



P100 2021

The Facilities
Standards for the
Public Buildings
Service

This session is being recorded.

Training





Appendix & Deliverables

A

APPENDIX



Figure 18: Yosemite Falls at
U.S. Courthouse
Los Angeles, CA

Lance Davis

**Sustainability Architect and
P100 Program Manager**





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01 General Submission Requirements

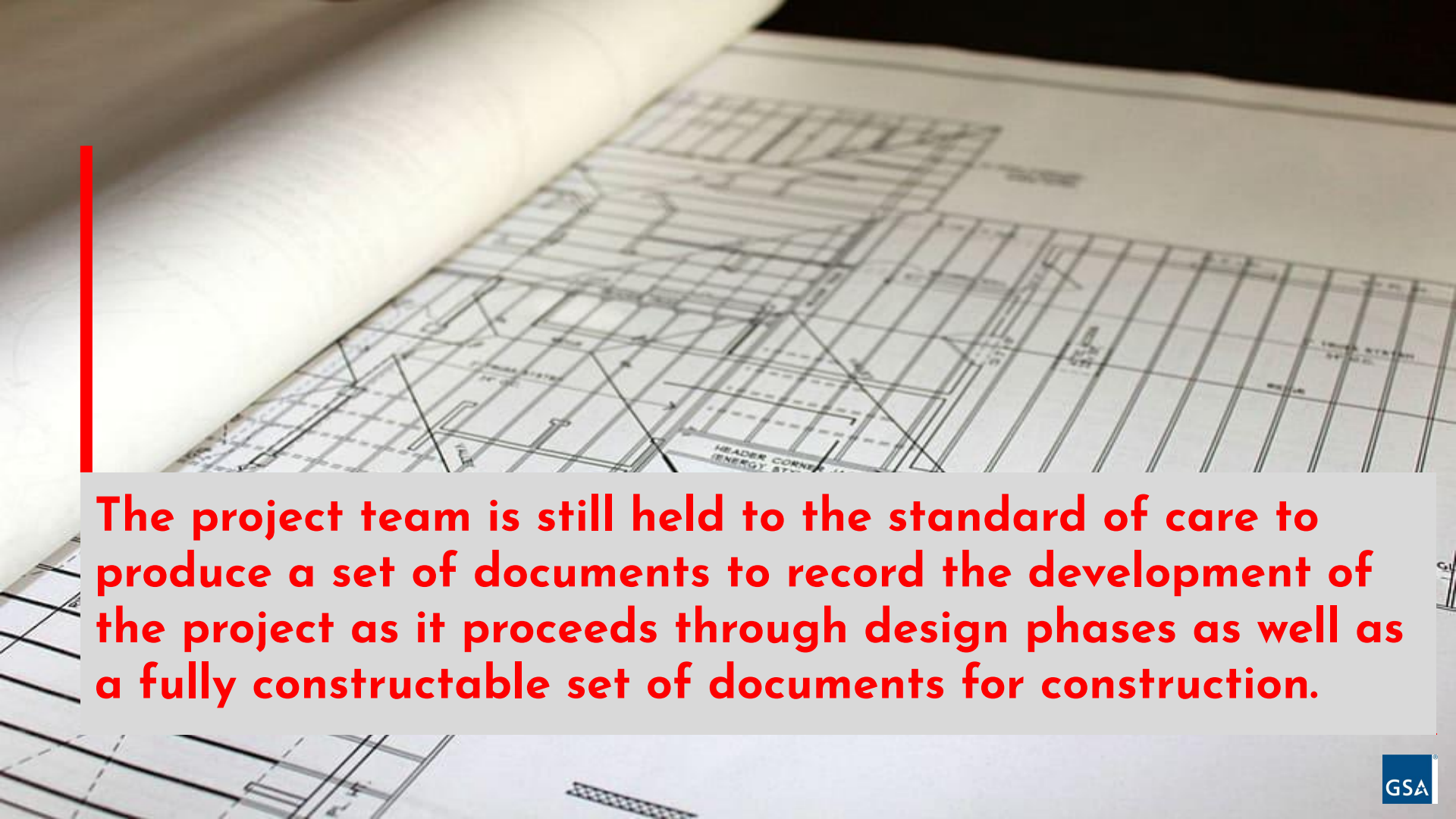
The basics of submittals



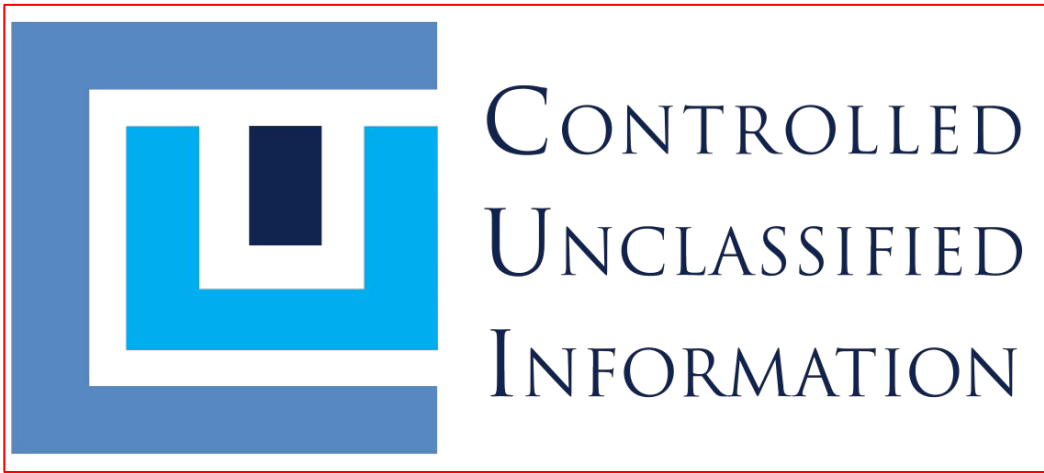
General Submission Requirements

The submission requirements listed in Appendix A are specific to showing compliance to P100.

The design submission requirements have been developed to ensure a rational, well-documented design process and to facilitate reviews by GSA staff and tenant agencies.



The project team is still held to the standard of care to produce a set of documents to record the development of the project as it proceeds through design phases as well as a fully constructable set of documents for construction.



CUI

PROPERTY OF THE UNITED STATES GOVERNMENT

This is controlled unclassified information. Do not remove the CUI marking. Properly destroy or return documents when no longer needed.

What is considered CUI?

Secure Functions

- a. Prisoner, detainee or judges' secure circulation paths or routes (both vertical and horizontal)
- b. Detention or holding cells
- c. Sally ports
- d. Security areas, including control rooms, Sensitive Compartmented Information Facilities, and incident command centers
- e. Building automation systems (BAS)
- f. Communication centers, telephone and riser closets
- g. Utilities, fuel and power distribution

Structural Framing

- a. Progressive collapse
- b. Seismic
- c. Building security
 - i. Blast mitigation
 - ii. Counterterrorism methods taken to protect the occupants and the building

Security Systems

- a. Camera locations
- b. Nonpublic security guard post information (e.g., number, location, or operations)
- c. Electronic control systems
- d. Hardware and key control

