



# *Housing Authority of the City of Perth Amboy*

881 AMBOY AVENUE, P.O. BOX 390, PERTH AMBOY, NJ 08862  
TELEPHONE: (732) 826-3110  
FAX: (732) 826-3111

EDNA DOROTHY CARTY-DANIEL, Chairperson  
DAVID BENYOLA, Vice-Chairperson  
MIGUEL A. AROCHO  
SHIRLEY JONES  
JOHN C. ANAGNOSTIS  
PASTOR BERNADETTE FALCON-LOPEZ  
REVEREND GREGORY PABON

DOUGLAS G. DZEMA, P.H.M.  
Executive Director

EDWARDTESTINO  
Counsel

## **Administration Parking Lot Renovations ADDENDUM #1**

**September 23, 2020**

Please be advised that Addendum #1 has been issued. The Addendum includes the following:

1. Technical Specifications: The technical specifications were not included in the original contract documents and are attached to this addendum (77 pages).
2. An additional pre-bid meeting has been scheduled for October 14, 2020 at 9:30 a.m.
3. The bid opening has been postponed to November 5, 2020 at 2:00 p.m.
4. Bidders must acknowledge receipt of this Addendum #1 dated September 23, 2020 on the "Acknowledgement of Receipt of Addenda" form included in the original specifications.

### **END OF ADDENDUM**

All questions must be submitted in writing to [dsabey@PerthAmboyHA.org](mailto:dsabey@PerthAmboyHA.org) and [lgmestres@gmail.com](mailto:lgmestres@gmail.com)

Thank you.

# TECHNICAL SPECIFICATIONS

THE FOLLOWING DIVISIONS CONTAIN DETAILED DESCRIPTIONS OF THE TECHNICAL REQUIREMENTS OF THE WORK. TOGETHER WITH THE DRAWINGS, THEY FORM THE BASIS OF THE TECHNICAL DETAILED DESCRIPTIONS OF THE WORK.

ARCHITECT

**HABITECH ARCHITECTURE, LLC.**

Architecture B Building Systems B Planning

12 PINECREST DRIVE

MEDFORD, NEW JERSEY 08055

(609) 413 - 2566

## SECTION 01045

### CUTTING AND PATCHING

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section establishes general requirements pertaining to cutting (including excavating), fitting, patching of the Work required to:
  - 1. Make the several parts fit properly;
  - 2. Uncover work to provide for installing, inspecting, or both, of ill-timed work;
  - 3. Remove and replace work not conforming to requirements of the Contract Documents; and
  - 4. Remove and replace defective work.
  
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. In addition to other requirements specified, upon the Architect's request uncover work to provide for inspection by the Architect of covered work, and remove samples of installed materials for testing.
  - 3. Do not cut or alter work performed under separate contracts without the Architect's written permission.

##### 1.2 SUBMITTALS

- A. Request for Architect's consent:
  - 1. Prior to cutting which effects structural safety, submit written request to the Architect for permission to proceed with cutting.
  - 2. Should conditions of the Work, or schedule, indicate a required change of materials or methods for cutting and patching, so notify the Architect and secure his written permission and the required Change Order prior to proceeding.
  
- B. Notices to the Architect:
  - 1. Prior to cutting and patching performed pursuant to the Architect's instructions, submit cost estimate to the Architect. Secure the Architect's approval of cost estimates and type of reimbursement before proceeding with cutting and patching.
  - 2. Submit written notice to the Architect designating the time the Work will be uncovered, to provide for the

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Architect's observation.

### 1.3 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 proper performance of the work of this Section.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. For replacement of items removed, use materials complying with pertinent Sections of these Specifications.

### 2.2 PAYMENT FOR COSTS

- A. The owner will reimburse the Contractor for cutting and patching performed pursuant to a written Change Order, after claim for such reimbursement is submitted by the Contractor. Perform other cutting and patching needed to comply with the Contract Documents at no additional cost to the Owner.

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Inspection:
  - 1. Inspect existing conditions, including elements subject to movement or damage during cutting, excavating, patching, and back filling.
  - 2. After uncovering the work, inspect conditions effecting installation of new work.
- B. Discrepancies:
  - 1. If uncovered conditions are not as anticipated, immediately notify the Architect and secure needed directions.
  - 2. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 PREPARATION PRIOR TO CUTTING

- A. Provide required protection including, but not necessarily limited to, shoring, bracing, and support to maintain structural integrity of the Work.

### 3.3 PERFORMANCE

- A. Perform required excavating and back filling as required under pertinent other Sections of these Specifications.
  - 1. Perform cutting and demolition by methods which will prevent damage to other portions of the Work and provide proper surfaces to receive installation of repair and new work.
  - 2. Perform fitting and adjusting of products to provide finished installation complying with the specified tolerances and finishes.

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work included: To enable orderly review during progress of the Work, and to provide for systematic discussion of problems, the Architect will conduct project meetings throughout the construction period.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. The Contractor's relations with his subcontractors and materials suppliers, and discussions relative thereto, are the Contractor's responsibility and normally are not part of project meetings' content.

1.2 SUBMITTALS

- A. Agenda items: To the maximum extent practicable, advise the Architect at least 24 hours in advance of project meetings regarding items to be added to the agenda.
- B. Minutes:
  - 1. The Architect will compile minutes of each project meeting, and will furnish three copies to the Contractor and required copies to the Owner.
  - 2. Recipients of copies may make and distribute such other copies as they wish.

1.3 QUALITY ASSURANCE

- A. For those persons designated by the Contractor to attend and participate in project meetings, provide required authority to commit the Contractor to solutions agreed upon in the project meetings.

PART 2 - PRODUCTS

(No products are required in this Section)

PART 3 - EXECUTION

3.1 MEETING SCHEDULE

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- A. Except as noted below for Preconstruction Meeting, project meetings will be held bi-weekly.
- B. Coordinate as necessary to establish mutually acceptable schedule for meetings.

### 3.2 MEETING LOCATION

- A. The Architect will establish the meeting location. To the maximum extent practicable, meetings will be held at the job site.

### 3.3 PRECONSTRUCTION MEETING

- A. Preconstruction Meeting will be scheduled to be held within 7 working days after the Owner has issued the Notice to Proceed.
  - 1. Provide attendance by authorized representatives of the Contractor and major subcontractors.
  - 2. The Architect will advise other interested parties, including the Owner, and request their attendance.
- B. Minimum agenda: Data will be distributed and discussed on at least the following items.
  - 1. Organizational arrangement of Contractor's forces and personnel, and those of subcontractor's, materials suppliers, and Architect.
  - 2. Channels and procedures for communication.
  - 3. Construction schedule, including sequence of critical work.
  - 4. Contract Documents, including distribution of required copies of original Documents and revisions.
  - 5. Processing of Shop Drawings and other data submitted to the Architect for review.
  - 6. Processing of Bulletins, field decisions, and Change Orders.
  - 7. Rules and regulations governing performance of the Work; and
  - 8. Procedures for safety and first aid, security, quality control, housekeeping, and related matters.

### 3.4 PROJECT MEETINGS

- A. Attendance:
  - 1. To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings throughout progress of the Work.
  - 2. Subcontractor's, materials suppliers, and others may be invited to attend those project meetings in which

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their aspect of the Work is involved.

B. Minimum agenda:

1. Review, revise as necessary, and approve minutes of previous meetings.
2. Review progress of the Work since last meeting, including status of submittals for approval.
3. Identify problems which impede planned progress.
4. Develop corrective measures and procedures to regain planned schedule.
5. Complete other current business.

C. Revisions to minutes:

1. Unless published minutes are challenged in writing prior to the next regularly scheduled progress meeting, they will be accepted as properly stating the activities and decisions of the meeting.
2. Persons challenging published minutes shall reproduce and distribute copies of the challenge to all indicated recipients of the particular set of minutes.
3. Challenge to minutes shall be settled as priority portion of "old business" at the next regularly scheduled meeting.

END OF SECTION



SECTION 01370

SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide a detailed breakdown of the agreed Contract Sum showing values allocated to each of the various parts of the Work, as specified herein and in other provisions of the Contract Documents.
- B. Related work:
  - 1. Documents affecting work of the Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Preparation and submittal of a schedule of values is required by the General Conditions.
  - 3. Schedule of values is required to be compatible with the "continuation sheet" accompanying applications for payment, as described in Section 01027.

1.2 SUBMITTALS

- A. Prior to first application for payment, submit a proposed schedule of values to the Architect.
  - 1. Meet with the Architect and determine additional data, if any, required to be submitted.
  - 2. Secure the Architect's approval of the schedule of values prior to submitting first application for payment.

1.3 QUALITY ASSURANCE

- A. Use required means to assure arithmetical accuracy of the sums described.
- B. When so required by the Architect, provide copies of the subcontracts or other data acceptable to the Architect, substantiating the sums described.

END OF SECTION

## SECTION 01500

### CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section describes construction facilities and temporary controls required for the Work.
- B. Related work:
  - 1. Documents affecting work of the Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Except that equipment furnished by subcontractors shall comply with requirements of pertinent safety regulations, such equipment normally furnished by the individual trades in execution of their own portions of the Work are not part of this Section.
  - 3. Permanent installation and hookup of the various utility lines are described in other Sections.

##### 1.2 REQUIREMENTS

- A. Provide construction facilities and temporary controls needed for the Work including, but not necessarily limited to:
  - 1. Temporary utilities such as heat, water, electricity, and telephone;
  - 2. Field office for the Contractor's personnel;
  - 3. Sanitary facilities;
  - 4. Enclosures such as tarpaulins, barricades, and canopies;
  - 5. Temporary fencing of the construction site;
  - 6. Project sign.

##### 1.3 DELIVERY, STORAGE, AND HANDLING

- A. Maintain temporary facilities and controls in proper and safe condition throughout progress of the Work.

#### PART 2 - PRODUCTS

##### 2.1 UTILITIES

- A. Water:
  - 1. Provide necessary temporary piping and water supply and, upon completion of the Work, remove such

temporary facilities.

2. Provide and pay for water used in construction.

B. Electricity

1. Provide necessary temporary wiring and, upon completion of the Work, remove such temporary facility.

2. Provide area distribution boxes so located that the individual trades may furnish and use 100 ft maximum length extension cords to obtain power and lighting at points where needed for work, inspection, and safety.

3. Provide and pay for electricity used in construction.

C. Heating: Provide and maintain heat necessary for proper conduct of operations needed in the Work.

D. Telephone:

1. Make necessary arrangements and pay costs for installation and operation of telephone service to the Contractor's office at the site.

2. Make the telephone available to the Architect for use in connection with the Work.

## 2.2 FIELD OFFICES AND SHEDS

A. Contractor's facilities:

1. Provide a field office building and sheds adequate in size and accommodation for Contractor's facilities, provide enclosed space adequate for holding project meetings. Furnish with table, chairs, and utilities.

B. Sanitary facilities:

1. Provide temporary sanitary facilities in the quantity required for use by all personnel.

2. Maintain in a sanitary condition at all times.

## 2.3 ENCLOSURES

A. Provide and maintain for the duration of construction all scaffolds, tarpaulins, canopies, warning signs, steps, platforms, bridges, and other temporary construction necessary for proper completion of the Work in compliance with pertinent safety and other regulations.

## 2.4 TEMPORARY FENCING

A. Provide and maintain for the duration of construction a temporary fence of design and type needed to prevent entry onto the Work site by the public.

## 2.5 PROJECT SIGNS

- A. Prior to start of construction, secure two job signs from the PHA. Mount at the job site where directed by PHA.
- B. Upon completion of the Work, demount the job signs and return them to the PHA.
- C. Except as otherwise specifically approved by the Architect, do not permit other signs or advertising on the job site.

