



## STANDARD DESIGN AND CONSTRUCTION REQUIREMENTS FOR CITY OF PLANO FACILITIES

March 23, 2011

**These standards are written as a programming guide to Architects and Engineers (A/E), addressing specific requirements by the City of Plano.**

The City of Plano considers these requirements pertinent to the success of a project and requests A/E devote the time necessary to incorporate the requirements into the Bidding and Contract Documents. A/E shall carefully review the Construction Documents as a whole and eliminate conflicts between these requirements and A/E's Master Guide Specifications.

Refer discrepancies, questions and concerns to the City of Plano's Representative.

This guide to A/E is organized into the Divisions and Sections of MasterFormat. The guide is not exhaustive and information does not address every Division available in MasterFormat. A/E is to incorporate the information into design elements of the project and prepare a project specific Project Manual as appropriate for the project. Sections that may be included herein are provided in word format and A/E shall manipulate text as appropriated for coordination with the project specific Project Manual issued as part of A/E's documents issued.

## **MISCELLANEOUS PROGRAMMING / DESIGN STANDARDS**

- A. Accessibility Standards: Incorporate following:
  - 1. [Americans with Disabilities Act Standards](#). [\[Click\]](#)
  - 2. [Texas Accessibility Standards \(TAS\)](#). [\[Click\]](#)
- B. City of Plano Codes and Ordinances [\[Click\]](#)
- C. Refuse and Recycling Container Enclosure for Facility:
  - 1. Contact Republic Services / Allied Waste of DFW to obtain most current design standard for the Container Enclosure Plan and Refuse Truck Required Radius Plan. These plans delineate minimum clearances required for container size and service access. Republic Services / Allied Waste of DFW: 972-422-2341 [\[Click\]](#)
  - 2. Screen enclosure must be provided around dumpster using masonry material to match facility. Requirements can be obtained in Section 3.1000 of City of Plano Ordinance [\[Click\]](#).
- D. Interior Lighting: Lighting fixtures within stair enclosures and in ceilings more than 12'-0" above the finished floor should be wall-mounted for ease of access for re-lamping rather than at heights that requires lifts or special equipment for access.
- E. In-Bound Gutter Systems: In-bound gutter systems are discouraged and only permitted upon City of Plano Representative's written approval.
- F. Storage Rooms: Provide a permanent storage room of adequate size to accommodate spare parts and maintenance materials for City of Plano Building Maintenance Department (may be a shared utility room) that should include:
  - 1. Metal Shelving Unit by one of the following:
    - a. Chrome plated, metal shelving units' equivalent to Inter Metro Industrial Corp. Super Erecta Shelf®. [\[Click\]](#)
    - b. Prefinished steel shelving system equivalent to Tenssco Z- Line. [\[Click\]](#)
  - 2. One 43 inch wide by 65 inch high flammable liquids storage cabinet for paints and flammable chemicals meeting OSHA standards and NFPA Code 30 standards; equivalent to one of the following:
    - a. Justrite Manufacturing Co. [\[Click\]](#)
    - b. Eagle Manufacturing Co. [\[Click\]](#)
- G. Products:
  - 1. When a product is named in these standards by using a proprietary name or the particular manufacturer or vendor, the product named shall be understood as establishing the basis of design for the type, function, dimension, appearance, and quality desired. Other manufacturer's products are to be encouraged, provided sufficient information is submitted to allow the A/E to determine that products proposed are equivalent to products named. Alternates and substitutes will be approved by A/E by means of addenda prior to bid date.
  - 2. When proprietary information is listed in these standards, information is intended as an "Open Proprietary Specification." Specify other known manufacturers and products that are equivalent to the proprietary product.
- H. Utilities at Roof: Provide the following utilities on roof for use by maintenance personnel. Location should be centrally located to roof mounted equipment:
  - 1. Weatherproof, exterior grade, dedicated, 120 volt electrical quadruplex outlets.

2. Domestic water hose bibs with freeze protection.
- I. Heating and Cooling Design Temperatures:
    1. Winter: 15 degrees F; ambient air.
    2. Summer: 105 degrees F; ambient air.
  - J. Sustainability:
    1. It shall be the policy of the City of Plano to finance, plan, design, construct, manage, renovate, and maintain its facilities and buildings to be sustainable.
    2. The City of Plano will use the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) rating system to determine what constitutes sustainable building by national standards.
    3. The City of Plano will require the highest level of LEED Certification possible for all newly constructed and majorly remodeled city facilities.
  - K. Flooring and Slip Resistance: Select products that can demonstrate compliance with ADA's slip resistance recommendations by one of the following:
    1. Evidenced by the manufacturer's product literature.
    2. If not available in product literature, testing of installed flooring by an independent testing laboratory according to a standard determined by the A/E.

## **DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS**

### **00 1000 - CITY OF PLANO FRONT-END DOCUMENTS**

- A. Project Manual provided by A/E shall be split into two volumes, at minimum:
  - 1. Volume I: City of Plano Front-End Documents.
  - 2. Volume II (and subsequent volumes as needed): Divisions 01 through 49 Technical Specifications.
  
- B. The City of Plano's Representative will provide Front-End Documents for Procurement and Contracting Requirements. A/E shall obtain sample copy of the documents and incorporate into the Project Manual as appropriate. Obtain Sample Front-End Document by contacting the Engineering Department's Facility Division Administrator, 972-941-7152.
  
- C. City of Plano's Front-End Documents includes, but are not limited to:
  - 1. 00 1100 - Notice to Proposers
  - 2. 00 2116 - Instructions to Proposers
  - 3. 00 4213 - Proposal Form – Stipulated Sum
  - 4. 00 4539 - Minority / Woman-Owned Business Participation
  - 5. 00 4553 - Insurance Requirement Affidavit and Checklist
  - 6. 00 4554 - Certificate of Insurance
  - 7. 00 4556 - Affidavit of No Prohibited Interest
  - 8. 00 4559 - Conflict of Interest Information
  - 9. 00 5210 - Supplementary Conditions
  - 10. 00 5213 - Construction Agreement Form – Stipulated Sum (A/E to provide applicable AIA 201 forms)
  - 11. 00 5215 - Special Conditions
  - 12. 00 7343 - Prevailing Wage Rates
  - 13. 00 8100 - TCEQ-TPDES Permit Requirements
  - 14. 00 9100 - Approved Materials List

## **DIVISION 01 - GENERAL REQUIREMENTS**

### **01 1100 - SUMMARY OF WORK**

- A. Construction Documents: Specify that the Contractor will be furnished with contact information for printer holding reproduces and will be responsible to order and pay for any contract document sets needed.
- B. Permits: Specify that the City of Plano will waive fees for the following Municipal permits however, contractor is responsible for state and federal fees if any:
  - 1. Building Permit.
  - 2. Planning and Engineering Permit.
  - 3. Water Impact Fees.
  - 4. Sign Permit.
  - 5. Temporary Electrical Permit.
- C. Work Provided by City of Plano: Specify that the following work will be provided by the City of Plano and included in Project Schedule:
  - 1. Testing, Balancing, and Adjusting HVAC System.
  - 2. Security Cameras.
  - 3. Card Reader Access.
  - 4. Communication Cabling.
  - 5. Irrigation Controller.
  - 6. Resilient Flooring Wax/Sealer.

### **01 2100 - ALLOWANCES**

- A. Specification Required: Include a Section that is coordinated with Division 00 information:
  - 1. Owner's Contingency shall be carried as an Allowance item and shown as a line-item in the Contractor's Schedule of Values. Amount will be determined by City of Plano's Representative.
  - 2. Include any other Allowance items that may be determined by the design team.

### **01 2200 - UNIT PRICES**

- A. Specification Required: If required by the Project, include a Section that is coordinated with Division 00 information.

### **01 2300 - ALTERNATES**

- A. Specification Required: If required by the Project, include a Section that is coordinated with Division 00 information.

### **01 2600 - CONTRACT MODIFICATION PROCEDURES**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.

### **01 2900 - PAYMENT PROCEDURES**

- A. Specification: Use Section provided by the City of Plano's Representative; changes require City of Plano Representative's written approval. [\[Click\]](#)

### **01 3100 - PROJECT MANAGEMENT AND COORDINATION**

- A. Specification: Use Section provided by the City of Plano's Representative; changes require City of Plano Representative's written approval. [\[Click\]](#)
- B. A/E shall prepare, maintain, and distribute Project Meeting Reports.

