SECTION 224600 - SECURITY PLUMBING FIXTURES

TIPS:

To view non-printing **Editor's Notes** that provide guidance for editing, click on MasterWorks/Single-File Formatting/Toggle/Editor's Notes.

To read **detailed research, technical information about products and materials, and coordination checklists**, click on MasterWorks/Supporting Information.

Access Product MasterSpec Sections:

<Double click here to view the list of manufacturer Sections available at ProductMasterSpec.com.>

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Combination units.
2. Water closets.
3. Urinals.
4. Lavatories.
5. Drinking fountains.
6. Showers.
7. Electronic controls.
8. Service sinks.

9. Supports.

B. Related Requirements:

1. Section 224213.13 "Commercial Water Closets."
2. Section 224213.16 "Commercial Urinals."
3. Section 224216.13 "Commercial Lavatories."
4. Section 224216.16 "Commercial Sinks."
5. Section 224223 "Commercial Showers."
6. Section 224233 "Wash Fountains."
7. Section 224300 "Healthcare Plumbing Fixtures."
8. Section 224500 "Emergency Plumbing Fixtures" for emergency showers.
9. Section 224713 "Drinking Fountains" for standard drinking fountains.

1.2 DEFINITIONS

A. Accessible Service Space: Service area in secure space behind wall-mounted fixtures.

B. Back-Access Fixture: Security plumbing fixture designed to mount on wall sleeve built into wall or on wall, so installation and removal of fixture, piping, and other components are accessible only from service space behind wall.

C. Front-Access Fixture: Security plumbing fixture designed to mount on wall with installation and removal from fixture side of wall, and with piping and other components accessible only from access panel in fixture.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for security plumbing fixtures.
2. Include rated capacities, operating characteristics, and furnished specialties and accessories.

B. Sustainable Design Submittals:

1. Product Data: For water consumption.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For security plumbing fixtures and components to include in maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Flushometer-Valve Repair Kits: Equal to [**10**] <**Insert number**> percent of quantity of each type installed, but no fewer than [**one**] [**six**] <**Insert number**> of each type.
2. Lavatory Valve Repair Kits.
3. Shower Valve Repair Kits.

PART 2 - PRODUCTS

2.1 COMBINATION UNITS

A. Combination Units <**Insert drawing designation**>: Back access, [**off**] [**on**] floor, cabinet, with water closet and lavatory.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1415**] [**1418**] [**1418LMB**] [**1420**] [**1420LRB**] [**1426**] [**LR1415**] [**LR1418**] [**LR1440**]<**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
3. Finish: [**No. 4 satin finish on exposed surfaces**] [**Powder coated finish on exposed surfaces**] [**Powder coated finish on exposed surfaces, except interior of toilet bowl**] **<Insert color from manufacturer's color chart**>.
4. Cabinet: Provide manufacturer's standard unit shape and configuration for each model number furnished. Provide units with integral backsplash.

a. Water-Closet Bowl Location: [**Centered on front**] [**Left of center, on front**] [**Right of center, on front**] [**On angled left side**] [**On angled right side**] <**Insert location**> of apron.
b. Cabinet Mounting: [**Off**] [**On**]-floor.

5. Accessories:

a. Toilet-Paper Holder: Recessed; non-ADA-compliant, stainless steel located [**front**] [**left side**] [**right side**] [**left-angled side**] [**right-angled side**] of apron.
b. Towel Hooks: [**One**] [**Two**] on [**each**] [**left**] [**right**] side of fixture.
c. Ventilation Grille: [**Left**][**Right**] [**Left front**] [**Right front**] [**Bottom**]**.**
d. Ligature-resistant water-closet skirt.
e. Hemispherical Valve Push Button: Include with ligature-resistant models.
f. Integral shelf.
g. Lavatory overflow.

h. Toothbrush Holders: One on [**each**] [**left**] [**right**] side of backsplash.
i. Brass valve body.
j. Pushrod-activated valve push buttons.
k. Fixture-mounted trim.
l. Toilet waste cleanout fitting [**IPS 2 to IPS 3 (DN 50 to DN 75)**] [**IPS 2 to IPS 4 (DN 50 to DN 100)**], no-hub.
m. Pinned cleanout plug for cleanout fittings.
n. Cleanout hook assembly.
o. Toilet shipping cover.
p. Metal Template: Provide one per Project.
q. Transformer: 120 V ac to 24 V ac.
r. Cycle interrupt.
s. Vacuum flush system.

6. Mounting: Provide threaded mounting points on fixture and 1/2-in. (13-mm) threaded rod, with nuts and washers, to bolt through wall into accessible rear chase.
7. Water Closet:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.
2) Cal Green.
3) EPA WaterSense Specifications for High Efficiency Flushometer Water Closets.
4) U.S. Energy Policy Act of 1992 for Water Closets.

b. Bowl:

1) Type: Elongated, with back inlet, seat surface, and integral trap.
2) Seat Surface: [**No. 4 satin**] [**No. 8 high-polish**] finish on integral toilet seat. [**Plastic hinged toilet seat**] [**Punched for field-mounted toilet seat**].
3) Rim Height: 15 inches (381 mm) above finished floor.

c. Toilet Waste:

1) Wall Outlet Waste Connection (Blowout): [**NPS 2 (DN 50)**] [**3 inches (76 mm)** OD], plain end extended [**3 inches (76 mm)**] <**Insert length**> beyond back of unit.[**Gasket waste flange.**]
2) Floor Outlet Waste Connection (Siphon-Jet): Water-closet gasket waste flange.

d. Water Consumption: [**1.28 gal. (4.8 L)**] [**1.6 gal. (6 L)**] [**3.5 gal. (13.2 L)**] per flush.
e. Supply Pressure: 25 psig (172 kPa), minimum.

8. Flushometer Valve <**Insert designation**>:

a. Style: [**Mechanical**] [**Hydraulic**] [**Electronic**] type.
b. Push-Button Location: [**Standard backsplash punching on right-hand side for centered and angled right toilet bowl**] [**Standard backsplash punching on left-**

hand side for angled left toilet bowl] [**Backsplash punching opposite standard**] [**Less punching for flush valve control**].

9. Toilet Flush Disabler/Overflow Prevention Device: [**None**] [**Manual-reset**] [**Automatic-reset**] [**Electronic**] <**Insert designation**> type.
10. Lavatory:

    a. Standard:

        1) ASME A 112.19.3/CSA B45.4.
        2) NSF/ANSI 61, NSF/ANSI 372.

    b. Location: In top of cabinet.
    c. Receptor: Provide with integral, self-draining soap depression. Provide manufacturer's standard bowl shape and configuration for each model number furnished.
    d. Lavatory Water Supply Valves:

        1) [**Pneumatic, nonmetering**] [**Pneumatic, metering**] [**Pneumatic, metering on hot water side only**] [**Electronic**] type <**Insert designation**> with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.[**Fixture punched for valve furnished separately.**]
        2) Temperature: [**Single**] [**Separate hot and cold**] temperature.
        3) Manifolded: [**Two**] [**Three**] [**Four**]-stack.

    e. Bubbler/Filler, Backsplash-mounted: [**Penal**] [**Code**] [**Ligature-resistant-hemispherical bubbler**] [**Lavatory filler**]. Fabricate from machined, Type 303 stainless steel.
    f. Drain:

        1) Integral punched fast-drain grid.
        2) Ligature Resistant: Integral punched grid with concealed adapter.

    g. Lavatory Waste Connection: [**Elbow connection**] [**Removable P-trap**], with 1-1/2-inch (38-mm) OD plain-end, extended [**3 inches (76 mm)** <**Insert length**> **beyond back of fixture**].[**Combined waste.**]

11. Mounting: Provide threaded mounting points on fixture and 1/2-inch (13-mm) threaded rod, with nuts and washers to bolt through wall into accessible service space.

12. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

B. Combination Units <**Insert drawing designation**>: Back access, ADA-compliant, [**off**] [**on**] floor, cabinet, with water closet and lavatory.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1432**] [**1449**] [**LR1449**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
3. Finish: [**No. 4 satin finish on exposed surfaces**] [**Powder coated finish on exposed surfaces**] [**Powder coated finish on exposed surfaces, except interior of toilet bowl**] <**Insert color from manufacturer's color chart**>.
4. Cabinet: Provide manufacturer's standard unit shape and configuration for each model number furnished. Provide units with integral backsplash and access panels secured with vandal-resistant fasteners.

a. Water-Closet Bowl Location: [**Left of lavatory, on front**] [**Right of lavatory, on front**] [**On angled left side**] [**On angled right side**] <**Insert location**> of apron.
b. Cabinet Mounting: [**Off**] [**On**]-floor.

5. Grab Bar:

a. Provide grab bar behind toilet, minimum 36 inches (914 mm) long, minimum 1-1/4-inch (32-mm) diameter, positioned in accordance with ADA requirements.
b. Provide grab bar with closure plate behind toilet, minimum 36 inches (914 mm) long, minimum 1-1/4-inch (32-mm) diameter, positioned in accordance with ADA requirements.
c. Provide grab bar, minimum 36 inches (914 mm) long, minimum 1-1/4-inch (32-mm) diameter, behind toilet with closure plate. Position grab bar in accordance with ADA requirements. Provide lavatory closure plate assembly to conceal gap between lavatory and wall.

6. Accessories:

a. Toilet-Paper Holder: Recessed; non-ADA-compliant, stainless steel, located [**front**] [**left side**] [**right side**] [**left-angled side**] [**right-angled side**] of apron.
b. Towel Hooks: [**One**] [**Two**] on [**each**] [**left**] [**right**] side of fixture.
c. Ventilation Grille: [**Left**] [**Right**] [**Left front**] [**Right front**] [**Bottom**].
d. Ligature-resistant water-closet skirt.
e. Hemispherical Valve Push Button: Include with ligature-resistant models.
f. Lavatory overflow.
g. Toothbrush Holders: One on [**each**] [**left**] [**right**] side of backsplash.
h. Brass valve body.
i. Fixture-mounted trim.
j. Toilet waste cleanout fitting [**IPS 2 to IPS 3 (DN 50 to DN 75)**] [**IPS 2 to IPS 4 (DN 50 to DN 100)**], no-hub.
k. Pinned cleanout plug for cleanout fittings.
l. Cleanout hook assembly.
m. Toilet shipping cover.
n. Metal Template: Provide one per Project.
o. Transformer: 120 V ac to 24 V ac.
p. Cycle interrupt.
q. Vacuum flush system.

7. Mounting: Provide threaded mounting points on fixture and 1/2-in. (13-mm) threaded rod, with nuts and washers, to bolt through wall into accessible rear chase.
8. Water Closet:

    a. Applicable Standards:

        1) ADA 2010.
        2) ASME A112.19.3/CSA B45.4.
        3) Cal Green.
        4) EPA WaterSense Specifications for High Efficiency Flushometer Water Closets.
        5) ICC A117.1.
        6) U.S. Energy Policy Act of 1992 for Water Closets.

    b. Bowl:

        1) Type: Elongated, with back inlet, seat surface, and integral trap.
        2) Seat Surface: [**No. 4 satin**] [**No. 8 high-polish**] finish on integral toilet seat.
        3) Rim Height for ADA-compliant Installation: 18 inches (457 mm) above finished floor.

9. Water Closet:

    a. Bowl:

        1) Type: Elongated, with back inlet, seat surface and integral trap.
        2) Seat Surface: [**No. 4 satin**] [**No. 8 high-polish**] finish on integral toilet seat. [**Plastic hinged toilet seat**] [**Punched for field-mounted toilet seat**].

    b. Toilet Waste:

        1) Wall Outlet Waste Connection (Blowout): [**NPS 2 (DN 50)**] [**3 inches (76 mm)** OD], plain end extended [**3 inches (76 mm)**] <**Insert length**> beyond back of unit.[**Gasket waste flange.**]
        2) Floor Outlet Waste Connection (Siphon-Jet): Water-closet gasket waste flange.

    c. Water Consumption: [**1.28 gal. (4.8 L)**] [**1.6 gal. (6 L)**] [**3.5 gal. (13.2 L)**] per flush.
    d. Supply Pressure: 25 psig (172 kPa), minimum.

