

RECLAMATION

Managing Water in the West

Recreation Facility Design Guidelines



Lake Cascade, Idaho — Comfort Station



U.S. Department of the Interior
Bureau of Reclamation
Denver, Colorado

April 2013

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.



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Acronyms and Abbreviations

ABA	Architectural Barriers Act
ABAAS	Architectural Barriers Act Accessibility Standards
ADA	Americans with Disabilities Act Standards for Accessible Design
D&S	Reclamation Manual Directives and Standards
EO	Executive Order
MUTCD	Manual for Uniform Traffic Control Devices
NFPA	National Fire Protection Association
ODAAG	Outdoor Developed Areas Accessibility Guidelines (Draft Final Accessibility Guidelines for Outdoor Recreation Areas)
ORAR	Outdoor Recreation Access Route
Reclamation	Bureau of Reclamation
RV	Recreational Vehicle
SSLE	Security, Safety, and Law Enforcement
WALROS	Water and Land Recreation Opportunity Spectrum

Chapter I

Introduction

These guidelines provide an initial design data checklist and examples of recreation facility design details. Use of these guidelines can assist in the planning and budget processes, reduce design costs, and provide consistent and compliant designs. The Bureau of Reclamation (Reclamation), its managing partners, and concessionaires are encouraged to use these guidelines in the design and development of new recreation facilities and the rehabilitation of existing facilities. Partners are reminded that plans must be reviewed and approved by Reclamation staff prior to any construction on Reclamation lands. These guidelines may not be applicable to sites in primitive or semi-primitive settings. As new designs, technology, and materials are developed, they can be added to these guidelines and existing material can be re-evaluated as appropriate.

Executive Order (EO) 13514, [Federal Leadership in Environmental, Energy, and Economic Performance](#), dated October 5, 2009, directs all agencies of the Federal Government to support their missions in an environmentally, economically, and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. It also mandates goals of energy and water consumption reductions, among others. In response to that directive, these guidelines support the sustainability requirements of EO 13514 in all new and retrofitted construction.

The data provided in this document are not intended to be used directly for the acquisition of recreation infrastructure or in the preparation of specifications or drawings for the acquisition of recreation infrastructure. The printed material, including appendices, contained herein is available on Reclamation's [Recreation](#) website under the [Publications](#) link.

These guidelines incorporate the most recent accessibility guidance from the U.S. Access Board's [Draft Final Accessibility Guidelines for Outdoor Developed Areas](#) (ODAAG), published October 19, 2009. When a final rule for ODAAG is published, these guidelines will be amended as necessary to incorporate the Final ODAAG.

The ODAAG covers six areas to provide accessibility for persons with disabilities:

- Campgrounds and campsites.
- Picnic areas.
- Viewing areas.

- Outdoor recreation access routes (ORARs).
- Trails and trailheads.
- Beach access routes.

All other design guidelines (e.g., comfort stations, parking, boating, and fishing facilities) contained herein that specifically address accessibility were taken from the existing and legally-enforceable [Architectural Barriers Act Accessibility Standards](#) (ABAAS) that govern facilities built with Federal funds as well as the Americans with Disabilities Act Accessibility Standards (2010 Standards) that govern facilities built by State and local governmental entities.

The accessibility standards must be followed to ensure compliance with the laws, regulations, and standards. All other material throughout this document is guidance.

Chapter II

Design Data Checklist

Adequate design data must be collected and ample coordination must be accomplished to ensure successful execution of design activities. The originating office and the office providing the design services must agree on the required content, degree of detail of the design data, and the schedule for receiving the design data. Refer to [Reclamation Manual, Directives and Standards \(D&S\)](#), [FAC 03-03, Design Activities](#), and its [Appendix A](#); and Reclamation Technical Service Center's [Design Data Collection Guidelines, Chapter 3 Feasibility Designs, Part 13, Recreation Facilities](#). This ensures compliance with Reclamation Manual Policy and D&S.

The following additional items to the checklist enhance this communication by outlining the information that may be required when planning and designing outdoor recreation facilities.

Note: Much of the data needed for design may have already been collected as part of an earlier planning process. Missing data could be collected by the originating office or the designer could be tasked with the additional data collection.

A. Environmental Requirements

- National Environmental Policy Act
- Clean Water Act
- Cultural Resource Protection Laws
- National Historic Preservation Act
- Endangered Species Act
- Tribal Consultation

B. Photographs of the Site

- Color photographs of the site, including close-ups of existing features (buildings or structures).
- Problem or hazardous or cultural areas to avoid.
- Location of proposed or existing facilities.
- Location of possible access points to the site.
- Aerial photos (8- by 10-inch size, color if possible, at a scale that allows vegetation to be identified).

Note: All photos should be labeled and keyed to the site map.

C. General User Information

- Anticipated or existing user activities and needs (e.g., fishing, hiking, water skiing, etc.).
- Demographics of typical users (e.g., age, physical abilities, etc.).
- Length of typical stay (e.g., a few hours, overnight, a few days, etc.).
- Length of the recreation season.
- Maximum number of persons to use the site at one time.
- Recreation equipment the typical user is expected to bring and the spatial/physical site requirements.
- Utility requirements of the typical user (e.g., water, electricity, etc.).

D. Specific Requirements and Needs

(This information may be adopted from previous planning documents.)

- Desired level of development (e.g., urban, rural, semi-primitive - reference [Reclamation's Water and Land Recreation Opportunity Spectrum Handbook](#) [WALROS]).
- Recreation master plans prepared for the area.
- Availability of water for flush toilets, showers, laundry, etc.
- Number of pullthrough sites with shade shelters.
- Number of shade shelters.
- Number of group-use areas.
- Number of recreational vehicle (RV) sites with full utility hookups (e.g., water, power, sewer, etc.).
- Number of day-use sites.
- Location of playground, if any.
- Facilities that need to be replaced or upgraded to meet local codes and standards.
- Facilities that need to be replaced or upgraded to meet Federal accessibility standards.
- Site-specific issues that were identified during the planning stage.
- Identification of restricted use areas (e.g., non-motorized areas, cultural sites, wetlands, etc.).
- [Interpretive program planning](#).

- Environmental commitments that affect the design.
- Reservoir water surface levels (i.e., at season's highest, average summer pool, and the season's lowest).
- Concession services required.
- Any factors physically limiting recreation (e.g., frequency and depth of flooding in flood plains).
- Lighting standards.

E. Land Use Agreements

- Restrictions to land uses (i.e., easements and rights-of-way).
- Land ownership boundaries and legal jurisdictions.
- Description of land uses.
- Name of adjacent managing partners and types of agreements, if applicable.

F. Facility Operations and Maintenance that Affect Site Design

- Fee collection methods and location.
- Facility security (refer to managerial status in [WALROS](#)).
- Requirements to close off one part of a facility from another.
- Requirements for vandal-proof materials.
- Roads and buildings needed for general maintenance of the area and their associated spatial and functional requirements.
- Visitor centers (Refer to [Reclamation Manual Policy, LND P13](#), and [D&S, LND 13-01, Visitor Centers](#)).
- Visitor contact station.
- Informational signs or kiosks.

G. Site Aesthetics Information

(From a site analysis.)

- Favorable views to incorporate.
- Loud or objectionable sounds that need to be physically blocked, if possible.
- Objectionable views to be screened, if possible.

- Views of the project from offsite. This would be important if there were a need to locate the development where it would not be seen from certain vantage points offsite.
- Major site features of interest to be developed into the design as focal points.
- Air quality.
- Existing vehicular and pedestrian traffic patterns, shown in design plan view.

H. Building Requirements

- Code restrictions (i.e., International Building Code, State, and local).
- Site-specific data (i.e., snow, wind, seismicity, and soil parameters).

I. Accessibility Requirements

- ABAAS, Appendices [C Scoping](#) and [D Technical Requirements](#) of 36 CFR 1191.
- [2010 ADA Accessibility Standards](#).
- Reclamation Manual Policy, CRM P03, [Public Civil Rights](#).
- Reclamation Manual D&S, CRM 03-01, [Nondiscrimination on the Basis of Disability in Federally Conducted Programs, Activities, and Services](#).

J. Security Requirements

- Specific review of facility security by Regional Security, Safety, and Law Enforcement (SSLE) officers.

Chapter III

Recreation Facility Design Guidelines

These recreation design guidelines often exceed minimum dimensions and standards. The guidelines are based on experience and best design practices for current recreation facilities and users.

A. Sustainability in Design

Designers should make decisions with sustainability in mind. Choose manufacturer's site components that are made of recycled materials. Use materials for construction that are recycled or available locally. Use solar lighting and power for buildings whenever possible. Select components that minimize the use of water. For more considerations to aid in sustainable development, consult the [U.S. Green Building Council's](#) Leadership in Energy and Environmental Design, [2009 Green Building Design and Construction Reference Guide](#) for new construction and major renovations.

Note: There is a charge for this reference.

B. Accessibility of Federally Owned Properties

All properties constructed, remodeled, added to, or rehabilitated after 1968 must comply with the requirements of the [Architectural Barriers Act of 1968](#) (ABA), as amended and adopted by the General Services Administration in its [Federal Management Regulation](#). The ABA requires such properties to allow for access to, and independent use by, people with disabilities. Standards, including scoping, dimensions, and other conditions, have been prescribed per the ABA. Designers must be aware of these standards and design and construct facilities accordingly. Refer to the U.S. Access Board, the ADA National Network, the National Center on Accessibility, and the U.S. Justice Department's ADA website for additional guidance, including the supplemental publications, research, and training opportunities.

C. Entrance Station

The entrance road to a recreation area should be nearly level with the primary road, so that maximum safety and minimum grading can be achieved. It is recommended that the entrance station be located on the road that leads into the recreation area and at least 150 feet off the primary road.

The designer should consider the size of the vehicles that will be coming through the entrance area and ensure there will be no obstacles. This is especially true where houseboats will be coming through the entrance area. In addition, the designer should consider combining the contact station with the site office into one building where those two functions occur at the same area. All new or rehabilitated entrance areas must be accessible¹ and may include the following features:

- At least two incoming traffic lanes.
- Parking spaces for at least two cars, one of which must be a van-accessible parking space.
- An ORAR that includes a 60-inch by 60-inch clear space in front of signs and any fee station, and that connects to the access aisle of the accessible parking space(s).
- Informational signs.
- A self-service fee depository.
- Overhead site lighting.
- Vehicular turnaround space both inside and outside the entrance station.
- An outgoing traffic lane.

Traffic service lanes in the area of the entrance station should be a minimum of 12 feet wide. Walkways shall be a minimum of 5 feet wide and must meet accessibility standards. Signs, lighting, and any fee depository shall be located adjacent to the ORAR. Walkways shall be cross-sloped at a maximum of 2.08 percent. Entrance area lighting should be provided at a level appropriate for safety. Designs for entrance areas should be reviewed for security compliance with the SSLE Office.

Any fee depository will be designed for self-service and shall comply with accessibility requirements. Consider an electronic fee collector system that complies with Section 508 of the Rehabilitation Act. A non-electronic fee depository should include an accessible writing surface with a midline height 30 inches off the ground and a fee slot

¹ The term "accessible," as used throughout this document, means to be usable by persons with disabilities and in compliance with orarABAAS.

34 inches off the ground. Self-service lanes in the area of the entrance station should be a minimum of 20 feet wide. Refer to Appendix A - Entrance Station.

D. Camping Facilities

1. Campground Layout —

Each campground layout design should be reviewed onsite to ensure that grade transitions can be accomplished smoothly and without costly post-construction remedial efforts. When siting the roads in a campground, full consideration should be given to aesthetic factors, smooth traffic flows, and site topography as well as cut and fill balances. It is important that proposed field changes be approved by the appropriate designers. In all cases, picnic grounds and campsites should be sited with the emphasis on safety, program goals, and eliminating user conflicts.

Comfort stations should be sited so that trampling and erosion impacts, as well as intrusions on other campsites, are minimized. Reasonable effort should be made to provide vegetative screening at those campsites nearest the comfort station to maximize privacy and minimize disturbance from the activities at the comfort station. Placement of vault comfort stations should be downwind from the prevailing winds for odor management at campsite or other campground activities. Accessible parking spaces and ORARs shall be provided at each comfort station.

Lighting within a campground should be low intensity and provide illumination only where necessary for safety. Light fixtures should aim the light at the ground rather than into the night sky. Lighting at comfort stations should illuminate the external sidewalks and nearby ground surfaces. Choose lighting sources that use the least electricity, such as light-emitting diodes. Refer to the [Dark Sky Society](#) link for information regarding night lighting.

Each campground should have a permanent display that contains a site map or plan that effectively communicates site layout, accessible features, regulations, and items of interest and their relative locations. The map must meet accessibility requirements, including providing tactile and/or Grade II Braille characters for persons with sight impairments and using symbols, pictographs, pictograms, color, and hierarchical language for effective communications with persons who have cognitive impairments. All facilities within the campground, such as comfort stations, parking lots, and accessible campsites, as well as places of interest, shall be linked by an ORAR. Portions of an ORAR can

follow the circulation road so long as that is the pathway taken by others.

Campgrounds shall meet or exceed the minimum accessible scoping requirement. Refer to Section D.5. Accessible Campsites, of this chapter. Accessible sites shall be dispersed throughout the campground and offered in several preferred types, including RV (pull-through, back-in), tent, walk-in, boat-in, group, etc. If the minimum scoping requirement has not yet been met, then apply the scoping requirement where campsites are altered or added until the minimum requirements are met. Contact an accessibility specialist for more information, including applicable exceptions.

2. Campground Utilities and Trash —

Utilities and trash receptacles in campgrounds may be provided in various combinations and locations. The operable parts of all utilities and trash receptacles within accessible campsites shall be within a 15-inch to 48-inch reach range. Operable parts for water hydrants and water utility hookups must be between 28 inches and 36 inches above the finish ground surface. The clear space at and around the utilities and trash receptacles shall have a firm and stable surface. *(A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.)* If the surface is concrete, asphalt, or boards, the clear ground space slope shall be no more than 2.08 percent in any direction throughout the entire surface area. If the surface is other than concrete, asphalt, or boards, then the clear ground space slope is allowed to increase up to 3.33 percent in any direction if needed for drainage (but not for other reasons).

a. Electricity:

When electricity is provided to a campsite, it should be provided in a covered and grounded electrical box that is mounted to a post or in a manufactured assembly that includes a ground fault interrupter. The post should be located on the driver's side of the parking spur at a point 0 to 15 feet from the rear of the spur. In addition, the accessible site shall have a minimum 30-inch by 60-inch accessible clear space adjacent to, and centered on, the post. Locate the space so that the hook-ups are at the rear center of the space. The long side of the clear space should adjoin or overlap an accessible parking space or pull-up space for recreational vehicles. The post, as well as other manufactured electrical boxes, should be protected by a steel

guard post located 18 to 24 inches away on the side nearest the road. Bollards or other barriers shall not obstruct the clear space required in front of the hook-ups. Guard posts should be 4 to 5 inches in diameter and filled with concrete. Warning tape should be placed in the trench above the electric lines. Electrical facilities at each campsite should be sized to comply with National Electrical Code.

b. Water:

Water provided should be from a water hydrant or water spigot and, in some cases, includes a splash basin. All water sources should include a backflow preventer. In instances where both a drinking fountain and a water hydrant or water spigot are provided at the same site, both features should share the same splash basin and underground supply lines, if feasible. Refer to Appendix B - Camping and Picnicking Facilities. When water alone is to be provided to a campsite, the splash basin should be located no closer than 5 feet from the road in the vicinity of the general living area of the site.

When water and electricity are both to be provided at a campsite, the hydrant or spigot should be located on the driver's side of the parking spur at a point 15 feet from the rear of the spur. Guard posts should be installed as described above. The water line and electrical line should be installed in the same trench when appropriate, according to codes, and there is to be a warning tape just above the electrical line.

c. Accessible Water Hydrants and Spigots:

Hydrants and spigots, other than water utility hookups (included below), that are located along a campground ORAR or at an accessible campsite, shall have a 48-inch by 72-inch minimum accessible clear space centered on the water hydrant, with the long side of the space adjoining or overlapping an ORAR or another clear ground space. Locate the space so that the water spout is 11 inches minimum and 12 inches maximum from the rear center of the long side of the space. The spout shall be located between 28 inches and 36 inches above the ground surface. The splash basin must have a level accessible surface. If a grate is used, the openings in the grate shall not allow the passage of a 0.5-inch-diameter sphere or dowel rod and the openings shall be placed perpendicular to the dominant direction of travel. If the surface is concrete, asphalt, or boards, the clear ground space slope shall be no more than 2.08 percent in any direction throughout the entire surface area. If the surface is

other than concrete, asphalt, or boards, then the clear ground space slope is allowed to increase up to 3.33 percent in any direction if needed for drainage (but not for other reasons). In all cases, the clear space shall be firm and stable. *(A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.)*

d. Accessible Water Utility Hookups:

The water utility hook-up shall have a 30-inch by 60-inch minimum accessible clear space adjacent to, and centered on, the post. Locate the space so that the hook-up is at the rear center of the space. The long side of the clear space must adjoin or overlap an accessible parking space or pull-up space for recreational vehicles. Bollards or other barriers shall not obstruct the clear space required in front of the hook-up. If the water hydrant has a water spout, it shall be located between 28 inches and 36 inches above the ground surface. If the surface is concrete, asphalt, or boards, the clear ground space slope should be no more than 2.08 percent in any direction throughout the entire surface area. If the surface is other than concrete, asphalt, or boards, then the clear ground space slope is allowed to increase up to 3.33 percent in any direction if needed for drainage (but not for other reasons). In all cases, the clear space shall be firm and stable. *(A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.)*

e. Sewer Hookups:

When water and sewer hookups are located at the same spur, the two hookups should be separated by at least 8 to 10 feet. In addition, the accessible site shall have a minimum 30-inch by 60-inch accessible clear space adjacent to, and centered on, the post. Locate the space so that the hook-ups are at the rear center of the space. The long side of the clear space must adjoin or overlap an accessible parking space or pull-up space for recreational vehicles. Bollards or other barriers shall not obstruct the clear space required in front of the hook-ups. Refer to Appendix B—Camping and Picnicking Facilities.

f. Wireless Internet Hookups:

Consider providing wireless Internet access where appropriate.

g. Trash:

Trash receptacles within accessible campsites shall meet the standards. If more than one is provided within the campsite, then 20 percent, but not less than two, trash receptacles shall be accessible and located on an ORAR. When trash receptacles are located in public use or common use areas that serve the accessible camping sites, 20 percent of the receptacles shall be accessible, and be located on, or adjacent to, an ORAR. The accessible receptacles shall have a minimum clear space of 36 inches by 48 inches positioned for forward approach to the receptacle opening, or 30 inches by 60 inches positioned for a parallel approach to the receptacle opening. The surface of the clear space shall be firm and stable. *(A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.)*

3. Campsite Parking Spurs —

Two preferred types of campsite parking spurs are back-in and pullthrough. Single-wide parking spurs should be 14 feet wide, and double-wide spurs should be at least 24 feet wide (for accessible campsite parking, refer to Section D.3.c. below). Parking spurs should be constructed of compacted road base, asphalt, or concrete. The minimum parking spur length should be long enough to accommodate a trailer plus a towing vehicle such as a car or truck. Parking spurs should be designed for the vehicles that will be using them. Refer to Appendix B – Camping and Picnicking Facilities. Back-in spurs that require a change in grade from the main road of more than a few inches should be avoided.

a. Back-In Parking:

Back-in spurs may be located on either side of a one-way road, but preferably on the left side for driver's side visibility. Back-in spurs may vary in length to accommodate site features. The preferred spur to road angle for back-in is 30 to 40 degrees, as measured from the road. Back-in spur angles should not exceed 60 degrees. Refer to Appendix B – Camping and Picnicking Facilities.

b. Pullthrough Parking:

Pullthrough campsites should be located only on the right side of the road so the living space is away from any road traffic.

These pullthrough spaces should be a minimum of 100 feet long. Refer to Appendix B – Camping and Picnicking Facilities.

c. Accessible Campsite Parking:

RV parking spaces at accessible campsites shall be 20 feet wide minimum; except where there are two adjacent parking spaces, then one space is permitted to be 16 feet wide minimum. Additional parking spaces at an accessible site for any kind of vehicle other than recreation vehicles shall be a minimum of 16 feet wide, except where there are two adjacent parking spaces, then one parking space is permitted to be 8 feet wide minimum. If the surface is concrete, asphalt, or boards, the clear ground space slope shall be no more than 2.08 percent in any direction throughout the entire surface area. If the surface is other than concrete, asphalt or boards, then the clear ground space slope is allowed to increase up to 3.33 percent in any direction if needed for drainage (but not for other reasons). In all cases, the clear space shall be firm and stable throughout the entire surface area. (*A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.*) Parking spaces shall have a minimum vertical clearance of 98 inches.

Note: If this is a first come first served campground, then it is recommended to post a sign at each accessible space(s) to identify them.

4. Campsite Layout and Components —

The living area of each campsite should be located to the right or rear of the parking spur. This location is preferred because the doors of recreational vehicles are on the right side (passenger side of the vehicle) when facing the direction of traffic flow. Each campsite should include a picnic table, fire ring, and/or pedestal grill. Highly developed facilities in hot, shadeless areas that service a large number of visitors may feature shade shelters for campsites. It is recommended that at least one-half of the campsites accommodate a tent space, either included within the designated overall living area or separate, but associated with the site's larger living area. The designer should strive to create privacy and a buffer zone between adjacent spaces. It is preferred, but not required, that site components in non-accessible campsites comply with accessibility standards. This is because the site will then be usable by more people than it would

otherwise be. Refer to Appendix B – Camping and Picnicking Facilities.

a. Picnic Tables:

The table should be of heavy-duty construction. The recommended minimum length is 8 feet and shall meet accessibility scoping requirements and standards. It is recommended that a variety of wheelchair-seating locations be provided (e.g. end, center, or side access) and that the edges of the bench seats be painted on either side of the wheelchair-seating location to alert persons with visual impairments that no bench seat is present in the space. Picnic tables shall provide one wheelchair space for each 24 linear feet of usable table surface perimeter.

b. Fire Ring:

Placement of tent pads and location of bushes, brush, and trees should be considered when siting fire ring location to reduce potential fire hazards. The fire ring should also be downwind from the table during the prevailing evening winds to avoid fire hazards and to minimize smoke in the living area. In all cases, the ground surface under the fire ring and for 2 inches beyond the edge of the fire ring should be of compacted road base or gravel, but never non-fireproof concrete, due to the danger of extremely hot concrete exploding. Refer to Appendix B – Camping and Picnicking Facilities.

c. Pedestal Grill:

The grill should be located at the edge of the living area and downwind from the table. It is recommended that the cooking surface of the pedestal grill be large enough for a camp stove to be set upon it and be stable. The grill should be installed so that the cooking surface is not more than 34 inches above the living area surface. Refer to Appendix B – Camping and Picnicking Facilities.

5. Accessible Campsites —

All accessible campsite components shall comply with accessibility standards and be connected to other accessible campground and common use features by an ORAR. The different types of campsites offered (RV, tent only, walk-in, boat-in, etc.) must be scoped separately and the minimum number of each type provided. Placement of the accessible campsites shall

be provided within desirable locations and not always near or next to the comfort station or vault toilet. If more than one accessible site is provided they shall be dispersed throughout the campground depending upon the type of experience offered. Plans for, and construction of, all accessible campsites should be reviewed by an accessibility specialist to ensure compliance.

The number of accessible campsites to be provided depends upon the number of campsites within the campground and shall be scoped as shown on the ODAAG table listed below:

Table F244.2.1 Camping Units

Total Number of Camping Units Provided in Camping Facility	Minimum Number of Accessible Camping Units Required
1	1
2 to 25	2
26 to 50	3
51 to 75	4
76 to 100	5
101 to 150	7
151 to 200	8
201 and over	8, plus 2 percent of the number over 200

An accessible campsite shall include an accessible table that has a minimum 36-inch-wide clear pathway around all usable sides (measured from the back edge of the bench seats), and meets knee and toe clearance requirements. The table should be fixed to the ground so it cannot be moved into a noncompliant position. Each table should have a wheelchair space that is 30 inches by 48 inches minimum and positioned for a forward approach. It is recommended that a variety of wheelchair-seating locations be provided (e.g. end, center, or side access). Picnic tables shall provide one wheelchair space for each 24 linear feet of usage table surface perimeter.

Note: If a center-cut or side-cut table is used, it is recommended that a warning be painted on the ground or around the edges of the cut surface with color that contrasts sharply with the surrounding concrete to alert persons with visual impairments that there is no bench seating in this location.

Accessible campsites will provide the same features as other sites within the campground (tent pad, pedestal grill, fire pit, etc.). If there is a tent pad or tent platform, it shall be surrounded on all usable sides by a 48-inch x 48-inch clear ground space. If a pedestal grill or fire ring is provided, there shall be a 48-inch by 48-inch minimum clear maneuvering space around all usable sides of the grill or fire ring. The clear ground space must be centered on the fire ring or grill. The fire-building surface shall be

9 inches minimum high. The cooking surface shall be between 15 and 34 inches high. If there is a raised edge around the fire ring (e.g. the fire ring is surrounded by a concrete barrier), then the depth of the edge or barrier must not be more than 10 inches.

All features within the campsite shall be accessible and connected by an ORAR. All features shall have clear maneuvering space that complies with the standards. The surface throughout the living area and the clear maneuvering spaces shall be firm and stable. *(A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.)* If the surface is concrete, asphalt, or boards, the clear ground space slope shall be no more than 2.08 percent in any direction throughout the entire surface area. If the surface is other than concrete, asphalt, or boards, then the clear ground space slope is allowed to increase to 3.33 percent in any direction if needed for drainage (but not for other reasons).

E. Picnicking Facilities

1. General Description —

Picnic sites should include a picnic table and a pedestal grill. The use area should be sloped 1.5 percent maximum to drain. The toilet facility should be located in a convenient location, near the picnic sites. A recommended distance is within 300 feet of the parking area. Picnic sites shall meet or exceed the minimum accessible scoping requirement. Accessible picnic sites shall be dispersed throughout the area at several preferred locations, including under trees or shade shelters, in sun, near water or preferred sight lines, etc. Accessible picnic sites should include any features offered within other picnic sites. Refer to Appendix B – Camping and Picnicking Facilities.

2. Group Picnic Sites —

Traditionally, Reclamation has designed its recreation facilities with a specific goal of providing individual, or single family, recreation experiences. However, societal trends and demands are increasingly for group sites. To keep up with demand, it is recommended more group experiences be offered.

It is recommended that group picnic sites be added to any major capital investment and recreation facility upgrade by Reclamation and/or its managing partners. Group picnic sites should incorporate large covered group shelters (where feasible), grouped and larger picnic tables, and



Henry Hagg Reservoir, Oregon — Sain Creek Group Day Use

larger grills. The group site shall also provide accessible features within the site. Accessible features must be connected by a compliant ORAR.

3. Picnic Site Components –

a. Picnic Tables:

The table should be of heavy-duty construction and be at least 8 feet long. For longest life and least maintenance, it is recommended that tables be constructed of concrete or metal and light in color.

b. Pedestal Grill:

The grill should be located at the edge of the use area and downwind from the table. The grill should be installed to avoid any fire hazard. It is recommended that the cooking surface of the pedestal grill be large enough that a camp stove could be set upon it and be stable. The grill should be installed so that the cooking surface is at a maximum height of 34 inches above the use area surface. Refer to Appendix B – Camping and Picnicking Facilities.

4. Accessible Picnic Sites –

Where picnic facilities have two or less picnic units, then each unit shall be accessible.

Where picnic facilities have more than two picnic units, a minimum of 20 percent but no less than two shall be accessible and dispersed throughout the various settings and types offered.

Where picnic sites are altered or added in an existing facility, the scoping requirements of accessible sites must be met. Contact an accessibility specialist for more information and applicable exceptions.

The accessible sites shall be connected with a compliant ORAR to all other accessible and common-use features in the area, including parking spaces, comfort stations, water hydrants, etc.

Note: It is recommended that a picnic site be within 150 feet of an accessible parking space and not always located next to the toilet facilities.



Black Canyon Reservoir, Idaho — Accessible Picnic Area

The site shall include a wheelchair accessible table that has a minimum 36 inches clear space on all usable sides (measured from the back edge of the bench).

Picnic tables shall provide one wheelchair seating space for each 24 linear feet of usable table surface perimeter.

Each wheelchair space shall be 30 inches wide by 48 inches deep minimum and positioned for forward approach and meet knee and toe clearance requirements. Each accessible picnic table should be fixed to the ground to keep it from being moved into an inaccessible location.

It is recommended that a variety of wheelchair-seating locations be provided (e.g., end, center, or side access) at multiple tables.

Note: If a center-cut or side-cut table is used, it is recommended that a warning be painted on the ground or around the edges of the cut surface in a color that sharply contrasts with the surrounding surface. This is to alert persons with visual impairments that there is no bench seating in this location.

If a grill or fire ring is provided, there shall be a 48-inch by 48-inch minimum clear maneuvering space around all usable sides of the grill or fire ring.

For fire rings, the fire-building surface shall be 9 inches minimum high and the cooking surface shall be between 15 inches and 34 inches high. If there is a raised edge around the fire ring or grill (e.g. the fire ring is surrounded by a concrete barrier), then the depth of the edge shall not be more than 10 inches.

All clear maneuvering spaces shall meet standards and guidelines for accessibility. If the surface is concrete, asphalt, or boards, the clear ground space slope shall be no more than 2.08 percent in any direction throughout the entire surface area. If the surface is other than concrete, asphalt, or boards, then the clear ground space slope is allowed to increase up to 3.33 percent in any direction if needed for drainage (but not for other reasons). In all cases, the clear space shall be firm and stable. (*A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.*) Refer to Appendix B – Camping and Picnicking Facilities.

F. RV Trailer Dump Stations

Trailer dump stations should be located inside the recreation area to prevent unauthorized use. The station shall be located so that there is no chance of infiltration of flood waters into the storage tank or seepage out of the storage tank. The trailer dump station should include an area for disposal of stored sewage, a source of water to

flush out sewage holding tanks, and a separate source of potable water for filling vehicle storage tanks. Signage is required to distinguish between water supplies. Pull-up spaces for recreational vehicles at the dump station shall be in compliance with accessibility standards. The parking space shall be 20 feet wide minimum. If the surface is concrete, asphalt or boards, the clear ground space slope should be no more than 2.08 percent in any direction throughout the entire surface area. If the surface is other than concrete, asphalt or boards, then the clear ground space slope is allowed to increase up to 3.33 percent in any direction if needed for drainage (but not for other reasons). In all cases, the clear space shall be firm and stable. (*A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.*)

Signage is required to distinguish between the different types of water supplies (potable water for filling vehicle storage tanks and flushing water). The station should be sited so that it is usable from the left (or driver's) side of the vehicle. The immediate area surrounding the drains shall be paved and sloped to 2.08 percent maximum toward the drain. A clear space of at least 5 feet around the drain shall be maintained. All controls that operate the station, except for the drain cap, shall be between 15 and 48 inches off the ground. Refer to Appendix C – Trailer Dump Stations.

G. Comfort Station Buildings

1. Siting Considerations —

In selecting a site, a number of factors should be considered. Sunlight, breezes, and topography can be used to produce natural heating and cooling effects. The existing vegetation can be used to control sound, screen undesirable views, control erosion, and provide aesthetic interest.

The location of the comfort station may depend on the recreation activity it serves. In a picnic area, the comfort station should be located within easy walking distance of all picnic sites. In a campground, the comfort station should be located to maximize use of site-connecting trails while minimizing soil erosion, negative environmental impacts, and the formation of new trails. Comfort station buildings shall be located on an ORAR that meets standards and guidelines for accessibility.

Comfort stations should be located where there is minimal chance of flooding yet still serves the public during the recreation season.

2. New and Rehabilitated Comfort Station Buildings —

The standard plans shown in Appendix D – Comfort Station Buildings are fully accessible. The recommended floor plans delineate space allocations, functional layouts, and configurations of facilities. New and rehabilitated buildings should blend with the surrounding landscape and existing buildings in elevation, material, and color. Prior to color selection for the building, a color board should be assembled with samples of the site's soil, rock, and vegetation. Colors for buildings should match the color board. Building materials should reflect what is readily available in the region, considering both cost and aesthetics. All new and rehabilitated buildings are to conform to local building codes and ABAAS, unless a State or local code is more stringent.

Note: If existing comfort station buildings cannot be made accessible then signage directing visitors to the nearest accessible facility shall be installed until the building can be replaced.

3. Adaptable Comfort Station —

The adaptable comfort station shown in Appendix D – Comfort Station Buildings is a four-unit building with two water closets (toilet stalls) on each side and is fully accessible. As additional fixtures are required to meet user needs, the length of the building can be increased by adding one or more water closets to each side. Toilet facilities for both men and women include one accessible water closet, lavatory, soap dispenser, and towel dispenser. There is a unisex room, with separate entry, provided for special needs use or for family groups. This room includes an ample-sized counter suitable for changing diapers. All fixtures in the unisex room are accessible. As an option, the toilet in the unisex room may be installed as a composting or vault toilet, which would provide toilet facilities in cold months when water to the building is turned off. The building features a covered entry with an outdoor drinking fountain and a hose bib for maintenance use. A pipe chase, located in the middle of the building, is accessed from the rear of the building. As an option, a utility sink may be located in the chase. Inside the building, along the inside walls, a trench floor drain provides necessary drainage without impeding accessibility. Interior areas are intended to be well lit and ventilated by clerestory windows and louvers. Interior walls should have vandal-resistant finishes. Windows should be made of high-impact resistant polycarbonate resin. The screen walls, roof overhangs, and columns are optional.

All new buildings must be designed with sustainability in mind. To that end, they must use less electricity and water and feature recycled materials. Toilets must be low-volume flush, and lighting must use energy-efficient fixtures and bulbs. The building can include solar panels to provide electricity. The batteries for the solar system can be located in the utility chase.

4. Fixtures —

a. Men:

Two lavatories (sinks, one accessible), one water closet (toilet stall and one urinal; both accessible), and accessible features (soap dispenser, towel dispenser or hand dryer, and waste receptacle).

b. Women:

Two lavatories (sinks, one accessible), two water closets (toilet stall, one accessible), and accessible features (soap dispenser, towel dispenser or hand dryer, and waste receptacle).

c. Unisex:

One lavatory, one water closet, soap dispenser, towel dispenser or hand dryer and waste receptacle (all fully accessible).

d. Chase:

One utility sink (optional).

e. Exterior:

One drinking fountain (accessible high-low unit) with some type of detectable warning on the approach to the "high" unit or install the fountains in an alcove that meets accessibility standards.

5. Comfort Station with Shower —

Showers are provided as an addition to the basic comfort station building. The building with showers features two separate unisex accessible showers in their own separate rooms. The shower rooms are separate from the rest of the building, with entries located on the exterior of the building. Five-foot-wide accessible concrete walks connect the front covered entry to the shower entrances. The building should feature energy-efficient lighting,

and the water should be heated by solar energy. The interior of the shower areas shall meet accessibility standards, including dimensions of the room (transfer shower or roll-in shower), and placement of the shower head(s) and controls, grab bars, transfer seat, clothes hooks, and dressing room bench. Showers that are separate from the rest of the building and located on the sides of



Jordanelle Reservoir, Utah — Beach House

the building shall meet accessibility standards. Consult with an accessibility specialist during the design and construction phase to ensure compliance.

6. Comfort Station with Laundry Facility —

Laundry facilities are provided as an addition to the basic comfort station building. This type of building is designed for recreation sites with high visitation where the average length of stay is several days. This building provides toilets, showers, and laundry facilities. The laundry facilities are located at the rear of the building and are accessed by a separate covered entry. There shall be a clear space in front of the machines that is a minimum of 30 inches by 48 inches and positioned for a parallel approach. The space shall be centered on the machines. Operable parts, including doors, lint screens, and detergent and bleach compartments shall be within reach ranges prescribed in the standards. Controls and operating mechanisms at laundry facilities shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5 pounds maximum. Top loading machines shall have the door to the laundry

compartment located 36 inches maximum above the finish floor. Front-loading machines shall have the bottom of the opening to the laundry compartment located 15 inches minimum and 36 inches maximum above the finish floor. Folding tables, vending machines, and other public use features in the laundry facility shall be located on an accessible route, have the necessary clear space, and be within reach ranges. Consult an accessibility specialist during the design and construction phase to ensure compliance.

7. Recommended Materials and Construction Methods —

The individual building construction is subject to the requirements of Reclamation design guidelines, State and local building codes, and ABAAS (unless State standards are more stringent). Regional climatic differences and local soil conditions should determine the specific requirements of the roofing system and foundation. Experts in building design should be consulted for those requirements.

8. Prefabricated Vault Toilet Buildings —

Prefabricated vault toilet buildings should be made of concrete or masonry. Buildings and walks shall comply with accessibility standards in place at the time they are constructed. Walks should be sloped to drain away from the building at a slope of not more than 2.08 percent including construction tolerances). The building should be oriented for unobstructed solar heat gain to the vent pipe(s) that is (are) located on the outside of the building. For the building's sweet-smelling technology to be effective there should be a positive upward draw through the vents, which is dependent on their solar heat gain. Therefore, it is important to orient the building with the vent(s) on the south side.

a. Hot Locations:

If the building is located in a very hot climate, its roof should be insulated to ensure the proper air currents and functioning of the sweet-smelling technology.

b. Solar Power:

If the building is lit, solar panels can be used, and they should be properly oriented for maximum solar gain.

c. Vandalism:

Vault toilet buildings can feature obscure windows of vandal-resistant materials, such as polycarbonate resins.

d. Access in Remote Areas:

The access to the building and the interior of the building shall be fully accessible, shall be on an accessible route, and served by nearby accessible parking, including remote locations.

Note: In remote areas or areas where it is not feasible for a pump truck to service the building, the designer may want to consider selecting an organic composting toilet building as an alternative to a vault toilet building. Not all locations or use patterns are well suited for composting toilets, so check carefully for suitability for your needs.

H. Boating Facilities**1. Marinas —**

All marinas should be of a free-floating dock design. The marina should clearly state the largest size vessel serviceable by the marina. Maximum overall vessel length should be measured to include all swim platforms, bow sprits, anchor ports, slides, masts, ladders, etc., in their fully extended position. Marinas are to have at least 1.5 parking spaces per slip.

a. Marina Location:

All new marinas should be located in areas providing sufficient water depth to allow vertical adjustment of the marina to meet the annual fluctuations of the lake level. Marina sites that require excessive horizontal movement to acquire sufficient depth or bathymetric contours for safe, efficient marina operations are not acceptable. In addition, all new marinas and marinas considered for enlargement should be sited where there is sufficient land area for proposed or reasonably expected support facilities, such as parking (including reasonable expansion of parking), merchandise and fishing supply store, fuel, food, beverage, overnight accommodations, nearby campgrounds, and an ample road network.