#### **01 3200 - CONSTRUCTION PROGRESS DOCUMENTATION**

- A. Specification: Use Section provided by the City of Plano's Representative; changes require City of Plano Representative's written approval. [\[Click\]](#)

#### **01 3300 - SUBMITTAL PROCEDURES**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.

#### **01 3329 – 01 3999 SUSTAINABILITY DESIGN, REPORTING AND MANAGEMENT REQUIREMENTS**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.

#### **01 4000 - QUALITY REQUIREMENTS**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.

#### **01 4200 - REFERENCES**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.

#### **01 4339 - MOCKUPS**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.
- B. Mockup: When a mockup is requested by City of Plano's Representative, include a detail on the Drawings or as part of a Specification.

#### **01 4523 - TESTING AND INSPECTION SERVICES**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.
- B. Testing and Inspection Services: Specify that the City of Plano's Representative will retain materials testing laboratory.
- C. Special Inspections: Specify that special inspections are required by Building Inspections Department and must be noted on drawings by A/E in format required. [\[Click\]](#)
- D. Required Testing and Inspections: Specify within respective specification sections noting Contractor is responsible for scheduling testing and inspections not less than two business days in advance. Re-inspection fees and cancellation fees incurred due to untimely cancellation shall be paid by the Contractor.

#### **01 5000 - TEMPORARY FACILITIES AND CONTROLS**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.
- B. Facilities: Specify that the Contractor is to provide, maintain, and pay for the following at the site:
  1. Field office with a telephone and computer with email service.
  2. Temporary office with not less than 100 square feet of space for the use of the Architect and City of Plano's Representative; complete with light, heat and air conditioning and janitor

- service; with convenient access to toilet facilities, electric water cooler, plan racks, four-drawer metal file cabinet with lock, shelves for samples, tables, and chairs.
3. Maintain construction sheds and temporary facilities in good condition and in neat appearance.
  4. When it becomes possible to establish an office in the project, office accommodation of approximately the same size as those in the field offices, including the services above, shall be provided and maintained until the issuance of a Certificate of Substantial Completion.
  5. Field and temporary offices shall be removed when no longer required.

#### **01 5713 - TEMPORARY EROSION AND SEDIMENT CONTROL**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.
- B. Erosion and Sediment Control Program:
  1. A/E shall design a program complying with TCEQ-TPDES and City of Plano requirements which are outlined in the Engineering Department's Erosion Control Manual. [\[Click\]](#)
  2. A/E is required to summarize Erosion and Sediment Control Program on standardized forms and included in the drawings. To obtain appropriate form, contact Engineering Department Erosion Control Manager or City of Plano's Representative.

#### **01 5800 - PROJECT IDENTIFICATION**

- A. Specification: Use Section provided by the City of Plano's Representative; changes require City of Plano Representative's written approval. [\[Click for Specification\]](#) [\[Click for Drawing\]](#)

#### **01 6000 - PRODUCT REQUIREMENTS**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.
- B. Asbestos Containing Materials (ACM): Specify that products containing ACM is strictly prohibited.
  1. Contractor will be required to execute a separate Asbestos-Free Materials Certification Form for the construction of the Project that should be submitted under Section 01 7700. [\[Click\]](#)
  2. Architect will be required to execute a separate Asbestos-Free Materials Certification Form for the design of the Project that should be submitted under Section 01 7700. [\[Click\]](#)

#### **01 7000 - EXECUTION REQUIREMENTS**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.
- B. Construction Layout: Specify that the Contractor is to retain and pay a registered surveyor or licensed professional engineer to perform surveys, layouts, and measurements for finished floor elevations and finished grade elevations.
- C. Positive Water Drainage: Specify that the Contractor is to submit a certified Report of Compliance with Contract Documents, indicating that there is positive water drainage away from the facility.

#### **01 7419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.
- B. Recycling Program: Specify that the contractor has the discretion to dispose of waste in one of the following ways:
  1. Conventionally.

2. Utilize and pay fees for use of the City of Plano's Construction and Demolition Recycling Deposit Program. [\[Click\]](#)

#### **01 7700 - CLOSEOUT PROCEDURES**

- A. Specification: Use Section provided by the City of Plano's Representative; changes require City of Plano Representative's written approval. [\[Click\]](#)
- B. Closeout Checklist: A/E will provide the following for the City of Plano's use:
  1. Extra Stock, including Spare Parts and Maintenance Materials.
  2. Instructions and Training.
  3. Warranties, Bonds, and Continued Maintenance.
- C. Extra Stock: Specify specific and verifiable quantities; specifying percentage of materials is not acceptable.

#### **01 7823 - OPERATIONS AND MAINTENANCE DATA**

- A. Specification: Use Section provided by the City of Plano's Representative; changes require City of Plano Representative's written approval. [\[Click\]](#)

#### **01 7829 - FINAL SITE SURVEY**

- A. Specification Required: Include a Section that is coordinated with Division 00 information.
- B. Contractor to retain and pay a registered surveyor or licensed professional engineer to provide Final Survey for finished floor elevations, locations of building & other site elements and finished grade elevations.
- C. Registered Surveyor or Licensed Professional Engineer upon completion of the Final Survey shall provide a letter to Owner certifying that there is positive water drainage away from the facility.

#### **01 7839 - PROJECT RECORD DOCUMENTS**

- A. Specification Required: Use Section provided by the City of Plano's Representative; changes require City of Plano Representative's written approval. [\[Click\]](#)
- B. Required Record Documents: At completion of Project, A/E will incorporate information noted on Contractor's Record Documents onto a final Record Set of Drawings and Specifications. A/E will submit the following to the City of Plano's Representative:
  1. Two sets of full-size prints of the drawings.
  2. One set of 50 percent reduced prints of the drawings.
  3. Two compact discs of drawings electronically formatted individually in .dwg with a sheet index.
  4. Two compact discs of simplified floor plans (without dimensions and notes) for use as the base for preparing fire evacuation plans.
  5. One set of paper specifications.
  6. One compact disc of the specifications formatted individually in .pdf with a table of contents.

#### **01 7853 - SUSTAINABLE DESIGN CLOSEOUT DOCUMENTATION**

- A. Specification Required: Include a Section that is coordinated with Division 00 information, Sustainability Specification Sections and related material and equipment Specification Sections.

#### **01 7900 - DEMONSTRATION AND TRAINING**

- A. Specification: Use Section provided by the City of Plano's Representative; changes require City of Plano Representative's written approval. [[Click](#) ]

**01 8113 - SUSTAINABLE DESIGN REQUIREMENTS**

- A. Specification Required: Include a Section that is coordinated with Division 00 information, Sustainability Specification Sections and related material and equipment Specification Sections.

**01 9100 - COMMISSIONING**

- A. Specification Required: Include a Section that is coordinated with Division 00 information, Sustainability Specification Sections and related material and equipment Specification Sections.

## **DIVISION 02 - EXISTING CONDITIONS**

### **02 3200 - GEOTECHNICAL INVESTIGATIONS**

- A. Specification Required: Include full report of the geotechnical investigation.

## **DIVISION 03 - CONCRETE**

### **03 3000 - CAST-IN-PLACE CONCRETE**

- A. Protection of Formwork: Specify that transit mixing trucks are not permitted to drive over prepared subgrade, formwork, vapor retarder, or reinforcing during placement of concrete. Use pump or other means as required for concrete placement.
- B. Floors without Floor Coverings: Specify that two coats of concrete sealer are to be applied to interior concrete floor surfaces not scheduled to receive a floor covering.
- C. Concrete Curing: Specify that concrete slabs-on-grade, including structured slabs, are cured according to the wet cure method; spray applied curing compounds are not acceptable.

### **03 3543 - POLISHED CONCRETE FINISHING**

- A. Qualifications:
  - 1. Consult with a member of the Concrete Polishing Association of America before selecting a finish or preparing specification. A successfully polished floor requires certain things be included in the structural concrete specifications in addition to a series of grinding, honing, and polishing steps.
  - 2. Specify that company performing work has not less than 5 years experience and has been trained as Master Craftsman by the Concrete Polishing Association of America.