10. Flushometer Valve: [**Mechanical**] [**Hydraulic**] [**Electronic**] type. <**Insert designation**>
11. Toilet Flush Disabler/Overflow Prevention Device: [**None**] [**Manual-reset**] [**Automatic-reset**] [**Electronic**] type. <**Insert designation**>
12. Lavatory:

    a. Standard:

        1) ADA 2010.
        2) ASME A112.19.3/CSA B45.4.

3) NSF/ANSI 61, NSF/ANSI 372.

b. Location: In top of cabinet.
c. Receptor: Provide with integral soap depression. Provide manufacturer's standard receptor shape and configuration for each model number furnished.
d. Lavatory Water Supply Valves:

1) [**Pneumatic, nonmetering**] [**Pneumatic, metering**] [**Pneumatic, metering on hot water side only**] [**Electronic**] type <**Insert designation**> with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.[**Fixture punched for valve furnished separately.**]
2) Temperature: [**Single**] [**Separate hot and cold**] temperature.
3) Manifolded: [**Two**] [**Three**] [**Four**]-stack.

e. Bubbler/Filler, Spout:

1) Backsplash-Mounted: [**Penal**] [**Code**] [**Ligature-resistant, hemispherical bubbler**] [**Lavatory filler**]. Fabricate from machined, Type 303 stainless steel.
2) Deck-Mounted Spout: Fabricate from machined, Type 303 stainless steel.
3) Deck-Mounted Bubbler in lieu of Spout: [**Penal**] [**Code**] [**Ligature-resistant, hemispherical bubbler**]. Fabricate from machined, Type 303 stainless steel.

f. Deck-Mounted Cup Filler: Provide at counter height, with reach, clearance, bubbler, and controls that conform to ADA standard for lavatories.

1) Type: [**Penal**] [**Code**] [**Ligature-resistant, hemispherical**]. Fabricate from machined, Type 303 stainless steel.

g. Drain:

1) Integral punched fast-drain grid.
2) Ligature Resistant: Integral punched grid with concealed adapter.

h. Lavatory Waste Connection: [**Elbow connection**] [**Removable P-trap**], with 1-1/2-inch (38-mm) OD plain-end, extended [**3 inches (76 mm)** <**Insert length**> **beyond back of fixture**].[**Combined waste.**]

13. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

C. Combination Units <**Insert drawing designation**>: Front-access, on-floor cabinet, with water closet and lavatory.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1418FA**] [**1418LMBFA**] [**1420FA**] [**1426FA**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
3. Finish: [**No. 4 satin finish on exposed surfaces**] [**Powder coated finish on exposed surfaces**] [**Powder coated finish on exposed surfaces, except interior of toilet bowl**] <**Insert color from manufacturer's color chart**>.
4. Cabinet: Provide manufacturer's standard unit shape and configuration for each model number furnished. Provide units with integral backsplash and access panels secured with vandal-resistant fasteners.

   a. Water-Closet Bowl Location: [**Centered on front**] [**Left of center, on front**] [**Right of center, on front**] [**On angled left side**] [**On angled right side**] <**Insert location**> of apron.
   b. Cabinet Mounting: On-floor.

5. Accessories:

   a. Toilet-Paper Holder: Recessed; stainless steel, located [**front**] [**left side**] [**right side**] [**left-angled side**] [**right-angled side**] of apron.
   b. Towel Hooks: [**One**] [**Two**] on [**each**] [**left**] [**right**] side of fixture.
   c. Ventilation Grille: [**Left**] [**Right**] [**Left front**] [**Right front**].
   d. Ligature-resistant water-closet skirt.
   e. Integral shelf.
   f. Lavatory overflow.
   g. Toothbrush Holders: One on [**each**] [**left**] [**right**] side of backsplash.
   h. Brass valve body.
   i. Fixture-mounted trim.
   j. Toilet shipping cover.
   k. Transformer: 120 V ac to 24 V ac.
   l. Cycle interrupt.
   m. Vacuum flush system.

6. Mounting: Provide slotted mounting points on fixture and 1/2-in. (13-mm) threaded rod, with nuts and washers, to anchor cabinet to wall from fixture side.
7. Water Closet:

   a. Applicable Standards:

      1) ASME A112.19.3/CSA B45.4.
      2) Cal Green.
      3) EPA WaterSense Specifications for High Efficiency Flushometer Water Closets.
      4) U.S. Energy Policy Act of 1992 for Water Closets.

   b. Bowl:

      1) Type: Elongated, with back inlet, seat surface and integral trap.

2) Seat Surface: [**No. 4 satin**] [**No. 8 high-polish**] finish on integral toilet seat. [**Plastic hinged toilet seat**] [**Punched for field-mounted toilet seat**].

a) Rim Height: 15 inches (381 mm).

c. Toilet Waste:

1) Wall Outlet Waste Connection (Blowout): [**Gasket waste flange**] [**NPS 2 (DN 50)**] [**3 inches (76 mm) OD**], plain end extended [**3 inches (76 mm)**] <**Insert length**> beyond back of unit.
2) Floor Outlet Waste Connection (Siphon-Jet): Water-closet gasket waste flange.

d. Water Consumption: [**1.28 gal. (4.8 L)**] [**1.6 gal. (6 L)**] [**3.5 gal. (13.2 L)**] per flush.

e. Supply Pressure: 25 psig (172 kPa), minimum.

8. Flushometer Valve: [**Mechanical**] [**Hydraulic**] [**Electronic**] type. <**Insert designation**>
9. Toilet Flush Disabler/Overflow Prevention Device: [**None**] [**Manual-reset**] [**Automatic-reset**] [**Electronic**] type. <**Insert designation**>
10. Lavatory:

a. Standard:

1) ASME A112.19.3/CSA B45.4.
2) NSF/ANSI 61, NSF/ANSI 372.

b. Location: In top of cabinet.
c. Receptor: Provide with integral soap depression. Provide manufacturer's standard receptor shape and configuration for each model number furnished.
d. Lavatory Water Supply Valve:

1) [**Pneumatic, nonmetering**] [**Pneumatic, metering**] [**Pneumatic, metering on hot water side only**] [**Electronic**] type <**Insert designation**> with ADA-compliant push-button actuation, and individual check stops complying with ASME A112.18.1/CSA B125.1.[**Fixture punched for valve furnished separately.**]
2) Temperature: [**Single**] [**Separate hot and cold**] temperature.

e. Bubbler/Filler:

1) Bubbler/Filler, Backsplash-Mounted: [**Penal**] [**Code**] [**Ligature-resistant hemispherical bubbler**] [**Lavatory filler**]. Fabricate from machined Type 303 stainless steel.

f. Drain: Integral punched fast-drain grid.
g. Waste: Removable 1-1/2-inch (38-mm) P-trap.

11. Deck-Mounted Drinking Bubbler: Provide at counter height, with reach, clearance, bubbler, and controls in accordance with ADA requirements.

    a. [**Penal**] [**Code**] [**Ligature-resistant hemispherical bubbler**].

12. Wall Sleeve: Galvanized-steel frame with integral threaded anchors to allow for mounting fixture from front. Include steel reinforcing bars.

D. Combination Units <**Insert drawing designation**>: Front-access, ADA-compliant cabinet, with water closet and lavatory.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1432FA**] [**1449FA**] [**LR1449FA**] <**Insert product name or designation**> ADA-compliant combination unit, or comparable product by one of the following:

    a. Metcraft Industries, Inc.
    b. Willoughby Industries.
    c. <**Insert manufacturer's name**>.

2. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
3. Finish: [**No. 4 satin finish on exposed surfaces**] [**Powder coated finish on exposed surfaces**] [**Powder coated finish on exposed surfaces, except interior of toilet bowl**] <**Insert color from manufacturer's color chart**>.
4. Cabinet: Provide manufacturer's standard unit shape and configuration for each model number furnished. Provide units with integral backsplash and access panels secured with vandal-resistant fasteners.

    a. Water-Closet Bowl Location: [**Left of lavatory, on front**] [**Right of lavatory, on front**] [**On angled left side**] [**On angled right side**] <**Insert location**> of apron.
    b. Cabinet Mounting: On floor.

5. Grab Bar:

    a. Provide grab bar behind toilet, minimum 36 inches (914 mm) long, minimum 1-1/4 inches (32 mm), positioned in accordance with ADA requirements.
    b. Provide grab bar with closure plate behind toilet, minimum 36-inches (914-mm) long, minimum 1-1/4-inches (32-mm) diameter, positioned in accordance with ADA requirements.
    c. Provide grab bar, minimum 36-inches (914-mm) long, minimum 1-1/4-inches (32-mm) diameter, behind toilet with closure plate. Position grab bar in accordance with ADA requirements. Provide lavatory closure plate assembly to conceal gap between lavatory and wall.

6. Accessories:

    a. Toilet-Paper Holder: Recessed; non-ADA-compliant, stainless steel, located [**front**] [**left side**] [**right side**] [**left-angled side**] [**right-angled side**] of apron.
    b. Towel Hooks: [**One**] [**Two**] on [**each**] [**left**] [**right**] side of fixture.
    c. Ventilation Grille: [**Left**] [**Right**] [**Left front**] [**Right front**] [**Bottom**].

d. Ligature-resistant water-closet skirt.
e. Hemispherical Valve Push Button: Include with ligature-resistant models.
f. Lavatory overflow.
g. Toothbrush Holders: One on [**each**] [**left**] [**right**] side of backsplash.
h. Brass valve body.
i. Toilet shipping cover.
j. Transformer: 120 V ac to 24 V ac.
k. Cycle interrupt.
l. Vacuum flush system.

7. Mounting: Provide slotted mounting points on fixture for 1/2-inch (13-mm) hardware to anchor cabinet to wall from fixture side.
8. Water Closet:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.
2) Cal Green.
3) EPA WaterSense Specifications for High Efficiency Flushometer Water Closets.
4) ICC A117.1.
5) U.S. Energy Policy Act of 1992 for Water Closets.

b. Bowl:

1) Type: Elongated, with back inlet, integral trap, and integral contoured seat surface. Seat height and centerline to adjacent wall to conform to ADA standard.
2) Seat Surface: [**No. 4 satin**] [**No. 8 high-polish**] finish on integral toilet seat. [**Plastic hinged toilet seat**] [**Punched for field-mounted toilet seat**].
3) Rim Height for ADA-Compliant Installation: 18 inches (457 mm) above finished floor.
4) Outlet Connection: [**NPS 3 (DN 80)**] [**NPS 4 (DN 100)**], horizontal with cleanout and slip joint.

c. Toilet Waste:

1) Wall Outlet Waste Connection (Blowout): [**Gasket waste flange**] [**NPS 2 (DN 50)**] [**3 inches (76 mm) OD**], plain end extended [**3 inches (76 mm)**] <**Insert length**> beyond back of unit.
2) Floor Outlet Waste Connection (Siphon-Jet): Water-closet gasket waste flange.

d. Water Consumption: [**1.28 gal. (4.8 L)**] [**1.6 gal. (6 L)**] per flush.

e. Supply Pressure: 25 psig (172 kPa), minimum.