Minimum water depths for the location of a marina (at low water level) are 9 feet for marinas serving only powerboats

and houseboats up to 65 feet long, and 15.5 feet for marinas serving sailboats.

b. Entrance Channel:

The channel should be at least 100 feet wide at full control depth. The depth of the channel should be equal to the deepest draft of a potential user vessel plus 5 feet at low water elevation. For a marina servicing powerboats and sailboats up to 60 feet long, the channel needs to be 15 feet deep at low water and deeper if wave action is expected at the site. The channel should be clearly and sufficiently marked with “No Wake” marker buoys in accordance with U.S. Coast Guard Navigation rules.

c. Perimeter Protection/Breakwater/Wave Attenuator:

If a marina is located in an area that is not adequately protected from wave action, some type of breakwater may be needed. The breakwater should be marked with navigational lights and “No Wake” marker buoys in accordance with U.S. Coast Guard navigation rules. [Refer to Part D, Rule 34 – Maneuvering and Warning Signals.](#)

d. Floating Docks and Facilities:

Docks should be of a floating design that adjusts to reservoir elevation and is easily removable in areas where winter ice conditions exist or be of a freeze-resistant design.

All floating facilities, such as sewage pump-out stations and floating comfort stations, should be a minimum of 16 feet wide and marked with navigational lighting in accordance with U.S. Coast Guard regulations.

The U.S. Forest Service in cooperation with the Recreational Trails Program of the U.S. Department of Transportation, Federal Highway Administration published a useful guide for designing and building floating docks, titled [Floating Trail Bridges and Docks](#), dated July 2002.

e. Critical Marina Dimensions, Docks and Gangways:

Should be of commercial quality and shall meet accessibility requirements, including width, slopes, edge protection, etc. Consult with an accessibility specialist for specific requirements and exceptions to ensure compliance.



Snake River, Idaho — Minidoka Boat Ramp Gangway

f. Fuel Docks and Dispensers:

Docks should be a minimum of 12 feet wide. At least one fueling dock and dispenser shall meet accessibility requirements. On a large lake with more than one fueling dock, especially if the docks are separated by some distance, then at least one in each of the separate locations shall be accessible.

g. Utility Docks:

Potable water and electricity may be provided to each berth. Both utilities should be provided to the berth at the same location. Manufactured electrical power pedestals, if used, are to incorporate electrical outlets, low-level lighting with automatic darkness sensors, and electrical metering capability. Electricity is to be grounded and isolated from water. Electricity voltage should be relative to the needs of the boats serviced as well as the electricity supplied by the local utility company.

Water is to be supplied by a hose bib fitted with a backflow preventer. Water lines should be flexible, smooth bore, and pressure rated. The water supply system is to have positive drainage or fittings for blowing water out of the system in the winter. The water supply line system is to incorporate a main shutoff valve where the dock piping system joins the water

supply. The dock water supply system is to include a drain line. If water pressure to the docks is over 40 psi, a pressure-reducing valve may be required. It is recommended that any individual sewage hookups be designed to meet applicable codes.

Individual sewage hookups are rarely provided but require special design. If these services are provided, the designs should be developed by a registered design professional and should comply with all design codes.

h. Utility Chase:

Ideally, water lines and electricity should be enclosed in a separate, solid-sided floating chase. The chase is intended to float independently of the dock.

i. Land-Based Comfort Stations:

All marinas are to have adequate comfort station accommodations. A minimum of four water closets is recommended for every 100 boat slips. Comfort stations should be located between the marina and its parking lot within 500 feet of the high water mark of any pier. However, when marinas are located on waters with high annual water level fluctuations, it is acceptable for facilities onshore to exceed the distance requirement. Comfort stations shall meet accessibility standards in place at the time they are constructed or remodeled.

j. Floating Comfort Stations/Pump-Out Facilities:

Floating comfort stations/pump-out facilities should be located in areas that provide easy access for the boating public and sufficient clearance for servicing vessels. For best results, the remote facilities should be located adjacent to the main channel in an area protected from exposure, prevailing winds, and heavy boating traffic. All new floating comfort stations shall meet accessibility requirements. Since ABAAS does not specifically address floating comfort stations or pump-out facilities, adapt the applicable sections (e.g. [ABAAS Chapter 6, Section 604](#) for toilet rooms and [ABAAS Chapter 3 Building Blocks](#)). There are several manufactured accessible floating comfort stations, some of which utilize microflush toilets. There are also several manufactured portable comfort stations, some of which are accessible. Refer to Chapter IV – Manufactured Site Components.

k. Fuel Docks:

Fuel docks and the handling and dispensing of fuel require State, county, and, occasionally, municipal permits. Strict compliance with the associated code is mandatory. All fuel handling and storage must comply with the National Fire Protection Association (NFPA).

Fuel distribution system docks should be located on a separate dock on the perimeter of the marina. The minimum width of the dock should be 12 feet, and the dock should be long enough to service at least two vessels at a time. The fuel storage tanks are to be located onshore and as close to the dispensing station as possible. Fuel tanks must comply with fuel storage regulations. The dispensing station is to include hose reels. Shutoff valves are required at a minimum of four locations along the fuel distribution line as follows:

- At the dispensing unit.
- Fifty feet from the dispensing unit.
- At the shore-end of the piping system.
- At storage tanks.

Check valves are also required in the system as well as a fuel relief system for the fuel lines between the dispenser and the shore. All fuel-dispensing facilities must be equipped with containment buoys and petroleum-absorbing pads. Fuel docks require a permit and strict compliance with codes. The fuel dock is to be protected by a wet and/or dry pipe firefighting system.

l. Fire Suppression System:

Water for firefighting is to be provided within 500 feet of any point on the marina. Mooring and fire alarm systems are required as well as fire protection and suppression systems. Provisions for firefighting must conform to the regulations, standards, recommendations, and requirements of [NFPA Code 303 – Marinas and Boatyards](#), [NFPA Code 17 – Standard for Dry Chemical Extinguishing Systems](#), and [NFPA Code 13 – Standard for the Installation of Sprinkler Systems](#).

m. Sewage Pump-Out Facilities:

Sewage pump-out facilities should be located at each berth or at a location close to the fuel dock. If a single sewage pump-out facility is provided, one pump should be provided for every 100 recreational slips. All sewage pump-out facilities must be equipped with containment buoys and a spill response kit sized appropriately for the facility.

n. Marina Accessibility:

Accessibility at a marina focuses on five main areas of consideration:

- Parking.
- Toilet facilities.
- Gangway access to dock systems.
- Docks, slips, and piers.
- Accessible routes between these features.

Accessible parking spaces are to be the closest spaces to the activity the parking lot serves and are recommended to be within 300 feet of that activity. If this is not possible, an accessible passenger drop-off area should be located within 100 feet of the activity. Accessible parking spaces at an accessible site shall be signed in accordance with accessibility standards. Gangways, comfort stations, docks, piers, and accessible routes are to conform to requirements of ABAAS (refer to [ABAAS 1003](#) for technical details on minimum widths, slopes, edge protection, etc.). All marina amenities (store, drinking fountains, fuel station, etc.) shall be readily accessible to, and usable by, persons with disabilities. The number of accessible slips required depends upon the number of total boat slips and must be dispersed amongst the types offered. A portion of the scoping table found in ABAAS F235.2 is below.

Note: Boat cleaning facilities should be provided for control of aquatic invasive species. Consult with your Reclamation aquatic invasive species coordinator and the State and local agencies.

Table F235.2 Boat Slips

Total Number of Boat Slips Provided in Facility	Minimum Number of Required Accessible Boat Slips
1 to 25	1
26 to 50	2
51 to 100	3
101 to 150	4
151 to 300	5
301 to 400	6
401 to 500	7
501 to 600	8

2. Boat Launching Ramps —

It is recommended that boat launching ramps be located in areas free of wave action and cross currents. If possible, locate where the maximum wave action is approximately 6 inches high.

Other recommendations for boat launching ramps are:

- Orient so that ramps are perpendicular to the shoreline.
- Orient at an angle or adjacent to the main approach road so that vehicles on the road would make a turn to use the boat ramp. This will decrease the likelihood of a driver unwittingly driving down the boat launching ramp at night and into the water.
- Install adequate signs indicating the presence of the boat launching ramp at the turn to the ramp.
- Construct with a slope of 12 to 15 percent. The optimum grade is 12.5 percent.

a. In High-Use Areas:

Multiple launching lanes are recommended, and the number of lanes should be determined by daily use.

Single lanes should be a minimum of 15 feet wide.

When courtesy docks are used between lanes, the width of the ramp should be increased by the width of the courtesy dock(s), and the clear travel width of the lane should be a minimum of 15 feet. Ramps should be long enough to extend from 2 feet above the highest water level to 3 feet below the lowest seasonal use water surface elevation.

b. On All Ramps Less than 50 Feet Wide:

A turnaround area 50 feet wide should be provided every 250 feet to minimize trailer backing distance.

c. Transition:

A smooth transition with enough vertical curves to avoid trailer hang-ups should be made between the approach to the boat launching ramp and the top of the ramp.

3. Separation of Uses —

Boat launching ramps should be separated from swimming areas by a minimum of 300 feet. Designated swimming areas should not be located near boat launching facilities. Barriers and warning devices should be placed to separate use areas.

4. Boat Launching Ramps Above and Below Water Line —

Boat launching ramps should be built in accordance with the States Organization for Boating Access' publications, "[Design Handbook for Recreational Boating & Fishing Facilities](#)" and "[Construction Techniques for Recreational Boating Access Facilities](#)". Refer to Appendix E – Boating Facilities.

Note: There is a charge for these publications.

5. Floating Courtesy Dock —

Each lane of a boat ramp should be serviced by an adjacent dock. If there is one launching lane and one dock, the dock should be located on the right side of the launching ramp as the driver faces the water. Dock cleats should be bolted not screwed to the structure. The dock should be a minimum of 6 feet wide and long enough to extend at least 3 feet into the water. Docks should be designed with sufficient strength to carry a live load of 20 pounds per square foot and a wind load of 15 pounds per square foot. ABAAS specifies that at least 5 percent, but no less than one courtesy dock in an area meet the standards in place for accessible courtesy docks (boarding piers). Consult with an accessibility specialist for specific requirements and exceptions to ensure compliance.

6. Sliding Courtesy Dock —

A sliding courtesy dock can be placed on an existing boat launching ramp and moved uphill or downhill as needed to meet changing reservoir water levels. The dock is removed or placed

at high water at the end of the season or when the reservoir begins to freeze over.

Docks should have a non-skid walking surface. Fiberglass grating or plastic lumber is recommended for use on the top and on the sides. Wood is not recommended because of the maintenance required. ABAAS specifies that at least 5 percent, but no less than one courtesy dock in an area meet the standards in place for accessible courtesy docks (boarding piers). Consult with an accessibility specialist for specific requirements and exceptions to ensure compliance.

7. Associated Parking —

The parking lot servicing the boat ramp should be sized to accommodate the turnover rate of the lake. It is recommended that a high turnover area have 20 to 30 parking spaces per launching lane and a low turnover area have 30 to 50 parking spaces per launching lane. Ensure there are accessible boat trailer parking spaces in addition to regular vehicle spaces. The parking lot should be of a pullthrough design with stalls set at 45 degrees. The parking lot should feature a 50-foot inside turning radius throughout, 14-foot-wide one-way drive lanes, and 30-foot-wide two-way drive lanes. The parking lot should be sloped a maximum of 2.08 percent so drainage will flow away from the boat ramp. The parking lot is to comply with the scoping for the number of required accessible spaces per ABAAS.

a. Parking Spaces:

Spaces should be 12 feet wide by 55 feet long for cars with trailers and 10 feet wide by 20 feet long for cars without trailers.

b. Accessible Parking:

Spaces shall be a minimum of 16 feet wide and 20 feet long. The access aisle shall be marked and be a minimum of 5 feet wide. The access aisle is part of the overall 16 feet. The slope of accessible parking spaces and access aisles are not to exceed 2.08 percent in any direction throughout their entire surface areas.

c. Accessible Pull-through Parking:

Boat trailer spaces cannot be reserved with the installation of a post-mounted sign due to the nature of the parking; therefore, the space itself should be painted per the Manual

for Uniform Traffic Control Devices ([MUTCD](#)) and local codes. Parking spaces shall be 20 feet wide and 55 feet long. The slope of accessible parking spaces and access aisles are not to exceed 2.08 percent in any direction throughout their entire surface areas.

d. Parking Lot:

Parking lots should be located near the ramp with all parking spaces within 600 feet of the top of the launching ramp. Car-only parking areas should be separated from trailer parking areas.

e. Boat-Ready, Tie-Down, Rigging, and De-rigging Areas:

These areas should be provided along the route to and from the launch ramp. These areas should be a minimum of 12 feet wide and a minimum of 120 feet long, striped in yellow, and designated with signs.

f. Overhead Clearance:

No overhead power lines should be located over the parking area, launching ramp, approach roads to the ramp, or any other areas where a vehicle towing a boat trailer loaded with a fully rigged boat can travel.

8. Boat Ramp Accessibility —

Accessibility at a boat ramps focuses on four main areas of consideration.

a. Accessible Parking Spaces:

Are to be the closest spaces to the activity the parking lot serves and are recommended to be within 300 feet of that activity. If not possible, a passenger loading/unloading zone should be located within 100 feet of the activity and shall meet accessibility standards.

b. Toilet Facilities:

Toilet facilities are required to provide accessible compartments. Refer to Chapter III.G. and Appendix D - Comfort Station Buildings.

c. Boat Ramp:

Boat ramps and gangways are required to be accessible. Refer to Appendix E – Boating Facilities.

d. Accessible Routes:

Accessible pathways are to be provided between all accessible features. These paths must have no more than a 5 percent running slope and a 2.08 percent cross slope. Along these paths there cannot be more than a 0.5-inch abrupt level change. Any abrupt level change between 0.25 inch and 0.5 inch must be beveled with no more than a 50 percent slope on the bevel.

I. Fishing Facilities

All new or rehabilitated fishing facilities shall be accessible and comply with the scoping and standards in ABAAS for new construction. This includes fishing piers, platforms, fixed benches, handrails, gangways, etc. Refer to Appendix F - Fishing Facilities.



Glen Canyon National Recreation Area, Arizona — Fishing Dock

J. Foot Trails

Foot trails at Reclamation sites should function primarily as paths connecting recreation facilities. The primary users are expected to be pedestrians traveling short to medium distances. Trails should be designed to connect one facility element to another and located as to minimize environmental impact, other resource uses, and user

conflicts within the area. As such, trails should be sited to minimize soil erosion, damage to vegetation and wildlife, degradation of streams, cost of maintenance, and circulation conflicts between pedestrians, campers, and vehicles, while maximizing user safety and aesthetic experience.

1. General Layout Criteria —

Trails should be designed to avoid the following areas:

- Where there are threatened or endangered species.
- Where there is critical or sensitive habitat.
- Where there are wetlands or permanently soggy soil conditions.
- Where a trail would cause increased soil erosion, such as on excessively steep slopes.
- Tops of ridges and edges of streams.

A trail may cross a wetland for the specific purpose of interpretation or if the trail is raised on a walkway above the ground (for short distances only.) Trails should be aligned to avoid crossing roads, except very low-volume roads that service local circulation. If crossing a road is necessary, adequate and clearly visible signs must be posted on the road to give drivers approaching from either direction adequate warning of the crossing. When possible, trails should be aligned to avoid crossing streams. However, if crossing streams is necessary, the trail should be contained on a footbridge or other raised crossing facility. To minimize soil erosion, trails should be located in areas that favor:

- Coarse or gravelly soil rather than clay and silty soil.
- Vegetation composed of grasses rather than forbs or shrubs.
- The toe of a slope rather than a side slope.
- Flat slopes rather than steep slopes.
- Low soil moisture rather than high soil moisture.
- South and west exposures rather than north and east exposures.

2. Design Criteria —

For design criteria for foot trails, refer to this primary source, produced by the Forest Service, U.S. Department of Agriculture, in cooperation with the Recreational Trails Program of the Federal Highway Administration, U.S. Department of Transportation: [Trail Construction and Maintenance Notebook](#), 2007 edition.

In addition, refer to these web sites:

- <http://www.fhwa.dot.gov/environment/rectrails/manuals.htm>
- <http://www.fhwa.dot.gov/environment/Fspubs/08232332/lc08232332.htm>
- <http://www.fhwa.dot.gov/environment/Fspubs/07232804/lc07232804.htm>
- <http://www.fs.fed.us/recreation/programs/accessibility>

3. Accessible Trails and Trailheads, General —

All newly constructed or altered trails and trailheads at Reclamation reservoirs shall be designed and constructed to comply with accessibility standards to the maximum extent possible. There are exceptions under the ODAAG (2009) that can be applied considering site-specific conditions. These exceptions should be used sparingly and only when absolutely necessary.

Only trails designed for pedestrian use need comply with accessibility standards (i.e., single-use pedestrian or multi-use trails that are designed for pedestrian use). Trails that are designed for other uses (not for pedestrian use) such as equestrian and mountain biking trails do not need to comply with accessibility standards. Only trail segments that directly connect to a trailhead or another compliant trail segment are required to comply with accessibility standards. Consult with an accessibility specialist for specific requirements and exceptions to ensure compliance. Refer to Appendix I – Foot Trail and Beach Access.

4. Accessible Beach Access Routes, General —

Where constructed beaches exist, beach access routes shall be provided to cross the beach to the water's edge. Beach access routes can be permanent or removable. Beach access routes must be provided when beaches are constructed, nourished, or alterations to any of the following facilities that serve the beach are implemented:

- Circulation paths.
- Parking facilities.
- Toilet facilities.
- Bathing facilities.

5. Foot Bridges —

Several manufacturers make pre-engineered bridges for foot trails. Refer to Chapter IV – Manufactured Site Components.

The U.S. Forest Service through a grant from the Federal Highway Administration's Recreational Trails Program produced a website that is helpful for the [design of bridges on foot trails](#).

Note: Not all foot bridges on this web site are accessible.

K. Recreation Area Roads & Miscellaneous Access

1. Internal Vehicular Circulation —

The preferred layout of a recreation area is one that features a main access road with secondary side roads. The side roads may lead to campgrounds, service or administrative areas, a trailer dump station, or other site amenities such as boat launching ramps. To minimize traffic through the campground, circulation throughout the recreation area should be designed to ensure that day-use facilities do not share the same roads with campground loops. Gates should be sited along the main access road so that all side roads may be closed while allowing any combination of other roads to remain open. Refer to Appendix G – Recreation Area Roads and Utilities. Refer to the [MUTCD](#) for reflective warning symbols.

If possible, the main road for a campground should be located along an uphill edge of the site, with campground loop roads located between the main campground road and any focal landscape feature (such as a water body.) This layout minimizes unnecessary vehicular traffic on the loop roads and vehicle/pedestrian conflict between campsites and the shoreline.

2. Design Criteria —

Reclamation recreation roads typically should be designed to be two-way, two-lane, gravel or asphalt paved roads. Driving lanes should be 12 feet wide, and shoulders should be a minimum of

1 foot wide, gravel or asphalt. Where traffic is very heavy, the need for additional driving lanes should be evaluated. Grades on roads should be as level as possible, while allowing for positive drainage. Roads should be planned carefully to preserve major trees and clumps of vegetation, while considering safety factors. Campground roads should be one-way roads that are 14 feet wide. Shoulders should be a minimum of 1 foot wide, gravel or asphalt.

3. Signs -

Designers should refer to the [MUTCD](#) and Reclamation's [Sign Manual](#).

4. Miscellaneous Access Accommodation

Although aircraft access to Reclamation project areas is generally physically limited, helicopter access may be proposed and accommodated, subject to appropriate resource management planning/NEPA documentation and compliance with 43 CFR 423, 43 CFR 429, Federal Aviation Administration, and other applicable regulations. Refer to Appendix H – Heliport design guidelines.

L. Utilities

1. Power Lines —

Whenever possible, power lines should be buried underground. All power lines shall meet applicable codes.

2. Water and Sewer Lines —

New or replacement water lines and pressurized sewer lines should be made of high-density polyethylene. Gravity flow sewer lines should be made of polyvinyl chloride.

3. Above Ground Liquefied Petroleum Gas Storage Tanks —

The storage and dispensing of liquefied compressed fuel requires State, county, and, occasionally, municipal permits. Strict compliance with the associated code is mandatory. Standards for storage and handling of liquefied petroleum gas storage tanks are described in NFPA Code 55 – Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders and Tanks and Code 58 - Liquefied Petroleum Gas. The liquefied petroleum gas storage tanks should be located onshore, if possible, and/or as close to the equipment utilizing this fuel as possible. Consult with local

authorities prior to permitting any fuel storage on Federal lands and waters.

4. Fuel Storage Tanks —

Fuel storage tanks should be above ground. All fuel tanks are to comply with Federal, State, and local codes.

Chapter IV

Manufactured Site Components

There are numerous sources for manufactured recreation site components. The following list of web sites is useful. The designer/specifier should take note that not all components advertised as being accessible actually meet Federal accessibility standards. The designer/specifier should examine product literature or speak to a manufacturer's representative for specific dimensions and salient characteristics to determine if a given product is truly accessible. In addition, it is recommended that the designer/specifier contact an accessibility specialist to verify manufactured products are compliant with accessibility laws, architectural standards, and effective communications requirements.

A. Campground Components

- <http://www.gametime.com>
- www.pilotrock.com
- <http://belson.com>

B. Signs

- www.promarksigns.com
- www.carsonite.com
- www.blm.gov/wy/st/en/Sign_Center.print.html

C. Docks

- www.atlantic-meeco.com
- www.ez-dock.com
- www.follansbeedocks.com

D. Premanufactured Toilet Room Building

(Check with the manufacturer to ensure that current models meet the latest accessibility requirements.)

- <http://parkandrestroomstructures.com>
- www.cxtinc.com
- <http://publicrestroomcompany.com>

- <http://www.romtec.com>

E. Floating Toilet Rooms

- www.topperfloats.com/en_us/potty.asp (non-accessible)
- <http://www.pumpoutboats.com/floatingrestrooms.html>
- www.pumpoutboats.com/floatingrestrooms.html

F. Moveable/Floating Toilet Rooms (with microflush toilets)

- www.fs.fed.us/eng/pubs/html/04231310/04231310.html
- www.joewelchcompanies.com/html/movable_restroom_facilities.html

G. Bridges

- www.excelbridge.com
- <http://www.conteches.com/Products/Bridges-and-Structures/Truss/Steadfast-EXPRESS-Pedestrian-Bridge.aspx>

H. Marina Breakwaters/Wave Attenuators

- www.bellingham-marine.com
- www.shoremaster.com
- www.atlantic-meeco.com

I. Accessible Loading Platform for Boaters

- www.fhwa.dot.gov/environment/Fspubs/00232837/lc00232837.htm

J. Accessible Fish Cleaning Stations

- www.biologicalmediation.com/fish_clean.php
- <http://fabwrightinc.com>

K. Accessible Fishing Piers

- www.ez-dock.com

References

[Architectural Barriers Act, August 12, 1968.](#)

[Americans with Disabilities/Architectural Barriers Act Accessibility Guidelines, July 23, 2004.](#) The Architectural Barriers Act Accessibility Standards portion of the ADAABAAG became legally enforceable May 8, 2006.

[Accessibility Guidelines for Outdoor Developed Areas,](#) Draft Final Rule, October 19, 2009.

[Americans with Disabilities Act Accessibility Standards,](#) September 15, 2010.

[Association of Marina Industries.](#)

[National Fire Protection Association 101, Life Safety Code.](#)

[National Marine Manufacturers Association.](#)

Oregon State Marine Board. [Design Guidelines for Recreational Boating Facilities,](#) Third Edition, September 2011 Salem, Oregon.

[The Rehabilitation Act,](#) September 26, 1973, as amended.

[Manual for Uniform Traffic Control Devices.](#) The [Manual on Uniform Traffic Control Devices,](#) December 2009 is published by the Federal Highway Administration (FHWA) under 23 Code of Federal Regulations (CFR), Part 655, Subpart F.

U.S. Army Corps of Engineers. [Recreation Facility and Customer Services Standards,](#) November 1, 2004.

U.S. Department of the Interior, Bureau of Reclamation, Policy, [FAC P03;](#) Directives and Standards, [FAC 03-03](#) and its [Appendix A – Suggested Project Checklist.](#)

Other Sources of Information

Bureau of Reclamation (84-23000)

Civil Rights Office

Denver Federal Center

6th and Kipling, Building 67,

Denver CO 80225-0007

www.usbr.gov/cro

Bureau of Reclamation

Sign Guidelines for Planning, Design, Fabrication, Procurement,

Installation, and Maintenance of Signs for Outdoor Public Use Areas

Technical Service Center (86-68270)

PO Box 25007

Denver CO 80225-0007

www.usbr.gov/recreation/publications.html

National Fire Protection Association

1 Batterymarch Park

PO Box 9101

Quincy MA 02269-9101

www.nfpa.org

Oregon State Marine Board

435 Commercial Street NE

Salem OR 97310

www.boatoregon.com

U.S. Architectural and Transportation Barriers Compliance Board

1331 F Street, NW, Suite 1000

Washington DC 20004-1111

www.access-board.gov

National Center on Accessibility

Indiana University Research Park

501 North Morton Street

Bloomington, IN 47404

www.ncaonline.org

Appendix A – Entrance Station

Figure A-1a: Small Entrance Station Booth, Floor Plan

Figure A-1b: Small Entrance Station Booth, Front Elevation

Figure A-1c: Small Entrance Station Booth, Rear Elevation

Figure A-1d: Small Entrance Booth, Side Elevation “A”

Figure A-1e: Small Entrance Booth, Side Elevation “B”

Figure A-2: Self-Service Fee Depository

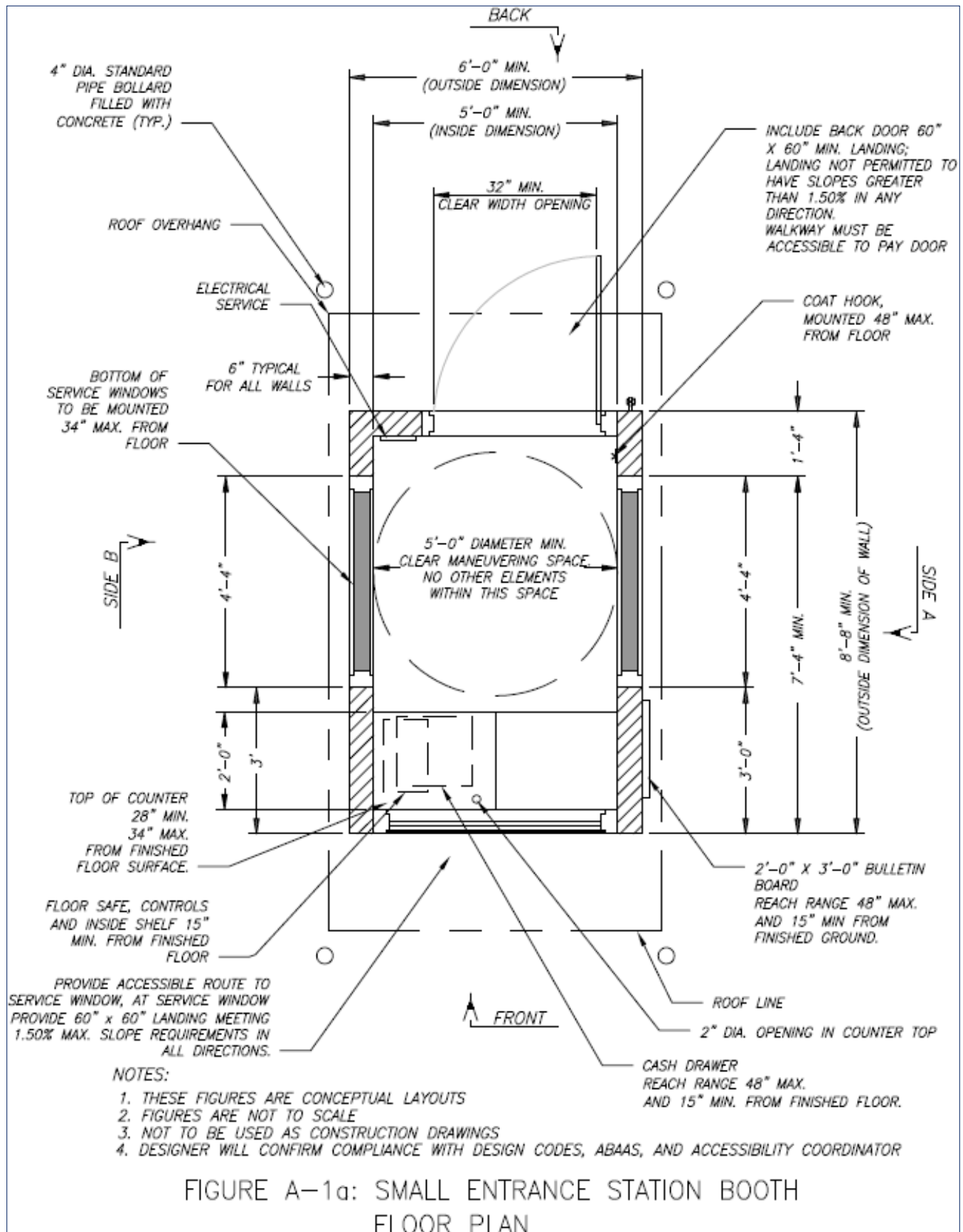
Figure A-3a: Fee Station/Office, Floor Plan

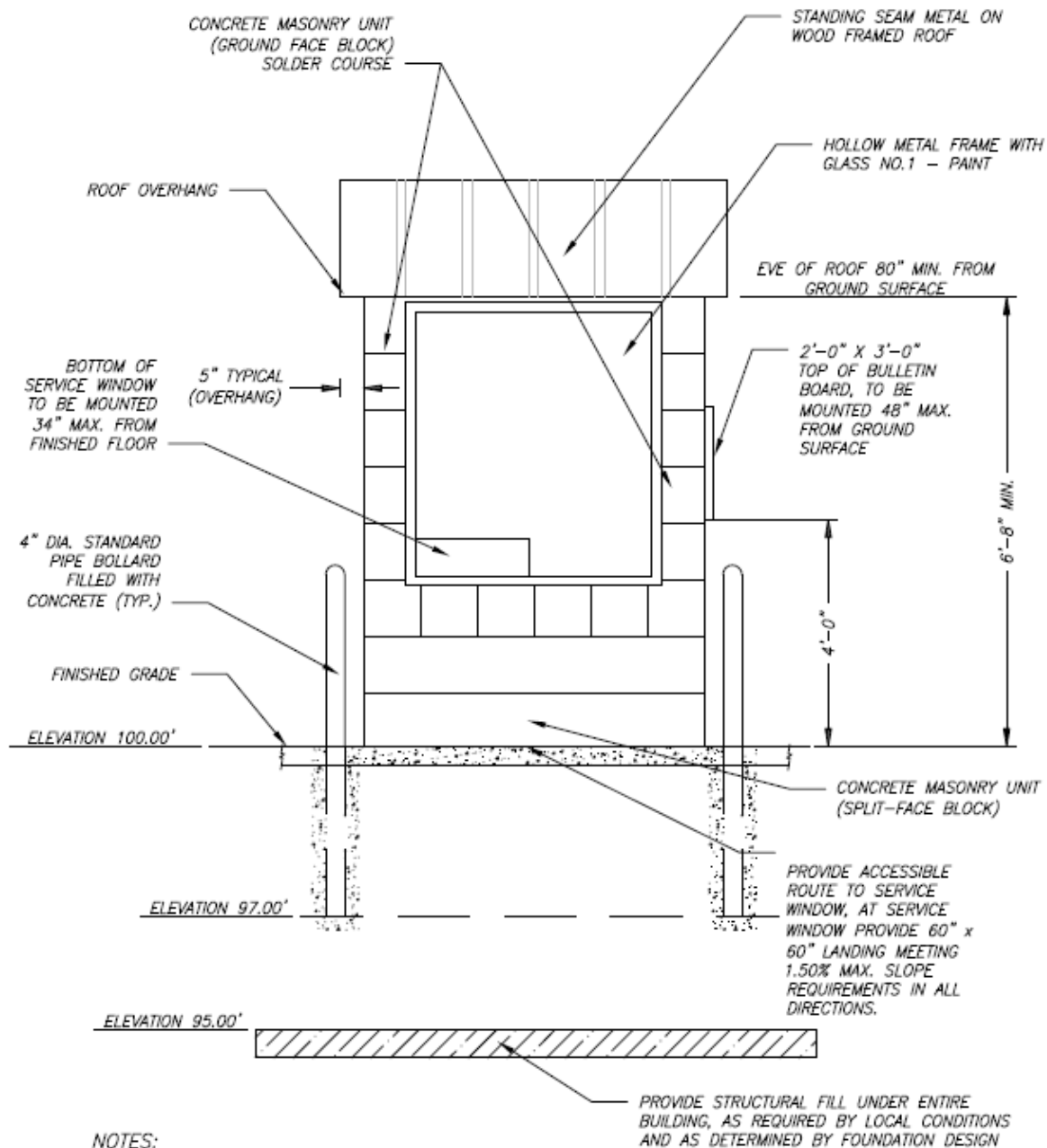
Figure A-3b: Fee Station/Office, Mounting Heights

Figure A-3c: Fee Station/Office, Mounting Heights

Figure A-3d: Fee Station/Office, Mounting Heights

Figure A-4: Entrance Kiosk





NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR

FIGURE A-1b: SMALL ENTRANCE STATION BOOTH
FRONT ELEVATION

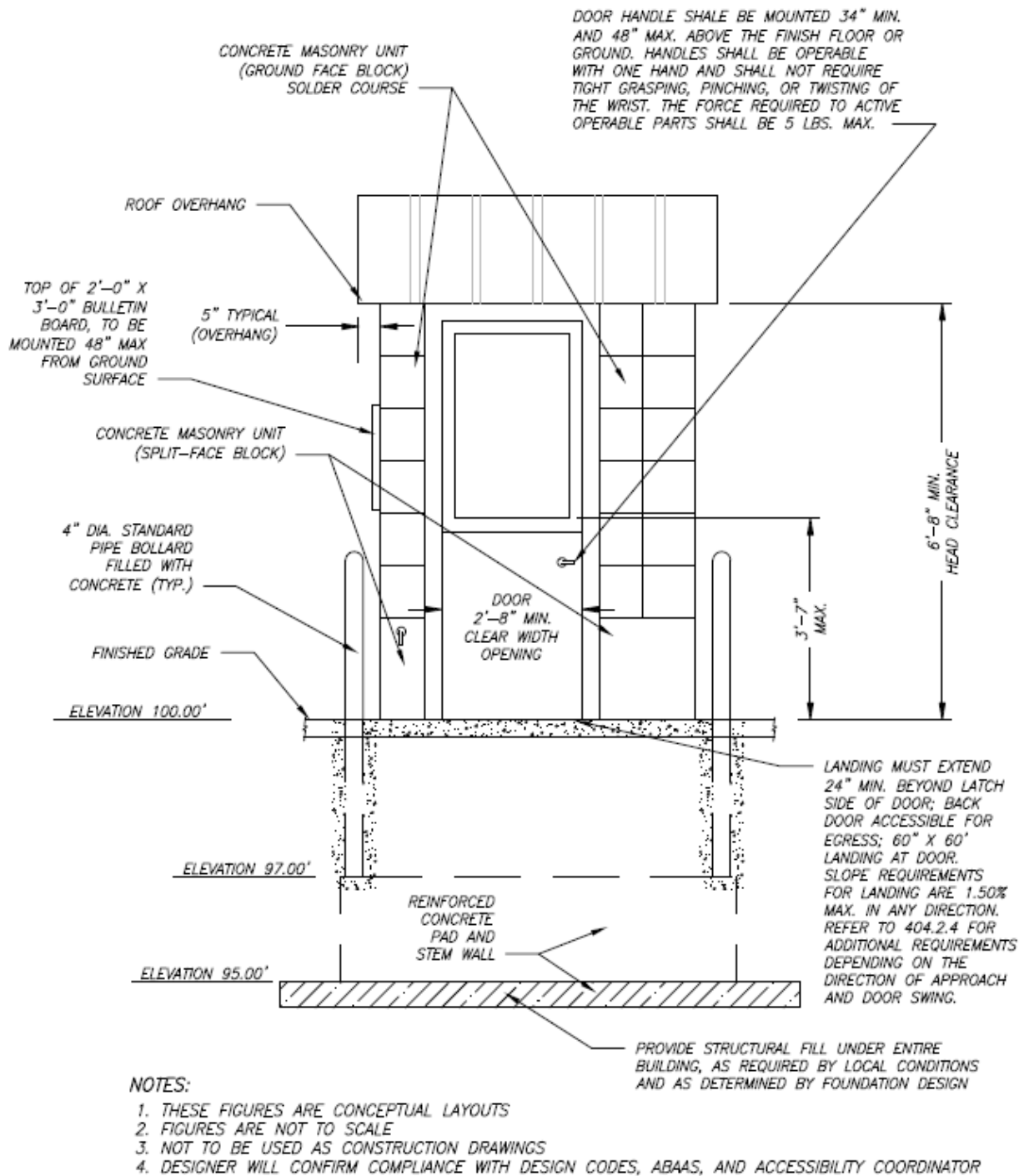
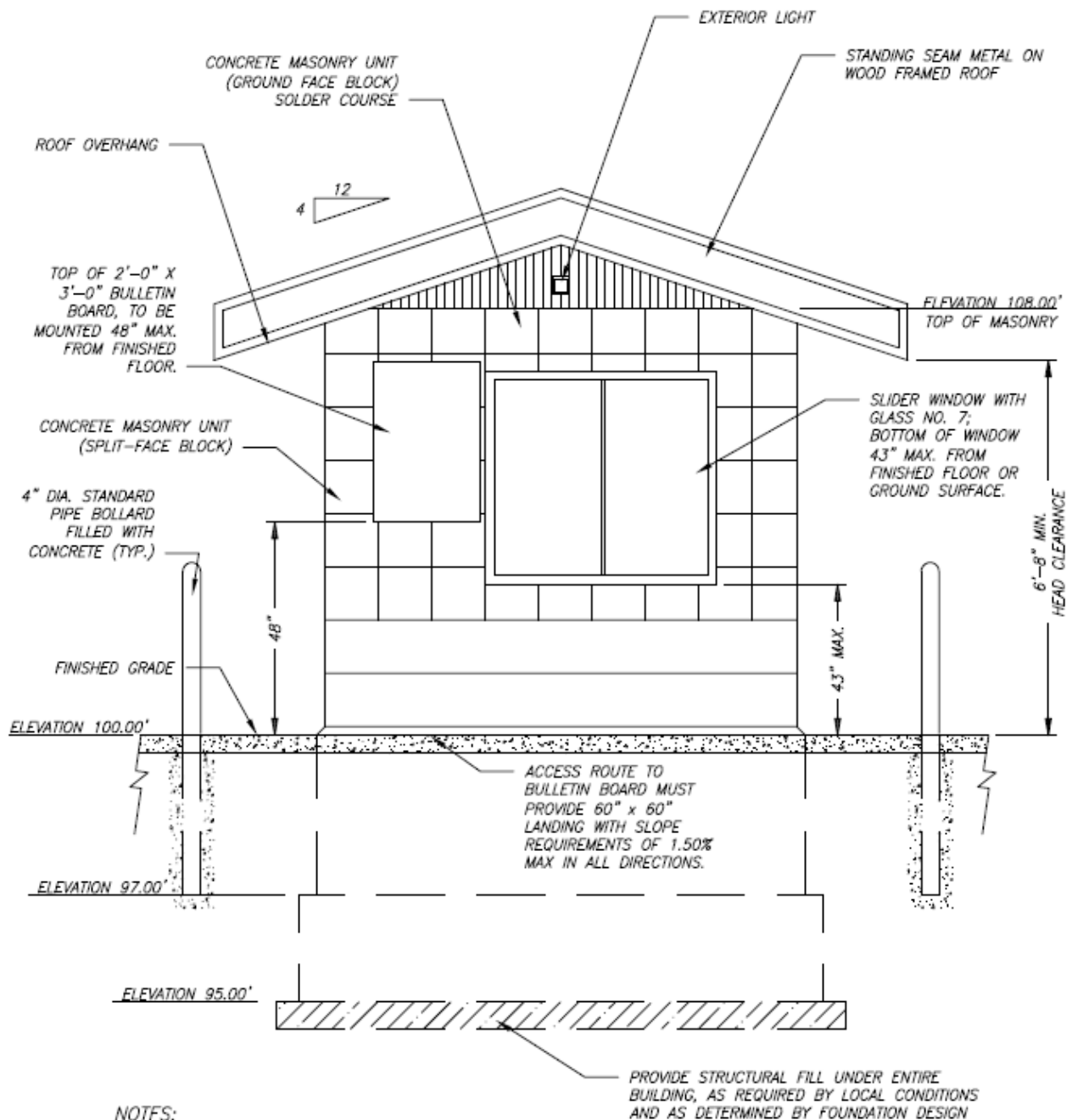


