

**PROJECT MANUAL - OUTLINE SPECIFICATION**

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<b>PROJECT:</b>	<b>University of Oregon Student Recreation Center Expansion and Renovation RDG # 2011.499.00 RSA #1110</b>
<b>OWNER:</b>	<b>University of Oregon Eugene, Oregon</b>
<b>DATE:</b>	<b>February 2012</b>
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<b>CIVIL ENGINEER</b>	<b>KPFF</b>
<b>LANDSCAPE ARCHITECTS</b>	<b>Cameron McCarthy</b>
<b>STRUCTURAL ENGINEER:</b>	<b>M.R.Richards Engineers</b>
<b>MECHANICAL ENGINEER, ELECTRICAL ENGINEER, TECHNOLOGY ENGINEER</b>	<b>Interface Engineers Interface Engineers Interface Engineers</b>
<b>LIGHTING ENGINEER</b>	<b>RDG Planning &amp; Design</b>
<b>FIRE SUPPRESSION/ALARM</b>	<b>Creighton Engineering</b>
<b>AQUATICS CONSULTANT:</b>	<b>Aquatics Design Group</b>

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## **PROCUREMENT AND CONTRACTING DOCUMENTS GROUP**

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### **00 PROCUREMENT AND CONTRACTING REQUIREMENTS**

#### **INTRODUCTORY INFORMATION**

- 00.1 DOCUMENT 00 01 01 – TITLE PAGE
  - A. Official Project name and legal address of Owner
- 00.2 DOCUMENT 00 01 10 – TABLE OF CONTENTS
  - A. List of all Documents, Forms and Technical Specification Sections in the Project Manual including identification of the firm responsible for preparing each document.
- 00.3 DOCUMENT 00 01 15 - LIST OF DRAWINGS
  - A. List of all Drawings included in Contract Documents including identification of firm responsible for preparing each Drawing.

#### **PROCUREMENT REQUIREMENTS**

- 00.4 DOCUMENT 0011 00 – INVITATION TO BID
  - A. Prepared by CMGC
- 00.5 DOCUMENT 00 20 00 - INSTRUCTIONS TO BIDDERS & SPECIAL PROVISIONS
  - A. Prepared by CMGC
- 00.6 DOCUMENT 00 30 00 – INFORMATION AVAILABLE TO BIDDERS
  - A. Include information available to bidder.
    - 1. Geotechnical reports and soil boring data
    - 2. Property surveys, hazardous materials report
- 00.7 DOCUMENT 00 41 00 - BID FORM
  - A. Prepared by CMGC.

#### **CONTRACTING REQUIREMENTS**

DOCUMENT B8 - General Conditions for Public Improvement Projects.

- 00.8 PREVAILAING WAGE RATE
  - A. BOLI
- 00.9 SUBCONTRACTOR FORMS

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## SPECIFICATIONS GROUP

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### GENERAL REQUIREMENTS SUBGROUP

#### 01 GENERAL REQUIREMENTS

- 01.1 SECTION 01 11 00 - SUMMARY
  - A. Work covered by Contract Documents.
  - B. Type of Contract.
  - C. Work phases.
  - D. Work under other contracts.
    - 1. .
  - E. Products ordered in advance.
  - F. Owner-furnished products.
  - G. Use of premises.
  - H. Owner's occupancy requirements.
  - I. Work restrictions.
  - J. Specification formats and conventions.
  
- 01.2 SECTION 01 20 00 – PRICE AND PAYMENT PROCEDURES
  - A. Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
  - B. Contractor provides schedule of values describing value of each part of the work.
  - C. Requirements for Application for Payment
    - 1. Monthly, first of month to first of month.
    - 2. Format: AIA Form G702 and G703
  - D. Application for Final Payment
  
- 01.3 SECTION 01 21 00 – ALLOWANCES
  - A. Section includes administrative and procedural requirements for allowances.
  - B. Schedule of Allowances:
    - 1. Allowance No. 1:
    - 2. Allowance No. 2:
  
- 01.4 SECTION 01 22 00 – UNIT PRICES
  - A. Section includes administrative and procedural requirements for unit prices.
  - B. Schedule of Unit Prices:
  
- 01.5 SECTION 01 23 00 – ALTERNATES
  - A. Section includes administrative and procedural requirements for alternates.
  - B. Schedule of Alternates:
  
- 01.6 SECTION 01 26 00 – CONTRACT MODIFICATION PROCEDURES
  - A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
  - B. Minor Changes in the Work: AIA Document G710, "Architects Supplemental Instructions".
  - C. Proposal Request: AIA Document G709, "Proposal Requests".
  - D. Change Order: On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701, "Change Order".

01.7 SECTION 01 31 00 – PROJECT MANAGEMENT AND COORDINATION

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. Coordination Drawings.
  - 2. Administrative and supervisory personnel.
  - 3. Project meetings.
  - 4. Requests for Interpretation (RFIs).
- B. Contractor is responsible for coordination of the work of all trades.
- C. Contractor establishes bench marks and elevations.
- D. Verify location of all underground utilities, facilities and equipment.
- E. Procedure for Preconstruction Meeting:
  - 1. Scheduled and presided by Owner.
  - 2. Agenda, minutes and distribution by Architect
- F. Procedure for Progress Meetings
  - 1. Meeting schedule.
  - 2. Contractor: Write and distribute minutes.
  - 3. Contractor: Prepare agenda and preside over meeting
  - 4. Required attendance
- G. Pre-Installation Conferences:
  - 1. Meet for each part of the work specifying a pre-installation conference
  - 2. Scheduled and presided by Contractor. Contractor writes and distributes minutes.
  - 3. Agenda by Contractor.
- H. Requests for Interpretation (RFI's):
  - 1. Procedure: Originated by Contractor; submit immediately to Architect on specified form upon discovery of need for interpretation of Contract Documents.
  - 2. Form:
    - a. Hard copy RFI: CSI Form 13.2A or approved equivalent form
    - b. Software-Generated RFIs: Adobe Acrobat PDF format.
  - 3. Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
    - a. The following RFIs will be returned without action:
      - 1) Requests for approval of submittals.
      - 2) Requests for approval of substitutions.
      - 3) Requests for coordination information already indicated in the Contract Documents.
      - 4) Requests for adjustments in the Contract Time or the Contract Sum.
      - 5) Requests for interpretation of Architect's actions on submittals.
      - 6) Incomplete RFIs or RFIs with numerous errors.
  - 4. RFI Log: Contractor shall prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.

01.8 SECTION 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Preliminary Construction Schedule.
  - 2. Contractor's Construction Schedule.
  - 3. Submittals Schedule.

01.9 SECTION 01 33 00 – SUBMITTAL PROCEDURES

- A. Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Procedures for contractor's use of Architect's CADD files.
  - 1. Form: CADD/Electronic File Transfer and Use Agreement for Contractors.

01.10 SECTION 01 40 00 - QUALITY REQUIREMENTS

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement.
- C. Quality Assurance Services:
- D. Manufacturer, installer, and fabricator qualification levels required.
- E. Testing Agency requirements.
- F. Factory-authorized service representative qualifications.
- G. Preconstruction testing.
- H. Mockups.
- I. Quality Control Services:
  - 1. Testing and inspection procedures and responsibilities.
  - 2. Individual specification sections designate testing requirements.
  - 3. Owner will employ and pay for soil compaction, concrete, masonry, and steel testing.
  - 4. Contractor will employ and pay for all other testing services not described in "A." above.
  - 5. Special Tests and Inspection requirements.

01.11 SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Temporary electric and lighting:
  - 1. Equipment and extension of service by Contractor
  - 2. Cost of energy by Owner.
- C. Temporary Heating and Ventilation:
  - 1. Prior to enclosure - equipment and cost of energy paid by Contractor
  - 2. After enclosure - Equipment by Contractor; Cost of energy consumed paid by Owner.
- D. Telephone: Equipment and use charges paid by Contractor.
- E. Facsimile: Required on job. Equipment and use charges paid by Contractor.
- F. Temporary Water:
  - 1. Equipment and extension of service by Contractor
  - 2. Cost of water consumed paid by Owner.
- G. Temporary Sanitary Facilities: Contractor furnishes temporary facilities. Do not use existing facilities.
- H. Barriers: By Contractor as needed.
- I. Construction Fencing: University standard construction fencing.
- J. Site Access: By Contractor
- K. Erosion Control: By Contractor as needed.
- L. National Pollutant Discharge Elimination System (NPDES) permit requirements.
- M. Exterior Enclosures: By Contractor
- N. Protection of installed work: By Contractor.
- O. Security: By Contractor
- P. Street Maintenance: By Contractor for all debris from job site.
- Q. Parking: Park within area defined as Construction Limits.
- R. Progress Cleaning and Waste Removal: By Contractor
- S. Project Identification: Contractor provides 2 signs - 48 x 96 inches with project name and names of Owner, Architect, Engineers and Contractor.
- T. Field Offices and Sheds: Contractor provides field office large enough to accommodate Construction Progress Meetings.
- U. Removal of Temporary Facilities: By Contractor.
- V. Water, dust, noise, pollution control by Contractor

- 01.12 SECTION 01 60 00 – PRODUCT REQUIREMENTS
- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- 01.13 SECTION 01 73 00 - EXECUTION
- A. Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
1. Construction layout.
  2. Field engineering and surveying.
  3. General installation of products.
  4. Coordination of Owner-installed products.
  5. Progress cleaning.
  6. Starting and adjusting.
  7. Protection of installed construction.
  8. Correction of the Work.
- 01.14 SECTION 01 73 29 – CUTTING AND PATCHING
- A. Section includes procedural requirements for cutting and patching.
- 01.15 SECTION 01 77 00 – CLOSEOUT PROCEDURES
- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
1. Inspection procedures.
  2. Warranties.
  3. Final cleaning.
- 01.16 SECTION 01 78 23 – OPERATION AND MAINTENANCE DATA
- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
1. Operation and maintenance documentation directory.
  2. Emergency manuals.
  3. Operation manuals for systems, subsystems, and equipment.
  4. Maintenance manuals for the care and maintenance of products, materials, and finishes and systems and equipment.
- 01.17 SECTION 01 78 39 – PROJECT RECORD DOCUMENTS
- A. Section includes administrative and procedural requirements for Project Record Documents, including the following:
1. Record Drawings.
  2. Record Specifications.
  3. Record Product Data.
- 01.18 SECTION 01 79 00 – DEMONSTRATION AND TRAINING
- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
1. Demonstration of operation of systems, subsystems, and equipment.
  2. Training in operation and maintenance of systems, subsystems, and equipment.
  3. Demonstration and training videotapes.
- 01.19 SECTION 01 91 13 – COMMISSIONING REQUIREMENTS
- A. Section includes administrative and procedural requirements for Owner selected Commissioning Agent during the construction and close-out phases of the work

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## **SPECIFICATIONS GROUP**

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### **FACILITY CONSTRUCTION SUBGROUP**

#### **02 EXISTING CONDITIONS**

- 02.1 NOTE: SEE DIVISIONS 31, 32, AND 33 FOR SITE AND INFRASTRUCTURE SUBGROUP SECTIONS.
- 02.2 SECTION 02 41 16 – STRUCTURE DEMOLITION
- A. Complete removal and legal disposal of designated structures.
- 02.3 SECTION 02 41 19 – SELECTIVE STRUCTURE DEMOLITION
- A. Work includes demolition, removal, legal disposal of materials and related work including disconnection, capping and removal of utilities.
  - B. See Drawings for demolition of building components designated to be removed.
  - C. See Drawings for demolition of exterior facade, structures and components designated to be removed.
  - D. Protect work to remain.
  - E. Removal of asbestos and other hazardous materials are not included in the Work. Owner will remove asbestos and hazardous materials.
  - F. Items to be salvaged for reinstallation:
  - G. Items to be salvaged for delivery to Owner:

#### **03 CONCRETE**

- 03.1 SECTION 03 30 00 – CAST-IN-PLACE CONCRETE
- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, vapor barriers, mixture design, placement procedures, and finishes, for the following:
    - 1. Footings.
    - 2. Foundation walls.
    - 3. Slabs-on-grade.
    - 4. Suspended slabs.
    - 5. Concrete toppings.
    - 6. Building frame members.
    - 7. Building walls.
    - 8. Exterior stairs and landscape walls.
  - B. Quality Standard: ACI 301.
  - C. Reinforcement:
    - 1. Reinforcing Bars: ASTM A615 Gr. 60
    - 2. Welded Wire Reinforcement: ASTM A185
  - D. Concrete Materials:
    - 1. Portland Cement: ASTM C 150, Type I supplemented with fly ash and ground granulated blast-furnace slag.
    - 2. Aggregate: Normal weight.
    - 3. Water: Potable
    - 4. Admixtures: Air entraining, Water reducing, Retarding, High range, water reducing.

- E. Waterstops: Flexible PVC.
- F. Curing Materials: Clear, waterborne, membrane-forming curing
- G. Vapor Barrier: ASTM E1745; Class A; extruded, single ply, virgin polyolefin membrane; ASTM E96; 0.036 maximum permeance.
- H. Compressive Strength (28 Days):
  - 1. Footings: 3000 psi
  - 2. Foundation Walls: 4000 psi
  - 3. Slabs-on-Grade: 4000 psi
  - 4. Slabs: Normal-weight concrete: 4000 psi
  - 5. Concrete Toppings: 4000 psi
  - 6. Building Frame Members: 4000 psi (5000 psi at some columns)
  - 7. Building Walls: 4000 psi
- I. Finishes:
  - 1. Interior floor slabs: Steel trowel finish.
  - 2. Exterior slabs: Non-slip light broom finish
- J. Inspections: By Owner-engaged special inspector.