## PART 3 - EXECUTION

### 3.1 MAINTENANCE AND REMOVAL

- A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the Work.
- B. Remove such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by the Architect.

END OF SECTION

## SECTION 01545

### CONTRACTOR'S USE OF THE PREMISES

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section applies to all situations in which the Contractor or his representatives including, but not necessarily limited to, suppliers, subcontractors, employees, and field engineers, enter upon the Owner's property.
- B. Related work:
  - 1. Documents affecting work of the Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

##### 1.2 SUBMITTALS

- A. Maintain an accurate record of the names and identification of all persons entering upon the Owner's property in connection with the Work of this Contract, including times of entering and times of leaving, and submit a copy of the record to the Owner daily.

##### 1.3 QUALITY ASSURANCE

- A. Promptly upon award of the Contract, notify all pertinent personnel regarding requirements of this Section.
- B. Require that all personnel who will enter upon the Owner's property certify their awareness of and familiarity with the requirements of this Section.

##### 1.4 TRANSPORTATION FACILITIES

- A. Contractor's vehicles shall not be permitted to park on the grounds. Any damage to the grounds caused by the contractor and/or subcontractors shall be repaired at no cost to the Owner.
- B. Truck and equipment access:
  - 1. To avoid traffic conflict with vehicles of the Owner's employees and customers, and to avoid over-loading of streets and driveways elsewhere on the Owner's property, limit the access of trucks and equipment to the route(s) established by the Owner.

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2. Provide adequate protection for curbs and sidewalks over which trucks and equipment pass to reach the job site
- C. Contractor's vehicles:
1. Require Contractor's vehicles, vehicles belonging to employees of the Contractor, and all other vehicles entering upon the Owner's property in performance of the Work of the Contract, to use only the Access Route(s) established by the Owner.
  2. Do not permit such vehicles to park on any street or other area of the Owner's property unless otherwise allowed by the Owner in writing.

#### 1.5 SECURITY

- A. Restrict the access of all persons entering upon the Owner's property in connection with the Work to the Access Route and to the actual site of the Work.

END OF SECTION

SECTION 01630  
PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section describes product options available to bidders and the Contractor, plus procedures for securing approval of proposed substitutions.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, The Instructions to Bidders, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Form 00440 in the Bidding Documents provides space for bidders to propose substitutions prior to award of the Contract. These proposed substitutions shall be made in accordance with Section 00100.
  - 3. Make submittal in accordance with pertinent provisions of Section 01340 and Section 00100.

1.2 PRODUCT OPTIONS

- A. The Contract is based on standards of quality established in the Contract Documents.
  - 1. In agreeing to the terms and conditions of the contract, the Contractor has accepted a responsibility to verify that the specified products will be available and to place orders for all required materials in such a timely manner as is needed to meet his agreed construction schedule.
  - 2. Neither the Owner nor the Architect has agreed to the substitution of materials or methods called for in the Contract Documents, except as they may specifically otherwise state in writing prior to bid opening in accordance with Section 00100.
- B. Materials and/or methods specified by name:
  - 1. Where materials and/or methods specified by naming one single manufacturer and/or model number, without stating that equal products will be considered, only the material and/or method named is approved for incorporation into the work.
  - 2. Should the contractor demonstrate to the approval of the Architect that a specified material or method was ordered in a timely manner and will not be available in time for incorporation into this Work, the contractor shall submit to the Architect such data on

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proposed substitute materials and/or methods as are needed to help the Architect determine suitability of the proposed substitution.

- C. Where materials and/or methods are specified by name and/or model number:
  - 1. The material and/or method specified by name establishes the required standard of quality.
  - 2. Materials and/or methods proposed by the Contractor to be used in lieu of materials and/or methods so specified by name shall in all ways equal or exceed the qualities of the named materials and/or methods, and shall be proposed during the bidding period in accordance with Section 00150.
  
- D. The following products do not require further approval except for interface with the Work:
  - 1. Products selected in reference to standard specifications such as ASTM and similar standards.
  - 2. Products specified by manufacturer's name and catalog model number listed in the specification and those approved during the bidding period and listed in an addendum prior to receipt of bids.
  
- E. Where the phrase "or equal," or "or equal as approved by the Architect", occurs in the Contract Documents, do not assume that the materials, equipment, or methods will be approved as equal unless the item has been specifically so approved for this Work by the Architect as described in Section 00150.
  
- F. The decision of the Architect shall be final.

### 1.3 DELAYS

- A. Delays in construction arising by virtue of the non-availability of a specified material and/or method will not be considered by the Architect as justifying an extension of the agreed Time of Completion.

END OF SECTION



## SECTION 01640

### STORAGE AND PROTECTION

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.
- B. Related work:
  - 1. Documents affecting work of the Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Additional procedures also may be prescribed in other Sections of these Specifications.

##### 1.2 QUALITY ASSURANCE

- A. Include within the Contractor's quality assurance program such procedures as are required to assure full protection of work and materials.

##### 1.3 MANUFACTURERS' RECOMMENDATIONS

- A. Except as otherwise approved by the Architect, determine and comply with manufacturers' recommendations on product handling, storage, and protection.

##### 1.4 PACKAGING

- A. Deliver products to the job site in their manufacturer's original container, with labels intact and legible.
  - 1. Maintain packaged materials with seals unbroken and labels intact until time of use.
  - 2. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the Owner.
- B. The Architect may reject non-complying material and products that do not bear identification satisfactory to the Architect as to manufacturer, grade, quality, and other pertinent information.

##### 1.5 PROTECTION

- A. Protect finished surfaces, including jambs and soffits of openings used as passageways, through which equipment and materials are handled.
- B. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.
- C. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the Owner.

#### 1.6 REPAIRS AND REPLACEMENTS

- A. In event of damage, promptly make replacements and repairs to the approval of the Architect and at no additional cost to the Owner.
- B. Additional time required to secure replacements and to make repairs will not be considered by the Architect to justify an extension in the Contract Time of Completion.

#### 1.7 PAYMENT

- A. The Contractor will be paid for properly documented, protected, and insured materials in accordance with the current HUD policy regarding payment for stored materials.

END OF SECTION

## SECTION 01700

### CONTRACT CLOSEOUT

#### Part 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section describes an orderly and efficient transfer of the completed Work to the Owner.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Activities relative to Substantial Completion and Contract closeout are described in the General Conditions.

##### 1.2 QUALITY ASSURANCE

- A. Prior to requesting inspection by the Architect, use adequate means to assure that the Work is completed in accordance with the specified requirements and is ready for the requested inspection.

##### 1.3 PROCEDURES

- A. Substantial Completion:
  - 1. The Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected.
  - 2. Within a reasonable time after receipt of the list, the Architect, the PHA, and HUD will inspect to determine status of completion.
  - 3. Should the Architect determine that the Work is not substantially complete:
    - a. The Architect promptly will so notify the Contractor, in writing, giving the reasons therefore.
    - b. Remedy the deficiencies and notify the Architect when ready for reinspection.
    - c. The Architect will reinspect the Work.
  - 4. When the Architect concurs that the Work is substantially complete:
    - a. The Architect will prepare a "Certificate of Substantial Completion", accompanied by the Contractor's list of items to be completed or corrected, as verified by the Architect.

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- b. The Architect will submit the Certificate to the Owner and to the Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

B. Final Completion:

1. The Contractor shall prepare and submit written notice that the Work is ready for final inspection. Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due and payable. The final Certificate for Payment will constitute a further representation that conditions listed in Subparagraph 1.3, A, 2. as precedent to the Contractor's being entitled to final payment have been fulfilled.
2. Verify that the Work is complete including, but not necessarily limited to:

Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in effect and will not be canceled or allowed to expire until at least thirty (30) days prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and, (5) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the

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Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

3. Certify that:
  - a. Contract Documents have been reviewed;
  - b. Work has been inspected for compliance with the Contract Documents;
  - c. Work has been completed in accordance with the Contract Documents.
  - d. Equipment and systems have been tested as required, and are operational;
  - e. Work is completed and ready for final inspection.
4. The Architect will make an inspection to verify status of completion.
5. Should the Architect determine that the Work is incomplete or defective:
  - a. The Architect promptly will so notify the Contractor, in writing listing the incomplete or defective work.
  - b. Remedy the deficiencies promptly, and notify the Architect when ready for reinspection.
6. When the Architect determines that the Work is acceptable under the Contract Documents, he will request the Contractor to make closeout submittals.

C. Closeout submittals include, but not necessarily limited to:

1. The following documents:
  - a. Maintenance Bond.....00700
  - b. Certificate of Guaranty.....00710
  - c. Certificate of Completion.....00720
  - d. Contractor's Certificate and Release.....00730
  - e. Affidavit of Payment of Debt.....00740
  - f. Affidavit of Release of Liens.....00750
  - g. Suppliers' List.....00760
2. Operation and maintenance data for items so listed in pertinent other Sections of these Specifications, and for other items when so directed by the Architect;
3. Warranties and bonds;
4. Keys and keying schedule;
5. Spare parts and materials and extra stock;
6. Evidence of compliance with requirements of governmental agencies having jurisdiction including, but not necessarily limited to:
  - a. Certificates of Inspection;
  - b. Certificates of Occupancy;

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7. Certificates of Insurance for products and completed operations;
  8. Evidence of payment and release of liens;
  9. List of subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.
- D. Final adjustment of accounts:
1. Submit a final statement of accounting to the Architect, showing all adjustments to the Contract Sum.
  2. If so required, the Architect will prepare a final Change Order showing adjustments to the Contract Sum which were not made previously by Change Orders.

#### 1.4 INSTRUCTION

- A. Instruct the Owner's personnel in proper operation and maintenance of systems, equipment, and similar items which were provided as part of the Work.

END OF SECTION

## SECTION 01710

### CLEANING

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Throughout the construction period, maintain the buildings and site in a standard of cleanliness as described in this Section.
- B. Related work:
  - 1. Documents affecting work of the Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. In addition to standards described in this Section, comply with requirements for cleaning as described in pertinent other Sections of these Specifications.

##### 1.2 QUALITY ASSURANCE

- A. Conduct daily inspection, and more often if necessary, to verify that requirements for cleanliness are being met.
- B. In addition to the standards described in this Section, comply with pertinent requirements of governmental agencies having jurisdiction.

#### PART 2 - PRODUCTS

##### 2.1 CLEANING MATERIALS AND EQUIPMENT

- A. Provide required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

##### 2.2 COMPATIBILITY

- A. Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

#### PART 3 - EXECUTION

##### 3.1 PROGRESS CLEANING

- A. General
  - 1. Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic or drainage, and providing required protection of materials.
  - 2. Do not allow accumulation of scrap, debris, waste

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material, and other items not required for construction of this Work.

3. At least twice each month, and more often if necessary, completely remove all scrap, debris, and waste material from the job site.
4. Provide adequate storage for all items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.

B. Site:

1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage.
2. Weekly, and more often if necessary, inspect all arrangements of materials stored on the site. Restack, tidy, or otherwise service arrangements to meet the requirements of subparagraph 3.1-A-1 above.
3. Maintain the site in a neat and orderly condition at all times.

C. Structures:

1. Weekly, and more often if necessary, inspect the structures and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage.
2. Weekly, and more often if necessary, sweep interior spaces clean.
  - a. "Clean," for the purpose of the subparagraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and a hand-held broom.
3. As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using equipment and materials required to achieve the necessary cleanliness.
4. Following the installation of finish floor materials, clean the finish floor daily (and more often if necessary) at all times while work is being performed in the space in which finish materials are installed.
  - a. "Clean," for the purpose of the subparagraph, shall be interpreted as meaning free from foreign material which, in the opinion of the Architect, may be injurious to the finish floor material.