BIM

REQUIRED

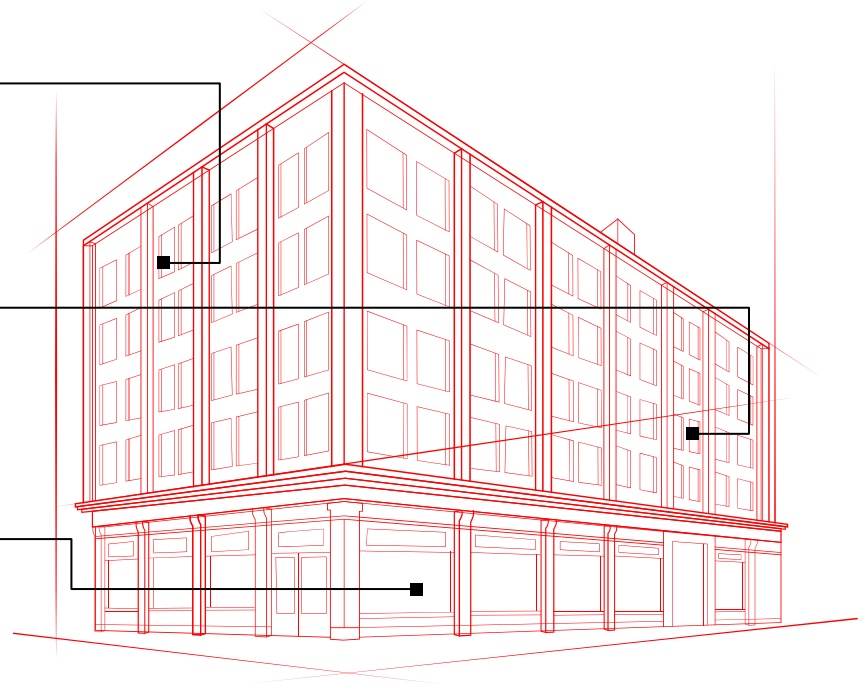
From design through construction

Execution Plan

Agreed upon by the parties involved

Turnover

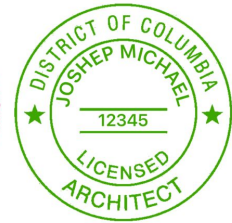
Models required



Code Sheet

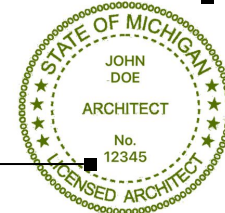
Certification

Certify project has met code



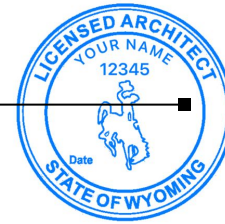
List Codes

List codes, standards and issuance dates



Sign and Seal

Each discipline must sign and seal by the codes they used





02

Performance Matrix

Defining a project's performance

Project Title: Test Project 1
 Location: Washington, DC
 Current Phase: Feasibility Study
 Date: 3/22/2022
 Project Manager: Lance Davis

2021 P100 Performance Matrix		Place an X for each requirement					Notes (Describe how design meets performance or any waivers from a requirement)
Attribute	Baseline	Tier 1	Tier 2	Tier 3	N/A		
1.9.1 Sustainable Performance Requirements							
Energy							
Energy Net Zero		X				Client wants some energy surety	
Water							
Water Net Zero	X					Limited ability to reuse water	
High Performance Building Technologies							
GSA Proving Ground			X				
Construction Personnel							
Green Credentialed		LPOE					
Fenestration							
Daylight and Views					X	Existing bunker, submitting for waiver	

2021 Performance Matrix

Use the matrix to document the projects performance

When to use the Performance Matrix

— Scoping and Feasibility

Use to define the project and set the budget

— Integrated Design Review

Review and verify project will meet performance requirements

Handover and Operational Excellence

— Contract Negotiation

Use to set the requirements of the contract and to document betterments

— Close Out

Verify with commissioning that systems meet expected performance

03

Definitions

Defining language





Definitions



Submittal

Defines key terms used for submittals



Project Delivery

Defines the four delivery methods used by GSA



Funding Codes

Describes the funding codes and what projects they cover



04

Appendixes Removed

What was removed

Deleted Appendixes



A6 Stormwater Management

Better incorporated into the landscape chapter



A7 Energy Analysis Input and Output

Moved to chapter 1 and the submittal matrix

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05

Appendix B & C

References and Changes





B.1 References

What is referenced in each chapter and throughout P100

B.2 Acronyms and Abbreviations

Table C.1 Summary of Changes

Section Number	Section Title	Summary of Change
Throughout		Updated project types to reflect designations per the BA codes
1.2	Application of P100	Updated BA codes that use P100
1.2.3	Tenant Improvements	Clarified how P100 and the Pricing Desk Guide work with each other
1.2.4.1	Waivers	Clarified the applicability of waivers
1.2.4.3	Newer Versions of P100	New section
1.3.2	Environmental Protection	Added language for NEPA
1.3.3	Energy and Sustainable Design	Updated for new EO's
1.3.3.1	Energy Act of 2020 Rebates	New section
1.4.7	Interagency Security Committee Risk Management Process for Federal Facility	New Section
1.4.8	ASHRAE 90.1	New section
1.6.7	Smart Buildings	Updated requirements
1.6.8	Design Guide for Operational Excellence	New Section
1.7.4.1.1	Asbestos Alterations	Updated requirements
1.7.4.2	Lead-Based Paint	Updated requirements
1.8.1.2	Repair and Alteration Project Sign	Updated requirements
1.8.3	Building Information Modeling (BIM)	Updated requirements
1.8.4	Total Building Commissioning	Clarified the relationship of the commissioning agent
1.9.2.1	LEED Certification	Updated requirements
1.9.2.2	Waste Net Zero	Updated requirements
1.9.2.7	Designing for Daylight	New section consolidating this information from multiple chapters
1.9.3	Energy Use Targets	Updated requirements per the Energy Use Guidance
1.9.2.9	Decarbonization	New section
1.9.2.10	Key Sustainable Products	New section
1.9.3.3	Guiding Principles Criteria Energy Efficiency	New section
1.9.3.4	Energy Models	New section consolidating this information from multiple chapters
1.10.1	Management of Climate Related and Extreme Weather Risks	Updated requirements
1.10.2	Thermal Resistance	New section
2.1	Urban Planning and Public Use Performance Table	Updated requirements
2.2.2	Collaborative Design Process	Updated requirements
2.3.2.1	Exterior Connections and Gathering	Clarified project responsibility to the curb