### 03.2 SECTION 03 33 60 – POLISHED CONCRETE

- A. Basis of Design: Dyed and polished concrete floor finish system is based on Retro-Plate 99 as manufactured by Advanced Floor Products, Inc., P.O. Box 50533, Provo, Utah 84605, 888-942-3144.
- B. Concrete Dye: AmeriPolish Dye distributed by RetroPlate System
  - 1. Colors: As selected Architect from manufacturer's full color line.
- C. Hardening/Sealing Agent: Retro-Plate 99 manufactured by Advanced Floor Products, Inc.
- D. Crystallization Process: V2 & V3 products manufactured by VMC Technical applied by a certified applicator only.
- E. Grinding Pads: RetroPlate Diamond pads distributed by Advanced Floor Products, Inc.
  - 1. Polish to 800 grit finish.

### 03.3 SECTION 03 45 00 – PRECAST ARCHITECTURAL CONCRETE

- A. Exterior window sills

## 04 MASONRY

### 04.1 SECTION 04 20 00 - UNIT MASONRY

- A. Section includes:
  - 1. Mortar and grout for masonry.
  - 2. Brick and concrete block exterior cavity walls, masonry veneer walls, and interior concrete block walls.
  - 3. Reinforcement, anchorage, flashing, and accessories.
- B. Mortar and Grout:
  - 1. Perform work in accordance with ACI 530 and ACI 530.1
  - 2. Mortar Color: Mineral oxide pigment; colors as selected by Architect.
  - 3. Portland/lime mix (no masonry cement permitted).
  - 4. Mortar Type S at load-bearing walls and partitions: ASTM C270
  - 5. Mortar Type N at non-load-bearing walls and partitions: ASTM C270.
- C. Masonry Components:
  - 1. Brick: ASTM C216, Grade SW,
    - a. Type A: Standard modular size; red color.
    - b. Type B: Custom size and shape; red color.
  - 2. Concrete Masonry Units (CMU): ASTM C90, Type I, Standard weight units; used for masonry wall back-up and interior walls, where indicated.
  - 3. Burnished Concrete Masonry Units (BCMU): Autoclaved, pre-shrunk, high pressure cured, conforming to UBC Standard 21-4, Type I - Moisture Controlled units; factory applied clear acrylic sealer.
  - 4. Prefaced Concrete Masonry Units.

5. Cast Masonry Stone Units: ASTM C73 – Severe Weathering; Calcium silicate masonry units, autoclave cured, with the following physical properties:
  - a. Manufacturers / Product: Arriscraft International; Renaissance Masonry Units – Sand Drift.
6. Special Shapes: Provide special shapes, as detailed, for corners, jambs, control joints, headers, bonding, and other special conditions.
- D. Reinforcement and Flashing Components:
  - a. Vertically reinforced masonry walls for bearing and all exterior walls where detailed.
  - b. Horizontal Reinforcing: Ladder-type; 16 inches oc. vertical for all CMU and CMU/brick cavity walls. Hot dipped galvanized.
  - c. Thru-Wall Flashing: 5 oz/sq ft sheet copper bonded to and between 2 layers of asphalt impregnated fiberglass fabric.
  - d. Cavity Wall Drainage System: "The Mortar Net"
  - e. Weeps: Cotton rope weeps; 16 inches on center.
- E. Reinforced Unit Masonry:
  1. Drawings describe location of Reinforced Unit Masonry. See structural notes for size and placing of reinforcing steel.
  2. Low lift grouting - maximum 4 feet.
  3. Test grout for compressive strength.

## 05 METALS

### 05.1 SECTION 05 12 00 - STRUCTURAL STEEL FRAMING

- A. Section includes structural steel and grout.
- B. Quality Assurance/Qualifications:
  1. Fabricator Qualifications: A qualified fabricator who participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category Sbd.
  2. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel."
  3. Comply with applicable provisions of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- C. Structural Steel Components:
  1. W-Shapes: ASTM A 992/A 992M.
  2. Channels, Angles: ASTM A 36/A 36M.
  3. Plate and Bar: ASTM A 36/A 36M.
  4. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B, structural tubing.
  5. Steel Pipe: ASTM A 53/A 53M, Type E, Grade B.
- D. Welding Electrodes: Comply with AWS requirements.
- E. Bolts and Fasteners:
  1. High-Strength Bolts, Nuts, and Washers: **ASTM A 325**, Type 1, heavy hex steel structural bolts; **ASTM A 563** heavy hex carbon-steel nuts; and **ASTM F 436** hardened carbon-steel washers.
  2. Shear Connectors: ASTM A 108, Grades 1015 through 1020, headed-stud type, cold-finished carbon steel; AWS D1.1, Type B.
  3. Headed Anchor Rods: ASTM F 1554, Grade 36 straight.
- F. Primer: SSPC-Paint 25, Type II, iron oxide, zinc oxide, raw linseed oil, and alkyd.
- G. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.
- H. Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC's "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design".
- I. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts".
- J. Weld Connections: Comply with AWS D1.1.

- K. Set structural steel according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design".
- L. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- M. Testing Agency: Owner will engage a qualified independent testing and inspecting agency for special inspection.

05.2 SECTION 05 12 50 - ARCHITECTURALLY EXPOSED STRUCTURAL STEEL

- A. This Section includes requirements regarding the appearance and surface preparation of Architecturally Exposed Structural Steel. (AESS)
  - 1. Refer to division 5 section 'Structural Steel Framing' for all other requirements regarding steel work not included in this section.
  - 2. This section applies to any members noted on Architectural and Structural drawings as AESS and as scheduled in this Section.
  - 3. Custom mfr heavy wall steel tube and pipe trusses at the natatorium.

05.3 SECTION 05 21 00 - STEEL JOISTS FRAMING

- A. Section includes steel joists with bridging, attached seats and anchors.
  - 1. K, LH and SLH series steel joists.
  - 2. KCS-type K-series steel joists.
  - 3. Joist accessories.
- B. Manufacturer Qualifications: A manufacturer certified by the Steel Joist Institute (SJI) to manufacture joists complying with SJI standard specifications and load tables.
- C. SJI Specifications: Comply with SJI's "Standard Specifications, Load Tables and Weight Tables for Steel Joists and Joist Girders" (hereafter, SJI's "Specifications") that are applicable to types of joists indicated.
- D. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- E. Steel: Comply with SJI's "Specifications" for web and steel-angle chord members.
- F. Install joists and accessories according to SJI's "Specifications," joist manufacturer's written recommendations.
- G. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect field welds.

05.4 SECTION 05 31 00 - STEEL DECKING

- A. Section includes:
  - 1. Roof deck.
  - 2. Noncomposite form deck.
  - 3. Composite floor deck
  - 4. Exposed acoustic deck – Natatorium and gym locations ceilings
- B. Welding: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."
- C. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."
- D. Steel Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 30.
- E. Noncomposite Steel Form Deck: Fabricate ribbed-steel sheet noncomposite form-deck panels to comply with "SDI Specifications and Commentary for Noncomposite Steel Form Deck," in SDI Publication No. 30.
- F. Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.
- G. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

- H. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, **No. 10** minimum diameter.
- I. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.
- J. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of **33,000 psi** not less than **0.0359-inch** design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.
- K. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 30.
- L. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.
- M. Roof Sump Pans and Sump Plates: Install over openings provided in roof deck and weld flanges to top of deck. Space welds not more than **12 inches** apart with at least one weld at each corner.
- N. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld or mechanically fasten to substrate to provide a complete deck installation.
- O. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field special inspections.

#### 05.5 SECTION 05 40 00 – COLD-FORMED METAL FRAMING

#### 05.6 SECTION 05 50 00 - METAL FABRICATIONS

- A. Section includes shop fabricated ferrous metal items, galvanized and prime painted
- B. Schedule of fabrications:
  - 1. Miscellaneous steel framing and supports.
  - 2. Loose bearing and leveling plates.
  - 3. Loose steel lintels.
  - 4. Steel weld plates and angles.
  - 5. Miscellaneous steel fabrications.
  - 6. Counter supports.
  - 7. Angle supports for non-bearing masonry walls.
  - 8. Roof screen framing.
  - 9. Door frames for overhead doors.
  - 10. Roof and elevator pit access ladders.
  - 11. Metal bollards.
  - 12. Pipe guards.
- C. Materials:
  - 1. Metal Surfaces, General: Provide materials with smooth, flat surfaces without blemishes.
  - 2. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
  - 3. Steel Tubing: ASTM A 500, cold-formed steel tubing.
  - 4. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.
  - 5. Cast Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by structural loads.
  - 6. Nonferrous Metals:
    - a. Aluminum Extrusions: **ASTM B 221 (ASTM B 221M)**, alloy 6063-T6.
    - b. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, alloy 6061-T6.
    - c. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.
- D. Fasteners:
  - 1. Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.
  - 2. Cast-in-Place Anchors in Concrete: Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47 M malleable irons or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

- E. Primers:
    - 1. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI #79.
    - 2. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
    - 3. Galvanizing Repair Paint: SSPC-Paint 20, high-zinc-dust-content paint for regalvanizing welds in steel.
  - F. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107.
  - G. Lintels in Exterior Walls: Galvanize.
  - H. Steel and Iron Finishes:
    - 1. Hot-dip galvanize items as indicated to comply with ASTM A 123/A 123M or ASTM A 153/A 153M as applicable.
    - 2. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with requirements indicated below for environmental exposure conditions of installed metal fabrications:
      - a. Exteriors (SSPC Zone 1B) SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
      - b. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
    - 3. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting," for shop painting.
- 05.7 SECTION 05 51 00 – METAL STAIRS
- A. Section includes steel stairs with concrete-filled treads, pipe railings, and steel ladders.
    - 1. Risers: Perforated metal.
- 05.8 SECTION 05 53 00 – METAL GRATINGS
- A. Section includes metal gratings and access hatches.
- 05.9 SECTION 05 52 13 – PIPE AND TUBE RAILINGS
- A. Section includes interior and exterior metal pipe and tube railings and infill panels.
    - 1. Infill Panel: Stainless steel woven wire mesh.
    - 2. Tempered Glass Infill Panels: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated), Type 1 (transparent flat glass), Quality-Q3; 12 mm thickness

## **06 WOOD, PLASTICS, AND COMPOSITES**

- 06.1 SECTION 06 10 00 – ROUGH CARPENTRY
- A. Section includes roof curbs, parapet and gravel stop blocking, blocking in wall and roof openings, wood furring and grounds, concealed wood blocking for support of wall-mounted accessories, wall cabinets and other items.
  - B. Section includes wall and roof wood framing materials, plywood, wood treatment (fire and moisture), and accessories including fasteners.
  - C. Fire and preservative treatment and accessories, including fasteners.
- 06.2 SECTION 06 16 00 – SHEATHING
- A. Gypsum Wall Sheathing: ASTM C1177; Fire-rated, water-resistant treated gypsum core with glass-mat facers:
    - 1. Manufacturer:
      - a. Georgia Pacific Corporation; DensGlass Gold Fireguard Exterior Guard.
      - b. BPB America Inc.; GlasRoc Sheathing Type X.
    - 2. Board Thickness: 5/8 inch.
    - 3. Board Size: 48 inches x maximum available length in place.

- 06.3 SECTION 06 20 00 - FINISH CARPENTRY
- A. Section includes finish carpentry items other than shop prefabricated casework including:
  - B. Interior wood trim.
- 06.4 SECTION 06 40 23 – INTERIOR ARCHITECTURAL WOODWORK
- A. Section includes prefabricated cabinet units, countertops, cabinet hardware, and laboratory casework.
  - B. AWI Custom Quality.
  - C. Counters and cabinets - Modular and custom P-LAM faced cabinets with plastic laminate tops. (P-LAM on all exposed faces.)
  - D. Hardwood Species: White Oak, rift-cut.
  - E. Medium density wood particleboard panels except at sink cutouts - use medium density wood particleboard with high waterproof resin binders. Tempered hardboard drawer bottoms and backs.
  - F. Plastic laminate:
    1. Horizontal surfaces: 0.050 inches thick
    2. Postformed surfaces: 0.042 inches thick
    3. Vertical surfaces: 0.028 inches thick
    4. Install laminate backing sheet (undecorated) on all plastic laminate clad panels.
  - G. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin.
    1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - a. Avonite, Inc.
      - b. E. I. du Pont de Nemours and Company.
      - c. Formica Corporation.
      - d. Samsung; Cheil Industries Inc.
      - e. Wilsonart International; Div. of Premark International, Inc.
    2. Solid-Surfacing-Material Thickness: **1/2 inch**.
    3. Colors and Patterns: Match Architect's sample.
    4. Integral Sink Bowls: Manufactured by same manufacturer as solid surface countertop; 16 1/2 x 13 x 5 1/4 inches (nominal); E. I. du Pont de Nemours and Company (Corian) Model No. 810 or approved eq

