard surface crossing the boulevard.

6.3.2 Guidelines for public realm initiatives

The municipality is responsible for the public works within the road right of way and for the open space parkland within the *Port Dalhousie Heritage Conservation District*. The planting and maintenance of the street trees makes a significant contribution to the heritage landscape character of the proposed district, particularly in the residential and commercial areas.

The majority of street trees are mature, wide canopy deciduous trees - primarily silver maple, red oak, sugar maple, horse chestnut, catalpa, ash, and mountain ash. These species have green foliage in the summer with colourful reds, yellows, and golds in the fall season. More recent additions to the street tree collection include red leaved Crimson King maple, Norway maple and flowering crabapples. These species even when mature will not duplicate the size or character of the existing streetscape.

Therefore, it is recommended that:

- As street trees mature they should be replanted and where possible the new trees should be large canopied, green foliage deciduous trees. No further planting of Norway maple, flowering crabapples or Crimson King maple is recommended. The following trees are suitable as street trees in the district especially given the wide boulevard planting location:

Trees

Acer saccharinum	silver maple (including cutleaf varieties)
Acer saccharum	sugar maple
Aesculus hippocastanum	horse chestnut
Aesculus glabra	Ohio buckeye
Carpinus caroliniana	ironwood
Fraxinus pennsylvanica	green ash
Gingko biloba	ginkgo (male only)
Gleditsia triacanthos var. inermis	honey locust
Gleditsia triacanthos var. inermis 'Sunburst'	sunburst honey locust
Juglans spp.	walnut
Platanus x acerifolia	London plane tree
Quercus rubra	red oak
Robinia pseudoacacia	black locust
Sorbus aucuparia	mountain ash
Tilia spp.	linden
Ulmus rubra	red or slippery elm

- Existing trees should be monitored on a regular basis to ensure that they remain healthy. Pruning of dieback, fertilization and pesticide treatments should be undertaken as required to preserve the existing trees.

- Undertakings such as road widenings and installation of new underground services or overhead utilities should be assessed prior to the start of construction to determine if they will negatively affect the existing street trees.
- New driveway entrances and parking areas on private property should be carefully planned to ensure that compaction of the street tree root system does not occur. Generally, an area around the base of the trees equal in diameter to the crown of the tree should remain undisturbed to protect the long term health and survival of the tree.
- New sidewalks should be constructed to match the narrow width (approximately 1 m.) of the existing walks.
- The extra wide grass boulevard should remain the standard throughout the district.
- Boulevard parking, excessive curb cuts and paving of public boulevards by adjacent private property owners should be avoided in order to retain and preserve the grassed boulevards.
- Parallel parking should be encouraged on streets in preference to angle parking that may intrude on and degrade grassed boulevards, e.g., Elgin Street.
- The terminal points of public road rights-of-way of the north-south roads and streets should be maintained as open viewing areas as part of the public domain with any encroachments by private property owners being discouraged.

6.4 Character Area Landscape Guidelines

The following illustrated guidelines refer to the seven character areas and advise on key landscape issues:

Area 1: Lake Ontario shoreline and Martindale Pond

The existing vegetated slopes north to the Lake Ontario shore and south to the edge of Martindale Pond are generally a mix of naturalized deciduous trees and shrubs.



Invasive non-native species (such as *Acer negundo*-*Manitoba maple*, *Acer platanoides*-*Norway maple* and *Rhamnus cathartica*-*European buckthorn*) should be removed to maintain plant diversity in the understory and reduce potential soil erosion on the bank.

Dumping of neighbourhood yard wastes at access points should be actively discouraged since the concentration of organic material does not provide ideal growing conditions for ground cover vegetation.

Area 2: Canal, port and harbour

The Canal, port and harbour have been an essential part of the industrial and recreational development of Port Dalhousie. In recent years, the redevelopment of parking and parkland adjacent to the harbour has provided important linkages between the commercial area and the marina activities.



Lock remnants from the Second Welland Canal should be actively conserved by all jurisdictions.

New landscape features should be added in such a way as to not destroy historic artifacts. For example, the balustrade should go around the feature, not over it.

Public appreciation of the long history of Port Dalhousie and its vital role in the Welland Canal should be increased by interpreting the historic lock remnants.

Area 3: Commercial core

The historic commercial core consists of one and a half to two storey buildings uniformly aligned along Lakeport Road and overlooking the harbour. Along Lock Street there is some variety in building height and form. Common elements, including street trees, signage and awnings provide visual cohesion and interest to the streetscape.



Street trees add important amenity, providing shade and creating a pedestrian scale to the streetscape. High canopied species are the best choices for pedestrian areas. Street trees should be properly cared for and replanted as they mature and die.

Awnings and fascia signs for businesses are encouraged.

Area 3: Commercial core (continued)



Second floor projections and balconies are an important built and visual component of the Port Dalhousie streetscape, sheltering the pedestrian and sidewalk. These features should be maintained and in new permitted developments, second floor projections and balconies should be encouraged.

Future road improvements should include increasing pedestrian circulation areas by widening the sidewalk.

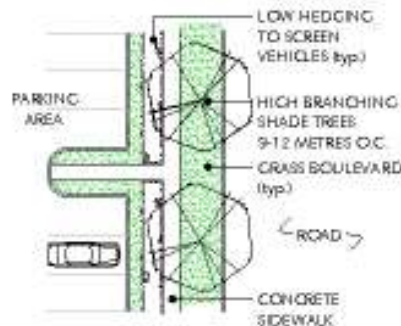
Area 3: Commercial core (continued)

The scale and uniform facade alignment of the building component of the new commercial block on Lakeport Road is complementary to the historic commercial buildings on the adjacent streets. However, placing parking in a large lot in front of the building does not continue the layout pattern typically found in the commercial core which has numerous smaller pockets of parking at the rear of the building and on the street.



To reduce the visual impact of the parking and to better define the pedestrian circulation areas, new hedging and street trees are suggested for along the edge of the parking lot as well as along the perimeter of the property.

Recommended edge treatment for parking lots



Plan View

Area 4: Industrial remnants

The remnants of past industrial activities such as the former Muir dry docks and ancillary buildings form an important backdrop to the open space and parkland.



Preservation, adaptive re-use and interpretation is encouraged for all industrial remnants in a similar manner to this successful example of reuse and interpretation of the former dry docks which have now been filled in and are used as James Rennie Park.

Area 5: Residential Area

The public realm of the residential area is dominated by mature street trees of a wide variety of species.



The wide grassed boulevards matched with a narrow sidewalk provide ideal growing conditions for street trees. Conflict with overhead wires may be avoided through careful selection of species and placement of trees.

Area 5: Residential (continued)



Property owners are encouraged to maintain front yard planting beds and property line hedging or fences to define the public and private space.



Area 5: Residential (continued)



The visual impact of the paved area may be lessened by narrowing the driveway at the boulevard.



Property owners are encouraged to accommodate parking at the side of their residence.

Area 5: Residential (continued)



When two driveways are adjacent, the strong visual impact of the large hard-surfaced area may be lessened by separating them with a grass strip.



An alternate method of achieving the same visual and physical separation of two adjacent driveways is by installing a decorative fence.

Area 5: Residential (continued)



The visual impact of large areas of parking or driveway may also be lessened by a planting area.

Area 5: Residential (continued)



Where new infill development occurs, property owners are encouraged to install property line hedges or fences and to reduce the driveway width at the boulevard.



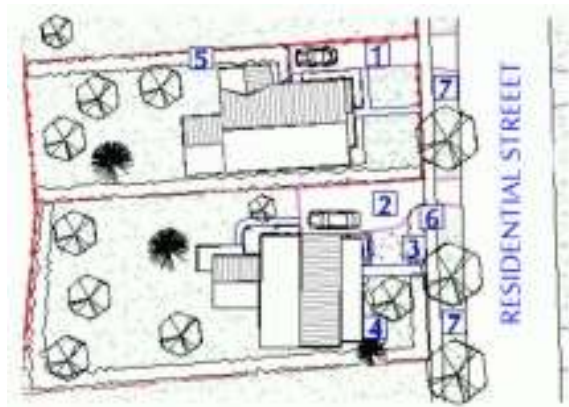
The visual impact of the driveway may be lessened by combining alternative materials as in these successful examples.

Area 5: Residential (continued)



Painted decorative wood fencing adds visual interest to the edge of the pedestrian zone.

Suggested Landscape and Driveway Treatment for Residential Properties



Key:

4. Sideyard parking
5. Double parking accessed by a single driveway
6. Ornamental fence or hedge defining road allowance and front yard
7. Mixed planting beds of shrubs and perennials in front yard
8. Property line definition by mixed shrub borders, fencing and hedges
9. Narrow concrete sidewalk
10. Street trees and grass boulevard

Area 6: Cottage enclave

The cottage enclave is characterized by its smaller sized lots, buildings and narrow streets.



A variety of wooden fences (mostly painted white) and hedges along the front and side property lines at the road edge create an intimate pedestrian scale in the landscape. New installations of chain link fencing should be avoided.

Property owners are encouraged to preserve and maintain existing property edge features and where missing, add new hedges and fencing to define the edge of the property and add visual interest to the street.



Area 7: Sport, recreation and open space

The open space of the developed parks, cemetery and vegetated slopes of the lakeshore and Martindale Pond provide significant amenities for the residents and a visual contrast to the built form of the District.

Cemetery

The cemetery is an important green open space which visually links the naturalized and heavily treed bank of Martindale Pond with the orderly building street layout of the residential area.



The existing mature trees should be retained and new replacement trees added around the perimeter as needed to continue the filtered view of Martindale pond.

The open space character of the cemetery should be preserved by continuing to discourage the adding of ornamental shrubs and flowers.

Cenotaph

The Cenotaph is a landmark and commemorative feature within the residential area.



The existing open space around the Cenotaph and lawn area around the monument should be preserved.

As existing street trees located on the perimeter boulevards mature, large canopy trees should be replanted to ensure the continued framing of the view of the cenotaph.

7.0 PLANNING AND IMPLEMENTATION

7.1 Background

The successful maintenance and protection of a designated heritage conservation district relies in part on ensuring that local planning policies and initiatives support or provide a suitable framework for realistic conservation measures anticipated in the implementation of a heritage conservation district. Many “heritage issues” are usually planning issues that often have profound impacts on valued heritage features.

