49-A-1

1999-0128

239 Park Ave.
Storage Bld.
Haddock field
City of Portland

on spreadsheet

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM

19990128
I. D. Number

City of Portland
Applicant

9/17/99
Application Date

389 Congress Street, Portland, ME 04101
Applicant's Mailing Address

Hadlock Field Storage Building
Project Name/Description

Deluca-Hoffman Associates
Consultant/Agent

239 Park Ave, Peaks Island, Portland Maine 04102
Address of Proposed Site

775-1121
Applicant or Agent Daytime Telephone, Fax

049-A-001
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): ☒ New Building ☐ Building Addition ☐ Change Of Use ☐ Residential
☐ Office ☐ Retail ☐ Manufacturing ☐ Warehouse/Distribution ☐ Parking Lot ☐ Other (specify)

1,125 sq ft — Proposed Building square Feet or # of Units
Acreage of Site
ROS — Zoning

Check Review Required:

☒ Site Plan (major/minor)
☐ Subdivision # of lots
☐ PAD Review
☐ 14-403 Streets Review
☐ Flood Hazard
☐ Shoreland
☐ HistoricPreservation
☐ DEP Local Certification
☐ Zoning Conditional Use (ZBA/PB)
☐ Zoning Variance
☐ Other

Fees Paid: Site Plan $0.00 Subdivision Engineer Review Date: 9/16/99

Planning Approval Status:

Reviewer

☐ Approved
☐ Approved w/Conditions See Attached
☐ Denied

Approval Date
Approval Expiration
Extension to
☐ Additional Sheets Attached
☐ OK to Issue Building Permit
signature
date

Performance Guarantee ☐ Required* ☐ Not Required

* No building permit may be issued until a performance guarantee has been submitted as indicated below

☐ Performance Guarantee Accepted — date; amount; expiration date
☐ Inspection Fee Paid — date; amount
☐ Building Permit Issued — date
☐ Performance Guarantee Reduced — date; remaining balance; signature
☐ Temporary Certificate of Occupancy — date
☐ Conditions (See Attached)
☐ Final Inspection — date; signature
☐ Certificate Of Occupancy — date
☐ Performance Guarantee Released — date; signature
☐ Defect Guarantee Submitted — submitted date; amount; expiration date

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM

19990096
I. D. Number

City of Portland Bob Leeman
Applicant

7/22/99
Application Date

239 Park Avenue, Portland, ME 04101
Applicant's Mailing Address

Fitzpatrick Field consession
Project Name/Description

Deluca Hoffman
Consultant/Agent

239 Park Ave, Peaks Island, Portland Maine
Address of Proposed Site

874-8200 874-8103
Applicant or Agent Daytime Telephone, Fax

049-A-001
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): ☒ New Building ☐ Building Addition ☐ Change Of Use ☐ Residential
☐ Office ☐ Retail ☐ Manufacturing ☐ Warehouse/Distribution ☐ Parking Lot ☐ Other (specify)

1156 sq.ft.
Proposed Building square Feet or # of Units

Acreage of Site

ROS
Zoning

Check Review Required:

☒ Site Plan (major/minor)
☐ Subdivision # of lots
☐ PAD Review
☐ 14-403 Streets Review
☐ Flood Hazard
☐ Shoreland
☐ HistoricPreservation
☐ DEP Local Certification
☐ Zoning Conditional Use (ZBA/PB)
☐ Zoning Variance
☐ Other

Fees Paid: Site Plan $0.00 Subdivisio Engineer Review $0.00 Date 7/22/99

Planning Approval Status:

Reviewer Kandi Talbot

☐ Approved
☒ Approved w/Conditions See Attached
☐ Denied

Approval Date 8/11/99 Approval Expiration 8/11/00 Extension to ☐ Additional Sheets Attached

☒ OK to Issue Building Permi Kandi Talbot (signature) 8/11/99 (date)

Performance Guarantee ☐ Required* ☒ Not Required

* No building permit may be issued until a performance guarantee has been submitted as indicated below

☐ Performance Guarantee Accepted — date — amount — expiration date
☐ Inspection Fee Paid — date — amount
☐ Building Permit Issue — date
☐ Performance Guarantee Reduced — date — remaining balance — signature
☐ Temporary Certificate of Occupancy — date ☐ Conditions (See Attached)
☐ Final Inspection — date — signature
☐ Certificate Of Occupancy — date
☐ Performance Guarantee Released — date — signature
☐ Defect Guarantee Submitted — submitted date — amount — expiration date
☐ Defect Guarantee Released — date — signature

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM

19990096
I. D. Number

City of Portland Bob Leeman
Applicant

7/22/99
Application Date

239 Park Avenue, Portland, ME 04101
Applicant's Mailing Address

Fitzpatrick Field consession
Project Name/Description

Deluca Hoffman
Consultant/Agent

239 Park Ave, Peaks Island, Portland Maine
Address of Proposed Site

874-8200 874-8103
Applicant or Agent Daytime Telephone, Fax

049-A-001
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): ☒ New Building ☐ Building Addition ☐ Change Of Use ☐ Residential
☐ Office ☐ Retail ☐ Manufacturing ☐ Warehouse/Distribution ☐ Parking Lot ☐ Other (specify)

1156 sq.ft. | | ROS
Proposed Building square Feet or # of Units | Acreage of Site | Zoning

---

Check Review Required:

☒ Site Plan (major/minor)
☐ Subdivision # of lots
☐ PAD Review
☐ 14-403 Streets Review
☐ Flood Hazard
☐ Shoreland
☐ HistoricPreservation
☐ DEP Local Certification
☐ Zoning Conditional Use (ZBA/PB)
☐ Zoning Variance
☐ Other

Fees Paid: Site Plan $0.00 Subdivision Engineer Revie $0.00 Date: 7/22/99

DRC Approval Status:

Reviewer Jim Wendel

☒ **Approved**
☐ **Approved w/Conditions** see attache
☐ **Denied**

Approval Date 8/11/99 Approval Expiration 8/11/00 Extension to ☐ Additional Sheets Attached

☒ Condition Compliance Jim Wendel signature 8/11/99 date

Performance Guarantee ☐ **Required*** ☒ **Not Required**

* No building permit may be issued until a performance guarantee has been submitted as indicated below

☐ Performance Guarantee Accepted — date | amount | expiration date

☐ Inspection Fee Paid — date | amount

☐ Building Permit — date

☐ Performance Guarantee Reduced — date | remaining balance | signature

☐ Temporary Certificate Of Occupancy — date ☐ Conditions (See Attached)

☐ Final Inspection — date | signature

☐ Certificate Of Occupancy — date

☐ Performance Guarantee Released — date | signature

☐ Defect Guarantee Submitted — submitted date | amount | expiration date

☐ Defect Guarantee Released — date | signature

March 22, 2000

Bob Leeman
City of Portland
239 Park Street
Portland, ME 04101

re: Fitzpatrick Stadium Concession Stand, 239 Park Avenue

Dear Mr. Leeman:

On August 11, 1999, the Portland Planning Authority granted minor site plan approval for the Fitzpatrick Stadium concession stand located at 239 Park Avenue with the following condition:

- that the applicant submit HHE200 form before issuance of building permit

The approval is based on the submitted site plan. If you need to make any modifications to the approved site plan, you must submit a revised site plan for staff review and approval.

Please note the following provisions and requirements for all site plan approvals:

1. The site plan approval will be deemed to have expired unless work in the development has commenced within one (1) year of the approval or within a time period agreed upon in writing by the City and the applicant. A one year extension may be granted by this department if requested by the applicant in writing prior to the expiration date of the site plan.

2. A performance guarantee in a form acceptable to the City of Portland and an inspection fee equal to 1.7% of the performance guarantee will have to be posted before beginning any site construction or issuance of a building permit.

3. A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.

4. Prior to construction, a preconstruction meeting shall be held at the project site with the contractor, development review coordinator, Public Work's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the preconstruction meeting.