## **07 THERMAL AND MOISTURE PROTECTION**

- 07.1 SECTION 07 13 26 – SELF-ADHERING SHEET WATERPROOFING
- 07.2 SECTION 07 14 13 – HOT FLUID-APPLIED RUBBERIZED ASPHALT WATERPROOFING
- A. Section Includes: Rubberized-asphalt waterproofing membrane, reinforced; molded-sheet drainage panels; insulation; plaza deck pavers (Base Bid) and extensive green roof components (Alternate Bid).
    1. Alternate Bid: Provide extensive green roof over approximately 75 percent of roof area in lieu of plaza roof pavers.
  - B. Hot Fluid-Applied, Rubberized-Asphalt Waterproofing Membrane: Single component; 100 percent solids; hot fluid-applied, rubberized asphalt.
    1. Basis of Design: HydroTech MM6125EV applied in two coats, with a layer of fabric reinforcement between layers, to a thickness of 215 mils
  - C. Board Insulation: Extruded-polystyrene board insulation complying with ASTM C 578, square or shiplap edged.
    1. Type VII, **60-psi (414-kPa)** minimum compressive strength.
  - D. Plaza Roof Pavers: Hydraulically pressed, concrete units, with top edges beveled **3/16 inch**, factory cast for use as roof pavers; absorption not greater than 5 percent, ASTM C 140; no breakage and maximum 1 percent mass loss when tested for freeze-thaw resistance, ASTM C 67; and as follows:
    1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Hanover Architectural Products.
  - b. Sunny Brook Pressed Concrete.
  - c. Wausau Tile, Inc.; Terra-Paving Division.
  - d. Westile Roofing Products.
2. Design: Provide interlocking roof paver unit specifically designed and tested to resist wind uplift pressures indicated.
- a. Size: **24 by 24 (nominal)**. Manufacture pavers to dimensional tolerances of plus or minus **1/16 inch** in length, height, and thickness.
  - b. Weight: **22 lb/sq. ft.**
  - c. Compressive Strength: **7500 psi**, minimum.
  - d. Colors and Textures: As selected by Architect from manufacturer's full range.
3. Paver Supports: Paver manufacturer's standard SBR rubber, high-density polyethylene, or polyurethane paver support assembly, including fixed-height pedestals, shims, and spacer tabs for joint spacing of **1/8 to 3/16 inch**.
- E. Extensive Green Roof Materials (Alternate Bid):
- 1. Protection Course/Root Barrier: Hydroflex 30 and Root Stop
  - 2. Water Retention Layer: Recycled, non-rotting, polypropylene fibers stitched through a polyethylene carrier sheet that is rolled out over the insulation layer; HydroTech Moisture Retention Mat.
  - 3. Drainage/Water Storage/Aeration: 100% recycled polyethylene; HydroTech Gardendrain
  - 4. Filter Fabric: Geotextile filter sheet made of non-rotting, non-woven polypropylene fibers; highly resistant to all natural acids and alkalis, and chemically neutral. HydroTech Systemfilter.
  - 5. Engineered Soil: Lightweight engineered soil; HydroTech LiteTop.

07.3 SECTION 07 21 00 – THERMAL INSULATION

- A. Section includes rigid board type insulation at foundations and walls.
- B. Section includes glass fiber insulation used at stud walls, fill at gaps and voids and as detailed on the Drawings.
- C. Board insulation:
  - 1. Below grade walls: R7.5, Extruded polystyrene
  - 2. Mass Walls: R13 Extruded polystyrene or polyisocyanurate adhered to exterior face of inner wythe.
  - 3. Rood decks: R30, Tapered rigid Insulation
- D. Exterior walls: R20. No facing.

07.4 SECTION 07 27 26 – FLUID-APPLIED AIR/VAPOR BARRIERS

- A. Section includes air/vapor barriers used to minimize air and moisture infiltration on exterior face of CMU cavity wall construction.
- B. Air/Vapor Barrier Membrane: Liquid-applied, self-curing, synthetic rubber based elastomeric membrane, spray-applied, minimum total dry film thickness of 0.060 inch (60mil) or greater.
- C. Acceptable Materials:
  - 1. Air-Bloc 32, Spray or trowel applied low VOC elastomeric emulsion air/vapor barrier as manufactured by Henry Co.
  - 2. Procor Air/Vapor Barrier fluid applied synthetic latex rubber membrane as manufactured by Grace Construction Products.
  - 3. Rub-R-Wall Airtight Air/Vapor Barrier, liquid applied rubber co-polymer membrane as manufactured by Rubber Polymer Corporation.
  - 4. Air-Shield LM as manufactured by W.R. Meadows
- D. Furnish auxiliary materials recommended by air/vapor barrier manufacturer for intended use and compatible with the air/vapor barrier membrane.

07.5 SECTION 07 42 13 – METAL WALL PANELS

- A. Section includes prefinished, un-insulated, metal panel system for walls, with fastening devices, related flashings and accessory components.
- B. Prefinished Metal Wall Panel:

1. Exposed fastener, horizontal wall panel system of prefinished, galvanized steel wall panels.
  2. Profile: Corrugated panel; 1/2 inch deep corrugations.
  3. Shop applied flouorofinish (polyvinylidene fluoride) in compliance with AAMA 2605.
- 07.6 SECTION 07 42 19 – METAL PLATE WALL PANELS
- A. Section includes open joint, metal plate wall panel assembly.
  - B. Metal Plate Wall Panel Type A: Flat profile; non-perforated; rain-screen assembly.
    1. Material: Tension-leveled, smooth aluminum sheet, **ASTM B 209**, **0.120 inch (3.05 mm)** thick.
    2. Exterior Finish: To be determined.
  - C. Metal Plate Wall Panel Type B:
    1. Material: Stainless steel, **0.120 inch (3.05 mm)** thick.
    2. Exterior Finish: To be determined.
  - D. Attachment System Components: Formed from extruded aluminum.
    1. Provide attachment system that allows individual panels to be installed and removed without disturbing adjacent panels.
    2. Include manufacturer's standard subgirts, perimeter extrusions, tracks, and drainage channels, panel stiffeners, panel clips and anchor channels.
- 07.7 SECTION 07 42 43 – COMPOSITE WALL PANELS
- A. Section includes metal-faced composite wall panel system; open-joint, rain-screen design.
  - B. Basis of Design: Metal Design Systems Series 20 AP Wall Panel Assembly.
  - C. Aluminum-Faced Composite Wall Panels: Formed with **0.020-inch- (0.50-mm-)** thick, **ASTM B 209 (ASTM B 209M)**, alloy aluminum sheet facings.
    1. Panel Thickness: **0.157 inch (4 mm)**.
    2. Core: Standard.
    3. Surface: Smooth, flat finish.
    4. Exterior Finish: AAMA 620, Two-coat flouropolymer finish containing not less than 100 percent PVDF resin by weight in color coat.
      - a. Color: As selected by Architect from manufacturer's full range.
  - D. Panel Attachment Profiles: Purpose made aluminum extrusions; manufacturer's standard profiles. Provide attachment extrusion full length around panel perimeter; intermittent clips are not acceptable.
  - E. Fasteners: As recommended by the panel manufacturer; non-corrosive and concealed.
- 07.8 SECTION 07 53 26 – ELASTOMERIC MEMBRANE ROOFING – FULLY ADHERED
- A. Section includes vapor barrier, rigid insulation, tapered insulation, coverboard, TPO membrane, walkway pads, flashing and accessories.
  - B. Acceptable membrane manufacturers:
    1. Carlise
    2. Firestone
    3. Versico
    4. Diversitech General
  - C. Membrane:; non-reinforced, 60 mil inch thick, 25 fee wide roll; white color.
  - D. Coverboard: 1/2 inch Dens-Deck prime; adhered to insulation.
  - E. Insulation: Polyisocyanurate; R = 30 (tapered at crickets)
  - F. In-seam sealant system.
  - G. FM Global approved assembly.
  - H. Warranty:
    1. 2 year installer's warranty
    2. 15 year membrane manufacturers warranty; no dollar limit.

- 07.9 SECTION 07 54 00 – THERMOPLASTIC MEMBRANE ROOFING – FULLY ADHERED (ALTERNATE ADHERED SYSTEM)
- A. Section includes rigid insulation, tapered insulation, coverboard, PVC or KEE membrane, walkway pads, flashing and accessories.
  - B. Acceptable Manufacturers:
    - 1. Sarnafil, Inc.; Sarnafil G410.
    - 2. FiberTite; FiberTite XT Membrane.
    - 3. No substitutions.
  - C. Membrane:
    - 1. PVC: ASTM D4434, Type II, Grade I, PVC; fiberglass reinforced membrane with a lacquer coating, 0.060 inch thick (minimum), white color.
    - 2. KEE: ASTM D 6754, 50-mil ethylene interpolymer (EIP) membrane, reinforced with knitted polyester fabric; white color.
  - D. Insulation: Polyisocyanurate; R = 30 (tapered at crickets)
  - E. Coverboard: 1/2 inch; Dens-Deck Prime as manufactured by Georgia Pacific Corporation
  - F. Heat welded seams.
  - G. FM Global approved assembly.
  - H. Warranty:
    - 1. 2 year installer's warranty
    - 2. 15 year membrane manufacturers warranty; no dollar limit.
- 07.10 SECTION 07 61 00 – SHEET METAL ROOFING
- A. Section includes prefinished, un-insulated, standing seam metal panel system for roofs, with fastening devices, related flashings and accessory components.
  - B. Nailbase Insulation: R24 (minimum); 5/8 inch OSB sheathing.
  - C. Underlayment: Self adhered ice and water shield.
  - D. Finish: Shop applied flouorofinish (polyvinylidene fluoride) in compliance with AAMA 2605.
  - E. Warranty:
    - 1. Manufacturers twenty (20) year warranty for sheet metal roofing against structural failure, corrosion, and water penetration.
    - 2. Manufacturers twenty (20) year warranty for metal finish against fading, chipping, chalking, and blistering
- 07.11 SECTION 07 62 00 – SHEET METAL FLASHING AND TRIM
- A. Section includes parapet coping, gravel stops, downspouts, splashguards, counter flashings, reglets and flashing at masonry.
  - B. All exposed flashings: 24 gage steel with Kynar 500 coating - ColorKlad or equal.
  - C. Concealed flashings: 24 gage galvanized steel.
- 07.12 SECTION 07 72 00 – ROOF ACCESSORIES
- A. Roof access hatches
- 07.13 SECTION 07 81 00 – APPLIED FIREPROOFING
- A. Section includes concealed and exposed sprayed fire-resistive materials (SFRM).
    - 1. Cementitious SFRM:
      - a. Grace, W.R. & Co. - Conn., Construction Products Div.; Monokote Type Z106.
      - b. Isolatek International Corp.; Cafco 400.
      - c. Pyrok, Inc.; Pyrok-MD.
- 07.14 SECTION 07 84 13 – PENETRATION FIRESTOPPING
- A. Section includes fire, smoke and gas treatment of penetrations through fire-rated assemblies.
  - B. Materials: Sealant, putty, dams, collars and accessories.
  - C. Protection shall meet UL test requirements.

- 07.15 SECTION 07 84 46 – FIRE-RESISTIVE JOINT SYSTEMS
- A. Section includes fire, smoke and gas treatment of joints in fire-rated assemblies and joints between fire-rated assemblies and adjacent non-rated assemblies.
  - B. Materials: Sealant, putty, dams, collars and accessories.
  - C. Protection shall meet UL test requirements.
- 07.16 SECTION 07 92 00 – JOINT SEALANTS
- A. Section includes joint sealers at all interior and exterior horizontal and vertical joints.
  - B. Sealant type:
    - 1. Exterior (non-paving): MS Polymer
    - 2. Exterior paving: One-part pourable polyurethane.
    - 3. Interior wet areas and where clear sealant is detailed: Clear silicone, mildew resistant.
    - 4. Acoustical Sealant: Synthetic rubber, non-hardening.
    - 5. All other Interior joints: One-part polyurethane.
  - C. Accessories:
    - 1. Closed cell polyethylene foam backer rod.
    - 2. Bituminous fiber joint filler.
    - 3. Bond breaker tape
- 07.17 SECTION 07 95 00 – EXPANSION CONTROL
- A. Section includes elastomeric joint cover assemblies and metal plate covers.

## **08 OPENINGS**

- 08.1 SECTION 08 11 13 – HOLLOW METAL DOORS AND FRAMES
- A. Section includes rated and non-rated, interior and exterior, thermally insulated steel doors and frames.
  - B. Doors:
    - 1. Exterior: 16 gage galvanized face sheet, thermally insulated.
    - 2. Interior: 18 gage non-galvanized and galvanized, fire-rated where scheduled.
  - C. Frames:
    - 1. Fully grouted frames at masonry openings.
    - 2. Fire rated where noted.
    - 3. Reinforced and prepared for finish hardware.
    - 4. Deliver to job prime painted, ready for final painting.
    - 5. Hardware locations per National Builders Hardware Association.
    - 6. Fabrication:
      - a. Fully welded unit-style construction.
      - b. Reinforced for hardware.
      - c. Appropriate jamb and floor anchors:
      - d. 14 gage frames - doors less than 4'-0" wide.
      - e. 12 gage frames - doors 4'-0" and wider.
  - D. Finish: Galvanized where indicated; prime painted.
- 08.2 SECTION 08 11 73 – SLIDING METAL SMOKE / FIRE DOORS
- A. Section includes horizontal smoke and fire shutter without egress
  - B. Basis of Design: McKeon Door Com Horizontal fire shutter H2000 series.
- 08.3 SECTION 08 14 16 - FLUSH WOOD DOORS
- A. Section includes shop finished flush wood doors. Fire-rated and non-rated.
  - B. Basis of Design: Algoma "Super Novador" - 5-ply.
  - C. Manufacturers:
    - 1. Algoma Hardwoods Inc.
    - 2. Buell Door Co.
    - 3. Eggers Industries.
    - 4. Graham Manufacturing.