The Official Plan and Zoning By-law are generally supportive of, or complementary to, the protection and conservation of the overall character of the district and its heritage attributes. Indeed, Section 16, *The Port Dalhousie Neighbourhood Plan*, of the City of St. Catharines Official Plan, establishes a clear concern for maintaining and protecting the character of the area generally, as well as specifically conserving and protecting Port Dalhousie’s heritage. Accordingly no major changes in these objectives are being proposed.

In order to refine and direct the conservation and development of the *Port Dalhousie Heritage Conservation District* a number of matters are identified which require minor changes or modifications to existing zoning provisions and planning policies. These are addressed in the following sections. Additionally this section also makes a number of recommendations about future options for initiating complementary measures for protecting the character of the Heritage Conservation District including tree protection and administrative procedures.

7.2 Provincial Policy Statement provisions

One of the purposes of the *Planning Act* is: “to integrate matters of provincial interest in provincial and municipal planning decisions”. [Subsection 1.1(c)]. The *Planning Act* also describes the scope of these matters of provincial interest and Section 2 of the *Act* provides an explicit and direct concern with:

- (d) the conservation of features of significant architectural, cultural, historical, archaeological or scientific interest;...

This provides the context not only for discrete planning activities detailed in the *Act* but also for the foundation of policy statements issued under section 3 of the *Act*. A Provincial Policy Statement approved on May 22, 1996 and revised in February 1997 indicates in Part IV. *Implementation/Interpretation* that:

1. The Provincial Policy Statement came into effect on the date of proclamation

of Bill 20, and applies to all applications submitted after that date. Planning authorities “shall have regard to” the policy statement in making decisions on all applications submitted on or after the proclamation date, and to all applications which were commenced on or after March 28, 1995 and in respect of which no decision had been made on the date of proclamation...

4. These policies are to be applied in dealing with planning matters. Official Plans will integrate all applicable provincial policies and apply appropriate land use designations and policies. Since the policies focus on end results, the official plan is the most important vehicle for the implementation of the Policy Statement.

Those policies of particular relevance for the conservation of heritage features are contained in Section 2, Resources, wherein subsection 2.5, *Cultural Heritage and Archaeological Resources*, makes the following provisions:

- 2.5.1 Significant built heritage resources and cultural heritage landscapes will be conserved.

A number of definitions that have specific meanings for use in a policy context accompany the policy statement. These definitions include “Built heritage resources”, and “cultural heritage landscapes”.

“Built heritage resources”: means one or more buildings, structures, monuments, installations or remains associated with architectural, cultural, social, political, economic, or military history, and identified as being important to a community.

“Cultural heritage landscape”: means a defined geographical area of heritage significance which has been modified by human activities. Such an area is valued by a community, and is of significance to the understanding of the history of a people or place.

In addition, “Significant” is defined and is assigned a specific meaning according to the subject matter or policy context in which it is used, such as wetlands or ecologically important areas. Cultural heritage landscapes and built heritage resources are considered an “other matter”, and the following definition of “significant” applies: *in regard to other matters, important in terms of amount, content, representation or effect.*

Accordingly, all planning actions, initiatives and decisions must now be consistent with the conservation of heritage features, regardless of whether an area is designated as a district or not. Clearly the designation of a heritage conservation district and the

adoption of policies, guidelines and other measures is a proactive initiative. It constitutes a consistent, sensitive and coherent means of corporate municipal management of valued heritage features. The *Port Dalhousie Heritage Conservation District* has a variety of historical associations, architectural attributes and landscape qualities. This area warrants formal recognition as a significant cultural heritage landscape, regardless of provisions under the *Ontario Heritage Act*. Accordingly the following recommendation is made:

Recommendation 1

It is recommended that the City of St. Catharines formally recognize the Port Dalhousie area, specifically the proposed heritage conservation district as a significant cultural heritage landscape for planning purposes within the municipality.

7.3 Land use

Schedule 16-A of the City's Official Plan includes a variety of land use designations for the Port Dalhousie Secondary Plan area and recognizes much of the prevailing land use character and existing building character, for example, the Cottage Residential Area, North Main Low Rise Residential Area and Port Dalhousie Commercial Core. The "Main Street Mixed Residential Area", from Johnston Street to the commercial core includes Pine Street and Canal Street. Both these streets are characterized by low rise, small scale residential development and are for the most part located on the banks of the Martindale Pond in an elevated, prominent position.

The "Main Street Mixed Residential Area" policies permit medium density residential units and such development could be out of keeping in these specific streetscapes. Official Plan policies mitigate against incongruous development by ensuring that in reviewing any zoning change that consideration shall be given to several factors including existing residential amenity, building setback, roofline, scale, height, restoration and off-street parking. To further safeguard the character of these streets it may be beneficial to examine the benefits of applying suitable and appropriate policies that are used for the "North Main Low Rise Residential Area". Accordingly in the review and update of the City's Official Plan the following recommendation is made:

Recommendation 2

It is recommended that the City of St. Catharines consider amending the land use designation of Canal and Pine Streets to reflect their existing built heritage and streetscape character, comparable to the North Main Low Rise Residential Area.

7.4 Height

It has been noted in the Heritage Assessment Report that Port Dalhousie is situated in an elevated position on table lands above the Lake. Additionally, the Heritage Assessment Report concluded that the majority of dwellings in the *Port Dalhousie Heritage Conservation District* are less than two storeys in height: approximately forty five per cent (45%) are single storey and thirty-three per cent (33%) are one-and-a-half storeys. Approximately eighteen per cent (18%) are two storeys. Accordingly, the overall character of Port Dalhousie is one of low profile development on a relatively prominent and visible height of land.

By-law Number 88-72 describes the zoning provisions for the Port Dalhousie area generally, including the *Port Dalhousie Heritage Conservation District*, and recognizes many of the existing uses of buildings and land. In all zones, (aside from the PDC Port Dalhousie Cottage zone that permits a maximum building height of 7.5 metres) the maximum permitted building height is 11 metres (approximately 36 feet or three stories in building height). This appears excessive in relation to the existing character of development, especially so given the prominent peninsula and height of land. The permitted building height in the zoning provisions has the potential to create tall buildings, such as the construction of a flat-roofed, three-storey building, that would be out of keeping with many of the smaller dwellings.

Recommendation 3

It is recommended that in order to assist in the implementation of the City's Official Plan policies and in the application of Port Dalhousie's heritage guidelines that consideration be given by the Port Dalhousie Heritage Conservation District Advisory Committee (if established), City Planning staff and City Council to amending provisions of the Zoning By-law within the *Port Dalhousie Heritage Conservation District* to permit a maximum building height of 9.0 metres in all zones, (except the Port Dalhousie Cottage zone of 7.5 metres which should be retained). This should be complemented by allowing variances to side yard and rear yard set backs to permit development.

7.5 Bed and Breakfast accommodation

Many special heritage areas are attractive to visitors and often develop a variety of services and facilities to better serve those visiting. It is now customary, particularly in the Niagara Peninsula to enhance and diversify the visitor and tourist experience. This in turn creates business opportunities, boosts local employment and enhances economic growth and development. The establishment of "bed and breakfast" accommodations in historical settlements, particularly well-established residential areas, now plays a significant role in providing an alternative to traditional hotel or

motel units and hence the economic spin-off effects. Within Port Dalhousie “bed and breakfast” establishments are a permitted use in the zoning by-law, subject to certain restrictions, including: only being located in a single detached dwelling, employing one non-resident person, providing no more than four rental rooms and eight beds, with additional parking requirements of 1 space per rental room.

The establishment of “bed and breakfast” accommodation unless suitably planned for, has the potential to contribute to the attrition of those heritage attributes that define the character of the *Port Dalhousie Heritage Conservation District*. These impacts effects could include:

- the contribution to on-street parking, and perceived or actual traffic and parking congestion;
- the provision of off-street parking resulting in the loss of soft landscaping and trees in favour of hard parking surfaces;
- introduction of permanent signage into traditional residential areas; and,
- changes to building fabric including installation of additional entrances, fire escapes, larger “picture” windows and satellite dishes.

It is not the intent of these guidelines to halt or hinder the establishment of “bed and breakfast” facilities. Building and landscaping guidelines contained in previous sections should be consulted with a particular view to providing required parking spaces at the side or rear of the dwelling with no major alterations being made to principal building facades and fabric in order to provide “bed and breakfast” facilities or services.

Recommendation 4

It is recommended that the City staff and the *Port Dalhousie Heritage Conservation District* Advisory Committee monitor the establishment of “bed and breakfast” facilities, annually over the next five years for potential impacts on the individual character of buildings and the heritage character of individual streetscapes.

7.6 Protecting Trees

The *Port Dalhousie Heritage Conservation District* is graced by a number of trees in a variety of configurations on private and public property. Many contribute to the scenic and visual interest of the area with tree-lined sidewalks, pathways and front yards. District designation under Part V of the *Ontario Heritage Act* does not extend protection to these important landscape features. Provisions in the *Municipal Act*, however, do provide for the conservation and protection of trees within the road right-of-way. Section 312(4) of the Act states that:

The council of every municipality may pass by-laws...
(c) for preserving trees;
(d) for prohibiting the injuring or destroying of trees;

Section 223.2(1) of the *Municipal Act* also provides that the council of a municipality, having a population exceeding 10,000 may pass by-laws for: (a) prohibiting or regulating the injuring of trees or any class of trees specified in the by-law in any defined area or on any class of land; (b) requiring that a permit be obtained for the injuring or destruction of trees specified in the by-law and prescribing fees for the permit; and (c) prescribing circumstances under which a permit be issued.

The City of St. Catharines does not have any by-law pursuant to the *Municipal Act* that authorizes the regulation and planting of trees, as well as their preservation and protection on the public road right-of-way. Given the importance of these features in the landscape of the Heritage Conservation District, continued protection should be extended to these important natural features.

The municipality, or any person, utility company or public authority contemplating actions that would affect street trees, namely tree removal, pruning and tree planting, should not only comply with the by-law but also consider the policies of the *Port Dalhousie Heritage Conservation District Plan*.

Recommendation 5

It is recommended that the City of St. Catharines consider adopting a Tree Preservation By-law for trees within the road right-of-way. If a by-law is adopted any permits required under the Tree By-law should be forwarded to the *Port Dalhousie Heritage Conservation District Advisory Committee* for their comments prior to any actions that may detract from the heritage character of the area. Additionally, the District Advisory Committee may wish to advise the City on the appropriateness of adopting a comprehensive tree by-law for all lands within the *Port Dalhousie Heritage Conservation District*.

