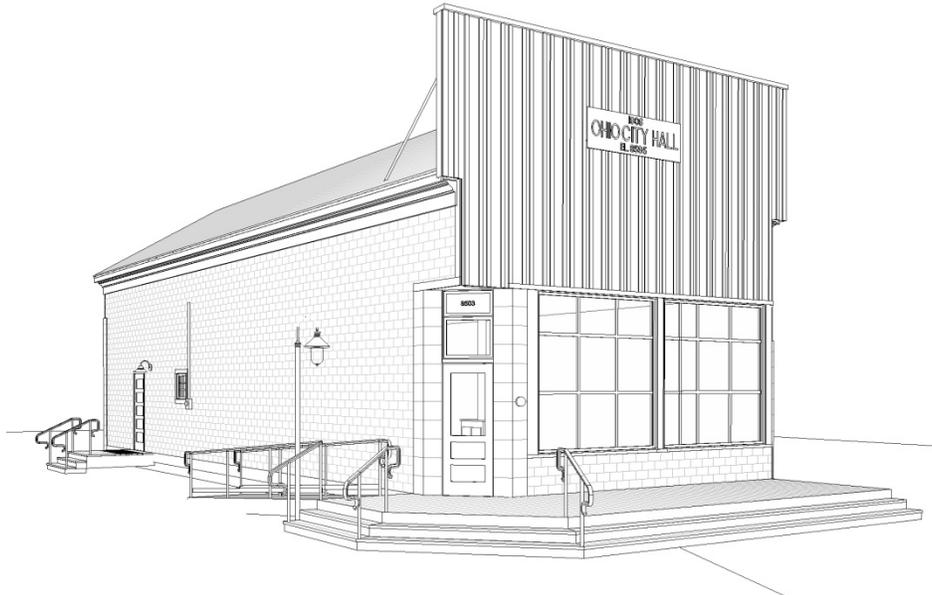


OHIO CITY TOWN HALL

OHIO CITY, COLORADO



PROJECT MANUAL

PHASE 1 – FOUNDATION STABILIZATION AND ELECTRICAL UPGRADES

JULY 7, 2014 – PERMIT DOCUMENTS

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ISSUE LOG

** Items in Italics have not been issued.*

ISSUE NAME	DESCRIPTION	ISSUE SET	ISSUE DATE
Bid Set	24x36 Drawings and Specifications	A	5/20/14
Permit Set	24x36 Drawings and Specifications	1	7/7/14

REVISION DOCUMENTS	DESCRIPTION	ISSUE SET	ISSUE DATE

END OF ISSUE LOG

DRAWING INDEX

** Items in Italics have not been issued.*

***Items in Bold have been revised.**

NUMBER	DRAWING NAME	ISSUE SET	ISSUE DATE
A0.1	Cover Sheet	1	7/7/14
A0.2	Site Plan & Code Review	1	7/7/14
A1.1	Existing Conditions	1	7/7/14
A2.1	Existing Elevations	1	7/7/14
A7.1	Details	1	7/7/14
T1.1	Foundation Stabilization	1	7/7/14
T1.2	Electrical Distribution	1	7/7/14
T1.3A	Interior Structural Rehabilitation	1	7/7/14
T1.3B	Interior Structural Rehabilitation	1	7/7/14

END OF DRAWING INDEX

SPECIFICATION INDEX

** Items in Italics have not been issued.*

***Items in Bold have been revised.**

DIV NO.	DIVISION TITLE	ISSUE SET	ISSUE DATE
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	<i>Invitation to Bid</i>	A	5/20/14
	<i>Instructions to Bidders</i>	A	5/20/14
	<i>Contractor's Bid Proposal</i>	A	5/20/14
	<i>Qualification Questionnaire</i>	A	5/20/14
	<i>Notice of Award Specimen</i>	A	5/20/14
	<i>Payment Bond Specimen</i>	A	5/20/14
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HISTORIC PRESERVATION – TECHNICAL PROCEDURES			
0106001S	General Requirements for Safety and Health	A	5/20/14
0106002S	Accessibility Standards for Historic Buildings	A	5/20/14
0109104S	Secretary of the Interior's Standards for Rehabilitation	A	5/20/14
0109105S	Guidelines for Historic Buildings: General	A	5/20/14
0109107S	Guidelines for Historic Buildings: Wood	A	5/20/14
0109108S	Guidelines for Historic Buildings: Architectural Metals	A	5/20/14
0109113S	Guidelines for Historic Buildings: Interior Spaces	A	5/20/14
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DIVISION 20 – MECHANICAL, ELECTRICAL & PLUMBING			
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265100	Interior Lighting	A	5/20/14
DIVISION 30 – SITE WORK			
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END OF SPECIFICATION INDEX

GENERAL REQUIREMENTS FOR SAFETY AND HEALTH

PART 1 GENERAL

1.01 SUMMARY

A. This procedure includes general safety and health guidelines to follow when performing any construction or demolition work on a project.

1.02 REFERENCES

A. Safety and health requirements should conform to the following:

1. Code of Federal Regulations (CFR):

a. OSHA General Industry Safety and Health Standards (29 CFR 1910), Publication V2206; OSHA Construction Industry Standards (29 CFR 1926). One source of these regulations is OSHA Publication 2207, which includes a combination of both Parts 1910 and 1925 as they relate to construction safety and health. It is for sale by the Superintendent of Documents. U.S. Government Printing Office, Washington, D.C. 20402.

b. National Emission Standards for Hazardous Air Pollutants (40 CFR, Part 61).

2. Federal Standard (Fed. Std):

a. 313A: Material Safety Data Sheets, Preparation and the Submission of.

1.03 DEFINITIONS

A. Hazardous Materials: Refer to hazardous and toxic materials/substances included in Subparts H and Z of 29 CFR 1910, and to others as additionally defined in Fed. Std. 313. Those most commonly encountered include asbestos, polychlorinated biphenyls (PCBS), explosives, and radioactive material, but may include others. The most likely products to contain asbestos are sprayed-on fireproofing, insulation, boiler lagging, and pipe covering.

1.04 SUBMITTALS

A. Design Data/Test Reports/Certificates:

1. Accident Reporting: A copy of each accident report, which the Contractor or subcontractors submit to their insurance carriers, shall be forwarded through the Construction Engineer to the Regional Historic Preservation Officer (RHPO) as soon as possible, but in no event later than seven (7) calendar days after the day the accident occurred.

2. Permits: If hazardous materials are disposed of off-site, submit copies of permits from applicable, Federal, State, or municipal authorities.

3. Other Submittals: If agreed to in writing at the preconstruction safety meeting, other submittals shall be required. One such submittal which may be included is a plan of action for handling hazardous materials to contain the following:

a. Number, type, and experience of employees to be used for the work.

b. Description of how safety and health regulations and standards shall be met.

- c. Type of protective equipment and work procedures to be used.
- d. Emergency procedures for accidental spills or exposures.
- e. Procedures for disposing of or storing the toxic/hazardous materials.
- f. Identification of possible hazards, problems, and proposed control mechanisms.
- g. Protection of public or others not related to the operation.
- h. Interfacing and control of subcontractors, if any.
- i. Identifications of analysis, test demonstrations, and validation requirements.
- j. Method of certification for compliance.

1.05 QUALITY ASSURANCE:

A. Regulatory Requirements:

1. Compliance With Regulations: All work, including the handling of hazardous materials or the disturbance or dismantling of structures containing hazardous materials shall comply with the applicable requirements of the State of Colorado Department of Health and Environment. All work shall comply with applicable state and municipal safety and health requirements. Where there is a conflict between applicable regulations, the most stringent shall apply.

2. Contractor Responsibility: The Contractor shall assume full responsibility and liability for compliance with all applicable regulations pertaining to the health and safety of personnel during the execution of work.

3. Inspections, Tests, and Reports: The required inspections, tests, and reports made by the Contractor, subcontractors, specially trained technicians, equipment manufacturers, and others as required shall be at the Contractor's expense.

4. Special facilities, devices, equipment, clothing, and similar items used by the Contractor in the execution of work shall comply with the applicable regulations.

5. The Contractor shall bring to the attention of the Owner any material suspected of being hazardous which he encounters during execution of the work. A determination will be made by the Owner as to whether the Contractor shall perform tests to determine if the material is hazardous.

7. The Contractor shall take all necessary precautions to prevent injury to the public, building occupants, or damage to property of others. For the purposes of this contract, the public or building occupants shall include all persons not employed by the Contractor or a subcontractor working under his/her direction.

8. Work shall not be performed in any area occupied by the Owner or the Owner's employees unless specifically permitted by the contract or adequate steps are taken for the protection of the public or Owner's employees.

9. Whenever practicable, the work area shall be fenced, barricaded, or otherwise blocked off from the public or building occupants to prevent unauthorized entry into the work area.

10. Alternate Precautions: When the nature of the work prevents isolation of the work area and the public or building occupants may be in or pass through, under or over the work area, alternate precautions such

as the posting of signs, the use of signal persons, the erection of barricades or similar protection around particularly hazardous operations shall be used as appropriate.

12. Fences and barricades shall be moved upon completion of the project, in accordance with local ordinance and to the satisfaction of the Owner.

13. Storing, positioning or use of equipment tools, materials, scraps, and trash in a manner likely to present a hazard to the public or building occupants by its accidental shifting, ignition, or other hazardous qualities is prohibited.

14. Obstructions: No corridor, aisle, stairway, door, or exit shall be obstructed or used in such a manner as to encroach upon routes of ingress or egress utilized by the public or building occupants, or to present unsafe or unhealthy conditions to the public or building occupants.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

Not Applicable

END OF SECTION

UFAS 4.1.7 ACCESSIBILITY STANDARDS FOR HISTORIC BUILDINGS

This standard outlines the minimum Uniform Federal Accessibility Standards (UFAS) for Historic Buildings (Section 4.1.7 ONLY). For a complete copy of UFAS, write the following: Architectural and Transportation Barriers Compliance Board 1331 F Street, N.W., Ste. 1000 Washington, D.C. 20004-1111 800/872-2253 For guidance on developing an accessibility plan, see 01060-05-S. Accessibility standards for Historic Buildings shall conform with the Uniform Federal Accessibility Standards (UFAS), Part II -Section 4 "Accessible Elements and Spaces: Scope and Technical Requirements".

Section 4.1 - "Minimum Requirements"

Section 4.1.6 - "Accessible Buildings: Alterations"

Section 4.3 - "Accessible Route"

Section 4.14 - "Entrances"

Section 4.22 - "Toilet Rooms"

1. As a general rule, the accessibility provisions of part 4 shall be applied to "qualified" historic buildings and facilities. "Qualified" buildings or facilities are those buildings and facilities that are eligible for listing in the National Register of Historic Places, or such properties designated as historic under a statute of the appropriate state or local government body. Comments of the Advisory Council on Historic Preservation shall be obtained when required by Section 106 of the National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 and 36 CFR Part 800, before any alteration to a qualified historic building.

2. The Advisory Council shall determine, on a case-by-case basis, whether provisions required by part 4 for accessible routes (exterior and interior), ramps, entrances, toilets, parking, and displays and signage, would threaten or destroy the historic significance of the building or facility.

3. If the Advisory Council determines that any of the accessibility requirements for features listed in 4.1.7(1) would threaten or destroy the historic significance of a building or facility, then the special application provisions of 4.1.7(2) for that feature may be utilized. The special application provisions listed under 4.1.7(2) may only be utilized following a written determination by the Advisory Council that application of a requirement contained in part 4 would threaten or destroy the historic integrity of a qualified building or facility.

4. At least one accessible route complying with 4.3 from a site access point to an accessible entrance shall be provided.

EXCEPTION: A ramp with a slope no greater than 1:6 for a run not to exceed 2 feet (610 mm) may be used as part of an accessible route at an entrance.

5. At least one accessible entrance which is used by the public complying with 4.14 shall be provided.

EXCEPTION: If it is determined that no entrance used by the public can comply with 4.14, then access at any entrance not used by the general public but open (unlocked) with directional signs at the primary entrance may be used.

6. If toilets are provided, then at least one toilet facility complying with 4.22 and 4.1.6 shall be provided along an accessible route that complies with 4.3. Such toilet facility may be "unisex" in design.

7. Accessible routes from an accessible entrance to all publicly used spaces on at least the level of the accessible entrance shall be provided. Access should be provided to all levels of a building or facility in compliance with 4.1 whenever practical.

8. Displays and written information, documents, etc., should be located where they can be seen by a seated person. Exhibits and signage displayed horizontally, e.g., books, should be no higher than 44 inches (1120 mm) above the floor surface.

END OF SECTION

0109104S THE SECRETARY OF THE INTERIOR'S STANDARDS FOR REHABILITATION

The Secretary Of The Interior's Standards For Rehabilitation, U.S. Department of the Interior National Park Service Preservation Assistance Division Washington, D.C. The Secretary of the Interior is responsible for establishing standards for all national preservation programs under Departmental authority and for advising Federal agencies on the preservation of historic properties listed or eligible for listing in the National Register of Historic Places. The Standards for Rehabilitation, a section of the Secretary's Standards for Historic Preservation Projects, address the most prevalent preservation treatment today; rehabilitation. Rehabilitation is defined as the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values. The Standards that follow were originally published in 1977 and revised in 1990 as part of Department of the Interior regulations (36 CFR Part 67, Historic Preservation Certifications). They pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior of historic buildings. The Standards also encompass related landscape features and the building's site and environment as well as attached, adjacent or related new construction. An illustrated booklet addressing the Secretary's Standards and the guidelines is available from the U.S. Government Printing Office. The title is "The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines for Rehabilitating Historic Buildings", ISBN 0-16-035979-1. The following Standards are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

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

Note: To be eligible for Federal tax incentives, a rehabilitation project must meet all ten Standards. The application of these Standards to rehabilitation projects is to be the same as under the previous version so that a project previously acceptable would continue to be acceptable under these Standards. Certain treatments, if improperly applied, or certain materials by their physical properties, may cause or accelerate physical deterioration of historic buildings. Inappropriate physical treatments include, but are not limited to: improper repointing techniques; improper exterior masonry cleaning methods; or improper introduction of insulation where damaged to historic fabric would result. In almost all situations, use of these materials and treatments will result in denial of certification.

In addition, every effort should be made to ensure that the new materials and workmanship are compatible with the materials and workmanship of the historic property.

Guidelines to help property owners, developers, and Federal managers apply the Secretary of the Interior's Standards for Rehabilitation are available from the National Park Service, State Historic Preservation Offices, or from the Government Printing Office. For more information write: National Park Service, Preservation Assistance Division-424, P.O. Box 37127, Washington, DC 20013-7127.

END OF SECTION

0109105S GUIDELINES FOR REHABILITATING HISTORIC BUILDINGS: GENERAL

U.S. Department of the Interior
National Park Service
Preservation Assistance Division
Washington, D.C.

An illustrated booklet addressing the Secretary's Standards and the guidelines is available from the U.S. Government Printing Office. The title is "The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines for Rehabilitating Historic Buildings", ISBN 0-16-035979-1.

This reference includes general information describing the purpose, organization and content of the Guidelines for Rehabilitating Historic Buildings. Each of the guidelines included in the booklet mentioned above have been separated into individual entries for specific use in HBPP. This reference should be used along with each individual guideline in applying the Secretary of the Interior's Standards to historic buildings. The related guidelines include HBPP sequence numbers 01091-06-S through 01091-19-S.

GENERAL

The Guidelines were initially developed in 1977 to help property owners, developers, and Federal managers apply the Secretary of the Interior's "Standards for Rehabilitation" during the project planning stage by providing general design and technical recommendations. Unlike the Standards, the Guidelines are not codified as program requirements. Together with the "Standards for Rehabilitation" they provide a model process for owners, developers, and Federal agency managers to follow.

The Guidelines are intended to assist in applying the Standards to projects generally; consequently, they are not meant to give case-specific advice or address exceptions or rare instances. For example, they cannot tell an owner or developer which features of their own historic building are important in defining the historic character and must be preserved - although examples are provided in each section - or which features could be altered, if necessary, for the new use. This kind of careful case-by-case decision making is best accomplished by seeking assistance from qualified historic preservation professionals in the planning stage of the project. Such professionals include architects, architectural historians, historians, archaeologists, and others who are skilled in the preservation, rehabilitation, and restoration of historic properties.

The Guidelines pertain to historic buildings of all sizes, materials, occupancy, and construction types; and apply to interior and exterior work as well as new exterior additions. Those approaches, treatments, and techniques that are consistent with the Secretary of the Interior's "Standards for Rehabilitation" are listed under the heading, "Recommended"; those approaches, treatments, and techniques which could adversely affect a building's historic character are listed under the heading, "Not Recommended".

To provide clear and consistent guidance for owners, developers, and Federal agency managers to follow, the "Recommended courses of action in each section are listed in order of historic preservation concerns so that a rehabilitation project may be successfully planned and completed - one that, first, assures the preservation of a building's important "character-defining" architectural materials and features and, second, makes possible an efficient contemporary use. Rehabilitation guidance in each section begins with protection and maintenance, that work which should be maximized in every project to enhance overall preservation goals. Next, where some deterioration is present, repair of the building's historic materials and features is recommended. Finally, when deterioration is so extensive that repair is not possible, the most problematic area of work is considered: replacement of historic materials and features with new materials.

To further guide the owner and developer in planning a successful rehabilitation project, those complex design issues dealing with new use requirements such as alterations and additions are highlighted at the end of each section to underscore the need for particular sensitivity in these areas.

IDENTIFY, RETAIN, AND PRESERVE

The guidance that is basic to the treatment of all historic buildings - IDENTIFYING, RETAINING, AND PRESERVING the form and detailing of those architectural materials and features that are important in defining the historic character - is always listed under the heading, "Recommended". The parallel heading, "Not Recommended", lists the types of actions that are most apt to cause the diminution or even loss of the building's historic character. It should be remembered, however, that such loss of character is just as often caused by the cumulative effect of a series of actions that would seem to be minor interventions. Thus, the guidance in ALL of the "Not Recommended" headings must be viewed in that larger context, e.g., for the total impact on a historic building.