9. Flushometer Valve: [**Hydraulic**] [**Electronic**] type. <**Insert designation**>
10. Toilet Flush Disabler/Overflow Prevention Device: [**Manual-reset**] [**Automatic-reset**] [**Electronic**] type. <**Insert designation**>

11. Lavatory:

    a. Standard:

        1) ADA 2010.
        2) ASME A112.19.3/CSA B45.4.
        3) NSF/ANSI 61, NSF/ANSI 372.

    b. Location: In top of cabinet.
    c. Receptor: Provide with integral soap depression. Provide manufacturer's standard receptor shape and configuration for each model number furnished.
    d. Lavatory Water Supply Valve:

        1) [**Pneumatic, nonmetering**] [**Pneumatic, metering**] [**Pneumatic, metering on hot water side only**] [**Electronic**] type <**Insert designation**> with ADA-compliant push-button actuation, and individual check stops complying with ASME A112.18.1/CSA B125.1.[**Fixture punched for valve furnished separately.**]
        2) Temperature: [**Single**] [**Separate hot and cold**] temperature.

    e. Bubbler/Filler, Backsplash-Mounted: [**Penal**] [**Code**] [**Ligature-resistant hemispherical bubbler**] [**Lavatory filler**]. Fabricate from machined, Type 303 stainless steel.
    f. Bubbler/Filler, Spout:

        1) Bubbler/Filler, Backsplash-Mounted: [**Penal**] [**Code**] [**Ligature-resistant hemispherical bubbler**] [**Lavatory filler**]. Machined Type 303 stainless steel.
        2) Bubbler/Spout, Deck-Mounted: Spout, [**Penal**] [**Code**] [**Ligature-resistant hemispherical bubbler**] [**Lavatory filler**]. Machined Type 303 stainless steel.
        3) Bubbler/Spout, Deck-Mounted, Ligature Resistant: Hemispherical bubbler spout. Machined Type 303 stainless steel.

    g. Drain:

        1) Integral punched fast-drain grid.
        2) Ligature Resistant: Integral punched grid with concealed adapter.

    h. Waste: Removable 1-1/2-inch (38-mm) OD, plain end P-trap.

12. Deck-Mounted Drinking Cup Filler: Provide at counter height, with reach, clearance, bubbler, and controls conforming to ADA standard for lavatories.

    a. [**Penal**] [**Code**] [**Ligature-resistant hemispherical bubbler**].

13. Mounting: Provide slotted mounting points on fixture for 1/2-inch (13-mm) threaded rod to anchor cabinet to wall from fixture side.

14. Wall Sleeve: Galvanized-steel frame with integral threaded anchors to allow for mounting fixture from front. Include steel reinforcing bars.

2.2 STAINLESS STEEL WATER CLOSETS

A. Water Closets <**Insert drawing designation**>: Back access, [**on**] [**off**] floor, [**back**] [**floor**] outlet, cabinet.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International, Model [**1680**] [**1684**] [**1685**] [**1695**] [**LR1680**] [**LR1684**] [**LR1685**] [**LR1695**] [**LR2140**] [**LR2141**] <**Insert product name or designation**> or comparable product by one of the following:

    a. Metcraft Industries, Inc.
    b. Willoughby Industries.
    c. <**Insert manufacturer's name**>.

2. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
3. Finish: [**No. 4 satin finish on exposed surfaces**] [**Powder coated finish on exposed surfaces**] [**Powder coated finish on exposed surfaces, except interior of toilet bowl**] <**Insert color from manufacturer's color chart**>.
4. Cabinet Mounting: [**Off**] [**On**]-floor.
5. Accessories:

    a. 12 gauge wall flange.
    b. Toilet waste cleanout fitting [**IPS 2 to IPS 3 (DN 50 to DN 75)**] [**IPS 2 to IPS 4 (DN 50 to DN 100)**], no-hub.
    c. Pinned cleanout plug for cleanout fittings.
    d. Cleanout hook assembly.
    e. Flush valve through-wall connection.
    f. Toilet shipping cover.
    g. Metal Template: Provide one per Project.
    h. Transformer: 120 V ac to 24 V ac.
    i. Vacuum flush system.

6. Mounting: Provide threaded mounting points on fixture and 1/2-inch (13-mm) threaded rod with nuts and washers to bolt through wall into accessible rear chase.
7. Water Closet:

    a. Applicable Standards:

        1) ASME A112.19.3/CSA B45.4.
        2) Cal Green.
        3) EPA WaterSense Specifications for High Efficiency Flushometer Water Closets.
        4) ICC A117.1.
        5) U.S. Energy Policy Act of 1992 for Water Closets.

    b. Bowl:

1) Type: Elongated, with back inlet, integral trap, and integral contoured seat surface. Seat height and centerline to adjacent wall to conform to ADA standard.
2) Seat Surface: [**No. 4 satin**] [**No. 8 high-polish**] finish on integral toilet seat. [**Plastic hinged toilet seat**] [**Punched for field-mounted toilet seat**].
3) Rim Height: 15 inches (381 mm) above finished floor.
4) Rim Height for ADA-Compliant Installation: 18 inches (457 mm) above finished floor.

c. Toilet Waste:

1) Wall Outlet Waste Connection (Blowout): [**NPS 2 (DN 50)**] [**3 inches (76 mm)** OD], plain end, extended [**3 inches (76 mm)**] <**Insert length**> **beyond back of unit**].[**Gasket waste flange.**]
2) Floor Outlet Waste Connection (Siphon-Jet): Water-closet gasket waste flange.

d. Water Consumption: [**1.28 gal. (4.8 L)**] [**1.6 gal. (6 L)**] per flush.
e. Supply Pressure: 25 psig (172 kPa), minimum.

8. Flushometer Valve: [**Mechanical**] [**Hydraulic**] [**Electronic**] type. <**Insert designation**>

a. Flushometer-Valve Accessories: [**Top supply flush valve cover**] [**Wall supply flush valve access panel**].

9. Toilet Flush Disabler/Overflow Prevention Device: [**Manual-reset**] [**Automatic-reset**] [**Electronic**] type. <**Insert designation**>

10. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

a. Configuration: Install wall sleeve for water-closet mounting height in accordance with ICC A117.1.

B. Water Closets <**Insert drawing designation**>: Back access, off floor, back outlet, compact.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1675**] [**1679**] [**1696**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
3. Finish: [**No. 4 satin finish on exposed surfaces**] [**Powder coated finish on exposed surfaces**] [**Powder coated finish on exposed surfaces, except interior of toilet bowl**] <**Insert color from manufacturer's color chart**>.

4. Cabinet Mounting: Off-floor.

5. Accessories:

   a. 12 gauge wall flange.
   b. Toilet waste cleanout fitting [**IPS 2 to IPS 3 (DN 50 to DN 75)**] [**IPS 2 to IPS 4 (DN 50 to DN 100)**], no-hub.
   c. Pinned cleanout plug for cleanout fittings.
   d. Cleanout hook assembly.
   e. Flush valve through-wall connection.
   f. Toilet shipping cover.
   g. Metal Template: Provide one per Project.

6. Mounting: Provide threaded mounting points on fixture and 1/2-inch (13-mm) threaded rod with nuts and washers to bolt through wall into accessible rear chase.
7. Water Closet:

   a. Applicable Standards:

      1) ASME A112.19.3/CSA B45.4.
      2) Cal Green.
      3) EPA WaterSense Specifications for High Efficiency Flushometer Water Closets.
      4) ICC A117.1.
      5) U.S. Energy Policy Act of 1992 for Water Closets.

   b. Bowl:

      1) Type: Elongated, with back inlet, integral trap, and integral contoured seat surface. Seat height and centerline to adjacent wall to conform to ADA standard.
      2) Seat Surface: [**No. 4 satin**] [**No. 8 high-polish**] finish on integral toilet seat. [**Plastic hinged toilet seat**] [**Punched for field-mounted toilet seat**].
      3) Rim Height: 15 inches (381 mm) above finished floor.
      4) Rim Height for ADA-Compliant Installation: 18 inches (457 mm) above finished floor.

   c. Toilet Waste:

      1) Wall Outlet Waste Connection (Blowout): [**NPS 2 (DN 50)**] [**3 inches (76 mm)** OD], plain end, extended [**3 inches (76 mm)**] <**Insert length**> **beyond back of unit**].[**Gasket waste flange.**]

   d. Water Consumption: [**1.28 gal. (4.8 L)**] [**1.6 gal. (6 L)**] per flush.
   e. Supply Pressure: 25 psig (172 kPa), minimum.

8. Flushometer Valve: [**Mechanical**] [**Hydraulic**] [**Electronic**] type. <**Insert designation**>

   a. Flushometer-Valve Accessories: [**Top supply flush valve cover**] [**Wall supply flush valve access panel**].

9. Toilet Flush Disabler/Overflow Prevention Device: [**Manual-reset**] [**Automatic-reset**] [**Electronic**] type. <**Insert designation**>
10. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

    a. Configuration: Install wall sleeve for water-closet mounting height in accordance with ICC A117.1.

C. Water Closets <**Insert drawing designation**>: In-floor, detox toilet.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model 1699 <**Insert product name or designation**> or comparable product by one of the following:

    a. Metcraft Industries, Inc.
    b. Willoughby Industries.
    c. <**Insert manufacturer's name**>.

2. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
3. Finish: No. 4 satin finish on exposed surfaces, and matte finish on interior wetted surfaces.

4. Bowl:

    a. Type: Blowout design, with back outlet, back inlet, and integral trap.
    b. Receptacle: Rectangular, with 360-degree continuous flushing rim, and integral sloping rim.
    c. Inlet Connection: 1-inch NPT male.
    d. Back Outlet Waste Connection (Blowout): NPS 2 (DN 50), plain end.
    e. Water Consumption: [**1.6 gal. (6 L)**] [**3.5 gal. (13.2 L)**] per flush.
    f. Supply Pressure: 25 psig (172 kPa), minimum.

5. Mounting: Floor flange.
6. Accessories:

    a. Transformer: 120 V ac to 24 V ac.
    b. Vacuum flush system.

7. Flushometer Valve: [**Mechanical**] [**Hydraulic**] [**Electronic**] type. <**Insert designation**>

2.3 VITREOUS-CHINA WATER CLOSETS

A. Water Closets <**Insert drawing designation**>: Floor mounted, back outlet, blowout.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. American Standard.
    b. Willoughby Industries.

c. <**Insert manufacturer's name**>.

2. Fixture:

a. Standard: ASME A112.19.2/CSA B45.1 and ASME A112.19.5.
b. Bowl: Elongated, vitreous china, with integral trap and contoured seat.
c. Spud Location and Size: Back, NPS 1-1/2 (DN 40).

3. Flushometer Valve: <**Insert designation**>.
4. Support:

a. Standard: ASME A112.6.1M.
b. Description: Waste-fitting assembly as required to match drainage piping material and arrangement with faceplates, couplings, gaskets, and feet; bolts and hardware match fixture.[**Include additional extension coupling, faceplate, and feet for installation in wide pipe space.**]

B. Water Closets <**Insert drawing designation**>: Floor mounted, back outlet, siphon jet.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Kohler Co.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Standard: ASME A112.19.2/CSA B45.1 and ASME A112.19.5.
b. Bowl: Elongated, vitreous china, with integral trap and contoured seat.
c. Spud Location and Size: Top, NPS 1-1/2 (DN 40).

3. Flushometer Valve: <**Insert designation**>.
4. Support:

a. Standard: ASME A112.6.1M.
b. Description: Waste-fitting assembly as required to match drainage piping material and arrangement with faceplates, couplings gaskets, and feet; bolts and hardware match fixture.[**Include additional extension coupling, faceplate, and feet for installation in wide pipe space.**]

C. Water Closets <**Insert drawing designation**>: Wall mounted, back outlet, blowout.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. American Standard.
b. Kohler Co.
c. Willoughby Industries.
d. <**Insert manufacturer's name**>.

2. Fixture:

a. Standard: ASME A112.19.2/CSA B45.1 and ASME A112.19.5.
b. Bowl: Elongated, vitreous china, with integral trap and contoured seat.
c. Spud Location and Size: Back, NPS 1-1/2 (DN 40).

3. Flushometer Valve: <**Insert designation**>.
4. Support: [**Water-closet carrier**] <**Insert carrier**>.
5. Water-Closet Mounting Height: [**Standard**] [**Handicapped/elderly in accordance with ICC A117.1**].