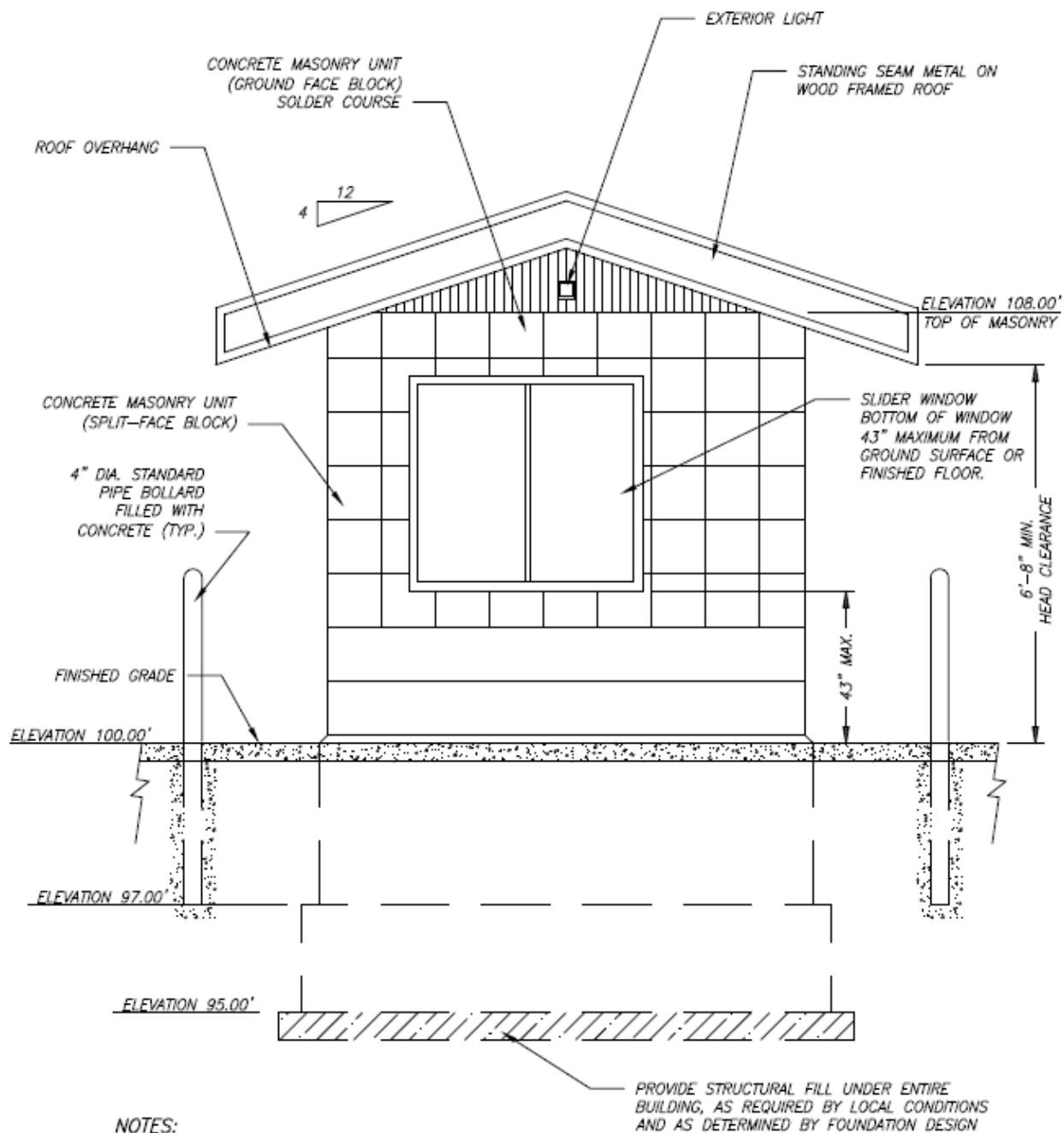
FIGURE A-1c: SMALL ENTRANCE STATION BOOTH
REAR ELEVATION



NOTES:

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3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
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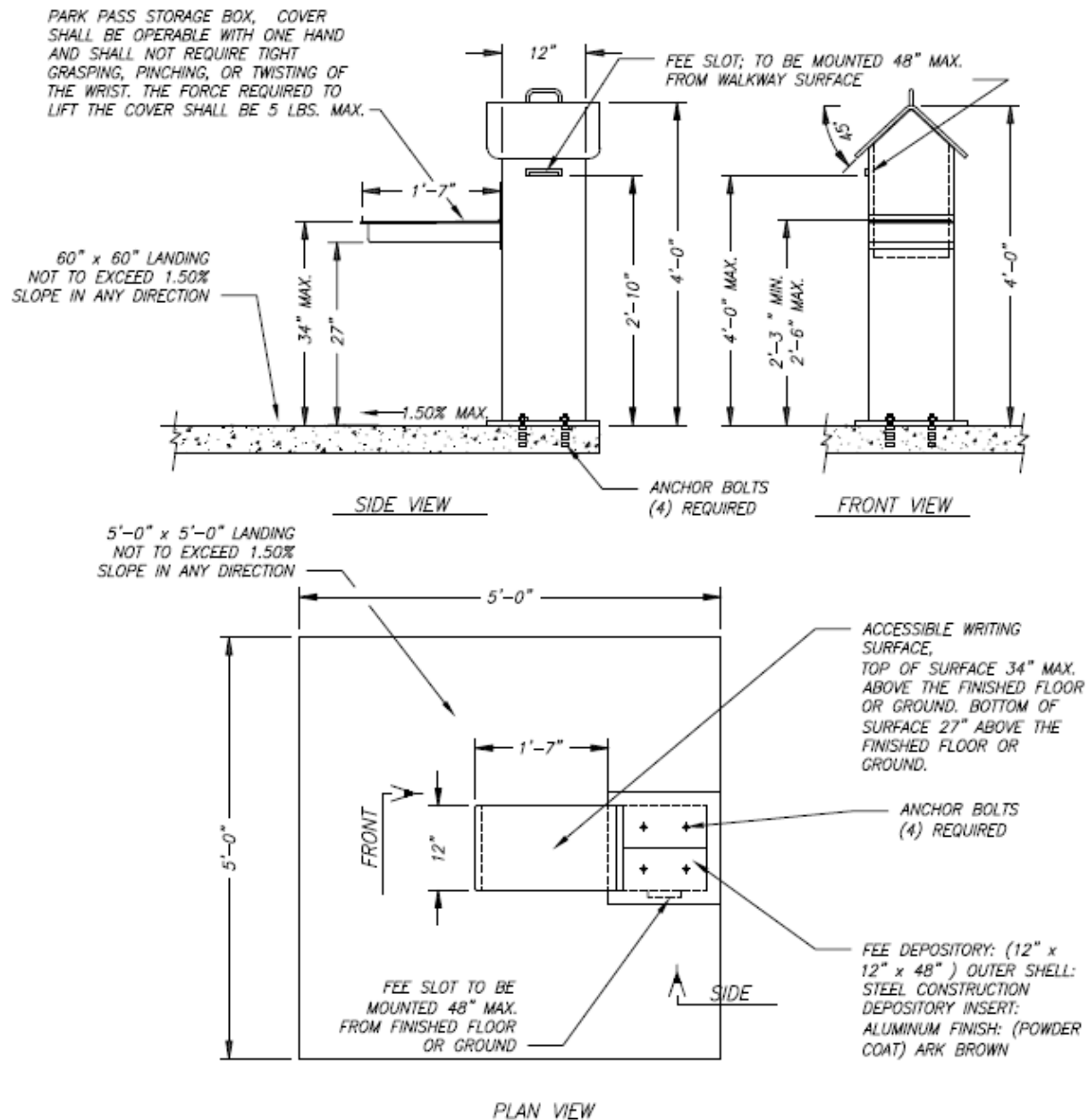
FIGURE A-1d: SMALL ENTRANCE STATION BOOTH
SIDE ELEVATION "A"



NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES AND ABAAS WHERE APPROPRIATE

FIGURE A-1e: SMALL ENTRANCE STATION BOOTH
SIDE ELEVATION "B"



NOTES:

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3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR

FIGURE A-2: SELF-SERVICE FEE DEPOSITORY

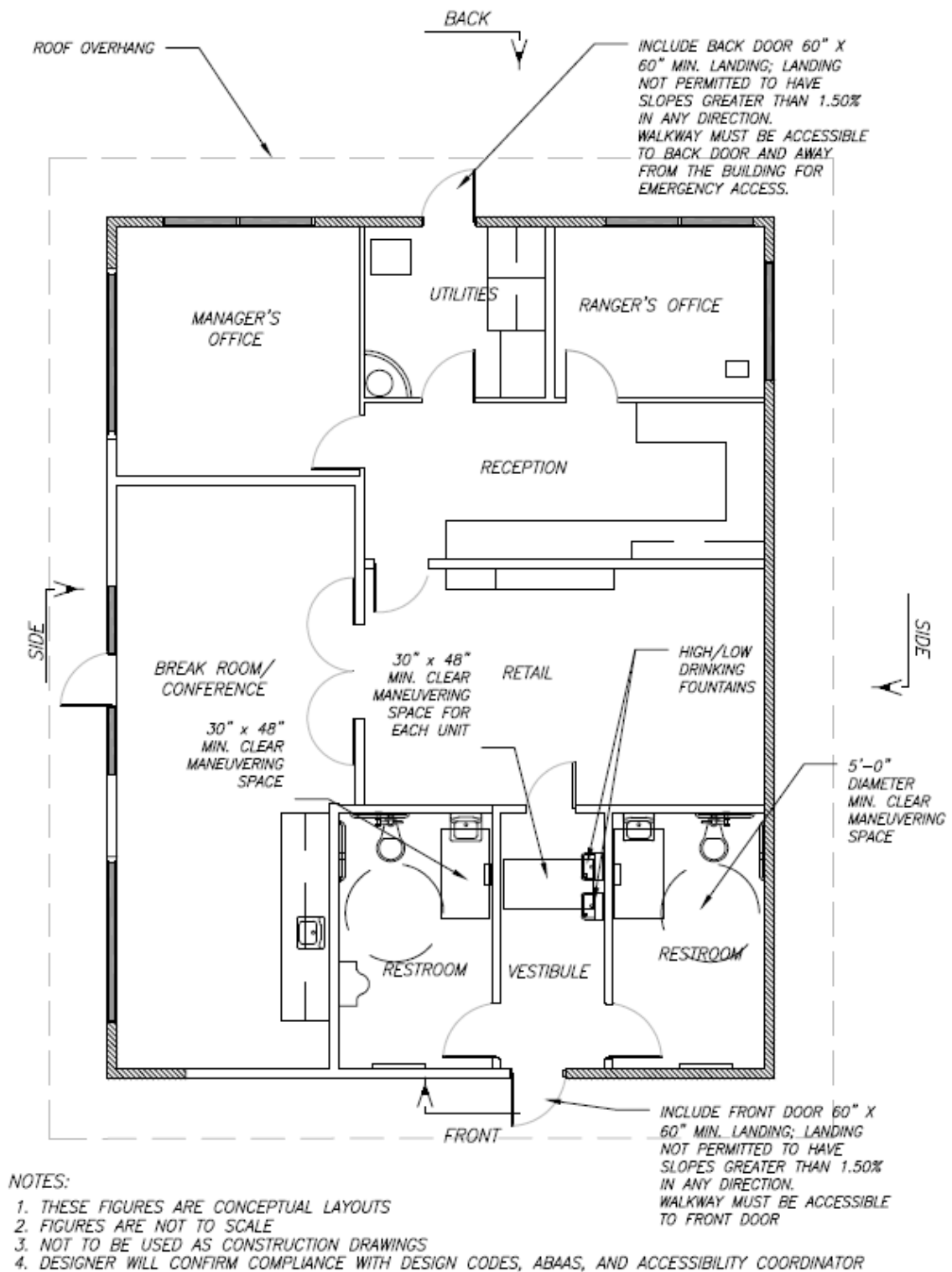
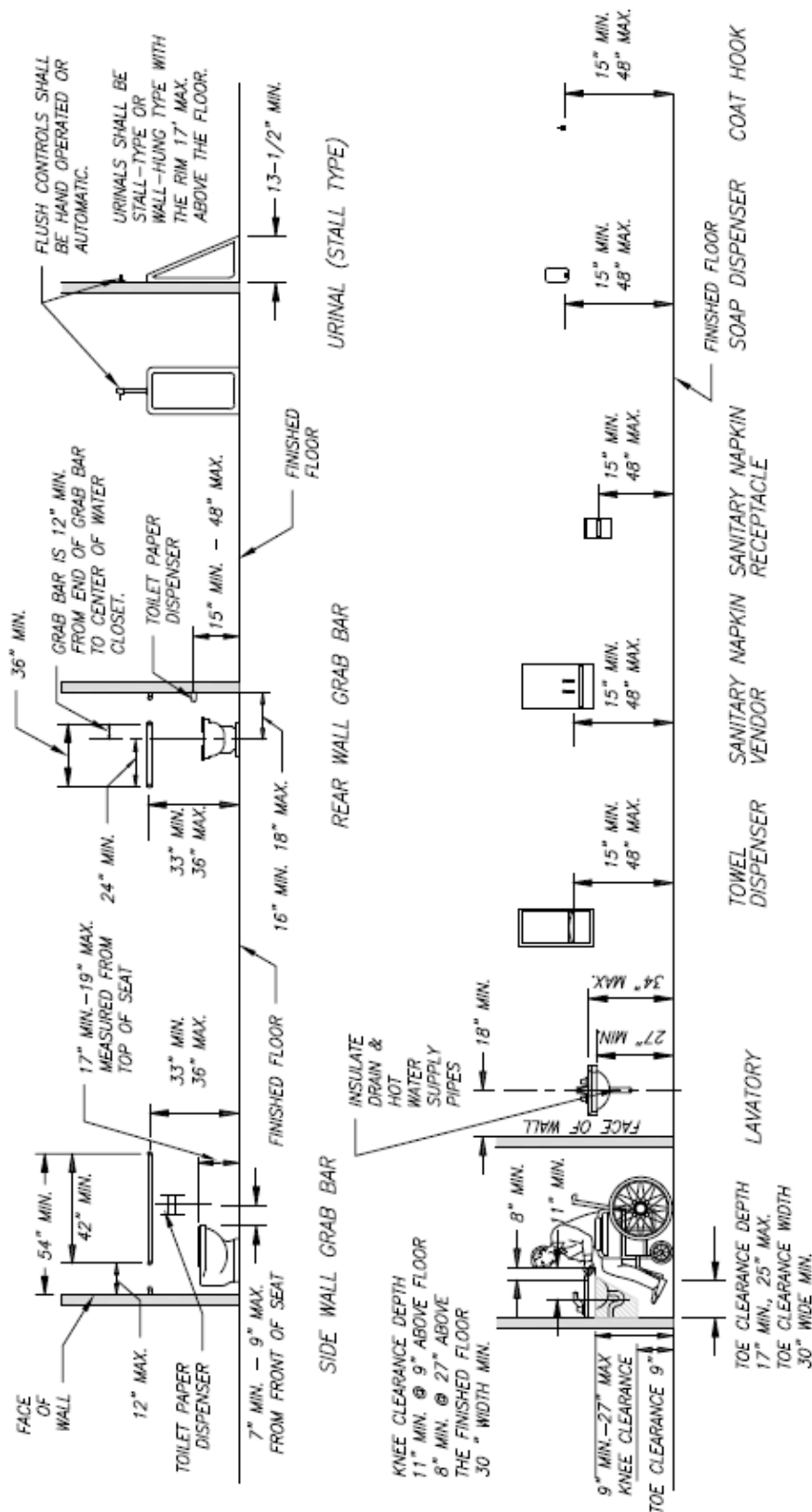


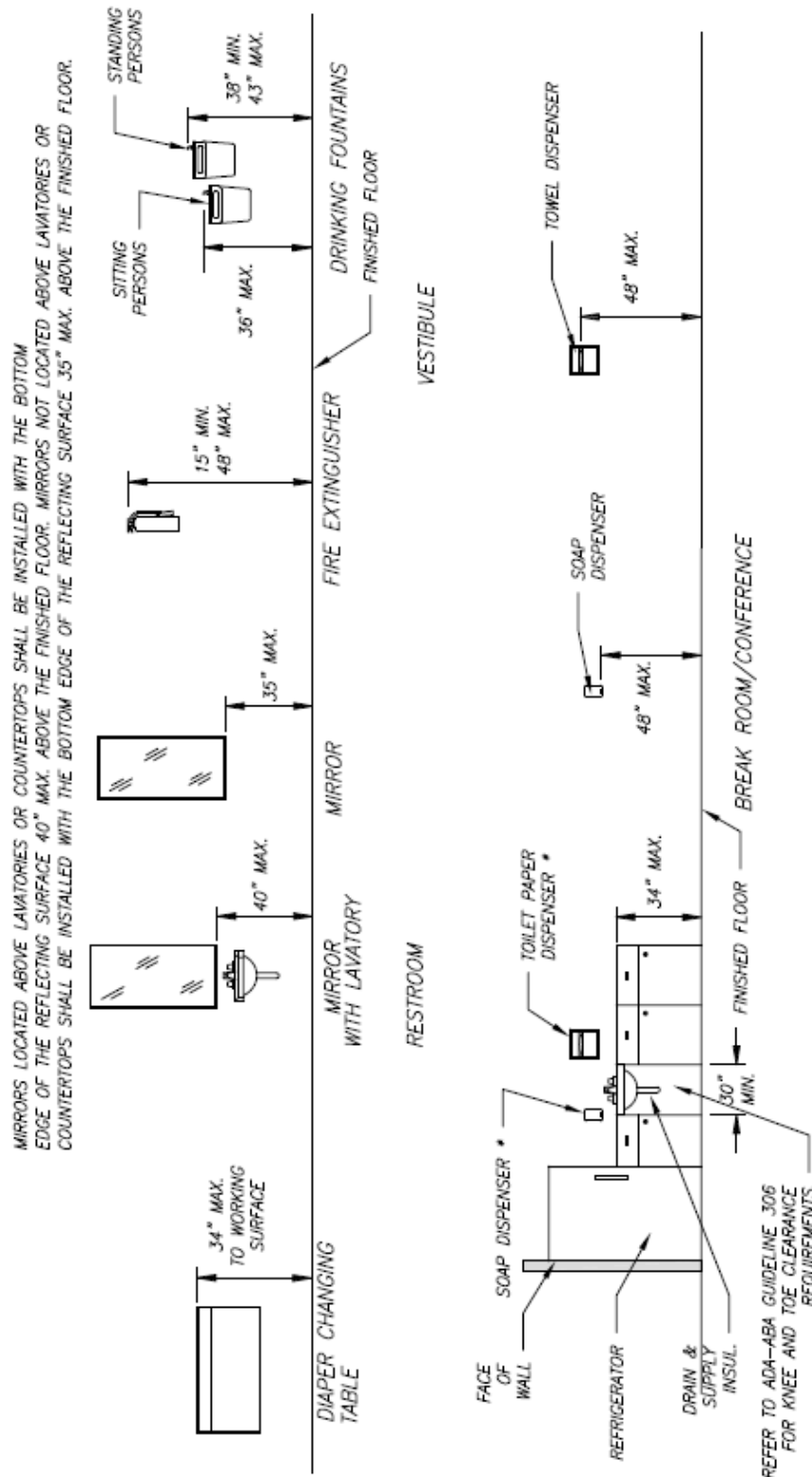
FIGURE A-3a: FEE STATION / OFFICE FLOOR PLAN



NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN

FIGURE A-3b: FEE STATION/OFFICE MOUNTING HEIGHTS



NOTES:

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3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAAS, AND ACCESSIBILITY COORDINATOR

FIGURE A-3c: FEE STATION/OFFICE MOUNTING HEIGHTS

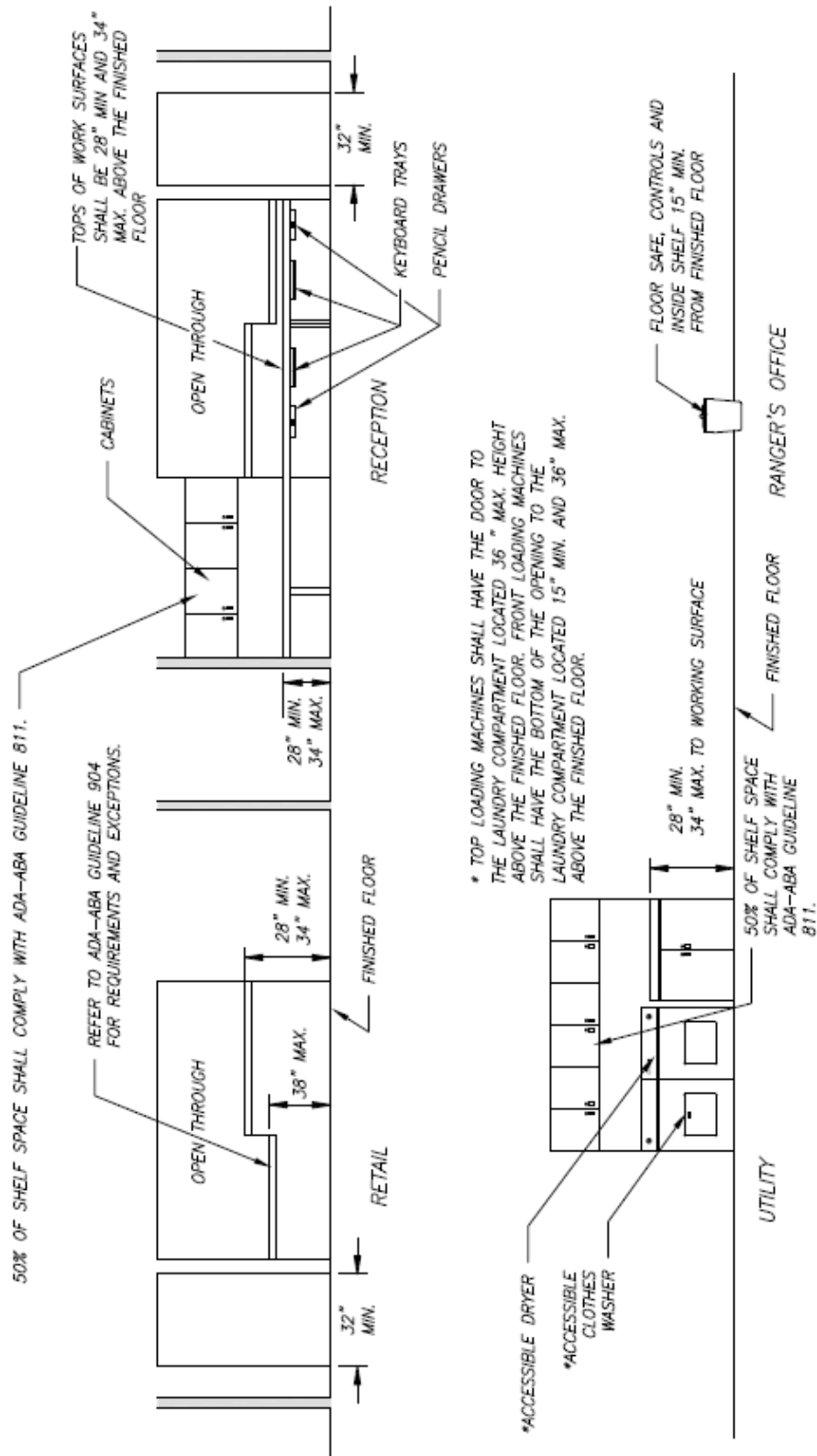


FIGURE A-3d: FEE STATION/OFFICE MOUNTING HEIGHTS

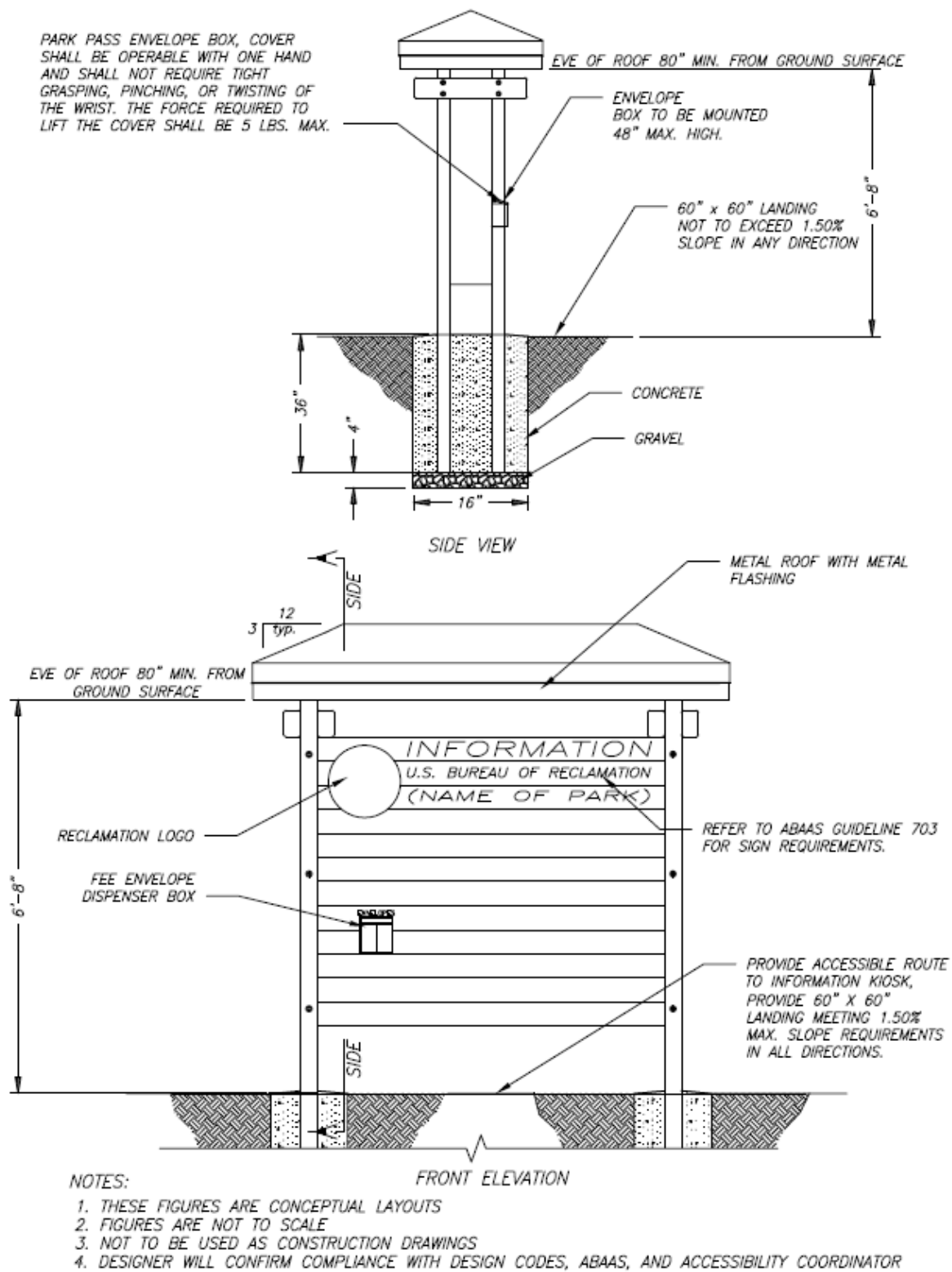


FIGURE A-4: ENTRANCE KIOSK

Appendix B – Camping and Picnicking Facilities

Figure B-1: Back-In Campsite Parking Spur, Single Unit

Figure B-2: Back-In Accessible Campsite Parking Spur, Single Unit

Figure B-3: Back-In Campsite Parking Spur, Double Unit

Figure B-4: Back-In Accessible Campsite Parking Spur, Double Unit

Figure B-5: Pullthrough Campsite Parking

Figure B-6: Pullthrough Accessible Campsite Parking

Figure B-7: Accessible Campsite Sewer Drop

Figure B-8: Accessible Water Hydrant

Figure B-9: Pedestal Grill, Elevation

Figure B-10: Group Site Pedestal Grill, Elevation

Figure B-11a: Accessible Fire Ring, Elevation

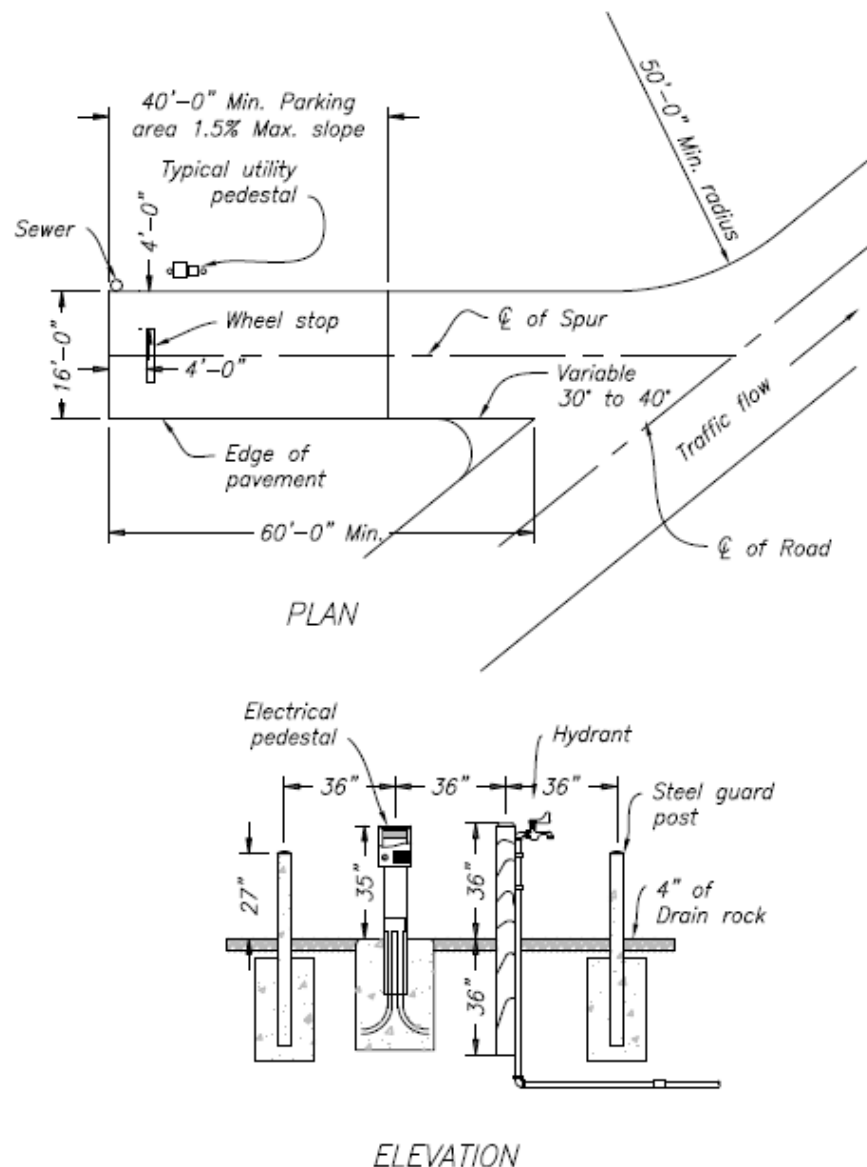
Figure B-11b: Accessible Fire Ring, Plan View

Figure B-12: Accessible Picnic Site

Figure B-13a: Accessible Group Picnic Site, Plan View

Figure B-13b: Accessible Group Picnic Site, Elevation

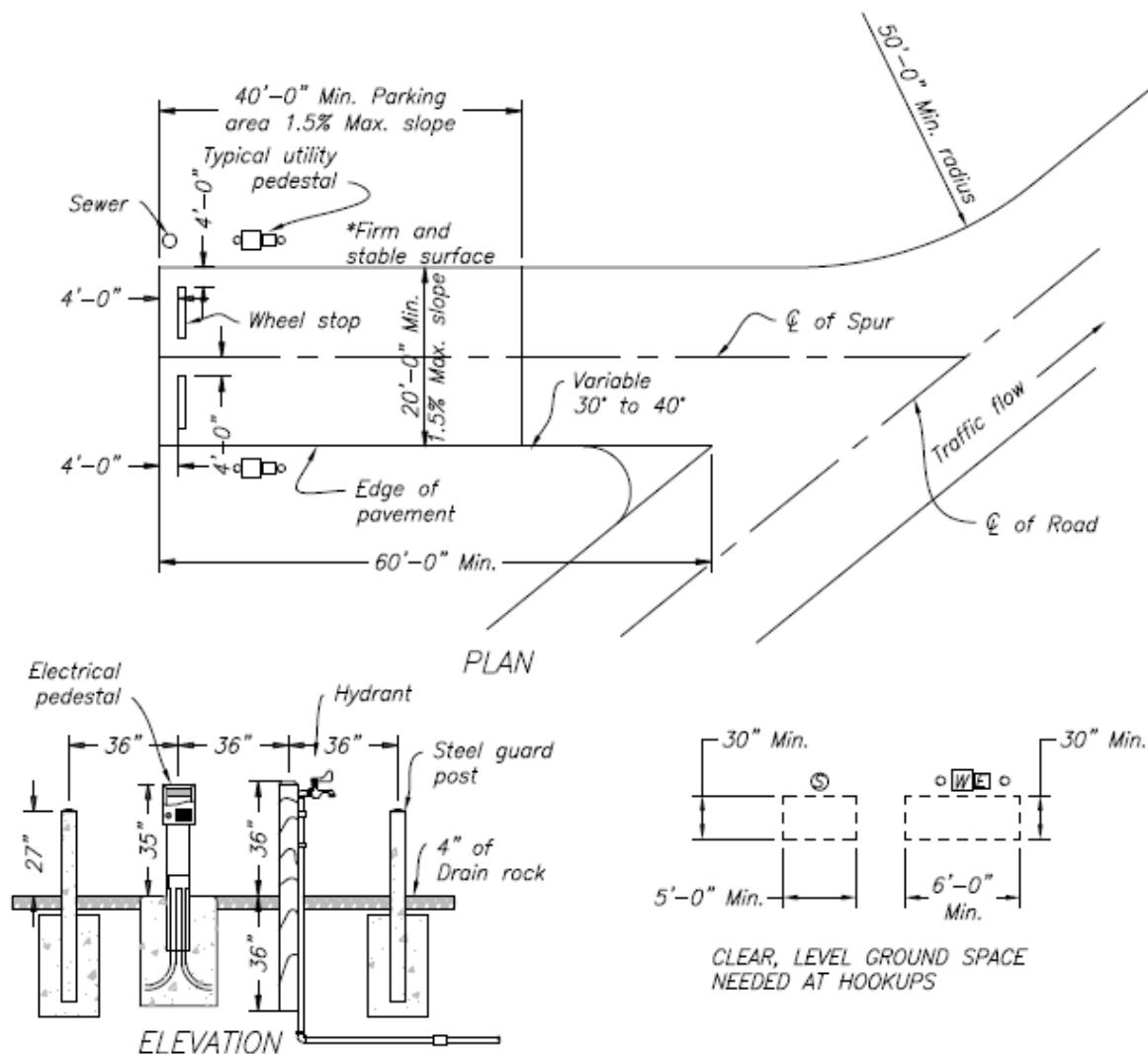
Figure B-14: Accessible Drinking Fountain



NOTES

- NOTES
1. These figures are conceptual layouts.
 2. They are not to scale.
 3. They are not for construction.
 4. Designer will confirm compliance with design codes and ABAAS with Accessibility Coordinator.