PROTECT AND MAINTAIN

After identifying those materials and features that are important and must be retained in the process of rehabilitation work, then PROTECTING AND MAINTAINING them are addressed. Protection generally involves the least degree of intervention and is preparatory to other work. For example, protection includes the maintenance of historic material through treatments such as rust removal, caulking, limited paint removal, and re-application of protective coatings; the cyclical cleaning of roof gutter systems; or installation of fencing, protective plywood, alarm systems and other temporary protective measures. Although a historic building will usually require more extensive work, an overall evaluation of its physical condition should always begin at this level.

REPAIR

Next, when the physical condition of character-defining materials and features warrants additional work REPAIRING is recommended. Guidance for the repair of historic materials such as masonry, wood, and architectural metals again begins with the least degree of intervention possible such as patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading them according to recognized preservation methods. Repairing also includes the limited replacement in kind - or with compatible substitute material - of extensively deteriorated or missing parts of features when there are surviving prototypes (for example, brackets, dentils, steps, plaster, or portions of slate or tile roofing). Although using the same kind of material is always the preferred option, substitute material is acceptable if the form and design as well as the substitute material itself convey the visual appearance of the remaining parts of the feature and finish.

REPLACE

Following repair in the hierarchy, guidance is provided for REPLACING an entire character-defining feature with new material because the level of deterioration or damage of materials precludes repair (for example, an exterior cornice; an interior staircase, or a complete porch or storefront). If the essential form and detailing are still evident so that the physical evidence can be used to re-establish the feature as an integral part of the rehabilitation project, then its replacement is appropriate. Like the guidance for repair, the preferred option is always replacement of the entire feature in kind, that is, with the same material. Because this approach may not always be technically or economically feasible, provisions are made to

consider the use of a compatible substitute material.

It should be noted that, while the National Park Service guidelines recommend the replacement of an entire character-defining feature under certain well-defined circumstances, they NEVER recommend removal and replacement with new material of a feature that - although damaged or deteriorated - could reasonably be repaired and thus preserved.

DESIGN FOR MISSING HISTORIC FEATURES

When an entire interior or exterior feature is missing (for example, an entrance, or cast iron facade; or a principal staircase), it no longer plays a role in physically defining the historic character of the building unless it can be accurately recovered in form and detailing through the process of carefully documenting the historical appearance. Where an important architectural feature is missing, its recovery is always recommended in the guidelines as the FIRST or preferred, course of action. Thus, if adequate historical, pictorial, and physical documentation exists so that the feature may be accurately reproduced, and if it is desirable to re-establish the feature as part of the building's historical appearance, then designing and constructing a new feature based on such information is appropriate. However, a SECOND acceptable option for the replacement feature is a new design that is compatible with the remaining character-defining features of the historic building. The new design should always take into account the size, scale, and material of the historic building itself and, more importantly, should be clearly differentiated so that a false historical appearance is not created.

ALTERATIONS/ADDITIONS TO HISTORIC BUILDINGS

Some exterior and interior alterations to the historic building are generally needed to assure its continued use, but it is most important that such alterations do not radically change, obscure, or destroy character-defining spaces, materials, features, or finishes. Alterations may include providing additional parking space on an existing historic building site; cutting new entrances or windows on secondary elevations; inserting an additional floor; installing an entirely new mechanical system; or creating an atrium or light well. Alteration may also include the selective removal of buildings or other features of the environment or building site that are intrusive and therefore detract from the overall historic character.

The construction of an exterior addition to a historic building may seem to be essential for the new use, but it is emphasized in the guidelines that such new additions should be avoided, if possible, and considered ONLY after it is determined that those needs cannot be met by altering secondary, i.e., non character-defining interior spaces. If, after a thorough evaluation of interior solutions, an exterior addition is still judged to be the only viable alternative, it should be designed and constructed to be clearly differentiated from the historic building and so that the character-defining features are not radically changed, obscured, damaged or destroyed.

Additions to historic buildings are referenced within specific sections of the guidelines such as Site, Roof, Structural Systems, etc., but are also considered in more detail in a separate standard, 01091-19-S "Guidelines for Rehabilitating Historic Buildings: New Additions to Historic Buildings".

HEALTH AND SAFETY CODE REQUIREMENTS; ENERGY RETROFITTING

These standards of rehabilitation guidance address work done to meet health and safety code requirements (for example, providing barrier-free access to historic buildings); or retrofitting measures to conserve energy (for example, installing solar collectors in an unobtrusive location on the site). Although this work is quite often an important aspect of rehabilitation projects it is usually not part of

the overall process of protecting or repairing character-defining features; rather, such work is assessed for its potential negative impact on the building's historic character. For this reason, particular care must be taken not to radically change, obscure, damage, or destroy character-defining materials or features in the process of rehabilitation work to meet code and energy requirements. For specific guidance, see 01091-17-S "Guidelines...Health and Safety Code Requirements" and 01091-18-S "Guidelines...Energy Retrofitting".

Specific information on rehabilitation and preservation technology may be obtained by writing to the National Park Service, at the addresses listed below.

Preservation Assistance Division
National Park Service
P.O. Box 37127
Washington, DC 20013-7127

National Historic Preservation Programs
Western Regional Office
National Park Service
600 Harrison Street, Ste. 600
San Francisco, CA 94107-1372

Division of Cultural Resources
Rocky Mountain Regional Office
National Park Service
12795 West Alameda Pkwy.
P.O. Box 25287
Denver, CO 80225

END OF SECTION

0109107S GUIDELINES FOR REHABILITATING HISTORIC BUILDINGS: WOOD

U.S. Department of the Interior
National Park Service
Preservation Assistance Division
Washington, D.C.

An illustrated booklet addressing the Secretary's Standards and the guidelines is available from the U.S. Government Printing Office. The title is "The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines for Rehabilitating Historic Buildings", ISBN 0-16-035979-1.

Each of the guidelines included in the booklet mentioned above have been separated into individual entries for specific use in HBPP. This entry represents one of many guidelines included in the booklet and describes RECOMMENDED and NOT RECOMMENDED applications of the Secretary of the Interior's Standards as they relate to Wood. For a list of the Secretary of the Interior's Standards for Rehabilitation, see 01091-04-S; For general information relating to the purpose, organization and content of the individual guidelines, see 01091-05-S. Both of these entries should be referenced along with the information contained in this document.

BUILDING EXTERIOR

WOOD: Clapboard, weatherboard, shingles, and other wooden siding and decorative elements

Because it can be easily shaped by sawing, planing, carving, and gouging, wood is the most commonly used material for architectural features such as clapboards, cornices, brackets, entablatures, shutters, columns and balustrades. These wooden features – both functional and decorative - may be important in defining the historic character of the building and thus their retention, protection, and repair are of particular importance in rehabilitation projects.

IDENTIFYING, RETAINING AND PRESERVING

1. Recommended:

Identifying, retaining, and preserving wood features that are important in defining the overall historic character of the building such as siding, cornices, brackets, window architraves, and doorway pediments; and their paints, finishes, and colors.

Not Recommended:

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.

Removing a major portion of the historic wood from a facade instead of repairing or replacing only the deteriorated wood, then reconstructing the facade with new material in order to achieve a uniform or "improved" appearance.

Radically changing the type of finish or its color or accent scheme so that the historic character of the exterior is diminished.

Stripping historically painted surfaces to bare wood, then applying clear finishes or stains in order to

create a "natural look."

Stripping paint or varnish to bare wood rather than repairing or reapplying a special finish, i.e., a grained finish to an exterior wood feature such as a front door.

PROTECTING AND MAINTAINING

1. Recommended:

Protecting and maintaining wood features by providing proper drainage so that water is not allowed to stand on flat, horizontal surfaces or accumulate in decorative finishes.

Not Recommended:

Failing to identify, evaluate, and treat the causes of wood deterioration, including faulty flashing, leaking gutters, cracks and holes in siding, deteriorated caulking in joints and seams, plant material growing too close to wood surfaces, or insect or fungus infestation.

2. Recommended:

Applying chemical preservatives to wood features such as beam ends or outriggers that are exposed to decay hazards and are traditionally unpainted.

Not Recommended:

Using chemical preservatives such as creosote which can change the appearance of wood features unless they were used historically.

3. Recommended:

Retaining coatings such as paint that help protect the wood from moisture and ultraviolet light. Paint removal should be considered only where there is paint surface deterioration and as part of an overall maintenance program which involves repainting or applying other appropriate protective coatings.

Not Recommended:

Stripping paint or other coatings to reveal bare wood, thus exposing historically coated surfaces to the effects of accelerated weathering.

4. Recommended:

Inspecting painted wood surfaces to determine whether repainting is necessary or if cleaning is all that is required.

Not Recommended:

Removing paint that is firmly adhering to, and thus, protecting wood surfaces.

5. Recommended:

Removing damaged or deteriorated paint to the next sound layer using the gentlest method possible (handscraping and handsanding), then repainting.

Not Recommended:

Using destructive paint removal methods such as propane or butane torches, sandblasting or waterblasting. These methods can irreversibly damage historic woodwork.

6. Recommended:

Using with care electric hot-air guns on decorative wood features and electric heat plates on flat wood surfaces when paint is so deteriorated that total removal is necessary prior to repainting.

Not Recommended:

Using thermal devices improperly so that the historic woodwork is scorched.

7. Recommended:

Using chemical strippers primarily to supplement other methods such as handscraping, handsanding and the above- recommended thermal devices. Detachable wooden elements such as shutters, doors, and columns may -- with the proper safeguards -- be chemically dip-stripped.

Not Recommended:

Failing to neutralize the wood thoroughly after using chemicals so that new paint does not adhere.

Allowing detachable wood features to soak too long in a caustic solution so that the wood grain is raised and the surface roughened.

8. Recommended:

Applying compatible paint coating systems following proper surface preparation.

Not Recommended:

Failing to follow manufacturers' product and application instructions when repainting exterior woodwork.

9. Recommended:

Repainting with colors that are appropriate to the historic building and district.

Not Recommended:

Using new colors that are inappropriate to the historic building or district.

10. Recommended:

Evaluating the overall condition of the wood to determine whether more than protection and maintenance are required, that is, if repairs to wood features will be necessary.

Not Recommended:

Failing to undertake adequate measures to assure the preservation of wood features.

REPAIRING

1. Recommended:

Repairing wood features by patching, piecing-in, consolidating, or otherwise reinforcing the wood using recognized preservation methods. Repair may also include the limited replacement in kind -- or with compatible substitute material -- of those extensively deteriorated or missing parts of features where there are surviving prototypes such as brackets, moldings, or sections of siding.

Not Recommended:

Replacing an entire wood feature such as a cornice or wall when repair of the wood and limited replacement of deteriorated or missing parts are appropriate.

Using substitute materials for the replacement part that does not convey the visual appearance of the surviving parts of the wood feature or that is physically or chemically incomparable.

REPLACING

1. Recommended:

Replacing in kind an entire wood feature that is too deteriorated to repair -- if the overall form and detailing are still evident -- using the physical evidence to guide the new work. Examples of wood features include a cornice, entablature or balustrade. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered.

Not Recommended:

Removing an entire wood feature that is unrepairable and not replacing it; or replacing it with a new feature that does not convey the same visual appearance.

NOTE: THE FOLLOWING REPRESENTS PARTICULARLY COMPLEX TECHNICAL OR DESIGN ASPECTS OF REHABILITATION PROJECTS AND SHOULD ONLY BE CONSIDERED AFTER THE PRESERVATION CONCERNS LISTED ABOVE HAVE BEEN ADDRESSED.

DESIGN FOR MISSING HISTORIC FEATURES

1. Recommended:

Designing and installing a new wood feature such as a cornice or doorway when the historic features is completely missing. It may be an accurate restoration using historical, pictorial, and physical documentation, or be a new design that is compatible with the size, scale, material, and color of the historic building.

Not Recommended:

Creating a false historic appearance because the replaced wood feature is based on insufficient historical, pictorial, and physical documentation.

Introducing a new wood feature that is incompatible in size, scale, material, and color.

END OF SECTION

0109108S GUIDELINES FOR HISTORIC BUILDINGS: ARCHITECTURAL METALS

U.S. Department of the Interior
National Park Service
Preservation Assistance Division
Washington, D.C.

An illustrated booklet addressing the Secretary's Standards and the guidelines is available from the U.S. Government Printing Office. The title is "The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines for Rehabilitating Historic Buildings", ISBN 0-16-035979-1.

Each of the guidelines included in the booklet mentioned above have been separated into individual entries for specific use in HBPP. This entry represents one of many guidelines included in the booklet and describes RECOMMENDED and NOT RECOMMENDED applications of the Secretary of the Interior's Standards as they relate to Architectural Metals. For a list of the Secretary of the Interior's Standards for Rehabilitation, see 01091-04-S; For general information relating to the purpose, organization and content of the individual guidelines, see 01091-05-S. Both of these entries should be referenced along with the information contained in this document.

BUILDING EXTERIOR

ARCHITECTURAL METALS: Cast iron, steel, pressed tin, copper, aluminum, and zinc

Architectural metal features -- such as cast-iron facades, porches, and steps; sheet metal cornices, roofs, roof cresting and storefronts; and cast or rolled metal doors, window sash, entablatures, and hardware -- are often highly decorative and may be important in defining the overall historic character of the building. Their retention, protection, and repair should be a prime consideration in rehabilitation projects.

IDENTIFYING, RETAINING AND PRESERVING

1. Recommended:

Identifying, retaining, and preserving architectural metal features such as columns, capitals, window hoods, or stairways that are important in defining the overall historic character of the building; and their finishes and colors.

Not Recommended:

Removing or radically changing architectural metal features which are important in defining the overall historic character of the building so that, as a result, the character is diminished.

Removing a major portion of the historic architectural metal from a facade instead of repairing or replacing only the deteriorated metal, then reconstructing the facade with new material in order to create a uniform, or "improved" appearance.

Radically changing the type of finish or its historical color or accent scheme.

PROTECTING AND MAINTAINING

1. Recommended:

Protecting and maintaining architectural metals from corrosion by providing proper drainage so that water does not stand on flat, horizontal surfaces or accumulate in curved, decorative features.

Not Recommended:

Failing to identify, evaluate, and treat the causes of corrosion, such as moisture from leaking roofs or gutters.

Placing incompatible metals together without providing a reliable separation material. Such incompatibility can result in galvanic corrosion of the less noble metal, e.g., copper will corrode cast iron, steel, tin, and aluminum.

2. Recommended:

Cleaning architectural metals, when necessary, to remove corrosion prior to repainting or applying other appropriate protective coatings.

Not Recommended:

Exposing metals which were intended to be protected from the environment.

Applying paint or other coatings to metals such as copper, bronze, or stainless steel that were meant to be exposed.

3. Recommended:

Identifying the particular type of metal prior to any cleaning procedure and then testing to assure that the gentlest cleaning method possible is selected or determining that cleaning is inappropriate for the particular metal.

Not Recommended:

Using cleaning methods which alter or damage the historic color, texture, and finish of the metal; or cleaning when it is inappropriate for the metal.

Removing the patina of historic metal. The patina may be a protective coating on some metals, such as bronze or copper, as well as a significant historic finish.

4. Recommended:

Cleaning soft metals such as lead, tin, copper, terneplate, and zinc with appropriate chemical methods because their finishes can be easily abraded by blasting methods.

Not Recommended:

Cleaning soft metals such as lead, tin, copper, terneplate, and zinc with grit blasting which will abrade the surface of the metal.

5. Recommended:

Using the gentlest cleaning methods for cast iron, wrought iron, and steel -- hard metals -- in order to remove paint buildup and corrosion. If handscraping and wire brushing have proven ineffective, low

pressure dry grit blasting may be used as long as it does not abrade or damage the surface.

Not Recommended:

Failing to employ gentler methods prior to abrasively cleaning cast iron, wrought iron or steel or using high pressure grit blasting.

6. Recommended:

Applying appropriate paint or other coating systems after cleaning in order to decrease the corrosion rate of metals or alloys.

Not Recommended:

Failing to re-apply protective coating systems to metals or alloys that require them after cleaning so that accelerated corrosion occurs.

7. Recommended:

Repainting with colors that are appropriate to the historic building or district.

Not Recommended:

Using new colors that are inappropriate to the historic building or district.

8. Recommended:

- Applying an appropriate protective coating such as lacquer to an architectural metal feature such as a bronze door which is subject to heavy pedestrian use.

Not Recommended:

Failing to assess pedestrian use or new access patterns so that architectural metal features are subject to damage by use or inappropriate maintenance such as salting adjacent sidewalks.

9. Recommended:

Evaluating the overall condition of the architectural metals to determine whether more than protection and maintenance are required, that is, if repairs to features will be necessary.

Not Recommended:

Failing to undertake adequate measures to assure the preservation of architectural metal features.

REPAIRING

1. Recommended:

Repairing architectural metal features by patching, splicing, or otherwise reinforcing the metal following recognized preservation methods. Repairs may also include the limited replacement in kind -- or with a compatible substitute material -- of those extensively deteriorated or missing parts of features when there

are surviving prototypes such as porch balusters, column capitals or bases; or porch cresting.

Not Recommended:

Replacing an entire architectural metal features such as a column or a balustrade when repair of the metal and limited replacement of deteriorated or missing parts are appropriate.

Using a substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the architectural metal feature or that is physically or chemically incompatible.

REPLACING

1. Recommended:

Replacing in kind an entire architectural metal feature that is too deteriorated to repair -- if the overall form and detailing are still evident -- using the physical evidence to guide the new work. Examples could include cast iron porch steps or steel sash windows. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered.

Not Recommended:

Removing an architectural metal feature that is unrepairable and not replacing it; or replacing it with a new architectural metal feature that does not convey the same visual appearance.