### 3.2 FINAL CLEANING

- A. "Clean," for the purpose of this Article, and except as  
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maybe specifically provided otherwise, shall be interpreted as meaning the level of cleanliness generally provided by skilled cleaners using commercial quality building maintenance equipment and materials.

- B. Prior to completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in Article 3.1 above.
- C. Site:
  - 1. Unless otherwise specifically directed by the Architect, broom clean paved areas on the site and public paved areas adjacent to the site.
  - 2. Completely remove resultant debris.
- D. Structures:
  - 1. Exterior:
    - a. Visually inspect exterior surfaces and remove all traces of soil, waste materials, smudges, and other foreign matter.
    - b. Remove all traces of splashed materials from adjacent surfaces.
    - c. If necessary to achieve a uniform degree of cleanliness, hose down the exterior of the structure.
    - d. In the event of stubborn stains not removable with water, the Architect may require light sandblasting or other cleaning at no additional cost to the Owner.
  - 2. Interior:
    - a. Visually inspect interior surfaces and remove all traces of soil, waste materials, smudges, and other foreign matter.
    - b. Remove all traces of splashed materials from adjacent surfaces.
    - c. Remove paint drippings, spots, stains, and dirt from finished surfaces.
  - 3. Glass: Clean inside and outside.
  - 4. Polished surfaces: To surfaces requiring routine application of buffed polish, apply the polish recommended by the manufacturer of the material being polished.
- E. Schedule final cleaning as approved by the Architect to enable the Owner to accept a completely clean Work.

### 3.3 CLEANING DURING OWNER'S OCCUPANCY

- A. Should the Owner occupy the Work or any portion thereof

CLEANING

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prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning shall be as determined by the Architect in accordance with the General Conditions of the Contract.

END OF SECTION

## SECTION 01720

### PROJECT RECORD DOCUMENTS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Throughout progress of the Work, maintain an accurate record of changes in the Contract Documents, as described in Article 3.1 below and, upon completion of the Work, transfer the recorded changes to a set of Record Documents, as described in Article 3.2 below.
- B. Related work:
  - 1. Documents affecting work of the Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Other requirements affecting Project Record Documents may appear in pertinent other Sections of these Specifications.

##### 1.2 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340
- B. The Architect's approval of the current status of Project Record Documents may be a prerequisite to the Architect's approval of requests for progress payment and request for final payment under the Contract.
- C. Prior to submitting each request for progress payment, secure the Architect's approval of the current status of the Project Record Documents.
- D. Prior to submitting request for final payment, submit the final Project Record Documents to the Architect and secure his approval.

##### 1.3 QUALITY ASSURANCE

- A. Delegate the responsibility for maintenance of Record Documents to one person on the Contractor's staff as approved by the Architect.
- B. Accuracy of records:
  - 1. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of Specifications and each sheet of Drawings and

other Documents where such entry is required to show the change properly.

2. Accuracy of records shall be such that future search for items shown in the Contract Documents may rely reasonably on information obtained from the approved Project Record Documents.

C. Make entries within 24 hours after receipt of information that the change has occurred.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

A. Maintain the job set of Record Documents completely protected from deterioration and from loss and damage until completion of the Work and transfer of all recorded data to the final Project Record Documents.

B. In the event of loss of recorded data, use means necessary to again secure the data to the Architect's approval.

1. Such means shall include, if necessary in the opinion of the Architect, removal and replacement of concealing materials.

2. In such case, provide replacements to the standards originally required by the Contract Documents.

### PART 2 - PRODUCTS

#### 2.1 PROJECT AND RECORD DOCUMENTS

A. Job Set: After Owner's Notice to Proceed, secure from the Architect a set of Contract Documents to serve as the Job Set and additional sets as required to conduct the Work. The cost of each set, to be paid by the Contractor, shall be that of the original deposit fee.

B. Final Record Documents: At completion of the Work, secure from the Architect, at production cost, one complete set of mylar transparencies of all drawings and one set of specifications.

### PART 3 - EXECUTION

#### 3.1 MAINTENANCE OF JOB SET

A. Immediately upon receipt of the job set described in Paragraph 2.1-A above, identify each of the Documents with the title, "RECORD DOCUMENTS - JOB SET".

B. Preservation:

1. Considering the Contract completion time, the probable  
PROJECT RECORD DOCUMENTS

- number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the job set to the approval of the Architect.
2. Do not use the job set for any purpose except entry of new data and for review by the Architect, until start of transfer of data to final Project Record Documents.
  3. Maintain the job set at the site of Work as that site is designated by the Architect.
- C. Making entries on Drawings:
1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by graphic line and note as required.
  2. Date all entries.
  3. Call attention to the entry by a "cloud" drawn around the area or areas affected.
  4. In the event of overlapping changes, use different colors for the overlapping changes.
- D. Make entries in the pertinent other Documents as approved by the Architect.
- E. Conversion of schematic layouts:
1. In some cases on the Drawings, arrangements of conduits, circuits, piping, ducts, and similar items, are shown schematically and are not intended to portray precise physical layout.
    - a. Final physical arrangement is determined by the Contractor, subject to the Architect's approval.
    - b. However, design of future modifications of the facility may require accurate information as to the final physical layout of items which are shown only schematically on the Drawings.
  2. Show on the job set of Record Drawings, by dimension accurate to within one inch, the centerline of each run of items such as are described in subparagraph 3.1-E-1 above.
    - a. Clearly identify the item by accurate note such as "cast iron drain", "galv. water", and the like.
    - b. Show, by symbol or note, the vertical location of the item ("under slab", "in ceiling plenum", "exposed", and the like).
    - c. Make all identification so descriptive that it may be related reliably to the Specifications.
  3. The Architect may waive the requirements for conversion of schematic layouts where, in the Architect's judgment, conversion serves no useful

purpose. However, do not rely upon waivers being issued except as specifically issued in writing by the Architect.

### 3.2 FINAL PROJECT RECORD DOCUMENTS

- A. The purpose of the final Project Record Documents is to provide factual information regarding all aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive site measurement, investigation, and examination.
- B. Approval of recorded data prior to transfer:
  - 1. Following receipt of the transparencies described in Paragraph 2.1-b above, the prior to start of transfer of recorded data thereto, secure the Architect's approval of all recorded data.
  - 2. Make required revisions.
- C. Transfer of data to Drawings:
  - 1. Carefully transfer change data shown on the job set of Record Drawings to the corresponding transparencies, coordinating the changes as required.
  - 2. Clearly indicate at each affected detail and other Drawing a full description of changes made during construction, and the actual location of items described in subparagraph 3.1-E-1 above.
  - 3. Call attention to each entry by drawing a "cloud" around the area or areas affected.
  - 4. Make changes neatly, consistently, and with the proper media to assure longevity and clear reproduction.
- D. Transfer of data to other Documents:
  - 1. If the Documents other than Drawings have been kept clean during progress of the Work, and if entries thereon have been orderly to the approval of the Architect, the job set of those Documents other than Drawings will be accepted as final Record Documents.
  - 2. If any such Document is not so approved by the Architect, secure a new copy of that Document from the Architect at the Architect's usual charge for reproduction and handling, and carefully transfer the change data to the new copy to the approval of the Architect.
- E. Review and submittal:
  - 1. Submit the completed set of Project Record Documents to the Architect as described in Paragraph 1.3-D above.
  - 2. Participate in review meetings as required.

3. Make required changes and promptly deliver the final Project Record Documents to the Architect.

### 3.3 CHANGES SUBSEQUENT TO ACCEPTANCE

- A. The Contractor has no responsibility for recording changes in the Work subsequent to Final Completion, except for changes resulting from work performed under Warranty.

END OF SECTION

## SECTION 01730

### OPERATION AND MAINTENANCE DATA

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. To aid the continued instruction of operating and maintenance personnel, and to provide a positive source of information regarding products incorporated into the Work, furnish and deliver the data described in this Section and in pertinent other Sections of these Specifications.
- B. Related work:
  - 1. Documents affecting work of the Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Required contents of submittals also may be amplified in pertinent other Sections of these Specifications.

##### 1.2 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Submit two copies of a preliminary draft of the proposed Manual or Manuals to the Architect for review and comments.
- C. Unless otherwise directed in other Sections, or in writing by the Architect, submit three copies of the final Manual to the Architect prior to indoctrination of operation and maintenance personnel.

##### 1.3 QUALITY ASSURANCE

- A. In preparing data required by this Section, use only personnel who are thoroughly trained and experienced in operation and maintenance of the described items, completely familiar with the requirements of this Section, and skilled in technical writing to the extent needed for communicating the essential data.

#### PART 2 - PRODUCTS

##### 2.1 INSTRUCTION MANUALS

- A. Where instruction Manuals are required to be submitted under other Sections of these Specifications, prepare in accordance with the provisions of this Section.

OPERATION AND MAINTENANCE DATA

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- B. Format:
1. Size: 8-1/2" x 11"
  2. Paper: White bond, at least 20 lb weight
  3. Text: Neatly written or printed
  4. Drawings: 11" in height preferable; bind in with text; foldout acceptable; larger drawings acceptable but fold to fit within the Manual and provide a drawing pocket inside rear cover or bind in with text.
  5. Flysheets: Separate each portion of the Manual with neatly prepared flysheets briefly describing contents of the ensuing portion; flysheets may be in color.
  6. Binding: Use heavy-duty plastic or fiberboard covers with binding mechanism concealed inside the Manual; 3-ring binders will be acceptable; all binding is subject to the Architect's approval.
  7. Measurements: Provide all measurements in U.S. standard units such as feet and inches, lbs and cfm; where items may be expected to be measured within ten years in accordance with metric formulae, provide additional measurements in the "International System of Units" (SI).
- C. Provide front and back covers for each Manual, using durable material approved by the Architect, and clearly identified on or through the cover with at least the following information:
- D. Contents: Include at least the following:
1. Neatly typewritten index near the front of the Manual, giving immediate information as to location within the Manual of all emergency information regarding the installation.
  2. Complete instructions regarding operation and maintenance of all equipment involved including lubrication, disassembly, and reassembly.
  3. Complete nomenclature of all parts of all equipment.
  4. Complete nomenclature and part number of all replacement parts, name and address of nearest vendor, and all other data pertinent to procurement procedures.
  5. Copy of all guarantees and warranties issued.
  6. Manufacturers' bulletins, cuts, and descriptive data, where pertinent, clearly indicating the precise items

OPERATION AND MAINTENANCE DATA

included in this installation and deleting, or otherwise clearly indicating, all manufacturers' data with which this installation is not concerned.

7. Such other data as required in pertinent Sections of these Specifications.

## PART 3 - EXECUTION

### 3.1 INSTRUCTION MANUALS

- A. Preliminary
  1. Prepare a preliminary draft of each proposed Manual.
  2. Show general arrangement, nature of contents in each portion, probable number of drawings and their size, and proposed method of binding and covering.
  3. Secure the Architect's approval prior to proceeding.
- B. Final: Complete the Manuals in strict accordance with the approved preliminary drafts and the Architect's review comments.
- C. Revisions:
  1. Following the indoctrination and instruction of operation and maintenance personnel, review all proposed revisions of the Manual with the Architect.
  2. If the Contractor is required by the Architect to revise previously approved Manuals, compensation will be made as provided for under "Changes" in the General Conditions.

END OF SECTION

## SECTION 01800

### STANDARDS

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Work Included: To provide Standards which shall become a part of these Specifications to the same extent as if reproduced herein as needed to meet the requirements of the Contract Documents.
- B. Related work:
  - 1. Documents affecting work of the Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Some of the Standards mentioned in this Section are described further in pertinent other Sections of these Specifications.