Appendix C



06

Submittal Matrix

The user friendly submittal interface

ARCHITECTURAL

An architectural concept needs to be submitted only if architectural work is a part of the scope of work for the alteration.

1. Drawings

a. Demolition plans

b. Floor plans, elevations, and sections as described in Section A.3

c. Existing and new spaces, circulation, entrances, stairways, elevators, freight elevators, loading docks, special spaces and service spaces, and service rooms and space for mechanical, fire protection, electrical, and communication equipment. Dimensions for critical clearances, such as vehicle access, fire apparatus access, deliveries, and maintenance should be indicated.

2. Narrative

a. Architectural program requirements

i. Describe how the design meets the project authorization

b. Design concept, explaining:

- i. General layout
- ii. Treatment of historic zones, if applicable

3. Calculations

a. Where building renovation involves window or insulated wall systems, perform a life-cycle cost assessment to optimize selection

HISTORIC PRESERVATION

8.5 in. x 11 in. report, signed by qualified preservation architect, including:

1. Narrative

a. General: Project purpose, scope, groups, and individuals involved

b. Existing conditions, describing:

- i. Overall building size, configuration, character
- ii. Project location
- iii. Existing original materials and design, relevant alterations

c. Preservation design issues and prospective solutions, including:

- i. Location of new work/installation: visibility, impact on historic finishes
- ii. Compare options for preserving/restoring historic materials and design
- iii. Identify further study required to avoid adverse effects as applicable

2. Photographs

a. General and detail views showing existing conditions at affected preservation zones, keyed to plan showing location and orientation of each view

b. Captions identifying location, subject, condition shown

3. Drawings

- a. Reduced to 8.5 in. x 11 in., 11 in. x 17 in. foldout or placed in cover pocket:
 - i. Site and floor plans, as applicable.
 - ii. Sketches or schematic CAD drawings (elevations, plans) showing preservation design concepts.

STRUCTURAL

Structural drawings and narrative only need to be submitted if a structural upgrade is part of the scope of work.

1. Drawings

a. Structural plans as described in Section A.3

2. Narrative

a. Description of current structural systems, state of repair, variances from present codes and available spare load capacity. Data may be obtained from review of original construction drawings and codes or from an analysis of the actual structure.

i. This report may have been completed as part of the prospectus development study

b. Identification of governing codes

c. Description of recommended changes to the structural system, addressing:

i. Structural materials, required selective demolition or alteration of existing structural elements, roof and floor framing system, means of resisting lateral loads, and connections between existing and new structural systems

d. If a seismic evaluation study exists for the building, describe any variations taken in design, compared to the study's recommendations.

MECHANICAL

Mechanical drawings, narrative, and calculations need to be submitted only if the alteration scope of work involves changes to the mechanical systems.

1. Drawings

a. Demolition plan of all piping, ductwork, equipment, and controls that are to be removed

b. Drawings for new work must be provided as described in Section A.3

2. Narrative

a. Description of current mechanical systems, state of repair, variances from present codes and P100. Data may be obtained from review of original construction drawings, P100 requirements and codes, and from an analysis of the actual facility.

b. Description of changes to existing systems as authorized and described in the prospectus and the building evaluation report

c. Describe existing and proposed HVAC and plumbing systems, including available capacities, compliance with the criteria and requirements in Chapter 5 of this document and their operational characteristics

d. Identify how new systems will be integrated with existing systems

e. Provide analysis of energy conservation opportunities for the project

3. Calculations and Energy Analysis

a. Calculations and energy analysis for alterations must show compliance with Chapters 1, 3, 5, and Sections A.3 and A.7.