NOTE: THE FOLLOWING REPRESENTS PARTICULARLY COMPLEX TECHNICAL OR DESIGN ASPECTS OF REHABILITATION PROJECTS AND SHOULD ONLY BE CONSIDERED AFTER THE PRESERVATION CONCERNS LISTED ABOVE HAVE BEEN ADDRESSED.

DESIGN FOR MISSING HISTORIC FEATURES

1. Recommended:

Designing and installing a new architectural metal feature such as a sheet metal cornice or cast iron capital when the historic feature is completely missing. It may be an accurate restoration using historical, pictorial and physical documentation; or be a new design that is compatible with the size, scale, material, and color of the historic building.

Not Recommended:

Creating a false historic appearance because the replace architectural metal feature is based on insufficient historical, pictorial, and physical documentation.

Introducing a new architectural metal feature that is incompatible in size, scale, material, and color.

END OF SECTION

0109113S GUIDELINES FOR HISTORIC BUILDINGS: INTERIOR SPACES

U.S. Department of the Interior
National Park Service
Preservation Assistance Division
Washington, D.C.

An illustrated booklet addressing the Secretary's Standards and the guidelines is available from the U.S. Government Printing Office. The title is "The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines for Rehabilitating Historic Buildings", ISBN 0-16-035979-1.

Each of the guidelines included in the booklet mentioned above have been separated into individual entries for specific use in HBPP. This entry represents one of many guidelines included in the booklet and describes RECOMMENDED and NOT RECOMMENDED applications of the Secretary of the Interior's Standards as they relate to Interior Spaces, Features and Finishes. For a list of the Secretary of the Interior's Standards for Rehabilitation, see 01091-04-S; For general information relating to the purpose, organization and content of the individual guidelines, see 01091-05-S. Both of these entries should be referenced along with the information contained in this document.

BUILDING INTERIOR

INTERIOR: SPACES, FEATURES, AND FINISHES:

An interior floor plan, the arrangement of spaces, and built-in features and applied finishes may be individually or collectively important in defining the historic character of the building. Thus, their identification, retention, protection and repair should be given prime consideration in every rehabilitation project and caution exercised in pursuing any plan that would radically change character-defining spaces or obscure, damage or destroy interior features or finishes.

IDENTIFYING, RETAINING AND PRESERVING

1. Recommended:

Identifying, retaining, and preserving a floor plan or interior spaces that are important in defining the overall historic character of the building. This includes the size, configuration, proportion, and relationship of rooms and corridors; the relationship of features to spaces; and the spaces themselves such as lobbies, reception halls, entrance halls, double parlors, theaters, auditoriums, and important industrial or commercial use spaces.

Not Recommended:

Radically changing a floor plan or interior spaces -- including individual rooms -- which are important in defining the overall historic character of the building so that, as a result, the character is diminished.

Altering the floor plan by demolishing principal walls and partitions to create a new appearance.

Altering or destroying interior spaces by inserting floors, cutting through floors, lowering ceilings, or adding or removing walls.

Relocating an interior feature such as a staircase so that the historic relationship between features and spaces is altered.

2. Recommended:

Identifying, retaining, and preserving interior features and finishes that are important in defining the overall historic character of the building, including columns, cornices, baseboards, fireplaces and mantels, paneling, light fixtures, hardware, and flooring; and wallpaper, plaster, paint, and finishes such as stenciling, marbling, and graining; and other decorative materials that accent interior features and provide color, texture, and patterning to walls, floors, and ceilings.

Not Recommended:

Removing or radically changing features which are important in defining the overall historic character of the building so that, as a result, the character is diminished.

Installing new decorative material that obscures or damages character-defining interior features or finishes.

Removing paint, plaster, or other finishes from historically finished surfaces to create a new appearance (e.g., removing plaster to expose masonry surfaces such as brick walls or a chimney piece).

Applying paint, plaster, or other finishes to surfaces that have been historically unfinished to create a new appearance.

Stripping historically painted wood surfaces to bare wood, then applying clear finishes or stains to create a "natural look."

Stripping paint to bare wood rather than repairing or reapplying grained or marbled finishes to features such as doors and paneling.

Radically changing the type of finish or its color, such as painting a previously varnished wood feature.

PROTECTING AND MAINTAINING

1. Recommended:

Protecting and maintaining masonry, wood, and architectural metals which comprise interior features through appropriate surface treatments such as cleaning, rust removal, limited paint removal, and application of protective coatings systems.

Not Recommended:

Failing to provide adequate protection to materials on a cyclical basis so that deterioration of interior features results.

2. Recommended:

Protecting interior features and finishes against arson and vandalism before project work begins, erecting protective fencing, boarding-up windows, and installing fire alarm systems that are keyed to local protection agencies.

Not Recommended:

Permitting entry into historic buildings through unsecured or broken windows and doors so that interior features and finishes are damaged by exposure to weather or through vandalism.

Stripping interiors of features such as woodwork, doors windows, light fixtures, copper piping, radiators; or of decorative materials.

3. Recommended:

Protecting interior features such as a staircase, mantel, or decorative finishes and wall coverings against damage during project work by covering them with heavy canvas or plastic sheets.

Not Recommended:

Failing to provide proper protection of interior features and finishes during work so that they are gouged, scratched, dented, or otherwise damaged.

4. Recommended:

Installing protective coverings in areas of heavy pedestrian traffic to protect historic features such as wall coverings, parquet flooring and paneling.

Not Recommended:

Failing to take new use patterns into consideration so that interior features and finishes are damaged.

5. Recommended:

Removing damaged or deteriorated paints and finishes to the next sound layer using the gentlest method possible, then repainting or refinishing using compatible paint or other coating systems.

Not Recommended:

Using destructive methods such as propane or butane torches or sandblasting to remove paint or other coatings. These methods can irreversibly damage the historic materials that comprise interior features.

6. Recommended:

Repainting with colors that are appropriate to the historic building.

7. Not Recommended:

Using new paint colors that are inappropriate to the historic building.

8. Recommended:

Limiting abrasive cleaning methods to certain industrial or warehouse buildings where the interior masonry or plaster features do not have distinguishing design, detailing, tooling, or finishes; and where wood features are not finished, molded, beaded, or worked by hand. Abrasive cleaning should ONLY be considered after other, gentler methods have been proven ineffective.

Not Recommended:

Changing the texture and patina of character-defining features through sandblasting or use of other abrasive methods to remove paint, discoloration or plaster. This includes both exposed wood (including structural members) and masonry.

9. Recommended:

Evaluating the overall condition of materials to determine whether more than protection and maintenance are required that is, if repairs to interior features and finishes will be necessary.

Not Recommended:

Failing to undertake adequate measures to assure the preservation of interior features and finishes.

REPAIRING

1. Recommended:

Repairing interior features and finishes by reinforcing the historic materials. Repair will also generally include the limited replacement in kind -- or with compatible substitute material -- of those extensively deteriorated or missing parts of repeated features when there are surviving prototypes such as stairs, balustrades, wood panelling, columns; or decorative wall coverings or ornamental tin or plaster ceilings.

Not Recommended:

Replacing an entire interior feature such as a staircase, panelled wall, parquet floor, or cornice; or finish such as a decorative wall covering or ceiling when repair of materials and limited replacement of such parts are appropriate.

Using a substitute material for the replacement part that does not convey the visual appearance of the surviving parts or portions of the interior feature or finish or that is physically or chemically incompatible.

REPLACING

1. Recommended:

Replacing in kind an entire interior feature or finish that is too deteriorated to repair -- if the overall form and detailing are still evident -- using the physical evidence to guide the new work. Examples could include wainscoting, a tin ceiling, or interior stairs. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered.

Not Recommended:

Removing a character-defining feature or finish that is unrepairable and not replacing it; or replacing it with a new feature or finish that does not convey the same visual appearance.

NOTE: THE FOLLOWING REPRESENTS PARTICULARLY COMPLEX TECHNICAL OR DESIGN ASPECTS OF REHABILITATION PROJECTS AND SHOULD ONLY BE CONSIDERED AFTER THE PRESERVATION CONCERNS LISTED ABOVE HAVE BEEN ADDRESSED.

DESIGN FOR MISSING HISTORIC FEATURES

1. Recommended:

Designing and installing a new interior feature or finish if the historic feature or finish is completely

missing. This could include missing partitions, stairs, elevators, lighting fixtures, and wall coverings; or even entire rooms if all historic spaces, features, and finishes are missing or have been destroyed by inappropriate "renovations." The design may be a restoration based on historical, pictorial, and physical documentation; or be a new design that is compatible with the historic character of the building, district, or neighborhood.

Not Recommended:

Creating a false historical appearance because the replaced feature is based on insufficient physical, historical, and pictorial documentation or on information derived from another building.

Introducing a new interior feature or finish that is incompatible with the scale, design, materials, color, and texture of the surviving interior features and finishes.

ALTERATIONS/ADDITIONS FOR THE NEW USE

1. Recommended:

Accommodating service functions such as bathrooms, mechanical equipment, and office machines required by the building's new use in secondary spaces such as first floor service areas or on upper floors.

Not Recommended:

Dividing rooms, lowering ceilings, and damaging or obscuring character-defining features such as fireplaces, niches, stairways or alcoves, so that a new use can be accommodated in the building.

2. Recommended:

Reusing decorative material or features that have had to be removed during the rehabilitation work including wall and baseboard trim, door moulding, panelled doors, and simple wainscoting; and relocating such material or features in areas appropriate to their historic placement.

Not Recommended:

Discarding historic material when it can be reused within the rehabilitation project or relocating it in historically inappropriate areas.

3. Recommended:

Installing permanent partitions in secondary spaces; removable partitions that do not destroy the sense of space should be installed when the new use requires the subdivision of character-defining interior spaces.

Not Recommended:

Installing permanent partitions that damage or obscure character-defining spaces, features, or finishes.

4. Recommended:

Enclosing an interior stairway where required by code so that its character is retained. In many cases, glazed fire-rated walls may be used.

Not Recommended:

Enclosing an interior stairway with fire-rated construction so that the stairwell space or any character-defining features are destroyed.

5. Recommended:

Placing new code-required stairways or elevators in secondary and service areas of the historic building.

Not Recommended:

Radically changing, damaging, or destroying character-defining spaces, features, or finishes when adding new code-required stairways and elevators.

6. Recommended:

Creating an atrium or a light well to provide natural light when required for the new use in a manner that preserves character-defining interior spaces, features, and finishes as well as the structural system.

Not Recommended:

Destroying character-defining interior spaces, features, or finishes; or damaging the structural system in order to create an atrium or light well.

7. Recommended:

Adding a new floor if required for the new use in a manner that preserves character-defining structural features, and interior spaces, features, and finishes.

Not Recommended:

Inserting a new floor within a building that alters or destroys the fenestration; radically changes a character-defining interior space; or obscures, damages, or destroys decorative detailing.

END OF SECTION

0109121S GUIDELINES FOR HISTORIC BUILDINGS: FIRE SAFETY

This procedure includes guidance on planning appropriate fire safety treatments in historic buildings. General applications for fire safety retrofitting are outlined below along with treatments that are recommended and not recommended for those applications. This material has been extracted from the GSA Fire Safety Retrofitting publication issued jointly by the Advisory Council on Historic Preservation and the General Services Administration. Refer to this publication for detailed information on the importance of fire safety retrofitting, the assessment process and implementation in historic buildings.

CORRIDORS

A. Recommended:

1. Maintaining the historically significant building fabric within exit corridors without sacrificing fire safety requirements.

B. Not Recommended:

1. Permanently altering the appearance of the historically significant ceiling, floor, or wall materials in a corridor to accommodate an exit access corridor.

2. Removing historically significant openings and doors to accommodate an exit access corridor.

3. Adding new doors or openings that would permanently alter the appearance of the historically significant building fabric to accommodate an exit access corridor or permanently closing off significant openings.

INTERIOR STAIRS

A. Recommended:

1. Maintaining the exiting stairway's significant historic characteristics and satisfying fundamental exiting requirements.

2. Constructing new exiting stairs, if required to augment existing requirements, so that the alteration of the existing plan of the historic building fabric is minimized.

B. Not Recommended:

1. Totally enclosing an historically significant open stair without considering alternate means of satisfying fundamental exiting requirements.

2. Permanently altering the appearance of historically significant fabric to accommodate a new stair.

EXTERIOR STAIRS

A. Recommended:

1. Placing new stairs to satisfy exiting requirements so that the stairs do not detract from historically significant facades or the setting of the building and are not readily seen by the public.

2. Constructing the new stairs from approved materials and methods, and in a style that provides a distinct differentiation between old and new.

3. Minimizing the physical alteration to the existing historic facade at the points where the new stair contacts the building.

B. Not Recommended:

1. Locating new stairs on facades that are historically significant or visible to the public.
2. Matching new stair construction with existing historic construction.
3. Altering an existing historic facade to accommodate a new stair.

DOORS

A. Recommended:

1. Maintaining historically significant doors where a fire-rated door is required as a component to the means of egress.
2. Constructing new fire-rated door is required as a component to the means of egress.
3. Attaching the historic door to an approved fire-rated door assembly without permanent damage to the historic door, where replacement of the historic door might otherwise be required to conform to a means of egress.

B. Not Recommended:

1. Altering or removing a historic door without considering viable alternatives to meet fire safety requirements.

MATERIALS

A. Recommended:

1. Installation of passive fire suppression materials so that the significant historic fabric of a building is not permanently altered.
2. Installation of fire proofing materials as required to augment existing nonconforming historic construction so that the significant historic fabric of a building is not permanently altered.
3. The evaluation of equivalency concepts for existing construction so that the least amount of alteration to the fabric takes place.

B. Not Recommended:

1. Permanently altering the appearance of historic walls, ceilings, and floor construction or the removal of significant existing historic building fabric to accommodate passive fire suppression.
2. Installation of new partitions that damage historic features or historic character of the spaces.
3. Addition of modern materials over existing historic building fabric.

FIRE SPRINKLERS

A. Recommended:

1. Evaluation of each historically significant space within a building for the selection of the best-suited fire sprinkler system type.
2. Piping routes, sprinkler head types, styles, colors, and locations implemented so that the historic fabric and visual integrity of the building are least affected.

B. Not Recommended:

1. Routing sprinkler pipe so that it is exposed to view within the historically significant building fabric.
2. Putting sidewall mounted sprinklers into plaster cornices and reliefs.
3. Furring down ceilings in significant interior spaces to conceal piping.

FIRE EXTINGUISHERS

A. Recommended:

1. Installing fire extinguishers without the permanent alteration of the appearance of the historically significant building fabric.
2. Using surface mounted fire extinguisher cabinets in areas where recessed cabinets would alter the significant historic fabric, such as marble wainscoting.
3. Using recess mounted fire extinguisher cabinets where possible.
4. Selection of a fire cabinet style that is least obtrusive to the surrounding historic fabric.

B. Not Recommended:

1. Installing fire extinguishers and/or cabinets on existing historically significant walls in a manner that permanently alters their character and appearance.

SMOKE DETECTORS

A. Recommended:

1. Retrofitting smoke and heat detectors and required electrical conduits so that they are not unusually prominent or do not affect the significant historic fabric of a building.

B. Not Recommended:

1. Installing smoke and heat detectors in historic plaster relief or cornices.
2. Installing smoke and heat detectors on the surface of ceiling that are historically significant.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Project consists of **Historic Preservation for the Ohio City Town Hall.**

(1) Project Location: **Ohio City, Colorado.**

(2) Owner: **Gunnison County, Colorado.**

- B. Architect Identification: Preparation of the Contract Documents for the Project is under the direction of

**Benjamin White, AIA
Ben White Architecture, LLC
148 Elcho Ave. #3
Crested Butte, CO 81224**

- C. Owner's Project Representative, hereinafter referred to as the Owner:

**Rachel Magruder
Gunnison County Attorney's Office
200 East Virginia Avenue
Gunnison, CO 81230**

1.3 CONTRACT

- A. Project will be bid under multiple phases under a Design/Bid/Build Contract.

1.4 WORK SEQUENCE - SCHEDULE OF WORK

PHASE 1

T1.1 - Foundation Stabilization. Remove existing front deck and store donor deck boards for reinstallation. Remove bottom 36" to 48" of metal panel siding and sheathing. Investigate condition of existing rim joist and wood framing members for damage and deterioration. Sister or replace damaged structural members. While exterior sheathing is off, install electrical conduit in stud walls. Replace exterior sheathing and reinstall pressed metal panel siding. Disconnect utilities. Engage services of registered archaeologist to monitor any below-grade work. Shore building as necessary; lift and set on cribbing piles. Demolish existing perimeter foundation; excavate and install new concrete footings and stem walls. Add new concrete retaining wall to access crawlspace. Clean cellar area. Rehabilitate crawlspace access door. Replace mud sill and damaged wood structural members. Anchor new mud sill to existing rim joist. Set and level structure on new foundation. Add new side door landing, new front entrance deck, steps, new ADA access ramp, and metal handrails. Reuse donor deck boards.

T1.2 - Electrical Distribution. Remove existing electrical distribution system, lights, and fans and run new wiring in conduit. Install new ceiling lights and fans, new exit lights, and new emergency light fixtures. Add recessed fire extinguishers and fire extinguisher cabinets. Furnish and install new post lantern adjacent to entry door. Install smoke detector and carbon monoxide detectors.

T1.3 - Interior Structural Rehabilitation. Add nailed plywood gusset plates to wood truss connection points. Install wood beam in attic space and extend threaded rods through existing roof cavity to suspend existing ceiling from trusses. Remove interior columns and beam and level ceiling. Temporary patch and repair flooring as necessary.

