Building Finishes and Signage Design Standards

I. Background and Overview

A. The City's Program Standards and Procedures (PSP) are intended to be used in conjunction with the data contained in related standards and procedures. They are not intended to be used as stand alone documents. It is the responsibility of the Designer to become familiar with all the PSP documents and comply with the criteria set forth as a whole.

B. This standard is intended to provide consistency in design criteria, materials, and products for facility identification, field applied coatings, architectural finishes, concrete finishes, and facility signage. Standards set forth in the Master Guide Specifications for materials and equipment are not repeated herein. This standard is divided into the following sections:

II. Site/Building Numbers
III. Site Signage
IV. Field Applied Protective Coatings
V. Architectural Finishes
VI. Concrete Finishes

II. Site/Building Numbers

Facility numbers:

A. Facility numbers shall be as indicated in the Master Site Plan.

B. The Designer shall confirm these facility numbers prior to design.

C. The City Project Manager will coordinate with plant operations for number assignments if needed.

D. Facilities at the plant will be numbered west to east and north to south.

III. Site Signage

A. Plant signage shall be provided to aid in plant safety and security and to provide a positive perception of the Willow Lake Water Pollution Control Facility (WLWPCF). All signs within the facility shall be of similar character, i.e. size, shape, and proportion. Typical signs that will be used at WLWPCF are shown in Figure 1.

B. WLWPCF will contract with a sign company to provide all wayfinding signage and some safety signage, to ensure consistency. Code required and traffic control signage will need to be identified by the Designer and may need to be provided by Contractors, as determined on a project-by-project basis.

1. Sign types:

    a. Site identifier (Sign Type A):

        1) The site identifier sign shown in Figure 2 will be located at the entrance for visitors and will be ten-foot-wide and five-foot-tall and illuminated with flush-to-grade lighting.

        2) The site identifier will be highly visible and readable to moving traffic on the adjacent street.

2. Wayfinding sign and directional signs (Sign Type B):

    a. A wayfinding sign along the main entry drive may be provided to help orient visitors to the facility layout.

    b. Directional signs as shown in Figure 2 should be placed at all intersections to guide visitors through the plant.

    c. Select wayfinding and directional signs may be illuminated with flush-to-grade lighting or be made of reflective materials.

3. Informational/code signs (Sign Type C and D):

    a. Informational signs as shown in Figure 3 shall be used where needed to identify restricted or ADA parking and shall conform to state codes.

    b. Informational signs shall be posted on one post for support.

4. Building identification signs (Sign Types E and F):

    a. Building identification signs as shown in Figure 4 will be mounted to the walls of buildings.

    b. Sign type E will have a post-and-panel look as shown in Figure 5 with clear anodized posts.

    c. Sign type F as shown in Figure 4 should have the building's identifying number fabricated in dimensional metal and should be mounted at obvious building corners. More than one sign may be required per building based on the number of approach angles.

    d. Building numbers will be white on sign types E and F.

5. Interior room signs should have the same look as exterior signage and should be mounted at heights required by code.

B. Sign materials:

1. Sign will be vertical panels with one or two supporting posts. Posts will be clear anodized aluminum.

2. Exterior panels will be clear anodized aluminum plate with a satin finish and a laminated porcelain enamel finish for the graphic area.

3. Exterior signs should be of the highest quality material which is most durable with a baked-on finish. Signs should not degrade over time and should not chip unless exposed to impact.

4. Dimensional signs for building numbers should have fabricated channel metal numbers, either aluminum or steel, with a painted finish and should be of durable, high quality.

5. Interior signs shall be acrylic panel with information applied in layers.

6. The graphic area will be a blue background and lighter blue water graphic as shown in Figure 1.

7. Text will be clear sans serif font.

IV. Field Applied Protective Coatings

A. The Designer is referred to individual Master Guide Specifications for coating materials, cleaning procedures, application rates, and installation procedures. In general the following shall be used as a guide for materials that are to receive protective coatings and the type of protective coating that is to be applied.