FIRE PROTECTION

Fire protection and life safety submission requirements must be identified as a separate fire protection section as outlined in this document.

1. Drawings

a. Demolition plans

i. Identify existing fire protection systems (e.g., sprinklers, fire alarm notification appliances)

b. Floor plans, showing a minimum:

i. New fire protection systems (e.g., sprinklers, fire alarm notification appliances)

2. Narrative A fire protection narrative needs to be submitted only if the fire protection work is a substantial part of the scope of work for the alteration or involves changes to a fire protection system.

a. Fire protection program requirements

b. Description of the building's proposed fire protection systems including modifications to the existing egress systems

2018 P100

c. Code statement identifying changes in building occupancy classification, occupancy group(s), fire resistance requirements, egress requirements, and so on.

ELECTRICAL

An electrical narrative needs to be submitted only if the alteration scope of work involves changes to the type or location of major electrical systems.

1. Narrative

a. Description of requested changes to existing systems.

i. Describe lighting, power, and signal systems, including available capacity versus criteria in Chapter 6, and operational characteristics.

ii. Describe code deficiencies. Identify how new systems will be tied into existing systems.

iii. This report may have been completed as part of the prospectus development study.

b. Describe both existing and new distribution systems within the building

i. Special power and reliability requirements should be addressed, including emergency power and UPS systems.

CONCEPT COST ESTIMATE

The final concept phase estimate submission must include all requirements of the PBS P-120 as well as the following:

1. Executive summary

2. Basis of estimate, rationale, assumptions and market analysis as required in P120

3. GSA Report 3474, GSA Report 3473

4. Summary reports (ASTM UNIFORMAT II, Work Items and CSI MasterFormat formats as applicable)

5. Detail line item cost reports

6. Core/shell and TI cost estimate, as per GSA pricing policy. TI estimates must be prepared for each tenant.

7. Provide separate estimates for phased work, or bid alternates/options.

8. To ensure the project is developing on-budget, provide a list of cost-saving items that would collectively reduce the project cost to approximately 10 percent below budget.

9. Verify that the final concept submissions can be constructed within the project budget.

A life-cycle cost analysis of three options that have been modeled should be included with this submittal.

DESIGN DEVELOPMENT

SITE PLANNING AND LANDSCAPE DESIGN

1. Calculations

a. Storm drainage and sanitary sewer calculations

b. Storm water detention facility calculations, if applicable

c. Parking calculations, if applicable

2. Narrative

a. Site circulation concept, explaining:

i. Reasons for site circulation design and number of site entrances

ii. Reasons and/or calculation for number of parking spaces provided

iii. Reasoning for design of service area(s), including description of number and sizes of trucks that can be accommodated

iv. Proposed scheme for waste removal

v. Proposed scheme for fire apparatus access (including aerial apparatus), roads, and fire lanes

b. Site utilities distribution concept

c. Drainage design concept

d. Landscape design concept, explaining:

i. Reasoning for landscape design, paving, site furnishings, and any water features

ii. Reasoning for choice of plant materials

iii. Proposed landscape maintenance plan

iv. Brief operating description of irrigation system

v. Summarize water conservation opportunities that have been studied

vi. Brief description of fire protection water supplies

vii. Brief description of fire hydrant locations

viii. Reasoning for urban design choices and their relation to local urban design goals

e. Site construction description

i. Brief description of materials proposed for pavements and utilities

f. Code analysis

i. Analysis of applicable local zoning and building code requirements

3. Drawings

a. Demolition plans (when applicable)

b. Preliminary site layout plan, showing:

i. Roads, walks, parking, and other paved areas (including type of pavement). Show access route for the physically disabled from parking and from public street to main entrance.

ii. Fire apparatus access (including aerial apparatus) and fire lanes

c. Preliminary grading and drainage plan, showing:

i. Preliminary site grading, storm drainage inlets, including detention facilities

d. Preliminary site utilities plan, showing:

i. Sizes, inverts, and locations of domestic and fire protection water supply lines, sanitary sewer lines, gas lines, steam/condensate lines and chilled water supply and return lines, if applicable

e. Preliminary landscape design plan, showing:

i. Preliminary hardscape design, including site furniture, water features, etc.