##### 1.2 QUALITY ASSURANCE

- A. For any and all documents of the Project specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to standard by date of issue current on date of Contract Documents.
- C. Standards, for which the applicable date is other than the current date noted above, are specifically identified in each technical section by means of the inclusion of a date within the standard's alphanumeric identification or title.
- D. Obtain copies of all standards required in and by Contract Documents.
- E. Maintain copy at job site during progress of the specific work until Substantial Completion.
- F. Should specified standards conflict with Contract Documents, request clarification from Architect before proceeding.
- G. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference to the contrary in any standard.

### STANDARDS

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1.3 SCHEDULE OF STANDARDS ORGANIZATIONS

AA	Aluminum Association Suite 300 900 19th Street, N.W. Washington, DC 20006		400 North Michigan Avenue Chicago, IL 60611
AABC	Associated Air Balance Council 1000 Vermont Avenue, N.W. Washington, DC 20005	AISE	Association of Iron and Steel Engineers Suite 2350 Three Gateway Center Pittsburgh, PA 15222
AAMA	American Arch. Manufacturers Assoc. 2700 River Road, Suite 118 Des Plaines, IL 60018	AISI	American Iron and Steel Institute Suite 2350 1133 15th Street, N.W. Washington, DC 20005
AASHTO	American Assoc of State Highway and Transportation Officials Suite 225 444 North Capitol Street, N.W. Washington, DC 20001	AITC	American Institute of Timber Const. 11818 S.E. Mill Plain Blvd. Suite 415 Vancouver, WA 98684
ACI	American Concrete Institute P.O. Box 19150 Detroit, MI 48219	AMSI	Air Movement and Control Association 30 West University Drive Arlington Heights, IL 60004
ADC	Air Diffusion Council 230 North Michigan Avenue Chicago, IL 60601	ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
AGC	Associated General Contractors of America 1957 E Street, N.W. Washington, DC 20006	APA	American Plywood Association 7011 C. 19th Street P.O. Box 11700 Tacoma, WA 98411-0700
AHA	American Hardboard Association 520 North Hicks Road Palatine, IL 60067	API	American Petroleum Institute 1220 L Street, N.W. Washington, DC 20005
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740	ARI	Air Conditioning and Refrigeration Institute 1815 North Fort Myer Drive Arlington, VA 22209
AIA	American Institute of Architects 1735 New York Avenue, N.W. Washington, DC 20006	ASCE	American Society of Civil Engineers 345 East 47th Street New York, NY 10017
AISC	American Institute of Steel Construction, Inc. The Wrigley Building-Eighth Floor	ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers

	1791 Tullie Circle, N.E. Atlanta, GA 30329-2305	CDA	Copper Development Association 57th Floor, Chrysler Building 405 Lexington Avenue New York, NY 10174
ASME	American Soc. of Mechanical Engineers 345 East 47th Street New York, NY 10017		
ASPA	American Sod Producers Association Association Building Ninth and Minnesota Hastings, NE 68901	CGSB	Canadian General Standards Board Technical Information Unit Ottawa, Canada K1A1G6
ASSE	American Soc. of Sanitary Engineering P.O. Box 40362 Bay Village, OH 44140	CISPI	Cast Iron Soil Pipe Institute 5959 Shallowford Road Suite 419 Chattanooga, TN 37421
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103-1187	CLFMI	Chain Link Fence Manuf. Institute 1101 Connecticut Avenue, N.W. Washington, DC 20036
AWI	Architectural Woodwork Institute 2310 South Walter Reed Drive Arlington, VA 22206	CMAA	Crane Manuf. Assoc. of America c/o Material Handling Institute, Inc. Suite 201 8720 Red Oak Blvd. Charlotte, NC 28217
AWPA	American Wood Preservers' Association P.O. Box 849 Stevensville, MD 21666	CMI	Cultured Marble Institute 435 N. Michigan Ave. Chicago, IL 06011
AWPB	American Wood Preservers Bureau P.O. Box 5283 Springfield, VA 22206	CMIFC	Concrete and Mas. Industry Firesafety Committee 5420 Old Orchard Road Skokie, IL 60077-1083
AWS	American Welding Society 550 N.W. LeJeune Road P.O. Box 351040 Miami, FL 33135	CPSC	Consumer Product Safety Commission Office of the Secretary Washington, DC 20207
AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, CO 80235	CRSI	Concrete Reinforcing Steel Institute 933 North Plum Grove Road Schaumburg, IL 60173-4758
BIA	Brick Institute of America 11490 Commerce Park Drive Reston, VA 22091	CS	Commercial Standards Commodity Standards Division Office of Industry and Commerce U.S. Department of Commerce Washington, DC 20230
BOCA	Building Officials and Code Administrators International 4051 West Flossmoor Road Country Club Hills, IL 60478-5795	CSA/CAN	Canadian Standards Association 178 Rexdale Blvd. Rexdale (Toronto), Ontario, Canada

	M9W1R3		Norwood, MA 02062
CSSB	Cedar Shake and Shingle Bureau Design / Application Manual for Exterior and Interior Walls Suite 275 515 - 116th Ave., N.E. Bellevue, WA 98004	FS	Federal Specification General Service Administration Specification Section, Room 6039 7th & D Streets Washington, DC 20407
DOC	United States Department of Commerce National Institute of Standards and Technology Gaithersburg, MD 20899	GA	Gypsum Association 810 First Street, N.E., #510 Washington, DC 20002
DOE	United States Department of Energy c/o Superintendent of Documents U.S. Government Printing Office Washington, DC 20402-9325	HPMA	Hardwood Plywood Manufacturers Association 1825 Michael Faraday Drive P.O. Box 2789 Reston, VA 22090
DOI	United States Department of the Interior Bureau of Mines 2401 E Street, N.W. Washington, DC 20241	IAPMO	International Association of Plumbing and Mechanical Officials 20001 S. Walnut Drive Walnut, CA 91789
DOT	United States Depart. of Transportation c/o Superintendent of Documents U.S. Government Printing Office Washington, DC 20402-9325	IEEE	Institute of Electrical and Electronics Engineers 345 East 47th Street New York, NY 10017
EIA	Electronics Industries Association 2001 Eye (I) Street, N.W. Washington, DC 20006	IIAR	International Institute of Ammonia Refrigeration Suite 600 111 E. Wacker Drive Chicago, IL 60601
EJCDC	Engineers' Joint Contract Documents Committee American Consulting Engineers Council 1050 15th Street, N.W. Washington, DC 20005	IMIAC	International Masonry Industry All-Weather Council International Masonry Institute 815 15th Street, N.W. Washington, DC 20005
EJMA	Expansion Joint Manufacturers Association 3310 Harrison White Plains, NY 10604	MBMA	Metal Building Manuf. Association 1230 Keith Building Cleveland, OH 44115-2180
FGMA	Flat Glass Marketing Association 3310 Harrison White Lakes Professional Building Topeka, KS 66611	MFMA	Maple Flooring Manuf. Association 2400 East Devon Suite 205 Des Plaines, IL 60018
FMR	Factory Mutual Research 1151 Boston Providence Turnpike	MIL	Military Specification

	Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120	NJUCC	New Jersey Uniform Construction Code (SUCC) Department of Community Affairs 313 Princeton Pike CN 816 Trenton, NJ 08625-0809
ML/SFA	Metal Lath/Steel Framing Association 221 North LaSalle Street Chicago, IL 60601		
		NSF	NSF National Sanitation Foundation 3475 Plymouth Road Ann Arbor, MI 48106
MSS	Manufacturing Standardization Society 5203 Leesburg Pike, Suite 502 Falls Church, VA 22041		
		NSWMA	National Solid Wastes Management Association 1120 Connecticut Ave., N.W. Washington, DC 20036
NAAMM	National Association of Architectural Metal Manufacturers 221 North LaSalle Street Chicago, IL 60601		
		NTMA	Nat. Terrazzo and Mosaic Association 3166 Des Plaines Avenue Des Plaines, IL 60018
NAPHCC	National Association of Plumbing-Heating-Cooling Contractors (Nat. Stand. Plumbing Code - NSPC) P.O. Box 6808 Falls Church, VA 22040		
		NWWDA	National Wood Window and Door Association 1400 E. Touhy Avenue Des Plaines, IL 60018
NCMA	National Concrete Masonry Association 2302 Horse Pen Road P.O. Box 781 Herndon, VA 22070-0781		
		PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60604
NEBB	National Environmental Balancing Bur. 8422 Old Courthouse Road Vienna, VA 22180		
		PCI	Precast/Prestressed Concrete Institute 175 West Jackson Blvd. Chicago, IL 60604
NEMA	National Electrical Manufacturers' Association 2101 L Street, N.W. Washington, DC 20037		
		PDI	Plumbing and Drainage Institute 1106 W. 77th Street, South Drive Indianapolis, IN 46260
		PS	Product Standard U.S. Department of Commerce Washington, DC 20203
NFiPA	National fire Protection Association Batterymarch Park Quincy, WA 02269		
		RIS	Redwood Inspection Service One Lombard Street San Francisco, CA 94111
NFoPA	National Forest Products Association 1250 Connecticut Ave., N.W./Suite 200 Washington, DC 20036		
		RMA	Rubber Manufacturers Association 1400 K Street, N.W. Washington, DC 20005
NJDOT	New Jersey Depart. of Transportation 1035 Parkway Avenue CN 600 Trenton, NJ 08625-0600		
		SDI	Steel Deck Institute Box 3812

	St Louis, MO 63122	STI	Steel Tank Institute 728 Anthony Trail Northbrook, IL 60062
SDI	Steel Door Institute 712 Lakewood Center North Cleveland, OH 44107	TCA	Tile Council of America, Inc. Box 326 Princeton, NJ 08540
SIGMA	Sealed Insulating Glass Manufacturers Association 111 East Wacker Drive Chicago, IL 60601	TFS	Texas Forest Service Forest Products Laboratory P.O. Box 310 Suite 200 Lufkin, TX 75902-0310
SJI	Steel Joist Institute Suite A 1205 48th Avenue North Myrtle Beach, SC 29577	TPI	Truss Plate Institute 583 D'Onofrio Drive Suite 200 Madison, WI 53719
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association 8224 Old Court House Road Vienna, VA 22180	UL	Underwriters' Laboratory 333 Pfingsten Road Northbrook, IL 60062
SPRI	Single Ply Roofing Institute 104 Eilmont Road Suite 201 Deerfield, IL 60015-5195	ULC	Underwriters' Laboratories of Canada 7 Crouse Road Scarborough, Ontario, Can. M1R3A9
SSPC	Steel Structures Painting Council 4400 Fifth Avenue Pittsburgh, PA 15213	WCLIB	West Coast Lumber Inspection Bureau Box 23145 Portland, OR 97223

END OF SECTION



SECTION 01830

MISCELLANEOUS MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work included: Provide miscellaneous materials where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 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 proper performance of the work of this Section.

1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section;
  - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
  - 3. Shop Drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the work of adjacent trades;
  - 4. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.4 PRODUCT HANDLING

- A. Comply with pertinent provisions of Section 01640.

PART 2 - PRODUCTS

## 2.1 MISCELLANEOUS SCHEDULED MATERIALS

- A. Throughout the Drawings, various miscellaneous products may be scheduled or described which are required for a complete and proper installation. These miscellaneous products shall be furnished by the Contractor, subject to the approval of the Architect.

## 2.2 OTHER NON-SCHEDULED MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 INSTALLATION

- A. Install the work of this Section in strict accordance with the original design, the approved Shop Drawings, and the manufacturer's recommended installation procedures as approved by the Architect, anchoring all components firmly into position for long life under hard use.

END OF SECTION

## SECTION 02070

### SELECTIVE DEMOLITION

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Work included: Carefully demolish and remove from the site those items scheduled to be so demolished and removed.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Section 01045: Cutting and patching.

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

##### 1.3 PRODUCT HANDLING

- A. Comply with pertinent provisions of Section 01640.