B. Building interior surfaces shall be coated before equipment or piping is installed.

C. Surfaces to be coated shall include:

1. Iron and steel:

   a. Structural and miscellaneous steel exposed in exterior locations shall be coated with an epoxy enamel with an aliphatic polyurethane finish coat.

   b. Structural and miscellaneous steel exposed in interior locations shall be coated with two coats of epoxy enamel.

   c. Steel floor plates, steel handrails, and other miscellaneous steel items exposed to view, interior and exterior, shall be coated with a universal primer followed by a aliphatic polyurethane finish coat or powder coated.

d. Interior and exterior components of metal curbs for Heating, Ventilation, and Air Conditioning (HVAC) equipment, including power roof ventilators, vents, fresh air inlets, and metal curbs associated with skylights shall be coated with an epoxy enamel finish coat, or polyurethane.

e. Miscellaneous steel and iron surfaces which will be submerged, or buried all or in part shall be either coated with two coats of epoxy enamel, or two coats of medium consistency coal tar.

2. Concrete and concrete block:

a. Concrete and concrete block in corrosive areas (except floors), unless otherwise noted below, shall be coated with two coats of epoxy enamel.

b. Interior surfaces of sludge drawoff boxes shall be coated with two coats of medium consistency coal tar.

c. Concrete surfaces (walls, floors, and curbed areas) adjacent to corrosive chemical storage and/or feed equipment shall be coated with either two coats of epoxy enamel or with a trowel applied vinyl ester that is compatible with the chemical(s) being stored. The Designer shall indicate all areas to be coated on the design drawings.

d. Concrete walls in contact with liquid where the wall on the opposite side is exposed, or where the opposite face forms a part of an interior room or dry pit shall be coated with two coats of epoxy enamel or Polysufide coating. If the liquid contained by the wall is of potable water quality, the coating shall be Polysufide and NSF rated. All block fillers and primers should be specified to follow manufacturer's recommendations.

3. Nonferrous metal:

a. Aluminum ductwork located indoors may be coated with two coats of flat latex emulsion when located near the ceiling, and two coats of satin gloss latex emulsion when located adjacent to the walls.

b. Aluminum ductwork located outdoors may be coated with an epoxy enamel first coat, followed by a aliphatic polyurethane finish coat.

4. Galvanized metals:

Galvanized structural and miscellaneous steel in interior and exposed locations shall not be coated unless specifically required by the Master Guide Specifications.

5. Polyvinyl Chloride (PVC) and Fiberglass Reinforced Plastics (FRP):

    a. If required, PVC and FRP surfaces, including fiberglass door and window frames, in indoor locations shall be coated with two coats of epoxy enamel.

    b. If required, PVC and FRP surfaces, including fiberglass door and window frames, in outdoor locations shall be coated with an epoxy enamel first coat followed by a aliphatic polyurethane finish coat.

D. Surfaces not to be coated:

1. Exposed aluminum, except ductwork.

2. Polished or finished stainless steel.

3. Nickel or chromium.

4. Most galvanized surfaces, except piping, conduit and other items previously identified.

5. Rubber and plastics.

6. Face brick.

7. Exterior concrete, unless specifically noted by the Designer. Coating of exterior concrete surfaces shall require the approval of the City Program Manager. Exposed exterior concrete may be sealed.

V. Architectural Finishes

A. The finish selection process is discussed in the Architectural Design Standards. The Designer is referred to the Master Guide Specifications for materials, testing, and installation. Standard lighting fixtures and finishes are found in Division 16 in the lighting specifications.

B. Non-process buildings will have a high level of interior and exterior finish, to meet occupants' needs for comfort and safety.

C. In general the following shall be used as a guide for interior and exterior finishes of non-process buildings (also see the Architectural Design Standards).

1. General exterior finishes for non-process buildings:

    a. Doors:

        1) Hollow metal exterior doors:

            a) Doors to be primed and painted.

b) Hollow metal door frames to be painted.

c) Glazing at hollow metal doors to be tempered or safety glass, and clear, see Section 08800- Glazing.