2.4 FLUSHOMETER VALVES

A. Flushometer Valves <**Insert designation**>: [**Lever handle**] [**Push button**], diaphragm.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Delany Products.
b. Sloan Valve Company.
c. Zurn Industries, LLC.
d. <**Insert manufacturer's name**>.

2. Standard: ASSE 1037.
3. Minimum Pressure Rating: 125 psig (860 kPa).
4. Features: Integral check stops and backflow-prevention device.
5. Material: Brass body with corrosion-resistant components.
6. Exposed Flushometer-Valve Finish: Chrome plated.
7. Panel Finish: Chrome plated or stainless steel.
8. Style: [**Concealed**] [**Exposed**].
9. Consumption: [**0.5 gal. (1.9 L)**] [**1.0 gal. (3.8 L)**] [**1.5 gal. (5.7 L)**] [**1.6 gal. (6 L)**] [**3.5 gal. (13.2 L)**] per flush.
10. Minimum Inlet: NPS 1 (DN 25).
11. Minimum Outlet: NPS 1-1/4 (DN 32).

2.5 TOILET SEATS

A. Toilet Seats <**Insert drawing designation**>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. American Standard.
b. Bemis Manufacturing Company.
c. Centoco Manufacturing Corporation.
d. Church Seats; Bemis Manufacturing Company.
e. Jones Stephens Corp.
f. Kohler Co.

g. Olsonite Seat Co.
h. Sanderson Plumbing Products, Inc.
i. Sperzel of Lexington.
j. Zurn Industries, LLC.
k. <**Insert manufacturer's name**>.

2. Standard: IAPMO Z124.5.
3. Material: Plastic.

B. Type: Commercial [**standard**] [**heavy duty**].

1. Shape: Elongated rim, [**open**] [**closed**] front.
2. Hinge: Check.
3. Hinge Material: Noncorroding metal.
4. Seat Cover: [**Required**] [**Not required**].
5. Color: [**White**] [**Black**].

2.6 URINALS

A. Urinals <**Insert drawing designation**>: Back access, back outlet, single.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1700**] [**1702**] [**1705**] [**1707**] [**1709FG**] [**LR1709FG**] [**1709HEU**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Material: [**14 gauge**] [**18 gauge housing with 16 gauge bowl**] thickness, Type 304 stainless steel.
3. Finish: [**No. 4 satin finish on exposed surfaces, and matte finish on interior wetted surfaces**] [**Powder coated**] <**Insert color**>.

4. Accessories:

a. Flush valve through wall connection.
b. 12 gauge stainless steel housing.
c. Transformer: 120 V ac to 24 V ac.
d. Metal Template: Provide one per Project.

5. Mounting: Provide threaded mounting points on fixture and 1/2-inch (13-mm) threaded rod with nuts and washers to bolt through wall into accessible rear chase.
6. Urinal:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.

2) EPA WaterSense Specifications for High Efficiency Flushometer Water Closets.
3) ICC A117.1.
4) U.S. Energy Policy Act of 1992 for Water Closets.

b. Bowl:

1) Type: Washout, with [**back wall washdown**] [**continuous flush rim**].
2) Type: Blowout, with [**back wall washdown**] [**continuous flush rim**].
3) Rim Height: [**20 inches (508 mm)**, straddle configuration,] [**24 inches (610 mm)**] <**Insert value**> above finished floor.
4) Rim Height for ADA-Compliant Installation: [**17 inches (432 mm)**] <**Insert value**> above finished floor, straddle fixture configuration.

c. Inlet Connection, Washout: 3/4 NPT, male spud.
d. Inlet Connection, Blowout: 1-1/2 NPT, male spud.
e. Back Outlet: NPS 2, threaded trap.
f. Water Consumption, Washout Fixtures: [**0.125 gal. (0.5 L)**] [**0.5 gal. (1.9 L), high-efficiency**] [**1.0 gal. (3.8 L)**] [**1.5 gal. (5.7 L)**] per flush.
g. Water Consumption, Blowout Fixtures: 3.5 gal. (13.2 L) per flush.
h. Supply Pressure: 25 psig (172 kPa), minimum.
i. Drain: Provide beehive dome, welded in place.

7. Flushometer Valve: [**Mechanical**] [**Hydraulic**] [**Electronic**] type. <**Insert designation**>

a. Flushometer-Valve Accessories: [**Top supply flush valve cover**] [**Wall supply flush valve access panel**].

8. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

a. Configuration: Install wall sleeve for water-closet mounting height in accordance with ICC A117.1.

B. Urinals <**Insert drawing designation**>: Back access, back outlet, trough.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1713**] [**1714**] [**1715**] [**1716**] [**1718**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
3. Finish: [**No. 4 satin finish on exposed surfaces, and matte finish on interior wetted surfaces**] [**Powder coated finish on exposed surfaces**] <**Insert color from manufacturer's color chart**>.
4. Accessories:

a. Flush valve through wall connection.
b. 12 gauge stainless steel housing.
c. Metal Template: Provide one per Project.
d. Transformer: 120 V ac to 24 V ac.

5. Mounting: Provide threaded mounting points on fixture and 1/2-inch (13-mm) threaded rod with nuts and washers to bolt through wall into accessible rear chase.
6. Urinal:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.
2) U.S. Energy Policy Act of 1992 for Water Closets.

b. Bowl:

1) Type: Washout, with [**back wall washdown**] [**continuous flush rim**].
2) Width: [**36 inches (914 mm)**] [**48 inches (1220 mm)**] [**60 inches (1524 mm)**] [**72 inches (1829 mm)**] [**96 inches (2438 mm)**] <**Insert length**>.
3) Rim Height: [**24 inches (610 mm)**] <**Insert length**> above finished floor.
4) Rim Height for ADA-Compliant Installation: [**17-inches (432-mm)**] <**Insert value**> above finished floor.

c. Inlet Connection: NPS 3/4 (DN 19), [**top**] [**back**] spud.
d. Back Outlet: NPS 2 threaded P-trap.
e. Water Consumption, Washout Fixtures: [**1.0 gal. (3.8 L)**] [**1.5 gal. (5.7 L)**] [**3.5 gal. (13.2 L)**] per flush.
f. Water Consumption, Blowout Fixtures: 3.5 gal. (13.2 L) per flush.
g. Supply Pressure: 25 psig (172 kPa), minimum.
h. Drain: Beehive dome strainer, welded in place.
i. Flushometer Valve: [**Mechanical**] [**Hydraulic**] [**Electronic**] type. <**Insert designation**>
j. Flushometer-Valve Accessories: [**Top supply flush valve cover**] [**Wall supply flush valve access panel**].

7. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

C. Urinals <**Insert drawing designation**>: Back access, bottom outlet, stall, ADA compliant.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model 1720 <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Material: 14 gauge minimum-thickness, Type 304 stainless steel.

3. Finish: [**No. 4 satin finish on exposed surfaces, and matte finish on interior wetted surfaces**] [**Powder coated finish on exposed surfaces**] <**Insert color from manufacturer's color chart**>.
4. Accessories:

    a. Flush valve through wall connection.
    b. 12 gauge stainless steel housing.
    c. Metal Template: Provide one per Project.
    d. Transformer: 120 V ac to 24 V ac.

5. Mounting: Provide threaded mounting points on fixture and 1/2-inch (13-mm) threaded rod with nuts and washers to bolt through wall into accessible rear chase.
6. Urinal:

        1) ASME A112.19.3/CSA B45.4.
        2) ICC A117.1.
        3) U.S. Energy Policy Act of 1992 for Water Closets.

    b. Bowl:

        1) Type: Washout, with [**back wall washdown**] [**continuous flush rim**].
        2) Rim Height: Install stall trough flush with finished floor, for ADA compliance.

    c. Inlet Connection: 3/4-inch NPT male spud, [**exposed top**] [**concealed wall**] supply.
    d. Bottom Outlet Connection: NPS 2 (DN 50) for inside caulk waste.
    e. Water Consumption, Washout Fixtures: [**1.0 gal. (3.8 L)**] [**1.5 gal. (5.7 L)**] per flush.
    f. Supply Pressure: 25 psig (172 kPa), minimum.
    g. Drain: Beehive dome strainer, welded in place.

7. Flushometer Valve: [**Mechanical**] [**Hydraulic**] [**Electronic**] type. <**Insert designation**>

    a. Flushometer-Valve Accessories: [**Top supply flush valve cover**] [**Wall supply flush valve access panel**].
    b. Inlet Connection: NPS 3/4 (DN 19), [**top**] [**back**] spud.

        1) Outlet Connection: 1.5 inch (DN 39) OD, slip joint.

8. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

2.7 STAINLESS STEEL LAVATORIES

A. Lavatories <**Insert drawing designation**>: Back access.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1650**] [**1650LOB**] [**1652**] [**1652LRB**]

[**LR1652**] [**LR1653**] [**1655**] [**1656**] [**1657**] [**1659**] [**1660**] [**1661**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.
2) ICC A117.1.
3) NSF/ANSI 61, NSF/ANSI 372.

b. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
c. Finish: [**No. 4 satin**] [**Powder coated**] finish on exposed surfaces <**Insert color from manufacturer's color chart**>.
d. Receptor: Provide manufacturer's standard unit shape and configuration for each model number furnished. Provide units with integral soap depression and integral backsplash.
e. Hot- and Cold-Water and Bubbler Supply Valves:

1) Type: [**Pneumatic, nonmetering**] [**Pneumatic, metering**] [**Pneumatic, nonmetering on hot water side only**] [**Electronic**] type <**Insert designation**>, with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.[**Fixture punched for valve furnished separately.**]
2) Temperature: [**Single**] [**Separate hot and cold**] temperature.
3) Manifolded: [**Two**] [**Three**] [**Four**]-stack.

f. Valve Water Outlet:

1) Bubbler/Filler, Backsplash-Mounted: [**Penal**] [**Code**] [**Ligature-resistant-hemispherical bubbler**] [**Lavatory filler**]. Fabricate from machined, Type 303 stainless steel.
2) Deck-mounted spout.

g. Drain:

1) Integral punched fast-drain grid.
2) Ligature Resistant: Integral punched grid with concealed adapter.

h. Waste Connection: [**Elbow connection**] [**Removable P-trap**], with 1-1/2-inch (38-mm) OD plain-end, extended [**3 inches (76 mm)**] <**Insert length**> beyond back of fixture.

3. Accessories:

a. Toilet-Paper Holder: Recessed stainless steel, [**left**] [**right**] side of fixture.

b. Towel Hooks: [**One**] [**Two**] on [**each**] [**left**] [**right**] side of fixture.
c. Ventilation Grille: [**Left**] [**Right**] [**Bottom**].
d. 12 gauge cabinet.
e. Hemispherical Valve Push Button: Include with ligature-resistant models.
f. Integral shelf.
g. Lavatory overflow.
h. Toothbrush Holders: One on [**each**] [**left**] [**right**] side of backsplash.
i. Lavatory through-wall waste connection with P-trap.
j. Brass valve body.
k. Pushrod-activated valve push buttons.
l. Fixture-mounted trim.
m. Metal Template: Provide one per Project.
n. Transformer: 120 V ac to 24 V ac.
o. Cycle interrupt.
p. Lavatory oval bowl.
q. Vacuum waste system.