#### PART 2 - PRODUCTS

(No products are required in this Section)

#### PART 3 - EXECUTION

##### 3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

##### 3.2 DEMOLITION

- A. By careful study of the Contract Documents, determine the location and extent of selective demolition to be performed.
- B. In company with the Architect, visit the site and verify

the extent and location of selective demolition required.

1. Carefully identify limits of selective demolition.
  2. Mark interface surfaces as required to enable workmen also to identify items to be removed and items to be left in place intact.
- C. Prepare and follow an organized plan for demolition and removal of items.
1. Shut off, cap, and otherwise protect existing public utility lines in accordance with the requirements of the public agency or utility having jurisdiction.
  2. Completely remove items scheduled to be so demolished and removed, leaving surfaces clean, solid, and ready to receive new materials specified elsewhere.
  3. In all activities, comply with pertinent regulations of governmental agencies having jurisdiction.
- D. Demolished material shall be considered to be property of the Contractor and shall be completely removed from the job site.
- E. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

### 3.3 REPLACEMENTS

- A. In the event of demolition of items not so scheduled to be demolished, promptly replace such items to the approval of the Architect and at no additional cost to the Owner.

END OF SECTION

## SECTION 02210

### SITE GRADING

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Work included: Excavate, backfill, compact, and grade the site to the elevations shown on the Drawings, as specified herein, and needed to meet the requirements of the construction shown in the Contract Documents.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 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 specified requirements and the methods needed for performance of the work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the soils engineer.

##### 1.3 PRODUCT HANDLING

- A. Comply with pertinent provisions of Section 01640.

#### PART 2 - PRODUCTS

##### 2.1 SOIL MATERIALS

- A. Fill and backfill materials:
  - 1. Provide soil materials free from organic matter and deleterious substances, containing no solids over 6" in greatest dimension, and with not more than 15% of the solids larger than 2-3/8" in their greatest dimension.
  - 2. Fill material is subject to the approval of the soil engineer, and is that material removed from excavations or imported from off-site borrow areas,

SITE GRADING

02210

predominantly granular non-expansive soils, free from roots and other deleterious matter.

3. Do not permit rocks having a dimension greater than 1" in the upper 12" of fill or embankment.
4. Cohesion-less material used for structural backfill: Provide sand free from organic material and other foreign matter, and as approved by the soil engineer.

## 2.2 WEED KILLER

- A. Provide a dry, free-flowing, dust-free chemical compound, soluble in water, capable of inhibiting growth of vegetation, and approved for use on this Work by governmental agencies having jurisdiction.

## 2.3 TOPSOIL

- A. Where and if shown on the Drawings or otherwise required, provide topsoil consisting of friable, fertile soil of loamy character, containing an amount of organic matter normal to the region, capable of sustaining healthy plant life, and reasonably free from subsoils, roots, heavy or stiff clay, stones larger than 2" in greatest dimension, noxious weeds, sticks, brush, litter, and other deleterious matter.
- B. Obtain topsoil from sources within the project limits, or provide imported topsoil obtained from sources outside the project limits, or from both sources.

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 FINISH ELEVATIONS AND LINES

- A. Comply with pertinent provisions of Section 02001.

### 3.3 PROCEDURES

- A. Utilities:
  1. Unless shown to be removed, protect active utility lines shown on the Drawings or otherwise made known to the Contractor prior to excavating. If damaged, repair or replace at no additional cost to the Owner.

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2. If active utility lines are encountered, and are not shown on the Drawings or otherwise made known to the Contractor, promptly take necessary steps to assure that service is not interrupted.
3. If service is interrupted as a result of work under this Section, immediately restore service by repairing the damaged utility at no additional cost to the Owner.
4. If existing utilities and conditions are found to interfere with the permanent facilities being constructed under this Section, immediately notify the Architect and secure his instructions.
5. Do not proceed with permanent relocation of utilities until written instructions are received from the Architect.

B. Protection of persons and property:

1. Barricade open holes and depressions occurring as part of this Work, and post warning lights on property adjacent to or with public access.
2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by operations under this Section.

C. Dewatering:

1. Remove all water, including rain water, encountered during trench and substructure work to an approved location by pumps, drains, and other approved methods.
2. Keep excavations and site area free from water.

D. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

E. Maintain access to adjacent areas at all times.

### 3.4 EXCAVATING

A. Perform excavating of every type of material encountered within the limits of the Work to the lines, grades, and elevations indicated and specified herein.

B. Satisfactory excavated materials:

1. Transport to, and place in, fill or embankment areas

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within the limits of the Work.

- C. Unsatisfactory excavated materials:
  - 1. Excavate to a distance below grade as directed by the soils engineer, and replace with satisfactory materials.
  - 2. Include excavation of unsatisfactory materials, and replacement by satisfactory materials, as parts of the work of this Section.
  
- D. Surplus materials:
  - 1. Dispose of unsatisfactory excavated materials, and surplus excavated material, away from the site at disposal areas arranged and paid for by the Contractor.
  
- E. Excavation of rock:
  - 1. Where rocks, boulders, granite, or similar material is encountered, and where such material cannot be removed or excavated by conventional earth moving or ripping equipment, take required steps to proceed with the general grading operations of the Work, and remove or excavate such material by means which will neither cause additional cost to the Owner nor endanger buildings or structures whether on or off the site.
  - 2. Do not use explosives under any circumstances.
  
- F. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.
  
- G. Ditches and gutters:
  - 1. Cut accurately to the cross sections, grades, and elevations shown.
  - 2. Maintain excavations free from leaves, sticks, trash, and other debris until completion of the Work.
  - 3. Dispose of excavated materials as shown on the Drawings or directed by the soil engineer; do not deposit materials less than 3'-0" from the edge of a ditch.
  
- H. Unauthorized excavation:
  - 1. Unauthorized excavation consists of removal of materials beyond indicated sub-grade elevations or dimensions without specific instruction from the Architect or the soils engineer.
  - 2. Under footings, foundations, or retaining walls:
    - a. Fill unauthorized excavation by extending the indicated bottom elevation of the footing or base to the excavation bottom, without altering the required top elevation.



- b. When acceptable to the soils engineer, lean concrete fill may be used to bring bottom elevations to proper position.
  - 3. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations, unless otherwise directed by the soils engineer.
- I. Stability of excavations:
  - 1. Slope sides of excavation to 1:1 or flatter, unless otherwise directed by the soils engineer.
  - 2. Shore and brace where sloping is not possible because of space restrictions or stability of the materials.
  - 3. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
- J. Shoring and bracing:
  - 1. Provide materials for shoring and bracing as may be necessary for safety or personnel, protection of work, and compliance with requirements of governmental agencies having jurisdiction.
  - 2. Maintain shoring and bracing in excavations regardless of the time period excavations will be open.
  - 3. Carry shoring and bracing down as excavation progresses.

### 3.5 FILLING AND BACKFILLING

- A. Backfill excavations as promptly as progress of the Work permits, but not until:
  - 1. Acceptance of construction below finish grade:
  - 2. Inspecting, testing, approving, and recording locations of underground utilities;
  - 3. Concrete form work is removed;
  - 4. Shoring and bracing are removed, and voids have been backfilled with satisfactory materials;
  - 5. Trash and debris have been removed; and
  - 6. Horizontal bracing is in place.
- B. Ground surface preparation:
  - 1. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from the ground surface prior to placement of fills.
  - 2. Plow, strip, or break up surfaces steeper than one vertical to four horizontal, so that fill material will bond with existing surface.
  - 3. When existing ground surface has a density less than that specified under "compacting" for the particular area, break up the ground surface, pulverize, moisture condition to the optimum moisture content, and compact to required depth and percentage of maximum density.

4. At exposed soils in areas to be paved, scarify to a minimum depth of 6", and re-compact at a moisture content that will permit proper compaction as specified for fill.
- C. Placing and compacting:
1. Place backfill and fill materials in layers not more than 8" in loose depth.
  2. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content.
  3. Compact each layer to required percentage of maximum density for the area.
  4. Do not place backfill or fill material on surfaces that are muddy, frozen, or containing frost or ice.
  5. Place backfill and fill materials evenly adjacent to structures, to required elevations.
  6. Avoid wedging action of backfill against structures by carrying the material uniformly around the structures to approximately the same elevation in each lift.

### 3.6 GRADING

- A. General:
1. Uniformly grade the areas within limits of grading under this Section, including adjacent transition areas.
  2. Smooth the finished surfaces within specified tolerance.
  3. Compact with uniform levels or slopes between points where elevations are shown on the Drawings, or between such points and existing grades.
  4. Where a change of slope is indicated on the Drawings, construct a rolled transition section having a minimum radius of approximately 8'-0", unless adjacent construction will not permit such a transition, or if such a transition defeats positive control of drainage.
- B. Grading outside building lines:
1. Grade areas adjacent to buildings to achieve drainage away from the structures, and to prevent ponding.
  2. Finish the surfaces to be free from irregular surface changes, and:
    - a. Shape the surface of areas scheduled to be under walks to line, grade, and cross-section, with finished surface not more than 0.10 ft above or below the required sub-grade elevation.
    - b. Shape the surface of areas scheduled to be under pavement to line, grade, and cross-section, with finished surface not more than 0.05 ft above or below the required sub-grade elevation.

### 3.7 COMPACTING

- A. Control soil compaction during construction to provide the minimum percentage of density specified for each area as determined according to ASTM D1557.
- B. Provide not less than the following maximum density of soil material compacted at optimum moisture content for the actual density of each layer of soil material in place, and as approved by the soils engineer.
  - 1. Structures:
    - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 90% of maximum density.
  - 2. Lawn and unpaved areas:
    - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 90% of maximum density;
    - b. Compact the upper 12" of filled areas, or natural soils exposed by excavating, at 85% of maximum density.
  - 3. Walks:
    - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 90% of maximum density.
  - 4. Pavements:
    - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 95% of maximum density for cohesive soil material.
- C. Moisture control:
  - 1. Where sub-grade or layer of soil material must be moisture-conditioned before compacting, uniformly apply water to surface of sub-grade or layer of soil material to prevent free water appearing on surface during or subsequent to compacting operations.
  - 2. Remove and replace, or scarify and air dry, soil material that is too wet to permit proper compacting.
  - 3. Soil material that has been removed because it is too wet to permit compacting may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value as determined by moisture-density relation tests approved by the soils engineer.

### 3.8 FIELD QUALITY CONTROL

- A. Secure the soils engineer's inspection and approval of sub-SITE GRADING

grades and fill layers before subsequent construction is permitted thereon.

- B. Provide at least the following tests to the approval of the soils engineer:
  - 1. At paved areas, at least one field density test for every 2000 sq ft of paved area, but not less than three tests;
  - 2. In each compacted fill layer, one field density test for every 2000 sq ft of overlaying paved area, but not less than three tests.
- C. If, in the soils engineer's opinion based on reports of the testing laboratory, sub-grade or fills which have been placed are below specified density, provide additional compacting and testing under the provisions of Section 02000.

### 3.9 MAINTENANCE

- A. Protection of newly graded areas:
  - 1. Protect newly graded areas from traffic and erosion, and keep free from trash and weeds;
  - 2. Repair and reestablish grades in settled, eroded, and rutted areas to the specified tolerances.
- B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction.

### 3.10 CERTIFICATION

- A. Upon completion of this portion of the Work, and as a condition of its acceptance, deliver to the Architect a written report from the soils engineer certifying that the compaction requirements have been obtained. State in the report the area of fill or embankment, the compaction density obtained, and the type or classification of fill material placed.

END OF SECTION

## SECTION 02513

### ASPHALTIC CONCRETE PAVING

#### PART 1 \_ GENERAL

##### 1.1 DESCRIPTION

- A. Work included: Provide asphaltic concrete paving where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 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 proper performance of the work of this Section.