1.5 USE OF PREMISES

- A. General: Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited by Owner's right to perform work or to retain other contractors on portions of Project.
 - (1) Areas identified as NIC (not in contract) are accessible by the Contractor but may contain Owner property which will require protection.
- B. Use of the Site: Limit use of the existing site to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
- C. Use of the Existing Building: Maintain the existing buildings in a weather tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building during the construction period.
 - (1) Owner Occupancy: Allow for Owner occupancy and use by the public of existing buildings outside of the limits of construction.
 - (2) Entrances and Exits: Keep building entrances and exits available to the Owner, the Owner's employees, and emergency vehicles/staff at all times. Do not use these areas for storage of materials. Maintain all building exits at all times. Coordinate all large material movement, within the building, with the Owner's representative to minimize disruption to the building's occupants.
- D. Coordination of work with owner: Coordinate all work within NIC areas. Provide (1) week notice before beginning work in the area: including, but limited to, mechanical and electrical tie-in, cutting, patching and demolition.

1.6 WORK BY OWNER

- A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the work of this Contract with work by the Owner.
- B. Preceding Work: Owner will perform the following construction operations at Project site. Those operations are scheduled to be substantially complete before work under this contract begins.

Please Reference "Scope of Work" description in the Drawings.

1.7 FUTURE WORK

- A. Future Contract: Owner reserves the right to award separate contract(s) for additional work to be performed at the site. Completion of that work will depend on successful coordination with work under this Contract.

(1) Coordinate with Owner's separate contractors to allow them access to the site and their construction areas while maintaining safety in the building and on the site for workers and occupants.

B. When necessary, cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION 011000

SECTION 012300 - ALTERNATES

PART 1- GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

- (1) The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

- (1) Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

- C. Execute accepted alternates under the same conditions as other work of the Contract.

- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ADDITIVE ALTERNATES

Reserved

END OF SECTION 012300

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Sections include the following:

(1) Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

(2) Division 1 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

(1) Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

(a) Application for Payment forms with Continuation Sheets.

(2) Submit the Schedule of Values to Owner at earliest possible date but no later than ten days before the date scheduled for submittal of initial Applications for Payment.

(3) Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

(1) Identification: Include the following Project identification on the Schedule of Values:

(a) Project name and location.

(b) Contractor's name and address.

(c) Date of submittal.

(2) Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

(a) Related Specification Section or Division.

(b) Description of the Work.

- (c) Change Orders (numbers) that affect value.
 - (d) Dollar value.
 - (e) Percentage of the Contract Sum to nearest one-tenth percent, adjusted to total 100 percent.
- (3) Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
- (4) Round amounts to nearest whole dollar; total shall equal the Contract Sum.
- (5) Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
- (a) Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
- (6) Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
- (7) Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
- (a) Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead Expense, at Contractor's option.
- (8) Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Owner and paid for by Owner.

(1) Initial Application for Payment and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement and General Conditional of the Contract between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement and General Conditions of the Contract.

C. Payment Application Forms: Use Certificate of Contractor's Application for Payment, State Form SC-7.2.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Owner will return incomplete applications without action.

(1) Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.

(2) Include amounts of Change Orders issued before last day of construction period covered by application.

E. Transmittal: Submit 5 signed and notarized original copies of each Application for Payment to Owner by a method ensuring receipt within 24 hours.

(1) Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

F. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

- (1) List of subcontractors.
- (2) Schedule of Values.
- (3) Contractor's Construction Schedule (preliminary if not final).
- (4) Certificates of insurance and insurance policies.
- (5) Performance and payment bonds.

G. Application for Final Payment: Comply with General Conditions of the Contract, Article 50.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

- (1) General project coordination procedures.
- (2) Conservation.
- (3) Coordination Drawings.
- (4) Administrative and supervisory personnel.
- (5) Project meetings.
- (6) Requests for Interpretation (RFIs).

1.3 DEFINITIONS

A. RFI: Request for Interpretation: A request from the Contractor seeking interpretation or clarification of the Contract Documents.

1.4 COORDINATION

A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

- (1) Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
- (2) Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
- (3) Make adequate provisions to accommodate items scheduled for later installation.

B. If necessary prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

- (1) Preparation of Contractor's Construction Schedule.
- (2) Preparation of the Schedule of Values.
- (3) Installation and removal of temporary facilities and controls.
- (4) Delivery and processing of submittals.
- (5) Progress meetings.
- (6) Preinstallation conferences.
- (7) Project closeout activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

(1) Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work.

1.5 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

(1) Indicate relationship of components shown on separate Shop Drawings.

(2) Indicate required installation sequences.

(3) Refer to mechanical, electrical, and plumbing sections for mechanical, electrical, and plumbing installations.

B. Staff Names: Within 15 days of starting construction operations, submit a list of principal staff assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

(1) Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone.

1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

(1) Include special personnel required for coordination of operations with other contractors.

1.7 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences via conference call, web-based conference or at the Project site, unless otherwise indicated.

(1) Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Coordinate with Owner for scheduled meeting dates and times.

(2) Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

(3) Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned within 3 days of the meeting.

B. Preconstruction Conference: The Owner will schedule a preconstruction conference before starting construction, at a time convenient to all. The conference will be at Project site, by web-based conference, or at another convenient location. The meeting will review responsibilities and personnel assignments.

(1) Attendees: Authorized representatives of Owner, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

(2) Agenda: Discuss items of significance that could affect progress, including the following:

- (a) Tentative construction schedule.
- (b) Phasing.
- (c) Critical work sequencing.
- (d) Designation of responsible personnel.
- (e) Procedures for processing field decisions and Change Orders.
- (f) Procedures for processing Applications for Payment.
- (g) Distribution of the Contract Documents.
- (h) Submittal procedures.
- (j) Preparation of Record Documents.
- (k) Use of the premises.
- (l) Responsibility for temporary facilities and controls.
- (m) Parking availability.
- (n) Office, work, and storage areas.
- (o) Equipment deliveries and priorities.
- (p) First aid.
- (q) Job site safety.
- (r) Security.
- (s) Progress cleaning.
- (t) Working hours.

C. Progress Meetings: Conduct progress meetings at weekly intervals, unless otherwise directed by the Owner.

(1) Attendees: In addition to representatives of Owner, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

(2) Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

(a) Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

(b) Review present and future needs of each entity present, including the following:

- Interface requirements.
- Sequence of operations.
- Status of submittals.
- Deliveries.
- Off-site fabrication.
- Access.
- Site utilization.
- Temporary facilities and controls.
- Work hours.
- Hazards and risks.
- Progress cleaning.
- Quality and work standards.
- Change Orders.
- Documentation of information for payment requests.

(3) Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

(a) Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION 013100

SECTION 017123 - FIELD ENGINEERING

PART 1 - GENERAL

1.1 REQUIREMENTS AND DESCRIPTION OF THE WORK

A. This section specifies survey work and engineering responsibilities of the Contractor.

1.2 EXISTING SITE CONDITIONS

A. Verify location of all utility lines, conduits, surface or subsurface structures, etc., of any nature that may be affected by the Work.

B. Should any of the above items be disturbed, disconnected, or damaged during construction, bear all expenses of whatever nature arising from such disturbance or the replacement or repair thereof and replace or repair such items as required to maintain continuing service, including emergency repairs.

C. The Contractor shall obtain and pay for supervision of all excavation work and exploratory digging by a qualified Archaeologist certified in the State of Colorado. Monitoring and reporting shall be performed in a manner directed by the Archaeologist.

Alpine Archaeological Consultants, Inc.
PO Box 2075
900 S. Townsend Ave.
Montrose, CO 81402
(970) 249-6761

C. Should any unidentified item or suspicion of contaminated soil be encountered during excavation, do not proceed with excavation until the Owner has been notified and direction has been given by the Archaeologist.

D. If any traces of archeological resources (human remains, artifacts, concentrations shell/bone/rock/ash) are encountered, immediately stop all construction operations within a 30 yard radius until the Owner has been consulted and has received mitigation recommendations from the Archaeologist.

1.3 SURVEY AND LAYOUT

A. Obtain and pay for all engineering services required to accurately and completely lay out the Work by a registered civil engineer who is qualified to perform surveying or a licensed land surveyor.

B. The Contractor shall lay out the Work, setting grade elevations, location stakes, and other reference points and information necessary to complete the Work and shall be responsible for the accuracy thereof. Unless discrepancies between Drawings and actual conditions are brought to the attention of the Architect and Owner prior to the commencement of operations, the Contractor shall be held solely responsible for the proper installation of the Work. Adjustments in layout shall be made at the Contractor's expense.

C. Stakes, boundary lines, corner markers, bench marks or survey markers which have been or may be established in any part of the site, shall be preserved and respected and shall be restored at Contractor's expense if lost or destroyed as a result of the Contractor's operations.

D. Site data and building dimensions indicated on the Drawings are as exact as could be obtained, but their absolute accuracy cannot be guaranteed. Exact locations, distances, elevations, and similar data shall be governed finally by field conditions and the Owner's instructions.

E. Contractor shall verify on site the location and depth (elevation) of all existing utilities and services before performing any excavation work.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 017329 - CUTTING AND PATCHING ORIGINAL WORK

PART 1 GENERAL

1.01 SUMMARY

A. This procedure includes general guidelines to follow when performing cutting and patching original work.

1.02 DEFINITIONS

A. "Cutting and patching" includes cutting into existing construction to provide for the installation of other work and subsequent fitting and patching required to restore surfaces to their original condition.

1. Cutting and patching is performed for coordination of the work, to uncover work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.

2. Cutting and patching performed during the manufacture of products, or during the initial fabrication, erection or installation processes is not considered to be "cutting and patching" under this definition. Drilling of holes to install fasteners and similar operations are also not considered to be "cutting and patching".

3. "Selective Demolition" is recognized as related-but-separate category of work, which may or may not require cutting and patching as defined in this procedure.

1.04 QUALITY ASSURANCE

A. General Contractor shall do all cutting and patching of wall and ceiling surface for the removal, relocation of or new piping, conduit, electrical boxes, asbestos abatement, PCB removal, and where pipes have been removed or abandoned.

1. Cutting which will disturb the asbestos material shall be done under the direction of the Asbestos Abatement subcontractor.

B. Cutting and patching of all nonstructural concrete floors for Mechanical and Electrical work shall be done by the respective subcontractors in accordance with the provision of this section.

C. Cutting and patching of all walls for ducts shall be done by the Mechanical subcontractor in accordance with the provisions of this section.

D. Requirements for Structural Work: Do not cut and patch structural work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ratio. Prior to such work, obtain approval of project's Structural Engineer.

F. Visual Requirements: Do not cut and patch work exposed on the building's exterior or in its occupied spaces, in a manner that would, in the Contracting Officer's opinion, result in lessening the building's aesthetic qualities. Do not cut and patch work in a manner that would result in substantial visual evidence of cut and patch work. Remove and replace work judged by the Contracting Officer to be cut and patched in a visually unsatisfactory manner.

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Except as otherwise indicated, or as directed by the Contracting Officer, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

B. The use of a trade name and suppliers name and address is to indicate a possible source of the product. Products of the same type from other sources shall not be excluded provided they possess like physical and functional characteristics.

PART 3 EXECUTION

3.01 EXAMINATION

A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.

1. Before the start of cutting work, meet at the work site with all parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict between the various trades. Coordinate layout of the work and resolve potential conflicts before proceeding with the work.

3.02 PREPARATION

A. Temporary Support: To prevent failure provide temporary support of work to be cut. Do not endanger other work. Provide adequate protection of other work during cutting and patching, to prevent damage; and provide protection of the work from adverse weather exposure.

B. Protection: Protect other work during cutting and patching to prevent damage. Provide protection from adverse weather conditions of that part of the project that may be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.03 ERECTION, INSTALLATION, APPLICATION

A. General: Employ skilled workers to perform cutting and patching work. Except as otherwise indicated or as approved by the Contracting Officer, proceed with cutting and patching at the earliest feasible time and complete work without delay.

B. Cutting: Cut the work using methods that are least likely to damage work to be retained or adjoining work.

1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine such a Carborundum saw or core drill to insure a neat hole.

2. Cut holes and slots neatly to size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.

3. Comply with other applicable requirements where cutting and patching requires excavating and backfilling.

4. By-pass utility services such as pipe and conduit, before cutting, where such utility services are shown or required to be removed, relocated or abandoned. Cut-off conduit and pipe in walls or partitions to be removed. After by-pass and cutting, cap, valve or plug and seal tight remaining portion of pipe and conduit to prevent entrance of moisture or other foreign matter.

C. Patching: Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.

1. Where feasible, inspect and test patched areas to demonstrate integrity of work.

2. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and refinishing. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch, after patched area has received prime and base coats.

3. Where removal of walls or partitions extends one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall coverings and replace with new materials.

a. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch, after patched area has received prime and base coat.

4. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.04 ADJUSTING/CLEANING

A. Thoroughly clean areas and adjacent spaces soiled due to the work performed or used as access to work. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 017329

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements to collect and separate construction debris for reuse and recycling.

- (1) Recycling nonhazardous construction waste.
- (2) Salvaging non hazardous construction waste.
- (3) Disposing of hazardous and nonhazardous construction waste.

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, repair operations, material landscape debris, and hazardous waste. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

G. Hazardous Waste: Any material or by product of construction that is regulated by the Environmental Protection Agency and that may not be disposed of in any landfill or other waste end-source with adherence to applicable law.

1.4 PERFORMANCE GOALS

A. Develop waste management plan that results in cost effective salvage/recycling of approximately 50%, by weight, of total waste generated by the Work.

(1) The waste management plan should be presented and approved by the Owner prior to the start of demolition.

B. Salvage/Recycle Goals: Owner's goal is to salvage and recycle as much nonhazardous construction waste as possible; construction debris should be salvaged, reused or recycled (diverted from a landfill) for the following materials:

1.5 SUBMITTALS

A. Waste Management Plan: Email or submit 3 copies of plan within 30 days of date established for commencement of the Work.

B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three copies of report. Include the following information:

- (1) Material category.
- (2) Generation point of waste.
- (3) Total quantity of waste in tons.
- (4) Quantity of waste salvaged, both estimated and actual in tons.
- (5) Quantity of waste recycled, both estimated and actual in tons.
- (6) Total quantity of waste recovered (salvaged plus recycled) in tons.
- (7) Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations.

D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

E. Project Information: Site plan showing Contractor access points and location of containers used for on-site storage of construction waste.

F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, receipts, and invoices.

G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, receipts, and invoices.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification and waste reduction work plan. Indicate quantities by weight or volume, but use same units of measure throughout the waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, quantity for each means of recovery, and handling and transportation procedures.

(1) Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged material before incorporation into the Work.

(2) Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.

(3) Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.

(4) Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

(5) Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.

(6) Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement waste management plan as approved by Owner. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

(1) Distribute waste management plan to entities when they first begin work onsite. Review plan procedures and locations established for salvage, recycling, and disposal.

C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

(1) Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled and reused.

3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Receivers and Processors: Provide list of proposed recycling receivers and processors.

C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Owner.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

(1) Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

(a) Inspect containers and bins for contamination and remove contaminated materials if found.

(2) Store components off the ground and protect from the weather.

(3) Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

3.3 RECYCLING CONSTRUCTION WASTE

A. Packaging:

(1) Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.

(2) Polystyrene Packaging: Separate and bag materials.

(3) Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.

(4) Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

(1) Clean Cut-Offs of Lumber: Grind or chip into small pieces.

(2) Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

3.4 DISPOSAL OF WASTE

A. General: Except for items or materials to be recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill acceptable to authorities having jurisdiction.

(1) Do not allow waste materials that are to be disposed of, to accumulate onsite.

(2) Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

D. Disposal: Transport waste materials and dispose of at designated spoil areas on Owner's property.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

- (1) Inspection procedures.
- (2) Final cleaning.

1.3 COMPLETION AND FINAL INSPECTION

A. Preliminary Procedures: Before filing written Notice of Completion, complete the following. List items below that are incomplete in request.

- (1) Complete preliminary inspection of the Work and issue to subcontractors. Verify that all incomplete work and work needing correction has been completed and corrected.
- (2) Advise Owner of pending insurance changeover requirements.
- (3) Prepare and submit Project Record Documents, operation and maintenance manuals, and similar final record information.
- (4) Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
- (5) Submit specific warranties, workmanship bonds, maintenance service agreements, final certificates and similar documents.
- (6) Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities including occupancy permits, operating certificates and similar releases.
- (7) Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
- (8) Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
- (9) Complete startup testing of systems.
- (10) Complete final cleaning requirements, including touchup painting.
- (11) Submit test/adjust/balance records.
- (12) Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- (13) Advise Owner of changeover in heat and other utilities.

(14) Submit changeover information related to Owner's occupancy, use, operation and maintenance.

(15) Submit a final Application for Payment according to Division 01 Section "Payment Procedures."

(16) Submit certified copy of Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

(17) Submit evidence of final, continuing insurance coverage complying with insurance requirements.

(18) Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Final Inspection: Submit a written Notice of Completion, in compliance with the General Conditions of the Contract, requesting Final Inspection. Within ten days after the Contractor files written Notice that the work is complete, the Owner and the Contractor shall make a "final inspection" of the Work to determine if the Work has been completed in accordance with the Contract Documents, or, the Owner will notify Contractor of unfulfilled requirements. As a result of the Final Inspection, the Owner will prepare a final punch list describing the following:

(1) Work to be completed, if any.

(2) Work not in compliance with the drawings and specifications, if any.

(3) Unsatisfactory work for any reason, if any.

C. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

(1) Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.

(2) Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building services.

1.5 NOTICE OF ACCEPTANCE AND SETTLEMENT

A. Notice of Acceptance: Owner will issue Notice of Acceptance in accordance with the General Conditions of the Contract.

B. Settlement: Comply with requirements for Settlement described in the General Conditions of the Contract.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

(1) Complete the following cleaning operations before requesting Final Inspection for entire Project or for a portion of Project:

(a) Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

(b) Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

(c) Rake grounds that are neither planted nor paved to a smooth, even textured surface.

(d) Remove tools, construction equipment, machinery, and surplus material from Project site.

(e) Remove snow and ice to provide safe access to building.

(f) Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

(g) Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

(h) Sweep concrete floors broom clean in unoccupied spaces.