7.7 Implementation measures

Aside from the preparation and adoption of a heritage conservation district plan and heritage planning initiatives, successful implementation of district conservation also relies on a variety of complementary initiatives. Key amongst these are the enthusiasm and cooperation of individual property owners in protecting and maintaining the heritage building stock of the district.

The availability of limited funding through grants or loans may also provide additional incentives and impetus to sensitive and respectful conservation. The guidelines

contained in previous sections are also important in acquainting owners with some of the issues inherent in conservation practice as well as providing advice on how best to protect the special character of the area.

The following describes those actions and procedures that will also assist in implementing the district guidelines over the coming years. It should be noted that situations or occasions may occur where it may be prudent to review the effectiveness of a particular procedure or requirement. Appropriate action should be taken to address these issues as they arise and amend procedures accordingly.

7.7.1 The Port Dalhousie Heritage Conservation District Advisory Committee

In order to provide a continuing focus for action as well as a forum for public involvement and decision-making within the district it is useful to establish a group of individuals who will be able to advise on matters pertaining to the district and these guidelines.

The *Ontario Heritage Act* makes no requirements for each individual district within a municipality in this regard and makes only a general reference to the role of the Local Architectural Conservation Advisory Committee (LACAC) to advise and assist the council on Part V (Section 28). Experiences elsewhere in the province suggest that the establishment of a district committee has found favour and worked well.

The composition of the committee should be such that a variety of interests are represented such as residents of the district, business and commercial property owners, yachting and harbour activities, municipal council and the City's heritage community. Initial membership should thus include the following participants:

- six members (three residential property owners, one commercial, one harbour, one ecclesiastical) drawn from the district;
- one LACAC representative; and,
- one municipally elected representative from the City of St. Catharines, ex officio.

The functions of the committee are not prescribed by provincial statute so they may assume any variety of advisory function that Council chooses. For the purpose of these guidelines, however, it is anticipated that the functions of the committee will include:

- i) advising Council on the appropriateness of changes proposed within the district and the administration of the Section 42 permit application process;
- ii) acting as a sounding board for property owners within the district;
- iii) advising in the supervision and administration of any heritage funding

- programs;
- iv) monitoring the district guidelines for their effectiveness in guiding conservation of the district;
- v) reporting on an annual basis to Council on the committee's activities; and,
- vi) preparing, as time and budget permit, the preparation of a newsletter or any other material that may assist in furthering the appreciation of protection of the district's heritage.

Appointments to the committee are obviously at the discretion of Council but it is anticipated that appointments would parallel the three year term of Council.

Recommendation 6

It is recommended that a district committee be established for the management of this conservation district, to be known as the *Port Dalhousie Heritage Conservation District Advisory Committee* and that it report through the Community Planning Department to the Planning and Development Committee and that the district committee be advised by City Planning staff and other municipal staff members as appropriate.

7.7.2 Permit approvals

Under section 42 of the *Ontario Heritage Act* a permit is required for the erection, demolition, removal or external alteration of a building or structure within the designated district. The *Ontario Heritage Act* defines the term "alter" as meaning: "to change in any manner and includes to restore, renovate, repair or disturb and "alteration" has a corresponding meaning." Only Council is authorized to make decisions respecting such permits.

The City of St. Catharines usually requires a district permit only when a building permit is required, e.g., for any structural changes to a building. New finishes to buildings do not generally require a building permit.

For the purposes of these guidelines, alterations or changes for which Section 42 permits are required are those alterations that would materially or substantially affect the character or external appearance of a building, most notably on ***those facades or sides of buildings that are prominent from the road, street or other public view and that require a building permit.***

***Items of routine maintenance do not require
a permit.***

A guide to the more usual physical alterations, additions and conservation work that may require a district permit are described in Table 1.

Some alterations that are permitted in the district may still have potential to affect the character of a building. Painting entire masonry surfaces (such as brick, concrete or stone), for example, in any colour has the potential to alter the texture of the building fabric, as well as damage the original building material. Accordingly, some of those alterations that do not require a district permit but may result in a noticeable change should be guided by the technical and design advice in the district guidelines as well as by consultations with City staff and the District Advisory Committee.

Applications for alterations are required under the *Ontario Heritage Act* to be submitted to the City and considered by municipal council within ninety days of submission. Council may approve; approve with conditions; or deny the requested permit. Appeals to the Ontario Municipal Board by an applicant may be registered within thirty days.

Demolition of a property cannot be refused by municipal council but may be delayed for up to a maximum of 270 days.

In order to provide for an expeditious review of changes within the district, property owners should consult with the district advisory committee or City staff informally and at the earliest opportunity. Guidance on sympathetic alterations and favourable conservation initiatives will be found in the guidelines provided in these district guidelines. As indicated in Table 1 some alterations and additions will require a building permit under the *Building Code Act*. Building permits will be processed through the Building Department but circulated for comments and approval by Heritage Planning staff.

All district permits affecting the external appearance of a building required within the conservation district will be processed through the City Planning Services Department. (No fee will be charged.) The city has an established permit application process and no changes are recommended.

7.7.3 Planning and development applications

In some instances building or district permits within or adjacent to the district may be preceded by applications for a planning approval pursuant to the *Planning Act*, e.g., plans of subdivisions, severances, minor variances, etc. These may have the potential to affect the character of the district. It is important that appropriate heritage planning input be gained at the earliest opportunity, prior to any approvals that may compromise consideration of a district permit, later in the process.

Recommendation 7

It is recommended that where any application or proposal for one of the following is located within, partially within or adjacent to the designated district:

- a variance or a consent;
- a plan of subdivision;
- zoning amendment;
- road closure;
- road widening;
- any public works and improvements by a municipal authority or local utility.

that the municipal heritage planner will be consulted and provide advice on the appropriateness of the application given the intent of the municipal Official Plan, Zoning by-law and specifically the *Port Dalhousie Heritage Conservation District Guidelines*.

7.7.4 Site Plan Control

Site plan control applies to some of those lands within the *Port Dalhousie Heritage Conservation District*. Plans or drawings must be submitted in support of a site plan application and may be approved subject to certain conditions including such matters as:

- widening of highways
- access ramps and curbs
- parking facilities and driveways
- walkways
- lighting facilities
- walls, fences, hedges, trees, shrubs or groundcover
- garbage facilities
- easements
- grading and provisions for the disposal of water from property

Whereas heritage designation is concerned primarily with the details of buildings, site plan control focuses on the acceptable development of the overall property and typically seeks to ensure that an acceptable standard of site amenity and maintenance is achieved.

Recommendation 8

In order to ensure that there is no duplication between site plan applications and heritage permit applications the following process for review is recommended:

- i) applications for approvals under site plan control and district designation

- should be treated as individual applications.
- ii) wherever possible both applications should be submitted together at the same time and considered within the time period permitted under subsection 41 (12) of the *Planning Act*, 1990 (see also section vi below).
 - iii) an application under the provisions of the *Ontario Heritage Act* should address all matters relating to the detailed design and construction of buildings and structures.
 - iv) an application for site plan approval should address all matters relating to the conceptual design and specific location of buildings and structures and all other site considerations usually required by the municipality.
 - v) both applications should be considered in the context of the policies and guidelines provided in the pertinent sections of this heritage conservation district plan and appropriate conditions applied to each application if necessary.
 - vi) if applications for site plan approval are submitted separately any requested demolition permit under the *Ontario Heritage Act* should be granted conditional upon the registration of site plan agreement prior to the submission of a building permit application.

7.7.5 City of St. Catharines Heritage Funds for Designated Buildings

Since the inception of the *Ontario Heritage Act* in 1975 there have been a variety of Provincial programs that have assisted in heritage conservation by providing loans or grants to owners of heritage property designated under the *Ontario Heritage Act*. Typically the Province established guidelines and eligibility criteria for the various programs as well as matching funds.

For the year 2001 the City of St. Catharines has established a funding program offering grants for the conservation of buildings of historical or architectural significance, which have been designated under the *Ontario Heritage Act*. The grant is a matching program whereby the City will provide 50% of eligible costs to a maximum of \$1,000. The goal of the program is to assist in the restoration of designated historic buildings in the City. \$10,000 has been allocated to this program. City staff should be contacted for further details

7.7.6 Part IV Designations, Federally Regulated Properties and Provincial Lands under Part V of the Ontario Heritage Act

The *Ontario Heritage Act*, RSO 1990, c.O.18, enables municipalities to designate individual properties of heritage interest under Part IV or a number of properties together as a district under Part V of the Act. Subsection 41(2) of the Act (Part V) states that :

“No property designated by a council of a municipality under Part IV shall be

designated as part of a heritage conservation district under this Part.”

Within the Port Dalhousie Conservation District there are several properties that have been designated under Part IV of the *Ontario Heritage Act*, as follows:

By-law #	Feature	Address
78-351	Rectory	82 Dalhousie Avenue
79-437	Jail	11 Main Street
80-440	Commercial building	18 Lakeport Road
80-441	Commercial building	38 Lakeport Road
80-442	Lakeside Hotel	16 Lock Street
83-127	Carousel	9 Main Street
95-430	Dalhousie House	50 Lakeport Road
95-431	Locktender’s Shanty	69A Lakeport Road
98-276	Dwelling	95 Main Street
97-125	Rear (Inner) Range Lighthouse	
97-126	Front (Outer) Range Lighthouse	

The individual designating by-laws may either be rescinded or the designating by-law for the *Port Dalhousie Heritage Conservation District* suitably worded to address these properties. Dedesignation of eleven Part IV by-laws would involve financial costs, delay and logistical problems in the timing of the dedesignation of individual properties and the designation of the district.

Recommendation 9

It is recommended that the designating by-law for the *Port Dalhousie Heritage Conservation District* note that all properties designated under Part IV of the *Ontario Heritage Act* are excluded from the provisions of the Part V designating by-law.

The *Ontario Heritage Act* does not bind the Crown. Accordingly, a Part V designation by-law does not legally control provincially owned lands or Federally regulated property or Federally owned property. It has been accepted practice, however, that the Provincial and Federal Governments attempt to harmonize or otherwise complement local initiatives by acting in accord with local planning policies and by-laws .

Recommendation 10

As there is Crown land within the *Port Dalhousie Heritage Conservation District* the appropriate levels of government involved with this land should be informed of these guidelines and the municipality’s intentions with respect to the management of change in this heritage environment.