##### 1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section;
  - 2. Certificates, signed by the materials producer and the asphalt paving subcontractor, stating that materials meet or exceed the specified requirements.

##### 1.4 PRODUCT HANDLING

- A. Comply with pertinent provisions of Section 01640.

#### PART 2 \_ PRODUCTS

##### 2.1 AGGREGATES

- A. Provide aggregates consisting of crushed stone, gravel, sand, or other sound, durable, mineral materials processed and blended, and naturally combined.

- B. Subbase aggregate maximum size: 1-1/2".
- C. Base aggregate maximum size:
  - 1. Base courses over 6" thick: 1-1/2";
  - 2. Other base courses: 3/4"
- D. Aggregates for asphaltic concrete paving: Provide a mixture of sand, mineral aggregate, and liquid asphalt mixed in such proportions that the percentage by weight will be within:

Sieve sizes:      Percentage passing:

3/4"	100%
3/8"	67 - 85%
1/4"	50 - 65%
No. 8 mesh	37 - 50%
No. 30 mesh	15 - 25%
No. 200 mesh	3 - 8%

plus 50/60 penetration liquid asphalt at 5% to 6-1/2% of the combined dry aggregates.

## 2.2 WEED KILLER

- A. Provide a dry, free-flowing, dust-free chemical compound containing not less than 30% sodium chlorate or a chlorateborate compound, non-flammable, not creating a fire hazard when applied in accordance with the manufacturer's recommendations, soluble in water, and capable of being spread dry or in solution.
- B. Acceptable products:
  - 1. "Chlorax 40": Chipman Chemical Company, Inc., Palo Alto, California
  - 2. "Monobar-Chlorate": U.S. Borax and Chemical Corp., Los Angeles, California.

## 2.3 HEADERS AND STAKES

- A. Provide Redwood, Construction grade, in dimensions shown on the Drawings or as required for the use where dimensions are not shown on the Drawings.

## 2.4 ASPHALTS

- A. Comply with provisions of Asphalt Institute Specification SS-2:
  - 1. Asphalt cement: Penetration grade 50/60.
  - 2. Prime coat: Cut-back type, grade MC-250.

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3. Tack coat: Uniformly emulsified, grade SS--1H.

## 2.5 SEALER

- A. Provide a sealer consisting of suitable fibrated chemical type asphalt base binders and fillers having a container consistency suitable for troweling after thorough stirring and containing no clay or other deleterious substance.
- B. Acceptable products:
  - 1. "Laycold Walk Top": Chevron Asphalt Company, San Pedro, California.

## 2.6 MIXING ASPHALTIC CONCRETE MATERIALS

- A. Provide hot plant mixed asphaltic concrete paving materials.
  - 1. Temperature leaving the plant: 290 degrees F minimum, 320 degrees F maximum.
  - 2. Temperature during placing: 280 degrees F minimum.

## PART 3 \_ EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 FINAL PREPARATION OF SUB-GRADES

- A. After preparation of sub-grade as specified in another Section of these Specifications, thoroughly scarify and sprinkle the entire area to be paved, and then compact to a smooth, hard, even surface of 90% compaction to receive the aggregates.
- B. Apply the specified weed killer to the entire area to be paved. Adhere to the manufacturer's application recommendations.

### 3.3 PLACEMENT OF BASE COURSES

- A. Subbase (when required):
  - 1. Spread the specified subbase material to a thickness providing the compacted thickness shown on the drawings.
  - 2. Compact to 95%.

- B. Base:
  - 1. Spread the specified base material to a thickness providing the compacted thickness shown on the Drawings.
  - 2. Compact to 95%.
- C. Thickness tolerance: Provide the compacted thicknesses shown on the Drawings within a tolerance of minus 0.0" to plus 0.5".
- D. Smoothness tolerance: Provide the lines and grades shown on the Drawings within a tolerance of 3/8" in ten feet.
  - 1. Deviations: Correct by removing materials, replacing with new materials, and reworking or re-compacting as required.
- E. Moisture content: Use only the amount of moisture needed to achieve the specified compaction.

#### 3.4 PLACEMENT OF ASPHALTIC CONCRETE PAVING

- A. Install the specified headers and stakes to achieve the arrangement of paving shown on the Drawings.
- B. Remove all loose materials from the compacted base.
- C. Apply the specified prime coat, and tack coat where required, and allow to dry, in accordance with the manufacturer's recommendations as approved by the Architect.
- D. Adjust frames and covers to meet final grades.
- E. Receipt of asphaltic concrete materials:
  - 1. Do not accept material unless it is covered with a tarpaulin until unloaded, and unless the material has a temperature of not less than 280 degrees F.
  - 2. Do not commence placement of asphaltic concrete materials when the atmospheric temperature is below 50 degrees F, nor during fog, rain, or other unsuitable conditions.
- F. Spreading:
  - 1. Spread material in a manner which requires the least handling.
  - 2. Where thickness of finished paving will be 3" or less, spread in one layer.
- G. Rolling:
  - 1. After the material has been spread to the proper



depth, roll until the surface is hard, smooth, unyielding, and true to the thickness and elevations shown on the Drawings.

2. Roll in at least two directions until no roller marks are visible.
3. Finished paving smoothness tolerance:
  - a. Free from birdbaths.
  - b. No deviations greater than 1/8" in six feet.

### 3.5 FLOOD TEST

- A. Prior to application of seal coat, perform a flood test in the presence of the Architect.
- B. Method:
  1. Flood the entire asphaltic concrete paved area with water by use of a tank truck or hoses.
  2. If a depression is found where water ponds to a depth of more than 1/8" in six feet, fill or otherwise correct to provide proper drainage.
  3. Feather and smooth the edges of fill so that the joint between fill and original surface is invisible.

### 3.6 APPLICATION OF SEAL COAT

- A. Prepare the surfaces, mix the seal coat material, and apply in accordance with the manufacturer's recommendations as approved by the Architect.
- B. Apply one coat of the specified sealer.
- C. Achieve a finished surface seal which, when dry and thoroughly set, is smooth, tough, resilient, of uniform black color, and free from coarse textured areas, lap marks, ridges, and other surface irregularities.

### 3.7 PROTECTION

- A. Protect the asphaltic concrete paved areas from traffic until the sealer is set and cured and does not pick up under foot or wheeled traffic.

END OF SECTION

## SECTION 02580

### PAVEMENT MARKINGS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Provide pavement markings in the types and arrangements shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Condition, Supplementary Conditions, and Sections in Division 1 of these Specifications.

##### 1.2 SUBMITTALS

- A. Comply with pertinent provisions of Section 01340.
- B. Product data: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section;
  - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
  - 3. Photographs, scale drawings, or other data acceptable to the Architect, showing types of graphics proposed to be used.

##### 1.3 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 proper performance of the work of this section.

##### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with pertinent provisions of Section 01640.

#### PART 2 - PRODUCTS

##### 2.1 PAVEMENT MARKING PAINT

- A. Provide paint specifically formulated for use as pavement marking in automobile traffic areas, and in the colors

selected by the Architect from standard colors of the approved manufacturer.

- B. Acceptable products:
  - 1. "Traffic Paint" manufactured by J.E. Bauer Company.
  - 2. "Traffic Paint" manufactured by Tnemec.
  - 3. "Romark Traffic" manufactured by Glidden-Durkee.

## 1.2 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 APPLICATION

- A. Secure the Architect's approval of graphics design and layout prior to start of application.
- B. Using proper masking, stencils, and application equipment recommended for the purpose by the manufacturer of the approved paint, apply the approved paint in strict accordance with its manufacturer's recommendations.

### 3.3 CLEANUP

- A. When paint is thoroughly dry, visually inspect the entire application, and:
  - 1. Touch-up as required to provide clean, straight lines and surfaces throughout.
  - 2. Using a permanently opaque paint identical in color to the surface on which the paint was applied, block out and eliminate all traces of splashed, tracked, and/or spilled pavement marking paint from the background surfaces.

END OF SECTION

## SECTION 03310

### CONCRETE SIDE WALKS & CURBS

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Work included:
1. Provide the services of a trained professional for field layout of the work.
  2. Remove existing damaged sidewalks, curbs and concrete slabs where shown on the drawings (if applicable), as specified herein, and/or as directed in the field by the Housing Authority's Designated Representative or indicated by painted markings in the field for a complete and proper installation. Dispose of properly off-site all removed materials.
  3. Replace removed concrete sidewalks and curbs with new concrete sidewalks where shown on the drawings (if applicable), as specified herein, and/or as directed in the field by the Housing Authority's Designated Representative or indicated by painted markings in the field for a complete and proper installation.
  4. Provide new, additional cast-in-place concrete sidewalks and curbs where shown on the drawings (if applicable), as specified herein, and/or as directed in the field by the Housing Authority's Designated Representative or indicated by painted markings in the field for a complete and proper installation.
  5. Restore all areas damaged by this work, including topsoil, rough and fine grading, landscaping, and seeding.
- B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications. (if applicable)

##### 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 proper performance of this work.
- B. Quality control:
1. Do not commence placement of concrete until mix designs have been reviewed and approved by the Housing

Authority Representative and all governmental agencies having jurisdiction, and until copies are at the job site, the batch plant, and the building department.

2. Also see other requirements in Part 3 of this Section.

### 1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01340.

B. Product data: Within 10 calendar days after the Contractor has received the Housing Authority's Notice to Proceed, submit:

1. Materials list of items proposed to be provided for this work;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.

### 1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01640.

## PART 2 - PRODUCTS

### 2.1 CEMENT

A. Provide a standard brand of portland cement complying with ASTM C150, type I or II, low alkali. Do not change the brand of cement during progress of the Work except as approved in writing by the Housing Authority's Delegated Representative.

### 2.2 AGGREGATES

A. General:

1. Provide hard-rock aggregate complying with ASTM C33, with additional attributes as specified herein.
2. For making grading tests of fine and coarse aggregate, use square mesh wire cloth complying with ASTM E11.

B. Fine aggregate:

1. Provide washed natural sand with strong, hard, durable particles, with not more than 2% by weight of deleterious matter such as clay lumps, mica, shale, or schist.
2. Grade from coarse to fine within the following limits:

Percentage of material, by weight, passing sieve:

Size:	Minimum	Maximum
3/8"	100	---

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No. 4	95	-	100
No. 8	65	-	95
No. 16	45	-	75
No. 30	30	-	50
No. 50	10	-	22
No. 100	2	-	8

C. Coarse aggregate:

1. Provide coarse aggregate consisting of clean, hard, fine grained, sound crushed rock or washed gravel, or a combination of both, containing less than 5% by weight of flat, chip-like, thin, elongated, friable, or laminated pieces, and less than 2% by weight of shale material.
  - a. Any piece having a length in excess of five times the average thickness shall be considered flat.
2. Use coarse aggregate of the largest practicable size for each condition of placement, subject to the following maximum size limitations:
  - a. Do not exceed 3/4 of the clear distance between reinforcing bars, 1/5 of the narrowest dimension between sides of forms, or 1/3 the depth of any slab section.
3. Grade combined aggregates within the following limits.

Percentage of material, by weight, passing sieve:  
 or size in 1-1/2" aggregate: 1" aggregate: 3/4"  
 aggregate:

Size:	Min:	Max:	Min:	Max:	Min:	Max:
1-1/2"	95	---	---	---	---	---
1"	75	90	90	100	---	---
3/4"	55	77	70	90	90	100
3/8"	40	55	45	65	60	80
No. 4	30	40	31	47	40	60
No. 8	22	35	23	40	30	45
No. 16	16	30	17	35	20	35
No. 30	10	20	10	23	13	23
No. 50	2	8	2	10	5	15
No. 100	0	3	0	3	0	5

2.3 WATER

- A. Use only water which is clean and free from deleterious amounts of acid, alkali, salt, and organic materials.