(i) Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

(j) Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

(k) Remove labels that are not permanent.

(l) Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

• Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

(m) Clean light fixtures to function with full efficiency. Replace burned out bulbs.

(n) Leave Project clean and ready for occupancy.

END OF SECTION 017700

CLOSEOUT PROCEDURES

017700 - 3

SECTION 020700 DECONSTRUCTION

PART 1 – GENERAL

1.1 SECTION INCLUDES:

A. Definition: Deconstruction – Removal work that is distinct from demolition. It is the careful, controlled, and orderly removal of building components or materials, with the intention of salvage, reinstallation and repair.

B. Deconstruction, removal, and salvage of interior or exterior finishes, elements, and additions as indicated on the drawings, including but not limited to:

1. Foundation components in degraded condition;
2. Wood Sill Plate;
3. Wood Floor Joists in degraded condition;
4. Wood Structural Members;
5. Wood Sheathing
6. Metal Panel Exterior Cladding;
7. Wood Flooring

1.2 QUALITY ASSURANCE

A. Take all measures during performance of work to maintain and protect historic fabric of this building. Perform work with extreme care and assure that no features of structure are damaged. All work described in this section will adhere to the standards set forth by the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.

1.4 REGULATORY REQUIREMENTS

A. Perform deconstruction in accordance with applicable Federal, State and local building code and regulations, safety standards and requirements of authorities, having jurisdiction, including applicable requirements of the following:

1. Safety Requirements for Demolition: ANSI A 10.6.
2. Building Construction Operation: ANSI/NFPA 241.
3. Local regulations for protection of the public and control of noise, dust, dirt and other pollutants.

B. Lead Based Paint Precautions:

1. Existing items scheduled for possible deconstruction or removal may contain lead based paint.
2. General Contractor shall assume responsibility for complying with all applicable regulations.

1.5 PROJECT CONDITIONS

A. Condition of Structure: The Owner assumes no responsibility for actual condition of items to be demolished.

1. The drawings identify major requirements of this section. The drawings are intended to explain the scope of the section and are not to be interpreted as a comprehensive inventory of existing conditions. They are provided for information only and do not supplant on-site evaluation by the Contractor.

B. Explosives: Use of explosives will not be permitted.

C. Protection of Persons and Property:

1. Provide and maintain temporary construction barricades, signs and other forms of protection as necessary to protect streets, sidewalks, adjoining properties, personnel and general public from injury due to the work at all times.

2. Protect existing sidewalks, streets, utilities and other items which are to remain undisturbed.

3. Provide interior and exterior shoring, bracing or support to prevent movement, settlement, or collapse of elements to be demolished and adjacent facilities or work to remain.

4. Provide dustproof enclosures and or temporary protection to protect from damage existing finish work that is to remain in place.

5. Provide temporary weather protection during interval between deconstruction and removal of existing construction on exterior surfaces, and installation of new construction to insure that no water leakage or damage occurs to structure or interior areas of existing building.

6. Protect from damage existing structure and adjacent elements to remain by approved methods including saw-cutting of existing portions of construction adjacent to portions which are to remain. Remove both new and previous protection provided by others when the work is completed, or as directed by Owner.

D. Damages: Promptly repair damages caused to existing building elements, adjacent public or private facilities, utilities and premises by deconstruction at no additional cost to the Owner.

1. Any damage done to historic elements of the building, must be repaired in a manner approved by the Owner prior to implementation.

E. Traffic: Conduct deconstruction operations and debris removal in a manner to ensure minimum interference with roads, streets, sidewalks and other adjacent occupied facilities.

1. Do not close, block or otherwise obstruct roads, streets, sidewalks or other occupied facilities without proper written permission from authorities having jurisdiction.

F. Utility Services: Maintain existing utilities indicated to remain, keep in service, and protect against damage during deconstruction operations.

G. Remove rubbish and debris from the job site daily unless otherwise directed. Do not allow accumulations inside or outside the building.

H. Environmental Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulation pertaining to environmental protection. Do not use water when it may create objectionable conditions or cause damage to existing structures and finishes to remain.

I. The use of power-driven impact tools will be permitted only with the consent of the Owner.

J. Open Flame: Cutting torches will not be permitted except by Owner's written permission. Maintain portable fire suppression devices of appropriate classes during all removals work.

1. Smoking is not permitted in the building or adjacent areas.

2. Fire watch is the responsibility of the Contractor.

PART 2 - PRODUCTS

Not included.

PART 3 - EXECUTION

3.1 GENERAL

A. Locate deconstruction equipment throughout structure and promptly remove materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Unanticipated elements which conflict with intended function or design, if encountered, shall be investigated, measured, photo documented and reported to the Owner in writing. Pending receipt of a directive, rearrange deconstruction schedule as necessary to continue overall job progress.

C. Title to Materials: Title to all materials to be removed and disposed of, as approved by the Owner, is vested in the Contractor upon the receipt of such approval. The Owner will not be responsible for the condition of, loss of, or damage to such property after such approval. Materials shall not be viewed by prospective purchasers or sold on the site.

1. Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.

D. Historic artifacts uncovered during work of this Section remain property of the State and shall remain boxed and labeled in the building attic for future research. Notify Owner if such items are encountered and obtain acceptance regarding method of removal and salvage.

E. Existing finish work that is to remain in place and becomes exposed during deconstruction operations shall be protected from damage.

3.2 PREPARATION

A. Inspection

1. Prior to commencement of deconstruction work, inspect areas in which work will be performed. Photograph existing conditions of adjacent elements which could be construed as damage resulting from selective removal work; file with the Owner prior to starting work.

2. Determine location of piping, utilities and equipment and confirm whether it shall be removed or shall remain.

B. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement or collapse of structures to be demolished and adjacent facilities to remain.

1. Cease operations and notify the Owner immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

C. Cover and protect equipment and fixtures to remain from soiling or damage when deconstruction work is performed in rooms or areas from which such items have not been removed.

D. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.

1. Provide bypass connections as necessary to maintain continuity of service to building.

3.3 DECONSTRUCTION OF ELEMENTS FOR SALVAGE AND REUSE

A. General: Perform deconstruction work in a systematic manner. Use such methods as required to complete work indicated on the drawings, these specifications, and governing regulations.

1. Specialty items will be removed under Owner's or Architect's supervision.
2. Exercise care in removing salvage Elements and materials attached to Historic Elements which are to remain.
 - a. Unbolt bolted connections.
 - b. Unscrew screwed connections.
 - c. Do not pry apart members whose finish will be damaged by chipping, crazing, or cracking, or whose structural integrity will be impaired.
 - d. Do not remove nails from woodwork from exposed side. Drive nails through or pull from back so head does not splinter finished face.
 - e. Remove items whole wherever possible. Where cuts are required, make cuts cleanly with proper tools and at logical break points. Verify unusual or ambiguous configurations with Owner and document with photos and written notes prior to removal.

B. Millwork: Remove full lengths of millwork. Reinstall in same locations.

C. Door Assemblies: Store door, frame and hardware of individual door assemblies as single component. Door assemblies will only be removed if necessary for stabilization of building.

D. Windows: Remove only as much material necessary to accommodate new work. Remove window components in whole sections. Remove windows only if necessary for stabilization of building.

3.4 DISPOSAL OF WASTE MATERIALS

A. Remove debris, rubbish and other materials resulting from deconstruction operations from building site. Transport and legally dispose of materials off site in accordance with the approved methods and dump locations.

1. If hazardous materials are encountered during deconstruction operations, comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution.
2. Burning of removed materials is not permitted on project site.

3.5 CLEAN-UP AND REPAIR

A. Upon completion of deconstruction work, remove tools, equipment and demolished materials from site.

1. Remove both new and existing protection except for those specified to remain.
2. Temporary partitions and closures will not be required to remain, and shall be demolished and removed off the site.
3. Leave interior areas broom clean.

B. Repair deconstruction performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of deconstruction work. Repair adjacent construction or surfaces soiled or damaged by deconstruction work.

END OF SECTION

SECTION 02071 PROTECTION AND SALVAGE OF HISTORIC ELEMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Protect all historic elements that remain in place or on site from damage by construction activities.

B. Document, deconstruct, record, label, store, and protect all items designated to be removed, salvaged and reinstalled as indicated on drawings or as directed by the Owner. All work described in this section will adhere to the standards set forth by the *Secretary of the Interior's Standards for the Treatment of Historic Properties*

1.3 DEFINITIONS

A. "Historic Elements" may include, but are not limited to, the following finishes, components, or areas:

1. Wood windows and doors
2. Interior wood trim and moldings and panels
3. Interior and exterior historic fixtures
4. Interior tin ceiling, molding, and cornice
5. Exterior wood trim, soffits and fascia
6. Exterior sheathing
7. Exterior metal panel siding

B. "Historic Elements" may also be identified in the field by the Owner and brought to the attention of the Contractor. Contractor shall verify any questionable items with the Owner prior to commencement of protection, demolition, or construction procedures.

C. "Protection" as specified herein refers to; protection of historic elements remaining in place from impact and general construction damage, and protection of all stored historic elements from impact, general construction damage, weather, or flooding. Fire protection is not covered by this specification and remains the responsibility of the Contractor.

1.4 QUALITY ASSURANCE

A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of work in this section, in accordance with the *Secretary of the Interior's Standards*

B. The Contractor shall be responsible for protection of all existing materials and components to remain or to be salvaged. The minimum amount of protection required is indicated on the drawings. In the event of damage, such items shall be immediately repaired or replaced by the Contractor, at his expense, to the satisfaction of the Owner.

C. Historic Significance: Take all measures during performance of work to maintain, protect, and preserve historic fabric of this building. Perform work with extreme care and assure that no features of structure are damaged.

1.5 SUBMITTALS

A. Photographic Requirements

1. Photographs shall be taken in high resolution, digital format with the files supplied on archival quality disc. The disc shall also contain a schedule of the dates of exposures, description of view and the name and address of the photographer. Submit three discs to the Owner.

1.6 SITE CONDITIONS

A. Coordinate the performance of work in this section with related or adjacent work. Protection of items should be complete prior to commencement of new construction and demolition.

B. At the end of working day or during inclement weather cover work exposed to weather with waterproof coverings, securely anchored.

C. Protection for Historic Elements should remain in place for the duration of the project unless determined otherwise by the Owner.

PART 2 - PRODUCTS

2.1 PROTECTION MATERIALS

A. General: Provide new materials; if acceptable to the Owner provide undamaged, previously used materials in serviceable condition. Provide materials suitable for the use intended.

B. Polyethylene sheets - 4 mil. to 10 mil.

C. Lumber: Species to be selected by Contractor, sizes to fit field conditions.

D. Plywood: 1/2-inch or 3/4-inch fire retardant.

E. Soft Fiberboard: Homasote Co., P. O. Box 7240, West Trenton, N.J. 08628, (609) 883-3300, or approved equal.

F. Polyurethane foam sheets: 4-inch thick.

G. Ethafoam

H. Duct tape.

I. "Preservation" Tape: 3M Scotch brand no. 4811, or approved equal.

J. Plastic film tape: 3M Scotch brand no. 472, or approved equal.

K. Kraft Paper, or approved equal.

L. Accessories: Provide necessary and related parts, devices and anchors required for complete installation.

PART 3 - EXECUTION

3.1 GENERAL

A. Historic Elements to Remain in place:

1. Protect all Historic Elements to remain in place, which may be damaged by construction activities. In the event of new damage, the Contractor shall document damage with photographs and written notes and

inform the Owner immediately as to the nature and extent of damage and the proposed method of repair. Contractor is responsible for repairs and replacement of newly damaged items, to the satisfaction of the Owner at no additional cost.

2. Do not attach protection materials directly to Historic Elements. Do not use duct tape or mechanical fasteners on historic materials unless so directed by Owner.

3. Protection to be secured adequately, so as to maintain a safe environment for workers and other individuals using the building throughout the duration of the project.

B. Salvage Elements to be removed:

1. Protect, carefully handle, transport, and store Historic Elements identified for removal. Contractor is responsible for handling and storing these items, in addition to being responsible for repairs and replacement of newly damaged items to Owner's satisfaction at no additional cost.

2. Catalog removed Salvage Elements in the Artifact Log. Document type, size, quantity, location in storage and, if applicable, original location and condition.

3. Store Salvage Elements in neat, orderly fashion to allow for access and retrieval. Store like type elements together in groups. Store particularly fragile elements in manner that prevents damage while in storage.

3.2 PREPARATION

A. Remove all furnishings and debris to allow for full access as required to perform protection of Historic Elements.

B. Verify Off-Site Facility has adequate capacity and access for orderly storage and retrieval of Salvage elements.

C. Do not stockpile items at job site other than in preparation for transport to storage facility.

3.3 INSTALLATION OF PROTECTION

A. General

1. Alternative methods to specified protection may be acceptable if equal or greater protection is provided. Submit alternative methods to the Owner for review as specified. Do not proceed with alternative methods until specified approvals are secured.

2. Protection may be required to remain in place for the duration of the project. As such, materials should be installed to provide adequate protection throughout the full extent of construction activities. Repair or reinstall protection throughout the duration of construction as required.

3. Extent of protection is to cover all Historic Elements to remain which are in the vicinity of construction activities whether specifically called out on the drawings or not. All questionable protection requirements should be identified for the Owner's review.

4. All protection assemblies should be self-supporting and self bracing, secured at the base to the floor protection, unless otherwise noted.

B. Wood trim, wood sheathing / siding, molding, bases, window and door surrounds and other miscellaneous millwork: Verify extent of potential impact on these elements with Owner. If protection is required, carefully remove these elements for reinstallation.

C. Windows and Doors: Verify extent of potential impact on these elements with Owner.

3.4 DISCOVERY OF HIDDEN ARCHITECTURAL OR ARCHEOLOGICAL FEATURES

A. It is the Contractor's responsibility to hire a professional Archeologist who is certified by the Society of Professional Archaeology (SOPA) to be present on site during excavation activity. Should archeological materials be uncovered during grading, trenching, or other onsite excavations, earthwork within 30 yards of these materials shall be stopped until the archeologist has had an opportunity to evaluate the significance of the find and suggest appropriate mitigation(s), if deemed necessary. Do not disturb area until Owner has evaluated undocumented items.

B. Time lost thereby will be condition for which contract time may be extended. Costs incurred for salvaging or documenting artifacts, after discovery will be handled as a Construction Contingency.

C. The State reserves right to retain possession and ownership of objects, artifacts and historically or archeologically significant materials, other than normal building construction materials, discovered during execution of work. Onwer may act as steward to above findings, with permission of the State, to be stored on location.

3.6 CATALOGING OF HISTORIC SALVAGE ELEMENTS

A. General: Historic fabric removed from its original location shall be labeled to permit reinstallation to its original location and configuration. Contractor may propose alternative methods for cataloguing Salvage Elements. Submit alternative method for Owner's review as specified. All cataloging of historical elements will be supported by digital photographs and written notes of the historic elements in original locations prior to removal.

B. Numbering and cataloguing: Each item to be removed shall be given a unique catalogue number which is to be permanently marked on the element and listed on a Removed Historic Element Log. Numbers are to be created as follows:

N/P/FL1/2

Where:

N 'elevation, (cardinal direction)

P ' component type abbreviation, (P for post)

FL1 ' floor number (first floor)

2 ' component number

C. Wood elements shall be numbered with a black, permanent marker or a yellow lumber crayon, unless otherwise noted, in area hidden from view when element is installed.

D. Removed Historic Elements – Artifact Log

1. As items are removed and labeled, they shall be recorded in an artifact log. The log shall list the item number, a brief description of the item and location in the building, and a reference to the storage location. If required to pinpoint the exact location of an object, the number shall also be placed on an interior elevation, plan, or sketch which shall be appended to the Historic Elements Log. This information will be cross referenced with the photo-documentary evidence collected before and during removal of historic elements.

3.7 STORAGE

A. General: Keep items clean, dry, and well ventilated in designated storage facility. Protect items from abrasion or damage as required. Keep area clean.

B. Organization: organize elements to be readily accessible and retrievable for re-use or reference and store complex components requiring re-assembly together.

3.8 REINSTALLATION

A. Return Salvage elements to their original locations, unless otherwise indicated. When items cannot be returned to their original location because of architectural modifications, they may be re-used in other locations determined by Owner. Where salvage Elements are not to be re-used, they will remain the State's property, if so directed by the Owner.

3.9 CLEAN-UP

A. All residue and debris from protection work is to be removed from existing construction leaving the premises clean and neat.

END OF SECTION

SECTION 029900 STRUCTURE MOVING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preparing Structure.
- B. Raising the Structure.
- C. Setting structure on new foundation.
- D. Connecting utilities at new location.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Pre-Move Meeting: Convene one week before starting work of this section. Discuss the following:

- 1. Method of determining damage to existing structure and finishes before and after the move.
- 2. Method and responsibility for repairs after moving.
- 3. Review the intended dimensional clearances of foundation work and obstructions.

1.03 QUALITY ASSURANCE

A. Mover Qualifications: Company specializing in relocating building structures with minimum of three years of documented experience.

B. Shop Drawings: The Contractor shall furnish Structure Moving Shop Drawings including any necessary structural details to the Architect for review 10 days prior to the Pre-Moving Meeting. (Addendum #1)

PART 2 PRODUCTS

2.01 EQUIPMENT AND MATERIALS

A. Transport, Equipment, and Supports: As required to achieve a successful structure move.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions and determine if existing structure is sufficient to support transverse loads. Provide adequate structural supports as necessary.

3.02 PREPARATION

- A. Prepare site.
- C. Reinforce as necessary to safely lift the structure and to prevent damage.
- D. Disconnect and cap existing site utility services. Remove overhead or exposed utility services to provide clear working and moving space around and below structure.