7.7.7 Development Permit System

Pursuant to the *Planning Act* a municipality may establish a development permit system for managing planning and development matters as an alternative to traditional zoning, site plan control, minor variances and other processes. Such a system, although generally untested in Ontario, has the potential to offer more flexibility than traditional zoning and has considerable potential to complement the designation of heritage conservation districts , by providing one seamless process for applications.

Recommendation 11

It is recommended that staff of the City's Planning Services give consideration over the next five years to the application of a development permit system for designated heritage conservation districts within the municipality.

Preservation Brief No. 8

Aluminum and Vinyl Siding on Historic Buildings: The Appropriateness of Substitute Materials for Resurfacing Historic Wood Frame Buildings

This Preservation Brief was written by John H. Myers, Historical Architect, formerly with Technical Preservation Services, and was published first in 1979. The Brief was substantially revised in 1984 by Gary L. Hume, Deputy Division Chief, Preservation Assistance Division.

John H. Myers, revised by Gary L. Hume

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Standard 6 of the Secretary of the Interior's Standards for Rehabilitation states that "deteriorated architectural 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 other visual qualities and, where possible, materials..." The Guidelines further caution against "removing or radically changing wood features which are important in defining the overall historic character of the building so that, as a result, the character is diminished."

A historic building is a product of the cultural heritage of its region, the technology of its period, the skill of its builders, and the materials used for its construction. To assist owners, developers and managers of historic property in planning and completing rehabilitation project work that will meet the Secretary's "Standards for Rehabilitation" (36 CFR 67), the following planning process has been developed by the National Park Service and is applicable to all historic buildings. This planning process is a sequential approach to the preservation of historic wood frame buildings. It begins with the premise that historic materials should be retained wherever possible. When retention, including retention with some repair, is not possible, then replacement of the irreparable historic material can be considered. The purpose of this approach is to determine the appropriate level of treatment for the preservation of historic wood frame buildings. The planning process has the following steps:

1. Identify and preserve those materials and features that are important in defining the building's historic character. This may include features such as wood siding, brackets, cornices, window architraves, doorway pediments, and their finishes and colors.
2. Undertake routine maintenance on historic materials and features. Routine maintenance generally involves the least amount of work needed to preserve the materials and features of the building. For example, maintenance of a frame building would include caulking and painting; or, where paint is extensively cracking and peeling, its removal and the reapplication of a protective paint coating.

3. Repair historic materials and features. For a historic material such as wood siding, repair would generally involve patching and piecing-in with new material according to recognized preservation methods.
4. Replace severely damaged or deteriorated historic materials and features in kind. Replacing sound or repairable historic material is never recommended; however, if the historic material cannot be repaired because of the extent of deterioration or damage, then it will be necessary to replace an entire character-defining feature such as the building's siding. The preferred treatment is always replacement in kind, that is, with the same material. Because this approach is not always feasible, provision is made under the recommended treatment options in the Guidelines that accompany the Secretary of the Interior's Standards to consider the use of a compatible substitute material. A substitute material should only be considered, however, if the form, detailing, and overall appearance of the substitute material conveys the visual appearance of the historic material, and the application of the substitute material does not damage, destroy or obscure historic features.

In many cases, the replacement of wood siding on a historic building is proposed because little attention has been given to the retention of historic materials. Instead, the decision to use a substitute material is made because: (1) it is assumed that aluminum or vinyl siding will be a maintenance-free material; and (2) there is the desire to give a building a "remodeled" or "renovated" appearance. A decision to replace historic material must, however, be carefully considered for its impact on the historic resource--even when the model planning process has been followed and the appropriate treatment is replacement.

Therefore, this brief focuses on the visual and physical consequences of using a substitute material such as aluminum or vinyl siding for new siding installations on a wood frame historic building. These concerns include the potential of damaging or destroying historic material and features; the potential of obscuring historic material and features; and, most important, the potential of diminishing the historic character of the building.

The Historic Character of Buildings and Districts

The character or "identity" of a historic building is established by its form, size, scale and decorative features. It is also influenced by the choice of materials for the walls--by the dimension, detailing, color, and other surface characteristics. This is particularly true for wood frame buildings which are the typical objects of aluminum or vinyl siding applications. Since wood has always been present in abundance in America, it has been a dominant building material in most parts of

the country. Early craftsmen used wood for almost every aspect of building construction: for structural members such as posts, beams and rafters, and for cladding materials and decorative details, such as trim, shakes, and siding.

The variety of tools used, coupled with regional differences in design and craftsmanship, has resulted in a richness and diversity of wood sidings in America. For example, narrow boards with beveled, lapped joints called “clapboards” were used on New England frame dwellings. The size and shape of the “clapboards” were determined by the process of hand splitting or “riving” bolts of wood. The width, the short lengths, the beveled lapping, the “feathered” horizontal joints, and the surface nailing of the clapboards created a distinctive surface pattern that is recognizable as an important part of the historic character of these structures.

The sawn and hand-planed clapboards used throughout the Mid-Atlantic and Southern states in the eighteenth and early nineteenth centuries, by contrast, have a wide exposure--generally between six and eight inches. The exposure of the siding, frequently coupled with a beaded edge, created a very different play of light and shadow on the wall surface, thus resulting in a different character. The “German” or “Novelty siding”--a milled siding that is thin above and thicker below with a concave bevel--was used throughout many parts of the United States in the late nineteenth and early twentieth century but with regional variations in material, profile, and dimensions. One variation of this type of milled siding was called “California siding” and was milled with a rabbetted or shiplap edge to insure a tight installation of the weather boards. Shingles were also commonly used as an exterior cladding material, and in buildings such as the Bungalow style houses, were often an important character-defining feature of the exterior. Shingles were often applied in decorative patterns by varying the lap, thus creating alternating rows of narrow exposures and wide exposures. Shingles were also cut in geometric patterns such as diamond shapes and applied in patterns. This treatment was commonly used in the gable end of shingled houses. Siding and wood shingles were often used in combination with materials such as cobblestone and brick in Bungalow style buildings to create a distinctive interplay of surfaces and materials.

The primary concern, therefore, in considering replacement siding on a historic building, is the potential loss of those features such as the beaded edge, “drop” profile, and the patterns of application. Replacing historic wood siding with new wood, or aluminum or vinyl siding could severely diminish the unique aspects of historic materials and craftsmanship. The inappropriate use of substitute siding is especially dramatic where sufficient care is not taken by the owner or applicator and the width of the clapboards is altered, shadow reveals are reduced, and molding or trim is changed or removed at the corners, at cornices or around windows and doors. Because substitute siding is usually added on top of existing siding, details around windows and doors may appear set back from the siding

rather than slightly projecting; and if the relationship of molding or trim to the wall is changed, it can result in the covering or removal of these historic features. New substitute siding with embossed wood graining--intended to simulate the texture of wood--is also visually inappropriate. Exaggerated graining would have been undesirable on real wood siding and is generally found only after sandblasting, a destructive and totally unacceptable treatment for wood.

While this discussion focuses primarily on the historic character of individual wood frame buildings, of equal importance is the context of buildings that comprise a historic district or neighborhood. Changes to the character-defining features of a building, such as distinctive clapboarding and other wall surfaces and decorative trim, always have an impact on more than just that building; they also alter the historic visual relationship between the buildings in the district. If character-defining weatherboards, clapboards or shingles are replaced on a number of buildings in a historic district, the historic character of the entire district may be seriously damaged. Because of the potential impact some substitute materials have on the character of a neighborhood or district, many communities regulate their use through zoning ordinances and design review boards. These ordinances and review boards usually require review and approval of proposed alterations to a historic building that could potentially impact the historic character of the building or the district, including the application of substitute materials, such as aluminum or vinyl siding.

Preservation of a building or district and its historic character is based on the assumption that the retention of historic materials and features and their craftsmanship are of primary importance. Therefore, the underlying issue in any discussion of replacement materials is whether or not the integrity of historic materials and craftsmanship has been lost. Structures are historic because the materials and craftsmanship reflected in their construction are tangible and irreplaceable evidence of our cultural heritage. To the degree that substitute materials destroy and/or conceal the historic fabric, they will always subtract from the basic integrity of historically and architecturally significant buildings.

The Products and Their Installation

The use of aluminum and vinyl siding really involves two separate industries. The siding materials themselves, including a variety of inside and outside corner pieces, trim and molding pieces and panning for window and door frames, are produced by a comparatively small number of manufacturers. The product information, advertising, and any manufacturer's warranties on the product itself are handled by this part of the industry. The installation of aluminum or vinyl siding is generally carried out by independent contractors or applicators, who are frequently called "home improvement" contractors, and they are not affiliated with the manufacturers. The manufacturer's warranties normally do not cover the

installation, or any damage or defect resulting from the installation process.

Since the manufacturer has little control over the quality of the installation, both the quality of the work and the sensitivity of the application are variable. This variation in quality has traditionally been a problem in the industry and one which the industry and its professional associations have attempted to correct through publishing and disseminating information on the proper application of vinyl and aluminum siding.

Although it is sometimes argued that an artificial siding application is reversible since it can be removed, there is frequently irreversible damage to historic building materials if decorative features or trim are permitted to be cut down or destroyed, or removed by applicators and discarded. The installation process requires that the existing surface be flat and free of "obstructions" so that the new siding will be smooth and even in appearance. To achieve the requisite flat surface, furring strips are usually placed over the wall surface (vertical furring strips for horizontal aluminum or vinyl siding and vice-versa for vertical siding). The potential danger in this type of surface preparation is that the furring strips may change the relationship between the plane of the wall and the projecting elements such as windows, door trim, the cornice, or any other projecting trim or molding. Projecting details may also cause a problem. To retain them, additional cutting and fitting will usually be required. Further, additional or special molding pieces, or "accessories" as they are called by the industry, such as channels, inserts and drip caps, will be needed to fit the siding around the architectural features. This custom fitting of the siding will be more labor-intensive, adding to the cost of the siding installation.

The existing wall fabric is further damaged by the nailing necessary to apply siding. Either by nailing directly to the building fabric or by nailing the furring strips to the old siding, the installation of aluminum or vinyl siding will leave numerous holes in wood siding, molding, trim, window and door frames. When applied to brick or other masonry units, the nail penetrations attaching the furring strips and siding can cause irreversible cracking or spalling of the masonry. Although this reference to damaging masonry is included as a point of fact, the application of aluminum or vinyl siding is highly inappropriate to historic masonry buildings.