## **DIVISION 04 - MASONRY**

### **04 2100 - CLAY UNIT MASONRY**

- A. Weeps and Vents: Specify products are to extend the height and depth of the head joints; tube vents are not acceptable.
- B. Face Brick: Specify that brick is to be ASTM C 216 or ASTM C 652, Grade SW, Type FBS, except FBX for stack bond.
- C. Mortar: Specify mortar to be field mixed portland cement, lime, sand, and water according to ASTM C 270, Proportion Specification for Type N. ASTM C 91 masonry cement and ASTM C 1329 mortar cement are not acceptable.
- D. Veneer Ties: Specify two-piece ties equivalent to Hohmann & Barnard, Inc. DW-10HS anchor plate with Vee Tie; hot-dip galvanized.
- E. Cavity Drainage Material: Specify products equivalent to Mortar Net USA, Ltd., Mortar Net.
- F. Wall Flashing: Specify with following characteristics:
  - 1. Edge Exposed to Outside: Stainless steel or copper with hemmed drip edge turned down 30 degrees.
  - 2. Through - Wall Flashing: One of following:
    - a. Copper laminated between 2 layers of glass-fiber cloth.
    - b. Copper coated on both sides with flexible asphalt.
    - c. Self-adhering, rubberized asphalt membrane.
  - 3. End Dams: At appropriate locations to prevent water infiltration into building.
- G. Final Cleaning:
  - 1. Specify companies that manufacture commercial cleaning compounds are to propose cleaning compound that is suitable for the masonry and mortar installed; test small are of cleaning prior to work. Available manufacturers include the following:
    - a. Diedrich Technologies, Inc.
    - b. EaCoChem.
    - c. Prosoco.
  - 2. Following cleaning methods are not acceptable:
    - a. Hydrochloric acid.
    - b. Muratic acid.
    - c. Pressurized water blasting.
    - d. Abrasive blasting.

### **04 7500 - ADHERED MANUFACTURED MASONRY VENEER**

- A. Use on Projects: The City of Plano would prefer that adhered manufactured masonry veneer not be included on a City of Plano Project, however, the possibility is open to discussion.

## **DIVISION 05 - METALS**

### **05 4100 - COLD-FORMED STEEL STUD FRAMING**

- A. Framing Deflection Limits: Limit horizontal deflection for masonry veneer to  $L/720$  of wall span.
- B. Galvanized Coating: Specify coating on steel studs to be not less than G90.

### **05 5000 - METAL FABRICATIONS**

- A. Exterior Exposed Ferrous Metals: Specify finish to be hot-dipped galvanized according to ASTM A 153, Class C, coating thickness not less than 2 mils.
- B. Exterior Exposed Assemblies: Specify that connections are to be bolted rather than welded as much as possible to minimize welding of galvanized metals.

## **DIVISION 06 - WOOD, PLASTICS & COMPOSITES**

### **06 4000 - ARCHITECTURAL WOODWORK**

- A. Material and Fabrication Quality: Specify that materials and fabrication are to comply with the appropriate section of the Architectural Woodwork Standards, 2009, premium grade.
- B. Keys: Specify that doors and drawers scheduled to be lockable are to be prepared for cylinders provided by Section 08 7100.

## **DIVISION 07 - THERMAL AND MOISTURE PROTECTION**

### **07 1900 - WATER REPELLENTS**

- A. Required Surfaces: Specify that exposed exterior masonry, stone, concrete, stucco, and similar materials shall be sealed with non-silicone based water repellent that is suitable for each surface; protect landscaping and surfaces not scheduled to receive repellents from overspray.

### **07 2617 - BELOW SLAB-ON-GRADE VAPOR RETARDER**

- A. Product Quality Standard: Specify that membrane shall comply with ASTM E 1745, Class A, except water vapor permeance property not more than 0.01 perms according to ASTM E 96, Method B, after condition testing according to ASTM E 154, Sections 8, 11, 12, and 13.

### **07 5200 - MODIFIED BITUMINOUS MEMBRANE ROOFING**

- A. System of Choice: Unless otherwise directed by City of Plano's Representation, specify a SBS modified bituminous membrane roof.
- B. Performance Requirements: Specify FMG 4471:
  - 1. Windstorm Resistance: Class 1-90.
  - 2. Hail Resistance Rating: SH.
- C. Manufacturer Qualifications: Specify as a submittal evidence that manufacturer has been duly informed of project and warranty requirements prior to material purchase and shop drawing submittals.
- D. Warranty: Specify manufacturer's weathertightness warranty for a period of 20 years, No Dollar Limit.
- E. Acceptable Manufacturers:
  - 1. Firestone Building Products.
  - 2. GAF Materials Corporation.
  - 3. Johns Manville.
  - 4. Siplast, Inc.
  - 5. Soprema.
- F. Membrane Product Standards: Specify the following:
  - 1. Roofing:
    - a. Base Sheet: ASTM D 6163, Type I, Grade G, smooth surfaced.
    - b. Cap Sheet: ASTM D 6163, Type I, Grade G, white granule surfaced.
  - 2. Base Flashing:
    - a. Base Sheet: ASTM D 6162, Type I or II, Grade S, smooth surfaced.
    - b. Cap Sheet: ASTM D 6298, aluminum foil surfaced.
- F. Application Methods: Unless directed otherwise by the City of Plano's Representative, any standard application method may be specified, or any combination of methods:
  - 1. Hot-mopped:
    - a. Specify that fume recovery or after burner equipment is to be included on the kettle at all times if the Project is occupied at the time of roofing installation; extra care must be taken not to disturb normal operations of the occupants.

- b. If City of Plano's Representative deems fumes are a problem, work may be temporarily shut down until resolved to the satisfaction of the City of Plano's Representative.
- 2. Flame torched.
- 3. Adhesive.
- 4. Adhesive backed.
- G. Walk Pads: Specify walk way pads extending from roof hatch to each location of equipment requiring periodic maintenance service.
- H. Final Inspection Report: Specify as a submittal the inspection made by manufacturer's technical representative.
- I. Inspection Notification: Specify that City of Plano's Representative to be is notified of inspections by manufacturer's technical representative.

## **07 6100 - SHEET METAL ROOFING**

- A. Performance Requirements: Specify the following:
  - 1. Air Infiltration: Not more than 0.06 cfm/sf of roof area according to ASTM E 1680 under following test conditions:
    - a. Positive Preload Test Pressure Difference: Not less than 15 lbf/sf and greater than 75 percent of building live load or 50 percent of building design positive wind pressure difference.
    - b. Negative Preload Test Pressure Difference: 50 percent of design wind uplift pressure difference.
  - 2. Water Penetration: No water penetration when tested according to ASTM E 1646 under following test conditions:
    - a. Positive Preload Test Pressure Difference: Not less than 15 lbf/sf and greater than 75 percent of building live load or 50 percent of building design positive wind pressure difference.
    - b. Negative Preload Test Pressure Difference: 50 percent of design wind uplift pressure difference.
  - 3. Windstorm Resistance: FMG 4471, Class 1-90.
- B. Manufacturer Qualifications: Specify as a submittal evidence that manufacturer has been duly informed of project and warranty requirements prior to material purchase and shop drawing submittals.
- C. Warranty: Specify manufacturer's weathertightness warranty for a period of 20 years.
- D. Material and Finish: Specify the following:
  - 1. Restricted flatness steel sheet, metallic coated by hot-dip process and prepainted by coil-coating process according to ASTM A 755.
  - 2. Fluoropolymer finish that includes not less than 70 percent polyvinylidene fluoride (PVDF) resin complying with AAMA 621.
- E. Protected Substrate: Specify substrate fully covered with high temperature type, rubberized asphalt underlayment.

## **07 9200 - JOINT SEALANTS**

- A. Exterior Sealants: ASTM C 920, Type S, Grade NS, single component silicone sealant, of following class:
  - 1. Class 150/50: Moving joints on exterior side of exterior insulation and finish system (EIFS) walls.
  - 2. Class 50: Moving joints on exterior side of exterior walls other than exterior insulation and finish system (EIFS) walls.
  
- B. Interior Sealants: Specify LEED compliant interior sealants.

## **DIVISION 08 – OPENINGS**

### **08 1100 - METAL DOORS AND FRAMES**

- A. Minimum Door Frame Gauge: Specify not less than 0.053 inch thickness (16 gage).
- B. Head to Jamb Joints: Specify joints to be saw or machine mitered and continuously welded
- C. Knock-down Door Frames: Not permitted.