- 5. Marshfield Door Systems, Inc.
  - 6. VT Industries, Inc.
  - D. Species/Slice: White Oak, rift-cut.
  - E. Factory finish.
- 08.4 SECTION 08 31 13 - ACCESS DOORS AND FRAMES
- A. Section includes access doors in walls, floors and ceilings, fire-rated and non-rated for access to building equipment.
  - B. Access Door Types:
    - 1. Gypsum board walls and ceilings: 16 gage metal frame with gypsum board panel.
    - 2. CMU walls: Frame and nominal 1 inch wide exposed flanges of 16 gage steel and door panel of 14 gage steel.
    - 3. Floor: Aluminum with hinged lid.
  - C. Cylinder locks
- 08.5 SECTION 08 33 23 - OVERHEAD COILING DOORS
- A. Solid, insulated, motorized overhead coiling door.
  - B. Prefinished metal slat.
- 08.6 SECTION 08 41 13 – ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS
- A. Section includes exterior prefinished entrance doors, vestibule doors, frames for entrances, transoms, sidelights.
  - B. Manufacturers:
    - 1. EFCO,
    - 2. Kawneer
    - 3. Pittco Architectural Metals, Inc.
    - 4. TRACO.
    - 5. Tubelite Inc.
    - 6. U S Aluminum
    - 7. Vistawall Architectural Products
  - C. Model 1 3/4" wide frame x depth as detailed to resist dead and live loads, thermally broken.
  - D. Finish: Painted aluminum finish.
  - E. Doors: Monumental (wide stile)
  - F. Ventilating Units.
- 08.7 SECTION 08 44 13 – GLAZED ALUMINUM CURTAIN WALLS
- A. Section includes interior and exterior prefinished glazed aluminum curtain walls; integral custom aluminum-framed laminated glass sunscreens; ventilating units.
  - B. Manufacturers:
    - 1. EFCO,
    - 2. Kawneer
    - 3. Pittco Architectural Metals, Inc.
    - 4. TRACO.
    - 5. Tubelite Inc.
    - 6. U S Aluminum
    - 7. Vistawall Architectural Products
  - C. Model: 2 1/2" wide frame x depth as detailed to resist dead and live loads, thermally broken.
  - D. Finish: Painted aluminum finish.
- 08.8 SECTION 08 45 13 – STRUCTURED-POLYCARBONATE-PANEL ASSEMBLIES
- A. This Section includes aluminum-framed assemblies glazed with multiwalled (structured) polycarbonate panels with interior louvers for slope natatorium and gymnasium skylights.
  - B. Basis of Design: CPI International QuadWall.
    - 1. Panel Assembly: 2.75 inch double panel with concealed interlocking H battens.
    - 2. Panel U-Factor: NFRC 100; 0.24 (without batt insulation).
    - 3. Visible Light Transmittance: 17 percent.

4. Exterior Panel: 10 mm; clear.
  5. Interior Panel: 8 mm; clear.
  6. Metal Framing Components: ASTM B221, extruded aluminum; fluoropolymer finish.
    - a. High Performance Organic Coating: Fluoropolymer coating system complying with AAMA 2605 minimum two-coat, with minimum 70 percent polyvinylidene fluoride resin.
- 08.9 SECTION 08 62 00 – UNIT SKYLIGHTS
- A. Section includes thermally-broken aluminum frame, Low-E, insulated glass unit skylights.
- 08.10 SECTION 08 71 00 - DOOR HARDWARE
- A. Owner will provide catalogue information and templates for Owner furnished Contractor installed hardware
- 08.11 SECTION 08 80 00 - GLAZING
- A. Section includes glass and glazing for interior doors, sidelights, transoms, exterior entrances and storefronts, spandrel panels windows and mirrors.
  - B. Glass Types:
    1. Single, Clear: Typical interior glazing
    2. Single, Clear, Tempered: Interior glazing where code requires tempered glass.
    3. Laminated Glass: Kind LA, consisting of two lites of annealed float glass, unless tempered glass is indicated or required by code; translucent polyvinyl butyral interlayer.
    4. FRG-SG – Fire-rated safety glass used in rated doors, sidelights and windows.
      - a. Fire-rated, clear and wireless glazing material; CPSC 16CFR1201 (Cat. II) impact safety-rated; passing hose stream test
    5. Clear, Low-E Insulating-Glass (IG-1):
      - a. Basis of design: Solarscreen 2000 Low-E Insulating Glass VE-2M.
        - 1) Visible Light: 70 percent
        - 2) Shading Coefficient: 0.43
        - 3) SHGC: 0.37
        - 4) U-Value (Winter Nighttime): 0.29
        - 5) U-Value (Summer Daytime): 0.28
      - b. Provide tempered glass units where code requires safety glazing.
    6. Interior Butt-Glazed Units: Laminated glass; 3/4 inch thickness, open joint
      - a. Office Locations: 1/4 inch, translucent; clear silicone joint sealant.
- 08.12 SECTION 08 83 00 - MIRRORS
- A. Section includes unframed glass mirrors
  - B. Mirrors: 1/4 inch thick silvered mirror glass.
  - C. Trim: Stainless steel edge trim
  - D. Accessories, sealants and adhesives as required for installation.
- 08.13 SECTION 08 90 00 – LOUVERS AND VENTS
- A. Prefinished (Kynar 500) formed steel louvers.
  - B. Exterior locations.

## **09 FINISHES**

- 09.1 SECTION 09 21 16.23 – GYPSUM SHAFT WALL ASSEMBLIES
- 09.2 SECTION 09 23 00 – PORTLAND CEMENT PLASTERING
- 09.3 SECTION 09 29 00 - GYPSUM BOARD ASSEMBLIES
- A. Section includes metal stud wall framing, metal channel and stud ceiling framing, acoustical insulation, gypsum board, tile backer board, taped and sanded joint treatment.
  - B. Full height partitions with 3" sound insulation batt typical unless otherwise noted.

- C. Gypsum board: 5/8" thick, fire rated type X where required by code.
- D. Structural steel studs for specific use areas.
- E. Standard 3-5/8" metal studs for other areas.

09.4 SECTION 09 30 00 - TILING

- A. Section includes ceramic tile ceiling, floor, wall, and base tile; thick-bed and thin-set installations.
- B. Tile Materials:
  - 1. Ceramic Mosaic Tile: 1 x 1 x 1/4 inch (nominal) unglazed.
- C. Accessories:
  - 1. Edge Trim: Metallic, angle or L-shape, height to match tile and setting bed thickness; finish as selected; Schluter Schiene or approved equivalent.
  - 2. Waterproof Membrane: ANSI A118.10, liquid-applied, anti-microbial, self-curing, rubber polymer waterproofing membrane with reinforcing fabric; 9235 Waterproofing Membrane as manufactured by Laticrete International, Inc. or PRP M19 Mapelastix L as manufactured by Mapei Corporation.
  - 3. Wire Reinforcing: 16 gage, 2 x 2 inch welded, galvanized wire mesh.
  - 4. Cementitious Underlayment (at Concrete Slabs): Self-leveling; 4,000 psi (minimum); TEC TA318 or approved equivalent.
- D. Mortar and Grout Materials:
  - 1. Latex-Portland Cement Mortar (Thin-Set): ANSI A118.4, thin-set bond type.
    - a. Laticrete 4237 Latex Thin-Set Mortar Additive with Laticrete 211 Crete Filler Powder.
  - 2. Latex-Portland Cement Mortar (Thick Bed Mortar): ANSI A118.4, thick bed mortar.
    - a. Laticrete 226 Thick Bed Mortar with Laticrete 3701 Mortar Admixture.
  - 3. Polymer-Modified Grout: ANSI A118.7, liquid-latex admixture; anti-microbial.
    - a. Laticrete Tri-Poly Fortified Grout with Laticrete 1776 Grout Admix Plus.
      - 1) Provide unsanded grout mixture for joints 1/8 inch and narrower.
      - 2) Provide sanded grout mixture for joints for joints greater than 1/8 inch.
- E. Tile Cleaner: Neutral cleaner; approved for materials and installation indicated by tile and grout manufacturer.
- F. Tile Joint Sealants: High-performance, neutral cure silicone; ASTM C920, Type S, Grade NS, single component, mildew resistant; color to match adjacent grout color

09.5 SECTION 09 32 13 – MORTAR-BED CERAMIC TILING

- A. The pool finishes will be ceramic tile. Racing lane lines with tees on the floor and targets on the walls will be provided in black tile. Cross course floor markings and wall targets will be provided in blue tile. For areas needing special non-slip attention, such as the gutter lip and horizontal surfaces near the pool edge, the abrasive content of the tile will be specified as 7 1/2%. (If the Architect uses tile on the deck, it should also have this abrasive content according to standards established for ADA).

09.6 SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS

- A. Section includes suspended metal grid, acoustical panels, fire-rated and non-rated assemblies.
- B. Systems:
  - 1. Type 1: 24" x 24" scored pattern lay-in acoustical board in an exposed T-grid system.
  - 2. Type 2: 24" x 24" scored pattern lay-in moisture-resistant acoustical board in an exposed aluminum T-grid system.

09.7 SECTION 09 54 26 – LINEAR WOOD CEILINGS

- A. Section includes continuous linear wood ceiling system with concealed suspension system and acoustical insulation.
- B. Basis of Design: 9Wood Inc., Model No. 2314-3 Linear Wood.
  - 1. Species: Maple; quarter sawn.
  - 2. Fire Rating: Class 1 (A).
  - 3. Finish: Clear satin lacquer.

4. Joint Spacing: Random.
  5. Perimeter Option: Floating.
- C. Acoustical Backing: Soundtex Backing Sheet

09.8 SECTION 09 54 70 – EXTERIOR METAL PANEL SOFFITS

- A. Section includes modular metal panels, direct hung, concealed modular grid; accessories including devices for attachments to overhead construction, secondary members, splines, splices, connecting clips, wall connectors, wall trims and all other devices required for a complete installation
- B. Basis of Design: “Exterior Illusions” as manufactured by Ceilings Plus (800) 822-3411.
- C. Pan Fabrication: Brake die formed from a single sheet and formed with a minimum 1-1/2 inch integral return edge on all panel sides.
1. Aluminum Sheet: Roll-formed aluminum sheet, complying with **ASTM B 209**; alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
  2. Torsion-Spring-Hinged Pans: Designed to be securely retained in preslotted concealed suspension grid by torsion springs.
    - a. Heavy-duty torsion springs and clip assemblies shall be mounted to each panel for downward access, without potential for damage to panel face or hinge assembly.
    - b. Hinge assembly shall be attached to panel with minimum 2 flush fasteners. Attaching torsion spring directly to panel with fastener will not be accepted.
  3. Pan Thickness: Not less than **0.063 inch**.
  4. Pan Edge Detail: Square.
  5. Pan Joint Detail: Butt
  6. Pan Size / Pattern: **As indicated on Drawings**.
  7. Pan Face Finish: Painted; color as selected from manufacturer's full color line.
  8. Panel Penetrations: Cut outs for lightening and sprinklers shall be factory cut.
- D. Aluminum Suspension System - General: Supporting grid system shall consist of straight, factory formed aluminum tees of adequate thickness, to support loads. Finish tee to match modular ceiling panels where exposed. Tee shall be factory slotted to accept torsion spring attachment.
1. Structural Classification: Heavy-duty system.
  2. Provide system complete with carriers, runners, splice sections, connector clips, alignment clips, leveling clips, hangers, molding, trim, retention clips, load-resisting struts, and other suspension components required to support soffit units and other soffit-supported construction.
- E. Color-Coated Finish: Manufacturer's standard powder-coat baked paint complying with coating manufacturer's written instructions for surface preparation, pretreatment, application, baking, and minimum dry film thickness.

09.9 SECTION 09 64 66 - WOOD ATHLETIC FLOORING

- A. This Section includes wood sports-floor assemblies.
- B. Related Sections: Moisture protection system beneath slab specified in Division 7.
- C. Basis of Design Product: The design of the wood athletic flooring is based on Robbins, Inc. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:
1. Action Floor Systems LLC.
  2. Connor Sports Flooring, Inc.
  3. Horner Flooring Company, Inc.
  4. Robbins, Inc.
  5. Superior Floor Company, Inc.
- D. Wood Athletic Flooring Systems:
1. WSF-1 (Activity Rooms): Robbins Sportwood Ultra Star System.
    - a. Pads: 7/16” (11mm) Robbins Bio –Pads; 50 durometer.
    - b. Plywood - 2 layers of 15/32” (12mm) thick 4’ x 8’ APA structural rated sheathing, Exposure I (CD-X), Fir or Southern Pine.