The Use of Aluminum or Vinyl Siding on Historic Buildings

The maintenance and periodic painting of wood frame structures is a time-consuming effort and often a substantial expense for the homeowner. It is therefore understandable that a product which promises relief from periodic painting and gives the building a new exterior cladding would have considerable

appeal. For these reasons, aluminum and vinyl siding have been used extensively in upgrading and rehabilitating the nation's stock of wood frame residential buildings. For historic residential buildings, aluminum or vinyl siding may be an acceptable alternative only if (1) the existing siding is so deteriorated or damaged that it cannot be repaired; (2) the substitute material can be installed without irreversibly damaging or obscuring the architectural features and trim of the building; and (3) the substitute material can match the historic material in size, profile and finish so that there is no change in the character of the historic building. In cases where a non-historic artificial siding has been applied to a building, the removal of such a siding, and the application of aluminum or vinyl siding would, in most cases, be an acceptable alternative, as long as the abovementioned first two conditions are met.

There are, however, also certain disadvantages in the use of a substitute material such as aluminum or vinyl siding, and these factors should be carefully considered before a decision is made to use such a material rather than the preferred replacement with new wood siding duplicating the old.

Applying Siding without Dealing with Existing Problems

Since aluminum and vinyl sidings are typically marketed as home improvement items, they are frequently applied to buildings in need of maintenance and repair. This can result in concealing problems which are the early warning signs of deterioration. Minor uncorrected problems can progress to the point where expensive, major repairs to the structure become necessary.

If there is a hidden source of water entry within the wall or leakage from the roof, the installation of any new siding will not solve problems of deterioration and rotting that are occurring within the wall. If deferred maintenance has allowed water to enter the wall through deteriorated gutters and downspouts, for example, the cosmetic surface application of siding will not arrest these problems. In fact, if the gutters and downspouts are not repaired, such problems may become exaggerated because water may be channeled behind the siding. In addition to drastically reducing the efficiency of most types of wall insulation, such excessive moisture levels within the wall can contribute to problems with interior finishes such as paints or wallpaper, causing peeling, blistering or staining of the finishes.

It cannot be overemphasized that a cosmetic treatment to hide difficulties such as peeling paint, stains or other indications of deterioration is not a sound preservation practice; it is no substitute for proper care and maintenance. Aluminum and vinyl siding are not directly at fault in these situations since property owners should determine the nature and source of their problems, then make appropriate repairs. The difficulty arises when owners perceive the siding as the total solution to their required maintenance and forgo other remedial action.

Durability and Cost

The questions of durability and relative costs of aluminum or vinyl siding compared to the maintenance cost of historic materials are complex. It is important to consider these questions carefully because both types of siding are marketed as long lasting, low maintenance materials. Assuming that the substitute sidings are not damaged, and that they will weather and age normally, there will be inevitable changes in color and gloss as time passes. A normal application of aluminum or vinyl siding is likely to cost from two to three times as much as a good paint job on wood siding. A sensitive application, retaining existing trim, will cost more. Therefore, to break even on expense, the new siding should last as long as two or three paintings before requiring maintenance. On wood two coats of good quality paint on a properly prepared surface can last from 8 to 10 years, according to the U.S. Department of Agriculture. If a conservative life of seven years is assumed for paint on wood, then aluminum and vinyl siding should last 15 to 21 years before requiring additional maintenance, to break even with the maintenance cost for painting wood siding. Once painted, the aluminum and vinyl siding will require repainting with the same frequency as wood.

While aluminum siding can dent upon impact and the impact resistance of vinyl siding decreases in low temperatures and, therefore, is susceptible to cracking from sharp impact, these materials are generally not more vulnerable than wood siding and shingles. All siding materials are subject to damage from storm, fire, and vandalism; however, there is a major difference in the repairability of wood siding versus substitute materials such as aluminum and vinyl. Although they can all be repaired, it is much easier to repair wood siding and the repair, after painting, is generally imperceptible. In addition, a major problem in the repairability of aluminum and vinyl siding, as mentioned above, is matching color since the factory finishes change with time. Matching the paint for wood siding has a greater likelihood of success.

Energy

Because of high fuel costs, there is a concern for energy conservation in historic materials as well as in substitute materials. Because aluminum and vinyl siding can be produced with an insulating backing, these products are sometimes marketed as improving the thermal envelope of a historic building. The aluminum and vinyl material themselves are not good insulators, and the thickness of any insulating backing would, of necessity, be too small to add to the energy efficiency of a historic building. What energy savings did accrue as a result of a

siding application would probably be as much the result of the creation of an air space between the old and new siding as the addition of insulating material. If the historic wood siding were removed in the course of installing the aluminum or vinyl siding (even with an insulating backing), the net result would likely be a loss in overall thermal efficiency for the exterior sheathing.

Preservation Brief Number 3, "Conserving Energy in Historic Buildings," notes that the primary sources of energy loss in small frame buildings are the doors, windows and roof. It is, therefore, more cost-effective to apply storm windows, weatherstripping and attic insulation than to treat the sidewalls of these structures. There are numerous publications on energy retrofitting which explain techniques of determining cost-effectiveness based on utility costs, R-factors or materials and initial cost of the treatment. Persons interested in this approach may wish to read "Retrofitting Existing Houses for Energy Conservation: An Economic Analysis" published by the National Bureau of Standards, or the U.S. Department of Housing and Urban Development booklet "In the Bank or Up the Chimney." One such study in Providence, Rhode Island, determined that for a two-story house, twenty-five feet square, the payback period for twenty-three storm windows, two storm doors and six inches of attic insulation (R-20) was 4.4 years while the payback period of aluminum siding with an R-factor of 2.5 was 29.96 years. Most of the information which is available supports the position that aluminum or vinyl siding will not have a reasonable payback on an energy-saving basis alone.

Summary

The intent of this brief has been to delineate issues that should be considered when contemplating the use of aluminum or vinyl sidings on historic buildings and assessing under what circumstances substitute materials such as artificial siding may be used without damaging the integrity of the historic building or adversely changing its historic character. Many property owners are faced with decisions weighing the historic value of their building and its maintenance cost against the possible benefit of aluminum and vinyl siding materials. To assist in making these decisions, "The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings" have been published and are available from National Park Service Regional Offices and State Historic Preservation Offices. Further, since rehabilitation projects for income-producing historic buildings often seek tax benefits under the 1981 Economic Recovery Tax Act, as amended, it is essential that all work, such as the replacement of exterior siding, be carried out in conformance with the Standards and be consistent with the building's historic character to insure that the tax benefits are not denied.

As stated earlier, the application of aluminum and vinyl siding is frequently

considered as an alternative to the maintenance of the original historic material. The implication is that the new material is an economical and long-lasting alternative and therefore somehow superior to the historic material. In reality, historic building materials such as wood, brick and stone, when properly maintained, are generally durable and serviceable materials. Their widespread existence on tens of thousands of old buildings after many decades in serviceable condition is proof that they are the original economic and long-lasting alternatives. All materials, including aluminum and vinyl siding can fall into disrepair if abused or neglected; however, the maintenance, repair and retention of historic materials are always the most architecturally appropriate and usually the most economically sound measures when the objective is to preserve the unique qualities of historic buildings.

The appropriate preservation decision on the use of a substitute material in the rehabilitation of a historic building must always center on two principal concerns: the possible damage or destruction of historic building materials; and, the possible negative impact on the historic character of the building and the historic district or setting in which the building is located. Because applications of substitute materials such as aluminum and vinyl siding can either destroy or conceal historic building material and features and, in consequence, result in the loss of a building's historic character, they are not recommended by the National Park Service. Such destruction or concealment of historic materials and features confuses the public perception of that which is truly historic and that which is imitative.

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Preservation Brief No. 22: The Preservation and Repair of Historic Stucco

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This publication has been prepared pursuant to the National Historic Preservation Act of 1966, as amended, which directs the Secretary of the Interior to develop and make available information concerning historic properties. Technical Preservation Services (TPS), Heritage Preservation Services Division, National Park Service prepares standards, guidelines, and other educational materials on responsible historic preservation treatments to a broad public.

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The term "stucco" is used here to describe a type of exterior plaster applied as a two-or-three part coating directly onto masonry, or applied over wood or metal lath to a log or wood frame structure. Stucco is found in many forms on historic structures throughout the United States. It is so common, in fact, that it frequently goes unnoticed, and is often disguised or used to imitate another material. Historic stucco is also sometimes incorrectly viewed as a sacrificial coating, and consequently removed to reveal stone, brick or logs that historically were never intended to be exposed. Age and lack of maintenance hasten the deterioration of many historic stucco buildings. Like most historic building materials, stucco is at the mercy of the elements, and even though it is a protective coating, it is particularly susceptible to water damage.

Stucco is a material of deceptive simplicity: in most cases its repair should not be undertaken by a property owner unfamiliar with the art of plastering. Successful stucco repair requires the skill and experience of a professional plasterer. Therefore, this Brief has been prepared to provide background information on the nature and components of traditional stucco, as well as offer guidance on proper maintenance and repairs. The Brief will outline the requirements for stucco repair, and, when necessary, replacement. Although several stucco mixes representative of different periods are provided here for reference, this Brief does not include specifications for carrying out repair projects. Each project is unique, with its own set of problems that require individual solutions.

Historical Background

Stucco has been used since ancient times. Still widely used throughout the world, it is one of the most common of traditional building materials). Up until the late 1800's, stucco, like mortar, was primarily lime-based, but the popularization of portland cement changed the composition of stucco, as well as mortar, to a harder material. Historically, the term "plaster" has often been interchangeable with "stucco"; the term is still favored by many, particularly when referring to the traditional lime-based coating. By the nineteenth century "stucco", although originally denoting fine interior ornamental plasterwork, had gained acceptance in the United States to describe exterior plastering. "Render" and "rendering" are also terms used to describe stucco, especially in Great Britain. Other historic treatments and coatings related to stucco in that they consist at least in part of a similarly plastic or malleable material include: parging and pargeting, wattle and daub, "cob" or chalk mud, pise de terre, rammed earth, briquete entre poteaux or bousillage, half-timbering, and adobe. All of these are regional variations on traditional mixtures of mud, clay, lime, chalk, cement, gravel or straw. Many are still used today.