4. Deck-Mounted Drinking Bubbler: Provide [**penal**] [**code**] [**ligature-resistant, hemispherical**]-type. Fabricate from machined, Type 303 stainless steel.
5. Mounting: Provide threaded mounting points on fixture and 1/2-inch (13-mm) threaded rod with nuts and washers to bolt through wall into accessible rear chase.
6. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

B. Lavatories <**Insert drawing designation**>: Front access.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1650FA**] [**1650FALOB**] [**1652FA**] [**LR1652FA**] [**1652FALRB**] [**LR1653FA**] [**1655FA**] [**1656FA**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.
2) ICC A117.1.
3) NSF/ANSI 61, NSF/ANSI 372.

b. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
c. Finish: [**No. 4 satin**] [**Powder coated**] finish on exposed surfaces <**Insert color from manufacturer's color chart**>.
d. Receptor: Provide manufacturer's standard unit shape and configuration for each model number furnished. Provide units with integral backsplash, integral soap depression, and access panels secured with vandal-resistant fasteners.
e. Hot- and Cold-Water and Bubbler Supply Valves:

1) Type: [**Pneumatic, nonmetering**] [**Pneumatic, metering**] [**Electronic**] <**Insert designation**>, with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.[**Fixture punched for valve furnished separately.**]
2) Temperature: [**Single**] [**Separate hot and cold**] temperature.

f. Valve Water Outlet:

1) Bubbler/Filler Backsplash-Mounted: [**Penal**] [**Code**] [**Ligature-resistant hemispherical bubbler**] [**Lavatory filler**]. Machined Type 303 stainless steel.
2) Deck-mounted spout.

g. Drain:

1) Integral punched fast-drain grid.
2) Ligature Resistant: Integral punched grid with concealed adapter.

h. Waste: Removable 1-1/2-inch (38-mm) OD P-trap with plain-end, extended 3 inches (76 mm) <**Insert length**>beyond back of fixture.

3. Accessories:

a. Towel Hooks: [**One**] [**Two**] on [**each**] [**left**] [**right**] side of fixture.
b. 12 gauge cabinet.
c. Hemispherical Valve Push Button: Include with ligature-resistant models.
d. Integral shelf.
e. Lavatory overflow.
f. Toothbrush Holders: One on [**each**] [**left**] [**right**] side of backsplash.
g. Brass valve body.
h. Fixture-mounted trim.
i. Transformer: 120 V ac to 24 V ac.
j. Cycle interrupt.
k. Lavatory oval bowl.
l. Vacuum waste system.

4. Deck-Mounted Drinking Bubbler: Provide [**penal**] [**code**] [**ligature-resistant, hemispherical**]-type. Fabricate from machined, Type 303 stainless steel.
5. Mounting: Provide slotted mounting points on fixture for 1/2-inch (13-mm) hardware to anchor cabinet to wall from fixture side.
6. Wall Sleeve: Galvanized-steel frame with integral threaded anchors to allow for mounting fixture from front. Include steel reinforcing bars.

2.8 VITREOUS-CHINA LAVATORIES

A. Lavatories <**Insert drawing designation**>: Wall mounted.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. American Standard.
b. Crane Plumbing, L.L.C.
c. Kohler Co.
d. <**Insert manufacturer's name**>.

2. Fixture:

a. Standard: ASME A112.19.2/CSA B45.1.
b. Material: Vitreous china.
c. Receptor: Oval or rectangular bowl with integral soap depression and wall bracket.
d. Hot- and Cold-Water Supply Valves: Factory-installed, with push-button, self-closing, chrome-plated brass faucets complying with ASME A112.18.1/CSA B125.1.
e. Drain: Grid with 1-1/2-inch (40-mm) OD plain end tailpiece.

3. Waste Fittings: 1-1/4-inch (32-mm) OD minimum waste and trap complying with ASME A112.18.2/CSA B125.2.
4. Support: [**Type III lavatory carrier**] <**Insert carrier**>.
5. Lavatory Mounting Height: [**Standard**] [**Handicapped/elderly in accordance with ICC A117.1**].

2.9 DRINKING FOUNTAINS

A. Drinking Fountains, Rear Access <**Insert drawing designation**>:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1670**] [**1672**] [**LR1670**] [**LR1672**] [**LR1673**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.
2) ICC A117.1.
3) NSF/ANSI 61, NSF/ANSI 372.

b. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
c. Finish: [**No. 4 satin**] [**Powder coated**] finish on exposed surfaces <**Insert color from manufacturer's color chart**>.
d. Receptor: Provide manufacturer's standard unit shape and configuration for each model number furnished.
e. Provide units with integral backsplash.
f. Drinking Fountain Water Supply Valve:

1) Type: [**Pneumatic, nonmetering**] [**Pneumatic, metering**] [**Electronic**] <**Insert designation**>, with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.[**Fixture punched for valve furnished separately.**]
2) Temperature: Single temperature.
3) Manifolded: [**Two**] [**Three**] [**Four**]-stack.

g. Deck-Mounted Drinking Bubbler: Provide [**penal**] [**code**] [**ligature-resistant, hemispherical**]-type. Fabricate from machined, Type 303 stainless steel.

h. Drain:

1) Integral punched fast-drain grid.
2) Ligature Resistant: Integral punched grid with concealed adapter.

i. Waste: [**Elbow connection**] [**Removable P-trap**], with 1-1/2-inch (38-mm) OD plain-end, extended [**3 inches (76 mm)**] <**Insert length**> beyond back of fixture.

3. Accessories:

a. 12 gauge cabinet.
b. Hemispherical Valve Push Button: Include with ligature-resistant models.
c. Brass valve body.
d. Fixture-mounted trim.
e. Metal Template: Provide one per Project.
f. Transformer: 120 V ac to 24 V ac.
g. Cycle interrupt.
h. Vacuum waste system.

4. Mounting: Provide threaded mounting points on fixture for 1/2-inch (13-mm) threaded rod with nuts and washers to bolt through wall into accessible rear chase.
5. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

B. Drinking Fountains Rear Access <**Insert drawing designation**>:.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Secur-Care Model LR1671 drinking fountain with bottle filler <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.

2) NSF/ANSI 61, NSF/ANSI 372.

b. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
c. Finish: [**No. 4 satin**] [**Powder coated**] finish on exposed surfaces <**Insert color from manufacturer's color chart**>.
d. Receptor: Sloped rectangular basin to facilitate drainage.
e. Water Supply Valve for Drinking Fountain and Bottle Filler:

1) Type: Manifolded pneumatic, nonmetering, with hemispherical push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.
2) Temperature: Single temperature.

f. Deck-Mounted Drinking Bubbler: Provide Ligature-resistant, hemispherical type. Fabricate from machined, Type 303 stainless steel.
g. Bottle Filler Spout: Provide ligature-resistant, hemispherical type. Fabricate from machined, Type 303 stainless steel.
h. Drain: Ligature-resistant, integral punched with concealed adapter.
i. Waste: [**Elbow connection**] [**Removable P-trap**], with 1-1/2-inch (38-mm) OD outlet connection.

3. Accessories:

a. 12 gauge cabinet.
b. Brass valve body.
c. Metal Template: Provide one per Project.
d. Vacuum waste system.

4. Mounting: Provide threaded mounting points on fixture for 1/2-inch (13-mm) threaded rod with nuts and washers to bolt through wall into accessible rear chase.
5. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

C. Drinking Fountains, Front Access <**Insert drawing designation**>:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1670FA**] [**1672FA**] [**LR1672FA**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.
2) ICC A117.1.
3) NSF/ANSI 61, NSF/ANSI 372.

b. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
c. Finish: [**No. 4 satin**] [**Powder coated**] finish on exposed surfaces <**Insert color from manufacturer's color chart**>.
d. Receptor: Provide manufacturer's standard unit shape and configuration for each model number furnished. Provide units with integral soap depression and backsplash.
e. Drinking Fountain Water Supply Valve:

1) Type: [**Pneumatic, nonmetering**] [**Pneumatic, metering**] [**Electronic**] <**Insert designation**>, with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.[**Fixture punched for valve furnished separately.**]
2) Temperature: Single temperature.

f. Deck-Mounted Bubbler: [**Penal**] [**Code**] [**Ligature-resistant hemispherical**]-type. Machined Type 303 stainless steel.

g. Drain:

1) Integral punched fast-drain grid.
2) Ligature Resistant: Integral punched grid with concealed adapter.

h. Waste: Removable 1-1/2-inch (38-mm) OD P-trap with plain-end, extended 3 inches (76 mm) <**Insert length**>beyond back of fixture.

3. Accessories:

a. 12 gauge cabinet.
b. Hemispherical Valve Push Button: Include with ligature-resistant models.
c. Brass valve body.
d. Fixture-mounted trim.
e. Metal Template: Provide one per Project.
f. Transformer: 120 V ac to 24 V ac.
g. Cycle interrupt.
h. Vacuum waste system.

4. Mounting: Provide slotted mounting points on fixture for 1/2-inch (13-mm) hardware to anchor cabinet to wall from fixture side.

5. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from front. Include steel reinforcing bars.

2.10 SHOWERS

A. Showers <**Insert drawing designation**>: Back access, recessed.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1741**] [**1741ADA**] [**1743**] [**LR1741**]

[**LR1741ADA**] [**LR1748**] [**LR1748ADA**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.
2) EPA WaterSense Specifications for Showerheads.
3) ICC A117.1.
4) NSF/ANSI 61, NSF/ANSI 372.

b. Material: 14 gauge minimum thickness, Type 304 stainless steel.
c. Finish: No. 4 satin finish on exposed surfaces.
d. Type and Configuration: Wall mounted, back access, recessed.
e. ADA compliant.
f. Ligature resistant.
g. Control Valve:

1) Type: [**Pneumatic, metering, adjustable from 5 to 60 seconds**] [**Electronic**] <**Insert designation**>, with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.
2) ASSE 1016-compliant hot and cold temperature and pressure balancing mixing valve with ligature-resistant handle.
3) ASSE 1016-compliant hot and cold temperature and pressure balancing mixing valve with ligature-resistant handle and single temperature metering valve with push button.
4) Fixture punched for valve furnished separately.
5) Temperature: [**Single**] [**Separate hot and cold**] temperature.
6) Manifolded: Two-stack.

h. Shower Head: [**1.6 gpm (6.1 Lpm)**] [**2.0 gpm (7.6 Lpm)**].

1) Shower Head: Non-adjustable penal shower head.
2) Shower Head, Ligature-Resistant: Ligature-resistant conical shower head.
3) Adjustable penal shower head with lockable universal ball joint.
4) Adjustable penal shower head with lockable up-down ball joint.
5) Non-adjustable space saver penal shower head with 20-degree discharge.

i. ADA Model Shower Head: [**1.6 gpm (6.1 Lpm)**] [**2.0 gpm (7.6 Lpm)**].

1) Handheld shower head with 60-inch (1524-mm) hose.
2) Fixed shower head at 48 inches (1219 mm) above finished floor, in lieu of handheld shower.

j. Soap Dish: [**Recessed**] [**Surface-mounted**] stainless steel.

3. Accessories:

   a. Brass valve body.
   b. Hemispherical Valve Push Button: Include with ligature-resistant models.
   c. Transformer: 120 V ac to 24 V ac.
   d. Cycle interrupt.

4. Mounting: Provide threaded mounting points on fixture and 1/4-inch (6-mm) threaded rod with nuts and washers to bolt through wall into accessible service space.
5. Wall Sleeve: Galvanized-steel frame of dimensions required to match fixture. Include steel reinforcing bars.

B. Showers <**Insert drawing designation**>: Front access, recessed.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Model [**1741FA**] [**1741ADAFA**] [**LR1748FA**] <**Insert product name or designation**> or comparable product by one of the following:

   a. Metcraft Industries, Inc.
   b. Willoughby Industries.
   c. <**Insert manufacturer's name**>.