- c. Fasteners:
    - 1) Subfloor fasteners - 1" (25mm) long, 7/16" (11mm) crown, coated subfloor staples or equivalent.
    - 2) Construction adhesives - PL400 or equivalent.
  - d. Flooring Adhesive: Sportwood one-component Elastomeric Adhesive. Poly-vinyl acetate (PVA) or chlorinated solvent adhesives shall not be substituted.
  - e. Wood Flooring: 7/16" x 13/16" x 9" (11mm x 22mm x 229mm) Second & Better, Square Edge, Edge Grain, Kiln Dried, Northern Hard Maple Flooring.
  - f. Perimeter Base - Robbins 3" x 4" ventilating type. (Specify black or brown)
  - g. Finishing Materials
    - 1) Robbins oil modified polyurethane sealer and finish.
    - 2) Gameline paint shall be recommended by the finishing materials manufacturer, compatible with the finish.
2. WSF-2 (Gymnasiums): Robbins BioCushion LP Floor System.
- a. Robbins Continuous shock absorbing pad.
  - b. Subfloor
    - 1) Two layers of 15/32" (12mm) thick, 4' x 8' (1.22m x 2.44m) APA Rated Sheathing, Exposure 1 (CD-X), fir or southern pine plywood.
  - c. Fasteners
    - 1) Flooring: 1" (25mm) 20-gauge staples.
    - 2) Subfloor: 1" length, 7/16" (11mm) crown, coated staples or equivalent.
  - d. Construction adhesive, PL400 or equivalent.
  - e. Wood Flooring: 1/2" (11mm) thick x 2-1/4" (57mm) width, Legacy grade, T&G and EM, KD Northern Hard Maple, Continuous Strip<sup>®</sup> XL<sub>450</sub> Flooring as manufactured by Robbins and graded in accordance with MFMA-FJ rules.
  - f. Floor-Finish System: Oil modified polyurethane sealer and finish system of compatible components recommended in writing by flooring manufacturer and MFMA approved.
    - 1) Floor-Sealer: As recommended by manufacturer; factory applied.
    - 2) Finish-Coat Formulation: Formulated for gloss finish and multicoat application.
    - 3) Game-Line and Marker Paint: Industrial enamel compatible with finish coats.
- E. Accessories:
- 1. Vapor Retarder: ASTM D 4397, polyethylene sheet not less than 6 mils thick.
  - 2. Resilient Wall Base: Molded, vented, rubber or vinyl cove base; 4 by 3 by 48 inches; with premolded outside corners.
    - a. Color: Black.
  - 3. Trowelable Leveling and Patching Compound: Latex-modified, hydraulic-cement-based formulation approved by sports-floor manufacturer.
  - 4. Expansion Plates: Solid metal plate, anchor with stainless steel expansion anchor fasteners at 19 inches o.c. Fasteners shall be countersunk flush with top of aluminum plate, set in ceramic epoxy adhesive; base metal as follows:
    - a. Thickness: 1/4 inch.
    - b. Top Surface: Fluted.
    - c. Base Metal: Aluminum; mill finish.

09.10 SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES

- A. Section includes resilient base.
- B. Vinyl coved base. 1/8" continuous roll material.
- C. Vinyl transition and reducer strips as required
- D. Vented base at wood athletic floors

09.11 SECTION 09 65 19 - RESILIENT TILE FLOORING

- A. Section includes resilient tile flooring.
- B. 12" x 12" x 1/8" thick vinyl composition tile

09.12 SECTION 09 65 66 - RESILIENT ATHLETIC FLOORING

- A. Section includes resilient athletic floor systems.
- B. Resilient Athletic Flooring Systems:
  - 1. RSF-1 (Cardio / Strength Training / Fitness):
    - a. Manufacturers – Rubber Athletic Flooring, Tile:
      - 1) Mondo, "Sport Impact".
    - b. Materials: Tiles, consisting of a base of natural and synthetic rubber vulcanized with mineral aggregates, stabilizing agents and pigmentation. Flooring to be two layers vulcanized together, dual durometer:
    - c. Thickness: 3/8 inch.
    - d. Tile Size: 24 x 24 inches nominal.

09.13 SECTION 09 68 13 – TILE FLOORING CARPETING

- A. Carpet tiles at main level offices.

SECTION 09 91 00 - PAINTING

- B. Section includes surface preparation and field application of paints and coatings.
- C. Schedule:
  - 1. Steel pipe railing - special epoxy.
  - 2. Exposed structural steel - sprayed-on.
  - 3. Gypsum board - three coats; primer, sealer, and latex enamel.
  - 4. Metal door frames - three coats; primer, undercoat, and enamel finish coat.
  - 5. Concrete block - three coats; surface filler, enamel undercoat, eggshell alkyd enamel.
  - 6. Concrete block (epoxy) - two coats Glid-Guard.

09.14 SECTION 09 96 00 - HIGH PERFORMANCE COATINGS

- A. Section includes special coatings and preparation for interior and exterior surfaces where high performance is required
- B. Intumescent coating: Fire resistant paint for exposed structural steel at natatorium trusses and other exposed fire rated structural members. Basis of design: ALBI CLAD- TF. Finish over coating as noted below
- C. Exterior Steel: Two coats, 2-part aliphatic acrylic, moisture-curing polyurethane, semi-gloss finish. Tnemec, series 73.
- D. Interior Steel in Natatorium: Two coats, 2-part polyamide epoxy, satin finish. Tnemec, series 66.
- E. Interior Architectural Metals: Two coats, two-part, aliphatic acrylic, moisture-curing polyurethane, semi-gloss finish. Tnemec, series 73.
- F. Interior Masonry in Natatorium, Locker/Shower Rooms, and Toilets: Two coats, 2-part cycloaliphatic amine epoxy, semi-gloss finish. Tnemec, series 83.

## 10 SPECIALTIES

10.1 SECTION 10 11 00 - VISUAL DISPLAY SURFACES

- A. Section includes tack boards, surfaced metal marker boards and related accessories.
- B. Porcelain-on-metal marker boards.
- C. Plastic impregnated cork tack boards.

10.2 SECTION 10 11 46 - VISUAL DISPLAY FABRICS

- A. Section includes plastic-film covered fabrics for use with markers and magnets.
- B. Projection Dry Erase Wall Covering: Bi-directional lenticular embossed vinyl surface for projection and dry erase markers. Nu-vu-rite NV60 as manufactured by Walltalkers or approved equivalent.
- C. Magnetic Dry Erase Wall Covering: Magnetic, moderate gloss vinyl surface for dry erase markers. Mag-rite MR48-00 as manufactured by Walltalkers or approved equivalent.

- 10.3 SECTION 10 12 00 – DISPLAY CASES
- 10.4 SECTION 10 13 00 – DIRECTORIES
  - A. Provide directories under Allowance No.
- 10.5 SECTION 10 14 00 - SIGNAGE
  - A. Provide signage under Allowance No. .
- 10.6 SECTION 10 14 53 – TRAFFIC SIGNAGE
- 10.7 SECTION 10 21 13.19 – SOLID-POLYMER TOILET AND SHOWER COMPARTMENTS
  - A. Section includes solid-polymer toilet and shower compartments and urinal screens
    - 1. Toilet Compartments and Urinal Screens: Ceiling-supported.
    - 2. Shower Compartments: Floor mounted, overhead braced.
- 10.8 SECTION 10 21 23 – CUBICLE CURTAINS
  - A. Section includes cubicle curtains and tracks.
- 10.9 SECTION 10 26 00 – WALL AND CORNER GUARDS:
- 10.10 SECTION 10 28 00 - TOILET AND BATH ACCESSORIES
  - A. Section includes Owner provided contractor installed
  - B. "Bobrick" quality.
  - C. All stainless steel - recessed type where applicable.
  - D. Surface-mounted Multi-roll toilet tissue dispenser, Bobrick Series Model B-2888.
  - E. Surface-mounted sanitary napkin disposal, Bobrick Series Model B-254.
  - F. Partition-mounted sanitary napkin disposal, Bobrick Series Model B-354.
  - G. Recessed sanitary napkin/tampon vendor, Bobrick Series Model B-3500.
  - H. Soap Dispensers: Counter-mounted Liquid Soap Dispenser, Model B-822.
  - I. Stainless steel grab bar, 1-1/2" (38 mm) diameter, with snap flange cover, Bobrick B-6806 Series.
  - J. Mounting kits with stainless steel screws, Bobrick Model B-252-3.
  - K. Janitor's closet shelf - Bobrick B-224.
  - L. Handicapped shower seat - Bobrick B-5191.
  - M. Baby changing stations - Diaper Deck.
  - N. Stainless Steel Shelf - Bobrick Model B-683.
  - O. Towel Bars - Bobrick Model B-674.
  - P. Paper Towel Dispensers - Bobrick Model B-359.
  - Q. Hat and Coat Hook - B-682.
  - R. Vinyl Shower Curtain - Bobrick Model 204-2.
  - S. Stainless Steel Shower Curtain Hooks - Bobrick Model 204-1.
  - T. Swimsuit Water Extractor: Suitmate Swimsuit Water Extractor; 800-553-3353.
- 10.11 SECTION 10 41 16 – EMERGENCY KEY CABINETS
- 10.12 SECTION 10 43 13 – DEFIBRILLATOR UNITS
  - A. Section includes cabinet and automatic external defibrillator.
- 10.13 SECTION 10 44 00 – FIRE PROTECTION SPECIALTIES
  - A. Section includes recessed prefinished metal cabinet and fire extinguishers.
  - B. Fully-recessed cabinets; all-purpose extinguisher.
    - 1. Flush-panel, aluminum units at Natatorium.
    - 2. Flush-panel stainless steel units elsewhere, unless otherwise indicated.

10.14 SECTION 10 51 13 - METAL LOCKERS

- A. Section includes metal locker units with hinged doors, metal trim and filler panels, locker room benches, accessories and hardware.
- B. Public Locker Room Lockers:
  - 1. Type: All-welded, athletic metal lockers.
  - 2. Size 15" x 15" x 36" double tier and 15" x 15" X 24" triple tier.
  - 3. Manufacturer DeBourgh, Lyon, List Industries, Penco.
  - 4. Material: Metallic-coated steel sheet.
    - a. Body: 16 gauge.
    - b. Back: 18 gauge.
    - c. Door: 14 gauge with inner panel reinforcement; security vents.
  - 5. Locking System:
    - a. Loop for owner provided locks
  - 6. Finish: 3 mm powder coat.
- C. Benches: Manufacturer's standard units with laminated hardwood seat approximately 9-1/2 inches wide by 1-1/2 inches thick, in maximum lengths possible and in configuration indicated. Custom steel supports as detailed. Furnish all anchorages. Apply manufacturer's standard penetrating sealer and transparent coating to bench seats.

10.15 SECTION 10 51 19 - PHENOLIC-CORE LOCKERS (OPTION)

- A. Section includes solid phenolic lockers and accessories.
- B. Warranty: Manufacturer's ten year warranty covering solid phenolic locker components against breakage, corrosion, and delamination from date of substantial completion
- C. Size and Configuration:
  - 1. Size 15" x 15" x 36" double tier and 15" x 15" X 24" triple tier.
- D. Panel Material: Decorative papers impregnated with melamine resin on faces with a clear protective overcoat and integrally compression molded with a core consisting of solid phenolic impregnated kraft papers.
  - 1. Doors: 1/2 inch (13mm) thick panel material with radius corners and polished edges.
  - 2. Locker Bodies: Tops, bottoms, and any intermediate shelves for multi-tier lockers shall be 1/2 inch (13mm) thick panel material with ventilation holes. Locker backs shall be 1/4 inch (6mm) thick panel material and side panels shall be 3/8 inch (10mm) thick panel material. Fasteners shall be applied directly into or through the material. Aluminum or metal profiles for reinforcements shall not be permitted.
  - 3. Ancillary Panels: End panels, closures, and slanted tops if any shall be 1/2 inch (13mm) thick panel material.
- E. Hardware:
  - 1. Hinges: Type 304, stainless steel. Quantity shall be three for full height doors and two for multi-tier units. Hinges shall be secured by bolts through the door or tapped into the doors as an option.
  - 2. Locking System:
    - a. Loop for owner provided locks
  - 3. Interior Hooks: Gray nylon colored throughout.
  - 4. Provide stainless steel limit arm opening no more than 90 degrees.
  - 5. Exposed Fasteners: Type 304 stainless steel.
- F. Door Identification (Identification Plates): Black background with white fonts and surface mounted with permanent adhesive integral with the locking mechanism. Fonts to be 5/8 inch high and up to four alphanumeric characters. Numbering sequence to be provided by architect.
- G. Ventilation: Provide front ventilation 1.43 square inches per lineal feet of door perimeter (minimum).
- H. ADA Lockers: Provide ADA compliant lockers, at locations indicated on Drawings, with the following provisions:
  - 1. Provide door decal with international accessibility symbol.
  - 2. Locate ADA locker such that locking system and hooks are at a maximum height of 48 inches and minimum height of 9 inches above finished floor.
  - 3. Provide 4 inch stainless steel wire pull in compliance with ADA guidelines.

- 4. Provide stainless steel padlock hasp (omit coin/retain type lock on ADA Lockers).
- I. Install lockers on concrete base.

10.16 SECTION 10 55 19 – DROP BOXES

- A. Section includes wall-mounted receiving box for payment envelopes.

## 11 EQUIPMENT

11.1 SECTION 11 14 13 – PEDESTRIAN GATES

- A. Section includes pedestrian access control gates and turnstiles.

11.2 SECTION 11 52 13 - PROJECTION SCREENS

- A. Recessed projection screens, power operation, glass beaded, heavy duty.

11.3 SECTION 11 52 21 – TV MONITOR MOUNTING SYSTEMS

11.4 SECTION 11 66 00 - ATHLETIC EQUIPMENT (GENERAL)

- A. The following equipment is currently being considered for inclusion in this project.

<b>Equipment Description</b>	Contractor Furnished Contractor Installed	Owner Furnished Contractor Installed	Owner Furnish Owner Installed
Motorized fold down, dividing curtain	x		
Motorized fold down basketball backboards, rims, and nets.	x		
Fold-Down volleyball/badminton standards with referee stand.	x		
Fixed scoreboards and scoring control station	x		
Tilt-and-roll bleacher seating			x
Cardio / Fitness Equipment			x
Synthetic floor mats under selected cardio equipment			x
Cardio Theater			x

11.5 SECTION 11 66 23 – ATHLETIC EQUIPMENT

- A. Section includes:

1. Ceiling suspended, front-braced, forward-folding basketball backstops, electrical operation.
2. Ceiling suspended, front-braced, forward-folding volley-ball standards; electrical operation.