2) Storefront doors:

a) Aluminum frames to be shop finished to Class I, clear anodonic finish.

b) Glazing at storefront doors to be clear tempered, double-glazed, soft coat Low-E, see Section 08800- Glazing.

b. Windows:

1) Windows to be thermally broken and double-glazed. Glazing to be clear, soft coat Low-E.

2) Gray tinted glazing may be replace clear for reduction in heat transfer for south and west elevations.

3) Windows to be aluminum framed. Aluminum window frames to be shop finished to Class I, clear anodonic finish.

c. Walls:

1) New exterior brick should match the existing brick at the digesters. Match the color and match running bond pattern and accent bands.

2) Vertical cast concrete should be smooth W-3 finish with architectural reveals as detailed in the Architectural Design Standards and Master Guide Specifications.

d. Exposed steel structure:

Steel should be shop-primed and painted where possible.

2. General non-process interior finishes:

a. Doors:

1) Hollow metal door frames to be primed and painted.

2) Interior doors to be wood veneer over solid core and clear sealed.

b. Hardware:

1) Door hardware and miscellaneous hardware in laboratory areas to be satin stainless steel finish, US32D or approved equal.

2) Door hardware and miscellaneous hardware in offices, conference rooms, and toilets to be US26D satin finish, or approved equal.

c. Walls:

1) All gypsum board walls in non-process buildings to receive “Level 5” gypsum board finish and high quality, high solids drywall primer before painting. All gypsum board wall surfaces are to be painted.

2) Chair rail, where used, to be 4 x ¾ inches.

3) Corner guards to be Acrovyn or approved equal.

d. Flooring:

Flooring where not otherwise specified shall be linoleum.

3. Lobby and entries:

a. Flooring:

1) Flooring at high traffic areas, such as the lobby entry, should be tile for durability.

2) Areas for waiting or reception shall be carpeted.

3) Wall base shall be 4 x ¾ inches Hardi-base.

4) Walk off mats should be provided at entries.

b. Walls:

1) Standard wall finish to be painted, smooth finish gypsum wall board or light to medium texture.

2) Gypsum wall board shall be primed and painted with low VOC interior latex paint.

3) One wall may be painted a deep color for accent as determined by the City on a room-by-room basis.

c. Ceilings:

1) General ceiling to be 2' x 2' acoustical panel ceiling system.

a) Panels to be white with light reflectance greater than 0.85. Match Armstrong finish “fine fissured open plan” and recessed edge.

b) Sound reduction level to be NRC 0.70 or greater. A CAC minimum 25 is preferred for open plan areas. A CAC rating of minimum 35 is preferred for closed areas.

c) Grid system shall be “Flat White” color where exposed.

2) Water-resistant gypsum board “hard ceiling” may be used for accent areas, or provide soffits for lighting effects, or in areas with water use, such as restrooms. Hard ceiling shall be primed and painted with latex enamel.

d. Furniture:

1) Wood and wood veneer should be clear sealed. Veneers to be quarter sliced veneers. Sustainable practice will specify certified sustainable forestry products.

2) Plastic laminates may also be used.

4. Halls and corridors:

a. Halls and corridors finishes should match lobby area finishes for walls and ceilings.

b. Halls and corridors flooring should be linoleum.

5. General administrative office areas:

a. Flooring:

1) General office areas shall be carpeted.

2) Meeting areas shall be carpeted.

3) Base shall be four-inch rubber base tile.

b. Walls:

Gypsum board walls to match lobby standards.

c. Ceilings:

General ceilings to be 2' x 2' acoustical panel ceiling system.

6. Laboratory areas:

a. Flooring:

Laboratory floors should be seamless rubber flooring. Rubber flooring to be recycled content.

b. Walls:

1) Standard wall finish to be painted, smooth “Level 5” finish gypsum wall board. No knockdown or textured finishes permitted. Apply a high quality, high solids drywall primer before painting.

2) Gypsum wall board shall be primed and painted with low VOC interior latex paint.

3) One wall may be paneled a deep color for accent, as determined by the City.

c. Furniture/equipment:

1) Countertops in laboratories to be epoxy resin, grey, see Master Guide Specification, Section 12345- Laboratory Casework.