2. Fixture:

   a. Applicable Standards:

      1) ASME A112.19.3/CSA B45.4.
      2) EPA WaterSense Specification for Showerheads.
      3) ICC A117.1.
      4) NSF/ANSI 61, NSF/ANSI 372.

   b. Material: 14 gauge minimum thickness, Type 304 stainless steel.
   c. Finish: No. 4 satin finish on exposed surfaces, and matte finish on interior wetted surfaces.
   d. Type and Configuration: Wall-mounted, front access, recessed.
   e. ADA compliant.
   f. Control Valve:

      1) Type: [**Pneumatic, metering, adjustable from 5 to 60 seconds**] [**Electronic**] <**Insert designation**>, with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.
      2) ASSE 1016-compliant hot and cold temperature and pressure balancing mixing valve with ligature-resistant handle.
      3) ASSE 1016-compliant hot and cold temperature and pressure balancing mixing valve with ligature-resistant handle and single temperature metering valve with push button.
      4) Fixture punched for valve furnished separately.
      5) Temperature: [**Single**] [**Separate hot and cold**] temperature.

   g. Shower Head: [**1.6 gpm (6.1 Lpm)**] [**2.0 gpm (7.6 Lpm)**]

1) Shower Head: Non-adjustable penal shower head.
2) Shower Head, Ligature-Resistant: Ligature-resistant conical shower head.
3) Adjustable penal shower head with lockable universal ball joint.
4) Adjustable penal shower head with lockable up-down ball joint.
5) Non-adjustable space saver penal shower head with 20-degree discharge.

h. Shower Head, ADA-Compliant: [**1.6 gpm (6.1 Lpm)**] [**2.0 gpm (7.6 Lpm)**].

1) Handheld shower head with 60-inch (1524-mm) hose.
2) Fixed shower head at 48 inches (1219 mm) above finished floor, in lieu of handheld shower.

i. Soap Dish: [**Recessed**] [**Surface-mounted**] stainless steel.

3. Accessories:

a. Brass valve body.
b. Hemispherical Valve Push Button: Include with ligature-resistant models.
c. Transformer: 120 V ac to 24 V ac.
d. Cycle interrupt.

4. Mounting: Provide vandal-resistant fasteners to attach housing panel to recessed mounting frame.
5. Access to Internal Components: Provide removable housing panel with vandal-resistant fasteners.

C. Showers <**Insert drawing designation**>: Back access, accessible, cabinet.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International Model 1736ADA-A <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.
2) EPA WaterSense Specification for Showerheads.
3) ICC A117.1.
4) NSF/ANSI 61, NSF/ANSI 372.

b. Construction:

1) [**Unitized, all-welded**] [**Knock-down**] for accessible chase.
2) Provide shower floor with stainless steel reinforcement.
3) Provide mounting brackets at top for securing cabinet to back wall.

4) Provide vandal-resistant valve and shower head access panel.
5) Provide auto-release towel hook and stainless steel recessed soap dish.

c. Threshold: 2 inches (51 mm) high.

1) For ADA-compliant applications, recess threshold in floor or provide ramped floor that complies with ICC A117.1.

Retain 16) material thickness for basis-of-design product manufacturer's standard product. Retain 14 gauge () material thickness when required.

d. Material: Minimum [**0.063-inch (1.6-mm)**] [**0.078-inch (2.0-mm)**]-thick stainless steel; corrosion-resistant metal for internal piping and bracing.
e. Finish: [**No. 4 satin**] [**Powder coated**] finish on exposed surfaces <**Insert color from manufacturer's color chart**>.

1) Provide nonslip finish on shower floor.
2) Polished Exterior Walls: [**Back**] [**Left side**] [**Right side**].

f. Type and Configuration: Cabinet 36 by 36 inches (915 by 915 mm), inside dimensions, with outward-facing 3-3/4-inch (95-mm) support columns.
g. Shower Control Location: [**Left**] [**Right**], opposite seat.
h. Shower Seat: [**Fixed**] [**Folding-seat**], stainless steel.
i. Horizontal Grab Bar: Two-wall grab bar[**with closure plate**].
j. Vertical Grab Bar: Manufacturer's standard materials and dimensions.
k. Valve Inlet: [**Single, tempered**] [**Separate hot- and cold**]-water supply valves[, **furnished separately**].
l. Control Valve:

1) Type: [**Pneumatic, metering, adjustable from 5 to 60 seconds**] [**Electronic**] <**Insert designation**>, with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.
2) ASSE 1016-compliant hot and cold temperature and pressure balancing mixing valve with ligature-resistant handle.
3) ASSE 1016-compliant hot and cold temperature and pressure balancing mixing valve with ligature-resistant handle and single temperature metering valve with push button.
4) Fixture punched for valve furnished separately.

m. Push Buttons and Escutcheons: Machined Type 303 stainless steel.
n. Upper Shower Head, ADA Compliant: [**1.6 gpm (6.1 Lpm)**] [**2.0 gpm (7.6 Lpm)**]. Mount at 72 inches (1829 mm) above finished floor.

1) Shower Head: Non-adjustable penal shower head.
2) Shower Head, Ligature Resistant: Ligature-resistant conical shower head.
3) Adjustable penal shower head with lockable universal ball joint.
4) Adjustable penal shower head with lockable up-down ball joint.

o. Accessible Shower Head:

1) Handheld shower head with 60-inch (1524-mm)-long, stainless steel hose, vacuum breaker, and quick-disconnect.
2) Fixed showerhead at 48 inches (1219 mm) above finished floor.

p. Soap Dish: [**Recessed**] [**Surface-mounted**] stainless steel.
q. Ventilation Grille: 8.5 by 8.5 inches (216 by 216 mm), with minimum 20 sq. in. (129 sq. cm) free area.
r. Modesty Door: Hinged [**left**] [**right**].
s. Drain: Grid with NPS 2 (DN 50) outlet.

3. Waste Fittings: NPS 2 (DN 50) inside caulk drain for floor connection.
4. Accessories:

a. Threshold anchors.
b. Brass valve body.
c. Hemispherical valve push button.
d. Transformer: 120 V ac to 24 V ac.
e. Sloping top closure.
f. Horizontal Closure Panel: Provide [**with shower unit**] [**separately for field-installation**].
g. Vertical Closure Panel: Provide [**with shower unit**] [**separately for field-installation**].

5. Mounting: Provide mounting brackets at top-rear of cabinet to secure unit to wall from fixture side.
6. Wall Sleeve: Galvanized-steel frame of dimensions required to match fixture supply connections and ventilation grille. Include steel reinforcing bars.

D. Showers <**Insert drawing designation**>: Back access, cabinet.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International Model [**1730**] [**1730FA**] [**1732**] [**1732FA**] [**1736**] [**1736FA**] [**LR1730**] [**LR1732**] [**LR1736**]; <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Applicable Standards:

1) ASME A112.19.3/CSA B45.4.
2) NSF/ANSI 61, NSF/ANSI 372.

b. Construction:

1) [**Unitized, all-welded**] [**Knock-down**] for accessible chase.

2) [**Unitized, all-welded**] [**Knock-down**] for front access, with vandal-resistant access openings for shower head and valve controls.
3) Provide shower floor with stainless steel reinforcement.
4) Provide auto-release towel hook and stainless steel recessed soap dish.

c. Threshold: 9 inches (229 mm) high.

Retain 16) material thickness for basis-of-design product manufacturer's standard product. Retain 14 gauge () material thickness when required.

d. Material: Minimum [**0.063-inch (1.6-mm)**] [**0.078-inch (2.0-mm)**]-thick stainless steel; corrosion-resistant metal for internal piping and bracing.
e. Finish: [**No. 4 satin**] [**Powder coated**] finish on exposed surfaces <**Insert color from manufacturer's color chart**>.

1) Provide non-slip finish on shower floor.
2) Polished Exterior Walls: [**Back**] [**Left side**] [**Right side**].

f. Type and Configuration: Cabinet [**30 by 30 inches (760 by 760 mm)**] [**32 by 32 inches (815 by 815 mm)**] [**36 by 36 inches (915 by 915 mm)**], inside dimensions.
g. Chase Wall Outlet: [**Back**] [**Left side**] [**Right side**].
h. Shower Head Location: [**Left**] [**Right**] column.
i. Valve Inlet: [**Single, tempered**] [**Separate hot and cold**]-water supply valves, [**Furnished separately**].
j. Control Valve:

1) Type: [**Pneumatic, metering, adjustable from 5 to 60 seconds**] [**Electronic**] <**Insert designation**>, with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.
2) ASSE 1016-compliant hot and cold temperature and pressure balancing mixing valve with ligature-resistant handle.
3) ASSE 1016-compliant hot and cold temperature and pressure balancing mixing valve with ligature-resistant handle and single temperature metering valve with push button.
4) Fixture punched for valve furnished separately.
5) Manifolded: Two-stack.

k. Push Buttons and Escutcheons: Machined Type 303 stainless steel.
l. Shower Head: [**1.6 gpm (6.1 Lpm)**] [**2.0 gpm (7.6 Lpm)**]. Mount at 72 inches (1829 mm) above finished floor.

1) Shower Head: Non-adjustable penal shower head.
2) Shower Head, Ligature Resistant: Ligature-resistant conical shower head.
3) Adjustable penal shower head with lockable universal ball joint.

m. Soap Dish: [**Recessed**] [**Surface-mounted**] stainless steel.
n. Ventilation Grille: 8.5 by 8.5 inches (216 x 216-mm), with minimum 20 sq. in. (129 sq. cm) free area.
o. Towel Hook: Release-type, stainless steel.

p. Modesty Door: Hinged [**left**] [**right**].
q. Drain: [**Removable**]Grid strainer with NPS 2 (DN 50) outlet.

3. Waste Fittings: NPS 2 (DN 50) [**elbow waste**] [**P-trap waste extended 3 inches (76 mm) beyond fixture**] [**inside caulk drain for floor connection**].
4. Accessories:

a. Threshold anchors.
b. Shower drying receptor.
c. Brass valve body.
d. Through-wall waste connection with P-trap and cleanout.
e. Metal Template: Provide one per Project.
f. Hemispherical valve push button.
g. Transformer: 120 V ac to 24 V ac.
h. Sloping Top Closure: [**Yes**] [**None**].
i. Horizontal Closure Panel: Provide [**with shower unit**] [**separately for field-installation**].
j. Vertical Closure Panel: Provide [**with shower unit**] [**separately for field-installation**].

5. Mounting:

a. Chase Access: Provide mounting through wall into accessible service space.
b. Front Access: Provide threshold anchors.

6. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

2.11 ELECTRONIC CONTROLS

A. Electronic Controls <**Insert drawing designation**>: Electronic networked water management system.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Master-Trol PLUS (MTP) or comparable product by one of the following:

a. Sloan Valve Company.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Water Management System:

a. Manufacturer to:

1) Provide wiring diagrams that are used to create Floor Plan View(s) [**and**] [**or**] Tree View (Directory Tree Style Format for system computer navigation), and assist Installer with controller locations and valve connections.

2) Install water management system software on Owner's PC-based computer. Configure and test software prior to installation to provide control and monitoring of each valve connected to RS-485 networked control system.

b. Installer to:

1) Furnish manufacturer with list of fixture designations and quantities connected to the Water Management System.
2) Furnish manufacturer with scaled floor plans showing fixture locations and designations.

c. Software to:

1) Provide capability to communicate with multiple Water Management System computers that are connected to the same LAN. This connection will allow the system computer to monitor and control valves connected to other system computers on the LAN.
2) Display facility in directory-tree-style interface view of defined sections of the facility, which may be navigated through series of subdirectories down to individual room and control valve level.
3) Provide labeled fixture and room/area identification of locations and valve types connected to facility water management system.
4) Display current settings and status of each valve connected to the system.
5) Provide ability to program and control individual or groups of valves.
6) Provide ability to program runtimes up to one hour using minute, second, and 0.1 second increments on each valve.
7) Provide ability to program lockouts up to 24 hours using hour and minute increments on each valve.
8) Provide ability to enable, disable, and remote-activate each individual valve from system computer.
9) Provide ability to enable, disable, program runtimes and lockouts, and set valve modes to groups of valves, from system computer.
10) Provide ability to program and control manufacturer-provided Infrared Sensors.
11) Provide ability to set "24-hour limits," "Days of the Week," and "Windows of Operation" to limit daily activations and valve availability per time of day and day of the week on individual or groups of valves, from the system computer.
12) Provide ability to set "Auto Cycle" feature to automatically activate individual or groups of valves at specified time of day, from the system computer.
13) Provide ability to display controller network information, including Versa-Link, controller address, and valve station number for each valve connected to the system computer.
14) Provide ability to set visual and audio alarms for specified statuses to alert personnel.
15) Provide Alert Panel that highlights presence of valves with critical status, including disabled valves, valves in "Valve Override" condition, and valves that have lost network communications.