2.4 ADMIXTURES

- A. Use only a standard brand of admixture for concrete,  
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approved by the Housing Authority's Designated Representative, meeting or exceeding the following:

1. Reduce the required mixing water at least 75% without entraining air in excess of 2% by volume.
  - a. If the admixture used entrains more than 2% air, water reduction shall be at least 10%, but in no case shall the volume of air entrained exceed 5%.
2. A separate approved air-entraining agent may be used in addition to the water-reducing admixture, provided the combination of the two admixtures meets the requirements listed above.
3. If pozzolanic materials are used, make them from an oil-impregnated diatomaceous shale, or from an opaline cherty shale, chert, or porcelaneous rock found in the Monterey formation, or other Miocene strata, or material of similar mineralogical composition.
4. Use only automatic dispensers approved by the testing agency for adding admixture.
5. If an air-entraining agent is used, run air content determinations periodically during the pour to make certain the air volume entrained is less than 5%.

## 2.5 OTHER MATERIALS

- A. Abrasive (if required):
  1. Provide aluminum oxide grains, uniformly graded, screen size 12-13, 14-36, or 16-30.
  2. Acceptable products:
    - a. "Alundrum";
    - b. "Aloxite".
- B. Expansion joint filler:
  1. Provide preformed strips, non-extruding and resilient bituminous type, of ½" thickness, complying with ASTM D1751.
  2. If sealants are used in the joints, provide a filler complying with ASTM D1752.
- C. Curing materials:
  1. Curing paper: Comply with ASTM C171, type 1, regular.
  2. Liquid curing compounds:
    - a. Provide a standard brand, clear or black as directed by the Housing Authority's Designated Representative for the particular application, and complying with ASTM C309.
    - b. When black compound is used, provide compatibility with the adhesive used for laying floor covering in such areas.
- D. Reinforcing:

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1. Comply with pertinent provisions of the following, except as may be modified herein.
  - a. ACI 318;
  - b. CRSI "Manual of Standard Practice."
2. Provide welded steel wire fabric 6" x 6" 10/10, complying with ASTM A185.
3. Provide bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement in place. Use wire bar type supports complying with CRSI recommendations. Do not use wood, brick, or other non-complying material.

E. Miscellaneous scheduled materials:

1. Various miscellaneous products may be scheduled or described which are required for a complete and proper installation. These miscellaneous products shall be furnished by the Contractor, subject to the approval of the Housing Authority's Designated Representative.

F. Other non-scheduled materials:

1. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Housing Authority's Designated Representative.

## 2.6 CONCRETE MIX

- A. Provide a mix design prepared by the approved testing agency, based on strengths of the approved materials.
1. Secure the Housing Authority's Designated Representative's approval of each mix design, including new mix designs required to be prepared should there occur a change in materials being used.
  2. Unless otherwise directed, use type II portland cement to achieve an ultimate compressive strength of 4500 psi at 28 days.

## PART 3 - EXECUTION

### 3.1 FIELD LAYOUT

- A. Work included: Provide such field engineering services as are required for proper completion of the Work including, but not necessarily limited to:
1. Establishing and maintaining lines and levels;
  2. Structural design of shores, forms, and similar items provided by the Contractor as part of his means and methods of construction.
  3. The Owner will furnish survey describing the physical characteristics, legal limitations, utility locations, and legal description of the site.

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4. Locate and protect control points before starting work on the site.
5. Preserve permanent reference points during progress of the Work.
6. Do not change or relocate reference points or items of the Work without specific approval from the Housing Authority's Designated Representative.
7. Promptly advise the Housing Authority's Designated Representative when a reference point is lost or destroyed, or requires relocation because of other changes in the Work.
  - a. Upon direction of the Housing Authority's Designated Representative, require the field engineer to replace reference stakes or markers.
  - b. Locate such replacements according to the original survey control.

### 3.2 SURFACE CONDITIONS

- A. Examine the areas and conditions where the work will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. If replacing existing concrete, thoroughly remove existing slab by breaking into pieces easily removed and transported. Remove all organic material, roots and other undesirable material.

### 3.3 EXCAVATION

- A. Perform excavating of every type of material encountered within the limits of the Work to the lines, grades, and elevations indicated and specified herein.
- B. Satisfactory excavated materials:
  1. Transport to, and place in, fill or embankment areas within the limits of the Work.
- C. Unsatisfactory excavated materials:
  1. Excavate to a distance below grade as directed by the Housing Authority's Designated Representative, and replace with satisfactory materials.
  2. Include excavation of unsatisfactory materials, and replacement by satisfactory materials, as parts of the work.
- D. Surplus materials:
  1. Dispose of unsatisfactory excavated materials, and

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surplus excavated material, away from the site at disposal areas arranged and paid for by the Contractor.

- E. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.
- F. Ditches and gutters:
  - 1. Cut accurately to the cross sections, grades, and elevations required.
  - 2. Maintain excavations free from leaves, sticks, trash, and other debris until completion of the Work.
  - 3. Properly dispose of excavated materials off-site.

### 3.4 FILLING AND BACKFILLING

- A. Backfill excavations as promptly as progress of the Work permits, but not until:
  - 1. Acceptance of construction below finish grade:
  - 2. Inspecting, testing, approving, and recording locations of underground utilities;
  - 3. Concrete form-work is removed;
  - 4. Shoring and bracing are removed, and voids have been backfilled with satisfactory materials;
  - 5. Trash and debris have been removed.
- B. Ground surface preparation:
  - 1. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from the ground surface prior to placement of fills.
  - 2. Plow, strip, or break up surfaces steeper than one vertical to four horizontal, so that fill material will bond with existing surface.
  - 3. At exposed soils in areas to be paved, scarify to a minimum depth of 6", and re-compact at a moisture content that will permit proper compaction as specified for fill.
- C. Placing and compacting:
  - 1. Place backfill and fill materials in layers not more than 8" in loose depth.
  - 2. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content.
  - 3. Compact each layer to required percentage of maximum density for the area.
  - 4. Do not place backfill or fill material on surfaces that are muddy, frozen, or containing frost or ice.
  - 5. Place backfill and fill materials evenly adjacent to structures, to required elevations.

### 3.5 GRADING

- A. General:
  - 1. Uniformly grade the areas within limits of grading, including adjacent transition areas.
  - 2. Smooth the finished surfaces within specified tolerance.
  - 3. Compact with uniform levels or slopes between points and existing grades.

### 3.6 COMPACTING

- A. Control soil compaction during construction to provide the minimum percentage of density specified for each area as determined according to ASTM D1557.
- B. Provide not less than the following maximum density of soil material compacted at optimum moisture content for the actual density of each layer of soil material in place, and as approved by the soils engineer.
  - 1. Lawn and unpaved areas:
    - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 90% of maximum density;
    - b. Compact the upper 12" of filled areas, or natural soils exposed by excavating, at 85% of maximum density.
  - 2. Walks:
    - a. Compact the top 8" of sub-grade and each layer of fill material or backfill material at 90% of maximum density.
- C. Moisture control:
  - 1. Where sub-grade or layer of soil material must be moisture-conditioned before compacting, uniformly apply water to surface of sub-grade or layer of soil material to prevent free water appearing on surface during or subsequent to compacting operations.
  - 2. Remove and replace, or scarify and air dry, soil material that is too wet to permit proper compacting.
  - 3. Soil material that has been removed because it is too wet to permit compacting may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

### 3.7 CONCRETE MIXING

- A. Concrete for minor work, when approved by the Housing Authority's Designated Representative, may be mixed at the site in a power mixer when the mixer has a capacity not

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less than one full sack batch.

- B. Unless otherwise approved by the Housing Authority's Designated Representative, use ready -mixed concrete complying with ASTM C94, except as may be modified by the following.
1. For materials used for ready mixed concrete, and for methods of measuring materials, comply with applicable provisions cited below.
  2. Equip the loading plant to handle not less than four sizes of aggregate so as to prevent intermixing of aggregates until loaded into the weighing hopper.
  3. Equip truck mixers with a mixing water tank fitted with a water gauge.
  4. Mixing:
    - a. Mix each batch of concrete a minimum of 15 minutes, 5 minutes of which shall be at the site.
    - b. Rotate the drum at the rate specified by the manufacturer of the mixer as "mixing speed."
    - c. Whenever there is a delay in unloading, rotate the drum slowly at intervals to prevent incipient set of concrete.
  5. Addition of water:
    - a. Normally, do not deliver concrete with total permissible amount of water incorporated therein.
    - b. Unless otherwise approved by the Housing Authority's Designated Representative, withhold at least 2-1/2 gal per cu yd and add before the concrete is discharged under observation of the Housing Authority's Designated Representative or designated inspector.
    - c. After water is added, mix at least five minutes immediately prior to discharge.
    - d. Concrete will be rejected if not placed in final position within 1-1/2 hours after water is first added to the batch.
  6. Concrete at time of placing shall be in such condition that it can be placed properly.
  7. Discharge all wash water from the mixing drum before the truck reloads at the batching plant.
- C. Concrete consistency:
1. Use the amount of water established by the approved mix design.
    - a. Do not exceed the maximum quantity specified for the grade of concrete.
    - b. Use the minimum amount of water necessary to produce concrete of the workability required.
    - c. Do not supplement the predetermined amount of water with additional water for any reason.

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2. Measure concrete consistency by ASTM C143 method.
    - a. As part of the routine testing and inspecting, test twice each day or partial day's run of the mixer.
    - b. Maintain a complete and accurate record of tests.
  3. Provide concrete with a maximum 3" slump.
- D. Miscellaneous provisions:
1. Provide concrete dense and free from honeycomb and other defects.
  2. Place and finish members to conform to the shapes and dimensions indicated, with all surfaces true to line, plumb, and level.

### 3.8 CONVEYING AND PLACING CONCRETE

- A. Before placing concrete, thoroughly clean forms, wash out with water, and make tight.
- B. Time of placing:
1. Do not place concrete until reinforcement, conduits, outlet boxes, anchors, sleeves, hangers, bolts, and other embedded materials are securely and properly fastened in their correct positions.
  2. Secure the Housing Authority's Designated Representative's approval of reinforcement before commencing placement of concrete.
- C. Preparation:
1. Before new concrete is deposited upon or against concrete that has taken its initial set or has hardened, remove all incrustations from forms and reinforcement.
  2. Remove all laitance, oil, and loose particles from concrete and concrete surfaces, and thoroughly clean the forms with water under stiff pressure.
  3. Remove laitance after concrete has hardened partially (not less than two hours nor more than four hours after placing) by brushing with stiff bristles, or by directing a stream of water from a 1/4" nozzle, or by other method approved by the Housing Authority's Designated Representative, to expose the clean top surface of the coarse aggregate.
  4. Where cleaning is not satisfactory to the Housing Authority's Designated Representative, sandblast the surface and then wash again.
- D. Method of placing:
1. Place concrete only under the degree of inspection described elsewhere in these Specifications, and as

- required by governmental agencies having jurisdiction.
2. Do not place concrete outside of regular working hours unless required inspection authorities have been notified properly and are present.
3. Spouts, pipes, troughs, belts, chain buckets, and other equipment may be used in conveying concrete, but the manner and method used shall be only as approved by the Housing Authority's Designated Representative.
4. Do not permit concrete to free drop more than 6'-0".
5. Deposit concrete direct into conveyances, and direct from conveyances to final points of repose, except where troughs, buckets, or the like are used, in which case dump concrete into hoppers and then into the conveyances.
6. Deposit concrete so that the surface is kept level throughout, a minimum being permitted to flow from one to another, and place as rapidly as practicable after mixing.
7. Do not use in this Work any concrete not placed within 30 minutes after leaving the mixer.