The Stucco Tradition in the United States

Stucco is primarily used on residential buildings and relatively small-scale commercial structures. Some of the earliest stucco buildings in the United States include examples of the Federal, Greek and Gothic Revival styles of the eighteenth and the nineteenth centuries that emulated European architectural fashions. Benjamin Henry Latrobe, appointed by Thomas Jefferson as Surveyor of Public Buildings of the United States in 1803, was responsible for the design of a number of important stucco buildings, including St. John's Church (1816), in Washington, D.C. Nearly half a century later Andrew Jackson Downing also advocated the use of stucco in his influential book *The Architecture of Country Houses*, published in 1850. In Downing's opinion, stucco was superior in many respects to plain brick or stone because it was cheaper, warmer and dryer, and could be "agreeably" tinted. As a result of his advice, stuccoed Italianate style urban and suburban villas proliferated in many parts of the country during the third quarter of the nineteenth century.

Revival Styles Promote Use of Stucco

The introduction of the many revival styles of architecture around the turn of the twentieth century, combined with the improvement and increased availability of portland cement resulted in a "craze" for stucco as a building material in the United States. Beginning about 1890 and gaining momentum into the 1930s and 1940s, stucco was associated with certain historic architectural styles, including: Prairie; ArtDeco, and Art Moderne; Spanish Colonial, Mission, Pueblo, Mediterranean, English Cotswold Cottage, and Tudor Revival styles; as well as the ubiquitous bungalow and "four-square" house). The fad for Spanish Colonial Revival, and other variations on this theme, was especially important in furthering stucco as a building material in the United States during this period, since stucco clearly looked like adobe.

Although stucco buildings were especially prevalent in California, the Southwest and Florida, ostensibly because of their Spanish heritage, this period also spawned stucco-coated, revival-style buildings all over the United States and Canada. The popularity of stucco as a cheap, and readily available material meant that by the 1920's, it was used for an increasing variety of building types. Resort hotels, apartment buildings, private mansions and movie

theaters, railroad stations, and even gas stations and tourist courts took advantage of the “romance” of period styles, and adopted the stucco construction that had become synonymous with these styles.

A Practical Building Material

Stucco has traditionally been popular for a variety of reasons. It was an inexpensive material that could simulate finely dressed stonework, especially when “scored” or “lined” in the European tradition. A stucco coating over a less finished and less costly substrate such as rubblestone, fieldstone, brick, log or wood frame, gave the building the appearance of being a more expensive and important structure. As a weather-repellent coating, stucco protected the building from wind and rain penetration, and also offered a certain amount of fire protection. While stucco was usually applied during construction as part of the building design, particularly over rubblestone or fieldstone, in some instances it was added later to protect the structure, or when a rise in the owner's social status demanded a comparable rise in his standard of living.

Composition of Historic Stucco

Before the mid-to-late nineteenth century, stucco consisted primarily of hydrated or slaked lime, water and sand, with straw or animal hair included as a binder. Natural cements were frequently used in stucco mixes after their discovery in the United States during the 1820's. Portland cement was first manufactured in the United States in 1871, and it gradually replaced natural cement. After about 1900, most stucco was composed primarily of portland cement, mixed with some lime. With the addition of portland cement, stucco became even more versatile and durable. No longer used just as a coating for a substantial material like masonry or log, stucco could now be applied over wood or metal lath attached to a light wood frame. With this increased strength, stucco ceased to be just a veneer and became a more integral part of the building structure.

Today, gypsum, which is hydrated calcium sulfate or sulfate of lime, has to a great extent replaced lime. Gypsum is preferred because it hardens faster and has less shrinkage than lime. Lime is generally used only in the finish coat in contemporary stucco work.

The composition of stucco depended on local custom and available materials. Stucco often contained substantial amounts of mud or clay, marble or brick dust, or even sawdust, and an array of additives ranging from animal blood or urine, to eggs, keratin or glue size (animal hooves and horns), varnish, wheatpaste, sugar, salt, sodium silicate, alum, tallow, linseed oil, beeswax, and wine, beer, or rye whiskey. Waxes, fats and oils were included to introduce water-repellent properties, sugary materials reduced the amount of water needed and slowed down the setting time, and alcohol acted as an air entrainer. All of these additives contributed to the strength and durability of the stucco.

The appearance of much stucco was determined by the color of the sand--or sometimes burnt clay, used in the mix, but often stucco was also tinted with natural pigments, or the surface whitewashed or color-washed after stuccoing was completed. Brick dust could provide color, and other coloring materials that were not affected by lime, mostly mineral pigments, could be added to the mix for the final finish coat. Stucco was also marbled or marbleized--stained to look like stone by diluting oil of vitriol (sulfuric acid) with water, and mixing this with a yellow ochre, or another color. As the twentieth century progressed, manufactured or synthetic

pigments were added at the factory to some prepared stucco mixes.

Methods of Application

Stucco is applied directly, without lath, to masonry substrates such as brick, stone, concrete or hollow tile. But on wood structures, stucco, like its interior counterpart plaster, must be applied over lath in order to obtain an adequate key to hold the stucco. Thus, when applied over a log structure, stucco is laid on horizontal wood lath that has been nailed on vertical wood furring strips attached to the logs. If it is applied over a wood frame structure, stucco may be applied to wood or metal lath nailed directly to the wood frame; it may also be placed on lath that has been attached to furring strips. The furring strips are themselves laid over building paper covering the wood sheathing. Wood lath was gradually superseded by expanded metal lath introduced in the late-nineteenth and early-twentieth century. When stuccoing over a stone or brick substrate, it was customary to cut back or rake out the mortar joints if they were not already recessed by natural weathering or erosion, and sometimes the bricks themselves were gouged to provide a key for the stucco. This helped provide the necessary bond for the stucco to remain attached to the masonry, much like the key provided by wood or metal lath on frame buildings.

Like interior wall plaster, stucco has traditionally been applied as a multiple-layer process, sometimes consisting of two coats, but more commonly as three. Whether applied directly to a masonry substrate or onto wood or metal lath, this consists of a first “scratch” or “pricking-up” coat, followed by a second scratch coat, sometimes referred to as a “floating” or “brown” coat, followed finally by the “finishing” coat. Up until the late-nineteenth century, the first and the second coats were of much the same composition, generally consisting of lime, or natural cement, sand, perhaps clay, and one or more of the additives previously mentioned. Straw or animal hair was usually added to the first coat as a binder. The third, or finishing coat, consisted primarily of a very fine mesh grade of lime and sand, and sometimes pigment. As already noted, after the 1820s, natural cement was also a common ingredient in stucco until it was replaced by portland cement.

Both masonry and wood lath must be kept wet or damp to ensure a good bond with the stucco. Wetting these materials helps to prevent them from pulling moisture out of the stucco too rapidly, which results in cracking, loss of bond, and generally poor quality stuccowork.

Traditional Stucco Finishes

Until the early-twentieth century when a variety of novelty finishes or textures were introduced, the last coat of stucco was commonly given a smooth, troweled finish, and then scored or lined in imitation of ashlar. The illusion of masonry joints was sometimes enhanced by a thin line of white lime putty, graphite, or some other pigment. Some nineteenth century buildings feature a water table or raised foundation of roughcast stucco that differentiates it from the stucco surface above, which is smooth and scored. Other novelty or textured finishes associated with the “period” or revival styles of the early-twentieth century include: the English cottage finish, adobe and Spanish, pebble-dashed or dry-dash surface, fan and sponge texture, reticulated and vermiculated, roughcast (or wet dash), and sgraffito.

Repairing Deteriorated Stucco

Regular Maintenance

Although A. J. Downing alluded to stuccoed houses in Pennsylvania that had survived for over a century in relatively good condition, historic stucco is inherently not a particularly permanent or long-lasting building material. Regular maintenance is required to keep it in good condition. Unfortunately, many older or historic buildings are not always accorded this kind of care.

Because building owners knew stucco to be a protective, but also somewhat fragile coating, they employed a variety of means to prolong its usefulness. The most common treatment was to whitewash stucco, often annually. The lime in the whitewash offered protection and stability and helped to harden the stucco. Most importantly, it filled hairline cracks before they could develop into larger cracks and let in moisture. To improve water repellency, stucco buildings were also sometimes coated with paraffin, another type of wax, or other stucco-like coatings, such as oil mastics.

Assessing Damage

Most stucco deterioration is the result of water infiltration into the building structure, either through the roof, around chimneys, window and door openings, or excessive ground water or moisture penetrating through, or splashing up from the foundation. Potential causes of deterioration include: ground settlement lintel and door frame settlement, inadequate or leaking gutters and downspouts, intrusive vegetation, moisture migration within walls due to interior condensation and humidity, vapor drive problems caused by furnace, bathroom and kitchen vents, and rising damp resulting from excessive ground water and poor drainage around the foundation. Water infiltration will cause wood lath to rot, and metal lath and nails to rust, which eventually will cause stucco to lose its bond and pull away from its substrate.

After the cause of deterioration has been identified, any necessary repairs to the building should be made first before repairing the stucco. Such work is likely to include repairs designed to keep excessive water away from the stucco, such as roof, gutter, downspout and flashing repairs, improving drainage, and redirecting rainwater runoff and splash-back away from the building. Horizontal areas such as the tops of parapet walls or chimneys are particularly vulnerable to water infiltration, and may require modifications to their original design, such as the addition of flashing to correct the problem.

Previous repairs inexpertly carried out may have caused additional deterioration, particularly if executed in portland cement, which tends to be very rigid, and therefore incompatible with early, mostly soft lime-based stucco that is more "flexible". Incompatible repairs, external vibration caused by traffic or construction, or building settlement can also result in cracks which permit the entrance of water and cause the stucco to fail.

Before beginning any stucco repair, an assessment of the stucco should be undertaken to determine the extent of the damage, and how much must be replaced or repaired. Testing should be carried out systematically on all elevations of the building to determine the overall condition of the stucco. Some areas in need of repair will be clearly evidenced by missing sections of stucco or stucco layers. Bulging or cracked areas are obvious places to begin. Unsound, punky or soft areas that have lost their key will echo with a hollow sound when tapped gently with a wooden or acrylic hammer or mallet.

Identifying the Stucco Type

Analysis of the historic stucco will provide useful information on its primary ingredients and their proportions, and will help to ensure that the new replacement stucco will duplicate the old in strength, composition, color and texture as closely as possible. However, unless authentic, period restoration is required, it may not be worthwhile, nor in many instances possible, to attempt to duplicate all of the ingredients (particularly some of the additives), in creating the new stucco mortar. Some items are no longer available, and others, notably sand and lime--the major components of traditional stucco--have changed radically over time. For example, most sand used in contemporary masonry work is manufactured sand, because river sand, which was used historically, is difficult to obtain today in many parts of the country. The physical and visual qualities of manufactured sand versus river sand, are quite different, and this affects the way stucco works, as well as the way it looks. The same is true of lime, which is frequently replaced by gypsum in modern stucco mixes. And even if identification of all the items in the historic stucco mix were possible, the analysis would still not reveal how the original stucco was mixed and applied.