E. Remove components which can be damaged prior to move.

F. Secure supplementary framing and bracing to structure.

3.03 RAISE STRUCTURE

A. Cut structure free of foundation and portions of structure not being moved.

B. Remove existing concrete base and utilities in their entirety.

C. Reinforce, brace, and raise structure clear of foundation in manner to prevent damage.

D. Provide necessary framing, bracing, closures, supports, and blocking.

E. Secure structure to temporary supporting structural members to prevent shifting of structure during lift.

3.04 REINSTALL STRUCTURE

A. Position and anchor structure over prepared foundation and lower onto new foundation.

B. Remove moving equipment.

C. Leave reinforcing, framing, and bracing intact until structure is fully attached and structure loads are supported by new foundation.

D. Attach structure to new foundation as indicated.

E. Connect all utilities to structure under provisions of related sections, test and adjust for proper operation.

3.05 TOLERANCES

A. Maximum Variation from Level and Plumb after Reinstallation: 1/4 inch.

B. Maximum Offset from True Position after Reinstallation: 1/2 inch over full height

C. Adjust structure on foundation.

1. To permit doors to swing freely.

2. So that floor surfaces are level, walls are plumb.

3.06 DAMAGE REPAIR

A. Repair damage to structure not identified in writing prior to move.

B. Refinish repaired surfaces to match adjacent work.

C. Pay all third party claims for incidental or other damage.

END OF SECTION

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

- (1) Footings.
- (2) Foundation walls.
- (3) Site Flat Work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

- (1) Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

- (1) Plywood, metal or other approved panel materials.

C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

2.5 CONCRETE MATERIALS

A. Recycled Content for Concrete Products: Provide products with pre-consumer recycled content.

B. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

- (1) Portland Cement: ASTM C 150. Supplement with the following:

- (a) Fly Ash: ASTM C 618, Class C or F.

C. Normal-Weight Aggregates: ASTM C 33, coarse aggregate or better, graded.

- (1) Maximum Coarse-Aggregate Size: as indicated on structural drawing:

(2) Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

D. Water: ASTM C 94/C 94M and potable.

2.14 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

(1) Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

(1) Fly Ash: **15 percent.**

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

(1) Use water-reducing admixture in concrete, as required, for placement and workability.

2.16 REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.17 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

(1) When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

A. Manage construction waste in accordance with provisions of Section 017419. Documentation shall be submitted to satisfy the requirements of that section.

3.2 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:

(1) Class A, 1/8 inch for smooth-formed finished surfaces.

(2) Class B, 1/4 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.7 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.9 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement.

C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If

a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

(1) Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.

(2) Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

(3) Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

(1) Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

(2) Maintain reinforcement in position on chairs during concrete placement.

(3) Screed slab surfaces with a straightedge and strike off to correct elevations.

(4) Slope surfaces uniformly to drains where required.

(5) Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleed water appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

(1) When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.

(2) Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

(3) Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

3.11 FINISHING SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

(1) Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.

END OF SECTION 033000

SECTION 057300 - DECORATIVE METAL RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Wrought iron ornamental railings with brass details as shown on drawings.

1.2 PERFORMANCE REQUIREMENTS

A. General: In engineering railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:

1. Steel: 72 percent of minimum yield strength.
2. Aluminum: The lesser of minimum yield strength divided by 1.65 or minimum tensile strength divided by 1.95.

B. Structural Performance: Provide railings capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Handrails:

- a. Uniform load of 50 lbf/ ft. applied in any direction.
- b. Concentrated load of 200 lbf applied in any direction.
- c. Uniform and concentrated loads need not be assumed to act concurrently.

2. Top Rails of Guards:

- a. Uniform load of 50 lbf/ ft. applied in any direction.
- b. Uniform and concentrated loads need not be assumed to act concurrently.

3. Infill of Guards:

- a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft.

C. Thermal Movements: Provide exterior railings that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.6 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of railing through one source from a single manufacturer.

B. Product Options: Information on Drawings and in Specifications establishes requirements for system's aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including structural analysis, preconstruction testing, field testing, and in-service performance.

C. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

D. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."
2. AWS D1.2, "Structural Welding Code--Aluminum"

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Provide allowance for trimming and fitting at site.

1.8 COORDINATION AND SCHEDULING

A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

B. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Wrought Iron or Forged Steel Railings: See drawings for details.

Manufacturer: King Architectural metals 800.542.2379

a. Metal: Wrought Iron or Forged Steel

b. Handrail and Detailing: See Architectural Drawings

2.2 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

B. Brackets, Flanges, and Anchors: Same metal and finish as supported rails, unless otherwise indicated.

2.3 STEEL AND IRON

A. Tubing: ASTM A 500 (cold formed) or ASTM A 513, Type 5 (mandrel drawn).

B. Bars: Hot-rolled, carbon steel complying with ASTM A 29/A 29M, Grade 1010.

C. Plates, Shapes, and Bars: ASTM A 36/A 36M.

D. Castings: Either gray or malleable iron, unless otherwise indicated.

Gray Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by structural loads.

Malleable Iron: ASTM A 47/A 47M.

2.4 FASTENERS

A. General: Provide the following:

1. Copper-Alloy (Bronze) Components: Silicon bronze (Alloy 651 or 655) fasteners where concealed; muntz metal (Alloy 280) fasteners where exposed.

B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.

C. Provide concealed fasteners for interconnecting railing components and for attaching railings to other work, unless exposed fasteners are unavoidable.

2.5 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

1. For aluminum railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength and compatibility in fabricated items.

2.6 FABRICATION

A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

B. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

C. Make up wire-rope assemblies in the shop to field-measured dimensions with fittings machine swaged. Minimize amount of turnbuckle take-up used for dimensional adjustment so maximum amount is available for tensioning wire ropes. Tag wire-rope assemblies and fittings to identify installation locations and orientations for coordinated installation.

D. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

E. Form work true to line and level with accurate angles and surfaces.

F. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

G. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.

H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove flux immediately.
4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

I. Mechanical Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.

J. Form changes in direction as follows:

1. As detailed.
2. By bending to smallest radius that will not result in distortion of railing member.

K. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

L. Close exposed ends of hollow railing members with prefabricated end fittings.

M. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns, unless clearance between end of rail and wall is 1/4 inch or less.

N. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.

O. For railing posts set in concrete, provide steel sleeves not less than 6 inches long with inside dimensions not less than 1/2 inch greater than outside dimensions of post, with steel plate forming bottom closure.

2.7 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

2.8 STEEL AND IRON FINISHES

A. For nongalvanized steel railings, provide nongalvanized ferrous-metal fittings, brackets, fasteners, and sleeves, except galvanize anchors to be embedded in exterior concrete or masonry.

B. Preparation for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic-phosphate process.

C. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed railings:

1. Exterior Railings (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

2. Interior Railings (SSPC Zone 1A): SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."

D. Apply shop primer to prepared surfaces of railings, unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.

1. Do not apply primer to galvanized surfaces.

E. Painted Finish: Powder Coating; Flat Black

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements have been clearly marked for installer. Locate reinforcements and mark locations if not already done.

3.2 INSTALLATION, GENERAL

A. Fit exposed connections together to form tight, hairline joints.

B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.

1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.

2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.

3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.

C. Adjust railings before anchoring to ensure matching alignment at abutting joints.

D. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.3 RAILING CONNECTIONS

A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.

B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in Part 2 "Fabrication" Article whether welding is performed in the shop or in the field.

C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches beyond joint on either side, fasten internal sleeve securely to 1 side, and locate joint within 6 inches of post.

3.4 ANCHORING POSTS

A. Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.

B. Form or core-drill holes not less than 5 inches deep and 3/4 inch larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.

C. Cover anchorage joint with flange of same metal as post, welded to post after placing anchoring material.

D. Anchor steel posts to steel with flanges, angle or floor type as required by conditions, welded to posts and bolted to metal supporting members.

E. Anchor posts to metal surfaces with flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:

1. For steel railings, weld flanges to posts and bolt to metal-supporting surfaces.

2. For aluminum railings, attach posts as indicated using fittings designed and engineered for this purpose.

3.5 ATTACHING HANDRAILS TO WALLS

- A. Attach handrails to walls with wall brackets. Provide brackets with 1-1/2-inch clearance from inside face of handrail and finished wall surface.
- B. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- C. Secure wall brackets to building construction as follows:
 - 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
 - 2. For hollow masonry anchorage, use toggle bolts.

3.7 CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint.

3.8 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in field to shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 057300

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

- (1) Framing with dimension lumber.
- (2) Wood blocking, cants, and nailers.
- (3) Wood furring.

PART 2 - PRODUCTS

2.1 DIMENSION LUMBER FRAMING

A. Maximum Moisture Content: **19 percent.**

B. Exterior Framing: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.

(1) Species and Grade: **Hem-fir; No. 2 or Better; WCLIB, or WWPA.**

2.2 HEAVY TIMBER FRAMING (COLUMNS)

A. Maximum Moisture Content: **19 percent.**

B. Exterior Columns: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.

(1) Species and Grade: **Doug Fir-Larch; WCLIB, or WWPA.**

2.3 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA C2

1. Preservative Chemicals: Acceptable to authorities having jurisdiction **and containing no arsenic or chromium.**
2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

- D. Application: Treat all rough carpentry, unless otherwise indicated.
1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
 4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
 5. Wood floor plates that are installed over concrete slabs-on-grade.

2.4 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

- (1) Blocking.
- (2) Nailers.
- (3) Cants.
- (4) Furring.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species.

C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

- (1) Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

D. For furring strips for wood and metal siding assemblies, provide 2" ripped 7/16" plywood.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified.

(1) Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with

A. STM A 153/A 153M or of Type 304 stainless steel.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

(1) NES NER-272 for power-driven fasteners.

(2) Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

END OF SECTION 061000

SECTION 062000 - FINISH CARPENTRY

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. The extent of each type of finish carpentry is shown on the drawings and in schedules.

B. The types of Finish Carpentry include, but are not necessarily limited to, the following:

- (1) Wood standing and running trims.
- (2) Replacement of historic trim work.
- (3) Wood base.
- (4) Wood stair treads and risers.

C. Comply with the following HUD Minimum Property Standards for Housing:
Interior pre-hung wood door units: NSDJA- 1-79.

1.2 QUALITY ASSURANCE

A. Moisture content of all-solid lumber and plywood shall be not less than 6% or more than 19% and shall be consistent with the average atmospheric condition at the project location. All materials shall be so conditioned at the time of manufacture and shall be handled and stored so as to maintain the condition. In no instance shall any woodwork be stored or installed in any areas unless the entire is broom clean, closed in, and possessing a relative humidity below 50% at 70 degrees F.

B. Verify all dimensions shown on drawings by taking field measurements, proper fit and attachment of all parts is required.

PART 2- PRODUCTS

2.1 LUMBER

A. Lumber for unexposed locations shall be construction grade fir or pine. Where noted on drawings for stair handrails and wall caps use oak.

B. Interior trim members shall be kiln-dried materials of species indicated.

Design Selections. Adjacent and abutting members shall be selected for reasonably compatible grain and color.

C. All species shall contain only minor inherent natural defects, covered by adjoining members, concealed when the stock is installed, or not visible after pigmented finishing (as stain) may be admitted. Lengths shall be in the proportion available in the species and grade specified except that all standing trim shall be one piece where scheduled for transparent finish, custom grade where scheduled for paint finish.

D. Trim members shall be "backed out" when 1-5/8" wide or wider, and for application on flat surfaces.

E. Exposed surfaces shall be machine sanded on flat top face surfaces only, machine run otherwise. Sander marks shall be fine enough to be concealed by the painter's finish.

F. Working defects, such as torn grain, machine marks, cross sanding, and tool marks will not be permitted. Edges shall be milled straight and true with exposed corners slightly rounded.

2.2 PLYWOOD

A. Softwood plywood shall be grade stamped fir plywood conforming to the requirements of U.S. Product Standards PSI-74. Provide plywood of grade indicated on the drawings.

PART 3 - EXECUTION:

3.1 GENERAL INSTALLATION

A. Use only finish casing nails. Provide hot-dip galvanized nails for work exposed to weather or moisture. Set nails for putty stopping in surfaced members. Hammer marks not acceptable on any exposed finished surface and may be cause for rejection of work.

B. Make all end splices exposed in finished members bevel (scarfed) splices and not square butted. Install members in as long a length as possible. Make splices at studs or other structural support.

C. Repair damaged or defective finished or defective finish carpentry where possible to eliminate functional or visual defects. Where not possible to repair, replace finish carpentry. Adjust joinery for uniform appearance.

3.2 INSTALLATION OF MILLWORK

A. Millwork shall be installed by experienced finish carpenters only. Millwork shall be erected plumb, true and square in a substantial manner strictly according to the approved shop drawings. Finished work shall be neatly installed, free of slivers, open joints and hammer or tool marks.

B. Finished work shall be blind nailed insofar as possible and all surface nails shall be set. Work shall be securely fastened to nailing blocks, grounds and furring. Hardwoods shall be drilled for nails.

C. Scribing and joining shall be done accurately and neatly, so as to produce concealed and permanently tight joints, in a uniform plane for best appearance.

3.3 FINISH HARDWARE FOR DOORS

A. Fit, install, remove for finishing of doors and/or frames and re-install hardware as required and noted under "Door Installation."

B. Install hardware per manufacturer's directions and to manufacturer's templates. General installation requirements are given in Section 08711.

C. Thresholds shall be coped to profile of jamb, set in sealant, anchored with expansion bolts.

3.4 WOOD DOOR INSTALLATION

A. Doors shall be trimmed to fit openings snugly without bind. Maximum clearance, 1/8" at top and jambs, 3/16" maximum at meeting or pairs of doors. Bottom clearance 5/8" except where larger undercuts are scheduled, or where thresholds require specific clearances. All edges shall be sanded and eased.

B. Removed fitted and hung doors, remove hardware from door and allow painter to finish all edges and surfaces. Re-hang and re-fit when painter is completed.

C. Just prior to final inspection examine and adjust door hardware and weather stripping to assure perfect operation.

END SECTION 062000

SECTION 062500 GENERAL WOOD RESTORATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Repair existing exterior and interior wood elements, including but not limited siding, sheathing, trim, soffits, fascia and interior flooring.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Protect wood from exposure to weather at all times.

1. Stack wood sufficiently above the ground to avoid exposure to wet or damp surfaces.

2. Cover wood with waterproof sheeting to protect against inclement weather.

B. Store wood in a manner that allows air circulation within and around stacks.

C. Deliver materials to the site in the original and unopened containers, bearing packing labels describing the material type, name, and any catalogue numbers. Delivered materials must be identical to approved samples.

1.6 QUALITY ASSURANCE

A. The Contractor for work of this section must have a minimum of 10 years experience in the satisfactory completion of projects involving wood restoration including consolidation, fill, and replication of new elements.

PART 2 - PRODUCTS

2.1 CONSOLIDATION MATERIALS

A. Liquid Epoxy Consolidant for consolidation of decayed wood trim:

1. Use a low strength, low viscosity, moisture insensitive epoxy with a low modulus of elasticity specifically designed and marketed for wood restoration.

2. Subject to compliance with requirements, provide one of the following, or approved equal:

a. Liquid Wood, Abatron Inc., 5501 - 95th Avenue, Kenosha, WI
53144 Tel: (414) 653-2000

b. Flexible Epoxy Consolidant 100, ConServ Epoxies, Housecraft
Associates, 7 Goodale Rd., Newton, NJ 07860
Tel: (201) 579-1112

c. West System 105 Epoxy Resin with 205 Hardener, Gougeon
Brothers Inc., P.O. Box 908, Bay City, MI 48707
Tel: (517) 684-7286

d. Smith & Co. 5100 Channel Ave., Richmond, CA 94804
Tel: (800) 234-0330

B. Epoxy Fill for patching and resurfacing voids in wooden members:

1. Use a moisture insensitive, putty consistency epoxy compound with a low modulus of elasticity and inert filler that is specifically designed and marketed for wood restoration, and which may be cut and worked with wood-working tools after curing.

2. Subject to compliance with requirements, provide one of the following, or approved equal.

a. WoodEpoxy, Abatron Inc., 5501 - 95th Avenue, Kenosha, WI 53144
Tel: (414) 653-2000

b. Flexible Epoxy Patch 200, ConServ Epoxies, Housecraft Associates,
7 Goodale Rd., Newton, NJ 07860
Tel: (201) 579-1112

c. West System 105 Epoxy Resin with 407, Gougeon Brothers Inc.,
P.O. Box 908, Bay City, MI 48707
Tel:(517) 684-7286

2.2 REPLACEMENT LUMBER

A. General Requirements:

1. Wood to bear the grade and trademark of the association under whose rules it is produced and a mark of mill identification, where applicable.

2. Lumber and finished woodwork throughout to be of sound stock thoroughly seasoned, kiln-dried to a moisture content not exceeding 15% for finish.

3. Work shall be free from defects or blemishes that will show on surfaces exposed after the finish coat is applied. Any material which is in any way defective or fails to meet specifications for quality and grade, or is otherwise not in proper condition, will be rejected.

4. Intent is to match existing in material species, size, pattern and dimension, and grain direction.

B. Species: Redwood, Douglas Fir

C. Grade: Architectural Grade, Heart Clear, Kiln Dried, Vertical Grain, Surfaced.

D. Adhesives: Aliphatic resin, non-staining, heat and water resistant glue.

E. Fasteners: Of size and type to suit application. Finish nails for exposed locations to be hot dipped galvanized steel on the interior only. Exterior fasteners to be stainless steel, bronze, or forge-manufactured cut nails to match historic when appropriate to installation.

2.3 OTHER MATERIALS

A. All other materials required for work of this Section shall be selected by the Contractor subject to the approval by the Owner.

2.5 FABRICATION

A. Design and construction features: Comply with details shown for profile and construction of architectural woodwork. Where not otherwise shown, match existing and comply with applicable quality standards.

B. Match original wood species and grade. Fabricate architectural woodwork to match original profiles.

C. Fabricate architectural woodwork with pre-cut openings, where possible, to receive hardware and similar items. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape.