### **08 1400 - WOOD DOORS**

- A. Wood Species Grade: Specify Grade A veneers, Grade AA is not always necessary.
- B. Number of Plys: Specify 3 or 5 plys; 7 plys are not permitted.
- C. Core Material: If particleboard core doors are selected, specify the following for the particleboard:
  - 1. Product Quality Standard: ANSI A208.1, Grade LD-2.
  - 2. Pre-consumer (Post-Industrial) Recycled Content: Not less than 65 percent.
  - 3. Added Urea-Formaldehyde: None.
- D. Wood Veneer Matching for Double Doors: Specify book-matched.

### **08 3100 - ACCESS DOORS AND PANELS**

- A. Keys: Specify that doors and panels are to be prepared for cylinders provided by Section 08 7100.

### **08 3500 - FOLDING DOORS AND GRILLS**

- A. Warranty: Specify labor and material warranty by manufacturer for a period of 5 years after date of substantial completion.
- B. Keys: Specify that doors and panels are to be prepared for cylinders provided by Section 08 7100.

### **08 4233 - REVOLVING DOOR ENTRANCES**

- A. Warranty: Specify labor and material warranty by manufacturer for a period of 5 years after date of substantial completion.
- B. Keys: Specify that doors are to be prepared for cylinders provided by Section 08 7100.

### **08 4300 - STOREFRONTS**

- A. Type: Specify the following:
  - 1. Thermally improved components.
  - 2. Reglazable from the interior.
- B. Limitation: Limit use of storefront to locations that are protected by roof overhangs that minimize rainfall on the exterior surfaces.
- C. Performance Requirements:
  - 1. Air Infiltration Resistance Criteria: Withstand not more than 0.06 cfm/sf of fixed area at static air pressure differential not less than 6.24 ft lbs/sf according to ASTM E 283.

2. Water Penetration Resistance Criteria: Showing no evidence of uncontrolled water leakage at inward design wind load not less than 8.0 ft lbs/sf according to following:
  - a. Static Air Pressure: ASTM E 331.
  - b. Dynamic Air Pressure: AAMA 501.1.

D. Warranties:

1. Specify labor and material warranty by manufacturer for a period of 5 years after Substantial Completion.
2. Specify labor and material warranty by contractor against water infiltration for a period of 5 years after Substantial Completion.

E. Exterior Finish:

1. Fluoropolymer Painted: AA-C12C42R1x with not less than 70 percent polyvinylidene fluoride (PVDF) resin complying with AAMA 2605.
2. Clear Anodized: AA-M12C22A41 to comply with AAMA 611, Architectural Class I not less than 0.7 mil thick.
3. Color Anodized: AA-M12C22A42/A44 to comply with AAMA 611, Architectural Class I not less than 0.7 mil thick.

F. Keys: Specify that doors are to be prepared for cylinders provided by Section 08 7100.

#### **08 4400 - CURTAIN WALL AND GLAZED ASSEMBLIES**

A. Type: Specify thermally improved components.

B. Performance Requirements:

1. Air Infiltration Resistance Criteria: Withstand not more than 0.06 cfm/sf of fixed area at static air pressure differential not less than 6.24 ft lbs/sf according to ASTM E 283.
2. Water Penetration Resistance Criteria: Showing no evidence of uncontrolled water leakage at inward design wind load not less than 12.0 ft lbs/sf according to following:
  - a. Static Air Pressure: ASTM E 331.
  - b. Dynamic Air Pressure: AAMA 501.1.

C. Warranties:

1. Specify labor and material warranty by manufacturer for a period of 5 years after Substantial Completion.
2. Specify labor and material warranty by contractor against water infiltration for a period of 5 years after Substantial Completion.

D. Exterior Finish:

1. Fluoropolymer Painted: AA-C12C42R1x with not less than 70 percent polyvinylidene fluoride (PVDF) resin complying with AAMA 2605.
2. Clear Anodized: AA-M12C22A41 to comply with AAMA 611, Architectural Class I not less than 0.7 mil thick.
3. Color Anodized: AA-M12C22A42/A44 to comply with AAMA 611, Architectural Class I not less than 0.7 mil thick.

E. Keys: Specify that doors are to be prepared for cylinders provided by Section 08 7100.

#### **08 6000 - ROOF WINDOWS AND SKYLIGHTS**

- A. Limitation: Use is discouraged; however if written approval is provided by City of Plano's Representative, specify labor and material warranty by contractor against water infiltration for a period of 10 years after Substantial Completion.

#### **08 7000 - HARDWARE**

- A. Keys: Specify following:
  - 1. Made of nickel silver.
  - 2. Master and sub-master keys stamped "Do Not Duplicate".
  - 3. City of Plano's numbering sequence, maximum 15 digits, stamped on all keys. [\[Click\]](#)
  - 4. 30 masters, 2 keys for each lock, plus 100 key blanks.
  - 5. Key the following to the Facility Master:
    - a. Overhead doors.
    - b. Entrance doors.
    - c. Other special doors and hardware.
- B. Panic Hardware: Specify keyway to have night latch function.
- C. Locksets: Specify Grade 1 lock sets with lever-type handles, equivalent to following:
  - 1. Corbin Russwin Architectural Hardware; an ASSA ABLOY Group Company (CR); 800 Series.
  - 2. Schlage Commercial Lock Division; an Ingersoll-Rand Company (SCH); D Series.
- D. Key Control Cabinets: Specify 2 wall-mounted cabinets with one cabinet for off-site use. Mount one cabinet at location in project directed by City of Plano' Representative. Set up project keying system with only one key per hook in project key control cabinet; duplicate keys are to be set up in off-site key control cabinet.
  - 1. Include envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150 percent of the number of locks required for the project.
  - 2. Include complete typed cross-index system designed by key control manufacturer, and place key markers and keys on hooks in both cabinets as determined by the final key schedule.
- E. Continued Maintenance Service:
  - 1. Approximately 6 months after the date of substantial completion, hardware installer shall return to the project and adjust hardware to restore proper function of doors and hardware.
  - 2. Consult with and instruct City of Plano's personnel in recommended additions to the maintenance procedures.
  - 3. Replace hardware items which have deteriorated or failed due to faulty design, materials or installation of hardware units.
  - 4. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

#### **08 9119 - FIXED WALL LOUVERS**

- A. Louver Type: Specify storm resistant louvers complying with AMCA 500-L, Category A (99 to 100 percent effective) for exterior applications (that are not protected by overhangs).

## **DIVISION 09 - FINISHES**

### **09 2216 - NON-STRUCTURAL METAL FRAMING**

- A. Minimum Stud Properties: Specify metal studs of minimum uncoated metal thickness of 0.0283 inches (22 gage), chosen from manufacturers limiting height charts under a load of 5 pounds per square foot and maximum deflection L/240.

### **09 2813 - CEMENTITIOUS BACKING BOARDS**

- A. Locations: Specify cementitious backing board at wet walls (i.e.: plumbing fixture walls, showers, ceramic tile walls, mop sinks, etc.)

### **09 2900 - GYPSUM BOARD**

- A. Finishing: Review gypsum partitions with City of Plano's Representative and determine which surfaces should receive GA-214, Level 5 finish.

### **09 3000 - TILING**

- A. Grout Joints:
  - 1. Specify epoxy floor grout; color to be in the dark color range; staining is not acceptable.
  - 2. City of Plano will seal grout joints; specify contractor to clean surfaces of soil, stains and foreign material.
- B. Joints between Flooring: Specify ridged transition strip where tile intersects dissimilar flooring material.
- C. Extra Stock: Specify specific and verifiable quantities; specifying percentage of materials is not acceptable.

### **09 5000 - CEILINGS**

- A. Submittal: Specifically specify manufacturer to certify that materials provided and installed are asbestos-free, as represented by Manufacturer's Material Safety Data Sheets, on Asbestos-Free Materials Certification Form.
- B. Kitchen Ceiling Panels: Specify vinyl coated panels.
- C. Extra Stock: Specify specific and verifiable quantities; specifying percentage of materials is not acceptable.

### **09 6500 - RESILIENT FLOORING**

- A. Wax/Sealer: Do not specify wax/sealer; the City of Plano will provide before occupancy.
- B. Extra Stock: Specify specific and verifiable quantities; specifying percentage of materials is not acceptable.