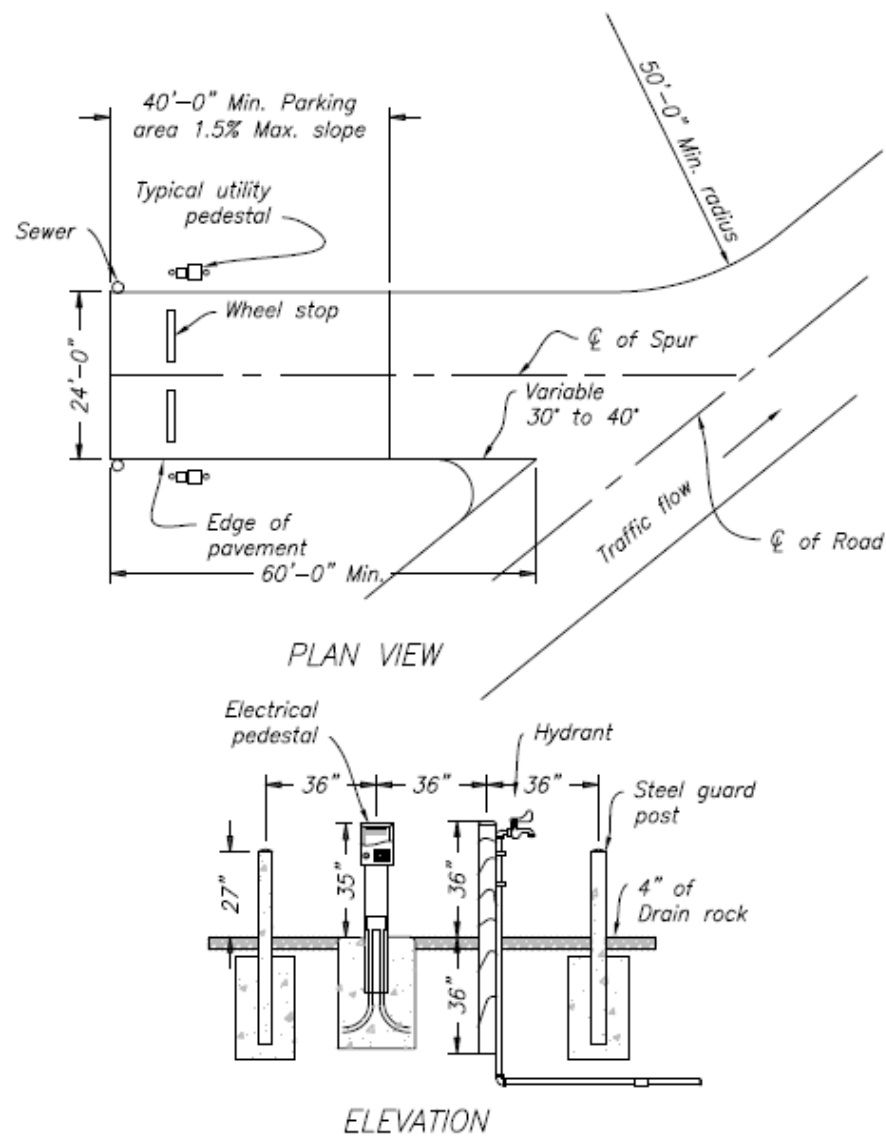
FIGURE B-1: BACK-IN CAMPSITE PARKING SPUR
SINGLE UNIT



NOTES

1. Min. clear maneuvering space needed. Do not block with steel guard posts, tire stops or any other features.
2. Slope is not to exceed 1.5% in any direction throughout the entire parking area.
3. Sewer hatches are exempt from accessibility reach range requirements.
4. Refer to Picnic Layout for living space compliance.
5. A stable surface is one that remains unchanged by contaminants or applied force, so that when the contaminant or force is removed, the surface returns to its original conditions. A firm surface resists deformation by either indentations or particles moving on its surface.
6. Consult with Accessibility Coordinator for compliance.
7. These figures are conceptual layouts.
8. They are not to scale.
9. They are not for construction.

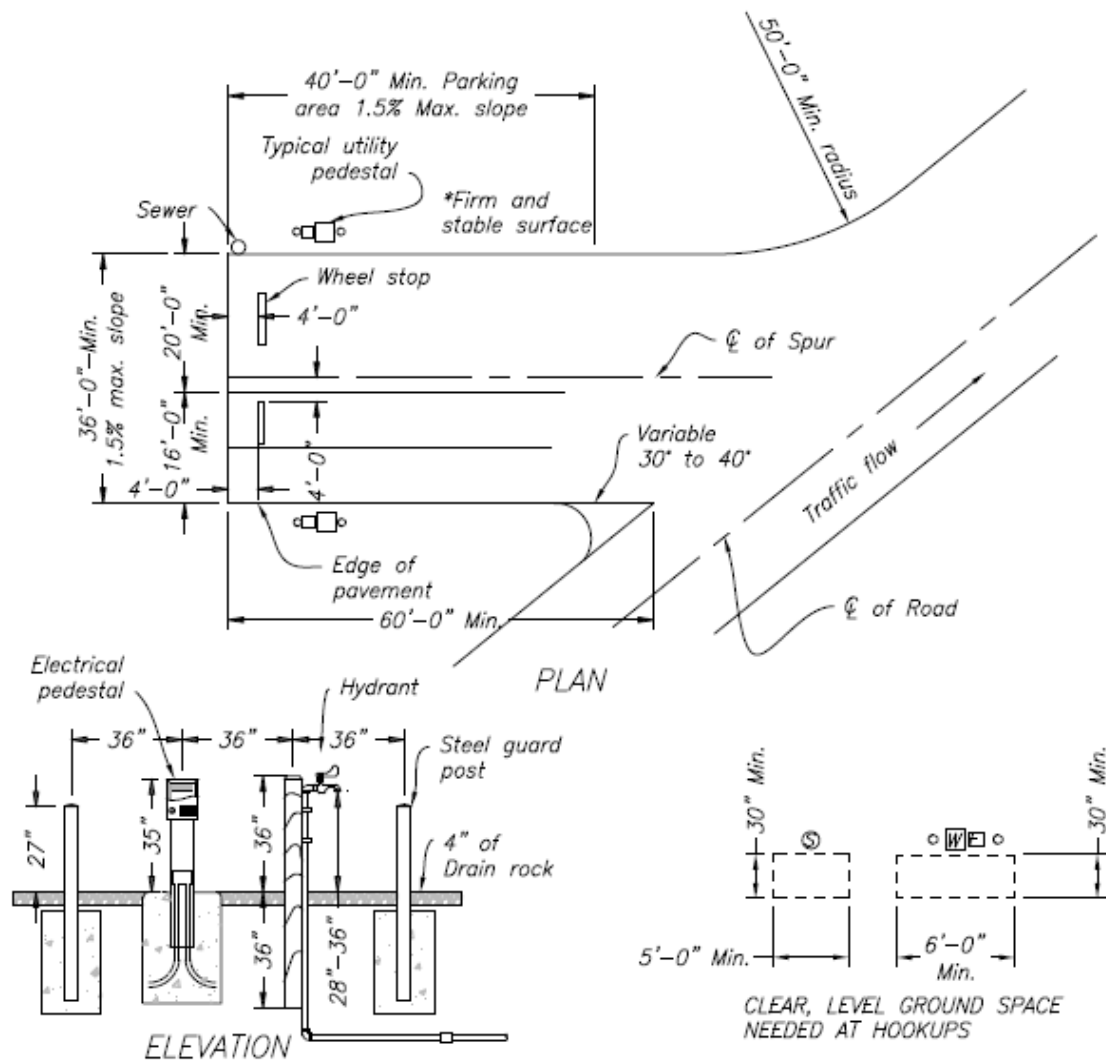
FIGURE B-2: BACK-IN ACCESSIBLE CAMPSITE
PARKING SPUR - SINGLE UNIT



NOTES

1. These figures are conceptual layouts.
2. They are not to scale.
3. They are not for construction.
4. Designer will confirm compliance with design codes an ABAAS with Accessibility Coordinator.

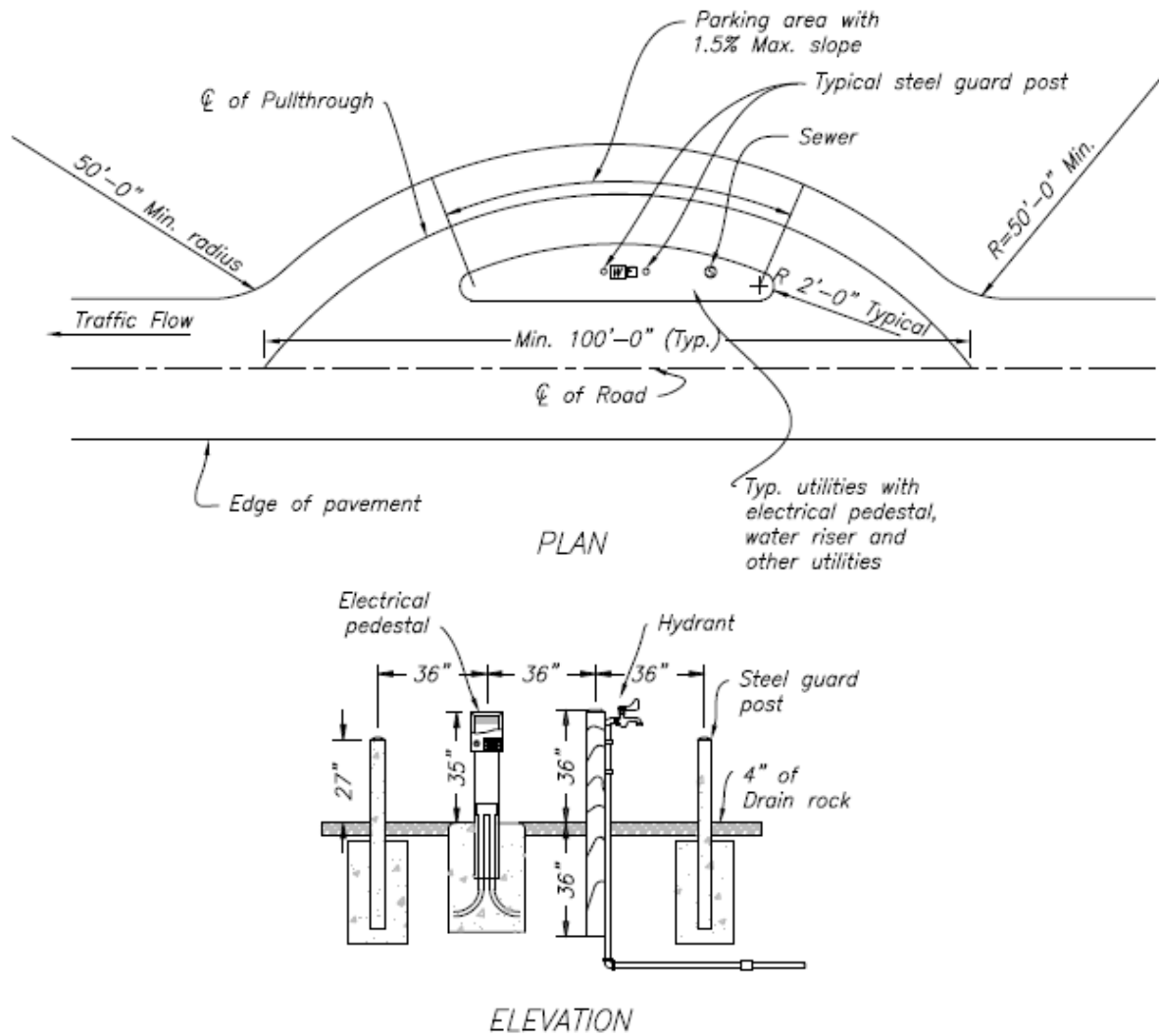
FIGURE B-3: BACK-IN CAMPSITE PARKING SPUR
DOUBLE UNIT



NOTES

1. Min. clear maneuvering space needed. Do not block with steel guard posts, tire stops or any other features.
2. Slope is not to exceed 1.5% in any direction throughout the entire parking area.
3. Sewer hatches are exempt from accessibility reach range requirements.
4. Refer to Picnic Layout for living space compliance.
5. A stable surface is one that remains unchanged by contaminants or applied force, so that when the contaminant or force is removed, the surface returns to its original conditions. A firm surface resists deformation by either indentations or particles moving on its surface.
6. Consult with Accessibility Coordinator for compliance.
7. These figures are conceptual layouts.
8. They are not to scale.
9. They are not for construction.

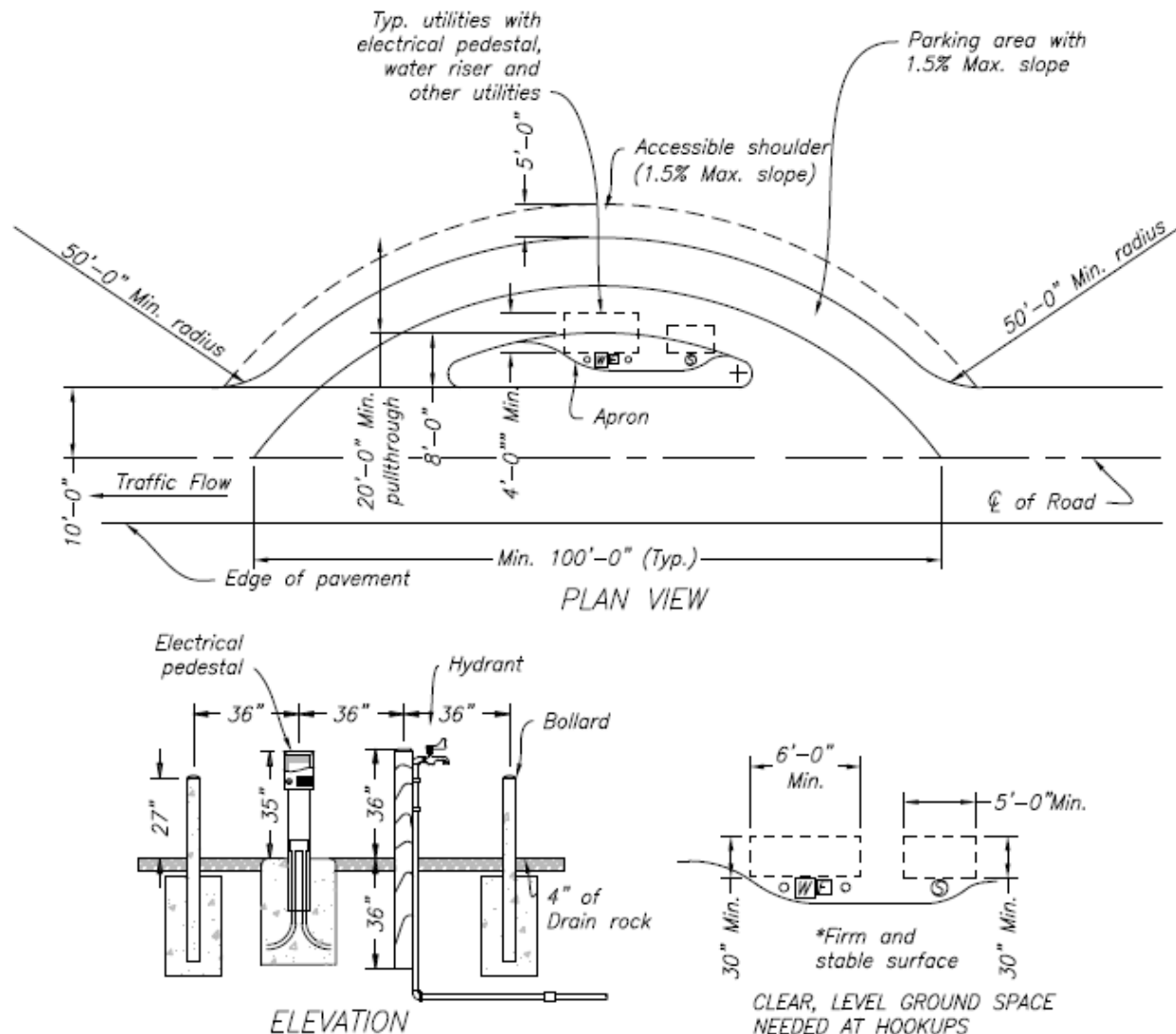
FIGURE B-4: BACK-IN ACCESSIBLE CAMPSITE PARKING SPUR
DOUBLE UNIT



NOTES

1. These figures are conceptual layouts.
2. They are not to scale.
3. They are not for construction.
4. Designer will confirm compliance with design codes and ABAAS where appropriate.

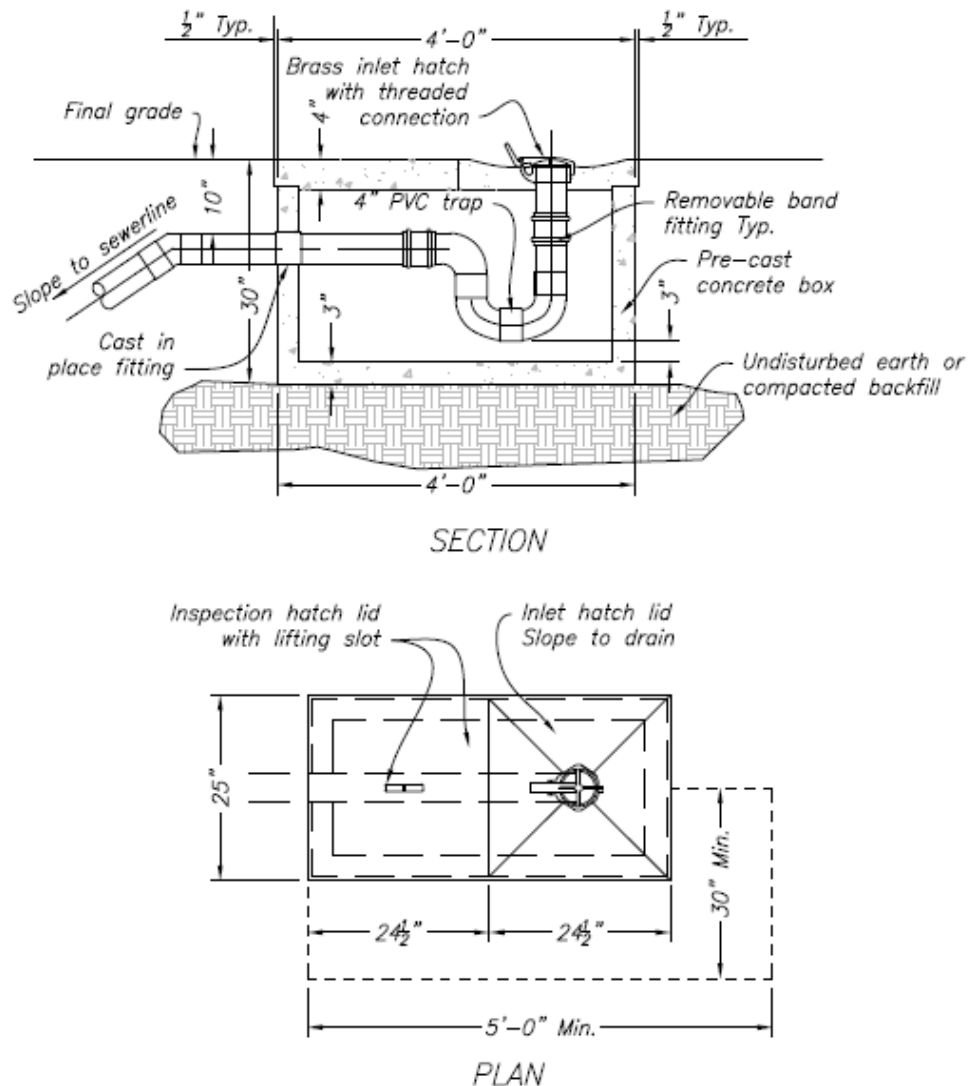
FIGURE B-5: PULLTHROUGH CAMPSITE PARKING



NOTES

1. Min. clear maneuvering space needed. Do not block with steel guard posts, tire stops or any other features.
2. Slope is not to exceed 1.5% in any direction throughout the entire parking area. Can go to 2.5% if needed for drainage, only if the surface is not concrete, asphalt, or boards.
3. Sewer hatches are exempt from accessibility reach range requirements.
4. A stable surface is one that remains unchanged by contaminants or applied force, so that when the contaminant or force is removed, the surface returns to its original conditions. A firm surface resists deformation by either indentations or particles moving on its surface.
5. These figures are conceptual layouts
6. They are not to scale.
7. They are not for construction.
8. Designer will confirm compliance with design codes and ABAAS with Accessibility Coordinator.

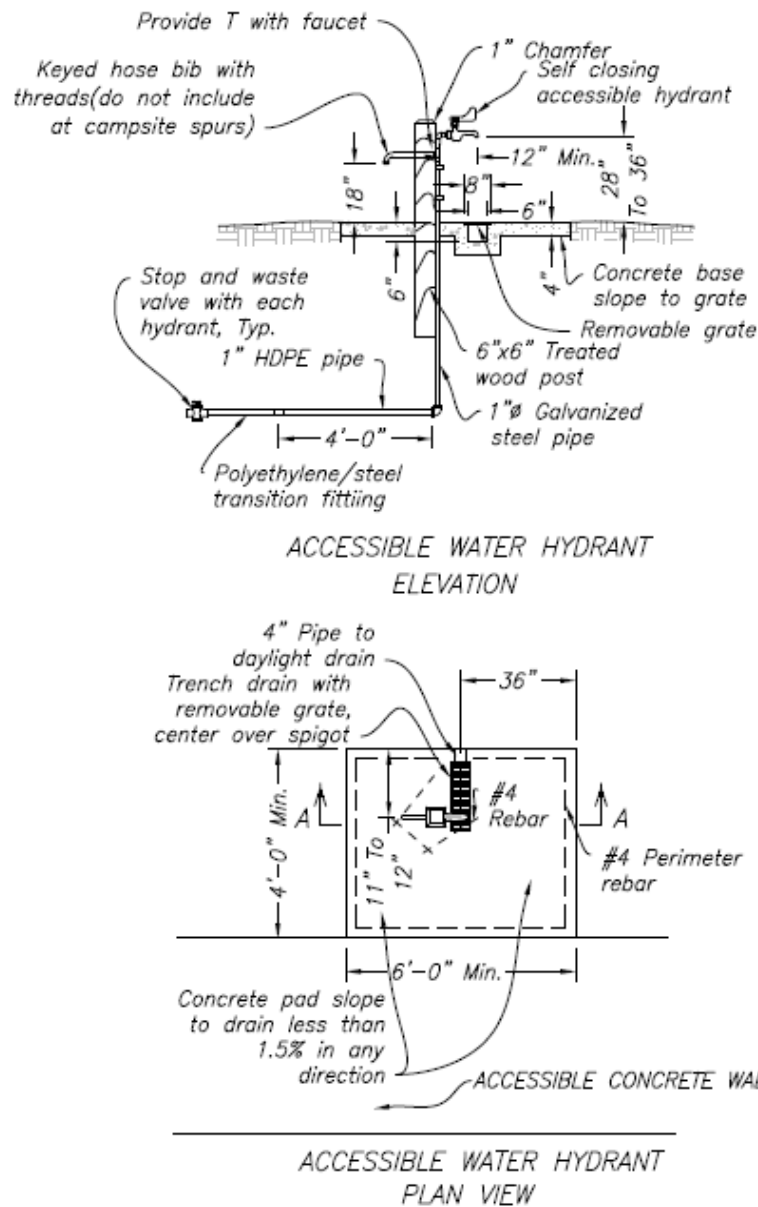
FIGURE B-6: PULLTHROUGH ACCESSIBLE
CAMPSITE PARKING



NOTES

1. Min. clear maneuvering space needed. Do not block with steel guard posts, tire stops or any other features.
2. Slope is not to exceed 1.5% in any direction throughout the clear space. Can go to 2.5% if needed for drainage, only if surface is other than concrete, asphalt, or boards.
3. Sewer hatches are exempt from accessibility reach range requirements.
4. These figures are conceptual layouts.
5. They are not to scale.
6. They are not for construction.
7. Designer will confirm compliance with design codes and ABAAS with Accessibility Coordinator.

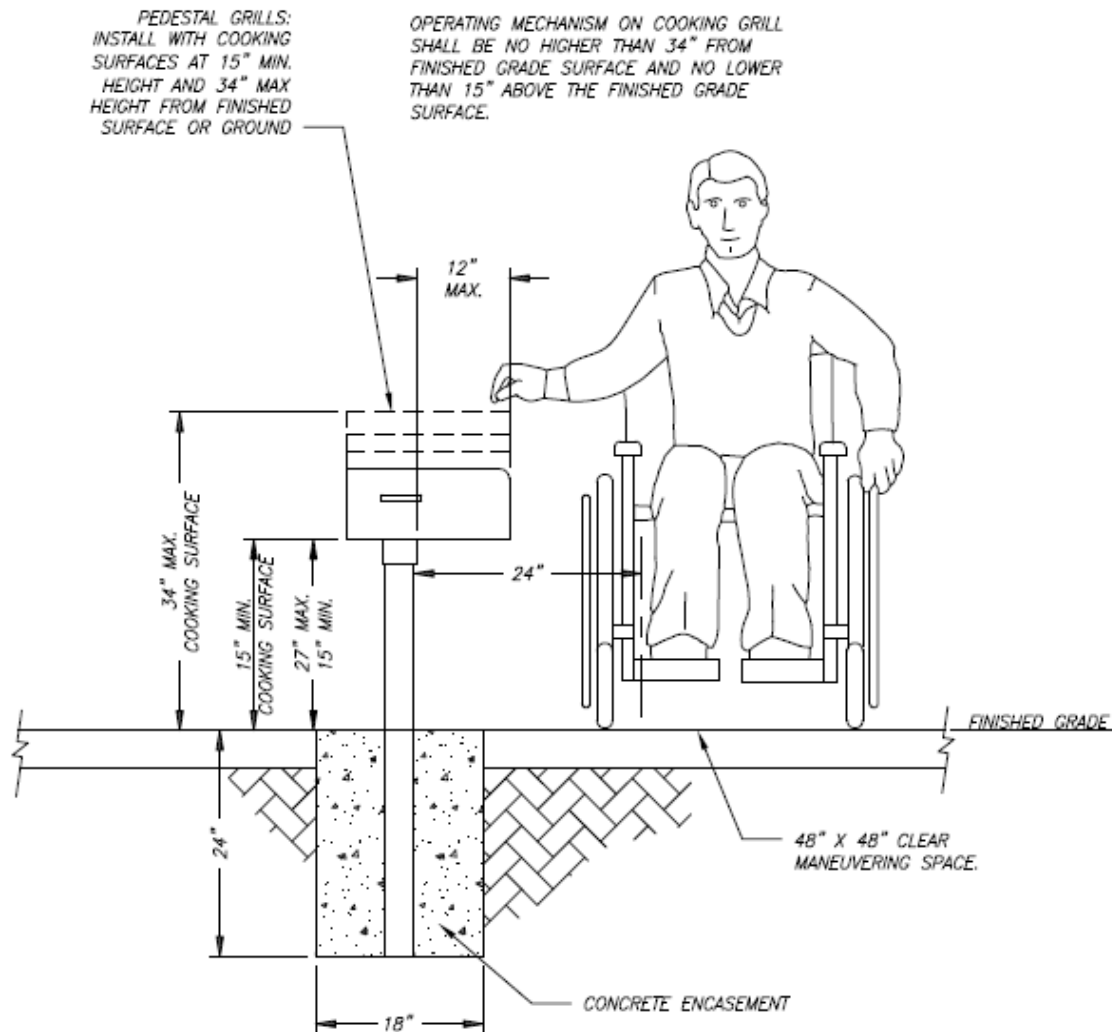
FIGURE B-7: ACCESSIBLE CAMPSITE SEWER DROP



NOTES

1. These figures are conceptual layouts.
2. They are not to scale.
3. They are not for construction.
4. Designer will confirm compliance with design codes and ABAAS with Accessibility Coordinator.

FIGURE B-8: ACCESSIBLE WATER HYDRANT

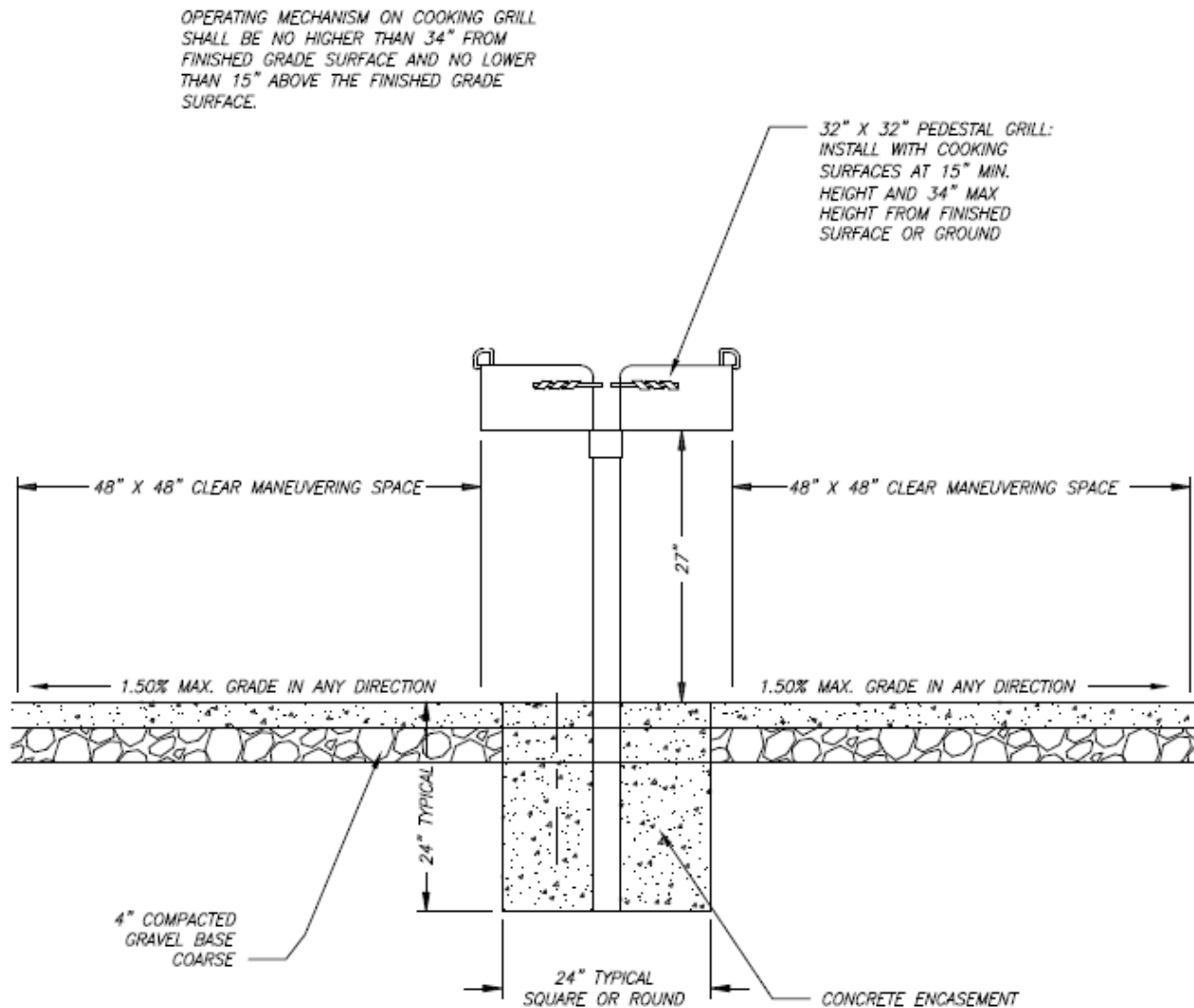


FOR PLAN VIEW OF PEDESTAL GRILL INSTALLATION SEE FIGURE B-9a

NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
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3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR

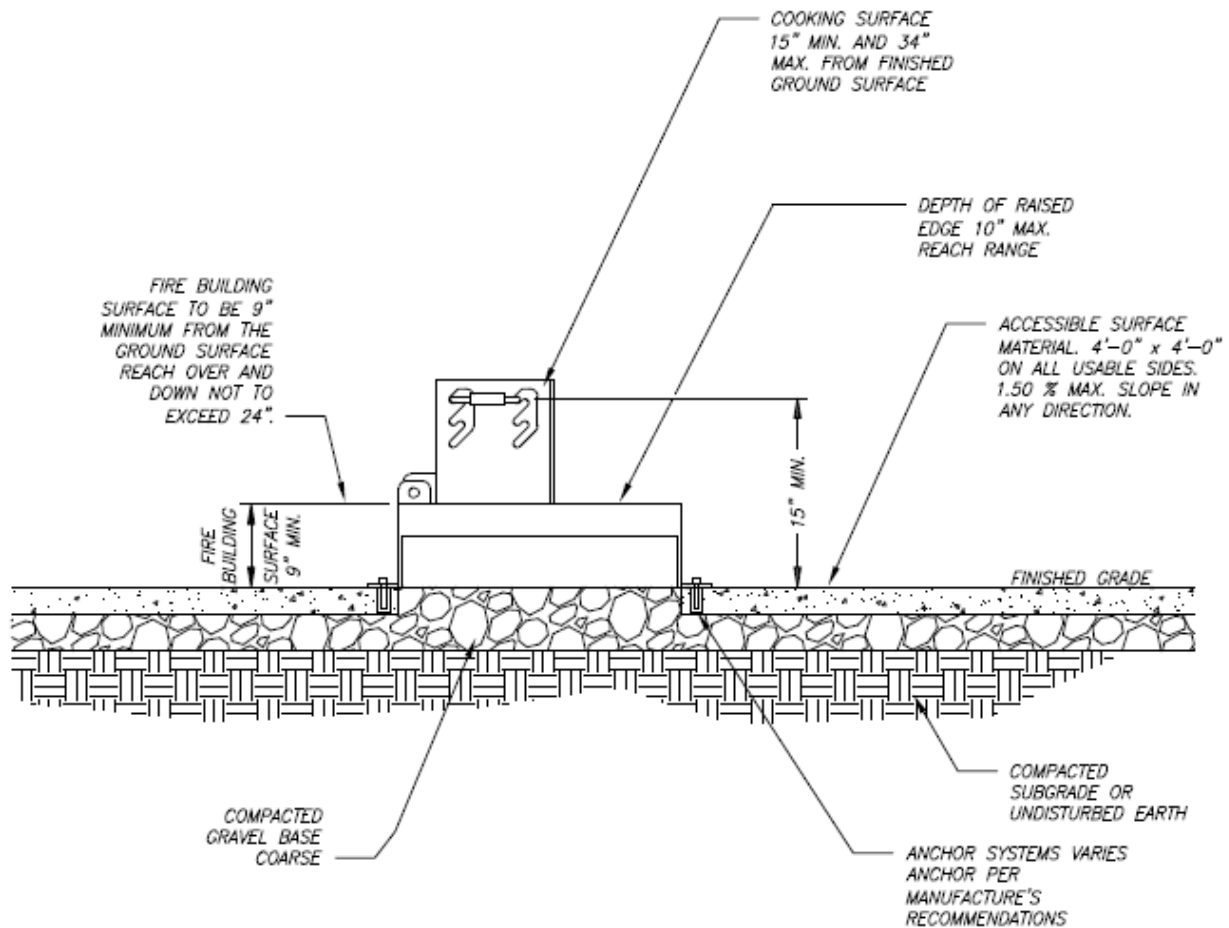
FIGURE B-9: PEDESTAL GRILL – ELEVATION



NOTES:

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3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR

FIGURE B-10: GROUP SITE PEDESTAL GRILL – ELEVATION

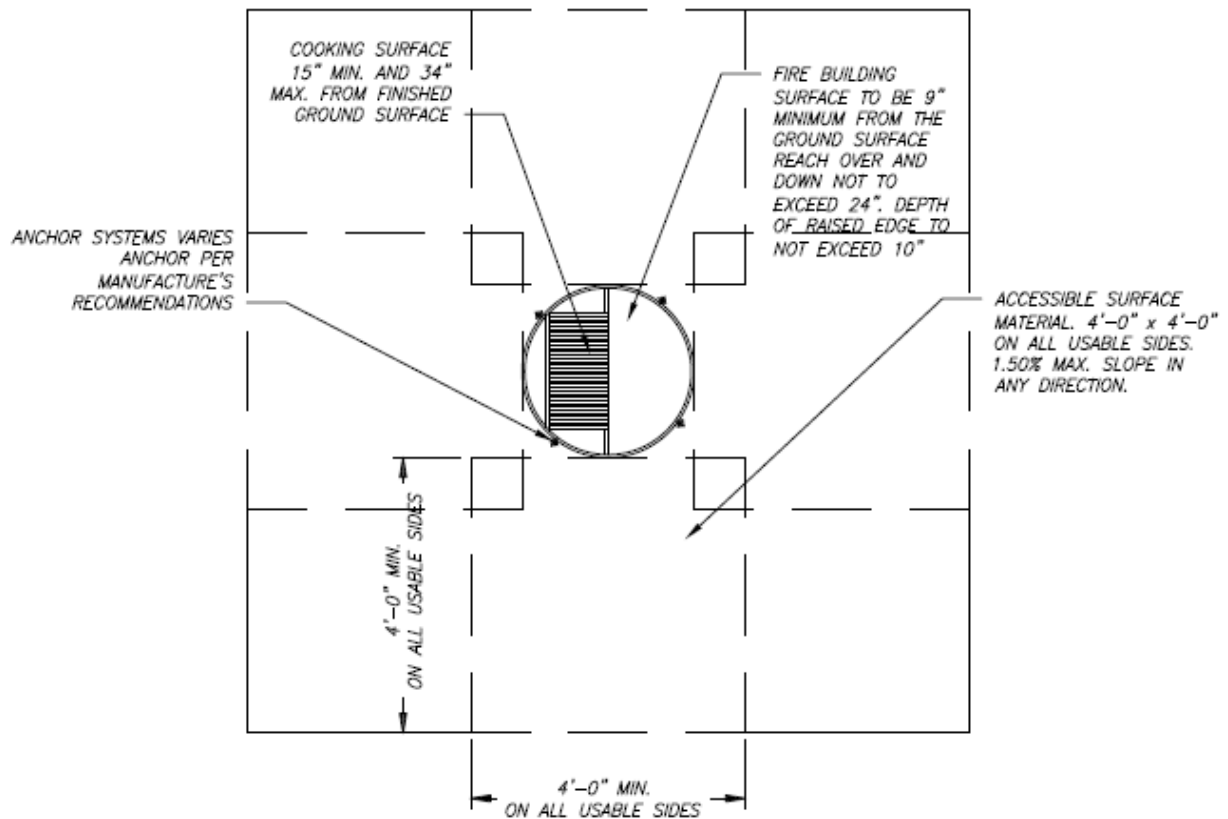


SEE FIGURE B-11a FOR PLAN VIEW OF ACCESSIBLE

NOTES:

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3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR

FIGURE B-11a: ACCESSIBLE FIRE RING - ELEVATION

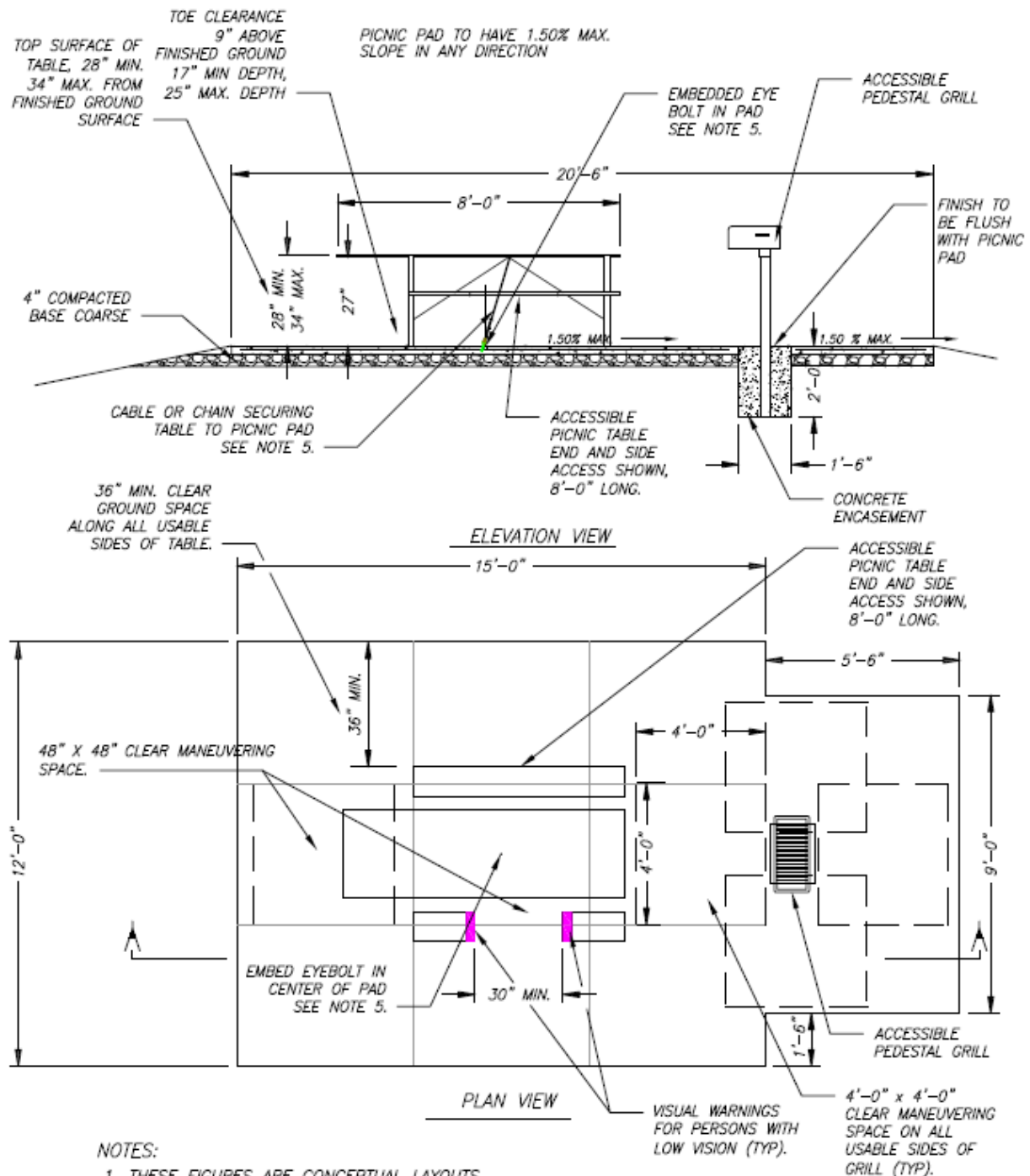


SEE FIGURE B-11a FOR ELEVATION VIEW OF ACCESSIBLE GRILL AND FIRE RING

NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR

FIGURE B-11b: ACCESSIBLE FIRE RING – PLAN VIEW



NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR
5. WHEN SECURING TABLE TO PAD SECURE IN A FASHION THAT DOES NOT HINDER THE KNEE SPACE OF THE WHEELCHAIR OCCUPANT.