5. If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)

6. The Development Review Coordinator (874-8300 ext. 8722) must be notified five (5) working days prior to date required for final site inspection. Please make allowances for completion of site plan requirements determined to be incomplete or defective during the inspection. This essential as all site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions, please contact the Planning Staff.

Sincerely,

Joseph E. Gray, Jr.
Director of Planning and Urban Development

cc: Alexander Jaegerman, Chief Planner
Kandice Talbot, Planner
P. Samuel Hoffses, Building Inspector
Marge Schmuckal, Zoning Administrator
Tony Lombardo, Project Engineer
Development Review Coordinator
William Bray, Director of Public Works
Nancy Knauber, Associate Engineer
Jeff Tarling, City Arborist
Charlie Lane, Associate Corporation Counsel
Lt. Gaylen McDougall, Fire Prevention
Inspection Department
Lee Urban, Director of Economic Development
Don Hall, Appraiser, Assessor's Office
Susan Doughty, Assessor's Office
Approval Letter File

TECHNICAL SPECIFICATIONS

PROPOSED CONCESSION STAND

FITZPATRICK STADIUM
PORTLAND, MAINE

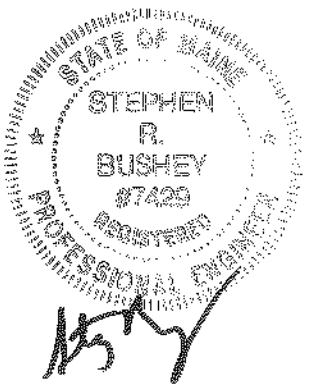
Prepared for:

Mr. Bob Leeman
City of Portland 233-0350

Prepared by:

DeLuca-Hoffman Associates, Inc.
778 Main Street, Suite 8
South Portland, Maine 04106

July 1999



Technical Specifications

Fitzpatrick Stadium
Proposed Concession Stand
Portland, Maine

* Supplemental specification to the State of Maine Department of Transportation Standard Specifications – Highways and Bridges – Revision of April 1995.

NOTE: All work shall be constructed in accordance with these specifications or the State of Maine Department of Transportation Standard Specifications – Highways and Bridges – Revision of April 1995 copy.

STANDARD SPECIFICATIONS

The City of Portland, Maine has adopted for this project the "General Conditions of the Contract for Construction" AIA Document A201, Fourteenth Edition (1987), Articles 1 through 14 inclusive and also the Supplementary General Conditions in Exhibit A.

The City of Portland, Maine has also adopted for this project the "State of Maine, Department of Transportation, Standard Specifications (for) Highways and Bridges, Revisions of April, 1995", including all current additions or modifications thereof.

The Contract Agreement, Special Provisions and Supplemental Specifications contained hereinafter shall take precedence and shall govern in any case of conflict with the Standard Specifications. In case of any conflict between the AIA Document A201 or Supplementary General Conditions and MDOT Standard Specifications, the Supplementary General Conditions shall take precedence.

Unless otherwise noted in the Supplemental Specifications, the description of work, method of measurement, and basis of payment for each specification section pertains to the lump sum bid proposal.

SECTION 01010
SUMMARY OF WORK
WOOD-FRAMED BUILDING

1. - GENERAL

1.1 DESCRIPTION OF WORK: Work shall consist of (but not be limited to):

A. Labor and Material for full erection of wood-framed building complete with structural framing (columns, rafters, struts, purlins, girts); prefinished roofing, siding; metal flashings; trim; gutters and downspouts; diagonal bracing; anchoring: fasteners; and roof and wall accessories and other components and material required for a complete installation.

1.2 BUILDING DESCRIPTIONS

A. Building Size: 34' x 34', single story with 8' high walls on 6" concrete slab and perimeter spread footing.

B. Primary Structurals: Frames will consist of 2" x 6" wood framing lumber for exterior walls and 2" x 4" wood framing interior wall. Roof system to consist of 2" x 6" wood trusses and Galvalume ultra-rib roof system.

C. Roof: Six (6) foot high wood truss roof with galvalume panel roofing system.

D. Column Spacing at Exterior Walls: Compatible with placement of openings and other requirements.

E. One (1) mandoor, two 7' plexiglass observation windows and six (6) 6' wide serving windows complete with horizontal swing open bifold doors. Each counter will include a plywood bifold door for use as counter space or for window closure

1.3 QUALITY ASSURANCE

1. See reference sections 06100, 06175 and 07610.

2. Use the following where applicable in other phases of design:

a. Building Code and regulations of other governing authorities having jurisdiction at project site.

b. Applicable portions of the Structural Steel Painting Council (SSPC) Standards, as referenced herein.

c. American Society for Testing and Materials (ASTM), Standards as referenced herein.

d. Ratings by:

1. Underwriters' Laboratories, Inc. wind uplift (Roof) (UL Classification 90).

1.4 SUBMITTALS

A. Shop Drawings and Calculations:

1. Design Calculations and Erection Drawings: Prepared by, or under direct supervision of, Registered Professional Engineer, licensed to practice in State of Maine with all drawings and calculations bearing his seal.

2. Show each type structural building frame required and their locations within structure; details of anchor bolt settings; sidewall, endwall, and roof framing; diagonal bracing and location within structure; wood roof deck and joist types; wall and roof insulation and types; longitudinal and transverse cross sections; details of curbs, roof jacks, and items penetrating roof; canopy framing and details; trim, gutters, downspouts, liner panels, wall and roof coverings, and all accessory items; materials; finishes; construction and installation details; and other pertinent information required for proper and complete fabrication, assembly and erection of watertight metal building system.

3. Provide lateral and vertical column base reactions on an anchor bolt setting plan.

B. Material and Color Samples:

1. For each specific material sample requested by architect, submit in size, form, and number directed.

2. Submit duplicate color sample sets showing full color range available, for selection purposes.

C. Product Data: Two (2) copies of manufacturer's specifications and descriptive literature.

D. Certification: Two (2) copies of written certification, prepared and signed by Registered Professional Engineer licensed to practice in State of Maine, attesting that building design meets specified loading requirements, requirements of codes and authorities having jurisdiction at project site, and other requirements specified.

1.5 PRODUCT HANDLING, DELIVERY AND STORAGE

A. Deliver and store prefabricated components, sheets, panels, and other manufactured items so they will not be damaged or deformed.

B. Stack materials on platforms or pallets above grade or on concrete slab, covered with opaque tarpaulins or other approved weather-resistant ventilated covering.

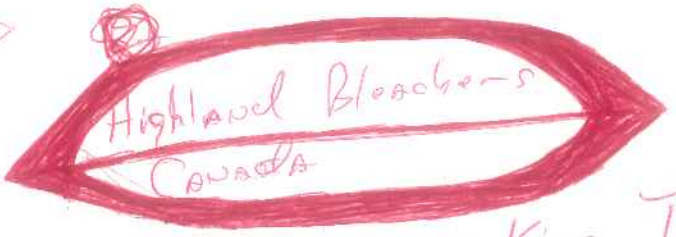
C. Damaged material must be reported to determine if replacement is required.

1.6 WARRANTIES

A. All Components: Manufacturer's standard one (1) year workmanship warranty.

B. Roof Panel: Manufacturer's twenty (20) year, full term, 100% non-prorated material and labor no-perforation warranty.

Clear space for School System



Tom King Thursday

2 - PRODUCTS AND FABRICATION

2.1 ACCESSORIES

A. Gutters and Downspouts

1. Gutters for ribbed roof (single-skin and factory-insulated) shall be suspended box sections of 26- gauge galvanized factory-colored steel formed to match the configuration of the gable trim and shall have a minimum cross section of 36 square inches. Gutter shall be attached to the roof panel using standard fasteners as specified on manufacturer's drawings. Gutter sections shall be lapped and all splices and end closures shall be sealed with aluminized sealant and then fastened with trim fasteners as specified on manufacturer's drawings.

2. Downspouts shall be 29-gauge galvanized factory-colored steel with a minimum cross section of 20 square inches.

   Downspouts shall be attached to a thimble installed in the gutter. Downspouts shall be attached to the wall panel using 26-gauge galvanized factory-colored steel straps on 10'-0" centers. All downspouts to direct the water into the underground drainage system.