- B. Basis of Design Manufacturer: Porter Athletic Company; 9555 Irving Park Road, Schiller Park, Illinois.

1. Basketball Backstop:

- a. Model 90950-000 Series Center-Strut Ceiling-Suspended Forward-Fold Back Stop complete with all necessary accessories.
- b. Model 00208-000 Rectangular Glass Backboard.
- c. Model 00222-500 Torq-Flex Goal.
- d. Model 2500 Powr-Touch Control System
- e. Center mast assembly suspended from bottom cord of roof trusses. Diagonally brace frame assembly to structure with folding knee joint braces.

2. Volleyball System:
    - a. Model 91920-100 Power-Net Competition-Type Overhead Supported Fold-Up Volleyball System including judges stand, padding, volleyball net.
- 11.6 SECTION 11 66 43 – INTERIOR SCOREBOARDS - AQUATIC (TIMING SYSTEM)
- A. Timing System and Scoreboard will be owner provided. A Colorado Time System timer and scoreboard will be specified. A Daktronics System will be specified as an alternate system. The scoreboard will display times for 8 lanes plus 3 event information lines and a facility name line.
- 11.7 SECTION 11 66 45 – SCOREBOARDS (GYMNASIUM)
- A. Section includes pre-manufactured scoreboard and wireless controls for court
    1. Basis of Design Manufacturer: Daktronics.
    2. Scoreboard Model: BB-2121 Basketball Scoreboard.
    3. Control Module: Daktronics All-Sport 1600.
      - a. 12V remote wireless console.
      - b. Battery pack option.
- 11.8 SECTION 11 66 53 - GYMNASIUM DIVIDER CURTAIN
- A. Section includes curtain divider with motorized electric hoist.
  - B. Basis of Design Manufacturer: Porter Athletic Company; 9555 Irving Park Road, Schiller Park, Illinois.
    1. Model: 90670 Roll-Fold Gymnasium Divider Curtain
    2. Curtain shall be one continuous section.
      - a. Bottom to 3'-4": Solid.
      - b. 3'-4" to 14'-8": Mesh (Fleximesh II).
    3. Mesh: Open polyester interlocking grid weave material coated with polyvinyl chloride; 50% open area and a weight of 9 oz per square yard.
      - a. Class A flame retardant - UL 214
    4. Adjustable limit switches for automatic "up" and "down" positions.

## **12 FURNISHINGS**

- 12.1 SECTION 12 22 00 – CURTAINS AND DRAPES
- A. Section includes manually operated drapery and drapery track.
- 12.2 SECTION 12 24 13 – ROLLER WINDOW SHADES
- 12.3 SECTION 12 48 13 – ENTRANCE FLOOR MATS AND FRAMES
- A. Section includes frame, mat and inserts for recessed floor mat.
  - B. Recessed carpet-type mats and frames; Balco roll-up or equal.
- 12.4 SECTION 12 93 00 – SITE FURNISHINGS
- A. Section includes bike racks, benches, and trash receptacles.
    1. Bike Rack: The Bike Series II; Model BR8.

## **13 SPECIAL CONSTRUCTION**

- 13.1 SECTION 13 11 00 – SWIMMING POOLS
- A. GENERAL
    1. SUMMARY OF WORK
      - a. Introduction: Furnish all labor, materials, equipment and services necessary to construct the following: (1) a 27 meter competition pool, (2) dive tank, (3) whirlpool, (4) recreation pool, and (5) a spa. This work shall include the structure(s) and installation of finishes as well as all products listed in Part 2 of Section 13 11 00.

- b. Work included in this Section: It is the intent of this Section to place the entire responsibility for the construction of the pools (including the construction of the pool shells) under one vested contractor. The contractor will actually do the work noted below. Under this Section the contractor will provide but is not necessarily limited to the following:
- 1) Provide all equipment and services required for erection and delivery onto the premises of any equipment or apparatus furnished. Remove equipment from premises when no longer required.
  - 2) Layout, excavate, remove from the construction site, replace and grade materials as required beyond the limits of excavation of the pool shells to complete the work described in this section. Reference Earthwork - Section 31.
  - 3) Grade and replace load bearing or high plasticity index soil, pump and dewater as necessary to keep excavations free from water during construction, and provide sub-surface drainage beneath the pump pit, surge tanks, and backwash pit. Reference Earthwork - Section 31.
  - 4) Provide and maintain proper shoring and bracing for existing utilities, sewers and building foundations where required for contractor related excavations. Reference Earthwork - Section 31.
  - 5) Provide all electrical conduit, wiring, junction boxes etc. to all low voltage pool equipment within pool filter/chemical rooms. Reference Electrical - Section 26. (Low voltage is considered less than 115 V.)
  - 6) Furnish and install all necessary piping and valving as shown on the drawings and specified herein.
  - 7) Furnish and install the main drain hydrostatic relief system and a sight sump as shown on the drawings. Reference Earthwork - Section 31.
  - 8) Construct the cast in place or pneumatically applied concrete pool shells and cast in place surge tanks as described in these specifications and detailed on the Drawings, including reinforcement steel, inserts, fittings, main drain sumps and all embedded items (piping, anchors, spargers, etc.) for the pools and spa. Reference Concrete – Section 03 00 00. Before commencing the placement of concrete, verify electrical bonding of pools and spa embedded items and reinforcing steel. Also, coordinate and arrange any required electrical, plumbing and or building inspections. Provide any structure drainage around the pools as shown on the Drawings. Backfill and compact fill around the pool structures, piping trenches and excavations required by this work. Reference Excavation and Fill – Section 31 23 00.
  - 9) Furnish and install a ceramic tile finish in the pools with a slip resistant surface and a vertical tile band. The pools will have a 1'-4" perimeter tile band. Tile areas will be 1" x 1" or 2" x 2" unglazed ceramic mosaic tile. Furnish and install specialty tile for the perimeter tile deck band, end wall parapet, gutter nosing, wall targets, recessed steps, floor lane markings, depth markings and warning signs, water polo markings, stanchion and water polo identification, construction joint installation bands and all other tile installation within the pool structures. Reference Finishes - Section 09 00 00.
  - 10) Depth markings and warning signs for the pool and deck will be required by code in contrasting ceramic tile. Depth markings will be shown in standard and/or metric measurements. "NO DIVING" signs will be provided at all pool areas with a depth of water 5'-0" or less. Depth markers will be provided per code at not more than 25' intervals.
  - 11) Assemble and install the cleaning and maintenance equipment for the pools as specified herein.
  - 12) Provide for the storage of all pool related equipment, materials and systems. All items are the responsibility of the contractor until accepted by owner.
  - 13) Obtain final acceptance by jurisdictional health department(s).
  - 14) Start, test, calibrate and adjust all mechanical equipment, electrical equipment, recirculation, chemical, and other supplied systems including deck, loose,

maintenance, and safety equipment. Instruct the Owner's representative in the systems operation and maintenance as described herein.

- 15) Furnish and install the heating system for the pools. Include all piping, heaters, heat exchangers, booster pumps, controls, gauges, thermostats, control valves and wiring required to draw water from the recirculation line, heat the water and return it back to the recirculation line and interlock with pool recirculation pumps.

## 2. ALTERNATES

- a. Review the description of Alternates in Division 1 and on the drawings for possible effect upon work in this Section. Alternates related to the Work in this section are described in this division and on the Bid Proposal Form.

## 3. SUBMITTALS

- a. Six (6) sets of shop drawings and engineering data shall be tabbed, indexed, referenced to the specifications, bound in 3 ring binders and submitted in two stages. Provide 8 ½" x 11" cover sheet for each item submitted identifying item and product number. The first stage will be all embedded items for the pool shells (including piping diagrams) and the second stage all other items. Only complete sets will be reviewed.

## 4. OPERATION AND MAINTENANCE MANUALS AND CLOSE-OUT SUBMITTALS

- a. Detailed operation and maintenance information shall be supplied for all equipment requiring maintenance or other attention. The equipment supplier and/or contractor shall prepare an operation and maintenance manual for all equipment. Parts lists and operating and maintenance instructions shall be furnished.

## 5. WARRANTIES

- a. The contractor warrants to the Owner and Architect that materials and equipment furnished under the contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the work will be free from defects not inherent in the quality required or permitted, and that the work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized may be considered defective. The contractor's warranty may exclude remedies for damage or defect caused by abuse, improper or insufficient maintenance, improper operations, modifications not executed by the contractor or improper wear and tear under normal use. If required by the Architect, the contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. All warranties shall be for a period of one year from the date of substantial completion or the owner begins using the pool unless otherwise specified.

## 6. RECORD DRAWINGS

- a. Provide a complete set of record drawings of the entire pool system including all sub-systems. All record drawings shall be prepared in accordance with the requirements of Section 01720 and shall be a complete, stand alone set. The CONTRACTOR shall be permitted to obtain original documents and copy them for this purpose only. Furnish the record set on 30 inch x 42 inch mylar, 3-1/2 inch computer diskettes, or compact disk (AutoCAD Release 12, 13, 14, 2000 or compatible software).

## B. PRODUCTS

### 1. OVERFLOW SYSTEM

- a. It is the intent of the specifications that the perimeter overflow system and surface cleaning be maintained under all conditions of normal operation and that no water be discharged to waste except when cleaning the filters or emptying the pools.
- b. Concrete Perimeter Overflow System: A fully recessed, 24" deep gutter will be used for the competition pool and the dive tank perimeter overflow system. A deck level, 12" deep gutter will be used for the recreation pool perimeter overflow system. These gutter systems shall include PVC grating. Gutter shall be a continuous concrete and tile overflow channel as detailed and shown on the drawings shall be installed on the pools. The bottom of the trough shall be level throughout.
- c. Skimmer Overflow System: Provide skimming system for the Whirlpool and Spa consisting of units as shown on the drawings. Skimmers shall be so located as to

- insure maximum skimming action. The skimmer shall be of sturdy, corrosion-resistant materials.
2. PUMPING EQUIPMENT:
    - a. Horizontally mounted centrifugal pumps shall be utilized for all the pool recirculation and feature pumps, and shall be certified by the National Sanitation Foundation (NSF) and bear the certification mark. Pump casing shall be cast iron fitted with a replaceable bronze case wear ring. Pump impeller shall be enclosed type of cast bronze, statically and dynamically balanced, and trimmed for the specified design conditions. Provide a hair and lint strainer, for each pump, of fiberglass or epoxy coated stainless steel construction with a clear observation top. Pressure gauges shall be installed on the discharge of the pumps and compound gauges shall be provided at the intake port of the pumps, after the hair and lint strainer.
  3. FILTRATION EQUIPMENT
    - a. Horizontal, high rate, pressure sand filters will filter the competition pool and dive tank water every 5.5 hours, the recreation pool every 3 hours, and the whirlpool and spa every 15 minutes, at a rate not to exceed 15 gallons per minute per square foot. An eleven-foot minimum (12 ft. desirable) high ceiling in the filter room should be provided for ample clearance for the filters and piping above. Filters will backwash individually.
    - b. Filter Face Piping and Pool Piping – PVC Schedule 80 piping will be used throughout the pool piping system (8" or smaller) because of its non-corrosive quality; however, only molded fittings are recommended. All flanges should be reinforced with a steel ring molded into the flange to avoid cracking due to vibration. Heat exchanger bypass piping should be copper or stainless steel.
  4. RECIRCULATION FITTINGS
    - a. Main drain outlets will be concrete sumps with 12 gauge stainless steel frames with PVC grating. One sump will be deeper to facilitate draining the pools via a separate line and dedicated pump.
    - b. Furnish and install hydrostatic relief valves consisting of a cast bronze body and valve plate complete with valve seat gasket, stamped brass top cover plate and a 2 inch PVC water collection tube in each of the main pool sumps.
    - c. The stainless steel converters shall be fabricated from 316 stainless steel.
    - d. Wall inlet fittings shall be Sta-Rite No. 8429-0000 or Hayward Model SP-1419C (1/2 inch opening) Cicolac directional inlet mounted in Hayward Model SP-1022S, Paddock or Swimtime equal.
    - e. Static water line inlet fitting for the automatic water level controller shall be provided consisting of a Cicolac body, grate and construction shield. The body shall have a 1-1/2 inch solvent weld connection and provided with an integral molded "knock-out" membrane to facilitate line pressure testing.
    - f. The outlet fitting grate from the fill funnel into the pools shall be a Hayward SP-1026 mounted in a Hayward Model SP-1022S or equal.
    - g. Adjustable floor inlet fittings will be provided each consisting of an ABS plastic body and adjusting top plate with a positive locking device.
    - h. Water surface agitators for the springboards and platforms will be provided and connected to the filtered water supply piping.
    - i. Valve box covers and frames that are not specified on the drawings or specifically identified as another size or material shall be nickel bronze with polished scored top, vandal proof screws or approved equal.
    - j. Anti-vortex plates shall be provided at the suction points of the main recirculation pumps in the surge tanks. Each plate shall be connected to the suction pipe via a PVC flange and shall be 24 in. x 24 in. x 1 in. thick.
    - k. Hydrotherapy inlet fittings shall be provided consisting of a cast bronze or Cicolac venturi body with 1-1/2 inch water inlet pipe connections and 1/2 inch air intake connection. A 1/8-inch IPS thread shall be provided in the inlet throat to permit hydrostatic pressure testing of piping system.
  5. PIPING SYSTEMS