### **09 6800 - CARPETING**

- A. Extra Stock: Specify specific and verifiable quantities; specifying percentage of materials is not acceptable.
- B. Protection: Specify that carpet is protected after installation with plastic or paper adequate to resist tear and deterioration until substantial completion.

## **09 6900 - ACCESS FLOORING**

- A. Extra Stock: Specify specific and verifiable quantities for each product, including panels, perforated panels, pedestals, stringers, neoprene, gaskets and other related items integral for proper installation; specifying percentage of materials is not acceptable.
- B. Cutouts: Specify panel cuts (with applicable trim) for equipment and perforated panels adequate to supply proper HVAC balancing.

## **09 7200 - WALL COVERING**

- A. Extra Stock: Specify specific and verifiable quantities; specifying percentage of materials is not acceptable.

## **09 8000 - ACOUSTIC TREATMENT**

- A. Extra Stock: Specify specific and verifiable quantities; specifying percentage of materials is not acceptable.

## **09 9113 - EXTERIOR COATINGS**

- A. High Performance Coating: Specify exterior ferrous metals to have following coating system, or equivalent, if not hot-dipped galvanized:
  - 1. Surface Preparation: SSPC SP6.
  - 2. Base Coat: Industrial organic zinc rich epoxy, factory formulated, 2 or 3 component primer with zinc content not less than 81 percent by weight.
  - 3. Second Coat: If required, same as top coat.
  - 4. Top Coat: Industrial high performance, factory formulated, single component, water-based 100 percent acrylic with following physical properties:
    - a. Abrasion Resistance: Not less than 200 mg according to ASTM D 4060, CS17 wheel, 1000 cycles, 1 kg load.
    - b. Accelerated Weathering: Two coats pass according to ASTM D 4587, QUV-A, 4,000 hours.
    - c. Adhesion: Not less than 500 according to ASTM D 4541.
    - d. Pencil Hardness: Not less than H according to ASTM D 3363.
- B. Exterior Wood Trim: Backprime paint prior to installation.

## **09 9123 - INTERIOR PAINTS**

- A. Interior Paint Type: Specify LEED compliant, low or no odor interior paints.
- B. Submittals: Specify as a closeout document a schedule of paint product applied on the project, including manufacturers technical information, label analysis, and colors.
- C. Extra Stock: Specify 1 gallon for each paint type and color applied.
- D. Sheen Requirements: Specify semi-gloss paint finish; flat paint finish paint is not acceptable. Satin finish is acceptable in limited applications only, however before specifying obtain City of Plano Representative's written approval.

## **DIVISION 10 - SPECIALTIES**

### **10 1100 - VISUAL DISPLAY SURFACES**

- A. Markerboard Products: Specify following:
  - 1. Porcelain-enameled marker boards; chalkboards are not acceptable.
  - 2. Accessories for each board including trim, marker tray, set of markers, eraser, cleaning fluid and magnets.
- B. Markerboard Warranty: Specify manufacturer's lifetime warranty.

### **10 1300 - DIRECTORIES**

- A. Keys: Specify that doors and panels are to be prepared for cylinders provided by Section 08 7100.

### **10 1416 - PLAQUES**

- A. Design and Specification: Use design and section provided by City of Plano's Representative; changes require City of Plano Representative's written approval. [\[Click for Specification\]](#) [\[Click for Drawing\]](#)

### **10 2113 - TOILET COMPARTMENTS**

- A. Type: City of Plano prefers plastic laminate clad compartments unless circumstances necessitate another type.

### **10 4400 - FIRE PROTECTION SPECIALTIES**

- A. Types: Specify types, ratings, classifications, and locations of listed and labeled fire extinguishers and cabinets that have been approved in writing by City of Plano Fire Department.

### **10 2226 - OPERABLE PARTITIONS**

- A. Extra Stock: Specify specific and verifiable quantities; specifying percentage of materials is not acceptable.
- B. Warranties:
  - 1. Specify labor and material warranty by contractor for a period of 2 years after date of substantial completion.
  - 2. Specify labor and material warranty by manufacturer for a period of 5 years after date of substantial completion.

### **10 2613 - CORNER GUARDS**

- A. Locations: Specify surface-mounted heavy-duty corner guards in high use traffic areas.

### **10 2813 - TOILET ACCESSORIES**

- A. Keys: Specify two keys for each accessory, all keyed alike; file in key control cabinets.
- B. Combination Towel Dispenser/Waste Receptacle Units: Specify recessed towel compartment in upper unit designed for not less than 400 C-fold or 700 multi-fold paper towels; tumbler locks on dispenser and receptacle, waste receptacle provided with reusable heavy duty vinyl liner, minimum 12 gallon capacity.

- C. Toilet Paper Dispensers: For accessible toilet compartments, specify standard 2-roll toilet paper dispensers.
- D. Soap Dispenser: Owner Furnished / Contractor Installed.
- E. Toilet Paper Dispenser (for non-accessible toilet compartments): Owner Furnished / Contractor Installed.

**10 7500 - FLAGPOLES**

- A. Type: Specify 35 foot minimum height, aluminum, internal halyard system. Provide with down-lighting; up-lighting of flags is prohibited

## **DIVISION 11 - EQUIPMENT**

### **11 1700 - TELLER AND SERVICE EQUIPMENT**

- A. Warranty: Specify labor and material warranty for a period of 2 years after date of substantial completion.
- B. Weather Protection: Specify rain drips and seals from manufacturer as required to protect from rain infiltration.

### **11 6100 - THEATER AND STAGE EQUIPMENT**

- A. Training: Specify not less than 8 hours with City of Plano personnel.

### **11 5200 - AUDIO-VISUAL EQUIPMENT**

- A. Installer Qualification: Specify following:
  - 1. Specify installer must have a permanent business location in the Dallas-Ft. Worth Metroplex.
  - 2. Installer to answer service calls within 24 hours. Submit separate pricing for "on call" service, both on-site and in shop including rates, minimums, travel time charges and other service policies.
- B. Submittal: Specify testing reports of all equipment, include test tapes and films.
- C. Maintenance Service: Specify that installer is to provide monthly preventive maintenance during one year correction period after date of substantial completion.
- D. Extra Stock: Specify following:
  - 1. Indicator Lamps: 100 percent of each type.
  - 2. Fuses: 100 percent of each type.
  - 3. Speaker: One.
  - 4. Amplifier: One.
- E. Wire and Cable Labeling: Specify for each conductor in splice boxes, pull boxes, and at first load connection or home runs
- F. Maintenance/Service Contract Proposal: Specify that installer provide a proposal for preventive maintenance following one year correction period.
- G. Training: Specify not less than 8 hours with City of Plano personnel.

### **11 4000 - FOOD SERVICE EQUIPMENT**

- A. Installer Qualification: Specify food service installer to answer service calls within 24 hours. Submit separate pricing for "on-site" and "in-shop" service, including rates, minimums, travel time charges and other service policies.
- B. Microwave Oven Warranty: Specify labor and material warranty for a period of 3 years after date of substantial completion:
- C. Connection Point Tagging: Specify final connection points of equipment shall be tagged with following information:
  - 1. Item number.
  - 2. Name of device(s) on circuit.
  - 3. Total electrical load.
  - 4. Voltage and phase.

- 5. Type of Service (gas, cold water, etc.).
- D. Installation Certification: Specify that manufacturer certifies that installation, adjustment, performance and testing is in compliance with manufacturers' instructions and drawings and specifications.
- E. Maintenance/Service Contract Proposal: Specify that installer provide a proposal for preventive maintenance following one year correction period.
- F. Training: Specify not less than 8 hours with City of Plano personnel.

## **DIVISION 12 - FURNISHINGS**

### **12 2113 - HORIZONTAL LOUVER BLINDS**

- A. Scope: Specify aluminum slat, 1 inch wide, blinds for each exterior window; review the need for blinds at curtain walls with City of Plano's Representative
- B. Maintenance Service: Specify that installer is to provide monthly preventive maintenance during one year correction period after date of substantial completion.

### **12 6000 - MULTIPLE SEATING**

- A. Extra Stock: Specify one bolt of fabric.