3. Finish: Manufacturer's standard 70% Kynar same as wall panel system finish in color as selected by architect.

B. Walk Doors, Leafs, Frames and Hardware:

1. Frames: Manufacturer's standard self-flashing, self-trimming style, fabricated from minimum 16-gauge steel as specified in Section 08110.

2. Leafs: Manufacturer's standard in size shown on drawings, not less than 1 3/4" thick, of flush panel design. See Section 08110.

3. Finish Hardware: Provide following in quantity required for operational installation of doors:

a. Hinges: Three manufacturer's standard, regular weight, full mortise type per door leaf.

b. Weatherstripping: Manufacturer's standard type for attachment to door frames.

c. Thresholds: Aluminum type, factory-notched at each end for tight fit to jamb frames.

d. Lockset: Cylindrical lockset with lever handles: Best 93KON14CSTK626 (Passageset) or equal.

C. VACANT

D. Ventilators, Louvers, Roof Jacks and Pipe Flashing:

1. Continuous ridge ventilator (univent) shall be a 10'-0" long vent with 9" or 12" throat complete with all weather guards, rain caps.

   a. Ridge ventilators shall be fabricated from 26-gauge minimum .05 oz./sq. ft. alum-zinc alloy-coated material or 26-gauge minimum .05

oz./sq. ft. alum-zinc alloy-coated material with manufacturer's standard Shell White or Slate Bronze polyester finish.

b. Ridge ventilator shall be provided including factory installed ends. Vents require no modification for continuous runs.

c. Preformed rubber filler strips to match the configuration of the roof panel shall provide a weathertight seal at the base when installed according to the manufacturer's drawings.

2. Roof jack shall be a 26-gauge, Shell White steel cone factory installed and sealed to roof panel. Cone shall be made of same material.

a. Stack or pipe penetration shall be at the centerline of a major corrugation of the roof panel.

3. Pipe flashing shall consist of a molded rubber cone with an aluminum ring bonded to the base. Pipe flashing shall accommodate pipe diameter as specified and be capable of flashing penetration at any location of the roof panel. Flashing shall be sealed and fastened in accordance with manufacturer's drawings.

4. Wall louvers shall be nominal 36" x 36" self-flashing unit with frame construction of 18-gauge galvanized steel and 20-gauge galvanized steel adjustable blades, factory painted white, factory assembled with screen, hardware and operator.

a. Panels for louvers shall be field cut and located.

3 - EXECUTION

3.1 ERECTION

A. General:

1. Erection shall be accomplished by a trained, competent erector having experience in erecting wood-framed construction.

2. Install all wood-framed building system components in strict compliance with manufacturer's instructions shown on final shop drawings.

3. Handle and store all materials to avoid damage and replace any damaged materials.

B. Structural Frames:

1. Erect true to line, level and plumb, brace and secure with temporary bracing in all directions as required.

2. Level base plates and secure to anchor bolts to level plane with full bearing to foundation supporting structures.

C. Framed Openings:

1. Securely attach to building structural framing members, square and plumb.

D. Roofing and Siding Panels:

1. General:

a. Install roof and canopy panels in such a manner to permit drainage to eaves of building, with panel ends square to eave.

b. Install wall panels with vertical edges plumb.

c. Arrange and nest sidelap joints away from prevailing winds when possible.

d. Apply panels and associated items for neat and weathertight enclosure.

e. Avoid "panel creep" or application not true to grid lines.

f. Protect factory finishes from mechanical damage or abrasions.

g. Install approved type closures to exclude weather.

(1) Install weather seal under ridge cap. Flash and seal roof panels at eave, gable and perimeter of all openings through roof and elsewhere as required or shown on drawings.

(2) Flash and/or seal wall and liner panels at perimeter of all openings, under eaves and gable trims, along lower panel edges, and elsewhere as required or shown on drawings, as applicable.

h. Remove all fastener or cutting shavings from roof and wall as erection is completed.

2. Roof Panels:

a. Install panels with positive interlock between installation clips and standing seams in manner that will allow panels to support erection loads prior to closing of seams with seamer.

b. Install concealed panel clips (of sliding design to allow for expansion and contraction movement of panels) over top of roofing insulation along each standing seam at location and spacing determined by metal building manufacturer.

c. Where panel end splices occur, nest panels with 3" end laps and install interlocking clamping plates and sealant. Make splice independent of structure to allow for free expansion and contraction movement of panels without stress on splice.

d. Crimp standing seams with approved type motorized seamer tool to assure complete sealant engagement and to assure structural integrity of panel-to-panel and panel-to-clip connections.

e. Use fasteners penetrating roof panel only at eaves and end splices (when required). At these conditions, use fasteners in conjunction with clamping plates (with factory-punched holes to assure correct fastener placement) and approved type butyl sealant to assure positive watertight seals.

f. Install ridge cover units of approved expansion joint design to accommodate expansion and contraction movement of roof panels without ponding at end splices.

g. Coordinate installation of accessories and items to be mounted on metal roofing.

h. Maintain proper panel coverage of 2'-0" per panel.

3. Wall Panels:

a. Install wall panels on exterior side of wood framing with liner panels installed on building interior in locations shown on drawings.

b. Align bottoms of panels to proper coverage and fasten with manufacturer's recommended and supplied fasteners.

c. Cut and fasten flashing and trims with approved type fasteners.

d. Install all fasteners with power tool having adequate torque and proper r.p.m. adjusted to seat fastener without damage to heads, washers or panels.

e. Install panel sidelap away from prevailing wind or view direction when possible, maintaining proper lap without fastener dimpling or excessive overlap.

G. Accessories: Install gutters, downspouts, flashings, trim, ridge covers, roof curbs, pipe flashings, closure strips, roof jacks, and other accessories and sheet metal items in accordance with manufacturer's recommendations for positive attachment to building and provide a weathertight mounting.

H. Swing Doors and Frames: Install doors and frames straight, plumb, and level. Securely anchor frames to building structure. Set units with 1/8" maximum clearance between door and frame at jambs and head, and 3/4" maximum between door leaf and floor. Adjust for proper operation.

I. Louvers:

1. Install plumb and level, in compliance with requirements of final shop drawings. Anchor securely in final location with perimeter sealed with approved sealant used for trim and flash or roof panels. Adjust louver blades to operate smoothly and easily, without binding, and to be weathertight when in closed position.

J. Thermal Insulation:

1. Install in accordance with manufacturer's recommended procedure, performed concurrently with installation of wall and roof panels.

2. Roof and Wall Insulation: Install blankets straight and true. Fasten tabs together or lap and glue to provide complete vapor barrier. Place insulation with facing exposed to interior of building unless recommended otherwise.

3.2 PAINTING

A. Touch-up all abrasions, scratches, field welds or other damages in shop-primed or factory-finished painted surfaces consistent with shop primer or factory-finished painting.

B. Apply finish paint coats to factory-primed items.

1. Provide finish coats which are compatible with manufacturer's prime coat paints.

2. Provide approved type barrier coats over incompatible primers where required.

3. Notify owner in writing of anticipated problems using specified coatings with substrates primed by others.

4. All finish coats by others should be solvent base or approved by Star.

5. Protect hardware and accessories and similar items in place and not to be finish-painted.

6. Finish exterior swing doors on tops, bottoms and edges same as exterior faces, unless otherwise indicated.

3.3 TOLERANCES

A. All framing members shall be erected plumb, level or aligned not to exceed a deviation 1:300.

--- END OF SECTION 01010 ---

SECTION 06100

ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Wood Framing.
   2. Concealed blocking behind wall mounted items.
   3. Sheathing material.
   4. Wood treatment.
   5. Building paper.

B. Related Documents: The Contract Documents apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

C. Related Sections:
   1. Section 06175 - Wood Trusses: Roof trusses.

1.2 REFERENCES

A. American Lumber Standards Committee (ALSC):
   1. Softwood Lumber Standards.

B. American Plywood Association (APA):
   1. Grades and Standards.

C. American Society for Testing and Materials (ASTM):
   1. ASTM A307 - Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
   2. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.