- a. Exposed piping in the filter room and surge tank will be Schedule 80 PVC for strength and resistance to corrosion. All piping below the floor of the pool shell shall be encased in concrete and will be Schedule 40 PVC.
  - b. All valves will be identified in the filter room. Valves will be described as to their function and referenced in the operating instruction manual and wall mounted piping diagram to be prepared by the contractor.
6. CHEMICAL TREATMENT SYSTEMS
- a. Calcium Hypochlorite (Chlorinator Briquettes): Calcium hypochlorite will provide the primary chemical sanitizing for the pools. The halogen requirement of the pools will be automatically monitored and controlled by a Strantrol or Chemtrol chemical controller capable of monitoring 0 to 6 parts per million of chemical and showing Oxidation Reduction Potential (ORP) in addition to the two traditional readings of sanitizer and pH.
  - b. pH Buffering System (Muriatic Acid): Chemical feeders for muriatic acid shall be peristaltic type pumps. Two (2) fifteen (15) gallon acid drums or one (1) 55 gallon acid tank by LMI shall be provided. Chemical feed pumps shall be furnished and connected to the filtered water return lines to the pools as shown on the pool plans. The pumps shall be capable of feeding a solution to the pools to maintain pH level against the back pressure involved and shall be fully adjustable while in operation.
  - c. Ultraviolet Dechloramination and Disinfection System: It is the intent of these specifications that the swimming pool water be routinely monitored and treated by UV sterilization in the range of 220nm to 400nm to kill bacteria, viruses, molds and their spores and to continuously remove chloramines. The concentration of free chlorine residual shall at all times meet the requirements of the Health Department authority having jurisdiction over the swimming pool. Any proposed UV system must have a UL listing on the complete system, and be listed under NSF Standard 50.
7. WATER CHEMISTRY MONITORING AND CONTROL SYSTEMS
- a. A programmable chemical automation system shall be furnished for the pools for continuous monitoring of water chemistry (ORP/HRR, PPM, pH and Temperature), Langelier Saturation Index, and for automatic control of the chemical feeders, heater, and water level. Installation of the system shall be as specified by the manufacturer and no exceptions shall be taken. A factory-authorized representative shall provide training to the owner and the training shall be video taped per 13150 specifications.
8. FLOW METER AND WATER METER
- a. Flow meters will be installed in the filtered water return lines to the pools and installed in the backwash piping. Signet flow meters will be specified.
  - b. A water meter shall be furnished by the contractor and installed by the plumbing contractor. The water meter shall be installed downstream of the slow closing solenoid valve located at the fresh water supply over the fill funnel as shown on swimming pool drawings. The water meter shall have a non-corrodible main case, measuring chamber, and hermetically sealed register.
  - c. Refill flow meter shall be installed on dilution piping to backwash tank. Flow meter shall be one piece meter body of injected molded polysulfone adapters, viton o-ring seals, and 316 stainless steel floats and float guide, impact resistant machined acrylic plastic body.
9. WATER LEVEL CONTROLLERS
- a. An automatic water level controller will be provided to maintain the correct water level in the pools at all times. It will consist of a proximity switch type control unit and a coaxial control wire to be connected to the plumbing system's make up water solenoid valve. A manual fill valve will also be available to bypass the automatic system.
10. INSERTS AND ANCHOR SOCKETS
- a. Anchors for grab rails and stair railings will be provided.
  - b. Anchors for backstroke stanchions and water polo goals will be provided.
  - c. Heavy-duty cup anchors for all swimming lanes will be provided.
  - d. Anchors for starting blocks will be provided.
  - e. Anchors for the handicap lift will be provided.

- f. Anchors for the diving board stands will be provided.
  - g. Anchors for bulkhead locations shall be furnished by the bulkhead manufacturer and installed into the gutter system by the contractor.
11. DECK EQUIPMENT
- a. Grab rails and recessed steps for the pools will be provided as required. These will be provided by stainless steel grab-rails set in chrome plated bronze wedge anchors and escutcheons with set screws. Recessed tile steps in the pool wall will be provided.
  - b. Backstroke and recall rope stanchions will be provided. The backstroke stanchions will be fitted with pennants and the recall stanchions with a rope.
  - c. Starting platforms will be provided for the competition pool. These may be removed from the deck when not in use. Diving from the starting platforms should be restricted to supervised practice or competition of athletic teams. 13 starting platforms (12 required, 12 plus 1 spare) with slip-resistant surfaces shall be provided.
  - d. Deck mounted water polo goals will be provided.
  - e. Lifeguard chairs to meet the minimum standards of state regulations will be provided in portable (wheeled) units that may be stored out of the way during periods when lifeguards are not required.
  - f. Two 1-meter springboards. Durafirm stands will be specified with 16' Maxiflex "B" Boards.
  - g. Surge tank access hatch shall be furnished and installed as shown on the Drawings. The access hatch shall be a single door 2 ft.-6 in. x 2 ft.6 in with 1" fillable pan to receive ceramic tile and grout or concrete deck fill. The frame shall be 1/4 inch extruded aluminum with built in neoprene cushion and continuous anchor flange. Door shall be 1/4" aluminum plate reinforced with aluminum stiffeners as required.
  - h. Surge tank ladder rungs shall be 1/2 inch Grade 60 steel encased with co-polymer polypropylene plastic.
  - i. Handicap lift(s) will be provided to meet ADA guidelines.
12. LOOSE EQUIPMENT
- a. 6" diameter lane markers will be provided with an adequate number of storage reels.
  - b. Lane Line Storage Reel shall be fabricated from a heavy-duty aluminum reel joined together by a 1-1/2 inch aluminum axle. This unit must ride easily on four hard rubber wheels.
  - c. 31" octagonal pace clocks will be provided on portable carts with battery power.
  - d. Lifeline shall be 3/4 inch blue and white polyethylene rope with floats that are 5 inch diameter by 9 inch long. Floats to be spaced on five foot centers.
  - e. Deck mounted basketball goal and water polo goal shall be provided, with one ball per unit.
  - f. Hanging Nets (2 required) shall be furnished to span the width of the pool to protect the interior walls of the natatorium during water polo.
13. MAINTENANCE EQUIPMENT
- a. Wall brush shall be a flexible polyethylene material with five (5) rows of nylon bristles. Pool brush holder shall be permanent mold cast aluminum with hydrofoil flap.
  - b. Skimming Net head shall consist of one-piece molded plastic frame with a reinforced, integral handle bracket suitable for quick attachment to a standard 1 1/4 or 1 1/2 inch diameter handle using bolts and wing nut.
  - c. Adjustable telescopic and stainless steel poles to shall be provided.
  - d. Testing kit to feature liquid reagents, color comparator, waterproof instructions and treatment charts, chemistry guide and watergram. Test kit to have the ability to test for free and total chlorine (0.5 – 5.0 ppm), bromine (1-10 ppm), pH (7.0 – 8.0), acid and base demand, total alkalinity, calcium hardness and cyanuric acid.
  - e. Vacuum Cleaner shall be provided with pump and strainer.
  - f. Robotic Pool Cleaner: Provide one electric motor driven automatic robot swimming pool vacuum device.
  - g. Stainless steel Cleaner will be provided (one (1) required per body of water).
14. SAFETY EQUIPMENT
- a. Ring Buoys and Extension Ropes shall be provided.

- b. Life hook and an aluminum extension pole shall be provided.
- c. Spineboards shall be provided with head immobilizer, head strap, body straps, side roll ups, adhesive strips and required staples.
- d. First Aid Kit shall be a 24 unit kit per American Red Cross standards as manufactured by Swift First Aid, or equal.
- e. Rescue tube for each lifeguard chair.
- f. Safety Eye Wash Station shall be a self-contained system in which eyewash bottles are securely positioned in a portable holder. Eyewash bottles shall be 32 ounces and easily removable from case, and shall contain a sterile, saline solution with the ability to neutralize a varying quantity acids or caustics.
- g. Safety Eyeglasses dispenser station containing ten (10) pairs of safety glasses shall be provided.

#### 15. THERMOMETERS

- a. Portable thermometer shall be a molded ABS plastic tube body type with the ability to measure temperature in both degrees Fahrenheit and Celsius. A 3 ft. polyethylene cord is to be attached to thermometer.
- b. In-Line thermometer to be near the heating loop and shall have a 9 inch adjustable angle with a minimum 6 inch stem.
- c. Digital temperature indicator shall be a 115 volt, wall mounting case, sensor and a stainless steel immersion well.

#### 16. FINISHES

- a. Furnish and install a ceramic tile finish in the pools with a slip resistant surface with a vertical tile band. Furnish and install specialty tile for the perimeter tile deck band, end wall parapet, gutter nosing, wall targets, recessed steps, floor lane markings, depth markings and warning signs, stanchion and water polo identification, construction joint installation bands and all other tile installation within the pool structures. Reference Mortar-Bed Ceramic Tiling - Section 09 32 13.

#### 17. WATERPROOFING

- a. The interior surfaces of the surge tanks, gutter troughs and backwash pit coating shall be a high build epoxy or pre-blended, cementitious waterproofing coating/mortar consisting of hydraulic binders, selected aggregates and a synthetic polymer intended for the protection of concrete masonry surfaces. Waterproofing coating shall be Vandex, Planiseal 88 or equal.

#### 18. SEALANTS

- a. Sealants shall be installed by the contractor.

#### 19. WATER FEATURES AND SUPPORT EQUIPMENT

- a. Water features such as the waterfall, and water sprays shall be provided and installed by the contractor complete with pumping equipment.

### C. EXECUTION

#### 1. EQUIPMENT AND SYSTEMS INSTALLATION

- a. The contractor shall assemble and install all equipment, special parts and accessories as shown on pool drawings, specifications and shop drawings of the equipment suppliers.
- b. SPC shall furnish all anchors and inserts to be imbedded in the deck including all fittings, inserts and structure sleeves and required anchorage's as shown on the plans and as indicated in this Section of specifications. Equipment shall be set true and plumb, using factory jigs where available. Removable equipment items shall be easily removable from anchors and shall fit without noticeable wobble.
- c. Provide templates for all equipment anchors. Provide anchor bolts of the size and spacing as required by the equipment manufacturer. All anchor bolts shall be stainless steel Type 316 and of a length capable of adequate anchorage into rough slab-on-grade allowing for finish deck tile and setting bed. Anchors shall be set and cast into place during building concrete work. Inspect all anchor settings for horizontal and vertical alignment prior to placing concrete.
- d. The contractor is to install all equipment and systems in accordance with manufacturer's directions. Equipment shall all be assembled and in place for final observation.

- e. All items necessary to complete this Section are shown on the plans or described in the specifications including items that may be purchased by the Owner. Items are detailed and specified as a guide for dimensional purposes. The contractor must make provisions accordingly and submit shop drawings and submittals based on that data.

## 14 CONVEYING EQUIPMENT

### 14.1 SECTION 14 24 00 - HYDRAULIC ELEVATORS

- A. Section includes elevator cab, hoistway rails and supports, hydraulic cylinder and PVC sleeve, microprocessor controls and machine room equipment; ADA compliant.
  - 1. Hydraulic Elevator System: One unit; hydraulic holeless type with cylinder in hoistway; with motor and pump adjacent to the hoistway. Elevator equipment to meet UO standards and maintenance requirements.
- B. Manufacturers:
  - 1. KONE Inc.
  - 2. Otis Elevator Co.
  - 3. Schindler Elevator Corp.
  - 4. ThyssenKrupp Elevator.
- C. System Description – Elevator 01 Free side:
  - 1. Capacity: 3000 pounds.
  - 2. Number of Stops: 2
  - 3. Double sided – two door cab
  - 4. Maximum Rise:
  - 5. Clear Car Inside Dimensions: 6'-8" x 4'-9".
  - 6. Car Height: 7'-11"
  - 7. Car Speed: 150 feet per minute.
  - 8. Door Width: 3'-6"
  - 9. Door Height: 7'-0"
- D. System Description – Elevator 02 control side:
  - 1. Capacity: 4500 pounds.
  - 2. Number of Stops: 3
  - 3. Maximum Rise:
  - 4. Clear Car Inside Dimensions: 5'-8" x 7'-10".
  - 5. Car Height: 7'-11"
  - 6. Car Speed: 150 feet per minute.
  - 7. Door Width: 4'-6".
  - 8. Door Height: 7'-0"
- E. Elevator Finishes:
  - 1. Car and Hoistway Doors: Satin stainless steel.
  - 2. Hoistway Door Frames: Satin stainless steel.
  - 3. Car Side and Rear Wall Panels: Satin stainless steel.
  - 4. Car Front Wall (Return Panel): Stainless steel.
  - 5. Car Floor Finish: Tile.
  - 6. Car Ceiling Finish: Flush, plastic-laminate panels, with incandescent downlights.
- F. Features:
  - 1. Reduced current starting.
  - 2. Blanket hooks and one complete set of full-height protective blankets.
  - 3. Card-reader operation.
  - 4. Independent service for service elevator.
  - 5. Standby powered lowering.
- G. Warranty Period: One year from date of Substantial Completion.
- H. Maintenance Service: One year from date of Substantial Completion; 7-day-per-week emergency callback service.
  - 1. Response Time: Two hours or less

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## **SPECIFICATIONS GROUP**

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### **FACILITY SERVICES SUBGROUP**

#### **21 FIRE SUPPRESSION**

21.1 REFER TO FIRE SUPPRESSION AND FIRE ALARM NARRATIVE

#### **22 PLUMBING**

22.1 REFER TO PLUMBING NARRATIVE

#### **23 HEATING VENTILATING AND AIR CONDITIONING (HVAC)**

23.1 REFER TO HVAC NARRATIVE AND DRAWINGS

#### **24 INTEGRATED AUTOMATION**

24.1 SEE ATTACHED DIVISION 25 SECTIONS.

#### **25 ELECTRICAL**

25.1 REFER TO ELECTRICAL AND LIGHTING NARRATIVES AND DRAWINGS

25.2 SECTION 26 05 00 - COMMON WORK RESULTS FOR

25.3 SECTION 26 05 43 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

A. Duct

1. Provide Type "EB" 5" PVC conduits equal to Carlon No. 68716, "EB" 4" PVC conduits equal to Carlon No. 68715, and "EB" PVC 2" duct equal to Carlon No. 68711, except as otherwise noted for electrical duct banks.
2. Rigid galvanized steel shall be provided for 90° elbows and conduits stubbed through concrete.