16) Provide ability to create configurable user-level passwords for individuals or groups that can limit access to features and locations on the system computer.
17) Provide password tracking to log all changes on the system computer by password.

d. Provide controls that are compatible with specified vacuum plumbing systems.

1) Provide ability to display vacuum pressure readings from vacuum sensors connected to the electronic controller(s).
2) Provide ability to automatically disable valves based on vacuum readings from vacuum sensors connected to the electronic controller(s), to prevent overdepletion of the vacuum resource.
3) Valves to automatically enable when the vacuum source reaches acceptable levels.
4) Provide BMS interface software and interface hardware with water management system computer.
5) Display a defined top-level floor plan view of the facility and sections.

a) Display fixtures with graphical icons that change appearance in accordance with the current status of the valve(s) as reported by the system.
b) Provide label identification for locations and valve types connected to the system, in the facility.
c) Provide the ability to magnify locations and fixture icons for easier identification.

e. Provide PC-based water management system computer running Windows 10 or newer operating system.

1) Provide RS-485 network communications between system computer and microprocessor controllers, to monitor valve status, activations, log data, and remote operations and programming.

2) PC to serve as operator interface serving up to eight multi-drop communication cables (Versa-Links) of networked microprocessor controllers.

3) PC system computer to display all fixtures and indicate their operation and state.

4) Provide PC to meet or exceed the following minimum requirements:

a) Monitor: 17 inch (432 mm) or larger with resolution of 1024 by 768 pixels minimum.
b) Touchscreen Monitor.
c) RAM: 4 GB, minimum.
d) Hard Drive: 80 GB, minimum.
e) Keyboard.
f) Mouse.

5) Provide Asynchronous Serial Adapter capable of communication with up to eight Versa-Links for network communication with up to 256 microprocessor controllers, each controlling up to 12 valves, totaling 3072 valves.
6) Versa-Link Length: 4000 ft. (1219 m), maximum.
7) Install water management system software on system computer.
8) Configure and test prior to installation to provide control and monitoring of each valve connected to the RS-485 networked control system.
9) Provide BMS interface adapter and software.

f. Microprocessor Controllers:

1) Provide controllers for installation in plumbing chase or other areas isolated from typical inmate access.
2) Install controllers in accordance with manufacturer's installation instructions. Deviations from the manufacturer's installation instructions to be approved in writing by the manufacturer.
3) Provide controllers able to control operation of manufacturer-supplied 24 Vac electronic solenoid valve, with ability to be programmed and controlled onsite using water management system computer.
4) Provide controllers with modular design that allow for a four-port, eight-port, or 12-port configuration by combining main module and up to two sub-modules. Any combination of main and sub-modules to be recognized as one controller by computer system.
5) Controllers to use single I/O cable to connect valve assembly to its corresponding controller.
6) Provide controllers with IP54-certified rated enclosures to protect against water and dust intrusion.
7) Controllers to retain all programmed settings after event in which power is removed or lost. When power is restored, fixtures to operate in same manner as prior to power loss.
8) Controllers to operate on 24 Vac. Provide 120/24 Vac, UL Class 2 transformer with each controller supplied.
9) Provide controllers with internal power switch.
10) Provide controllers with replaceable internal fuse to protect electronics.
11) Each controller to include power and status LEDs to indicate presence of incoming power and valve status.
12) Each controller to have integrated real-time clock for scheduling and allocation reset features.
13) Controllers to be programmed by [**manufacturer**] [**or**] [**Installer**] to Owner's requirements for each valve connected to water management system.
    a) Owner will furnish programming requirements to manufacturer.
14) Manual valve activation to initiate from vandal-resistant [**pneumatic**] [**or**] [**stainless steel piezo electric**] push buttons.
    a) Push buttons to require less than 5 lbf (22.2 N) to activate.

b) Push buttons to include "non-hold open" function to prevent continuous activation or cycling when push button is continuously pressed.
c) Infrared Sensors to have an adjustable range up to 23.6 inches (600 mm).

g. Handheld Programmer: Provide for direct programming at controller.
h. Provide electronic lavatory valves that continue to provide cold drinking water when power to the system is lost. Conversion to non-electric operation to be automatic. Electronic operation to automatically resume when power is restored.
i. Site Visit: Furnish services of manufacturer-trained technician to inspect the installation, install the system computer, verify communication to each controller connected to the system, program Owner-required settings, and train staff how to use the system.

B. Electronic Controls <**Insert drawing designation**>: Electronic Standalone Water Management System.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Master-Trol PLUS (MTP) or comparable product by one of the following:

a. Sloan Valve Company.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Microprocessor Controllers:

a. Provide controllers for installation in plumbing chase or other areas isolated from typical inmate access.
b. Install controllers in accordance with manufacturer's installation instructions. Any deviations from manufacturer's specifications must be approved in writing by manufacturer.
c. Provide controllers able to control operation of manufacturer-supplied 24 Vac electronic solenoid valve connected to the controller.
d. Provide controllers with a modular design that allows for a four-port, eight-port, or 12-port configuration by combining a main module and up to two sub-modules. Any combination of main and sub-modules will be recognized as one controller to the computer system.
e. Controllers to use single I/O cable to connect valve assembly to its corresponding controller.
f. Provide controllers with IP54 Certified rated enclosures to protect against water and dust intrusion.
g. Controllers to retain all programmed settings after event in which power is removed or lost. When power is restored, fixtures to operate in same manner as prior to power loss.
h. Controllers to operate on 24 Vac. Provide 120/24 Vac, UL Class 2 transformer with each controller supplied.
i. Provide controllers with an internal power switch.
j. Provide controllers with a replaceable internal fuse to protect the electronics.

k. Each controller to include power and status LEDs to indicate presence of incoming power and valve status.
l. Each controller to have an integrated real-time clock for scheduling and allocation reset features.
m. Controllers to be programmed by [**manufacturer**] [**or**] [**Installer**] to Owner's requirements for each valve connected to water management system.

1) Acquire the programming requirement from Owner and furnish to manufacturer.

n. Manual valve activation to initiate from vandal-resistant [**pneumatic**] [**or**] [**stainless steel piezo electric**] push buttons.

1) Push buttons to require less than 5 lbf (22.2 N) to activate.
2) Push buttons to include "non-hold open" function to prevent continuous activation or cycling when push button is continuously pressed.
3) Infrared Sensors to have adjustable range up to 23.6 inches (600 mm).

o. Handheld Programmer to be provided for direct programming at controller.

p. Furnish electronic lavatory valves that continue to provide cold drinking water when power to the system is lost. Conversion to non-electric operation will be automatic. Electronic operation will automatically resume when power is restored.

C. Electronic Controls <**Insert drawing designation**>: Computer-based networked water management system.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Master-Trol (EVS) or comparable product by one of the following:

a. Sloan Valve Company.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Description:

a. Water Management System:

1) Prepare manufacturer-designed wiring diagrams used to create Tree View (Directory Tree Style Format for system computer navigation), and assist Installer with controller locations and valve connections.

a) Furnish manufacturer with list of fixture designations and fixture quantities connected to water management system.
b) Furnish manufacturer with scaled floor plans showing fixture locations and designations.

2) Provide basis-of-design product manufacturer-furnished PC-based [**laptop**] [**desktop**] computer with preinstalled water management system software. Configure and test software prior to installation to provide control and monitoring of each valve connected to RS-485 networked control system.

3) Software to:

a) Display facility in directory-tree-style interface view of defined sections of the facility, which may be navigated through series of subdirectories down to individual room and control valve level.
b) Provide labeled fixture and room/area identification of locations and valve types connected to facility water management system.
c) Display current settings and status of each valve connected to system.
d) Provide ability to program and control individual or groups of valves.
e) Provide ability to program runtimes up to one hour using minute, second, and 0.1 second increments on each valve.
f) Provide ability to program lockouts up to one hour using minute and second increments on each valve.
g) Provide ability to enable, disable, and remote-activate each individual valve from system computer.
h) Provide ability to enable, disable, program runtimes and lockouts, and set valve modes to groups of valves, from system computer.
i) Provide ability to set "24-hour limits" and "Windows of Operation" to limit daily activations and valve availability within 24-hour period on individual or groups of valves, from system computer.
j) Provide ability to set "Auto Cycle" feature to automatically activate individual or groups of valves at specified time of day, from the system computer.
k) Provide ability to display controller network information, including Versa-Link controller address, and valve station number for each valve connected to the system computer.
l) Provide Alert Panel that highlights presence of valves with critical status, including disabled valves, valves in "Valve Override" condition, and valves that have lost network communications.
m) Provide ability to create configurable user-level passwords for individuals or groups that can limit access to features and locations on the system computer.
n) Provide password tracking to log all changes on system computer by password.
o) Provide BMS interface software, and interface hardware on water management system computer.

b. Water management system to be PC-based system computer running Windows 10 or newer operating system. Provide RS-485 network communications between system computer and microprocessor controllers, to monitor valve status, activations, log data, and remote operations and programming. PC to serve as operator interface serving up to eight multi-drop communication cables (Versa-Links) of networked microprocessor controllers. PC system computer to display all fixtures and indicate their operation and state.

c. Provide PC equipped with:

1) Monitor: 17 inch (432 mm) or larger, with resolution of 1024 by 768 pixels, minimum.
2) Touchscreen monitor.
3) RAM: 4 GB minimum.
4) Hard Drive: 80 GB minimum.
5) Keyboard, 101-key.
6) Mouse.
7) Provide Asynchronous Serial Adapter capable of communication with up to eight Versa-Links for network communication with up to 256 microprocessor controllers, each controlling up to 12 valves, totaling 3072 valves.
8) Versa-Link Length: Maximum 4000 ft. (1219 m).
9) Water Management Software installed on system computer. Configured and tested prior to installation to provide control and monitoring of all valves connected to the RS-485 networked control system.
10) Provide BMS interface adapter and software.

d. Microprocessor Controllers:

1) Provide controllers for installation in plumbing chase or other areas isolated from typical inmate access.
2) Install controllers in accordance with manufacturer's installation instructions. Any deviations from manufacturer's specifications must be approved in writing by manufacturer.
3) Provide controllers able to control operation of manufacturer-supplied 24 Vac electronic solenoid valve, with ability to be programmed and controlled onsite using water management system computer.
4) Each controller to be capable of controlling up to 12 solenoid valves.
5) Controllers to use single I/O cable to connect valve assembly to its corresponding controller.
6) Controllers to retain all programmed settings after event in which power is removed or lost. When power is restored, fixtures to operate in same manner as prior to power loss.
7) Controllers to operate on 24 Vac. Provide 120/24 Vac, UL Class 2 transformer with each controller supplied.
8) Each controller to include power and status LEDs to indicate presence of incoming power and valve status.
9) Each controller to have integrated real-time clock for scheduling and allocation reset features.
10) Controllers to be programmed by [**manufacturer**] [**or**] [**Installer**] to Owner's requirements for each valve connected to water management system.

a) Acquire programming requirements from Owner and furnish to manufacturer.

11) Manual valve activation to initiate from vandal-resistant [**pneumatic**] [**or**] [**stainless steel piezo electric**] push buttons.

a) Push buttons to require less than 5 lbf (22.2 N) to activate.
b) Push buttons to include "non-hold open" function to prevent continuous activation or cycling when push button is continuously pressed.

e. Handheld Programmer: Provide for direct programming at controller.
f. Site Visit: Furnish services of manufacturer-trained technician to inspect the installation, install the system computer, verify communication to each controller connected to the system, program Owner required settings, and train staff how to use the system.