D. American Wood Preservers Association(AWPA):
   1. AWPA - C1 - All Timber Products - Preservative Treatment by Pressure Process.
   2. AWPA - C15 - Wood for Commercial-Residential Construction Preservative Treatment by Pressure Processes.
   3. AWPA - C20 - Structural Lumber - Fire-Retardant Treatment by Pressure Processes.
   4. AWPA - C27 - Plywood - Fire-Retardant Treatment by Pressure Processes.
   5. AWPA - P5 - Water Borne Preservatives.

E. Underwriters' Laboratories, Inc. (UL):
   1. UL FR S - Fire Rated Treated Wood with Flame Spread and Smoke Developed Ratings of 25 or less in accordance with ASTM E84.
   2. UL 723 - Test for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Section 01330 - Submittal Procedures: Procedures for submittals.
   1. Assurance/Control Submittals:
      a. Certificates:
         1) Pressure Treated Wood: Certification from treating plant stating chemicals and process used and net amount of salts retained are in conformance with specified standards.
         2) Preservative Treated Wood: Certification for water-borne preservative that moisture content was reduced to 19 percent maximum, after treatment.
         3) Fire-Retardant Treated Wood: Certification from treating plant stating that fire-retardant treatment materials comply with governing code, ordinances and requirements of local authority having jurisdiction, and treatment will not bleed through finished surfaces.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with the following agencies:
   1. Lumber Grading Agency: Certified by ALSC.
   2. Plywood Grading Agency: Certified by APA.

B. Regulatory Requirements: Conform to applicable codes for fire-retardant treatment of wood surfaces for flame/smoke ratings.

1.5 DELIVERY, STORAGE AND HANDLING

A. Section 01600 - Material and Equipment: Transport, handle, store, and protect products.
   1. Inspect wood materials for conformance to specified grades, species, and treatment at time of delivery to Project Site.
   2. Reject and return unsatisfactory wood materials.

B. Provide facilities for handling and storage of materials to prevent damage to edges, ends and surfaces.

C. Keep materials dry. Stack materials off ground minimum 12 inches or, if on concrete slab-on-grade, minimum 1-1/2 inches, fully protected from weather. Provide for air circulation within and around stacks and under temporary coverings.

D. For materials pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Environmental Impact

   1. Formaldehyde: Products containing urea-formaldehyde will not be permitted.
   2. Wood pressure treatment products: Products containing chromium will not be permitted. Products containing arsenic will not be permitted.
   3. use exterior plywood only: Interior plywood is not permitted.

PART 2 PRODUCTS

2.1 LUMBER MATERIALS

A. Lumber, finished 4 sides, 15 percent maximum moisture content. Each piece of lumber to be factory marked with type, grade, mill and grading agency.
   1. Light framing: Construction grade Eastern Spruce, NELMA Grade #2 or better.
   2. Structural framing and timbers: No. 2 grade Douglas Fir, Southern Pine, or Spruce, appearance grade where exposed.
   3. Boards: Construction grade.

2.2 NAILERS, BLOCKING, FURRING AND SLEEPERS

A. Wood for nailers, blocking, furring and sleepers: Construction grade, finished 4 sides, 15 percent maximum moisture content. Pressure preservative treat items in contact with roofing, flashing, waterproofing, masonry, concrete or the ground.

2.3 SHEATHING MATERIALS

A. Plywood, APA rated for use and exposure:
   1. Exterior wall sheathing: APA C-D rated 32/16 Sheathing, 1/2 inch minimal thickness, exterior type.
   2. Roof sheathing: APA rated 48/24 sheathing, 3/4 inch minimum thickness, exterior type.
   3. Backing panels: APA C-D plugged interior with exterior glue, 3/4 inch thick.

2.4 BUILDING PAPER

A. 30# Asphalt-saturated felt, non-perforated.

2.5 FASTENERS

A. Fasteners: Provide manufacturers recommended power tools for each type of fastener.
   1. Bolts, Nuts, Washers, Lag Screws, and Wood Screws: ASTM A307, Medium carbon steel; size and type to suit application; galvanized for treated wood; plain finish for other interior locations, of size and type to suit application, unless otherwise noted.
   2. Expansion Shield Fasteners: For anchorage of non-structural items to solid masonry and concrete.
   3. Powder or Pneumatically Activated Fasteners: For anchorage of non-structural items to steel.
   4. Fasteners for Wood and Plywood (over 1/2 inch) to Light Gage Metal Framing and Metal Deck (up to 1/8 inch thick):
      a. Hilti PWH #3 with wings.
      b. ITW TEKS/4 with wings.
      c. Substitutions: Permitted
   5. Fasteners for Wood and Plywood (up to 2 inches thick) to Metal (from 1/8 inch to 1/4 inch thick):
      a. Hilti PFH #4 with wings.
      b. ITW TEKS/4 with wings.
      c. Substitutions: Permitted
   6. Fasteners for Non-Structural Wood Members to Masonry: 1/4 inch diameter x 3-1/4 inch with phillips flat head.
      a. Tapcon masonry anchors, by ITW Buildex.
      b. Kwik-Con II fastener, by Hilti.
      c. Substitutions: Permitted

2.6 WOOD TREATMENT

A. Preservative Pressure Treated Lumber:
   1. Manufacturers:
      a. "Wolmanized Pressure-Treated Wood", Wolman CCA Type C, by Hickson Corporation; Atlanta, GA; (404) 801-6600.
      b. CCA Pressure Treated Lumber Type C, by Hoover Treated Wood Products, Inc.; Thomson, GA; (800) 832-9663.
   2. Impregnate lumber with preservative treatment conforming to AWPA Standard C1 and P5. Apply the preservative in a closed cylinder by pressure process in accordance with AWPA Standard C15.
   3. Retention of dry salts:
      a. Moderate service conditions (weather exposure): 0.25 pounds per cubic foot (oxide basis).
      b. Severe conditions (constant contact with ground or water): 0.40 pounds per cubic foot (oxide basis).
   4. Remove excess moisture where shrinkage is a serious fault or where treated lumber will be in contact with plaster, or stucco, and where water-borne treated lumber is to be painted or stained.
   5. Lumber shall be dried to 15-19 percent moisture content after treatment, and material to be painted or stained shall have knots and pitch streaks sealed as with untreated wood.
   6. Liberally brush freshly cut surfaces, bolt holes and machined areas with the same preservative in accordance with AWPA Standard M4.

B. Fire Retardant Treatment:
   1. Manufacturers:
      a. "Dricon" by Hickson Corporation; Atlanta, GA; (404) 801-6600.
      b. "Pyro-Guard" by Hoover Treated Wood Products, Inc.; Thomson, GA; (800) 832-9663
   2. Lumber and plywood shall be treated as follows:
      a. Each piece of treated material shall bear the UL FR-S rating (flamespread and smoke developed less than 25) indicating compliance with an extended 30 minute tunnel test in accordance with ASTM E84 or UL 723.
      b. After treatment, all lumber shall be dried to an average moisture content of 19 percent or less.
      c. After treatment, all plywood, shall be dried to an average moisture content of 15 percent or less.
      d. All treated material shall meet interior Type A requirements in AWPA standard C-20 for lumber and C-27 for plywood.
      e. Chemicals used to treat material shall be free of halogens, sulfates, ammonium phosphate and formaldehyde.
      f. Treatment material shall provide protection against termites and fungal decay and shall be registered for use as a wood preservative by the U. S. Environmental Protection Agency.

C. Wood Requiring Treatment:
   1. Lumber, Preservative Treated: Nailers, blocking, stripping, and similar items in conjunction with roofing, flashing, and other construction. Sills, blocking, furring, stripping, and similar items in contact with masonry or concrete.
   2. Lumber, Fire Retardant Treated: Interior framing, furring, blocking, nailers, and miscellaneous exposed wood. Do not treat furring in contact with masonry or concrete.
   3. Interior Plywood, Fire Retardant Treated: Plywood backing for electrical and telephone equipment.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01700 - Execution Requirements: Verification of existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
   1. Verify that spacing, direction and details of supports are correct to accommodate installation of blocking, backing, stripping, furring and nailing strips.