FIGURE B-12: ACCESSIBLE PICNIC SITE

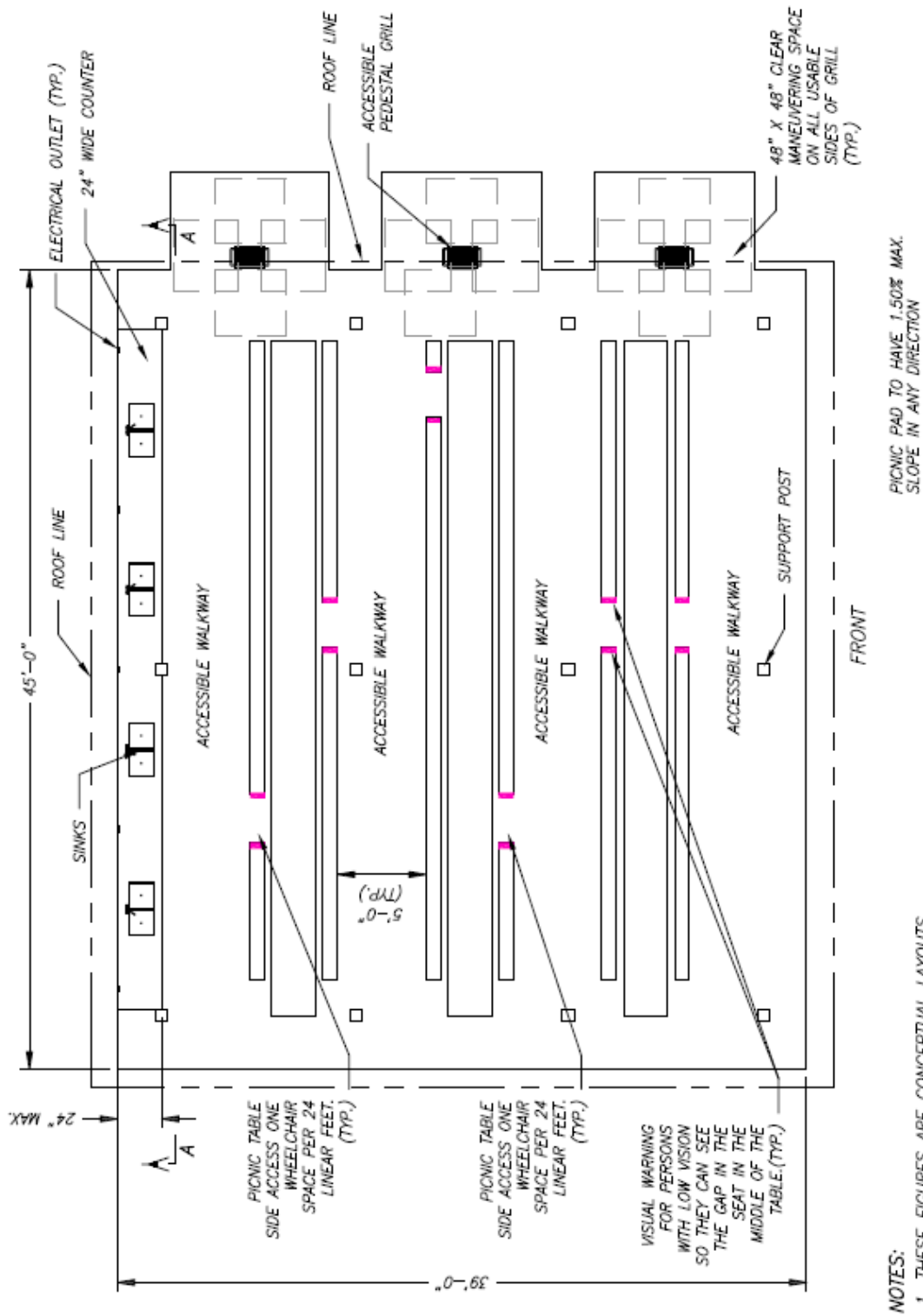
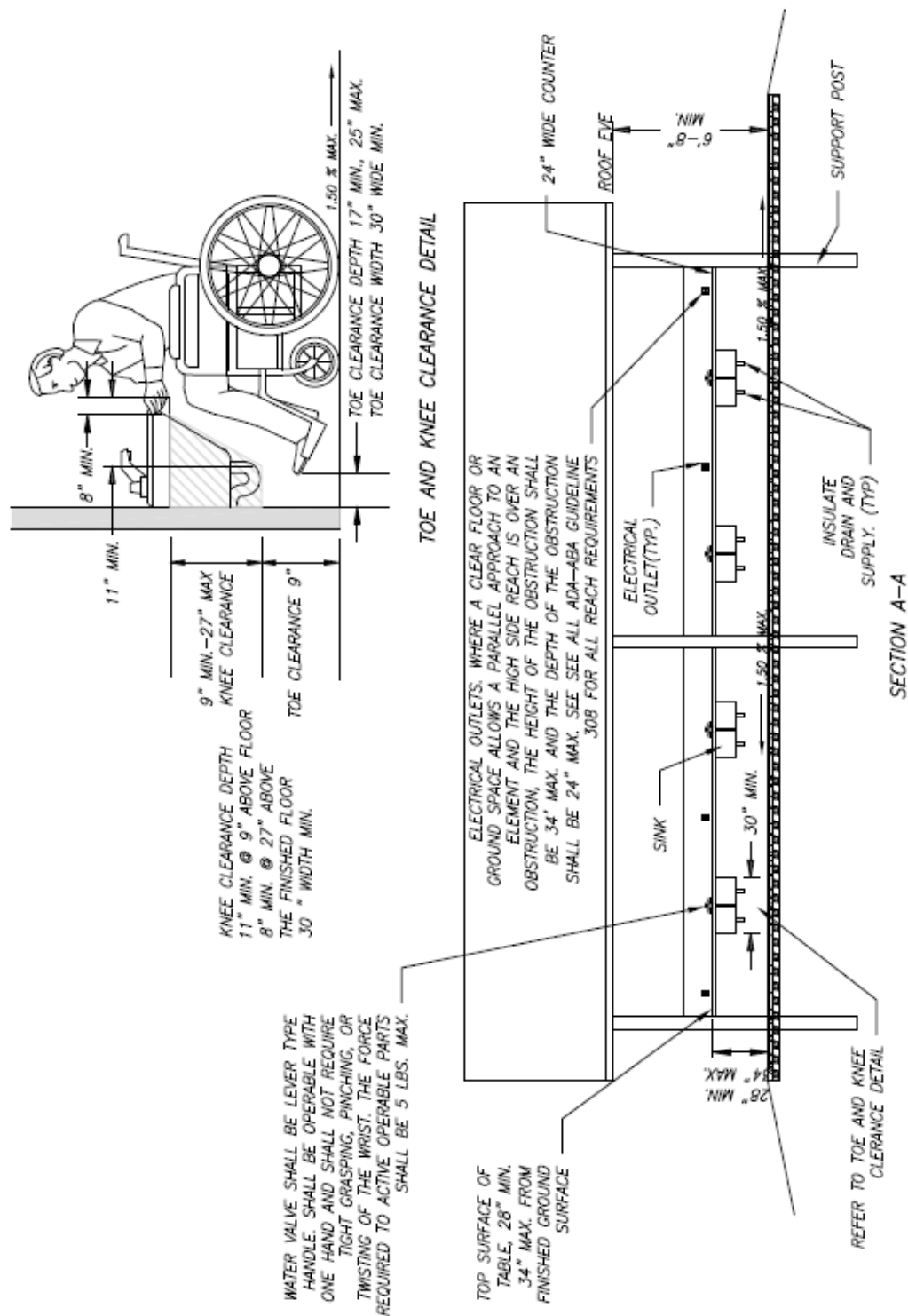


FIGURE B-13a: ACCESSIBLE GROUP PICNIC SITE - PLAN VIEW

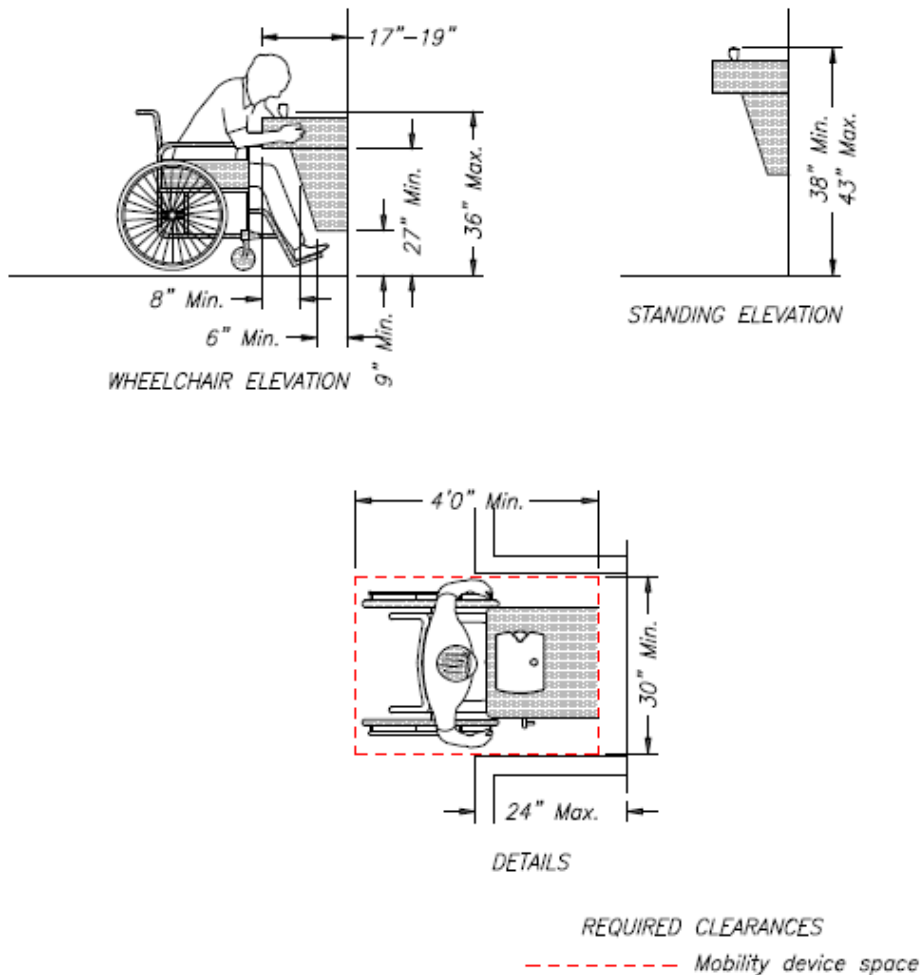


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4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ADAAS, AND ACCESSIBILITY COORDINATOR

PICNIC PAD TO HAVE 1.50% MAX.
SLOPE IN ANY DIRECTION

FIGURE B-13b: ACCESSIBLE GROUP PICNIC SITE – ELEVATION



NOTES

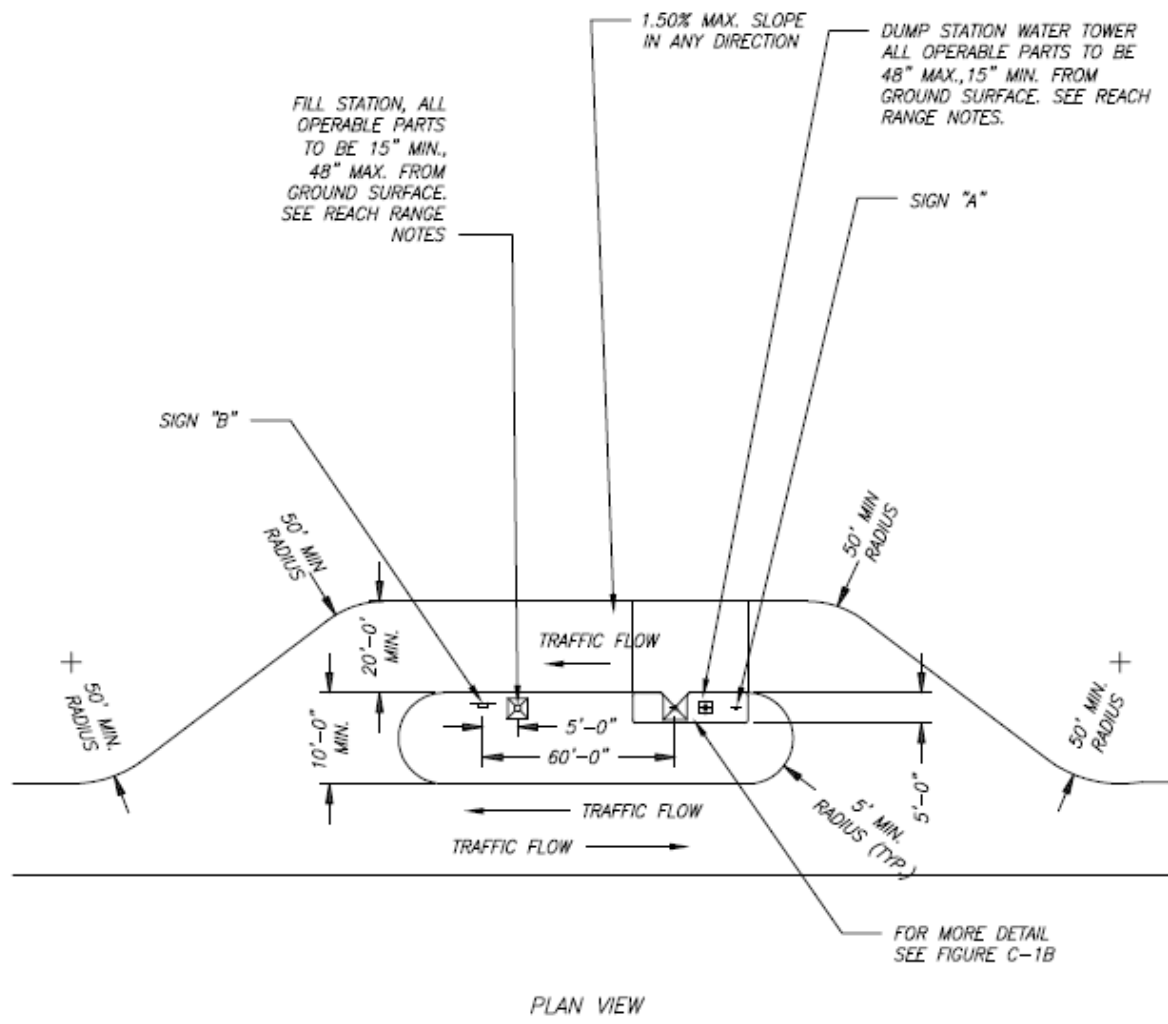
1. Floor slope is not to exceed 1.5% in any direction throughout the entire space including floor drains.
2. Consult with Accessibility Coordinator for compliance.
3. These figures are conceptual layouts.
4. They are not to scale.
5. They are not for construction.

FIGURE B-14: DRINKING FOUNTAIN

Appendix C – Trailer Dump Stations

Figure C-1a: Accessible Trailer Dump Station

Figure C-1b: Accessible Trailer Dump Station Detail



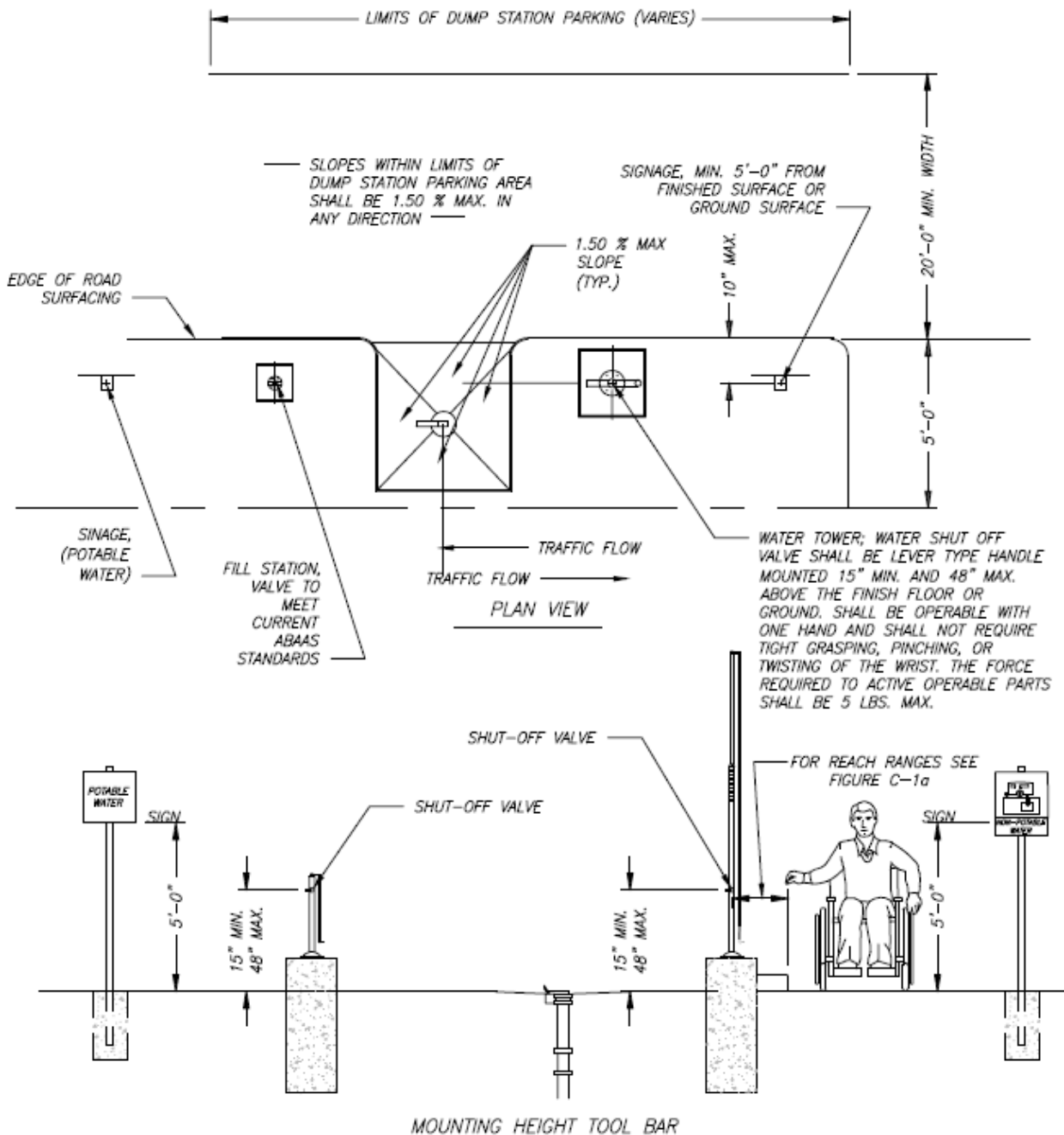
REACH RANGE NOTES:

* WHERE A CLEAR FLOOR OR GROUND SPACE ALLOWS A PARALLEL APPROACH TO AN ELEMENT AND THE HIGH SIDE REACH IS UNOBSTRUCTED, THE HIGH SIDE REACH IS 48" MAX. AND THE LOW SIDE REACH IS 15" MIN. IF EITHER SIDE OR FORWARD REACHES ARE OBSTRUCTED, SEE ABAAS 308.

NOTES:

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2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR

FIGURE C-1a: ACCESSIBLE TRAILER DUMP STATION



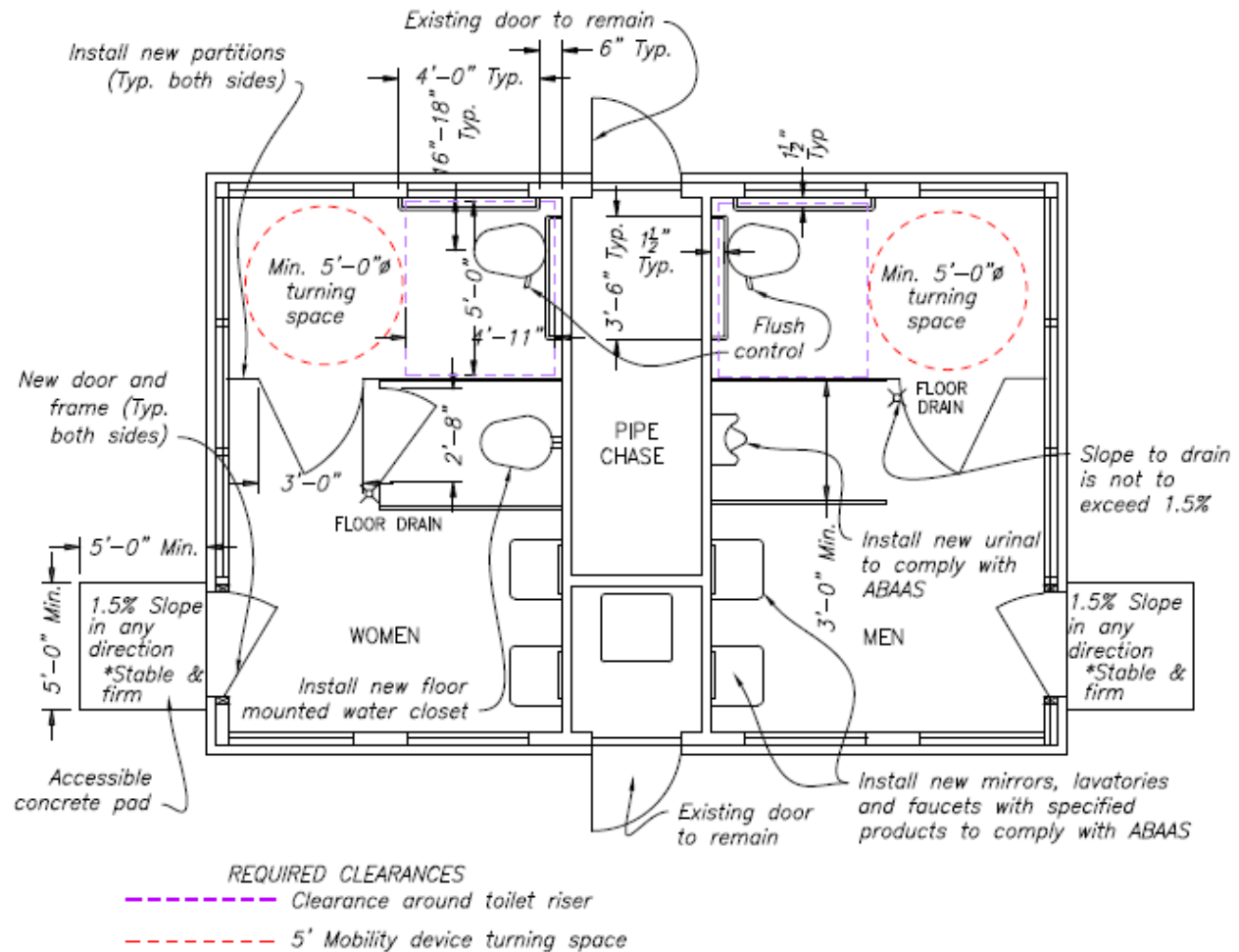
NOTES:

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FIGURE C-1b: ACCESSIBLE TRAILER DUMP STATION DETAIL

Appendix D – Comfort Station Buildings

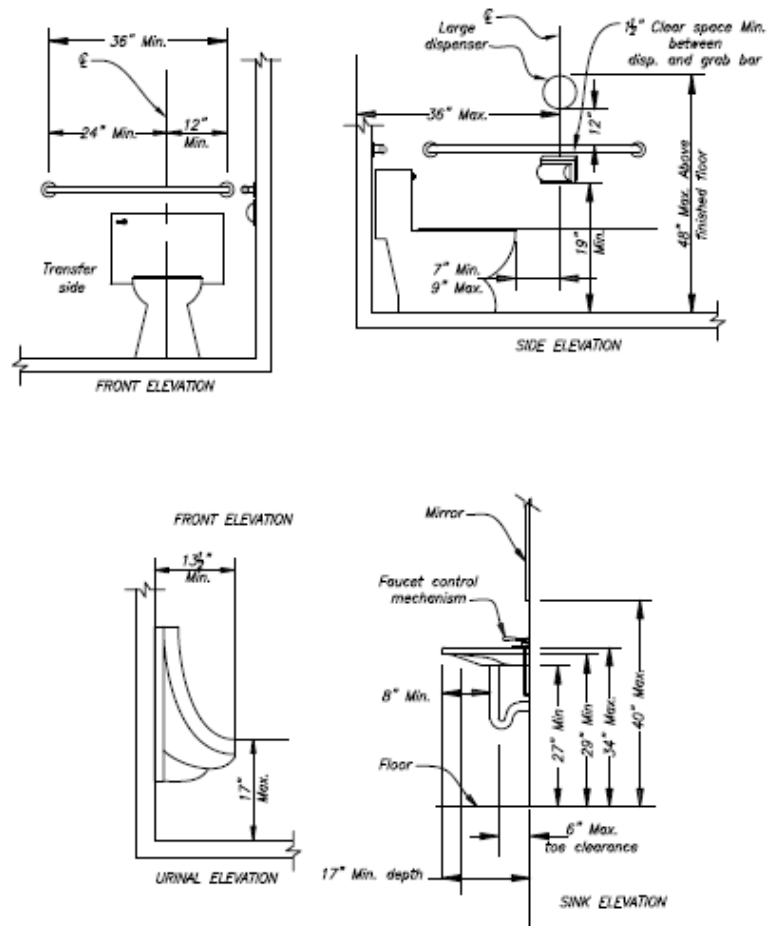
- Figure D-1a: Accessible Retrofit of 6 to 4 Unit Restroom
- Figure D-1b: Accessible Retrofit of 6 to 4 Unit Restroom
- Figure D-2a: Accessible Retrofit of 4 to 2 Unit Restroom
- Figure D-2b: Accessible Retrofit of 4 to 2 Unit Restroom
- Figure D-3: Adaptable Comfort Station with Showers and Laundry
- Figure D-4a: 2-Unit Vault Restroom, Front Elevation
- Figure D-4b: 2-Unit Vault Restroom, Rear Elevation
- Figure D-4c: 2-Unit Vault Restroom, Side Elevation
- Figure D-4d: 2-Unit Vault Restroom, Floor Plan and Standard Mounting Heights
- Figure D-5: Preferred Shower and Restroom Station, Floor Plan
- Figure D-6a: Accessible Transfer Shower Room, Plan View
- Figure D-6b: Accessible Transfer Shower Room Detail
- Figure D-6c: Accessible Transfer Shower Room Elevation
- Figure D-7a: Standard Accessible Roll-in Shower
- Figure D-7b: Standard Accessible Roll-in Shower Elevation
- Figure D-8a: Alternate Accessible Roll-in Shower
- Figure D-8b: Alternate Accessible Roll-in Shower Elevation
- Figure D-9a: Accessible Family Restroom with Alternate Roll-in Shower
- Figure D-9b: Accessible Family Restroom with Alternate Roll-in Shower Control Location Detail
- Figure D-10: Accessible Ambulatory Toilet Compartment
- Figure D-11: Drinking Fountain
- Figure D-12: Accessible Toilet Fixture Detail
- Figure D-13a: Restroom Station Standard Mounting Heights
- Figure D-13b: Restroom Station Standard Mounting Heights
- Figure D-13c: Restroom Station Standard Mounting Heights



NOTES

1. Floor slope is not to exceed 1.5% in any direction throughout the entire space including floor drains.
2. At new accessible entries, install concrete ramps (1.5% Max. grade) from new stoops to existing grade.
3. There needs to be a 60" by 60" level landing at the stoop before the ramp begins.
4. A stable surface is one that remains unchanged by contaminants or applied force, so that when the contaminant or force is removed, the surface returns to its original condition. A firm surface resists deformation by either indentations or particles moving on its surface.
5. Clear space needed around toilet riser: Min. 60" wide by 56" deep, wall mounted; Min. 60" wide by 59" deep, floor mounted.
6. Consult with Accessibility Coordinator for compliance.
7. These figures are conceptual layouts.
8. They are not to scale.
9. They are not for construction.

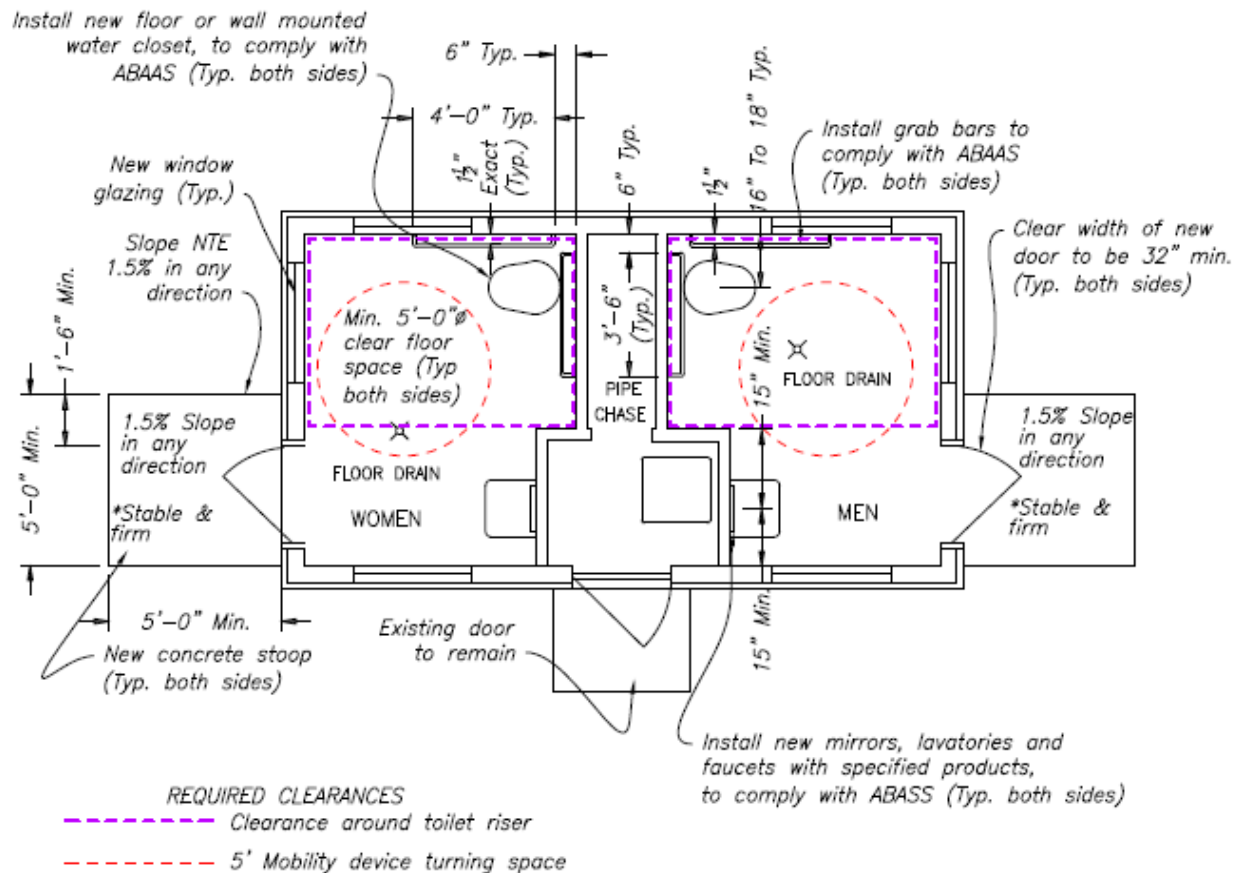
FIGURE D-1a: ACCESSIBLE RETROFIT
OF 6-4 UNIT RESTROOM



NOTES

1. Consult with Accessibility Coordinator for compliance.
2. These figures are conceptual layouts.
3. They are not to scale.
4. They are not for construction.

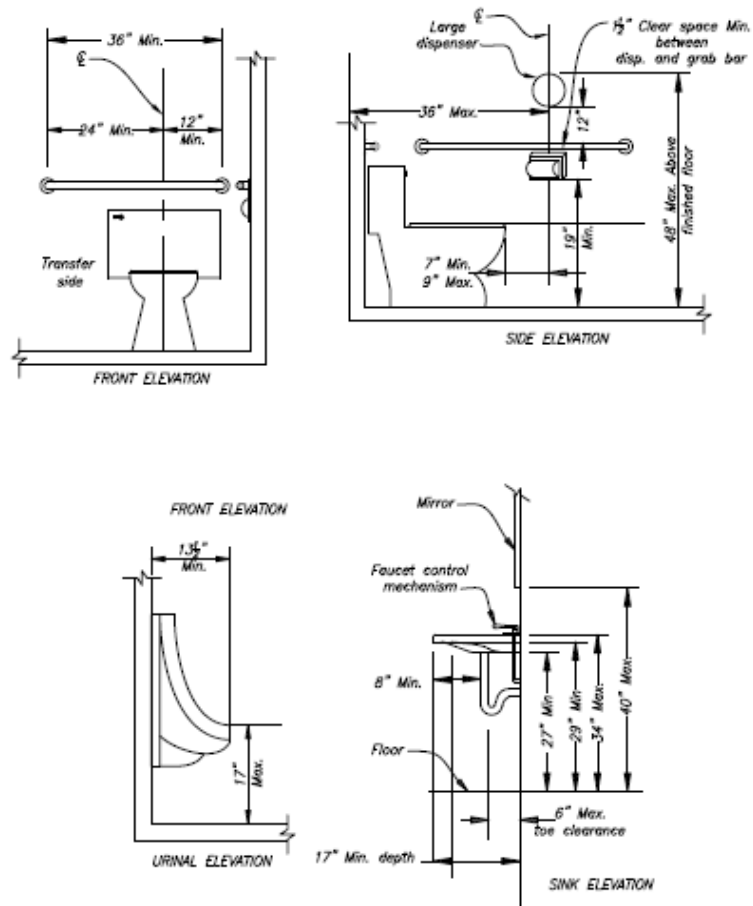
FIGURE D-1b: ACCESSIBLE RETROFIT
OF 6-4 UNIT RESTROOM



NOTES

1. Floor slope is not to exceed 1.5% in any direction throughout the entire space including floor drains.
2. At new accessible entries, install concrete ramps (1.5% Max. grade) from new stoops to existing grade.
3. There needs to be a 60" by 60" level landing at the stoop before the ramp begins.
4. A stable surface is one that remains unchanged by contaminants or applied force, so that when the contaminant or force is removed, the surface returns to its original condition. A firm surface resists deformation by either indentations or particles moving on its surface.
5. Clear space needed around toilet riser: Min. 60" wide by 56" deep, wall mounted; Min. 60" wide by 59" deep, floor mounted.
6. Consult with Accessibility Coordinator for compliance.
7. These figures are conceptual layouts.
8. They are not to scale.
9. They are not for construction.