D. Before proceeding with fabrication of woodwork required to be fitted to other construction, obtain measurements and verify dimensions.

PART 3 - EXECUTION

3.1 VERIFICATION OF CONDITIONS

A. Salvaged and in-place woodwork with decorative profiles (woodwork having non-rectangular cross-sections).

B. Prior to beginning work, examine all surfaces to be repaired by epoxy consolidation or resurfacing. Correct any defects in the substrate that will affect the proper execution, stability, or longevity of the epoxy repair work. Assure that substrates and patching materials are thoroughly dry. Epoxy repairs with defects that mar the appearance of finished work or which is otherwise defective will be rejected.

3.2 INSTALLATION OF SALVAGE AND REPLICATED WOODWORK

A. Dress and finished woodwork to ensure it is free from machine milling marks, abrasions, raised grain or other defects on surfaces exposed to view. For construction and workmanship of millwork items, conform to or exceed the requirements of "Premium Grade". Where conflicts occur between these standards and this specification, the more stringent requirements govern in each case. Finish millwork surfaces to match historic finish.

B. Make joints tight and form joints to conceal shrinkage. Construct all exterior millwork so that water cannot pass through joints.

C. Match historic woodwork joints copings, and molded work at returns and interior angles. Miter molded work at exterior corners, where applicable and to match the historic condition.

D. Where woodwork has to be cut to fit adjoining work, repair damaged finish at cuts. Joints greater than 1/4" wide are not permitted between woodwork and adjoining existing masonry.

E. Standing and running trim: Install with minimum number of joints possible using full-length pieces (from maximum length of salvage lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Use all salvaged trim. If inadequate lengths of salvage trim are available to complete required work, install new trim to match. Use splayed heading joints where new or existing running trim abut.

F. Install the work plumb, level, true, and straight in relation to existing pitches of adjacent walls and floors with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/16" in 8'-0" for plumb and level except where existing assembly is not plumb and level; and with 1/16" maximum offset in flush adjoining surfaces. Where existing assembly is not plumb and level, install work as close as possible to plumb and level, where applicable.

H. Anchor woodwork to anchors or wood blocking built into substrates. Secure stripping and blocking with counter-sunk, concealed fasteners and blind nailing as required for a complete installation. Use galvanized finishing nails for exposed nailing at interior wood work only. Use stainless fixtures on the exterior. Sink exposed nails 1/16" and fill flush with woodwork if this is the historic condition.

I. Do all cutting and fitting required and install all hardware required for the work. Make all templates, etc., required for the fitting and adjustment of other mechanics' work to the woodwork. Do all cutting, patching, and fitting for the installation of work by other trades.

J. Contractor is responsible for materials and workmanship and is required to replace any work that may shrink, crack, or warp. Protect all finished hardware against damage until final acceptance of the work.

3.3 EPOXY APPLICATION

A. Protection and Preparation

1. Protect all surrounding areas prior to start of work.
2. Wear protective clothing, goggles, gloves and barrier creams as recommended by the manufacturer and as may be required by governmental regulations.
3. Do not begin epoxy consolidation and repair prior to approval of all submittals required by this section.
4. Do not begin epoxy consolidation and repair prior to placement of all protective barriers.

B. Epoxy Consolidation for decayed wood trim:

1. Mixing: Use extreme care and follow manufacturer's written mixing and storage instructions for each product. If written instructions are not available or do not apply to the project conditions, consult the manufacturer's technical representative for specific written recommendations before proceeding with the work. Do not use products that have passed the manufacturer's shelf life.
2. Prepare surface to be consolidated by removing all visible dirt and debris. To prevent leakage, temporarily plug large holes or cracks with modeling clay or wax. Surfaces must be dry before consolidation begins to achieve optimum results.
3. Drill 1/8" diameter holes across the end grain at an oblique angle, staggered at approximately 2" intervals, in areas of wood deterioration.
4. Pour epoxy resin into each area to be consolidated until the void has been filled. Top off voids as required as epoxy is absorbed into the wood. To avoid trapping air within the wood, work from one end of the piece to the other.
5. Cure time will vary according to ambient conditions. Follow manufacturer's instructions for curing. Protect consolidated areas from damage until fully cured. Protect consolidated areas from moisture until work is painted.

C. Epoxy Fill for patching and resurfacing deteriorated areas.

1. Use extreme care and follow manufacturer's written mixing and storage instructions for each product. If written instructions are not available or do not apply to the project conditions, consult the manufacturer's technical representative for specific written recommendations before proceeding with the work.
2. Prepare surface by removing all dirt and debris. Surfaces must be clean and dry prior to repair.
3. Fill voids, cracks, gouges and depressions with layers of epoxy at the locations indicated on the drawings or the specifications. Slightly overfill holes to allow for sanding or planing of surface. Where surface build-up is required to achieve positive drainage, apply additional layers of epoxy as necessary. Back bevel gouges, depressions, and cracks to mechanically lock epoxy fill in place.
4. After appropriate cure time, hand sand or plane surface until smooth to achieve original profile.

5. Allow adequate curing time for consolidant before applying resurfacing compound.

6. Protect resurfaced areas from damage until fully cured. Protect filled and resurfaced areas from moisture until work is painted.

3.4 ADJUSTMENT, CLEANING, FINISHING, AND PROTECTION

A. Where possible, repair damaged and defective existing woodwork to eliminate functional and visual defects. Where not possible to properly repair existing woodwork, replace it with new wood to match original. Adjust joinery for uniform appearance and to match existing historic fabric.

B. Cover completed woodwork with protective paper to protect all vulnerable finishes from damage. Remove cover immediately before time of final acceptance.

END OF SECTION

SECTION 071416 FLUID APPLIED WATERPROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Commercial fluid applied waterproofing.

1.2 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.3 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
 - 1. Environmental Requirements: Comply with application temperature range of 0 to 150 degrees F for Solvent-Based product and 20 to 130 degrees F for Water-Based product.

1.4 WARRANTY

- A. Commercial Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents, and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
 - 1. Commercial Warranty: Below grade.
 - 2. Provide written warranty signed by waterproofing manufacturer and installer agreeing to repair or replace waterproofing that does not meet requirements or that does not remain watertight within the specified warranty period.
 - a. Warranty Period: 5 years after date of Substantial Completion.
 - b. Warranty does not include failure of waterproofing due to failure of substrate or formation of new joints and cracks in substrate that exceed 1/16 inch in width.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Mar-flex Waterproofing & Building Products,
P. O. BOX 8256 500 Business Pkwy. ; Carlisle, OH 45005; Toll Free Tel: 800-498-1411; Tel: 513-422-7285;

2.2 BELOW GRADE FOUNDATION WATERPROOFING

- A. Solvent Based Fluid Applied Waterproofing:

1. Product: Mar-flex 5000 SB Waterproofing Membrane as manufactured by Mar-flex Waterproofing and Building Products.
 - a. Material: Polymer Modified Asphalt Membrane.
 - b. Color: Black.
 - c. Total Solids: 70 - 75 percent.
 - d. Application Method: Spray.
 - e. Application Method: Brush.
 - f. Application Method: Roll.
 - g. Coverage Rate: 4 gal/100 sf.
 - h. Film Thickness, Dry: 60 mil minimum.
 - i. Total Cure Time: 24 hours.
 - j. Weight/Gallon: 7.6 lb.
 - k. Elongation at 70 degree F (ASTM D 412 Die C): 1725 percent.
 - l. Tensile Strength (ASTM C 719): 48 psi.
 - m. Low Temperature Flexibility at -15 degree F (ASTM C 719): No cracking.
 - n. Crack Bridging (ASTM C 836): 10 cycles without bond failure.
 - o. Resistance to Water Flow (ASTM D 466): Bond strength not affected.
 - p. Water Solubility (ASTM D 2939): No blistering or re-emulsion
 - q. Resistance to Hydrostatic Pressure (Federal Spec TT-C 555B, Par. 4.4.7.):
 - 1) Water Leaks: None
 - 2) Weight Gain: None
 - r. Permeability: 0.23 perms.
 - s. Water Vapor (ASTM E 96):
 - 1) Transmission: 0.11 grains/sf/h.
 - 2) Permeability: 0.23 perms.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean and prepare substrate according to manufacturer's recommendations. Provide clean, dust-free, and dry substrate for waterproofing application.
- B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage or over spray affecting other construction.
- C. Close off deck drains and other deck penetrations to prevent spillage and migration of waterproofing fluids.
- D. Remove grease, oil, form release agents, paints, and other penetrating contaminants from concrete.
- E. Remove fins, ridges, and other projections and fill honeycomb, aggregate pockets, grout joints, tie holes, and other voids with joint detailing mastic, hydraulic cement, or rapid-set grout.
- F. Prepare and treat vertical and horizontal 90 degrees terminations, edge terminations, penetrations through waterproofing material, expansion joints, cracks, drains, and sleeves

according to ASTM C 898 and manufacturer's recommendations.

- G. At each area to be treated, apply two coats of joint detailing mastic; embed joint reinforcing strip in first coat and apply second coat entirely covering the embedded joint reinforcing strip ensuring complete saturation.
 - 1. 90 Degrees Terminations, Vertical and Horizontal: 6 inches on each side.
 - 2. Penetrations, Drains, Sleeves: 6 inches radius around penetration and 3 inches on to penetrating object.
 - 3. Joints and Cracks: 6 inches wide on each side of joint/crack.
 - a. Remove dust and dirt from joints and cracks in accordance with ASTM D 4258 prior to coating surfaces.
 - b. Joints and Cracks Greater Than 1/16 inch In Width: Prior to applying joint detailing mastic, rout out joint/crack, install backer-rod and sealant to bring flush to surface.
- H. Secure and protect plumbing, electrical, mechanical and structural items to be under or passing through waterproof membrane prior to membrane application.
- I. When it is not possible to install waterproofing before placement of reinforcing steel, exposed reinforcing steel shall be masked by General Contractor prior to membrane application.

3.3 BELOW GRADE INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. For vertical application apply a uniform coat of waterproofing to entire wall area. Obtain a seamless membrane free of entrapped gasses, with a minimum dry film thickness of 80 mil at 10 feet below-grade wall application, 100 mil at 20 feet below-grade wall application and 120 mil at 30 feet or more for below-grade wall application.
 - 1. Apply fluid membrane onto footing area a minimum of 4 inches to prevent water pooling.
 - 2. Allow membrane to cure for 24 hours before placing any backfill against the wall.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 104416 FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES

PART 1 -GENERAL

1.01 SUMMARY

- A. This Section includes the following:
 - 1. Portable fire extinguishers
 - 2. Cabinets for portable fire extinguishers

1.02 SUBMITTALS

- A. Submit brochure and product data.

1.03 QUALITY ASSURANCE

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10.
- B. Fire Extinguishers: Listed and labeled by Underwriter's Laboratory (UL) or Factory Mutual (FM) for type, rating, and classification.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:
 - 1. Ansul Inc.
 - 2. Larsen's Manufacturing Co.
 - 3. Encon Safety Products

2.02 PORTABLE FIRE EXTINGUISHERS

- A. General: Provide fire extinguishers of type, size, and capacity for each cabinet and other locations indicated.
 - 1. Product: A 5-lb, multi-purpose, UL listed, fire extinguisher

2.03 FIRE EXTINGUISHER CABINETS

- A. General: Unless specified otherwise on construction drawings, provide fire extinguisher cabinet of type, size, and rating as indicated below, or equivalent.

Trim Style & Projection	Inside Box Dimensions (H x W x D)	Manufacturer	Model #	Fire-Rated Model #	SNL Extinguisher Type
Semirecessed 4½	24 x 9½ x 6	Larsen's	2409-RM	FS-2409-RM	I, III

- B. Cabinet Size: The minimum inside box dimensions shall be 24"H x 9½"W x 6"D for SNL Type I and Type III fire extinguishers, and 27"H x 12"W x 8"D for SNL Type II fire extinguishers.
- C. Cabinet Construction: Provide manufacturer's standard box, with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames.
- E. Cabinet Mounting: Suitable for the following:
1. Semirecessed: Cabinet box partially recessed in walls of shallow depth to suit style of trim indicated.
- F. Cabinet Trim Style: Fabricate cabinet trim in one piece with corners mitered, welded and ground smooth.
- G. Cabinet Trim Material: Steel sheet.
- H. Door Material: Steel sheet.
- I. Door Glazing: Clear Float Glass, ASTM C1036, Type 1, Class 1
- J. Door Style: Vertical duo panel with frame.
- K. Door Construction: Provide a minimum ½-inch (13 mm) thick door frames.
- L. Door Hardware: Provide manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide recessed door pull and friction latch. Provide continuous-type hinge permitting door to open 180 degrees.
- M. Cabinet and Door Finishes: Provide manufacturer's standard baked-enamel paint for the exterior and interior of the cabinet and doors.

Color : **White**

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where recessed and semirecessed cabinets are to be installed. Verify that rough openings for cabinets are correctly sized and located.
- B. Examine fire extinguishers for proper charging and tagging. Remove and replace damaged, defective, or undercharged units.

- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION OF FIRE EXTINGUISHERS

- A. Comply with manufacturer's written instructions for installing fire extinguishers and mounting brackets.
- B. Mounting Height: Install extinguishers at heights indicated below.
 - 1. Install fire extinguishers mounted on hangers or brackets attached to a wall so that the top of the fire extinguisher is not more than 3½ ft. above the floor.
 - 2. In no case shall the clearance between the bottom of the fire extinguisher and the floor be less than 4 inches.
- C. Locations: Install extinguishers at locations indicated below.
 - 1. Install fire extinguishers at locations specified on the drawings or as directed by the authority having jurisdiction.
 - 2. Fire extinguishers shall be conspicuously located, along normal paths of travel, including exits from areas. Extinguishers shall not be obstructed or obscured from view.
- D. Install portable fire extinguishers on the hanger or in the bracket supplied, or place in the fire extinguisher cabinets provided. Verify that the extinguisher operating instructions face outward.

3.03 INSTALLATION OF FIRE EXTINGUISHER CABINETS

- A. Comply with manufacturer's written instructions for installing fire extinguisher cabinets.
- B. Mounting Height: Install fire extinguisher cabinets at the height required so that the top of the fire extinguisher is not more than 54 inches above the floor.
- C. Install fire extinguisher cabinets at locations specified on the drawings.
- D. Fire extinguisher cabinets shall protrude no more than 4 inches into corridors, passageways, or aisles.
- E. Repair wall surfaces surrounding fire extinguisher cabinet damaged during installation to match existing wall surface.

3.04 SIGNAGE

- A. Identify bracket-mounted extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to wall surface.
- B. Identify fire extinguisher in cabinet with the words "FIRE EXTINGUISHER" applied to door.
 - 1. Application Process: Decals
 - 2. Lettering Color: Red

3. Orientation: Vertical

3.05 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust cabinet doors that do not swing or operate freely.
- B. Refinish or replace cabinets and doors damaged during installation.
- C. Provide protection and maintain conditions that ensure that cabinets and doors are without damage or deterioration at the time of Construction Completion.

END OF SECTION

SECTION 160100 ELECTRICAL DESIGN / BUILD PROVISIONS

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Disconnect power from structure prior to construction activities.
- B. Provide power to temporary utility pole during construction activities.
- C. Remove existing electrical wiring, outlets, junction boxes, fixtures, and infrastructure.
- D. Electrical work is design-build. The contractor is responsible for all coordination with the State Electrical Inspector and Electrical Utility Company.

1.2 INSPECTION OF THE SITE AND EXISTING CONDITIONS

- A. It is strongly advised that the Contractor walk through the jobsite scheduled to take place during the pre-bid conference prior to submitting his proposal for the work to account for all labor and material cost required to perform the contract work.
- B. If the Contractor finds that existing project site conditions substantially differ from what is shown on the contract drawings; Contractor shall notify the Owner in writing before bid date and request clarification. Response and any Addendum thereof shall be at the discretion of the Owner.
- C. After award of Contract, verify the location of existing underground utilities. Protect all existing underground utilities during construction.

1.3 CONTRACTOR QUALIFICATIONS & RESPONSIBILITIES

- A. New and retrofit aspects of the work requires an licensed electrical subcontractor with minimum of 5 years documented experience performing similar type of work.
- B. Contractor is required to perform the work in accordance with all applicable codes and regulation whether it is stated in the contract document or not.
- C. The Contractor is required to provide a complete and functional system in accordance with intent of these Contract Documents.
- D. The Contractor will coordinate the details equipment and construction for all Specifications Divisions, which affect the work.
- E. The Contractor shall install all incidental items not actually shown or specified, but which are required by good practice to provide complete functional systems.

1.4 QUALITY ASSURANCE

- A. Codes: All electrical equipment and materials, including installation and testing, shall conform to the current editions of all applicable codes.
- B. Variances: In instance where two or more codes are at variance, the most restrictive requirements shall apply.
- C. All work will be coordinated with other disciplines.

D. Standards: Equipment shall conform to applicable standards of American National Standards Institute (ANSI), Electronics Industries Association (EIA), Institute of Electrical and Electronics Engineers (IEEE), Insulated Power Cable Engineer's Association (IPCEA), and National Electrical Manufacturers Association (NEMA), ISA – Instrument Society of America, and local utility service requirements. The revisions of these standards in effect on the date of issuance of the Contract Documents shall apply.

E. Underwriters Laboratories (UL) listing is required for all equipment and materials where such listing is offered by the Underwriters Laboratories. Unique electrical products are products for which there is no listing available from an approved testing laboratory and for which there is no nationally recognized standards of safety. Safety labeling and listing by other organizations, such as ETL Testing Laboratories, may be substituted for UL labeling and listing if acceptable to the authority having code enforcement jurisdiction. Provide service entrance labels for all equipment required by the NEC to have such labels.

1.5 INTENT OF DRAWINGS

A. The electrical elements shown on the Architectural drawings are diagrammatic and show only general locations of equipment, and devices, unless specifically dimensioned. The Contractor shall be responsible for the proper placement of equipment due to actual field conditions, subject to the approval of the Owner.