C. Report in writing to City Representative prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the City of Portland.

3.2 INSTALLATION - FRAMING

A. Set structural members level and plumb, in correct position.

B. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.

C. Place horizontal members, crown side up.

D. Construct load bearing framing and curb members full length without splices.

E. Double members at openings as required. Space short studs over and under opening to stud spacing.

F. Construct double joist headers at ceiling openings and under wall stud partitions that are parallel to roof trusses. Frame rigidly into roof trusses.

G. Bridge roof trusses as specified in Section 06175. Fit solid bridging at ends of members.

H. Place full width continuous sill flashings under framed walls on cementitious foundations. Lap flashing joint 4 inches.

I. Place sill gasket directly on sill flashing. Puncture gasket clean and fit tight to protruding foundation anchor bolts.

J. Coordinate installation of wood decking and prefabricated wood trusses.

K. Install miscellaneous blocking, nailing strips and framing where required as backing for attachment of wall mounted fixtures, cabinetwork, and other items, and as detailed on Drawings. Coordinate to allow proper attachment of work of other Sections.
   1. Secure in place using fasteners specified. Use only recommended power tools for placement of fasteners.
   2. Recess heads of fasteners below surface of wood members.

L. Secure in place with appropriate fasteners. Use fasteners of correct size that will not penetrate members where opposite side will be exposed to view or require finishing. Do not split wood with fasteners; set panel products to allow expansion at joints.

M. Construct members of continuous pieces of longest possible lengths.

3.3 INSTALLATION - PLYWOOD

A. Secure roof sheathing with longer edge perpendicular to framing members and with ends staggered and sheet ends over bearing.

B. Use sheathing clips between sheets between roof framing members or provide solid edge blocking between sheets.

C. Secure wall sheathing with long dimension perpendicular to wall studs, with ends over firm bearing and staggered.

D. Install plywood in combination single and two span continuous.

E. Install telephone and electrical panel back boards with plywood sheathing material where required. Size the back board by 12 inches beyond size of electrical panel.

3.4 INSTALLATION - AIR INFILTRATION SEAL

A. Place material horizontally over wall sheathing, minimum 2 inch overlap and 6 inch endlap; weather lap edges and ends; fasten to sheathing with corrosion resistant fasteners.

3.5 SITE TREATMENT OF WOOD MATERIALS

A. Apply preservative treatment in accordance with manufacturer's published instructions.

B. Brush apply two coats of preservative treatment on wood in contact with cementitious materials and roofing and related metal flashings. Treat site-sawn cuts.

C. Allow preservative to dry prior to erecting members.

3.6 CONSTRUCTION

A. Site Tolerances:
   1. Framing Members: 1/4 inch from true position, maximum.

3.7 FIELD QUALITY CONTROL

A. Framing Inspection:
   1. Inspect wood framing installation and connections at completion of each phase of wood construction for correct installation, nailing, connections, and fasteners.
   2. Inspect and verify that types and spacing of fasteners are installed in locations specified or indicated on Drawings.
   3. Inspect types, locations, and fasteners for structural metal framing connectors.
   4. Inspect types, locations, and connections of hold-down anchors.
   5. Inspect wood to steel beam connections.

3.8 SCHEDULE - NAILING

	CONNECTION	NAILING
1.	Joist to sill or girder, toenail	3 - 8d
2.	Bridging to joist, toenail each end	2 - 8d
3.	Bottom Plate to joist or blocking, face nail	16d at 16 inches o.c.
4.	Top plate to stud, end nail	2-16d
5.	Stud to bottom plate	4-8d, toenail or 2-16d, end nail
6.	Double studs, face nail	16d at 24 inches o.c.
7.	Double top plates, face nail	16d at 16 inches o.c.
8.	Top plates, laps and intersections, face nail	2 - 16d
9.	Continuous header, two pieces	16d at 16 inches o.c. along each edge
10.	Ceiling joists to plate, toenail	3 - 8d
11.	Continuous header to stud, toenail	4 - 8d
12.	Ceiling joists, laps over partitions, face nail	3 - 16d
13.	Ceiling joists to parallel rafters, face nail	3 - 16d
14.	Rafter to plate, toenail	3 - 16d
15.	Built-up corner studs	16d at 24 inches o.c.
16	Built-up beams	20d at 32 inches o.c. at top and bottom staggered 2 - 20d at ends and at each splice

--- END OF SECTION 06100 ---

SECTION 06175

WOOD TRUSSES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Shop fabricated wood trusses for roof framing.
2. Bridging, bracing, and anchorage.
3. Wood treatment.

B. Related Documents: The Contract Documents, as defined in Section 01110 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

C. Related Sections:
1. Section 06100 - Rough Carpentry: Plywood roof decking and attachment to wood framed structure.

1.2 REFERENCES

A. American Lumber Standards Committee (ALSC):
1. ALSC - Softwood Lumber Standards.

B. American Society for Testing and Materials (ASTM):
1. ASTM A 446 - Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality.
2. ASTM A 591 - Specification for Steel Sheet, Cold-Rolled, Electrolytic Zinc-Coated.

C. Truss Plate Institute (TPI):
1. TPI BWT-76 - Bracing Wood Trusses.
2. TPI HET-80- Handling and Erecting Wood Trusses.
3. TPI PCT-85 - Metal Plate Connected Wood Trusses.
4. TPI QSP-88 - Metal Plate Connected Wood Trusses.

D. United States Department of Commerce Product Standard (PS):
1. PS 20 - American Softwood Lumber Standard.

1.3 DEFINITIONS

A. Delegated Engineer: A Professional Engineer Registered in the State where the Project is located who undertakes final design of the roof truss system.

1.4 SUBMITTALS

A. Submittal Procedures: Procedures for submittals.
1. Product Data: Metal plate connectors and metal framing connectors.
2. Shop Drawings: Indicate sizes and spacing of trusses and associated components, web and cord sizes, plate sizes, fastener descriptions and spacings, loads and truss cambers, lifting points, and framed openings. Include truss elevation showing chords, connection plates, bracing requirements and support conditions.
   a. Drawings signed and sealed by Professional Engineer licensed in State where Project is located.

3. Assurance/Control Submittals:
   a. Design Data: Design calculations.
      1) Calculations signed and sealed by Professional Engineer licensed in State where Project is located
   b. Inspection Report: Submit the following reports directly to Contracting Officer form Delegated Engineer, with copy to Contractor. Prepare reports in conformance with Section 01450 - Quality Control.
      1) Preparatory.
      2. Initial.
   c. Certificate: Fabricator certificate indicating that Products meet or exceed specified requirements.
   d. Qualification Documentation: Truss fabricator documentation of experience indicating compliance with specified qualification requirements.

1.5 QUALITY ASSURANCE

A. Fabricator Experience: Company specializing in manufacture of prefabricated open web wood trusses with three years minimum experience.

B. Regulatory Requirements: Conform to applicable local code for loads, seismic zoning, other governing load criteria, and fire retardant requirements.

C. Truss Design, Fabrication, and Installation: In accordance with Truss Plate Institute BWT-76, HET-80, and TPI-85 including Supplement QSP-88.

D. Lumber Grading Agency: Certified by ALSC.

E. Design trusses under direct supervision of Professional Structural Engineer experienced in design of this Work and licensed in State where Project is located.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01600 - Product Requirements: Transport, handle, store, and protect Products.

B. Handle and erect trusses in accordance with TPI HET-80.

C. Transport and store trusses in vertical position resting on bearing ends.

D. Protect trusses from moisture, warpage, and distortion during transit and when stored. Stack materials off ground a minimum of 12 inches or concrete slab-on-grade a minimum of 1-1/2 inches on level, flat forms.

E. Do not erect members until preparations to receive are completed including installation of miscellaneous metal and connecting hardware.