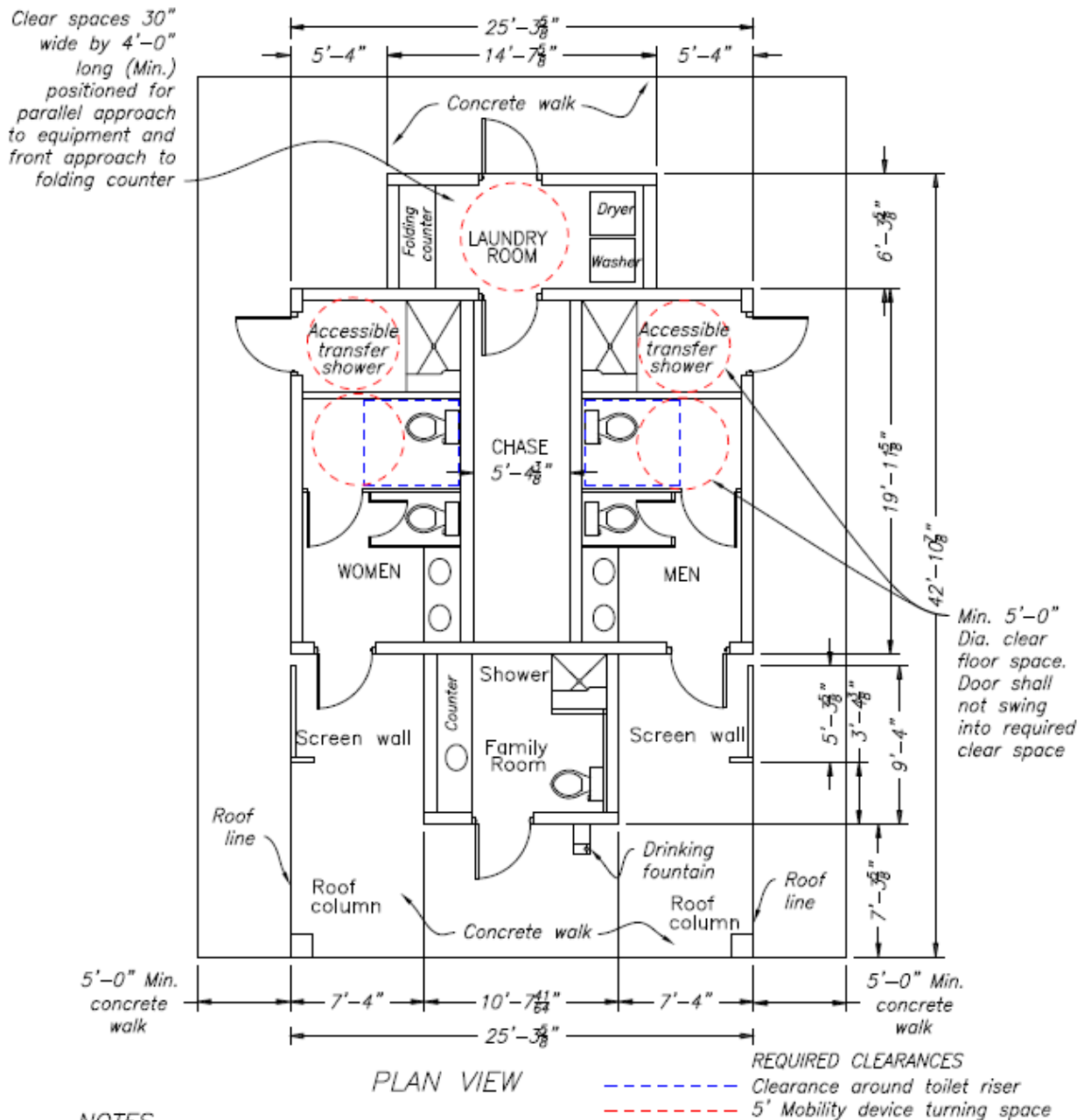
FIGURE D-2a: ACCESSIBLE RETROFIT
4 TO 2 UNIT RESTROOM



NOTES

1. Consult with Accessibility Coordinator for compliance.
2. These figures are conceptual layouts.
3. They are not to scale.
4. They are not for construction.

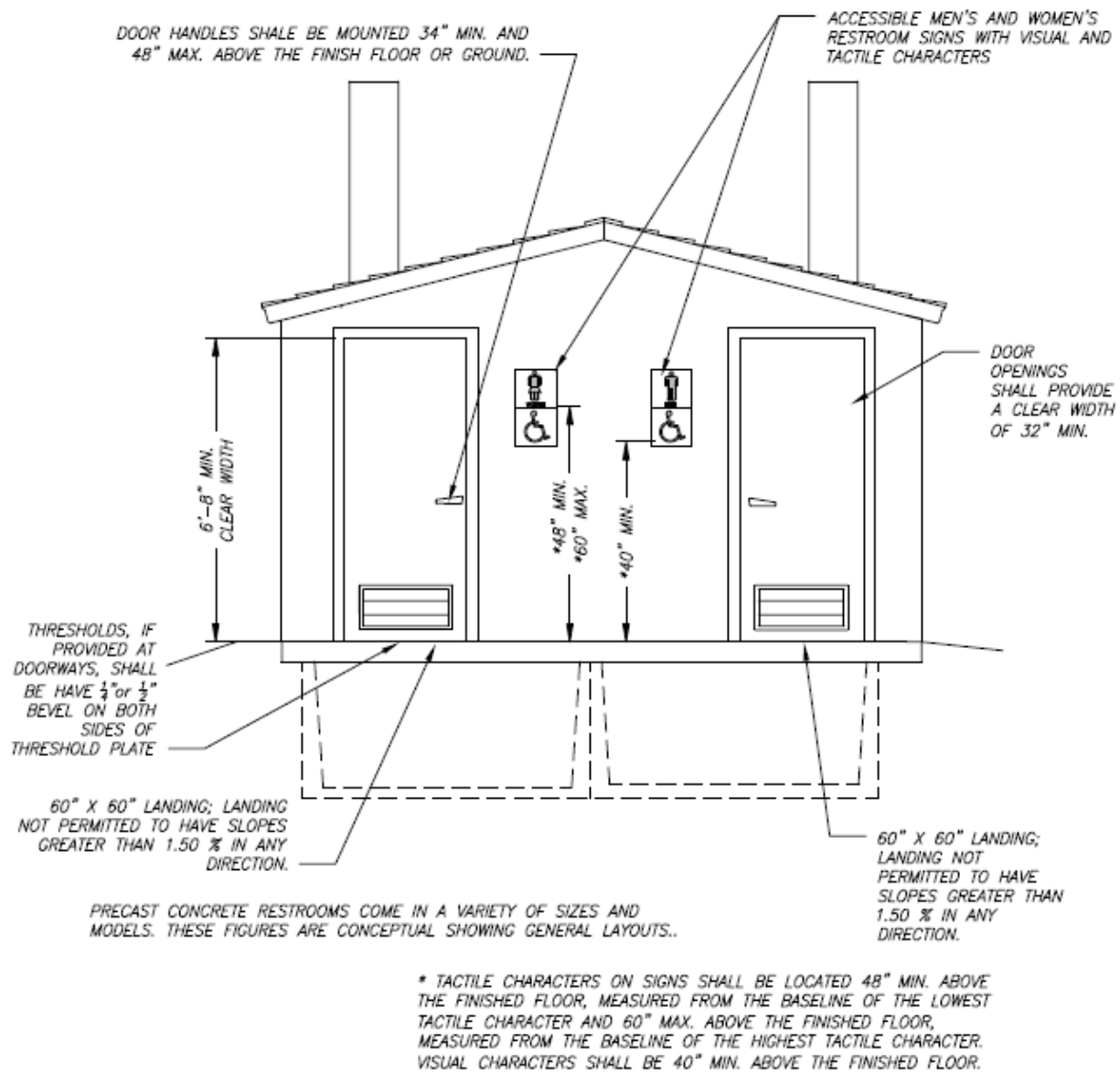
FIGURE D-2b: ACCESSIBLE RETROFIT
4 TO 2 UNIT RESTROOM



NOTES

1. Clear space needed around toilet riser: Min. 60" wide by 56" deep, wall mounted. Min. 60" wide by 59" deep, floor mounted.
2. These figures are conceptual layouts.
3. They are not to scale.
4. They are not for construction.
5. Designer will confirm compliance with Design codes and ABBAS with Accessibility Coordinator.

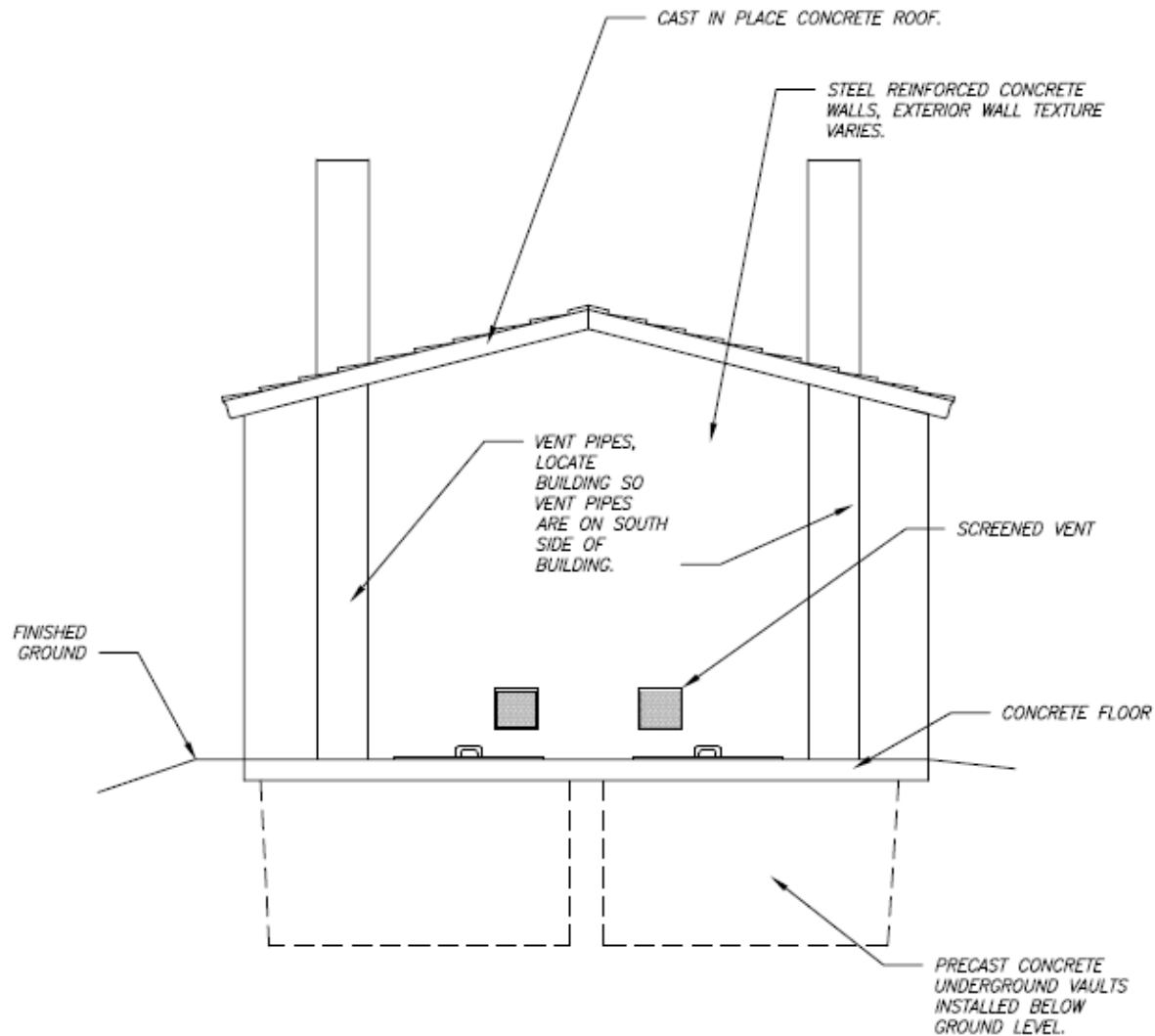
FIGURE D-3: ADAPTABLE COMFORT STATION
WITH SHOWERS AND LAUNDRY



NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR

FIGURE D-4a: 2-UNIT VAULT RESTROOM
FRONT ELEVATION

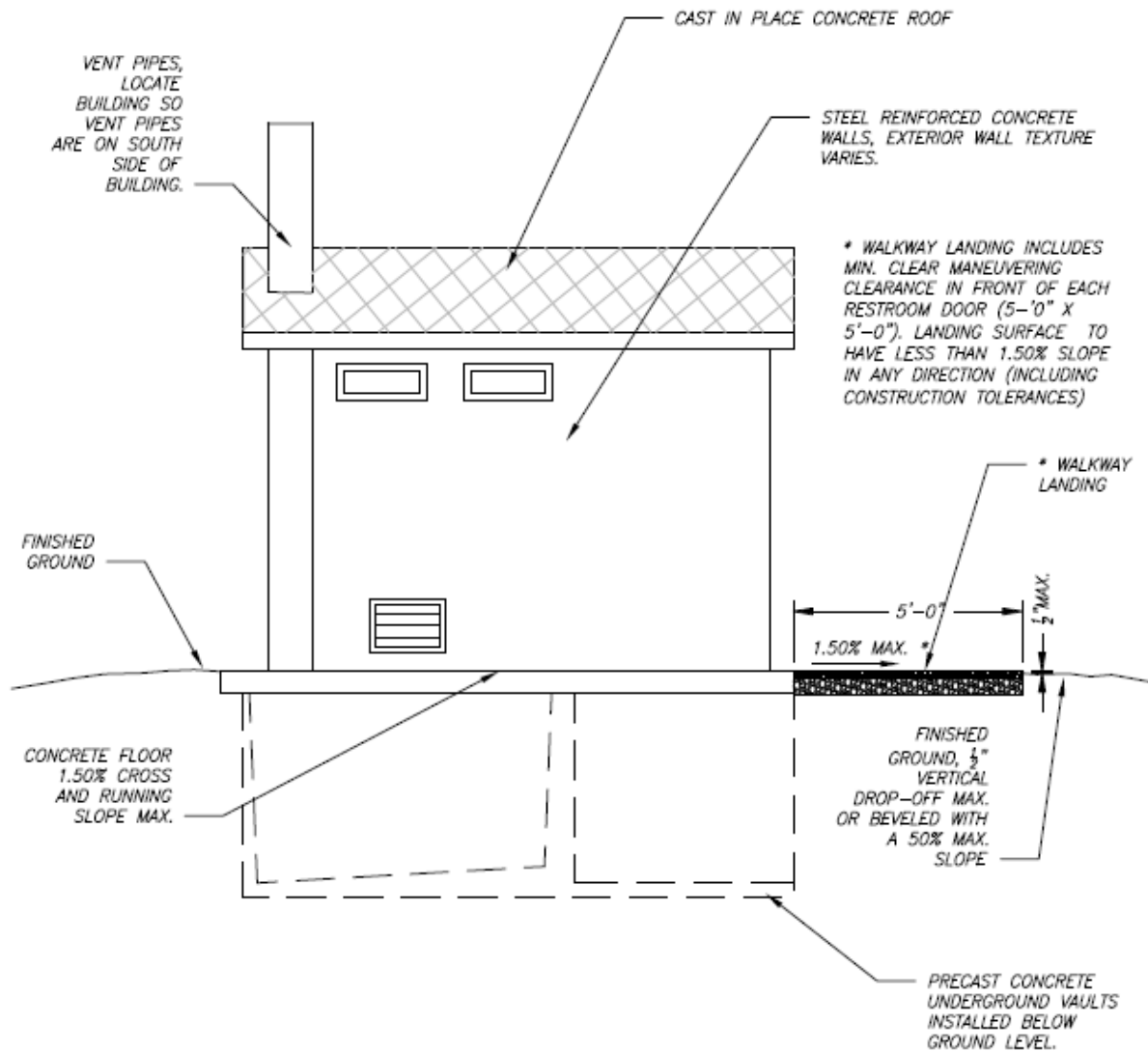


PRECAST CONCRETE RESTROOMS COME IN A VARIETY OF SIZES AND MODELS. THESE FIGURES ARE CONCEPTUAL SHOWING GENERAL LAYOUTS..

NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
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3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR

FIGURE D-4b: 2-UNIT VAULT RESTROOM
REAR ELEVATION

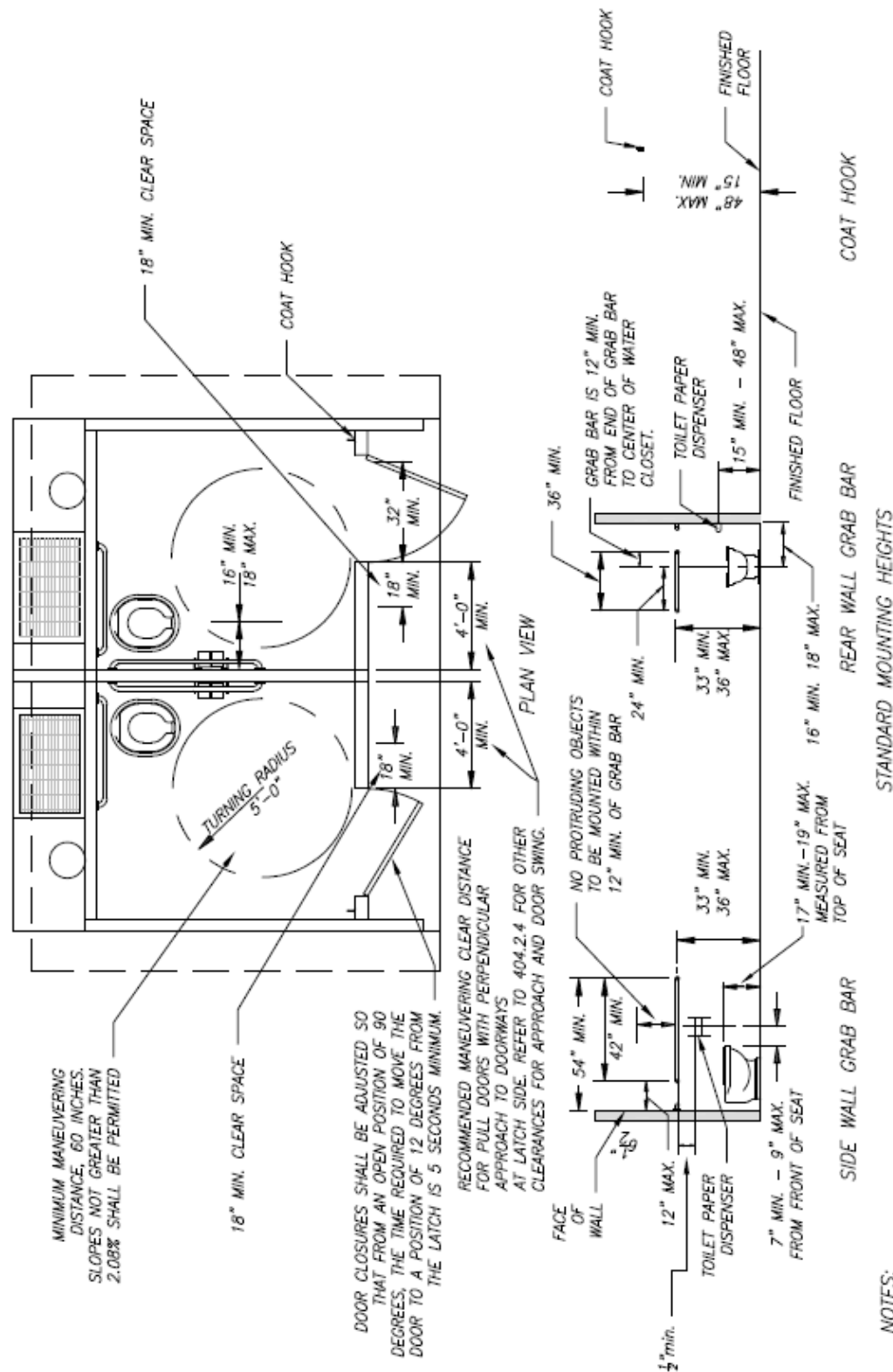


PRECAST CONCRETE RESTROOMS COME IN A VARIETY OF SIZES AND MODELS. THESE FIGURES ARE CONCEPTUAL SHOWING GENERAL LAYOUTS..

NOTES:

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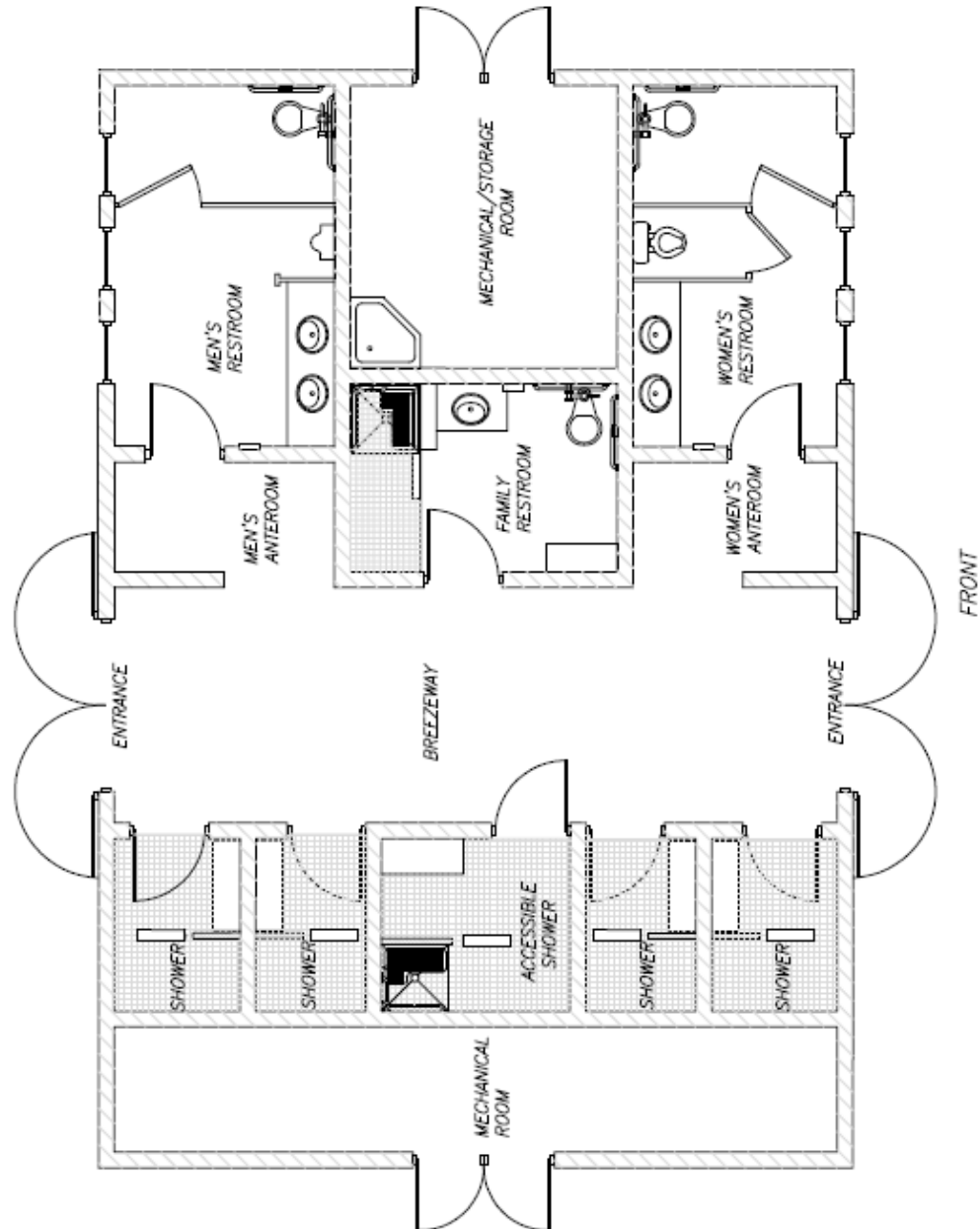
FIGURE D-4c: 2-UNIT VAULT RESTROOM — SIDE ELEVATION



NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAAS, AND ACCESSIBILITY COORDINATOR.

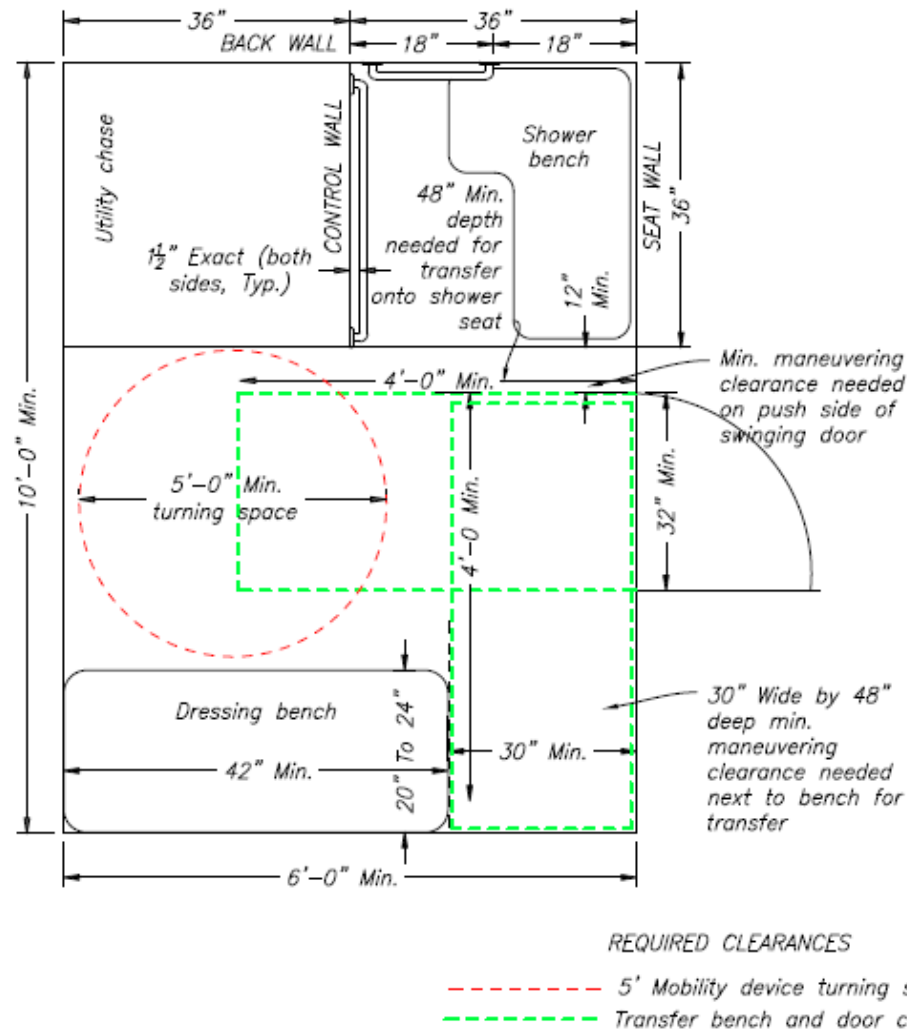
FIGURE D-4d: 2-UNIT VAULT RESTROOM FLOOR PLAN AND STANDARD MOUNTING HEIGHTS



NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAAS, AND ACCESSIBILITY COORDINATOR

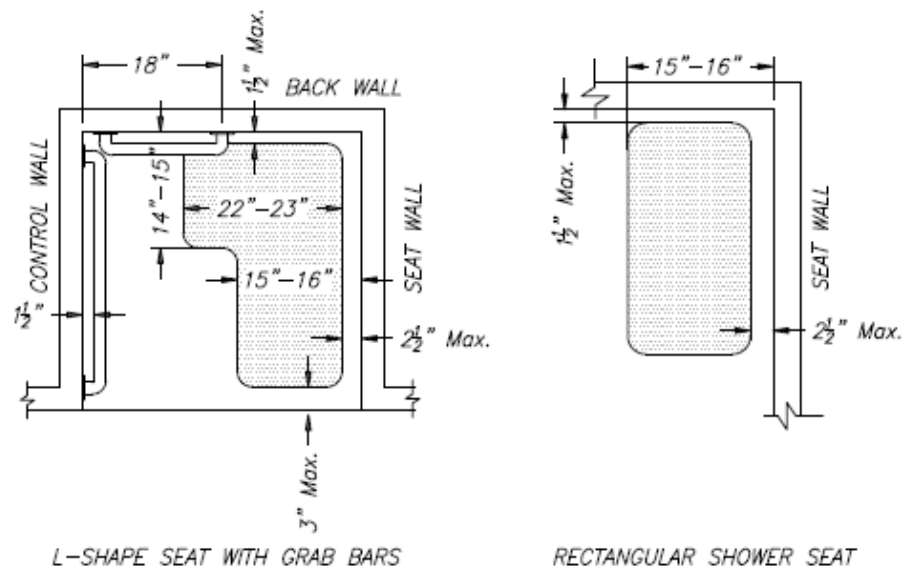
FIGURE D-5: PREFERRED SHOWER/RESTROOM STATION
FLOOR PLAN



NOTES

1. Minimum room size (finished interior dimensions) 10' long by 6' wide.
2. If the entry/exit door swings into the room, or a lavatory provided, additional clearances will be needed. If the door swings into the room it cannot swing into the transfer space needed for the bench.
3. Consult with Accessibility Coordinator for compliance.
4. These figures are conceptual layouts.
5. They are not to scale.
6. They are not for construction.

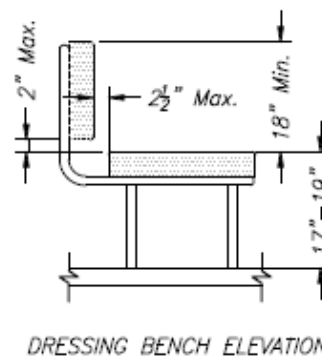
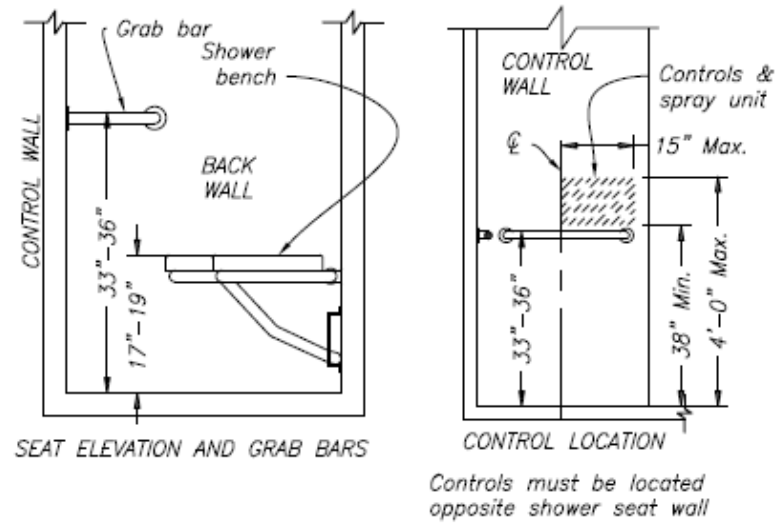
FIGURE D-6a: ACCESSIBLE TRANSFER SHOWER ROOM
PLAN VIEW



NOTES

1. Projecting objects above grab bar must not be placed within 12" of top of grab bar. For projecting objects below and at side, this min. distance is 1.5".
2. Inside finished dimensions of shower stall measured between the center points of opposing sides.
3. Consult with Accessibility Coordinator for compliance.
4. These figures are conceptual layouts.
5. They are not to scale.
6. They are not for construction.

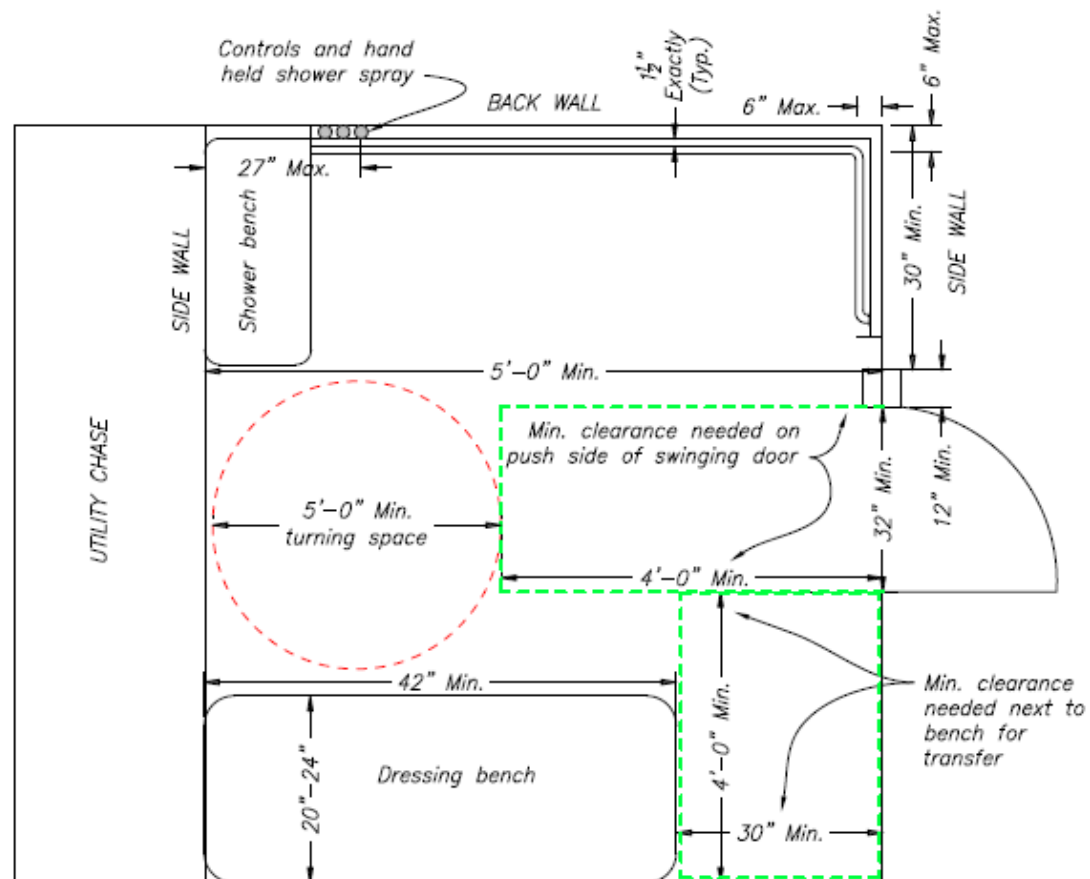
FIGURE D-6b: ACCESSIBLE TRANSFER SHOWER
DETAIL



NOTES

1. Projecting objects above grab bar must not be placed within 12" of top of grab bar. For projecting objects below and at side, this min. distance is 1.5".
2. Inside finished dimensions of shower stall at the center points of opposing sides.
3. Consult with Accessibility Coordinator for compliance.
4. These figures are conceptual layouts.
5. They are not to scale.
6. They are not for construction.

FIGURE D-6c: ACCESSIBLE TRANSFER SHOWER ELEVATION



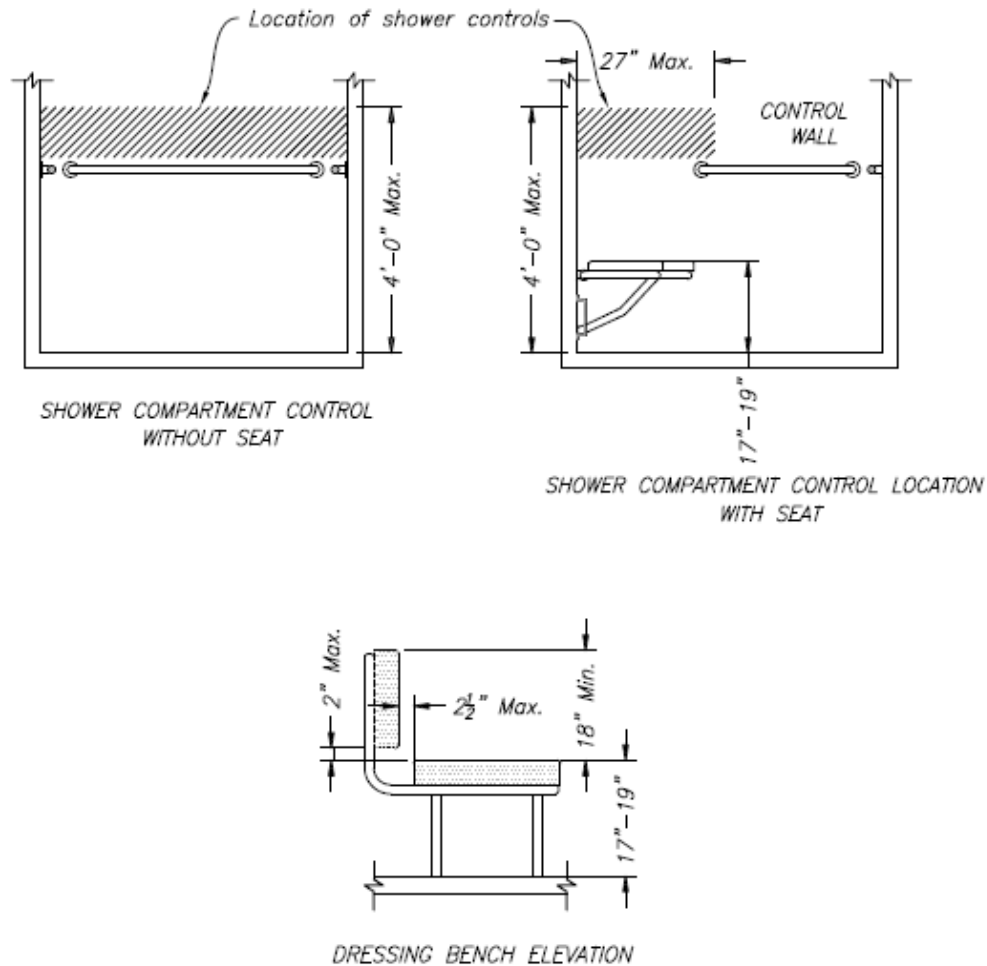
REQUIRED CLEARANCES

- 5' Mobility device turning space
- Transfer bench and door clearance

NOTES

1. Required minimum room size (finished interior dim.) in order to provide compliant dressing bench and min. maneuvering clearances is 10' long by 6' wide (preferably more).
2. If the entry/exit door swings into the room, or lavatory provided, additional clearances will be needed. If the door swings into the room, it cannot swing into the transfer space needed for the bench.
3. Where a seat is provided, the operable parts shall be installed on the back wall adjacent to the seat wall and located 27" max. from seat wall.
4. Controls, faucets, and shower spray unit are to be located above the grab bar, but no higher than 48" above the shower floor.
5. Consult with Accessibility Coordinator for compliance.
6. These figures are conceptual layouts.
7. They are not to scale.
8. They are not for construction.

FIGURE D-7a: STANDARD ACCESSIBLE ROLL-IN SHOWER



NOTES

1. Projecting objects above grab bar must not be placed within 12" of top of grab bar. For projecting objects below and at side, this min. distance is 1.5".
2. Inside finished dimensions of shower stall measured between the center points of opposing sides.
3. Consult with Accessibility Coordinator for compliance.
4. These figures are conceptual layouts.
5. They are not to scale.
6. They are not for construction.