## **DIVISION 14 - CONVEYING EQUIPMENT**

### **14 2000 - ELEVATORS**

- A. Sump Pump: Specify a sump pump system, including oil separator, in elevator sump pit.
- B. Control Keys: Specify following to be placed in both key control cabinets (refer to Section 08 7100):
  - 1. Control switch prepared for cylinders provided by Section 08 71003, and 3 control keys.
  - 2. 3 elevator door keys.
- C. Telephone: Specify an accessible telephone complying with local, state and federal accessibility standards in each cab.
- D. Maintenance Service: Specify that installer is to provide monthly preventive maintenance during one year correction period after date of substantial completion:
  - 1. Provide an on-site preventive maintenance checklist that has written approval of City of Plano's Representative.
  - 2. Perform monthly fire test inspection and include results in log.
  - 3. Submit a log of observations, inspections, tests made, and work performed to City of Plano's Representative for each maintenance visit.
- E. Extended Maintenance Service: Specify that installer is to provide a proposal for preventive maintenance following one year correction period, renewable on a yearly basis.
- F. Training: Specify not less than 8 hours with City of Plano personnel.
- G. State Inspections: Specify that manufacturer and City of Plano's Representative are notified, not less than 7 days prior, and are in attendance when state inspector is present.

## **DIVISION 21 - FIRE SUPPRESSION**

### **21 1300 - FIRE-SUPPRESSION SPRINKLER SYSTEMS**

- A. Un-conditioned Rooms and Spaces: As required by the City of Plano Fire Department, specify rooms and spaces that are not air-conditioned to be fully fire sprinkled, with freeze protection where applicable. Examples of such rooms and spaces include, but are not limited to, the following:
  - 1. Storage room or lawn equipment storage room accessed only from exterior doors.
  - 2. Exterior canopies.
  - 3. All rooms within a facility and fire station apparatus bays or auto maintenance bays.
- B. Connection to Central System: Specify fire-suppression sprinkler system is to be connected to Fire Dispatch at Municipal Center with compatible devices.
- C. Extra Stock: Specify following:
  - 1. Not less than 12 sprinkler heads of each type installed.
  - 2. One wrench.
  - 3. Not less than 5 percent of escutcheons installed, 1 box minimum.
  - 4. Metal storage cabinet installed in Fire Control Room.
- D. Operational Instructions: Specify that typed instructions for the operation of the sprinkler system to be mounted in a metal frame, with clear plastic cover, located immediately adjacent to the fire control panel.
- E. Closeout Documents: Specify that the installer is to provide a preventive maintenance checklist for use by City of Plano maintenance personnel.

### **21 2400 - DRY CHEMICAL FIRE EXTINGUISHING SYSTEM**

- A. Testing: Specify that system designer is to certify operation of system after installation using test approved in writing by City of Plano Fire Department.

### **21 1200 - FIRE-SUPPRESSION STANDPIPES**

- A. Operational Instructions: Specify that typed instructions for the operation of the sprinkler system to be mounted in a metal frame, with clear plastic cover, located immediately adjacent to the fire control panel.

## **DIVISION 22 - PLUMBING**

### **22 05 76 - FACILITY DRAINAGE PIPING CLEANOUTS**

- A. Clean-out Locations: Prior to issuing the Bidding Documents, review locations of clean-outs with City of Plano's Representative.

### **22 4200 - COMMERCIAL PLUMBING FIXTURES**

- A. Toilets and Urinals: Specify fixtures to be water saving type fixtures with flush valve and 1.6 gallon flush.
- B. P-Trap Insulation Covers: Specify under accessible sinks; equivalent to Handi-Lav-Guard, Model #101G.
- C. Mop Sink: Specify following:
  - 1. Mop Sink: Terrazzo type with dropped front edge; 36 inches square by 12 inch deep basin with a cast brass drain body fitted with stainless steel strainer, lint basket, stainless steel caps and threshold; equivalent to Fiat TERRAZZO TSB3002. Corner units are acceptable. Provide 36 inches high stainless steel wall guards if wall is otherwise unprotected.
  - 2. Faucets: Mixing faucet with vacuum breaker, integral stops, adjustable wall brace, pail hook and 3/4 inch hose threads; equivalent to Speakman SC-5811-USA.
  - 3. Hose and Hose Bracket: 30 inch long flexible heavy duty rubber hose and a stainless steel grip; equivalent to Fiat 832-AA.
  - 4. Bumperguard: Vinyl guard on all exposed sides; equivalent to Fiat E-UU-AA.
  - 5. Mop Holder: Wall mounted above mop sink with integral shelf.
- D. Trap Primers: Specify self priming floor drains; use gray water where possible.

## **DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)**

### **23 0500 - COMMON WORK RESULTS FOR HVAC**

- A. Final Acceptance Requirement: Specify that equipment is to be inspected, cleaned, and serviced prior to final acceptance.
- B. Air Filters: Specify the following:
  - 1. Regularly change filters during construction so that internal equipment parts are kept free of dust and air flow is not restricted; use pleated 40 percent polyester filters only, **no other filter medium acceptable**.
  - 2. Replace all air filters with City of Plano's Representative present.
- C. Maintenance Access: Specify the following:
  - 1. Equipment requiring service is to be installed so that it is easily accessible to perform manufacturer's recommended maintenance service,
  - 2. Units are located free of obstructions to allow for replacement of interchangeable parts (i.e., pulleys, squirrel cages, motors, filters, etc.).
  - 3. Equipment is installed so that top of maintenance access opening is no more than 36 inches above ceilings.
- D. Equipment Lubrication: Specify the following:
  - 1. Provide lubrication for the operation of equipment until Final Acceptance.
  - 2. Protect bearings during installation and thoroughly grease steel shafts to prevent corrosion.
  - 3. Provide extended lubrication lines for parts requiring lubrication for equipment that is concealed or inaccessible.
- E. Duct Heaters and Coils: Specify they are to be accessible for maintenance service, and that access doors are not obstructed by hanger wires, piping, lighting, drain pans, etc. from opening fully.
- F. Floor Drains: Specify self priming floor drains in restrooms, janitor closets and mechanical rooms; use gray water when possible.
- G. Testing, Balancing, and Adjusting: Specify contractor is to coordinate work with City of Plano's contractor and building commissioning firm.
- H. Installation Certification: Specify technical representatives for major mechanical equipment manufacturers certify installation is in compliance with manufacturers' installation instructions (i.e., chillers, cooling towers and chemical water treatment systems); submit reports as closeout documents.

### **23 0548 - VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT**

- A. Installation Certification: Specify technical representatives of manufacturer certify installation and adjustment of isolators is in compliance with manufacturers' installation instructions; submit reports as closeout documents.

### **23 0553 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT**

- A. Metal Tagging: Specify permanent metal tags are affixed to equipment with same identification number of unit as shown by drawings and specified by specifications.

### **23 0593 - TESTING, ADJUSTING AND BALANCING FOR HVAC**

- A. TAB Contractor: City of Plano will contract directly with Contractor; estimated cost is to be included in Construction Budget.
- B. Contractor Coordination: Specify that contractor is to be responsible for coordination and scheduling of testing, balancing, and adjusting activities.

### **23 2000 - HVAC PIPING AND PUMPS**

- A. Piping Connections: Specify flanges or unions for connections.
- B. Pumps: Specify mechanical seals on pumps.

### **23 2500 - HVAC WATER TREATMENT**

- A. Installer: Water treatment installer must be acceptable to Facilities Maintenance Department; verify with City of Plano's Representative.
- B. Testing Equipment: Specify test cabinet with local and fluorescent lights accommodating 4 to 10 MI zeroing titrating burettes and associated reagents for one year after date of substantial completion.
- C. Chemical Treatment: Specify as a submittal evidence of compliance that chemical treatment will be compatible with cooling tower manufacturer's specifications, finish for tower, chiller and associated equipment.
- D. Initial Cleaning Sequence: Specify following:
  1. Supervision of pre-operation system clean-out by technical representative of manufacturer.
  2. Flush piping system using pre-cleaning chemicals designed to remove construction deposits, such as pipe dope, oils, loose mill scale and other extraneous materials.
  3. Flush system completely with water and test to determine that traces of chemicals have been removed.
  4. Provide as a submittal a report on initial cleaning.
- E. Cooling Tower Equipment: Specify following:
  1. Controlled through Energy Management System.
  2. Automatic condenser water control systems for inhibitor, feed dispersent feed, blowdown and biocide feeds.
    - a. Meter activate the inhibitor application and conductivity activate the blowdown.
    - b. Meter feed the dispersent and biocide with blowdown locked out to ensure retention time.
  3. Equipment: Specify following:
    - a. Chemical Metering Pump: Positive displacement or diaphragm pump with adjustable flow rate, thermoplastic construction, continuous-duty fully enclosed electric motor and drive and relief valve; equivalent to LMI A151-925 or LMI M151-955 pumps.
    - b. Liquid Level Switch: Polypropylene housing with integrally mounted PVC air trap, receptacles for connection to metering pump and low level alarm.
    - c. 1.0. Bio System: Iodine system in the cooling tower make up water piping and provide and evaporative condenser or evaporative cooler for control of bacteria, slime and algae.
    - d. Conductivity Controller: Packaged monitor controller with solid state circuitry, 5 percent accuracy, linear dial adjustment, built in calibration switch, ON-OFF switch and light, control function light, output to control circuit, temperature condensate probe adaptable to sample manifold; LMI Model 175 controller.
    - e. Water Meter: Displacement type cold water meter with sealed, tamper-proof magnetic drive, impulse contract register, single pole and double throw dry contact switch.
    - f. Solenoid Valves: Forged brass body globe pattern, normally open or closed as required, general purpose solenoid enclosure and continuous duty coil.