PART 2 PRODUCTS

2.1 MATERIALS

A. Lumber: PS 20; S4S.
   1. Non-Structural Framing (2 inches to 4 inches thick, 2 inches to 4 inches wide): Construction Grade, any species available in grade; maximum moisture content of 19 percent.
   2. Trusses: Douglas Fir, Hem-Fir graded by WWPA or WCLIB; Western Larch graded by WWPA or WCLIB; Southern Pine graded by SPIB. Provide trusses all of the same species. Any grade of lumber fulfilling requirements indicated for species and stress ratings. Maximum moisture content of 19 percent for 2x at time of dressing.

B. Fasteners: Galvanized for exterior, high humidity, treated wood locations; plain finish elsewhere; size and type to suit condition.

C. Connector Plate Material: Steel complying with following requirements unless otherwise indicated; not less than 0.036 inch galvanized, coated thickness.
   1. Truss Connection Plates: Conform to TPI standards.
   2. Galvanized sheet steel: ASTM A 446, Grade A, Coating G60.
   3. Electrolytic Zinc Coated Steel Sheet: ASTM A 591, Coating Class C, with minimum structural quality equivalent to ASTM A 446, Grade A.

D. Truss Bridging: Type, size, and spacing recommended by truss manufacturer.

2.2 FABRICATION

A. Fabricate trusses to achieve structural requirements specified.

B. Brace wood trusses for support in accordance with TPI BWT-76.

C. Cut truss members to accurate lengths, angles, and sizes to produce close fitting joints with wood-to-wood bearing in assembled units.

D. Fabricate metal connector plates to size, configuration, thickness, and anchorage details required for types of joint design indicated.

E. Assemble truss members in design configuration indicated using jigs or other means to ensure uniformity and accuracy of assembly with close fitting joints. Position members to produce design camber indicated. Provide camber in accordance with TPI standards.

F. Connect truss members by means of metal connector plates accurately located and securely fastened to wood members by approved fasteners.

2.3 WOOD TREATMENT

A. Wood Preservative (Pressure Treatment): AWPA Treatment C2 using water borne preservative with 0.25 percent retainage. Non-corrosive to connector plates.

B. Fire Retardant: AWPA Treatment C20, Interior Type, chemically treated and pressure impregnated; capable of providing a maximum flame spread.

PART 3 EXECUTION

3.1 INSPECTION

A. Section 01700 - Execution Requirements: Verification of existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
   1. Verify that supports and openings are ready to receive trusses.
   2. Verify sufficient end bearing area.
   3. Verify and coordinate placement of bearing support items.

C. Report in writing to Contracting Officer prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the City of Portland.

3.2 ERECTION

A. Install trusses in accordance with manufacturer's instructions, and TPI BWT-76, at spacing indicated on Drawings.

B. Set members level and plumb, in correct position.

C. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure plumb, and in true alignment until completion of erection and installation of permanent bracing.

D. Place permanent bridging, bracing, and anchors to maintain trusses straight and in correct position before inducing loads.

E. Do not field cut trusses.

F. Place headers and supports to frame openings required.

G. Frame openings between trusses with lumber.

H. Coordinate placement of roof decking with work of this Section.

3.3 CONSTRUCTION

A. Site Tolerances:
1. Framing Members: 1/2 inch maximum from true position.

3.4 FIELD QUALITY CONTROL

A. Field Inspection:
1. Delegated Engineer: Perform two inspections at Project Site.
   a) Inspect building structure ready to receive roof truss erection just prior to start of roof truss erection.
   b) Inspect at time roof trusses are being erected.

B. Inspect roof truss installation, alignment, blocking and bridging, and connection to structure.

--- END OF SECTION 06175 ---

SECTION 07610

SHEET METAL ROOFING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. This section covers the metal roof system and includes the panels, panel clips, flashing, panel splices, ridge material, fascias, gutter and downspouts, and all necessary fasteners for the above. Not included are the structural roof supports.

B. Related Documents: The Contract Documents apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

1.2 SUBMITTALS

A. Section 01330 - Submittal Procedures: Procedures for submittals.
   1. Product Data:
      a. Product data including manufacturer's product specifications, standard details, certified product test results, installation instructions, and general recommendations, as applicable to materials and finishes for each component and for total panel system.
   2. Shop Drawings:
      a. Submit erection/shop drawings for each product specified showing all erection procedures and accessories required. Field measure and verify dimensions prior to fabrication of metal roofing.
   3. Samples:
      a. Samples for initial selection purposes in form of manufacturer's color charts or chips showing full range of colors, textures, and patterns available for roof and wall panels with factory-applied finishes.
      b. Samples for verification purposes of roof panels. Provide sample panels 12 inches long by actual panel width, in the profile, style, color, and texture indicated. Include clips, battens, fasteners, closures, and other panel accessories.
   4. Assurance/Control Submittals:
      a. Certificates: Manufacturer's certificate that Products meet or exceed specified requirements.
      b. Qualification Documentation: Submit documentation of experience indicating compliance with specified qualification requirements.

B. Closeout Submittals: Procedures for closeout submittals.
   1. Special Warranty: Submit written special warranty with forms completed in owner's name and registered with manufacturer as specified in this Section.

1.3 QUALITY ASSURANCE

A. Qualifications:
   1. Manufacturer: Company specializing in manufacturing Products specified with minimum 5 years documented experience.
   2. Installer: Company specializing in performing the Work of this Section with minimum 5 years documented experience.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Product Requirements: Transport, handle, store, and protect Products.

B. Deliver panels and other components so they will not be damaged or deformed. Package roof panels for protection against transportation damage.

C. Handling: Exercise care in unloading, storing, and erecting roof covering panels to prevent bending, warping, twisting, and surface damage.

D. Stack materials on platforms or pallets, covered with tarpaulins or other suitable weathertight ventilated covering. Store metal roof panels so that they will not accumulate water. Do not store panels in contact with other materials that might cause staining, denting, or other surface damage.

1.5 WARRANTY

A. Special Warranty:
1. Manufacturer shall warrant to correct defects in paint finish for 20 years following Substantial Completion.
2. Installer shall warrant to correct defects in material and workmanship for two years following Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with project requirements, manufacturer's offering Products which may be incorporated in the Work include the following:
A. Nucor Building Products, St. Joe, IN.
B. Overly Manufacturing Company, Fallbrook, CA.
C. H. H. Robertson Company, Pittsburgh, PA.
D. Metal Sales Manufacturing Corporation, Denver, CO.
E. Star Manufacturing Company, Oklahoma City, OK.
F. GenTek Building Products, Inc.

2.2 MATERIALS

A. Panel:
1. The panels shall be manufactured from 24 gauge, 0.5 oz./sq ft Galvalume steel strip having a minimum yield of 50,000 psi.
2. The panel ends shall be factory punched and notched at splice and ridge locations.
3. The panel side laps shall have factory-applied mastic.
4. Panels shall have a UL Class 90 Uplift Rating.

B. Panel Splice:
1. The panel splice shall have a 16 gauge steel back-up plate and an 11 gauge aluminum cinch strap so that when assembled the mastic used in the splice will be under constant compression.
2. The back-up place and cinch strap shall be factory punched to ensure proper fit.

C. Floating Panel Clip:
   1. The floating panel clips shall be self-centering and allow for up to 2-7/16" expansion and/or contraction from the installed position. The clip design shall ensure that movement does not occur between the panel and the clip.
   2. The floating panel clip shall have factory-applied mastic to ensure a weathertight installation.
   3. Each clip shall be attached to the supporting joist and purlin with 2 fasteners, the size and type as recommended by the panel manufacturer.

D. Trim and Flashing:
   1. Gable, eave and parapet wall flashing details will be detailed, designed, and supplied by the panel manufacturer.
   2. High eave flashing and flashing parallel to the roof panels must accommodate the thermal expansion and contraction of the roof without damage to the roof panels or flashing.
   3. All exposed soffit, fascia, trim and flashing material shall be manufactured from galvanized steel strip and shall have a full strength fluropolymer (containing a minimum of 70 percent% Kynar 500 resin) system of 1.0 ÷ .1 mil total dry film thickness. On the reverse side, a white wash coat of 0.3 to 0.4 mil dry film thickness is applied.
   4. Flexible membranes, where required, shall be supplied by the panel manufacturer.