2) Plastic laminate finishes shall be used for cabinets.

d. Ceilings:

Ceiling to be 2' x 2' Mylar covered acoustical panel ceiling system.

7. Restrooms, showers, and locker areas.

a. Flooring:

1) Restroom floors shall be concrete, W-2 finish minimum, coat with a non-skid epoxy resin.

2) Form concrete to cove shape at floor edges in restroom. Coat with non-skid epoxy resin as above.

b. Walls:

1) Walls shall be finished with ceramic tile to 4' or 8' height as need in restrooms for durability and water resistance.

a) Wall tile to be 2" x 2," 3" x 3," or 4" x 4" cross sheen finish, or approved equal.

b) Accent colors of wall tile may be used in a continuous band or pattern.

c) Grout at ceramic tile to match main tile color.

2) Non-tiled walls to be painted, smooth finish gypsum wall board.

c. Ceilings:

Water-resistant gypsum board “hard” ceiling shall be used in restroom locations. Hard ceilings shall be primed and painted.

d. Showers:

1) Showers to have ceramic tile at walls and floors.

2) Tile to be 2" x 2," 3" x 3," or 4" x 4" cross sheen finish.

D. Process building finishes must be selected for durability and corrosion resistance. In general, the following shall be used as a guide for interior and exterior finishes on process buildings:

General process building exterior.

1. Doors:

a. FRP or stainless steel doors:

Door frames to be painted.

b. Overhead coiling doors:

Overhead doors to be shop primed and painted.

c. Hardware:

Door hardware and miscellaneous hardware to be satin stainless steel finish, US32D or approved equal.

2. Windows:

    a. Windows to be thermally broken and double-glazed. Gray tinted glazing may replace clear for reduction in heat transfer for south and west elevations, where needed.

    b. Windows to be aluminum framed. Aluminum window frames to be shop finished to Class I, clear anodonic finish.

3. Walls:

    a. New exterior brick to match existing brick at the digesters. Match color and match running bond pattern and accent bands.

    b. Vertical cast concrete shall be smooth finish with architectural reveals as detailed in the Architectural Design Standards and Master Guide Specifications.

4. Roofing and canopies:

    a. Sloped roofing to be standing seam metal roofing. Use true standing seam, batten minimum one-inch.

    b. Low-slope (built-up) roofing to be cold process roofing system by Tremco Burmastic Composite Three-Ply roofing system.

5. Exposed steel structure:

    Steel to be painted.

E. Process areas interior:

1. Process/equipment areas:

    See previous sections for process area equipment and structural coatings.

2. Floors:

    See concrete finish descriptions below. Finish to be S-1 minimum.

    a. Concrete floors shall be coated.

    b. Coat with a clear non-skid epoxy protective coating. Use ChemRex/ Sonneborn coating systems, “High-Build Primer” or approved equal.

3. Walls:

    a. Exposed cast concrete (interior):

b. Finish to be W-3 minimum.

c. Paint with epoxy enamel.

1) Gypsum board walls in process buildings to receive “Level 5 ” gypsum board finish and high quality, high solids drywall primer before painting. All gypsum board wall surfaces are to be painted; colors described below.

2) Corner guards to be stainless steel finish, US32D or similar.

4. Ceilings:

1) Ceiling applications in process buildings to be discussed with City Program Manager.

2) Where ceiling is deemed appropriate, ceiling to be gypsum board hard ceiling. Hard ceiling shall be primed and painted. Paint in process building to be epoxy enamel.

3) Exposed interior structure to be primed and painted.

5. Control rooms:

Wall and ceiling finishes and furniture as described above for general administrative areas.

6. Flooring:

a. Flooring may be rubber flooring as described above for laboratory areas.

b. Flooring may be linoleum as described above for general administrative areas.

7. Restrooms, showers, and locker areas:

Finishes as described above for non-process restrooms.

VI. Concrete Finishes

The various wall and slab finishes are described below. Master Guide Specification, Section 03366- Tooled Concrete Finishes, provides a more detailed description of these finishes.

A. Wall finishes:

1. Type W-1 (Ordinary Wall Finish)—This finish shall be used on walls where appearance is not critical, such as on walls to be backfilled, or inside basins that

are not publicly viewed and are not difficult to wash down. Projections are knocked off and defective areas are patched.