ii. Preliminary planting scheme

iii. Preliminary irrigation design

ARCHITECTURAL

1. Narrative

a. Building concept, explaining:

i. Entrance locations and service locations

ii. Building circulation and arrangement of major spaces

iii. Interior design

iv. Adherence to the historic building preservation plan, if applicable

b. Building construction description, explaining, if applicable:

i. Exterior materials, waterproofing, air barriers/vapor retarders and insulation elements

ii. Roofing system(s)

iii. Exterior glazing system

iv. Interior finishes, with detailed explanation for public spaces

v. Potential locations for artwork commissioned under the Art in Architecture program,

page,
after
page

if applicable, as determined by the collaboration of the artist, architect, and Art in Architecture Panel

2. Drawings

a. Demolition plans

b. Building floor plans, showing:

- i. Spaces individually delineated and labeled
- ii. Enlarged layouts of special spaces
- iii. Dimensions
- iv. Accessible routes for the physically disabled as well as other compliance requirements regarding signage, toilets, etc.

c. Building roof plan, if applicable, showing:

- i. Drain
- ii. Dimensions
- iii. Membrane and insulation configuration of the roofing system

d. Elevations of major building facades (if changes to the exterior are proposed), showing:

- i. Existing and new fenestration
- ii. Existing and new exterior materials
- iii. Cast shadows

e. Two building sections (of renovated areas only), showing:

- i. Accommodation of structural systems
- ii. Mechanical penthouses, if any
- iii. Floor to floor and other critical dimensions
- iv. Labeling of most important spaces

f. Exterior wall sections, showing:

- i. Materials of exterior wall construction, including flashing, connections, and method of anchoring
- ii. Vertical arrangement of interior space, including accommodation of mechanical, fire protection, and electrical services in the floor and ceiling zones

g. Proposed room finish schedule, showing:

- i. Floors, base, walls, and ceilings
- ii. Finish schedule may be bound into narrative

HISTORIC PRESERVATION

8.5 in. x 11 in. report, signed by qualified preservation architect, including:

1. Narrative

a. Cover

- i. Building name, address, project title, project control number, author (preservation architect), preservation architect's signature, date of submission

- ii. General: Project purpose, scope, groups, and individuals involved, substantive changes to approach described in concept submission

c. Existing conditions, describing:

- i. Overall building size, configuration, character
- ii. Project location
- iii. Existing original materials and design, alterations
- iv. New findings from testing or analysis in concept phase

- d. Preservation solutions explored, how resolved, and why, including:

- i. Location of new work: visual impact, protection of ornamental finishes
 - ii. Design of new work/installation: visual and physical compatibility with existing original materials and design; materials/finishes proposed (as specified)
 - iii. Methods of supporting new work/installation
 - iv. Preservation and protection of historic materials during construction through tenant move-in
- e. Effects, describing:

- i. How project will affect the building's architecturally significant qualities
- ii. Measures proposed to mitigate any adverse effects on historic materials or design

2. Photographs

- a. General and detail views showing existing conditions at affected preservation zones, keyed to plan showing location and orientation of each photo view

- b. Captions identifying location, subject, condition shown

3. Drawings

- a. Reduced to 8.5 in. x 11 in., 11 in. x 17 in. foldout or placed in cover pocket:

- b. Site and floor plans, as applicable

- c. Elevations, plans, and section details showing preservation design solutions for each issue identified, as approved by Regional Preservation Officer

STRUCTURAL

1. Calculations For any computer-generated results, submit a model of the input data and all pertinent program material required to understand the output. A narrative of the input and results should be contained in the calculations as well.

- a. Gravity load calculations

- b. Lateral load calculation

- c. Foundation calculations

- d. Calculations showing that system is not vulnerable to progressive collapse

- e. Vibration calculations

- f. Results of any other studies necessary for the project design

2. Narrative

a. Description of structural concept, including:

- i. Choice of framing system, including lateral load resisting elements

- ii. Proposed foundation design

- iii. Verification of adequacy of all assumed dead and live loads

b. Code analysis

- i. Building classification, required fire resistance of structural elements, identification of seismic zone, wind speed, etc.

- ii. Identification of special requirements, such as high-rise

- iii. Summary of special requirements resulting from applicable local codes

- c. Proposed methods of corrosion protection, if applicable

- d. Geotechnical engineering report, including boring logs (if part of scope of work). See Section A.5 for specific requirements.

- e. Geologic hazard report

3. Drawings

- a. Demolition plans (where applicable)

after
page.

Submittal Matrix

Found at www.gsa.gov/p100





Thanks!

Do you have any questions?

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