E. Bird Nesting:
   1. Projections of structural framing creating bird nesting areas shall be framed out with sheet metal closures, with all fluted deck flutes sealed off with rubber closure inserts.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01700 - Execution Requirements: Verification of existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
   1. Examine alignment of the steel structure and related supports prior to installation and do not proceed until any defects are corrected.

C. Report in writing to City Representative prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the City of Portland.

3.2 PREPARATION

A. Examine the alignment of the steel structure before installing any roof panels, and do not proceed with installation if the steel structure is not aligned to the tolerances necessary.

B. Erection of the metal roofing panels must be started correctly and the sheets held true to line. Horizontal lines are to be straight and level and vertical lines plumb.

3.3 DISSIMILAR MATERIALS

A. Where aluminum materials come in contact with dissimilar metals, an insulating paint or tape shall be applied between the aluminum and the dissimilar metal.

3.4 CLEANING AND PROTECTION

A. Damaged Units: Replace panels and other components of the work that have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.

B. Cleaning: Remove temporary protective coverings and strippable films (if any) as soon as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction.

--- END OF SECTION 07610 ---

SUPPLEMENTAL SPECIFICATIONS
SECTION 502
STRUCTURAL CONCRETE

The provisions of Section 502 of the State of Maine Department of Transportation Standard Specifications - Highways and Bridges – Revision of April 1995 shall apply with the following additions and modifications:

502.01 PART 1 - GENERAL

1.1 GENERAL

A. The Contractor shall furnish all tools, construction equipment, plant, labor, skill, supervision, materials, and perform all operations necessary for properly completed concrete work.

B. Related work:

1. Documents affecting work of this Section include, but are not necessarily limited to General Conditions, Supplementary Conditions, and Sections of these Specifications.

1.2 QUALITY ASSURANCE

A. 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 the proper performance of the work of this Section.

B. Comply with all local, state, and federal regulations concerning concreting.

C. Reference Standards

1. American Society for Testing and Materials (ASTM)

a. C33-78, Concrete Aggregates.
b. C94-78, Ready-Mixed Concrete.
c. C150-78, Portland Cement.
d. C171-69, Sheet Materials for Curing Concrete.
e. C260-77, Air-Entraining Admixtures for Concrete.
f. C309-74, Liquid Membrane-Forming Compounds for Curing Concrete.
g. C494-79, Chemical Admixtures for Concrete.
h. C618-78, Fly Ash and Raw or Calcined Natural Pozzolans for Use in Portland Cement Concrete.
i. D98-77, Calcium Chloride.
j. C231-78, Test for Air Content in Freshly Mixed Concrete by the Pressure Method.
k. E329-77, Recommended Practices for Inspection and Testing Agencies.
l. C31-69, Making and Curing Concrete Test Specimens in the Field.
m. C39-72, Test for Compressive Strength of Cylindrical Concrete Specimens.
n. C42-77, Obtaining and Testing Drilled Cores and Saw Beams of Concrete.

2. American Concrete Institute (ACI)

a. 318- , Building Code Requirements for Reinforced Concrete.
b. 301- , Specifications for Structural Concrete for Buildings.
c. 613- , Recommended Practice for Selecting Proportions for Concrete.
d. 614- , Recommended Practice for Hot Weather Concreting.
e. 306- , Recommended Practice for Cold Weather Concreting.
f. 347- , Recommended Practice of Concrete Formwork.
g. - , Guide for Use of Epoxy Compounds with Concrete.
h. 214- , Recommended Practice for Evaluation of Field Concrete.

i. 315- , Manual of Standard Practice for Detailing Reinforced Concrete Structures.

C. Allowable Tolerances: Flatwork true to plane: 1/8 inch in 10 feet.

1.3 SUBMITTALS

A. Design Mixes: Submit to Engineer.

B. Certificates:

1. Manufacturer's certification that materials meet Specification requirements.
2. Material content per cubic yard (cubic meter) of each class of concrete furnished.
    a. Dry weights of cement.
    b. Saturated surface-dried weighted of fine and coarse aggregate.
    c. Quantities, type, and name of admixtures.
    d. Weight of water.
3. Ready-mix delivery tickets, ASTM C 94.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, where applicable, in manufacturer's sealed packaging.

B. Store, at batch plant on site, in manner that will prevent deterioration and contamination.

C. Cement: Store in weather tight enclosures and protect against dampness, contamination, and warehouse set.

D. Aggregates:

1. Stock pile to prevent excessive segregation or contamination with other materials or other sizes of aggregates.

2. Use only one supply source for each aggregate stock pile.

E. Admixtures:

1. Store to prevent contamination, evaporation, or damage.

2. Protect liquid admixtures from freezing or harmful temperature changes.

3. Agitate emulsions prior to use.

1.5 JOB CONDITIONS

A. Allowable Concrete Temperatures:

1. Cold weather: Maximum and minimum ASTM C 94.

2. Hot weather: Maximum 90o F (37o C).

B. Do not place concrete during rain, sleet, or snow unless protection is provided.

1.6 TESTING

A. By Certified Concrete Technician in commercial laboratory.

B. Standards: ASTM F 329, C 31, C 39.

C. Preliminary Tests

1. Contractor shall furnish copies of test results from concrete supplier on all aggregates and on all mix design proportions for concrete of strengths specified herein.

2. Tests required by changes of materials or mix proportions shall be at the expense of the Contractor.

D. Concrete Tests - The Contractor shall be responsible and pay all costs for providing test cylinders, making and transporting cylinders to laboratory, slump tests, and air content tests. The Owner shall select the testing laboratory and pay the cost of laboratory services for breaking the test cylinders.

1. Four (4) standard test cylinders made and cured per applicable standard will be produced for each fifty (50) cubic yards or fraction thereof of each type of concrete placed in any one day.

2. One (1) cylinder will be compression tested after 7 days and two (2) cylinders after 28 days. The need for breaking the remaining cylinder will be determined by testing laboratory and the Engineer.

3. Tests for slump will be made at place of deposit.

4. Test for air content will be made in accordance with ASTM C231.

5. Additional tests necessary to resolve disputes will be made by Certified Concrete Technicians from commercial laboratories.

502.03 PART 2 - PRODUCTS

2.1 MATERIALS

A. Concrete: Equivalent to ready-mixed concrete ASTM C94.

1. Cement: ASTM C 150, Type II.
2. Admixtures:
   a. Air entraining: ASTM C 260.
   b. Chemical: ASTM C 494. If approved by Engineer.
   c. Fly ash and pozzolans: ASTM C 618. None allowed.
   d. Calcium chloride: ASTM D 98. None allowed.

3. Aggregate: ASTM C 33.

4. Water: Potable.

5. Mix proportioning

a. Strength-28 days (7 days for high early strength)

(1) 4,000 psi at 28 days

b. Maximum Size Coarse Aggregates

(1) Footings; foundations	1-1/2 inch
(2) Slabs on grade	1 inch
(3) Elevated Slabs; walls; beams	-3/4 inch

c. Air Content

(1) 5% plus or minus 1.5%

d. Slump

(1) 2-4 inches

B. Curing Material

1. Sheet Materials: ASTM C171.
2. Liquid Membrane: ASTM C309.
3. Horncure 30C or 30D by Dewey & Almy; Demicon by Castle Chemical; or equal.