E. Tamping and conveying:

1. Thoroughly work concrete around reinforcement and embedded fixtures, and into corners of forms, during placing operations.
2. Completely compact with tamping poles and by tapping forms until the concrete is thoroughly compact and without voids. Determine the number of tampers needed by the amount and method of placing concrete.
3. Exercise care to tamp concrete vigorously and thoroughly to obtain maximum density.
4. Use manual tampers as well as mechanical vibrators.
  - a. Exercise care to direct the quick handling of vibrators from one position to another.
  - b. Do not over-vibrate concrete.
  - c. Do not move concrete by use of vibrator.

F. Stoppages:

1. Stop concrete placing only when and where approved by the Housing Authority's Designated Representative.
2. Maintain flow surfaces of freshly placed concrete as level whenever a pour is stopped, providing tight dams to accomplish this.
3. Make construction joints only where unavoidable, and then only at points determined by the Housing Authority's Designated Representative.
4. Make horizontal construction joints only where required below or specifically approved by the Housing Authority's Designated Representative.
5. Provide keys and dowels at construction joints where

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concrete placement is interrupted.

### 3.9 SLABS, WALKS, AND PAVING ON EARTH

- A. Preparation for slabs on earth:
  - 1. Prepare the sub-grade as described below.
  - 2. Dampen the sub-grade for sidewalks prior to placing concrete.
  
- B. Placing and finishing:
  - 1. Tamp the freshly placed concrete using a heavy tamper, until at least 3/8" of mortar is brought to the surface.
  - 2. Use tampers having a face consisting essentially of a grid of parallel metal bars.
  - 3. Tamp with a light tamper, and screed with a heavy straightedge, until depressions and irregularities are worked out and the surface is true to finish grades and elevations.
  - 4. Remove excess water and debris worked to the surface in compacting and screeding.
  - 6. Remove laitance as described above.
  - 7. When concrete has hardened sufficiently, float to a compact and smooth surface.
  - 8. Provide a non-slip, "broom" finish or as otherwise directed by the Housing Authority's Designated Representative.
  
- C. Cure and protect concrete as described below.

### 3.10 DEFECTIVE CONCRETE

- A. The following concrete will be deemed to be defective and shall be removed promptly from the job site.
  - 1. Concrete which is not formed as indicated, is not true to intended alignment, is not plumb or level where so intended, is not true to intended grades and levels;
  - 2. Has voids or honeycomb that have been cut, resurfaced, or filled, unless with the approval of the Housing Authority's Designated Representative;
  - 3. Has sawdust, shavings, wood, or embedded debris;
  - 4. Or does not conform fully to provisions of the Contract Documents.
  
- B. Repairs and replacements:
  - 1. Defective concrete may be cut out and repaired with gunite, or other approved methods, when and as directed by the Housing Authority's Designated Representative.
  - 2. Where defective concrete is found after removal of the

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- forms, cut out the defective concrete, if necessary, and make the surfaces match adjacent surfaces.
3. Work uneven surfaces and angles of concrete to a surface matching adjacent concrete surface.

### 3.11 REINFORCING

- A. Install welded wire fabric in as long lengths as practicable, lapping adjoining pieces at least one full mesh.
- B. Provide sufficient numbers of supports, and of strength to carry the reinforcement.
- C. Use supports with sand plates or horizontal runners where base material will not support chair legs.

### 3.12 CONCRETE FINISHING

- A. Provide finishes on cast-in-place concrete as needed for a complete and proper installation.
- B. Except as may be modified herein or otherwise directed by the Housing Authority's Designated Representative, comply with ACI 301, "Specifications for Structural Concrete for Buildings."
- C. Where required install slip-resistant abrasive aggregate:
  1. Provide aluminum oxide, 14/36 grading.
  2. Acceptable manufacturers:
    - a. Carborundum Company;
    - b. Norton Company;
    - c. L. M. Scofield Company.
- D. Provide "broom finish".
  1. After the concrete has been placed, consolidated, struck off, and leveled, do not work the concrete further until ready for floating.
  2. Begin floating when the water sheen has disappeared and when the surface has stiffened sufficiently to permit the operation.
  3. During or after the first floating, check the planeness of the surface with a ten foot straightedge applied at not less than two different angles.
  4. Cut down high spots and fill low spots, and produce a surface with a Class B tolerance throughout.
  5. Refloat the slab immediately to a uniform sandy texture.
  6. While the surface is still plastic, provide a textured finish by drawing a fiber bristle broom uniformly over

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the surface.

7. Unless otherwise directed by the Housing Authority's Designated Representative, provide the texturing in one direction only.
  8. Provide "medium" texturing as directed by the Housing Authority's Designated Representative.
  9. An approved chemical retarder sprayed onto the freshly floated surface may be used to extend the working time for exposure of aggregate.
- E. Provide alternate construction joints and expansion joints in all slabs at 5'-0" o.c. in each direction.

### 3.13 CURING AND PROTECTION

- A. Beginning immediately after placement, protect concrete from premature drying, excessively hot and cold temperatures, and mechanical injury.
- B. Preservation of moisture:
1. Unless otherwise directed by the Housing Authority's Designated Representative, apply one of the following procedures to concrete not in contact with forms, immediately after completion of placement and finishing.
    - a. Ponding or continuous sprinkling;
    - b. Application of absorptive mats or fabric kept continuously wet;
    - c. Application of sand kept continuously wet;
    - d. Continuous application of steam (not exceeding 150 degrees F) or mist spray;
    - e. Application of waterproof sheet materials;
    - f. Application of other moisture-retaining covering as approved by the Housing Authority's Designated Representative;
  2. Where forms are exposed to the sun, minimize moisture loss by keeping the forms wet until they can be removed safely.
  3. Cure concrete by preserving moisture as specified above for at least seven days.
- C. Temperature, wind, and humidity:
1. Cold weather:
    - a. When the mean daily temperature outdoors is less than 40 degrees F, maintain the temperature of the concrete between 50 degrees F and 70 degrees F for the required curing period.
  2. Hot weather: When necessary, provide wind breaks, fog spraying, shading, sprinkling, ponding, or wet covering with a light colored material, applying as

quickly as concrete hardening and finishing operations will allow.

3. Rate of temperature change: Keep the temperature of the air immediately adjacent to the concrete during and immediately following the curing period as uniform as possible and not exceeding a change of 5 degrees F in any one hour period, or 50 degrees F in any 24 hour period.

D. Protection from mechanical injury:

1. During the curing period, protect the concrete from damaging mechanical disturbances such as heavy shock, load stresses, and excessive vibration.
2. Protect finished concrete surfaces from damage from construction equipment, materials, and methods, by application of curing procedures, and by rain and running water.

### 3.14 MISCELLANEOUS PROVISIONS

- A. Barricade open holes and depressions occurring as part of this Work, and post warning lights on property adjacent to or with public access.
- B. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
- C. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by the execution of this work.
- D. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.
- E. Maintain access to adjacent areas at all times.

### 3.15 MAINTENANCE

- A. Protection of newly graded areas:
  1. Protect newly graded areas from traffic and erosion, and keep free from trash and weeds;
  2. Repair and reestablish grades in settled, eroded, and rutted areas to the specified tolerances.
- B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction.

END OF SECTION

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## SECTION 07900

### JOINT SEALERS ELASTOMERIC AND NON-ELASTOMERIC SEALANT

#### Part 1 - General

##### 1.01 Summary

- A. This specification describes the sealing of joints and cracks with a one-component, self-leveling, elastomeric polyurethane sealant.

##### 1.02 Quality Assurance

- A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001:2008 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.
- B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.
- C. Install materials in accordance with all safety and weather conditions required by manufacturer or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

##### 1.03 Delivery, Storage, and Handling

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.
- B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.
- C. Condition the specified product as recommended by the manufacturer.

##### 1.04 Job Conditions

- A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 40°F (5°C) and rising.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified sealant.

##### 1.05 Submittals

- A. Submit two copies of manufacturer's literature, to include: Product Data Sheets, and appropriate Material Safety Data Sheets (MSDS).

#### 1.06 Warranty

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one (1) year, beginning with date of substantial completion of the project.

### Part 2 - Products

#### 2.01 Manufacturers

- A. Sikaflex-1CSL, as manufactured by Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071 is considered to conform to the requirements of this specification.

#### 2.02 Materials

- A. Polyurethane sealant:

- 1. The joint sealant shall be a one-component, self-leveling, polyurethane-base material. It shall be applicable in horizontal joints. The sealant shall principally cure under the influence of atmospheric moisture to form an elastomeric substance.

- B. Backer rod or bond breaker tape as approved by engineer.

#### 2.03 Performance Criteria

- A. Properties of the uncured polyurethane sealant:

- 1. Initial Cure (Tack-Free Time): 1-2 hours
- 2. Consistency: self-leveling
- 3. Color: Limestone Gray

- B. Properties of the cured polyurethane sealant:

- 1. Tensile Properties (ASTM D-412) at 21 days Self-Leveling
  - a. Tensile Strength at break: minimum 300 psi
  - b. Tensile Elongation: minimum 500%
  - c. Modulus of Elasticity - 100% Elongation 200 psi, min.
- 2. Shore A Hardness (ASTM D-2240) at 21 days:
  - a. Self-leveling: 45 +/-5
- 3. Adhesion in Peel (ASTM C-794)
  - Mortar: >15-pli 0% Adhesion Loss
  - Aluminum: >15-pli 0% Adhesion Loss
- 4. Service Range: -40o to 170oF (-400 to 770C)
- 5. The sealant shall conform to Federal Specification TT-S-00230C, Type I, Class A.

6. The sealant shall conform to ASTM C-920, Type S, Grade P, Class 25.
7. The sealant shall be capable of  $\pm 25\%$  of the average joint width when tested in accordance to the durability bond test of Federal Specification TT-S-00230C and ASTM C-719.
8. The sealant shall be non-staining.
9. Final Cure: 3 to 5 days.

### Part 3 - Execution

#### 3.01 Surface Preparation

- A. The joint and adjacent substrate must be clean, dry, sound and free of surface contaminants. Remove all traces of the old sealant, dust, laitance, grease, oils, curing compounds, form release agents and foreign particles by mechanical means, i.e. - sandblasting, etc., as approved by the engineer. Blow joint free of dust using compressed air line equipped with an oil trap.

#### 3.02 Mixing and Application

##### A. Joints:

1. Install approved backer rod or bond breaker tape in all joints subject to thermal movement to prevent three-sided bonding and to set the depth of the sealant at a maximum of 1/2 in., measured at the center point of the joint width. Approval of the backer rod or bond breaker tape shall be made by the Engineer.
2. Joints shall be masked to prevent discoloration or application on unwanted areas, as directed by the Engineer. If masking tape is used, it shall not be removed before tooling, yet must be removed before the initial cure of the sealant. Do not apply the masking tape until just prior to the sealant application.
3. Install sealant into prepared joints when the joint is at mid-point of its expansion and contraction cycle.  
Self-leveling sealant: Pour or extrude the sealant into the prepared joint in one direction and allow it to flow and level as necessary. Avoid overlapping the sealant to eliminate the entrapment of air. Tool as required to properly fill the joint.
4. Adhere to all limitations and cautions for the polyurethane sealant in the manufacturer's printed literature.

##### B. Cracks:

1. Pour or extrude the sealant into the prepared crack in one direction and allow it to flow and level as necessary. Avoid

overlapping the sealant to eliminate the entrapment of air.  
Tool as required to properly fill the crack.

2. Adhere to all limitations and cautions for the polyurethane sealant as stated in the manufacturers printed literature.

### 3.03 Cleaning

- A. The uncured polyurethane sealant can be cleaned with an approved solvent. The cured polyurethane sealant can only be removed mechanically.
- B. Leave work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

END OF SECTION