B. As-Built Drawings

1. Maintain a complete and accurate record set of full size "working drawings" during construction.
2. Record all work that is installed differently than shown on the Drawings.
3. Upon completion of the work, contractor shall submit a set of "As-Built Drawings" reflecting all change made during construction.

PART 2 MATERIALS AND EQUIPMENT, COMMON REQUIREMENTS

2.1 GENERAL

A. Unless otherwise indicated, provide all first-quality, new materials and equipment, free from any defects, in first-class condition, and to fit the space provided. Provide materials and equipment listed by UL wherever standards have been established by that agency.

B. Where two or more units of the same class of material or equipment are required, provide products of a single manufacturer. Component parts of materials or equipment need not be products of the same manufacturer.

2.2 STANDARD PRODUCTS

A. Unless otherwise indicated, provide materials and equipment which are standard products of manufacturers regularly engaged in the production of such materials and equipment. Provide the manufacturer's latest standard design modified as required to conform to these specifications.

2.3 EQUIPMENT FINISH

A. Equipment finish shall be for exterior grade use

2.4 EQUIPMENT HARDWARE

A. Hardware used for installation of outdoor equipment shall be stainless steel.

Unless noted otherwise, hardware used for installation of indoor equipment shall be galvanized steel or stainless steel. Zinc or cadmium plated hardware is not acceptable. Hardware shall include, but not limited to, door handles, hinges, latches, bolts, clamps, nuts and other items.

PART 3 EXECUTION COMMON REQUIREMENTS

3.1 GENERAL

A. Install materials and equipment in workmanlike manner-utilizing craftsmen skilled in the particular trade. Provide work that has a neat and finished appearance. Carry out work in accordance with NECA Standard of Installation unless otherwise specified.

B. Coordinate electrical work with other Divisions, and be aware of the work of other trades to avoid conflicts, errors, delays and unnecessary interference during construction.

C. Prior installation, check the locations of electrical outlets and other electrical system components shown on Drawings for conflicts with openings, structural members and components of other systems and equipment having fixed locations. Submit suggested resolution of such conflicts for approval.

3.2 MATERIALS AND EQUIPMENT INSTALLATION

A. Follow manufacturer's installation instructions explicitly, unless otherwise indicated. Keep copy of manufacturer's installation instructions on the job site available for review at all times.

3.3 CUTTING AND PATCHING

A. Lay out work carefully in advance. Carefully carry out any cutting, channeling, chasing or drilling of floors, walls, partitions, ceilings, paving or other surfaces required for the installation, support or anchorage of conduit, raceways or other electrical materials and equipment. Following such work, restore surfaces neatly to original condition. Use skilled craftsmen of the trades involved.

3.4 CLEANING AND TOUCHUP

A. Keep the premises free at all times from accumulation of waste material, litter and rubbish. Upon completion of work, remove all materials, scraps and debris from premises and from interior and exterior of all devices and equipment.

B. The interior of all electrical equipment shall be vacuumed and wiped free of dust just before final acceptance.

C. Touch up scratches scrapes or chips in interior and exterior surfaces of devices and equipment with finishes matching the type, color, consistency and type of surface of the original finish. If extensive damage is done to equipment paint surfaces, refinish the entire equipment in a manner that provides a finish equal to or better than the factory finish, that meets the requirements of the Specifications and that is acceptable to the Owner.

3.5 STANDARDS, CODES, PERMITS AND REGULATIONS

A. Perform all work; furnish and install all materials and equipment in full accordance with the latest applicable rules, regulations, requirements and specifications of the following:

1. Local Laws, Codes, Ordinances and Regulating Agencies
2. State and Federal Laws
3. National Electrical Code (NEC)
4. Gunnison County Fire Marshal
5. Underwriters' Laboratories (UL)

6. National Electrical Safety Code (NESC)
7. American National Standards Institute (ANSI)
8. National Electrical Manufacturer's Association (NEMA)
9. National Electrical Contractor's Association (NECA); Standard Installation
10. Institute of Electrical and Electronics Engineers (IEEE)

END OF SECTION

SECTION 265100 - INTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- (1) Interior lighting fixtures, lamps, and ballasts.
- (2) Exit signs.
- (3) Lighting fixture supports.

1.5 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910, complying with the IESNA Lighting Measurements Testing & Calculation Guides.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with NFPA 70.

D. FM Global Compliance: Lighting fixtures for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.

1.6 COORDINATION

A. Coordinate layout and installation of lighting fixtures and suspension system with other construction that penetrates ceilings or is supported by them.

1.7 WARRANTY

A. Special Warranty for Emergency Lighting Batteries: Manufacturer's standard form in which manufacturer of battery-powered emergency lighting unit agrees to repair or replace components of rechargeable batteries that fail in materials or workmanship within specified warranty period.

(1) Warranty Period for Emergency Lighting Unit Batteries: 10 years from date of Substantial Completion. Full warranty shall apply for first year, and prorated warranty for the remaining nine years.

(2) Warranty Period for Self-Powered Exit Sign Batteries: Seven years from date of Substantial Completion. Full warranty shall apply for first year, and prorated warranty for the remaining six years.

1.8 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

(1) Globes and Guards: **Furnish at least (3) three spare globes.**

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Per Drawings – Reference Fixture Schedule.

2.2 GENERAL REQUIREMENTS FOR LIGHTING FIXTURES AND COMPONENTS

A. Recessed Fixtures: Comply with NEMA LE 4 for ceiling compatibility for recessed fixtures.

B. Incandescent Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5A.

C. Fluorescent Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5 and NEMA LE 5A as applicable.

E. Metal Parts: Free of burrs and sharp corners and edges.

F. Sheet Metal Components: Steel unless otherwise indicated. Form and support to prevent warping and sagging.

G. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

H. Diffusers and Globes:

(1) Acrylic Lighting Diffusers: 100 percent virgin acrylic plastic. High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.

(a) Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.
(b) UV stabilized.

(2) Glass: Annealed crystal glass unless otherwise indicated.

I. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps and ballasts. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

(1) Label shall include the following lamp and ballast characteristics:

(a) "USE ONLY" and include specific lamp type.
(b) Lamp diameter code (T-4, T-5, T-8, T-12, etc.), tube configuration (twin, quad, triple, etc.), base type, and nominal wattage for fluorescent and compact fluorescent luminaires.
(c) Lamp type, wattage, bulb type (ED17, BD56, etc.) and coating (clear or coated) for HID luminaires.
(d) Start type (preheat, rapid start, instant start, etc.) for fluorescent and compact fluorescent luminaires.
(e) ANSI ballast type (M98, M57, etc.) for HID luminaires.
(f) CCT and CRI for all luminaires.

J. Electromagnetic-Interference Filters: Factory installed to suppress conducted electromagnetic interference as required by MIL-STD-461E. Fabricate lighting fixtures with one filter on each ballast indicated to require a filter.

2.4 BALLASTS FOR COMPACT FLUORESCENT LAMPS

A. Description: Electronic-programmed rapid-start type, complying with UL 935 and with ANSI C 82.11, designed for type and quantity of lamps indicated. Ballast shall be designed for full light output unless dimmer or bi-level control is indicated:

- (1) Lamp end-of-life detection and shutdown circuit.
- (2) Automatic lamp starting after lamp replacement.
- (3) Sound Rating: Class A.
- (4) Total Harmonic Distortion Rating: Less than 20 percent.
- (5) Transient Voltage Protection: IEEE C62.41.1 and IEEE C62.41.2, Category A or better.
- (6) Operating Frequency: 20 kHz or higher.
- (7) Lamp Current Crest Factor: 1.7 or less.
- (8) BF: 0.95 or higher unless otherwise indicated.
- (9) Power Factor: 0.95 or higher.
- (10) Interference: Comply with 47 CFR 18, Ch. 1, Subpart C, for limitations on electromagnetic and radio-frequency interference for non-consumer equipment.

2.8 EXIT SIGNS

A. General Requirements for Exit Signs: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.

B. Internally Lighted Signs:

- (1) Lamps for AC Operation: LEDs, 50,000 hours minimum rated lamp life.
- (2) Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.
 - (a) Battery: Sealed, maintenance-free, nickel-cadmium type.
 - (b) Charger: Fully automatic, solid-state type with sealed transfer relay.
 - (c) Operation: Relay automatically energizes lamp from battery when circuit voltage drops to 80 percent of nominal voltage or below. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
 - (d) Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
 - (e) LED Indicator Light: Indicates normal power on. Normal glow indicate trickle charge; bright glow indicates charging at end of discharge cycle.
 - (f) Remote Test: Switch in hand-held remote device aimed in direction of tested unit initiates coded infrared signal. Signal reception by factory installed infrared receiver in tested unit triggers simulation of loss of its normal power supply, providing visual confirmation of either proper or failed emergency response.
 - (g) Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and a flashing red LED.

2.10 FLUORESCENT LAMPS

A. Compact Fluorescent Lamps: 4-Pin, CRI 80 (minimum), color temperature 2700 K, average rated life of 10,000 hours at three hours operation per start, and suitable for use with dimming ballasts unless otherwise indicated.

2.12 LIGHTING FIXTURE SUPPORT COMPONENTS

A. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as fixture.

B. Twin-Stem Hangers: Two, 1/2-inch steel tubes with single canopy designed to mount a single fixture. Finish same as fixture.

C. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Lighting fixtures:

- (1) Set level, plumb, and square with ceilings and walls unless otherwise indicated.
- (2) Install lamps in each luminaire.

B. Temporary Lighting: If it is necessary, and approved by Owner, to use permanent luminaires for temporary lighting, install and energize the minimum number of luminaires necessary. When construction is sufficiently complete, remove the temporary luminaires, disassemble, clean thoroughly, install new lamps, and reinstall.

C. Remote Mounting of Ballasts: Distance between the ballast and fixture shall not exceed that recommended by ballast manufacturer. Verify, with ballast manufacturers, maximum distance between ballast and luminaire.

E. Suspended Lighting Fixture Support:

- (1) Pendants and Rods: Where longer than 48 inches, brace to limit swinging.
- (2) Stem-Mounted, Single-Unit Fixtures: Suspend with twin-stem hangers.
- (3) Continuous Rows: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of fixture chassis, including one at each end.

3.2 IDENTIFICATION

A. Install labels with panel and circuit numbers on concealed junction and outlet boxes.

3.3 FIELD QUALITY CONTROL

A. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery and retransfer to normal.

B. Verify that self-luminous exit signs are installed according to their listing and the requirements in NFPA 101.

3.4 STARTUP SERVICE

A. Burn-in all lamps that require specific aging period to operate properly, prior to occupancy by Owner. Burn-in fluorescent and compact fluorescent lamps intended to be dimmed, for at least 4 hours at full voltage.

END OF SECTION 265100

SECTION 310000 – EARTHWORK

PART 1 – GENERAL

1.1 SUMMARY

A. This section includes the following:

1. Excavating and back-filling for buildings and structures
2. Excavating and back-filling within building lines

1.3 DEFINITIONS

A. Back-fill: Soil materials used to fill an excavation

B. Bedding Course: Layer placed over the excavated sub-grade in a trench before laying pipe.

C. Borrow: Satisfactory soil imported from off-site for use as fill or back-fill.

D. Drainage Course: Layer supporting slab-on-grade used to minimize capillary flow of porewater.

E. Excavation: Removal of material encountered above sub-grade elevations.

1. All excavation work is to be conducted in favorable weather conditions and par all procedures and methods of local codes and ordinances.

F. Fill: Soil materials used to raise existing grades.

G. Structures: Buildings, footings, foundations, retaining walls, slabs, mechanical and electrical appurtenances, or other man made stationary features constructed above or below the ground surface.

H. Sub-grade: Surface or elevation remaining after completing excavation or top surface of a fill or back-fill immediately below topsoil grade.

I. Utilities: Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within the buildings.

1.4 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary work and who are completely familiar with the specified requirements and the methods needed for proper performance of work in this section.

B. The Contractor shall be responsible for protection of all existing materials and components to remain or to be salvaged. The minimum amount of protection required is indicated on the drawings. In the event of damage, such items shall be immediately repaired or replaced by the Contractor, at his expense, to the satisfaction of the Owner.

C. Historic Significance: Take all measures during performance of work to maintain and protect historic fabric of this building. Perform work with extreme care and assure that no features of structure are damaged.

1.6 SITE CONDITIONS

- A. Coordinate the performance of work in this section with related or adjacent work. Protection of items should be complete prior to commencement of new construction and demolition.
- B. At the end of working day or during inclement weather cover work exposed to weather with waterproof coverings, securely anchored.
- C. Protection for Historic Elements should remain in place for the duration of the project unless determined otherwise by the State Representative.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Back-fill Soils:
 - 1. Native excavated material
 - 2. Borrow soil free of rock or gravel larger than 3" in any dimension, debris, waste, vegetation or other deleterious matter. Borrowed soil should match native soil in content of sand, clay, and organic matter to assure similar percolation characteristics.
- C. Bedding Material: Class 6 Structural Fill Compacted to 95% Proctor

PART 3 - EXECUTION

3.1 PREPARATION

- A. Historic Elements to Remain in place:
 - 1. Protect all Historic Elements to remain in place, which may be damaged by construction activities. In the event of new damage, inform the Owner immediately as to the nature and extent of damage and the proposed method of repair. Contractor is responsible for repairs and replacement of newly damaged items to the satisfaction of the Architect at no additional cost.
 - 2. Protect structures, utilities, walkways, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operation.
 - 3. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil bearing water runoff.

3.2 EXPLOSIVES

- A. Explosives are not permitted.

3.3 EXCAVATION GENERAL

- A. Unclassified Excavation: Excavation to sub-grade elevations regardless of the character of surface and subsurface conditions, including rock, soil materials, and obstructions.

1. If excavated materials intended for fill and back-fill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

B. Classified Excavation: Excavation to sub-grade elevations classified as earth and rock.

1. Earth excavation includes excavating pavements or obstructions visible on the surface: underground structures, utilities, and other items indicated to be removed: together with soil, boulders, and other materials not classified as rock or unauthorized excavations.

a. Intermittent drilling; gram hammering: or ripping of material not classified as rock excavation is earth excavation.

2. Rock excavation includes removal and disposal of rock.

3.4 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimension within a tolerance of plus or minus one inch. Extend excavations a sufficient distance from structures for placing and removing concrete form-work, for installing services and other construction and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.5 EXCAVATION FOR UTILITY TRENCHES (Not Used)

3.6 APPROVAL OF SUBGRADE

A. Notify the Owner when excavations have reached required sub-grade.

B. If unsatisfactory soil is present, continue excavation and replace with compacted back-fill or fill material as directed.

1. Additional excavation and replacement material will be paid for according to the Contract provisions for changes in the work.

C. Reconstruct subgrades damaged by rain, accumulated water, or construction activities.

3.7 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom without altering top elevation.

3.8 STORAGE OF SOIL MATERIALS

A. Stockpile soil materials away from edge of excavations.

3.9 BACKFILL

A. Place and compact back-fill in excavation promptly, but not before completing the following:

1. Surveying locations of underground utilities for record documents.
2. Inspecting and testing underground utilities.
3. Removing concrete form-work.
4. Removing trash and debris.

5. Removing temporary shoring and bracing, and sheeting.
6. Installing permanent or temporary horizontal bracing on horizontally supported walls.

3.10 UTILITY TRENCH BACKFILL (Not Used)

3.11 FILL

A. Preparation: remove vegetation, topsoil, debris, unsatisfactory soil materials, obstruction and deleterious materials from ground surface before placing fills.

B. Place and compact fill material in layers to required elevations as follows:

1. Under walks and pavements, use satisfactory fill material.
2. Under slabs use engineered fill.
3. Under footings and foundations use engineered fill.
4. Fill around completed foundation to restore the original grade / finished floor relationship is not in contract.

3.12 MOISTURE CONTROL

A. Uniformly moisten or aerate sub-grade and each subsequent fill or back-fill layer before compaction to within 2 percent of optimum moisture content.

B. Place and compact fill material in layers to required elevations as follows:

1. Do not place back-fill or fill material on surfaces that are muddy.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is excessively wet.

3.13 COMPACTION OF BACKFILLS AND FILLS

A. Place back-fill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place back-fill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

3.14 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevation indicated.

1. Provide smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with the required surface tolerances.

B. Slope grades to direct water away from buildings and to prevent ponding.

C. Grading inside Building Lines: Finish sub-grade to a tolerance of ½ inch when tested with a 10 foot straight edge.

3.15 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, and erosion. Keep free of trash and debris.

B. Restore grades to original contours. Fill around foundation will occur in later phase. Where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where Settling occurs before Project correction period elapses, remove finished surfacing, back-fill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS / CLEAN-UP

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of material at off site location approved by local ordinance.

B. All residue and debris from Earthwork is to be removed from existing construction leaving the premises clean and neat with the ground plane restored to pre-existing grades.

3.17 DISCOVERY OF HIDDEN ARCHITECTURAL OR ARCHEOLOGICAL FEATURES

A. In event that undocumented features, materials, or artifacts are discovered during execution of work, immediately notify the Owner. Do not disturb area until the Owner has evaluated undocumented items. Owner reserves the right to discretionary monitoring by the State Historian or Archaeologist assigned to the project. See Specification Section 020710 Protection & Salvage of Historic Elements for discussion of this topic. An archaeologist hired by the Contractor shall be present on site during excavation under and adjacent to the building, as well as work that will occur prior to lifting it.

C. The Owner reserves right to document, or have documented by qualified professional, location, surrounding conditions, and other circumstances that may be pertinent. Time lost thereby will be condition for which contract time may be extended. Costs incurred for salvaging or documenting artifacts, after discovery, will be administered as a change order through the Contractor. The State reserves right to retain possession and ownership of objects, artifacts and historically or archeologically significant materials, other than normal building construction materials, discovered during execution of work.

END OF SECTION