- g. Timers: Electronic timers, infinitely adjustable over full range, 150 second and five minute range, mounted together in cabinet with HANDS-OFF-AUTO switches and status lights; LMI Model 65 timer, microprocessor based, for two biocides.
4. Closed System Treatment: Specify following:
    - a. Provide one bypass (Pot) filter/feeder on each system. Install isolating and drain valves and necessary piping. Install around glove valve downstream of circulating pumps unless indicated otherwise.
    - b. Introduce closed system treatment through bypass feeder when required or indicated by test. Treatment to be corrosion inhibitor, low molecular weight polymers, phosphonates and sodium molybdate sulfites.
    - c. Provide 3/4 inch water coupon rack around circulating pumps with space for four test specimens.
  5. Inspection Reports: As a submittal a letter from installer stating that complete stock of materials are on hand and Installer's ability to deliver any part to the site within two days
  6. Extra Stock: Specify following:
    - a. One set of matched fan belts for each belt driven fan.
    - b. 12 spray nozzles with grommets.
    - c. One gasket for each gasketed access and inspection opening.
    - d. One strainer screen.
    - e. One pump seal.
    - f. One set pump gaskets.
  7. Finish: Specify as a submittal specifications on recommended chemical treatment for finish on cooling tower.
  8. Sump Drain: Specify for each cell and heat trace tape to prevent freeze up.
- F. Maintenance Service: Specify that installer is to provide monthly preventive maintenance during one year correction period after date of substantial completion.
  - G. Extended Maintenance Service: Specify that installer is to provide a proposal for preventive maintenance following one year correction period, renewable on a yearly basis.
  - H. Extra Stock: Specify one year supply of chemicals.
  - I. Training: Specify not less than 8 hours with City of Plano personnel.
  - J. Closeout Documents: Specify that the installer is to provide a preventive maintenance checklist for use by City of Plano maintenance personnel.

### **23 6400 - PACKAGED WATER CHILLERS**

- A. Control: Specify control will be through the Energy Management System.
- B. Freeze Protection: Specify for exterior units.
- C. Warranty: Specify sealed system warranty by manufacturer for a period of 10 years after date of substantial completion.
- D. Training: Specify not less than 12 hours with City of Plano personnel.
- E. Closeout Documents: Specify that the installer is to provide a preventive maintenance checklist for use by City of Plano maintenance personnel.

### **23 7000 - CENTRAL HVAC EQUIPMENT**

- A. Fan Powered Boxes: Specify to include return air filters.

- B. Temperature Control: Specify low ambient temperature control.
- C. Direct Expansion Split Air Conditioning Systems: Specify following:
  - 1. Liquid line receivers and suction line accumulators.
  - 2. Before start up, refrigerant lines shall be triple evacuated with at least one nitrogen evacuation.
- D. Controls for Energy Optimization: Specify economizer and enthalpy control for air handling units or systems.
- E. Temperature Sensors Control: Specify control will be through Energy Management System.
- F. Ductwork: Specify internally lined and microbicide treated.
- G. Warranty: Specify labor and materials warranty by manufacturer for a period of 5 years after date of substantial completion; including head pressure control, low ambient control and compressor pump.
- H. Extra Stock: Specify following:
  - 1. Power Ventilators: One spare set of belts for each belt power driven ventilator.
  - 2. Filters: Two spare sets of filters for each piece of equipment and one spare roll of filter media for each roll type filter used.
- I. Closeout Documents: Specify that the installer is to provide a preventive maintenance checklist for use by City of Plano maintenance personnel.

## **DIVISION 25 - INTEGRATED AUTOMATION**

### **25 5000 - INTEGRATED AUTOMATION FACILITY CONTROLS**

- A. Energy Management System:
1. Existing Building Automation System (BAS) System: Johnson Controls Metasys N2 extended architecture system that is located in the Municipal Center.
  2. Requirements for Project System: Specify PC-based monitoring that is adequate to control present functions and anticipated future functions; if system is other than by Johnson Controls, it shall be approved in writing by City of Plano Engineering prior to submission of bids. Include following
    - a. 100 percent compatible and fully integrated with existing system.
    - b. New stand-alone DDC panels and controllers shall work in concert with the existing workstations and BAS software.
    - c. A separate system or software is not acceptable.
    - d. New controllers are to be connected to and communicate over existing BAS and connecting to existing on-site workstation.
    - e. Include all parameters, including analog set point adjustment, scheduling and alarm and reporting software adjustable via the existing BAS workstation Person Machine Interface (PMI).
    - f. Display all operation parameters through the existing color graphics software; generate all color graphics for display and use at the building as well as at the existing off site workstation via IP connection.
    - g. BACNET shall be compatible with existing building automation system. Install and connect to existing off-site monitoring system as required. LON controllers are not permitted.
- B. Maintenance Service: Specify that installer is to provide monthly preventive maintenance during one year correction period after date of substantial completion; include a log of tests made and work performed.
- C. Extended Maintenance Service: Specify that installer is to provide a proposal for preventive maintenance following one year correction period, renewable on a yearly basis.
- D. Extra Stock: Specify spare parts as recommended by the system manufacturer.
- E. Source Certification: Specify factory test certifications as a submittal.
- F. Operational Instructions: Specify following information to be mounted in a metal frame, with clear plastic cover, located beside the main panel:
1. Device legend.
  2. Typed instructions relative to alarm functions.
  3. Floor plan designating each zone.
- G. Training: Specify not less than 16 hours of training with City of Plano personnel; include training for data display alarm, status describers, systems plant and equipment.
- H. Closeout Documents: Specify that the installer is to provide a preventive maintenance checklist for use by City of Plano maintenance personnel.

## **DIVISION 26 - ELECTRICAL**

### **26 0000 - ELECTRICAL**

- A. Fault Current Calculation Form Letter [[Click](#)]

### **26 0500 - COMMON WORK RESULTS FOR ELECTRICAL**

- A. Infrared Sensors: Specify to control lights in mechanical room, telephone rooms, mail rooms, restrooms, and custodial rooms.
- B. Equipment Backboards: Specify following:
  - 1. 4 by 8 foot by 1/2 inch thick fire treated plywood board mounted in following rooms for City of Plano furnished telephone/computer equipment.
    - a. Telephone/computer main distribution frame room
    - b. Cross connect rooms.
  - 2. Two quadruplex electrical outlets adjacent to each plywood board.

### **26 0553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS**

- A. Wire and Cable Labeling: Specify that each conductor in splice boxes, pull boxes, and at first load connection or home runs are to be labeled.

### **26 3500 - POWER FILTERS AND CONDITIONERS**

- A. Extra Stock: Specify a metal box containing the following spare fuses to be mounted in main electrical room:
  - 1. Three spare fuses for each type and rating of fuses for 601 to 6000 amps.
  - 2. 10 percent, but not less than 3, of each type and rating of fuses for 600 amps or less.

### **26 2700 - LOW VOLTAGE DISTRIBUTION**

- A. Control: Specify control through Energy Management System.

### **26 2400 - SWITCHBOARDS AND PANELBOARDS**

- A. Empty Conduits: Stub three empty 1 inch conduits, with pull strings, above ceiling at each recessed panelboard.
- B. Keys: Specify 2 keys for each panelboard, all keyed alike; file in both key control cabinets (refer Section 08 7100).
- C. Receptacles: Provide one dedicated, isolated group quadruplex receptacles at each surface mounted panelboard.