2. Type W-2 (Smooth Wall Finish)—This finish shall be used on walls where appearance is more important than required for W-1, such as pump station walls, tunnels, and where painted concrete or waterproofing is desired. Air bubbles are not repaired, however, projections are ground off and rough spots, defective areas, and holes greater than ⅛-inch are repaired.

3. Type W-3 (Grout Cleaned Finish)—This finish shall be used for exposed exterior surfaces where a high quality finish is required. A preconstruction meeting shall be held to view a sample panel of the finish on a new and/or existing surface. A similar, less expensive finish can be obtained by combining W-2 with a cementious coating.

B. Slab finishes:

1. Type S-1 (Steel Troweled Finish)—This finish shall be used on areas such as tunnels and the inside of exposed buildings. Trowel finishing produces a smooth surface that is easier to wash down than a light broomed finish surface.

2. Type S-2 (Wood Float Finish)—This finish shall be used on slabs that will receive a mortar setting bed for ceramic tile or topping slab.

3. Type S-3 (Underside Elevated Slab Finish)—This finish shall be used on the underside of concrete slabs that are exposed where appearance is important. If a surface is to be painted, this finish shall also be used. Repair of air pockets is not required if appearance is not a problem. If a surface is to receive a coating, the surface shall be prepared to receive the coating, as specified.

4. Type S-4 (Preparation for Topping Slab)—The surface shall be screened with straight edges to leave surface ready for the topping slab.

5. Type S-5 (Broomed Finish)—This finish is as specified for Type S-1 finish, except that final troweling shall be omitted and the surface shall be finished by drawing a fine-hair broom lightly across it, providing a non-slip surface such as for stair treads, sidewalks, and pavements.

6. Type S-6 (Sidewalk Finish)—This broomed finish shall be used on all exterior sidewalks.

C. Concrete finish schedule:

1. Information pertaining to concrete finishes shall be specified in the concrete finish schedule of Master Guide Specification, Section 03366- Concrete Finishes. Additional finish types may be required for project specific conditions. The structural engineer and the project architect shall both review the schedule to make sure all possibilities are covered, and that the finishing

techniques specified are practical, economical, and satisfy the project requirements.

2. The above wall and slab finish numbers shall not be revised on a project even if some finishes are not used or additional finishes are specified. Additional finishes shall receive a number not covered in the finishes indicated above.

D. Tolerances:

1. The tolerances for the wall and slab finishes described above are covered in Master Guide Specification, Section 03366 - Concrete Finishes. Applicable areas are indicated in the concrete finish schedule. These limits shall be reviewed and any additional limits that may be applicable to specific project conditions shall be added.

2. The floor tolerances are given in inches-per-foot. For projects for which floor finish tolerances are very important or critical, ACI 117, Standard Specifications for Tolerances for Concrete Construction and Materials, shall be referred to for the “F Numbers” required. Also, they shall be incorporated into the specification.

E. Waterproofing:

1. All below-grade walls and roofs enclosing space shall be waterproofed, except spaces such as crawl spaces, where moisture penetration is not a concern. The Designer shall determine the appropriate type of waterproofing to be used on a project based on soil type, water table, importance of enclosed space, etc. The concrete finish specified to receive waterproofing should be coordinated with the Structural Design to verify adequacy of application.

2. Brush, spray, or roll-on asphalt materials shall not be considered as a means of waterproofing. These materials shall only be used where water penetration is not a critical factor.

3. Cementious/chemical waterproofing (Xypex or other Polysulfide coating) can be subject to short-term leaking during its initial application and any time a crack develops in the concrete after occupancy. This type of waterproofing shall not be used in areas where short-term leaking may be a problem.

4. A protection board shall be used with waterproofing systems. The only exception to this is Xypex, which may be the manufacturer's standard product or a rigid perimeter insulation. If a rigid perimeter insulation is used, the compressive strength shall be adequate to resist loads, especially if used over horizontal surfaces in areas where vehicular traffic is expected.

— End of Section —