D. Electronic Controls <**Insert drawing designation**>: Preprogrammed electronic standalone water management system.

Retain "Basis-of-Design Product" Subparagraph and list of manufacturers below to require a specific product or comparable product from manufacturers listed.

NOTE: This specification is for "Master-Trol (EVS) System." If Project requires "Master-Trol PLUS (MTP)" system, please use specification for that system.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; Master-Trol (EVS) or comparable product by one of the following:

a. Sloan Valve Company.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Description:

a. Microprocessor Controllers:

1) Provide controllers for installation in plumbing chase or other areas isolated from typical inmate access.
2) Install controllers in accordance with manufacturer's installation instructions. Any deviations from manufacturer's specifications must be approved in writing by manufacturer.
3) Provide controllers able to control operation of manufacturer-supplied 24 Vac electronic solenoid valve connected to the controller.
4) Each controller to be capable of controlling up to 12 solenoid valves.
5) Controllers to use single I/O cable to connect valve assembly to its corresponding controller.
6) Controllers to retain all programmed settings after event in which power is removed or lost. When power is restored, fixtures to operate in same manner as prior to power loss.
7) Controllers to operate on 24 Vac. Provide 120/24 Vac, UL Class 2 transformer with each controller supplied.
8) Each controller to include power and status LEDs to indicate presence of incoming power and valve status.

9) Each controller to have integrated real-time clock for scheduling and allocation reset features.
10) Controllers to be programmed by manufacturer to Owner's requirements for each valve connected to controller.

a) Acquire programming requirements from Owner and furnish to manufacturer.
b) Program controllers prior to shipment to Project site.

11) Manual valve activation to initiate from vandal-resistant [**pneumatic**] [**or**] [**stainless steel piezo electric**] push buttons.

a) Push buttons to require less than 5 lbf (22.2 N) to activate.
b) Push buttons to include "non-hold open" function to prevent continuous activation or cycling when push button is continuously pressed.

b. Handheld Programmer: Provide for direct programming at controller.

2.12 SERVICE SINKS

A. Service Sinks <**Insert drawing designation**>: Back access, [**off**] [**on**] floor.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; [**1640**] [**1642**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Standard: ASME A112.19.3/CSA B45.4.
b. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
c. Finish: No. 4 satin finish on exposed surfaces.
d. Receptor: Rectangular, with high backsplash.
e. Cabinet:

1) Mounting: [**Off**] [**On**]-floor.
2) Size: [**21 by 19 inches (533 by 483 mm)**] [**24 by 19 inches (610 by 483 mm)**] <**Insert dimensions**>.
3) Sink Depth: 10 inches (254 mm).

f. Service Sink Water Supply Valve:

1) Type: [**Pneumatic, nonmetering**] [**Pneumatic, metering**] [**Pneumatic, metering, hot water side only**] [**Electronic**] <**Insert designation**>, with

push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.

2) Fixture punched for valve furnished separately.
3) Temperature: [**Single**] [**Separate hot and cold**] temperature.
4) Manifolded: Two-stack.
5) Flow Rate: 2.5 gpm (9.5 Lpm).

g. Valve Water Outlet: [**Spout with plain end**] [**Spout with hose end**] [**Hose end with vacuum breaker**].
h. Push Buttons and Escutcheons: Machined Type 303 stainless steel.
i. Drain: Integral grid strainer-type.
j. Waste: NPS 2 (DN 50) [**elbow**] [**integral P-trap**] waste, extended 3 inches (76 mm) <**Insert length**> beyond fixture. Comply with ASME A112.18.2/CSA B125.2.

3. Accessories:

a. Brass valve body.
b. Hemispherical valve push button.
c. Pushrod-activated valve push buttons.
d. Soap dish.
e. Fixture-mounted trim.
f. Integral shelf.
g. 12 gauge cabinet.
h. Towel Hook: One on [**each**] [**left**] [**right**] side of fixture.
i. Ventilation Grille: [**Left**] [**Right**] [**Bottom**].
j. Through-wall waste connection with P-trap.
k. Metal Template: Provide one per Project.
l. Transformer: 120 V ac to 24 V ac.
m. Cycle interrupt.
n. Vacuum waste system.

4. Mounting: Provide threaded mounting points on fixture and 1/2-inch (13-mm) threaded rod with nuts and washers to bolt through wall into accessible service space.
5. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars. Include steel reinforcing bars.

B. Service Sinks <**Insert drawing designation**>: Front access, [**off**] [**on**] floor.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; [**1640FA**] [**1642FA**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Standard: ASME A112.19.3/CSA B45.4.

b. Material: 14 gauge minimum-thickness, Type 304 stainless steel.
c. Finish: No. 4 satin finish on exposed surfaces.
d. Receptor: Rectangular, with high backsplash.
e. Cabinet:

1) Mounting: [**Off**] [**On**]-floor.
2) Size: [**21 by 19 inches (533 by 483 mm)**] [**24 by 19 inches (610 by 483 mm)**] <**Insert dimensions**>.
3) Sink Depth: 10 inches (254 mm).

f. Access to Internal Components: Vandal-resistant access panels.
g. Service Sink Water Supply Valve:

1) Type: [**Pneumatic, nonmetering**] [**Pneumatic, metering**] [**Pneumatic, metering, hot water side only**] [**Electronic**] <**Insert designation**>, with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.
2) Fixture punched for valve furnished separately.
3) Temperature: [**Single**] [**Separate hot and cold**] temperature.
4) Flow Rate: 2.5 gpm (9.5 Lpm).

h. Valve Water Outlet: [**Spout with plain end**] [**Spout with hose end**] [**Hose end with vacuum breaker**].
i. Push Buttons and Escutcheons: Machined Type 303 stainless steel.
j. Drain: Integral grid strainer-type.
k. Waste: 2-inch (51-mm) copper tube removable P-trap. Comply with ASME A112.18.2/CSA B125.2.
l. Service Sink Water Supply Valve:

1) Type: [**Pneumatic, nonmetering**] [**Pneumatic, metering**] [**Electronic**] <**Insert designation**>, with push-button actuation and individual check stops complying with ASME A112.18.1/CSA B125.1.
2) Fixture punched for valve furnished separately.
3) Temperature: [**Single**] [**Separate hot and cold**] temperature.

m. Valve Water Outlet: Spout with [**plain**] [**hose**] end.
n. Drain: Integral grid type.
o. Waste: [**2-3/8 inches (60 mm) OD plain-end, extended 3 inches (76 mm) beyond back of fixture.**] [**NPS 1.5 (DN 38) P-trap**].

3. Accessories:

a. Brass valve body.
b. Hemispherical valve push button.
c. Soap dish.
d. Fixture-mounted trim.
e. Integral shelf.
f. 12 gauge cabinet.
g. Towel Hook: One on [**each**] [**left**] [**right**] side of fixture.
h. Metal Template: Provide one per Project.

i. Transformer: 120 V ac to 24 V ac.
j. Cycle interrupt.
k. Vacuum waste system.

4. Mounting: Provide threaded mounting points on fixture and 1/2-inch (13-mm) threaded rod with nuts and washers to bolt through wall into accessible service space.
5. Wall Sleeve: Galvanized-steel frame with anchoring locations to allow for mounting fixture from rear. Include steel reinforcing bars.

C. Service Sinks <**Insert drawing designation**>: Stainless steel mop sinks.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Engineering; Morris Group International; [**1630**] [**1636**] <**Insert product name or designation**> or comparable product by one of the following:

a. Metcraft Industries, Inc.
b. Willoughby Industries.
c. <**Insert manufacturer's name**>.

2. Fixture:

a. Standard: ASME A112.19.3/CSA B45.4.
b. Material: 16 gauge minimum-thickness, Type 304 stainless steel.
c. Finish: No. 4 satin finish on exposed surfaces.
d. Receptor: Rectangular, with high backsplash.
e. Cabinet:

1) Mounting: On-floor, with bottom pitched toward drain outlet.[**Provide threshold anchors.**]
2) Size: [**24 by 24 inches (610 by 610 mm)**] [**36 by 24 inches (914 by 610 mm)**] <**Insert dimensions**>.
3) Sink Depth: 10 inches (254 mm).
4) Tiling Flanges: [**Rear**] [**Left and rear**] [**Right and rear**] [**Rear, left and right**].

f. Drain: [**Removable flat grid**] [**Beehive dome**] strainer-type.
g. Waste: **NPS 3 (DN 80), for inside gasket connection**.

3. Accessories:

a. Rubber drain gasket for waste pipe.
b. Hot and cold utility faucet with chrome finish.
c. 36-inch- (914-mm-) long drain hose with wall hanger.
d. Mop hanger with three mop attachments and stainless steel bracket.
e. Wall Guard: Stainless steel, [**12 by 24 inches (305 by 610 mm)**] [**12 by 36 inches (305 by 914 mm)**] <**Insert dimensions**>.

2.13 SUPPORTS

A. Water-Closet Carrier:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Jay R. Smith Mfg Co; a division of Morris Group International.
b. Josam Company.
c. MIFAB, Inc.
d. Wade Drains.
e. WATTS.
f. Zurn Industries, LLC.
g. <**Insert manufacturer's name**>.

2. Standard: ASME A112.6.1M.
3. Description: Waste-fitting assembly as required to match drainage piping material and arrangement with faceplates, couplings gaskets, and feet; bolts and hardware match fixture.[**Include additional extension coupling, faceplate, and feet for installation in wide pipe space.**]

B. Type III Lavatory Carrier:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Jay R. Smith Mfg Co; a division of Morris Group International.
b. Josam Company.
c. MIFAB, Inc.
d. Wade Drains.
e. WATTS.
f. Zurn Industries, LLC.
g. <**Insert manufacturer's name**>.

2. Standard: ASME A112.6.1M.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in for water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before fixture installation.

B. Examine walls and floors for suitable conditions where fixtures will be installed.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install security plumbing fixtures level and plumb in accordance with roughing-in drawings.

B. Install back-access, stainless steel fixtures as follows:

1. Install wall sleeve in wall if indicated.
2. Install fixture on wall sleeve or wall, as indicated, with access from accessible service space.
3. Extend supply piping from service space to fixture.
4. Install soil and waste piping from fixture and extend into service space.
5. Install fixture trap in service space instead of below fixture drain.

C. Install front-access, stainless steel fixtures as follows:

1. Install fixture support or mounting bracket.
2. Install fixture on support; mount components inside of or attached to fixture.
3. Extend supply piping from pipe space to fixture.
4. Install trap below fixture and extend soil and waste piping into pipe space.

D. Install vitreous-china fixture service space as follows:

1. Install fixture support in service space.

    a. Use combination support and waste fitting assembly for water closet.
    b. Use chair carrier for lavatory.

2. Install fixture on support.
3. Install components in service space.

E. Install fixture outlets with gasket seals.

F. Install fixtures designated "accessible" in accordance with ICC A117.1 for heights, dimensions, and clearances.

G. Install toilet seats on [**water closets**] [**and**] [**combination units**] if seats are indicated.

H. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible fixtures. Comply with requirements in Section 220719 "Plumbing Piping Insulation."

I. Seal joints between fixtures, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 079200 "Joint Sealants."

J. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings. Comply with escutcheon requirements specified in Section 220518 "Escutcheons for Plumbing Piping."

3.3 CONNECTIONS

A. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.

B. Comply with requirements for water piping specified in Section 221116 "Domestic Water Piping."

C. Comply with requirements for soil and waste drainage piping specified in Section 221316 "Sanitary Waste and Vent Piping."

3.4 ADJUSTING

A. Operate and adjust flushometer valves and flow-control valves on fixtures.

3.5 CLEANING AND PROTECTION

A. After installing fixtures, inspect and repair damaged finishes.

B. Clean fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials.

C. Provide protective covering for installed fixtures and fittings.

D. Do not allow use of fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION 224600