There are, however, simple tests that can be carried out on a small piece of stucco to determine its basic makeup. A dilute solution of hydrochloric (muriatic) acid will dissolve lime-based stucco, but not portland cement. Although the use of portland cement became common after 1900, there are no precise cut off dates, as stuccoing practices varied among individual plasterers, and from region to region. Some plasterers began using portland cement in the 1880's, but others may have continued to favor lime stucco well into the early twentieth century. While it is safe to assume that a late-eighteenth or early-nineteenth century stucco is lime-based, late-nineteenth or early-twentieth century stucco may be based on either lime or portland cement. Another important factor to take into consideration is that an early lime-stucco building is likely to have been repaired many times over the ensuing years, and it is probable that at least some of these patches consist of portland cement.

Planning the Repair

Once the extent of damage has been determined, a number of repair options may be considered. Small hairline cracks usually are not serious and may be sealed with a thin slurry coat consisting of the finish coat ingredients, or even with a coat of paint or whitewash.

Commercially available caulking compounds are not suitable materials for patching hairline cracks. Because their consistency and texture is unlike that of stucco, they tend to weather differently, and attract more dirt; as a result, repairs made with caulking compounds may be highly visible, and unsightly. Larger cracks will have to be cut out in preparation for more extensive repair. Most stucco repairs will require the skill and expertise of a professional plasterer.

In the interest of saving or preserving as much as possible of the historic stucco, patching rather than wholesale replacement is preferable. When repairing heavily textured surfaces, it is not usually necessary to replace an entire wall section, as the textured finish, if well-executed, tends to conceal patches, and helps them to blend in with the existing stucco. However, because of the nature of smooth-finished stucco, patching a number of small areas scattered over one elevation may not be a successful repair approach unless the stucco has been previously painted, or is to be painted following the repair work. On unpainted stucco such patches are hard to conceal, because they may not match exactly or blend in with the rest of

the historic stucco surface. For this reason it is recommended, if possible, that stucco repair be carried out in a contained or well-defined area, or if the stucco is scored, the repair patch should be "squared-off" in such a way as to follow existing scoring. In some cases, especially in a highly visible location, it may be preferable to restucco an entire wall section or feature. In this way, any differences between the patched area and the historic surface will not be so readily apparent.

Repair of historic stucco generally follows most of the same principles used in plaster repair. First, all deteriorated, severely cracked and loose stucco should be removed down to the lath (assuming that the lath is securely attached to the substrate), or down to the masonry if the stucco is directly applied to a masonry substrate. A clean surface is necessary to obtain a good bond between the stucco and substrate. The areas to be patched should be cleaned of all debris with a bristle brush, and all plant growth, dirt, loose paint, oil or grease should be removed. If necessary, brick or stone mortar joints should then be raked out to a depth of approximately 5/8" to ensure a good bond between the substrate and the new stucco.

To obtain a neat repair, the area to be patched should be squared-off with a butt joint, using a cold chisel, a hatchet, a diamond blade saw, or a masonry bit. Sometimes it may be preferable to leave the area to be patched in an irregular shape which may result in a less conspicuous patch. Proper preparation of the area to be patched requires very sharp tools, and extreme caution on the part of the plasterer not to break keys of surrounding good stucco by "over-sounding" when removing deteriorated stucco. To ensure a firm bond, the new patch must not overlap the old stucco. If the stucco has lost its bond or key from wood lath, or the lath has deteriorated or come loose from the substrate, a decision must be made whether to try to reattach the old lath, to replace deteriorated lath with new wood lath, or to leave the historic wood lath in place and supplement it with modern expanded metal lath. Unless authenticity is important, it is generally preferable (and easier) to nail new metal lath over the old wood lath to support the patch. Metal lath that is no longer securely fastened to the substrate may be removed and replaced in kind, or left in place, and supplemented with new wire lath.

When repairing lime-based stucco applied directly to masonry, the new stucco should be applied in the same manner, directly onto the stone or brick. The stucco will bond onto the masonry itself without the addition of lath because of the irregularities in the masonry or those of its mortar joints, or because its surface has been scratched, scored or otherwise roughened to provide an additional key. Cutting out the old stucco at a diagonal angle may also help secure the bond between the new and the old stucco. For the most part it is not advisable to insert metal lath when restuccoing historic masonry in sound condition, as it can hasten deterioration of the repair work. Not only will attaching the lath damage the masonry, but the slightest moisture penetration can cause metal lath to rust. This will cause metal to expand, eventually resulting in spalling of the stucco, and possibly the masonry substrate too.

If the area to be patched is properly cleaned and prepared, a bonding agent is usually not necessary. However, a bonding agent may be useful when repairing hairline cracks, or when dealing with substrates that do not offer a good bonding surface. These may include dense stone or brick, previously painted or stuccoed masonry, or spalling brick substrates. A good mechanical bond is always preferable to reliance on bonding agents. Bonding agents should not be used on a wall that is likely to remain damp or where large amounts of salts are present. Many bonding agents do not survive well under such conditions, and their use could jeopardize the longevity of the stucco repair.

A stucco mix compatible with the historic stucco should be selected after analyzing the existing stucco. It can be adapted from a standard traditional mix of the period, or based on one of the mixes included here. Stucco consisting mostly of portland cement generally will not be physically compatible with the softer, more flexible lime-rich historic stuccos used throughout the eighteenth and much of the nineteenth centuries. The differing expansion and contraction rates of lime stucco and portland cement stucco will normally cause the stucco to crack. Choosing a stucco mix that is durable and compatible with the historic stucco on the building is likely to involve considerable trial and error, and probably will require a number of test samples, and even more if it is necessary to match the color. It is best to let the stucco test samples weather as long as possible--ideally one year, or at least through a change of seasons, in order to study the durability of the mix and its compatibility with the existing stucco, as well as the weathering of the tint if the building will not be painted and color match is an important factor. If the test samples are not executed on the building, they should be placed next to the stucco remaining on the building to compare the color, texture and composition of the samples with the original. The number and thickness of stucco coats used in the repair should also match the original.

After thoroughly dampening the masonry or wood lath, the first, scratch coat should be applied to the masonry substrate, or wood or metal lath, in a thickness that corresponds to the original if extant, or generally about 1/4" to 3/8". The scratch coat should be scratched or crosshatched with a comb to provide a key to hold the second coat. It usually takes 24-72 hours, and longer in cold weather, for each coat to dry before the next coat can be applied. The second coat should be about the same thickness as the first, and the total thickness of the first two coats should generally not exceed about 5/8". This second or leveling coat should be roughened using a wood float with a nail protruding to provide a key for the final or finish coat. The finish coat, about 1/4" thick, is applied after the previous coat has initially set. If this is not feasible, the base coat should be thoroughly dampened when the finish coat is applied later. The finish coat should be worked to match the texture of the original stucco.

Colors and Tints for Historic Stucco Repair

The color of most early stucco was supplied by the aggregate included in the mix--usually the sand. Sometimes natural pigments were added to the mix, and eighteenth and nineteenth-century scored stucco was often marbled or painted in imitation of marble or granite. Stucco was also frequently coated with whitewash or a colorwash. This tradition later evolved into the use of paint, its popularity depending on the vagaries of fashion as much as a means of concealing repairs. Because most of the early colors were derived from nature, the resultant stucco tints tended to be mostly earth-toned. This was true until the advent of brightly colored stucco in the early decades of the twentieth century. This was the so-called "Jazz Plaster" developed by O. A. Malone, the "man who put color into California," and who founded the California Stone Products Corporation in 1927. California Stucco was revolutionary for its time as the first stucco/plaster to contain colored pigment in its pre-packaged factory mix.

When patching or repairing a historic stucco surface known to have been tinted, it may be possible to determine through visual or microscopic analysis whether the source of the coloring is sand, cement, or pigment. Although some pigments or aggregates used traditionally may no longer be available, a sufficiently close color-match can generally be approximately using sand, natural or mineral pigments, or a combination of these. Obtaining such a match

will require testing and comparing the color of the dried test samples with the original. Successfully combining pigments in the dry stucco mix prepared for the finish coat requires considerable skill. The amount of pigment must be carefully measured for each batch of stucco. Overworking the mix can make the pigment separate from the lime. Changing the amount of water added to the mix, or using water to apply the tinted finish coat, will also affect the color of the stucco when it dries.

Generally, the color obtained by hand-mixing these ingredients will provide a sufficiently close match to cover an entire wall or an area distinct enough from the rest of the structure that the color differences will not be obvious. However, it may not work for small patches conspicuously located on a primary elevation, where color differences will be especially noticeable. In these instances, it may be necessary to conceal the repairs by painting the entire patched elevation, or even the whole building.

Many stucco buildings have been painted over the years and will require repainting after the stucco repairs have been made. Limewash or cement-based paint, latex paint, or oil-based paint are appropriate coatings for stucco buildings. The most important factor to consider when repainting a previously painted or coated surface is that the new paint be compatible with any coating already on the surface. In preparation for repainting, all loose or peeling paint or other coating material not firmly adhered to the stucco must be removed by hand-scraping or natural bristle brushes. The surface should then be cleaned.

Cement-based paints, most of which today contain some portland cement and are really a type of limewash, have traditionally been used on stucco buildings. The ingredients were easily obtainable. Furthermore, the lime in such paints actually bonded or joined with the stucco and provided a very durable coating. In many regions, whitewash was applied annually during spring cleaning. Modern, commercially available premixed masonry and mineral-based paints may also be used on historic stucco buildings.

If the structure must be painted for the first time to conceal repairs, almost any of these coatings may be acceptable depending on the situation. Latex paint, for example, may be applied to slightly damp walls or where there is an excess of moisture, but latex paint will not stick to chalky or powdery areas. Oil-based, or alkyd paints must be applied only to dry walls; new stucco must cure up to a year before it can be painted with oil-based paint.