C. Grout

1. Pre-mixed, non-shrink.

2.2 MIXES

A. Equivalent to ASTM C 94.

B. Mix concrete only in quantities for immediate use.

C. Do not retemper or use set concrete.

502.05 PART 3 - EXECUTION

3.1 INSPECTION

A. Assure that excavations and formwork are completed and that ice and excess water are removed; remove all debris.

B. Check that reinforcement is secured in place.

C. Verify that expansion joint material, anchors, and other embedded items are secured in position.

D. Notify Engineer 24 hours in advance of all placements.

E. Place no concrete until Engineer has opportunity to inspect reinforcing, castings, inserts, embedded items, etc.

3.2 INSTALLATION

A. Comply with ACI 614.

B. Placing Concrete:

1. Convey concrete from mixer to final position by method which will prevent separation or loss of material.

2. Maximum height of concrete free fall: 3 feet.

3. Regulate rate of placement so concrete remains plastic and flows into position.

4. Deposit concrete in continuous operation until panel or section is completed.

5. Place concrete in horizontal layers 12 inches maximum thickness.

C. Consolidating Concrete:

1. Use mechanical vibrating equipment for consolidation.

2. Vertically insert and remove hand-held vibrators at points 18 inches to 30 inches apart.

3. Do not use vibrators to transport concrete in forms.

4. Minimum vibrator speed 8000 rpm.

5. Vibrate concrete minimum amount required for consolidation.

D. Construction Joints:

1. Clean and roughen surface of concrete, and remove laitance.
2. Wet concrete surface and install waterstop before placing additional concrete.

E. Finishing:

1. Formed concrete:

a. Tops of forms:

(1) Strike concrete smooth at tops of forms.
(2) Float to texture comparable to formed surfaces.

b. Formed surfaces:

(1) As-cast finish.
(2) Patch tie holes and defects after form removal.
(3) Remove fins from surfaces.

2. Flatwork:

a. General:

(1) Strike and level concrete.
(2) Do not work surface until ready for floating.
(3) Power float surface on disappearance of water sheen.
(4) Hand float areas inaccessible to power float.

F. Curing:

1. Keep concrete moist.
2. Maintain concrete between 50 degrees F and 70 degrees F while curing.

3. Continue curing for 7 days.
4. Cold weather curing: ACI 306.
5. Hot weather curing: ACI 305.

3.3 PROTECTION OF COMPLETED WORK: During curing period, protect concrete from damaging mechanical disturbances, water flow, shock, and vibration.

3.4 DEFECTIVE CONCRETE

A. Defective concrete, improperly formed, out of alignment or level, or below minimum strength, shall be replaced, additionally cured, or additionally strengthened as required.

B. Slight imperfections may be patched.

1. Match mix proportions to adjacent construction.
2: Finish and cure as specified for concrete.

C. Holes left by withdrawal of rods or end ties: fill with epoxy bonding compound.

3.5 GROUTING

A. Use under machinery mounts, around anchor bolts and dowels, etc.

B. Placed as directed by manufacturer; avoid air pockets.

3.6 ACCEPTANCE

A. Evaluation

1. Strength: Strength of concrete shall be considered if the average of any three and three consecutive strength tests of the laboratory cured specimens representing each strength of concrete is equal to or greater than the specified strength and if not more than 10 percent of the strength tests have values less than the specified.

2. Additional Tests:

a. Impact hammers, sonoscopes, or other nondestructive testing devices may be used, if approved, to determine relative strengths of various areas of the structure as an aid in evaluating concrete strength in place or in determining locations of areas to be cored. Test results so obtained, unless properly calibrated and correlated with other test data, shall not be used as a basis for acceptance or rejection.

b. When required, core tests shall be conducted in accordance with ASTM C42. Cores shall be tested saturated, surface-dry if the concrete they represent will be wet at any time during use of the completed structure. Cores shall be tested air-dry if the concrete they represent will be dry at all times during use of the completed structure. The laboratory report shall state whether the cores were tested saturated-surface-dry or surface-dry.

c. At least three cores shall be taken from each potentially deficient area. Locations will be determined by the Engineer. Damaged cores may be replaced.

d. Strength of cores from concrete from each member or area shall be considered satisfactory if their average is equal to or greater than 90 percent of the specified strength.

e. Core holes shall be plugged solid with 2:1 grout.

B. Acceptance

1. Work which meets all applicable requirements will be accepted without qualification.

2. Work which fails to meet one or more requirements but which has been repaired to bring it into compliance will be accepted without qualification.

3. Work which fails to meet one or more requirements and which cannot be brought into compliance may be accepted or rejected as determined by the Engineer.

4. Concrete failing to meet the strength requirements of this Section, additional curing as specified by the Engineer may be required. Modifications may be required in the concrete mix design for the remaining concrete work, at the expense of the contractor.

5. Formed surfaces larger or smaller than dimensional tolerances specified in ACI 301 may be rejected. If permission is given to correct the error, such correction shall be as directed and in such a manner as to maintain the strength, function, and appearance of the structure.

6. Concrete members cast in the wrong location may be rejected if the strength, appearance, or function of the structure is adversely affected.

7. Inaccurately formed surfaces exposed to view may be rejected and shall be repaired or removed and replaced if required.

8. Finished flatwork exceeding specified tolerances may be repaired by grinding high spots or patching low spots with an approved epoxy grout.

9. Concrete exposed to view with defects which adversely affect the appearance of the specified finish may be repaired, if possible. If, in the opinion of the Engineer, the defects cannot be repaired, the concrete may be accepted or rejected in accordance with the decision of the Engineer.

C. Strength of Structure

1. The strength of the structure in place will be considered potentially deficient if it fails to comply with any requirements which control the strength of the structure, as outlined below:

a. Low concrete strength as evaluated by the requirements of this Section.

b. Reinforcing steel size, quantity, strength position, or arrangement at variance with the project drawings.

c. Concrete which differs from the required dimensions or locations in such a manner as to reduce the strength.

3.8 CONCRETE SURFACE PREPARATION

A. Metal Removal: Unnecessary miscellaneous metal items, including nails embedded in concrete, shall be cut back flush with face of concrete members.

B. Patching: Start patching as soon as forms are removed. Do not apply curing compounds to concrete surfaces that require patching until patching is finished. Cement mortar for patching shall be same composition as that used in concrete (except that white Portland cement shall be substituted for gray as necessary to obtain required color and coarse aggregate shall be omitted) and shall have a finish color matching surrounding concrete. Thoroughly clean areas to be patched. Cut out honeycombed or otherwise defective areas to solid concrete or to a depth of not less than one inch. Edges of cut shall be perpendicular to surface of concrete. Area to be patched and at least six inches surrounding shall be saturated with water before placing patching mortar. Give area to be patched a brush coat of cement grout followed immediately by patching mortar. Mix patching mortar approximately one hour before placing and remix it occasionally during this period without addition of water. Compact mortar into place and screed slightly higher than surrounding surface. After initial shrinkage has occurred, patches on exposed surfaces shall be finished to match color and texture of adjoining surfaces. Cure patches as specified for other concrete. Form tie holes extending entirely through walls shall be filled form unexposed face by means of a pressure gun or other suitable device to force mortar through wall. Wipe excess mortar off exposed face with a cloth.

C. Cleaning: Thoroughly wet and immediately scrub with a 5 to 10 percent solution of commercial muriatic acid, using still bristle brushes, all interior and exterior vertical and overhead surfaces of concrete that are to be painted or exposed. Immediately after cleaning, wash off all traces of acid with clean water. In lieu of cleaning with muriatic acid, a light sand blasting may be used.

3.9 CONCRETE FINISHES

A. Vertical and Overhead Surface Finishes

1. Unfinished Areas: Vertical and overhead concrete surfaces exposed to areas shall be finished as specified under "Patching."

B. Slab Finishes

1. Slab shall be finished monolithically. Strike off and screed slab to true surface at required elevations and, as soon as surface water has disappeared, thoroughly compact concrete with floats or tampers to force coarse aggregate below surface. Finish slab on same day that concrete is placed.

2. Floating: Water brought to surface by float used for rough finishing shall be allowed to evaporate before surface is again floated or troweled. Sprinkling dry cement on surface to absorb water is prohibited.

3. Float Finish: 8" Structural Slab (including 8" concrete sidewalk over the proposed fuel tank) shall be screeded and floated to a smooth dense finish. Finish to true, even lines and surfaces, and leave free from defects and suitable for subsequent construction requirements.

4. Sidewalk: Use finishing consistent with adjacent City of Portland Sidewalk Sections.

--- END OF SECTION 502 ---