### **26 5100 - INTERIOR LIGHTING**

- A. Bulb and Lamp Types: Specify following:
  - 1. Bulbs and lamps are to be electronic, energy-saving, high-power factored type fixtures.
  - 2. Compact fluorescent lamps instead of incandescent lamps to be used to greatest extent possible.
  - 3. Fluorescent or LED; HID lamps are not permitted.

- B. Fluorescent Fixtures: Specify following:
  - 1. Electronic ballasts designed specifically for 265 MA T-8 lamps and wired with four T-8 lamps per each electronic ballast.
  - 2. Parabolic lens in office areas.
- C. Warranty: Specify labor and material warranty for ballasts for a period of one year after date of substantial completion.
- D. Extra Stock: Specify 15 percent of amount installed of each type bulb, but not less than 4 for each type.

**26 5600 - EXTERIOR LIGHTING**

- A. Control: Specify single time clock, electronic with adjustable photocell type, for on/off schedules (including flagpole lights if included in project).
- B. Light Fixtures: Specify fixtures that provide downlight only; uplighting not permitted.
- C. Lamps: Specify LED type.
- D. Warranty: Specify labor and material warranty for ballasts for LED drivers a period of one year after date of substantial completion.
- E. Extra Stock: Specify 15 percent of amount installed of each type bulb, but not less than 4 for each type.

## DIVISION 27 - COMMUNICATIONS

### **27 0528 - PATHWAYS FOR COMMUNICATIONS SYSTEMS**

- A. Cable and Devices: City of Plano will furnish and install plenum rated communications cable and various devices.
- B. Submittals: Specify the following:
  - 1. Product Data: Submit manufacturer's product data, including UL classification.
  - 2. Shop Drawings: Submit shop drawings indicating materials, finish, dimensions and accessories.
  - 3. Manufacturer Qualifications: Submit certifications that manufacturers are ISO 9002 quality certified.
- C. Pathway Rough-In System: Specify the following:
  - 1. Unless another size is specified, install 1 inch rigid conduit, not 3/4 inch.
  - 2. True 90 degree bends in any conduit is not acceptable.
  - 3. Install 4 inch square wall junction boxes with 2 by 4 inch plaster ring.
  - 4. Install two 4 inch rigid conduits from building penetration point to Main Distribution Frame Room (MDF) and from MDF Room to each Cross-Connect Room; include pull strings.
  - 5. Install 1 inch rigid conduit from wall outlets to accessible ceiling; include pull strings.
  - 6. Before placement, coordinate floor box products and locations with City of Plano's Representative; telephone floor plates shall match electrical floor plates.
  - 7. Install firestopping of conduit penetrations through fire and smoke rated walls.
- D. Cable Management System: Specify a continuous, rigid, welded steel wire mesh cable management system throughout facility that is coordinated with other design disciplines:
  - 1. Available Manufacturer: Cablofil, Inc.; Cablofil EZ Tray (CF 54/300 EZ):
    - a. UL Classified.
    - b. Center support hanger and wide angle, 17 inch radius turns, and 45 degree "Y" junctions (design wide angle turns greater than or equal to 45 degrees into system).
  - 2. Material: Carbon steel wire, ASTM A 510, Grade 1008; wire welded, bent and surface treated after fabrication.
  - 3. Finish: Electro-plated zinc galvanizing, ASTM B 633, Type III, SC-1, applied after welding and bending of mesh.
  - 4. Nominal dimensions:
    - a. Mesh: 2 by 4 inches.
    - b. Straight section lengths: 80 inches and 118 inches.
    - c. Width: 12 inches.
    - d. Depth: 2 inches.
    - e. Wire diameter: 0.177 inch, minimum.
  - 5. Fittings: Field fabricate from straight sections, wide radius turns 17 inch radius and 45 degree "Y" junctions.
  - 6. Support System: Cablofil FAS System.
  - 7. Ceiling Installation: FAS center hanger FAS P300 CH.
  - 8. Accessories:
    - 1) Cable Drop Out.
    - 2) Cablexit.
  - 9. Hardware: Include splice connectors and support components furnished by manufacturer.

- E. Examination: Examine areas to receive cable management system; notify A/E of conditions that would adversely affect the installation or subsequent utilization of the system; do not proceed with installation until unsatisfactory conditions are corrected.

## **DIVISION 28 - ELECTRONIC SAFETY AND SECURITY**

### **28 3000 - ALARM AND DETECTION SYSTEM**

- A. Extra Stock: Specify 5 percent of detectors installed.
- B. Warranty: Specify installer provide monthly preventive maintenance during one year correction period; include a log of tests made and work performed.
- C. Maintenance Service Contract Proposal: Specify installer provide a proposal for preventive maintenance following one year correction period.
- D. Operational Instructions: Specify that a metal framed panel, with plastic cover, be mounted beside main panel that includes following:
  - 1. Device legend.
  - 2. Typed instructions relative to alarm functions.
  - 3. Floor plan designating each zone.
- E. Products:
  - 1. Specify that system must be compatible with, and monitored by, Fire Dispatch at City of Plano Municipal Center; both fire and trouble alarms are monitored.
  - 2. To achieve compatibility, the following devices must be integrated for a single telephone line, zone cooled signal:
    - a. Advanced Signaling; FSKT-105 Transmitter.
    - b. Advanced Signaling; FSKR-105 Receiver.
- F. Installation: Specify wiring at terminations, pulls, junction, and outlet boxes are appropriately labeled.
- G. Closeout Documents: Specify that the installer is to provide a preventive maintenance checklist for use by City of Plano maintenance personnel.

## **DIVISION 31 - EARTHWORK**

### **31 3116 - TERMITE CONTROL**

- A. Warranty: Specify not less than a 5 year warranty that protection will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation, at no additional cost to the City of Plano.

## **DIVISION 32 - EXTERIOR IMPROVEMENTS**

### **32 1000 - BASES, BALLASTS, AND PAVING**

- A. Thoroughfare Standards Rules and Regulations - 02.15.09 [\[Click\]](#)
- B. Engineering Department Standard Construction Details [\[Click\]](#)

### **32 4000 - WALKING TRAILS**

- A. Parks and Recreation Department Trail Construction Details [\[Click\]](#)

### **32 8000 - IRRIGATION**

- A. Automatic Irrigation Specification [\[Click\]](#)
- B. Engineering Department Standard Construction Details [\[Click\]](#)

### **32 9000 - PLANTING**

- A. Tree Planting Specification [\[Click\]](#)

## **DIVISION 33 - UTILITIES**

### **33 0000 - GENERAL**

- A. Water and Sewer Design Manual - 01.97 [\[Click\]](#)
- B. Compliance Certification: Specify that Contractor to submit a certified Report of Compliance to Contract Documents, clearly detailing positive water drainage away from building.

### **33 1000 - WATER UTILITIES**

- A. Work in Public Rights-of-Way: City of Plano Utility Operations Department is the only entity allowed to install and disconnect meters or operate main utility supply valves from public right-of-way; schedule work with Utility Operations Department at (972) 769-4160.
- B. Engineering Department Standard Construction Details [\[Click\]](#)

### **32 1213 - WATER SUPPLY BACKFLOW PREVENTER ASSEMBLIES**

- A. City of Plano Cross-Connection (Back-Flow Prevention) Program:
  - 1. Program is monitored and inspected by City of Plano Water Utilities Department.
  - 2. A/E should contact the City of Plano Water Utilities Department, 972-769-4160, prior to submitting drawings for Building Inspection to ensure the department has reviewed and commented on location and type of controls.
  - 3. A/E should complete the Backflow Prevention Information Sheet prior to submitting for a Building Permit. [\[Click\]](#)
  - 4. Assemblies are required to be tested by City Approved testing companies. [\[Click\]](#)

### **33 1233 - WATER UTILITY METERING**

- A. Water Meters: Requirements for purchasing non-residential projects [\[Click\]](#)

### **33 3000 - SANITARY SEWERAGE UTILITIES**

- A. Engineering Department Standard Construction Details [\[Click\]](#)

### **33 4000 - STORM DRAINAGE UTILITIES**

- A. Storm Drainage Design Manual [\[Click\]](#)
- B. Engineering Department Standard Construction Details. [\[Click\]](#)