Contemporary Stucco Products

There are many contemporary stucco products on the market today. Many of them are not compatible, either physically or visually, with historic stucco buildings. Such products should be considered for use only after consulting with a historic masonry specialist. However, some of these prepackaged tinted stucco coatings may be suitable for use on stucco buildings dating from the late-nineteenth or early-twentieth century, as long as the color and texture are appropriate for the period and style of the building. While some masonry contractors may, as a matter of course, suggest that a water-repellent coating be applied after repairing old stucco, in most cases this should not be necessary, since colorwashes and paints serve the same purpose, and stucco itself is a protective coating.

Cleaning historic stucco surfaces

Historic stucco buildings often exhibit multiple layers of paint or limewash. Although some

stucco surfaces may be cleaned by water washing, the relative success of this procedure depends on two factors: the surface texture of the stucco, and the type of dirt to be removed. If simply removing airborne dirt, smooth unpainted stucco, and heavily-textured painted stucco may sometimes be cleaned using a low-pressure water wash, supplemented by scrubbing with soft natural bristle brushes, and possibly non-ionic detergents. Organic plant material, such as algae and mold, and metallic stains may be removed from stucco using poultices and appropriate solvents. Although these same methods may be employed to clean unpainted roughcast, pebble-dash, or any stucco surface featuring exposed aggregate, due to the surface irregularities, it may be difficult to remove dirt, without also removing portions of the decorative textured surface. Difficulty in cleaning these surfaces may explain why so many of these textured surfaces have been painted.

When total replacement is necessary

Complete replacement of the historic stucco with new stucco of either a traditional or modern mix will probably be necessary only in cases of extreme deterioration-- that is, a loss of bond on over 40-50 percent of the stucco surface. Another reason for total removal might be that the physical and visual integrity of the historic stucco has been so compromised by prior incompatible and ill-conceived repairs that patching would not be successful.

When stucco no longer exists on a building there is more flexibility in choosing a suitable mix for the replacement. Since compatibility of old and new stucco will not be an issue, the most important factors to consider are durability, color, texture and finish. Depending on the construction and substrate of the building, in some instances it may be acceptable to use a relatively strong cement-based stucco mortar. This is certainly true for many late-nineteenth and early-twentieth century buildings, and may even be appropriate to use on some stone substrates even if the original mortar would have been weaker, as long as the historic visual qualities noted above have been replicated. Generally, the best principle to follow for a masonry building is that the stucco mix, whether for repair or replacement of historic stucco, should be somewhat weaker than the masonry to which it is to be applied in order not to damage the substrate.

General guidance for historic stucco repair

A skilled professional plasterer will be familiar with the properties of materials involved in stucco repair and will be able to avoid some of the pitfalls that would hinder someone less experienced. General suggestions for successful stucco repair parallel those involving restoration and repair of historic mortar or plaster. In addition, the following principles are important to remember:

Mix only as much stucco as can be used in one and one-half to two hours. This will depend on the weather (mortar will harden faster under hot and dry, or sunny conditions); and experience is likely to be the best guidance. Any remaining mortar should be discarded; it should not be retempered.

Stucco mortar should not be over-mixed. (Hand mix for 10-15 minutes after adding water, or machine mix for 3-4 minutes after all ingredients are in mixer.) Over-mixing can cause crazing and discoloration, especially in tinted mortars. Over-mixing will also tend to make the mortar set too fast, which will result in cracking and poor bonding or keying to the lath or masonry substrate.

Wood lath or a masonry substrate, but not metal lath, must be thoroughly wetted before applying stucco patches so that it does not draw moisture out of the stucco too rapidly. To a certain extent, bonding agents also serve this same purpose. Wetting the substrate helps retard drying.

To prevent cracking, it is imperative that stucco not dry too fast. Therefore, the area to be stuccoed should be shaded, or even covered if possible, particularly in hot weather. It is also a good idea in hot weather to keep the newly stuccoed area damp, at approximately 90 per cent humidity, for a period of 48 to 72 hours.

Stucco repairs, like most other exterior masonry work, should not be undertaken in cold weather (below 40 degrees Fahrenheit, and preferably warmer), or if there is danger of frost.

Historic stucco textures

Most of the oldest stucco in the U.S. dating prior to the late-nineteenth century, will generally have a smooth, troweled finish (sometimes called a sand or float finish), possibly scored to resemble ashlar masonry units. Scoring may be incised to simulate masonry joints, the scored lines may be emphasized by black or white penciling, or the lines may simply be drawn or painted on the surface of the stucco. In some regions, at least as early as the first decades of the nineteenth century, it was not uncommon to use a roughcast finish on the foundation or base of an otherwise smooth-surfaced building. Roughcast was also used as an overall stucco finish for some outbuildings, and other less important types of structures.

A wide variety of decorative surface textures may be found on revival style stucco buildings, particularly residential architecture. These styles evolved in the late-nineteenth century and peaked in popularity in the early decades of the twentieth century. Frank Lloyd Wright favored a smooth finish stucco, which was imitated on much of the Prairie style architecture inspired by his work. Some of the more picturesque surface textures include: English Cottage or English Cotswold finish; sponge finish; fan texture; adobe finish, and Spanish or Italian finish. Many of these finishes and countless other regional and personalized variations on them are still in use.

The most common early-twentieth century stucco finishes are often found on bungalow-style houses, and include: spatter or spatterdash (sometimes called roughcast, harling, or wetdash), and pebble-dash or drydash. The spatterdash finish is applied by throwing the stucco mortar against the wall using a whisk broom or a stiff fiber brush, and it requires considerable skill on the part of the plasterer to achieve a consistently rough wall surface. The mortar used to obtain this texture is usually composed simply of a regular sand, lime, and cement mortar, although it may sometimes contain small pebbles or crushed stone aggregate, which replaces one-half the normal sand content. The pebble-dash or drydash finish is accomplished manually by the plasterer throwing or "dashing" dry pebbles (about 1/8" to 1/4" in size), onto a coat of stucco freshly applied by another plasterer. The pebbles must be thrown at the wall with sufficient force and skill that they will stick to the stuccoed wall. A more even or uniform surface can be achieved by patting the stones down with a wooden float. This finish may also be created using a texturing machine.

Summary

Stucco on historic buildings is especially vulnerable not only to the wear of time and exposure to the elements, but also at the hands of well-intentioned “restorers”, who may want to remove stucco from eighteenth and nineteenth century structures, to expose what they believe to be the original or more “historic” brick, stone or log underneath. Historic stucco is a character-defining feature and should be considered an important historic building material, significant in its own right. While many eighteenth and nineteenth century buildings were stuccoed at the time of construction, others were stuccoed later for reasons of fashion or practicality. As such, it is likely that this stucco has acquired significance over time, as part of the history and evolution of a building. Thus, even later, non-historic stucco should be retained in most instances; and similar logic dictates that new stucco should not be applied to a historic building that was not stuccoed previously. When repairing historic stucco, the new stucco should duplicate the old as closely as possible in strength, composition, color and texture.

Mixes for repair of historic stucco

Historic stucco mixes varied a great deal regionally, depending as they did on the availability of local materials. There are probably almost as many mixes that can be used for repair of historic stucco as there are historic stucco buildings. For this reason it is recommended that at least a rudimentary analysis of the existing historic stucco be carried out in order to determine its general proportions and primary ingredients. However, if this is not possible, or if test results are inconclusive, the following mixes are provided as reference. Many of the publications listed under “Selected Reading” include a variety of stucco mixes and should also be consulted for additional guidance.

Materials Specifications should conform to those contained in Preservation Briefs 2: Repointing Mortar Joints in Historic Brick Buildings, and are as follows:

Lime should conform to ASTM C207, Type S, Hydrated Lime for Masonry Purposes.
Sand should conform to ASTM C144 to assure proper gradation and freedom from impurities. Sand, or other type of aggregate, should match the original as closely as possible.

Cement should conform to ASTM C150, Type II (white, nonstaining), portland cement.

Water should be fresh, clean and potable.

If hair or fiber is used, it should be goat or cattle hair, or pure manilla fiber of good quality, ½" to 2" in length, clean, and free of dust, dirt, oil, grease or other impurities. Rules to remember: More lime will make the mixture more plastic, but stucco mortar with a very large proportion of lime to sand is more likely to crack because of greater shrinkage; it is also weaker and slower to set. More sand or aggregate, will minimize shrinkage, but make the mixture harder to trowel smooth, and will weaken the mortar.

Soft Lime Stucco (suitable for application to buildings dating from 1700-1850)

A.J. Downing's Recipe for Soft Lime Stucco

1 part lime

2 parts sand

(A.J. Downing, "The Architecture of Country Houses", 1850)

Vieux Carre Masonry Maintenance Guidelines

Base Coats (2):

1 part by volume hydrated lime
3 parts by volume aggregate [sand]--size to match original
6 pounds/cubic yards hair or fiber
Water to form a workable mix,

Finish Coat:

1 part by volume hydrated lime
3 parts aggregate [sand]--size to match original
Water to form a workable mix.

Note: No portland cement is recommended in this mix, but if it is needed to increase the workability of the mix and to decrease the setting time, the amount of portland cement added should never exceed 1 part to 12 parts lime and sand.

("Vieux Carre Masonry Maintenance Guidelines", June, 1980.)

"Materials for Soft Brick Mortar and for Soft Stucco"

5 gallons hydrated lime
10 gallons sand
1 quart white, nonstaining portland cement (1 cup only for pointing)
Water to form a workable mix.

(Koch and Wilson, Architects, New Orleans, Louisiana, February, 1980)

Mix for Repair of Traditional Natural Cement or Hydraulic Lime Stucco

1 part by volume hydrated lime
2 parts by volume white portland cement
3 parts by volume fine mason's sand

If hydraulic lime is available, it may be used instead of lime-cement blends. (Conservation Techniques for the Repair of Historical Ornamental Exterior Stucco, January, 1990)

Early twentieth century Portland Cement Stucco

1 part portland cement
2-1/2 parts sand
Hydrated lime = to not more than 15% of the cement's volume
Water to form a workable mix.

The same basic mix was used for all coats, but the finish coat generally contained more lime than the undercoats. ("Illinois Preservation Series No. 2: Stucco", January, 1980)

American Portland Cement Stucco Specifications (c. 1929)

Base Coats:

5 pounds, dry, hydrated lime

1 bag portland cement (94 lbs.)

Not less than 3 cubic feet (3 bags) sand (passed through a #8 screen)

Water to make a workable mix.

Finish Coat:

Use WHITE portland cement in the mix in the same proportions as above.

To color the stucco add not more than 10 pounds pigment for each bag of cement contained in the mix.

Selected Reading

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