FIGURE D-7b: STANDARD ACCESSIBLE ROLL-IN SHOWER ELEVATION

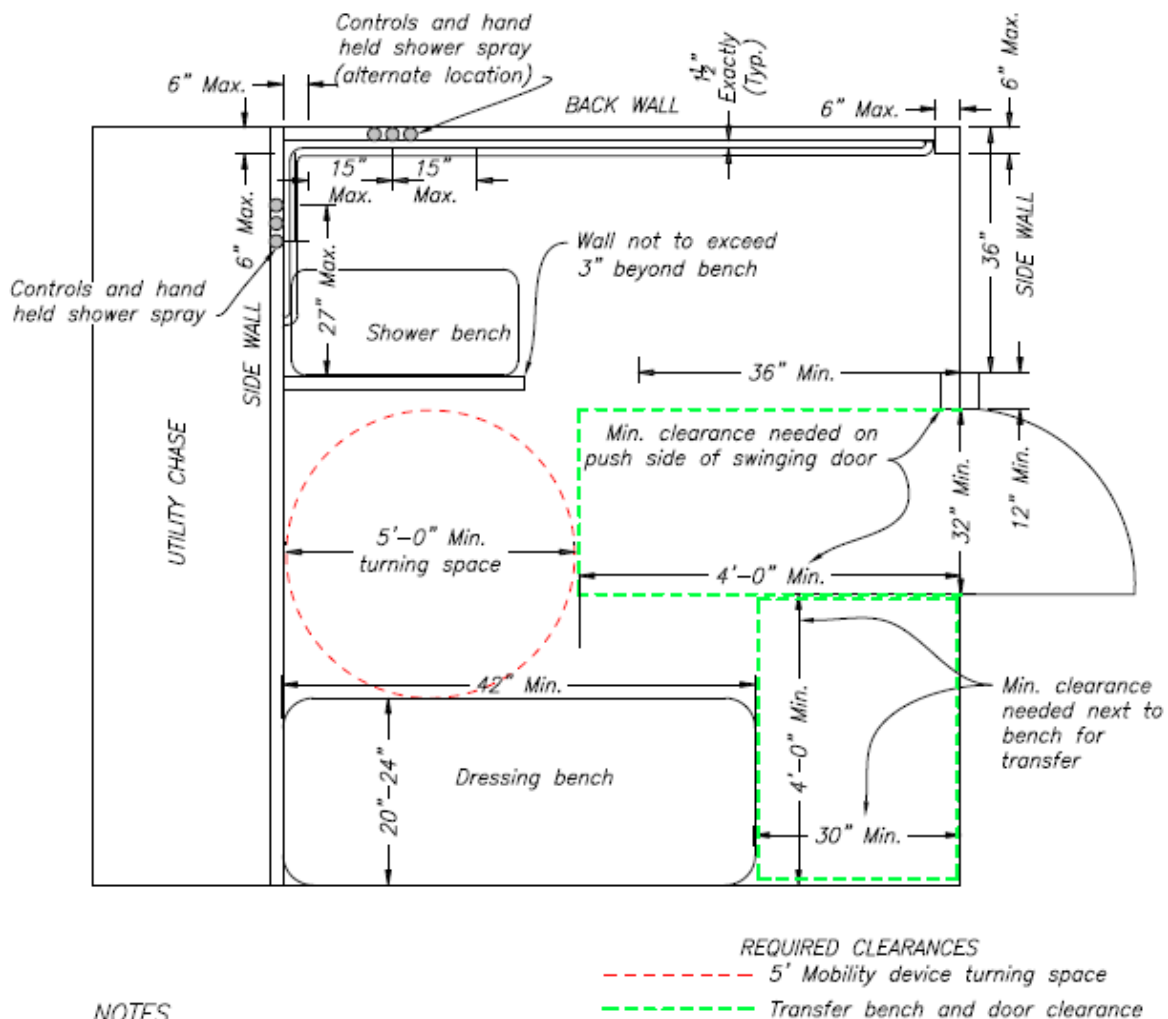
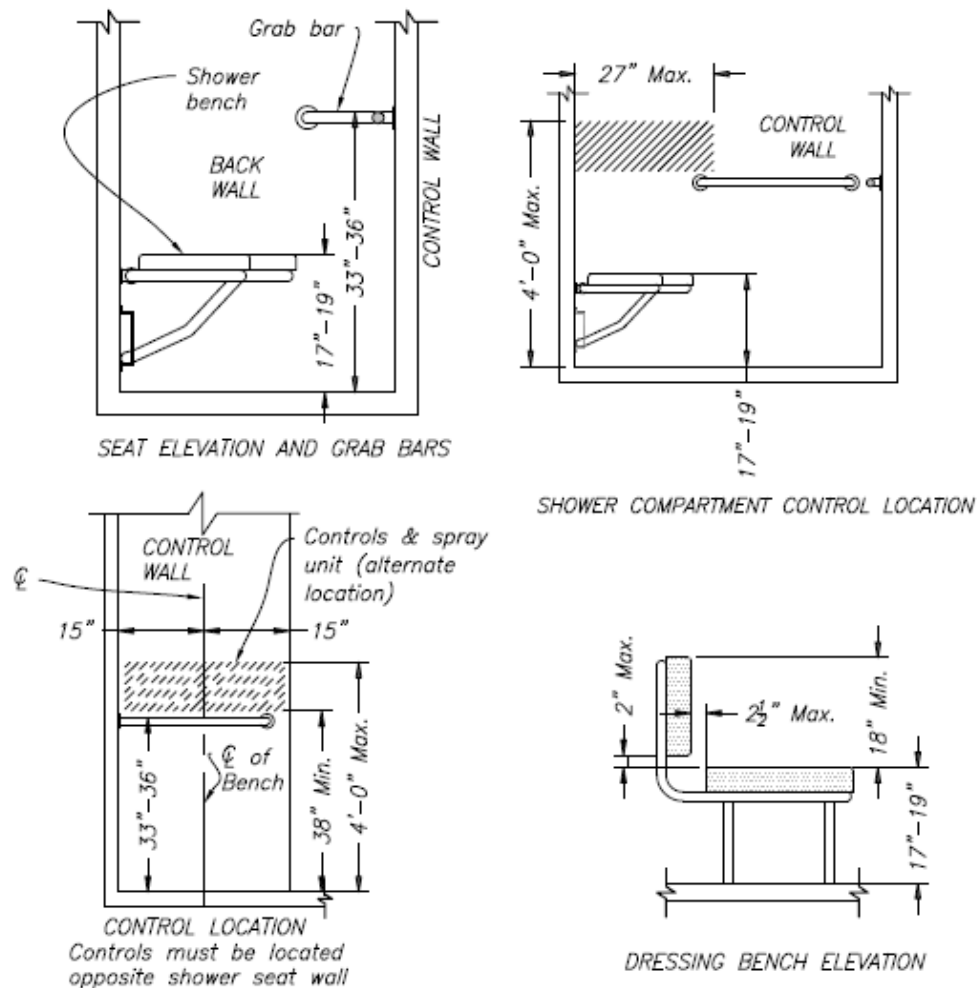


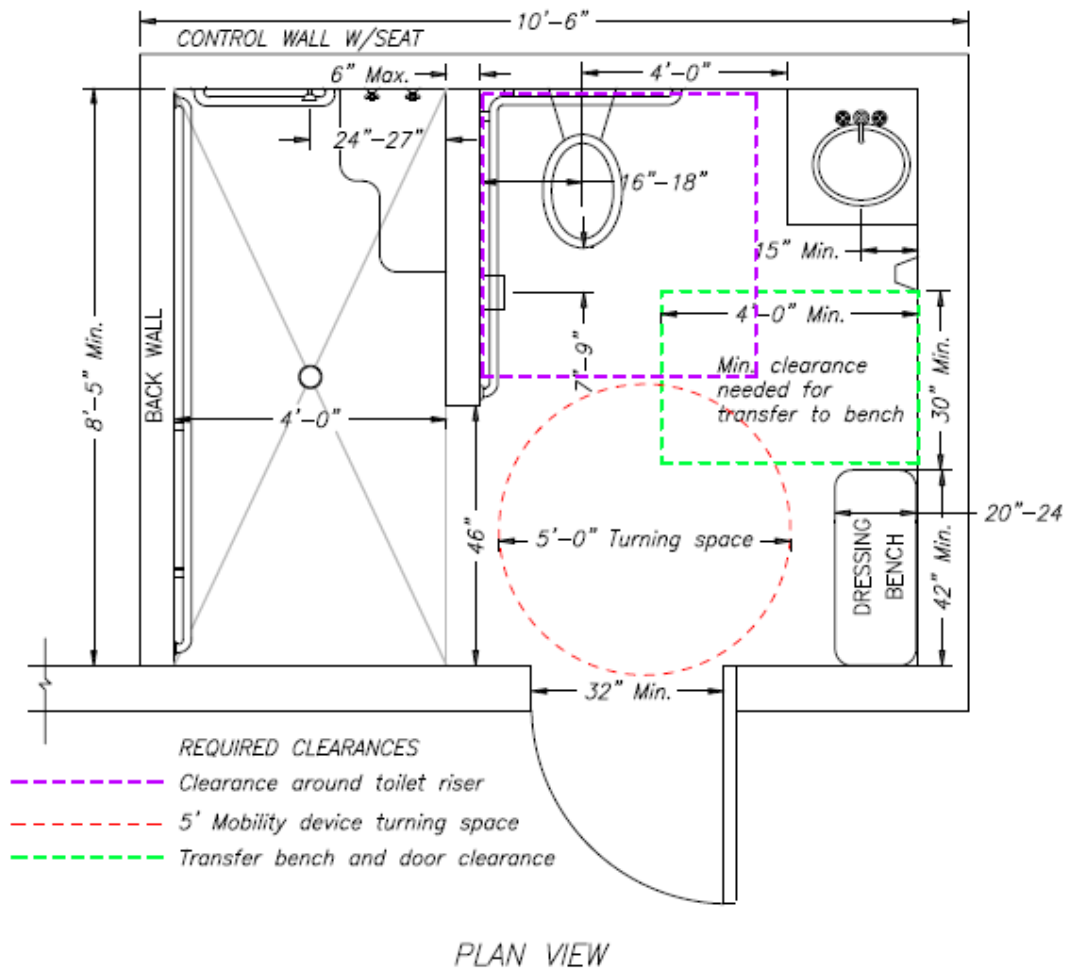
FIGURE D-8a: ALTERNATE ACCESSIBLE ROLL-IN SHOWER



NOTES

1. Projecting objects above grab bar must not be placed within 12" of top of grab bar. For projecting objects below and at side, this min. distance is 1.5".
2. Inside finished dimensions of shower stall measured between the center points of opposing sides.
3. Consult with Accessibility Coordinator for compliance.
4. These figures are conceptual layouts.
5. They are not to scale.
6. They are not for construction.

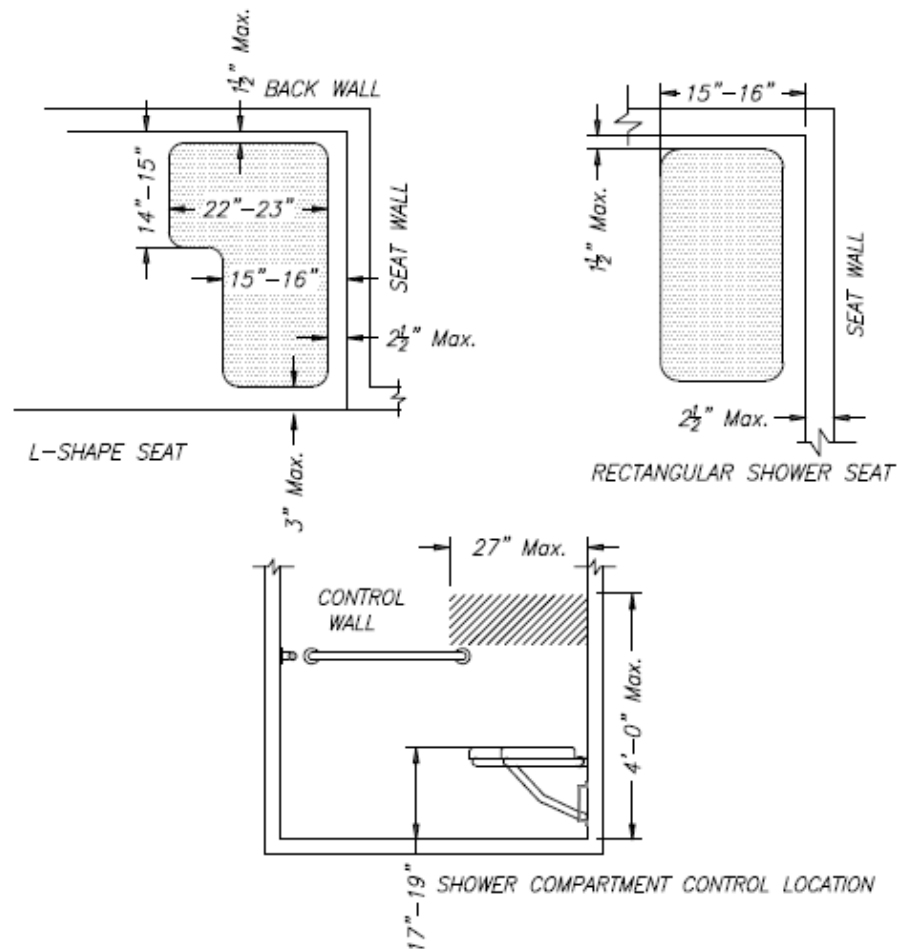
FIGURE D-8b: ALTERNATE ACCESSIBLE ROLL-IN SHOWER ELEVATION



NOTES

1. Minimum room size (finished interior dimensions) 8'-6" long by 10'-6" wide. If a rectangular seat is used, different seat dimensions apply.
2. Clear space needed around toilet riser: Min. 60" wide by 56" deep, wall mounted. Min. 60" wide by 59" deep, floor mounted.
3. Consult with Accessibility Coordinator for compliance.
4. These figures are conceptual layouts.
5. They are not to scale.
6. They are not for construction.

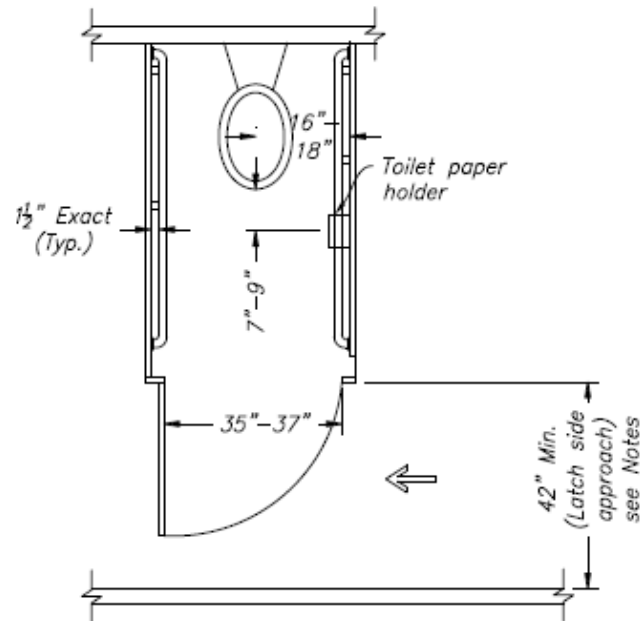
FIGURE D-9a: FAMILY RESTROOM WITH ALTERNATE ROLL-IN SHOWER



NOTES

1. Consult with Accessibility Coordinator for compliance.
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4. They are not for construction.

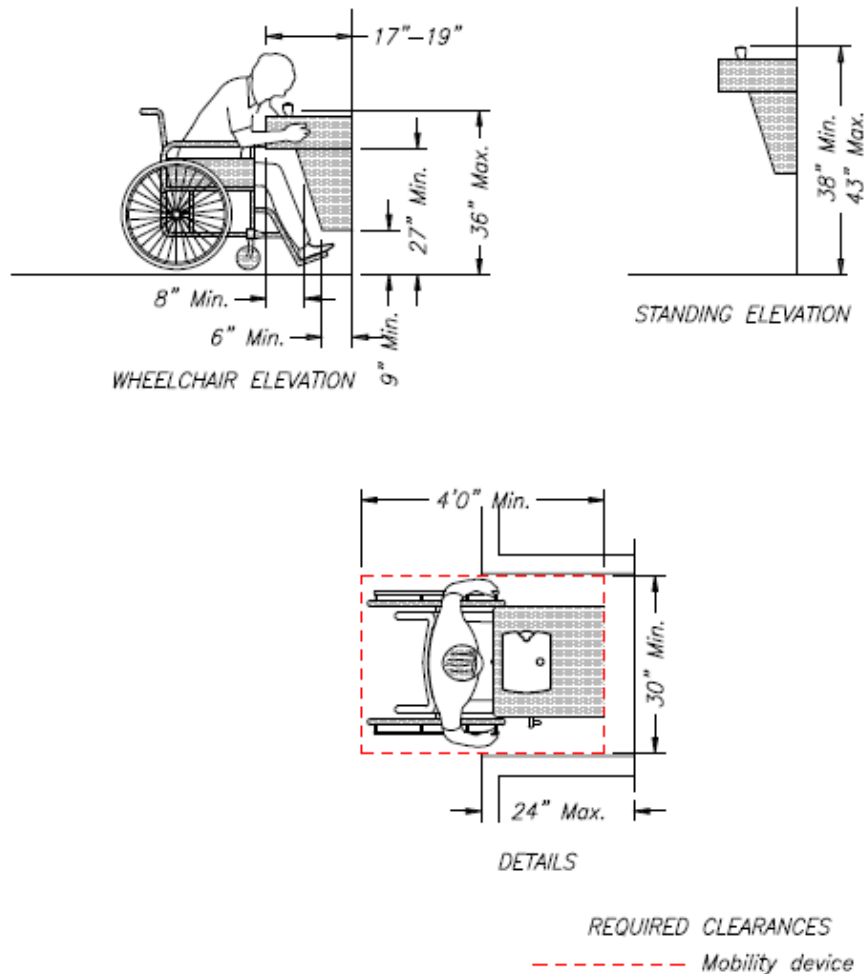
FIGURE D-9b: ACCESSIBLE FAMILY RESTROOM
WITH ALTERNATE ROLL-IN SHOWER
CONTROL LOCATION-DETAILS



NOTES

1. Ambulatory compartment required where 6 or more toilet and urinal compartments are in a group of rooms within sight of or adjacent to one another.
2. If hinge side approach, 54" wide path needed.
3. If front approach 60" depth needed from front of door.
4. Consult with Accessibility Coordinator for compliance.
5. These figures are conceptual layouts.
6. They are not to scale.
7. They are not for construction.

FIGURE D-10: ACCESSIBLE AMBULATORY TOILET COMPARTMENT



NOTES

1. Floor slope is not to exceed 1.5% in any direction throughout the entire space including floor drains.
2. Consult with Accessibility Coordinator for compliance.
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FIGURE D-11: DRINKING FOUNTAIN

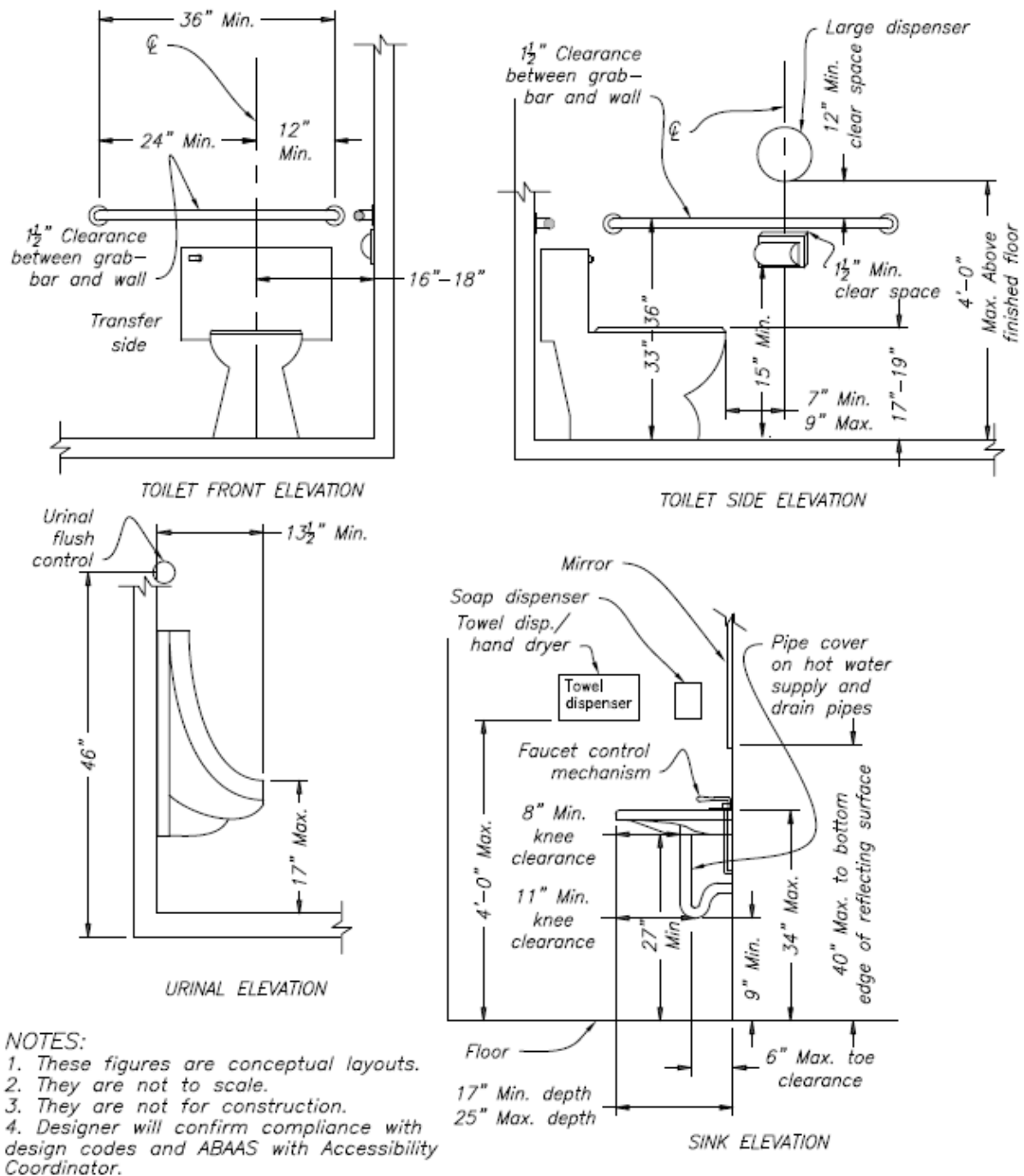


FIGURE D-12: ACCESSIBLE TOILET FIXTURE
DETAIL

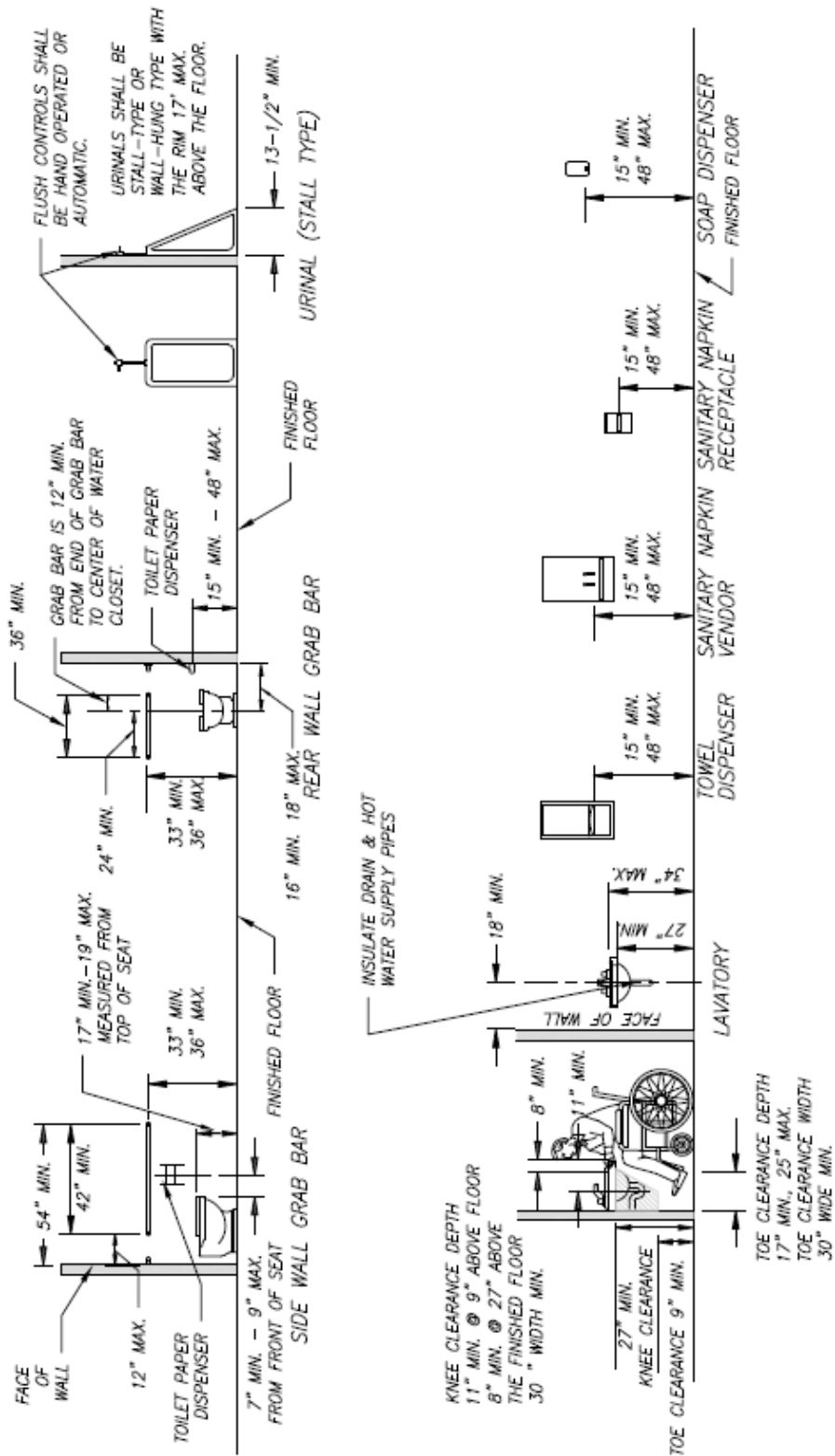
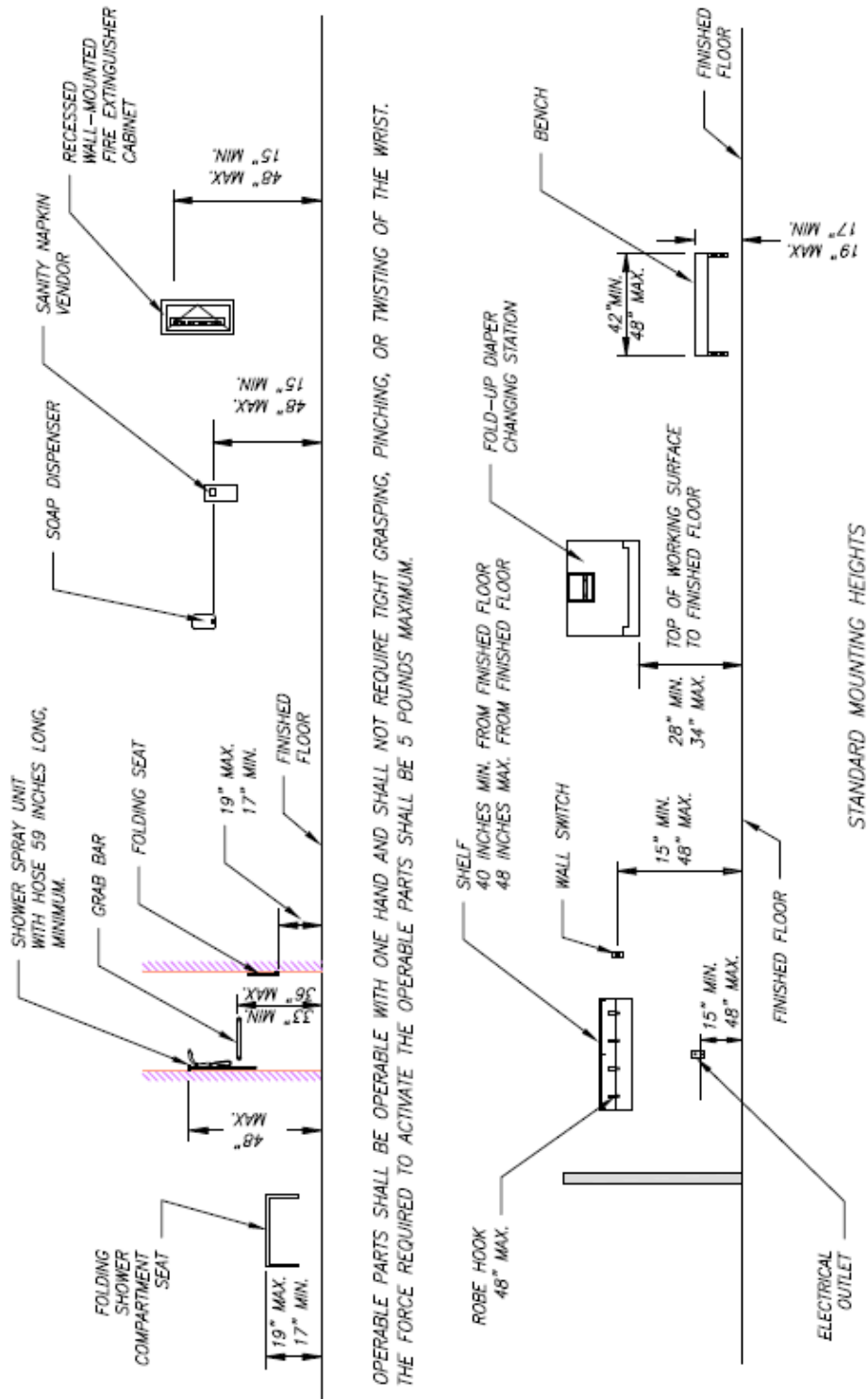


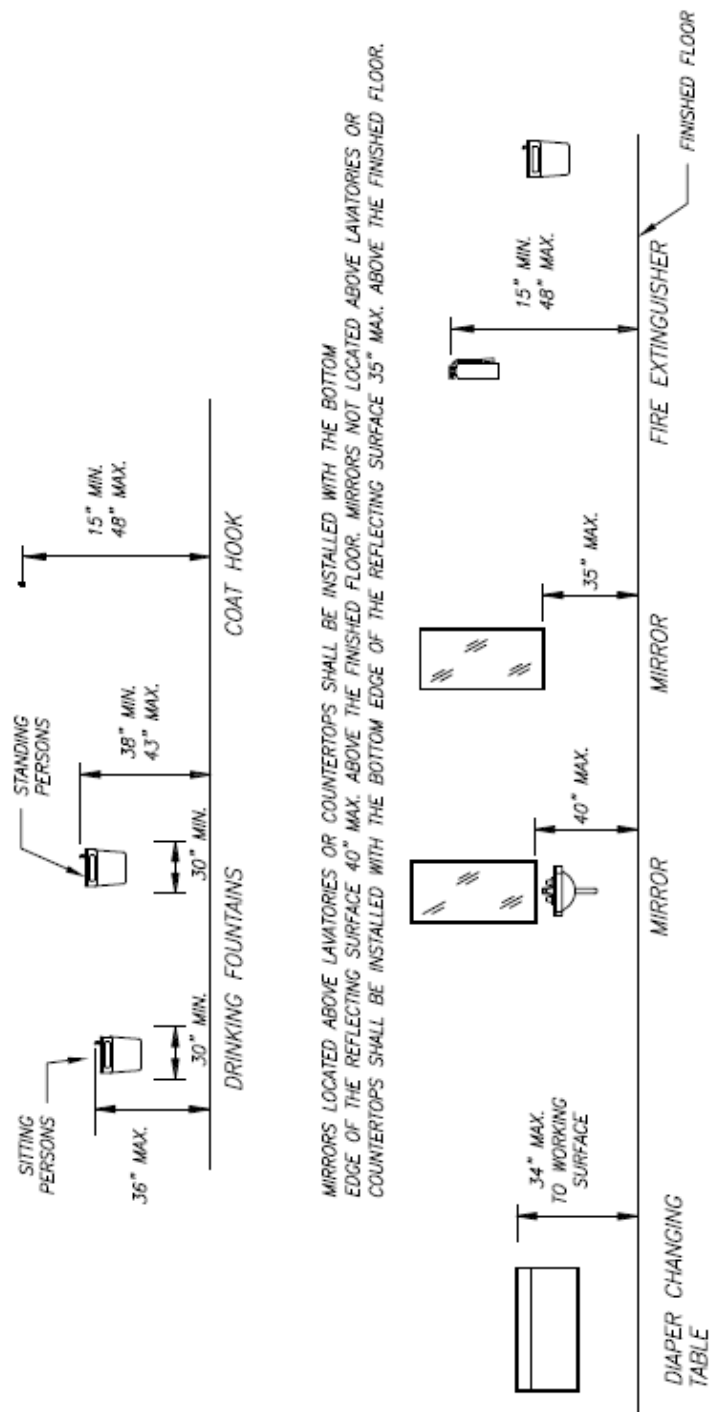
FIGURE D-13a: RESTROOM STATION STANDARD MOUNTING HEIGHTS



NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
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3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAAS, AND ACCESSIBILITY COORDINATOR.

FIGURE D-13b: RESTROOM STATION STANDARD MOUNTING HEIGHTS



MIRRORS LOCATED ABOVE LAVATORIES OR COUNTERTOPS SHALL BE INSTALLED WITH THE BOTTOM EDGE OF THE REFLECTING SURFACE 40" MAX. ABOVE THE FINISHED FLOOR. MIRRORS NOT LOCATED ABOVE LAVATORIES OR COUNTERTOPS SHALL BE INSTALLED WITH THE BOTTOM EDGE OF THE REFLECTING SURFACE 35" MAX. ABOVE THE FINISHED FLOOR.

NOTES:

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FIGURE D-13c: RESTROOM STATION STANDARD MOUNTING HEIGHTS

Appendix E – Boating Facilities

Figure E-1: Boat Launching Ramp

Figure E-2a: Accessible Rolling Dock

Figure E-2b: Accessible Rolling Dock Detail

Figure E-2c: Accessible Rolling Dock Transition Plate

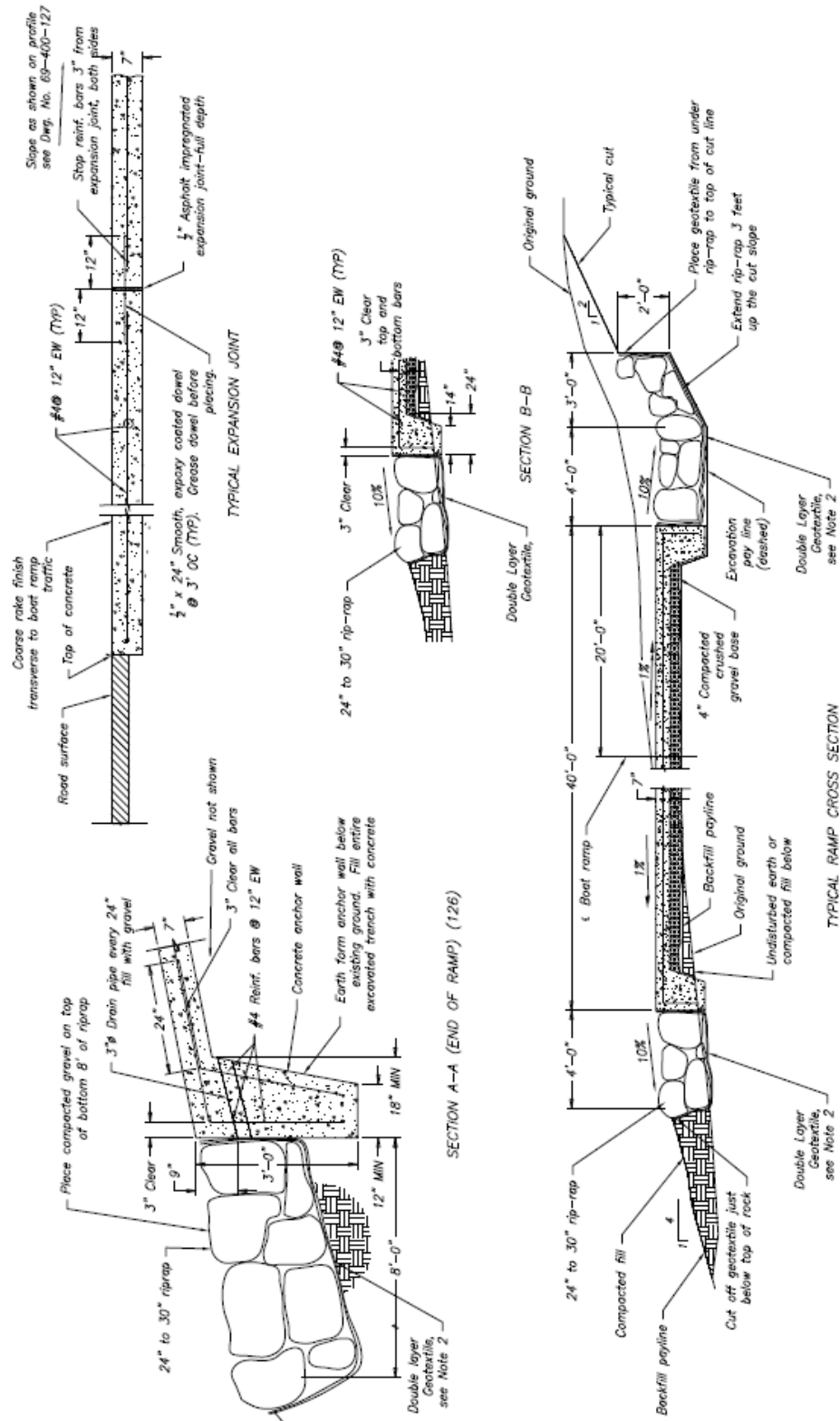
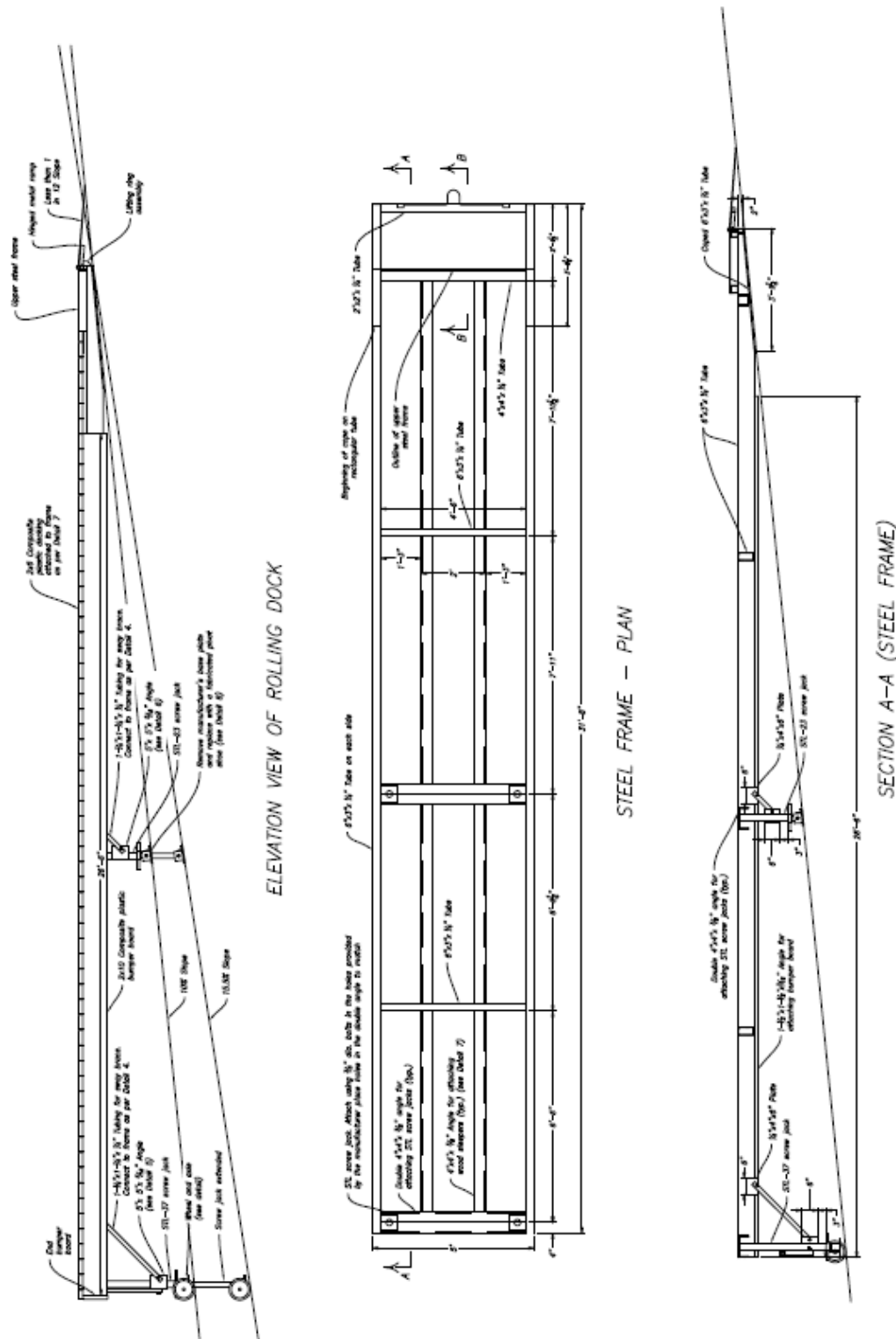