B. Concrete Encasement

1. The required 28-day compressive strength of conduit encasement concrete may be 2,500 psi. The slump may be 7" maximum and 5" minimum.
2. Electrical ductbank encasement concrete to be red-dyed.

C. Marking

1. Place a continuous red warning tape within the trench backfill about 12 inches above the concrete encased duct bank or 12" above the direct bury conduits. Center tape over the centerline of the construction.

25.4 SEE ATTACHED FOR REMAINING DIVISION 26 SECTIONS

#### **26 COMMUNICATIONS**

26.1 REFER TO TECHNOLOGY NARRATIVE

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## SPECIFICATIONS GROUP

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### SITE AND INFRASTRUCTURES SUBGROUP

## 31 EARTHWORK

### 31.1 SECTION 31 22 20 – SITE DEMOLITION

### 31.2 SECTION 31 20 00 – EARTH MOVING (EARTHWORK)

- A. Section includes the following:
  - 1. Preparing subgrade for slabs-on-grade, lawns and grasses and exterior plants.
  - 2. Excavating and backfilling for buildings and structures.
  - 3. Drainage course for slabs-on-grade.
  - 4. Subsurface drainage backfill for walls and trenches.
- B. Soil Materials:
  - 1. Description of types and uses of existing soils (based on soil boring logs, soils report and geotechnical and structural engineer evaluation). The following are examples only. Soil types will be revised when borings and report are completed.
  - 2. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
  - 3. Subsoil Type S1: Existing fill. Dark Brown clay
  - 4. Subsoil Type S2: Existing soil. Gray, sandy, clay.
  - 5. Subsoil Type S3: Imported structural fill clay material.
  - 6. Topsoil Type S4: Existing, reused, topsoil.
  - 7. Topsoil Type S5: Imported topsoil.
  - 8. Stockpiling requirements. Topsoil reuse must be approved by University. If there is extra topsoil, stockpile as directed by Owner.
- C. Structural Planting Soil: Provide structural planting soil in place of subgrade material at locations indicated on Drawings.
  - 1. Structural Planting Soil Mix:
    - a. ASHTO #4 gravel; 100 lbs calculated dry weight.
    - b. Shredded clay loam; 15 to 18 lbs.
    - c. Hydrogel; Cross-linked, potassium copolymer used to bind mixture during mixing process; 0.03 lbs.
    - d. Water; +/- 10 including the water calculated in the gravel and soil.
- D. Aggregate Materials
  - 1. Aggregate Type A1: Crushed limestone - non-free-draining. IDOT 4120 Class A, crushed stone.
  - 2. Aggregate Type A2: Porous backfill - free-draining sand. IDOT 4131.
  - 3. Aggregate Type A3: Sub-base material for concrete slab-on-grade - free-draining. IDOT 4121.
  - 4. Aggregate Type A4: 3/8 inch pea gravel, natural stone.
  - 5. Aggregate Type A5: Landscape Gravel - 1 to 2 inch diameter, natural stone.
  - 6. Engineered Fill: Pit or quarry run rock, crushed rock, crushed gravel and sand or sand that is fairly well graded between coarse and fine sizes. It should be free of clay balls, roots, organic matter, or other deleterious materials with a maximum particle size of 4 inches with less than 12 percent passing the No. 200 sieve.
  - 7. Bedding Course: Well graded, granular material that is free of organic matter and other deleterious material with a maximum particle size of 3/4-inch and less than 8 percent passing the No. 200 sieve.

8. Subbase Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
  9. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.
- E. Rough Grading:
1. Strip and stockpile topsoil.
  2. Cutting, grading, filling, rough contouring, and "Engineered Fill" for site structures and building pad.
  3. Schedule of compaction requirements.
  4. Compaction testing requirements.
  5. Provide erosion control.
- F. Excavating and Fill:
1. Excavating requirements for building foundations, slabs on grade and site structures.
  2. Footing and subslab evaluation and bearing pressure capacity testing by Soils Engineer prior to placing concrete.
- G. Backfilling:
1. Schedule of acceptable backfill materials for each condition.
  2. Interior slab on grade: 4 inch fill Type A3, compact to 98%
  3. Interior side of foundation walls: Fill Type A2 or A3, each lift compacted to 98%
  4. Exterior side of foundation walls, retaining walls: Fill Type S2 or S3 to sub-grade elevation compacted to 95%
  5. Fill under grass areas: Fill Types S1, S2 or S3 to 6 inches below finish grade, compacted to 95%.
  6. Fill under landscaped areas: Fill Types S1, S2 or S3 to 12 inches below finish grade, compacted to 85%.
  7. Fill under asphalt and concrete paving: Compact subsoil to 95%. Install Subbase Course and Base Course type crushed rock per plans and ODOT requirements.
  8. Fill over-excavation at footings and column pads: Fill Type A1 or A3.
  9. Fill over drainage piping gravel cover: Fill Type A4, to 30 inches below grade, compacted to 95%.
  10. Compaction requirements.
  11. Compaction testing requirements.
- H. Trenching:
1. Work Includes: Trench excavation, backfilling and compaction.
  2. Schedule of fill material:
  3. Storm and Sanitary Piping: Cover pipe and pipe bedding with Bedding Course to 12" over top of pipe. Fill to grade with Satisfactory Soils or, if under a roadway, with Engineered Fill.
  4. Duct Bank and Electrical Conduit: Cover duct and bedding with Fill Type S1, S2 or S3, to sub-grade elevation, compacted to 95%.
- I. Landscape Grading:
1. Section includes: Final grade topsoil for finish landscaping
  2. Topsoil: Fill Type S4 or S5
  3. Depth:
    - a. Sod Areas: Topsoil; 4 inches, minimum.
    - b. Planting Beds: Amended soil; 12 inches, minimum.
    - c. Tree Beds: Structural planting soil.
  4. Maintain completed work to prevent damage and to repair erosion.

### 31.3 SECTION 31 23 16.13 - TRENCH EXCAVATION AND BACKFILL

#### A. Field Quality Control

1. Compaction Testing Frequency shall be based on the following: 1 test per 100 linear feet (30.5m) per 8" (200mm) lift.

- 31.4 SECTION 31 23 16.29 - OVEREXCAVATION AND BACKFILL FOR UNSUITABLE PIPE BEDDING MATERIAL
- 31.5 SECTION 31 23 19 - DEWATERING
- 31.6 SECTION 31 25 00 - EROSION AND SEDIMENTATION CONTROL
  - A. Work Includes:
    - 1. Furnishing, installing, maintaining, and removing temporary control measures as needed to prevent the discharge of silty or polluted storm water from the construction site.
  - B. Regulations:
    - 1. The erosion control must meet the requirements of the DEQ 1200-C permit and the City of Eugene's regulations, including:
      - a. Weekly monitory and inspection log by an approved inspector, who assesses the runoff quality
      - b. Dewatering operations must include water quality, provided mechanically or by other approved method
      - c. If area of disturbance is greater than 5 acres, permit is subject to public notice
      - d. Updating erosion control plans throughout the project, to be approved by the City of Eugene
- 31.7 SECTION 31 50 00 – EXCAVATION SUPPORT AND PROTECTION

## **32 EXTERIOR IMPROVEMENTS**

- 32.1 SECTION 32 12 16 – ASPHALT PAVING
- 32.2 SECTION 32 13 13 – CONCRETE PAVING
  - A. Portland cement concrete sidewalks, drives and drive approaches, parking lot pavement, and curbs and gutters.
  - B. Testing by Contractor.
  - C. Specific pavement thicknesses as required by soils engineer.
  - D. PCC Mix Requirements: 4,000 PSI compressive strength at 28 days, air-entrained 5-8%, crushed limestone aggregate.
- 32.3 SECTION 32 13 73 – CONCRETE PAVING JOINT SEALANTS
- 32.4 SECTION 32 14 14 – UNIT PAVING ON CONCRETE PAVING BASE
  - A. Section includes concrete pavers set on bituminous setting bed over concrete paving base.
  - B. Materials:
    - 1. Concrete Pavers: 7 7/8 x 3 7/8 x 2 3/8 inch, 8,000 psi average compressive strength, 5% maximum water absorption, red color; Hollandstone Concrete Paver as manufactured by Borgert Products, Inc. St. Joseph, MN 800-622-4952.
    - 2. Bituminous Setting Bed: 7% ASTM D3381, viscosity grade AC10 or AC20 asphalt cement; 93% dried, fine aggregate.
  - C. Neoprene-Modified Asphalt Adhesive: 75% solids, solvent based mastic coat (Varsol); 2% neoprene base.
  - D. Joint Sand: ASTM C33; clean, non-plastic, natural or manufactured from crushed rock.
- 32.5 SECTION 32 84 00 – PLANTING IRRIGATION
- 32.6 SECTION 32 92 00 – TURF AND GRASSES
- 32.7 SECTION 32 92 23 – SODDING
- 32.8 SECTION 32 93 11 – TREES, SHRUBS, AND GROUNDCOVER
  - A. Section includes plants, planting soils, tree stabilization, landscape edgings, tree grates.

B. Tree Grates: Neenah R-8813

32.9 SECTION 32 93 24 – PERENNIAL PLANTS

**33 UTILITIES**

33.1 SECTION 33 05 10 - SITE PREPARATION FOR BURIED UTILITIES

33.2 SECTION 33 11 22 - WATER AND CHILLED WATER MAINS

A. Restrained Joint Ductile Iron Pipe (RJ-DIP)

1. Minimum Thickness: Special Thickness Class 52 for pipe up to and including 24" in diameter.
2. Acceptable Products: The University prefers a manufactured restrained joint pipe for buried piping:
  - a. Griffin Pipe Products Company: Snap-Lock STET Restrained Joint Pipe
  - b. Clow Pipe: Super Locke Pipe Fitting
  - c. US Pipe: TR Flex
  - d. American Pipe - Flex Ring
3. Field Cut Restrained Joints shall conform to:
  - a. MJ DIP: EBAA Iron Megalug Series 1100

B. Fittings for DIP Pipe

1. Fittings (Tees, Bends, etc.)
  - a. Shall conform to either ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53 ductile iron mechanical joint, minimum working class pressure for underground piping with Megalug restraining glands: 24" or less diameter - 350 working pressure.
2. Flanged fittings ANSI A21.10 or ANSI A21.53, Class 250 for above ground piping or as shown on Plans.
3. Bolts and Nuts - Cor-Blue T-Bolts by NSS Industries required on all fittings and Megalugs.

33.3 SECTION 33 31 00 - SANITARY SEWERAGE

A. PVC Sewer Pipe and Fittings: According to the following:

1. PVC Sewer Pipe and Fittings, NPS 4 to NPS 15: ASTM D 3034, SDR 35, for solvent-cemented or gasketed joints.
  - a. Gaskets: ASTM F 477, elastomeric seals.

33.4 SECTION 33 41 00 - STORM UTILITY DRAINAGE PIPING

- A. PVC Sewer Pipe and Fittings NPS 15 and Smaller: ASTM D 3034, SDR 35, with bell-and-spigot ends for gasketed joints with ASTM F 477, elastomeric seals.
- B. Corrugated PE Drainage Pipe and Fittings NPS 10 and Smaller: AASHTO M 252, Type S, with smooth waterway for coupling joints.
  1. Soiltight Couplings: AASHTO M 252, corrugated, matching tube and fittings.
- C. Corrugated PE Pipe and Fittings NPS 12 and Larger: AASHTO M 294, Type S, with smooth waterway for coupling joints.
  1. Soiltight Couplings: AASHTO M 294, corrugated, matching pipe and fittings.

33.5 SECTION 33 46 00 – SUBDRAINAGE

- A. Section includes under-slab and foundation drainage system; filter aggregate and bedding.
- B. Pipe: Polyvinyl Chloride Pipe: ASTM D2729; plain end, with required fittings; perforated pipe at subdrainage system; unperforated through sleeved walls.
- C. Perimeter Drainage: At exterior side of basement foundation walls and at elevator shaft foundation walls. Locate 6 inch diameter drain pipe 12 inches minimum below basement floor slab elevation.
- D. Pool Subsurface Drainage: Maximum 25 feet spacing perpendicular to outside walls and tied to perimeter footing drain tile and sump. Locate 4 inch diameter drain pipe 12 inches minimum below basement floor slab elevation.

- E. Basement Floor Slab Drainage: Maximum 30 feet spacing perpendicular to outside walls and tied to perimeter footing drain tile and sump. Locate 4 inch diameter drain pipe 12 inches minimum below basement floor slab elevation.

**END OF OUTLINE SPECIFICATION**