FIGURE E-1: BOAT LAUNCH RAMP



NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DES

FIGURE E-2a: ACCESSIBLE ROLLING DOCK

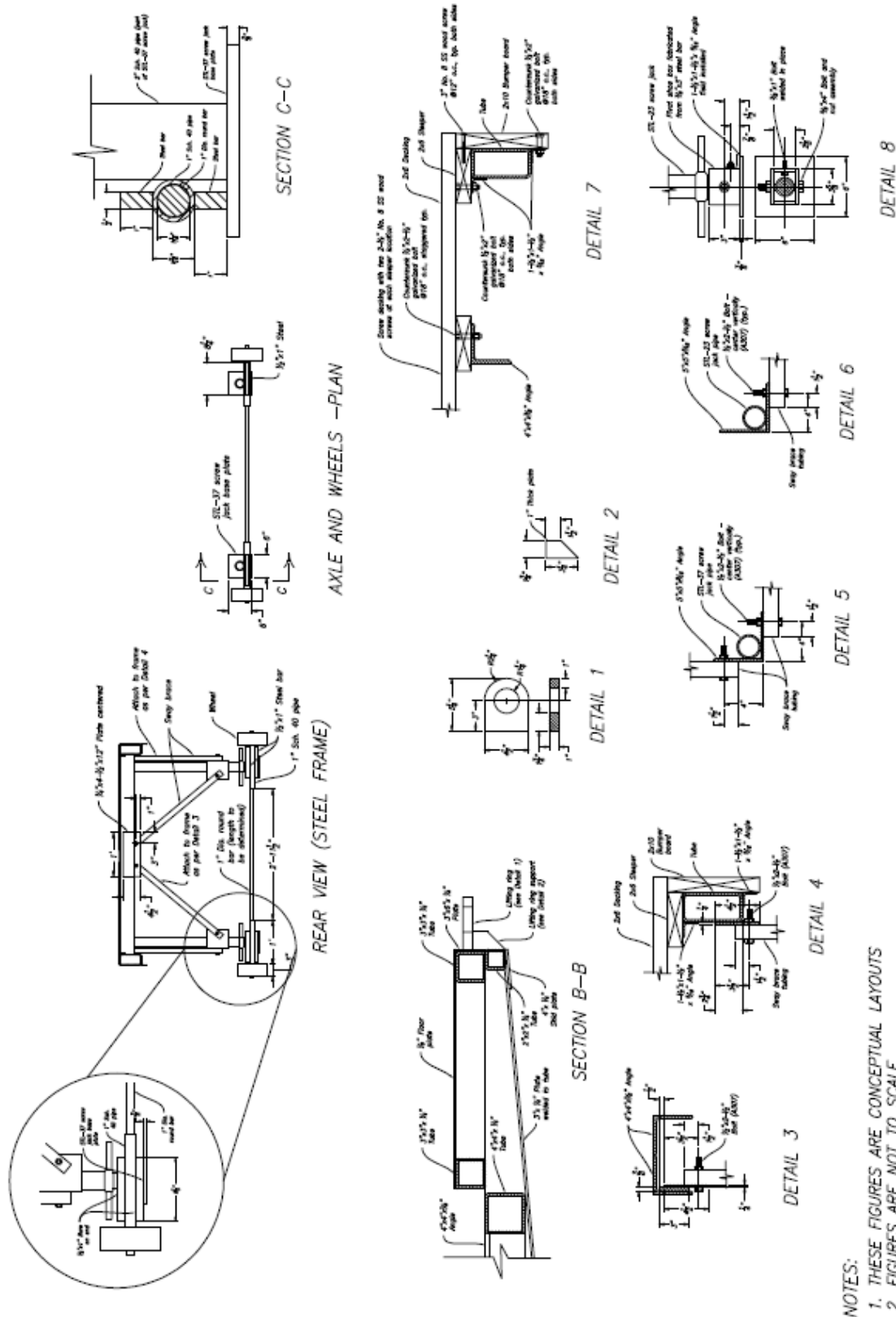
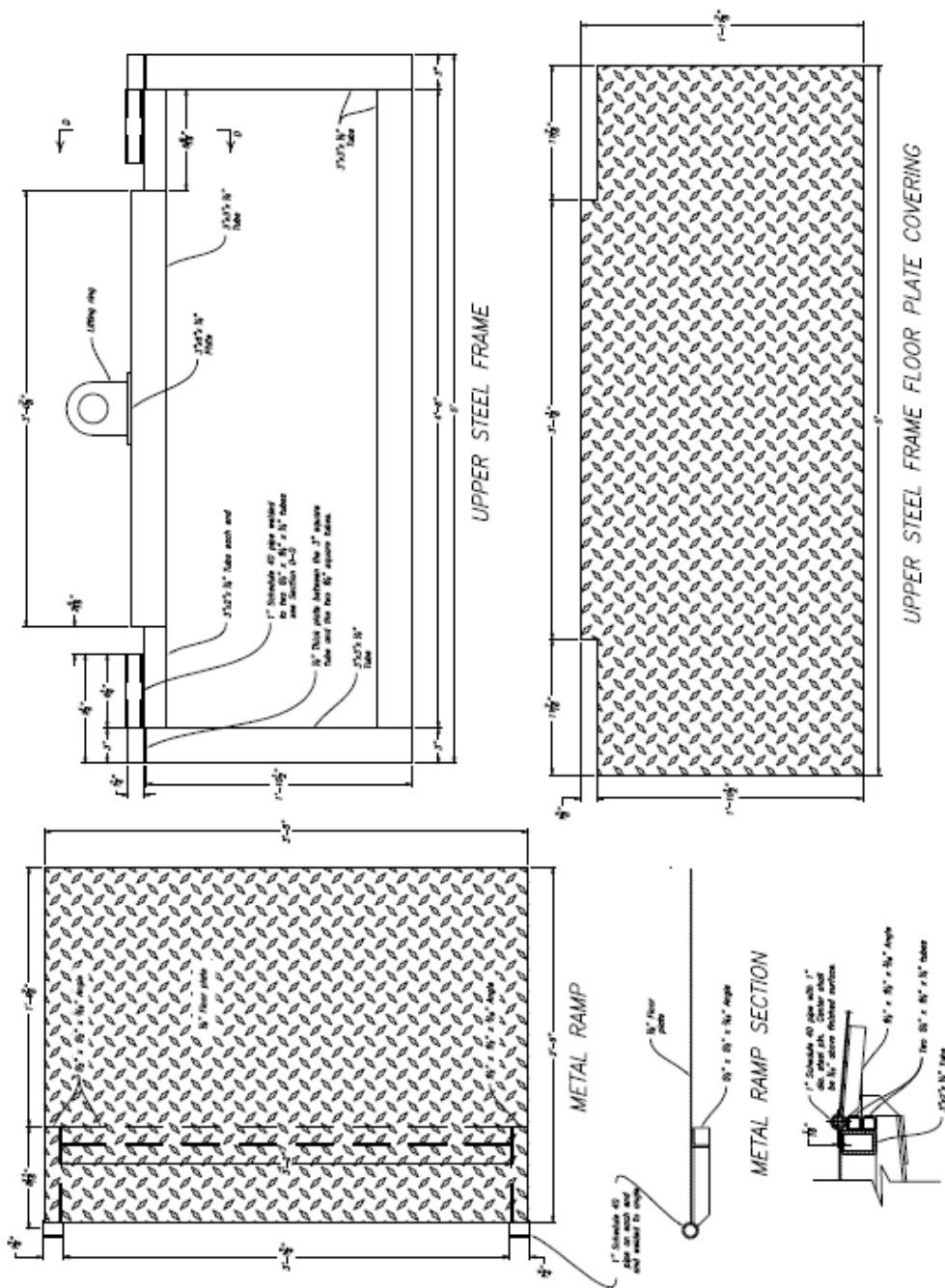


FIGURE E-2b: ACCESSIBLE ROLLING DOCK DETAILS



- NOTES:
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FIGURE E-2c: ACCESSIBLE ROLLING DOCK TRANSITION PLATE

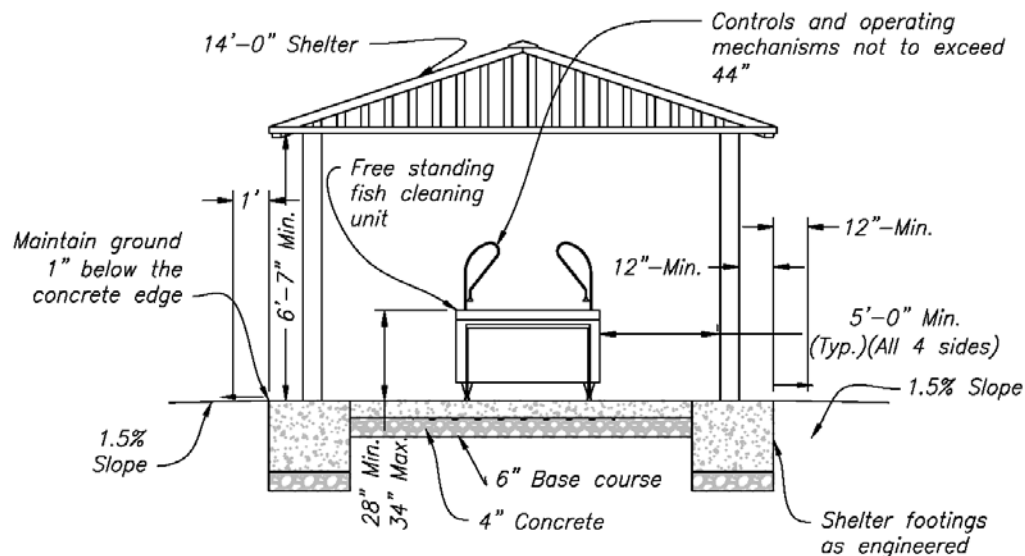
Appendix F – Fishing Facilities

Figure F-1: Accessible Fish Cleaning Station w/Shelter, Elevation

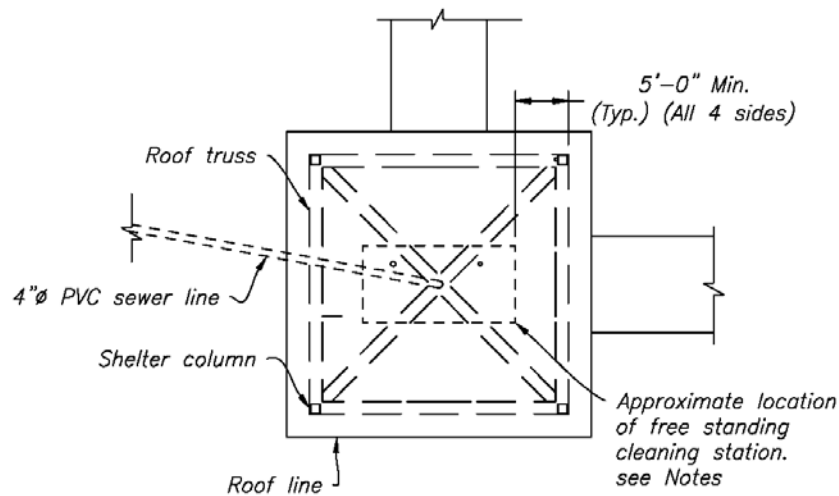
Figure F-2: Cantilever Pier

Figure F-3a: Floating Pier and Canopy

Figure F-3b: Floating Pier and Canopy Cross Section



ELEVATION



PLAN

NOTES

1. These figures are conceptual layouts.
2. They are not to scale.
3. They are not for construction.
4. Designer will confirm compliance with design codes and ABAAS with Accessibility Coordinator.

FIGURE F-1: ACCESSIBLE FISH CLEANING STATION
WITH SHELTER ELEVATION

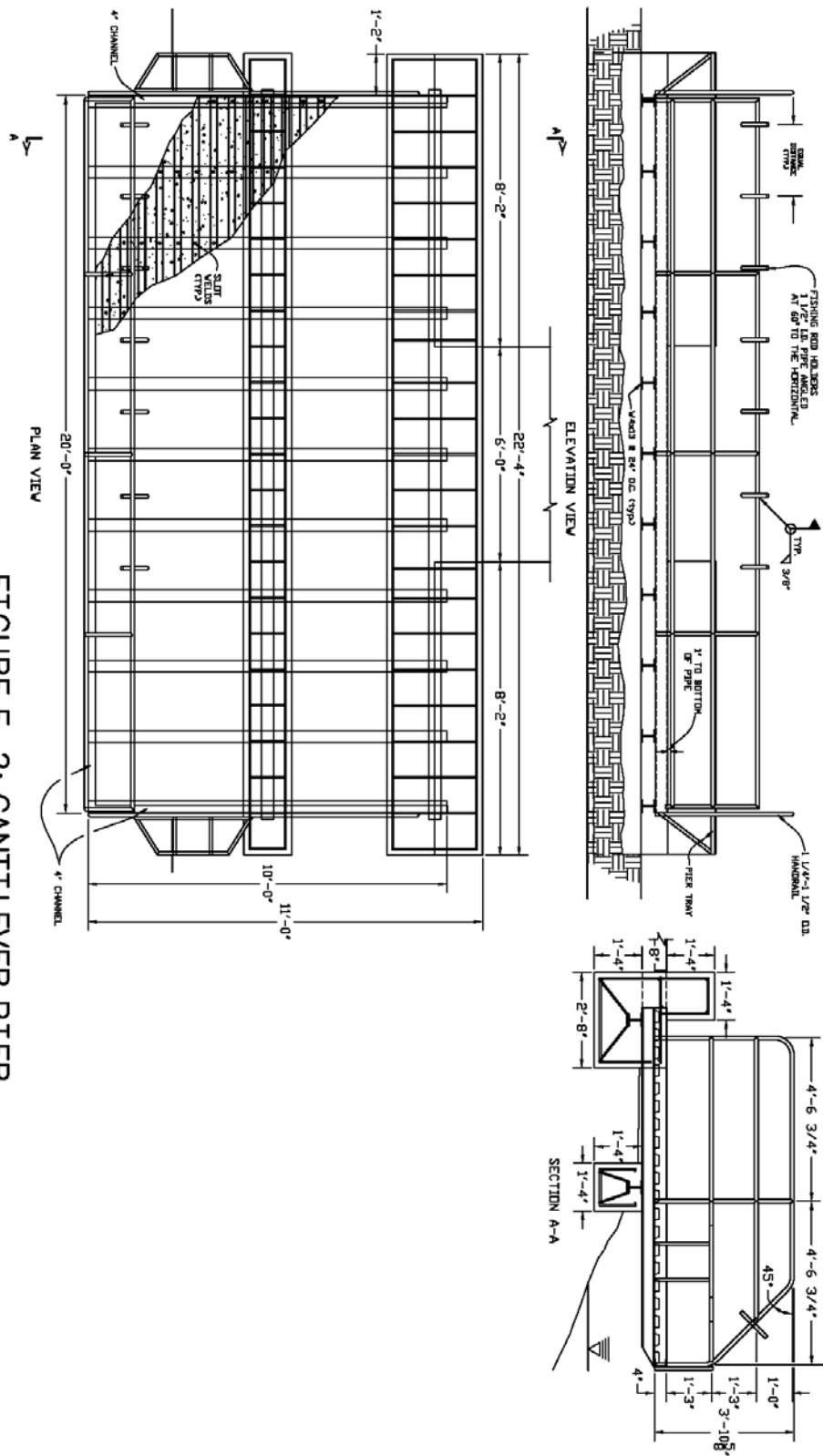
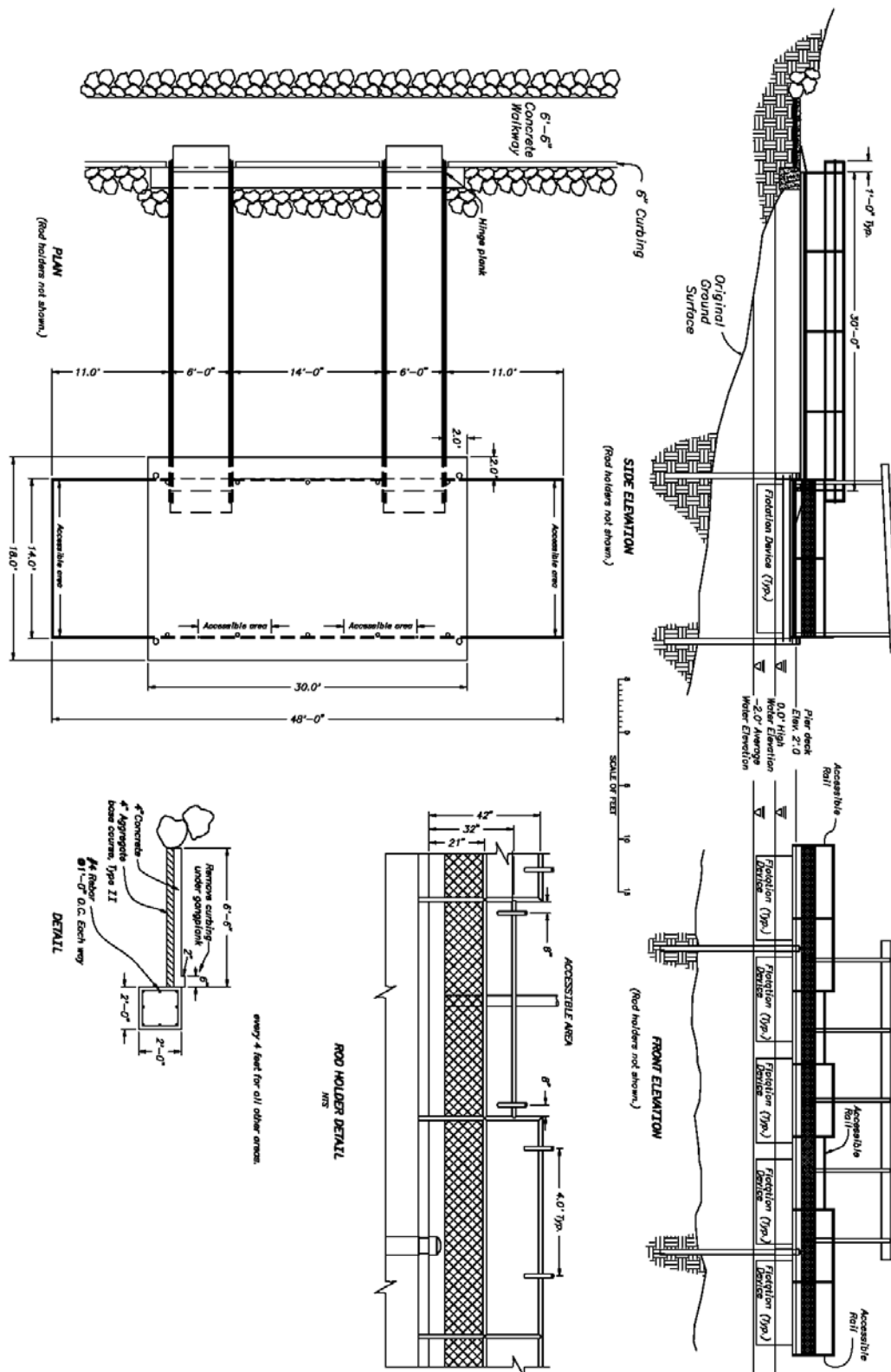


FIGURE F-2: CANTILEVER PIER



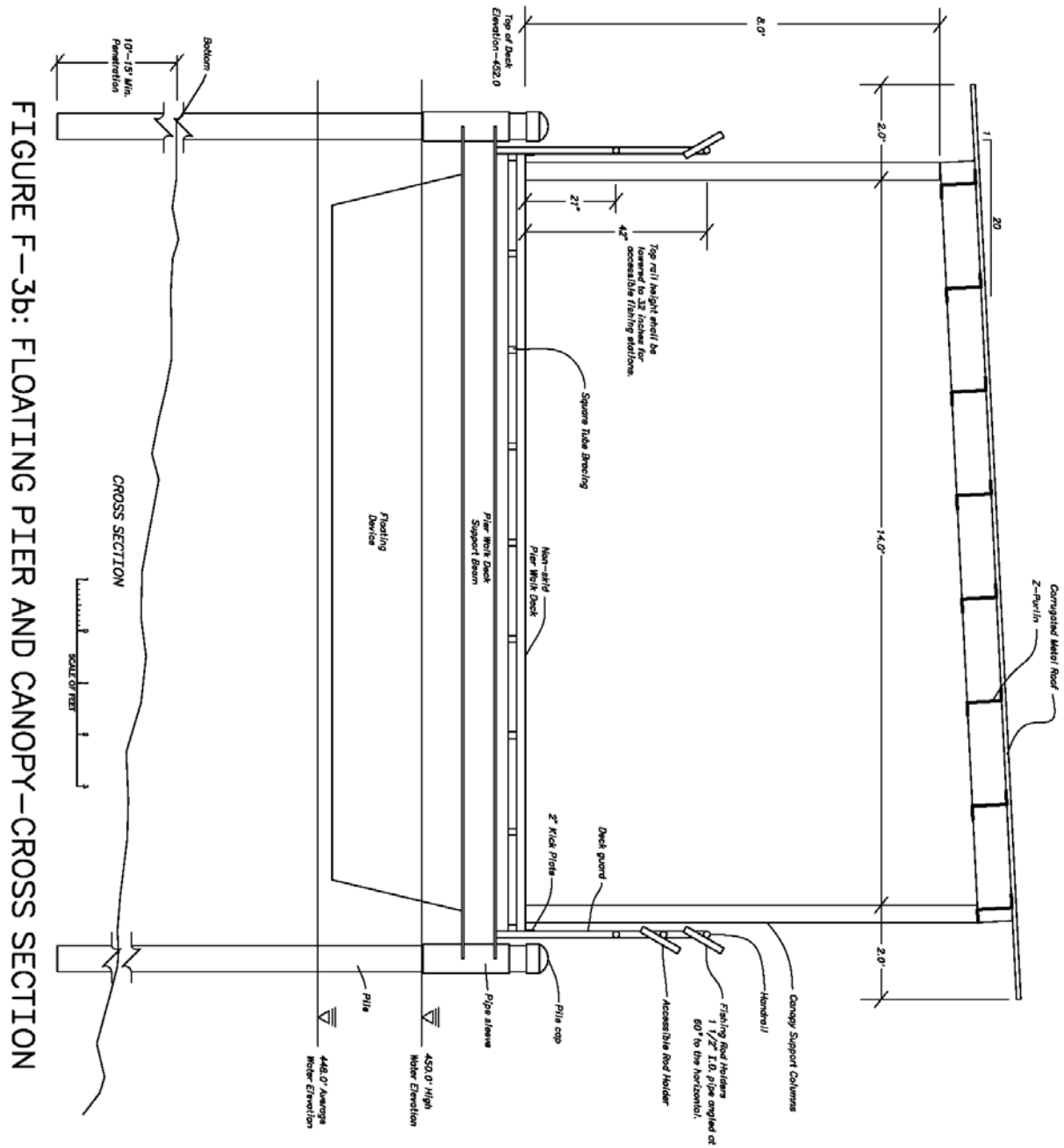


FIGURE F-3b: FLOATING PIER AND CANOPY—CROSS SECTION

Appendix G – Recreation Area Roads and Utilities

Figure G-1a: Road Closure Gate

Figure G-1b: Steel Guard Post Detail

Figure G-2: Van Accessible Parking Space

Figure G-3: Car Accessible Parking Space

Figure G-4: Diagonal Van Accessible Parking Space

Figure G-5: Diagonal Car Accessible Parking Space

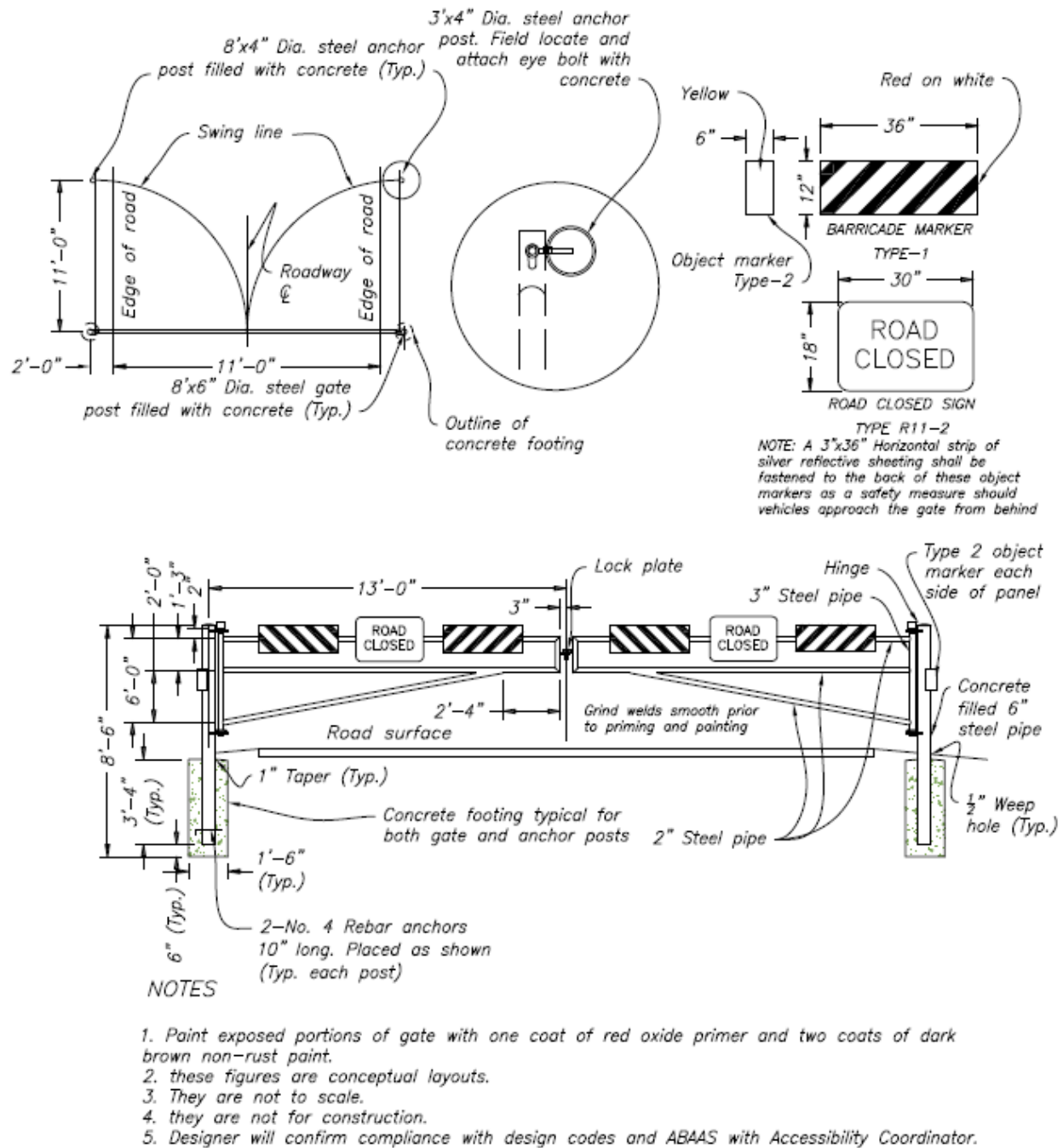
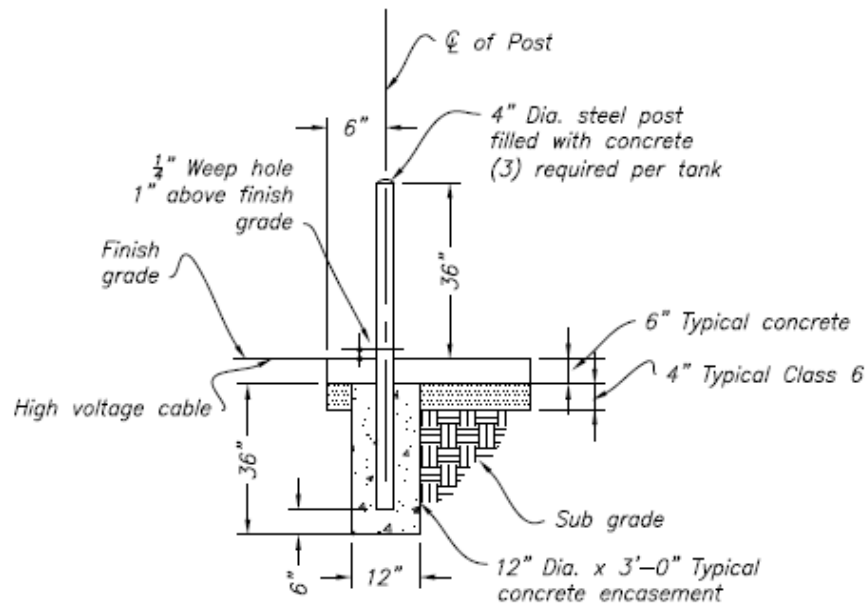


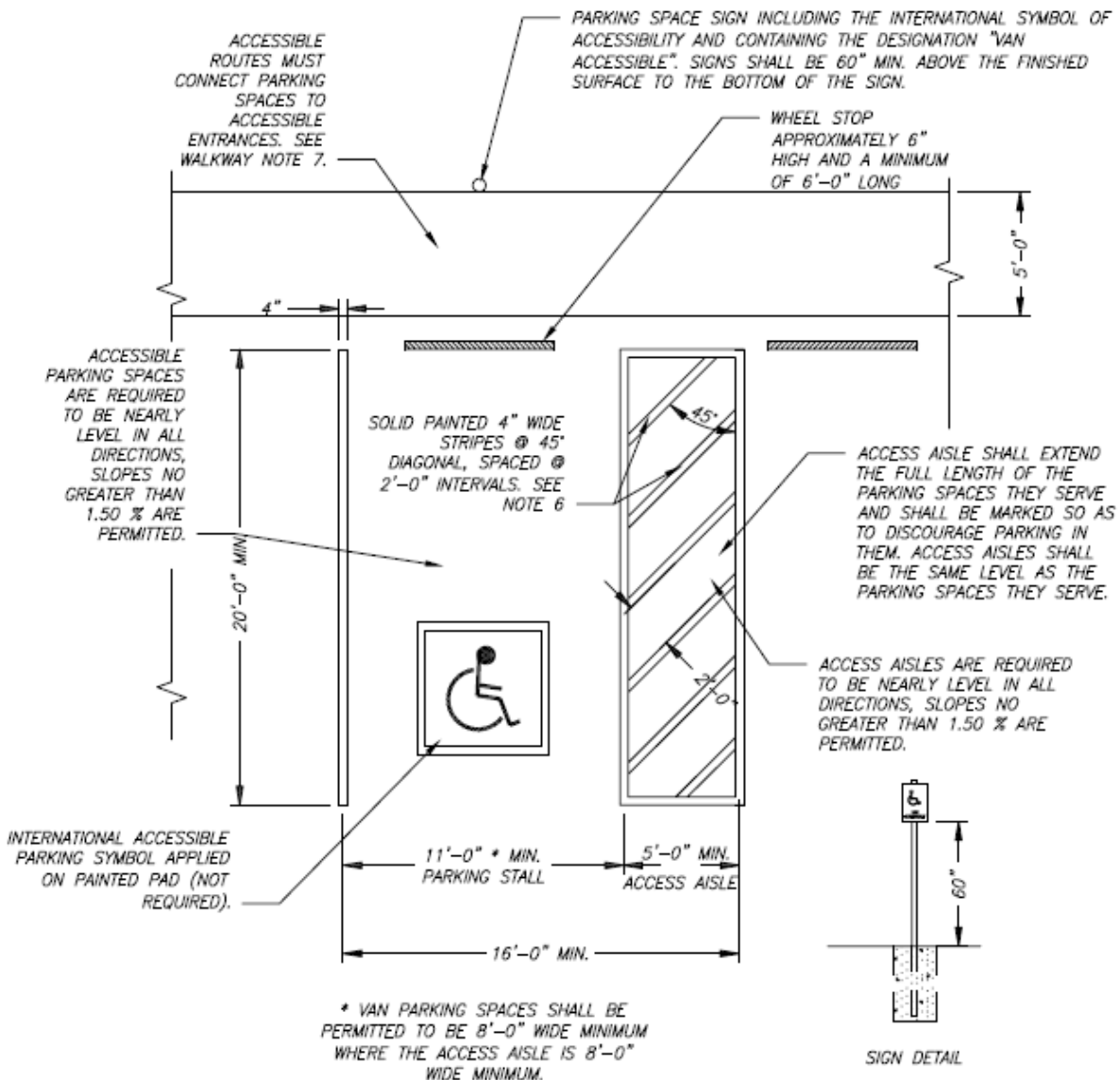
FIGURE G-1a: ROAD CLOSURE GATE



NOTES

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2. They are not to scale.
3. They are not for construction.
4. Designer will confirm compliance with design codes and ABAAS with Accessibility Coordinator.

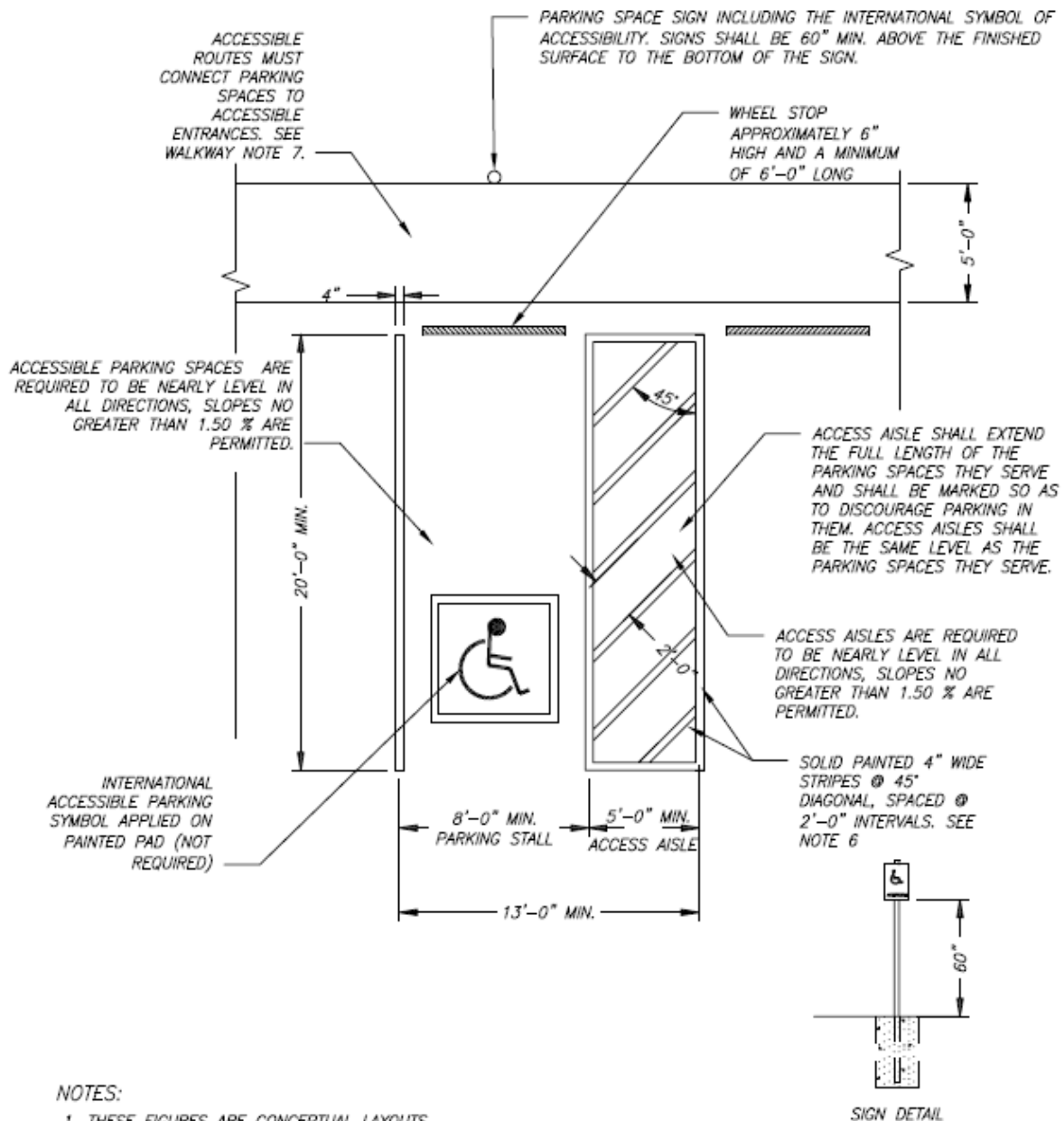
FIGURE G-1b: STEEL GUARD POST DETAIL



NOTES:

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2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR
5. PARKING AND WALKWAY SURFACE CAN BE CONCRETE OR ASPHALT
6. THE METHOD AND COLOR OF MARKING ARE NOT SPECIFIED BY THESE REQUIREMENTS BUT MAY BE ADDRESSED BY STATE OR LOCAL LAWS OR REGULATIONS. BECAUSE THESE REQUIREMENTS PERMIT THE VAN ACCESS AISLE TO BE AS WIDE AS THE PARKING SPACE, IT IS IMPORTANT THAT THE AISLE BE CLEARLY MARKED.
7. WALKWAY TO HAVE LESS THAN 1.50% CROSS SLOPE AND 4.50% RUNNING SLOPE.

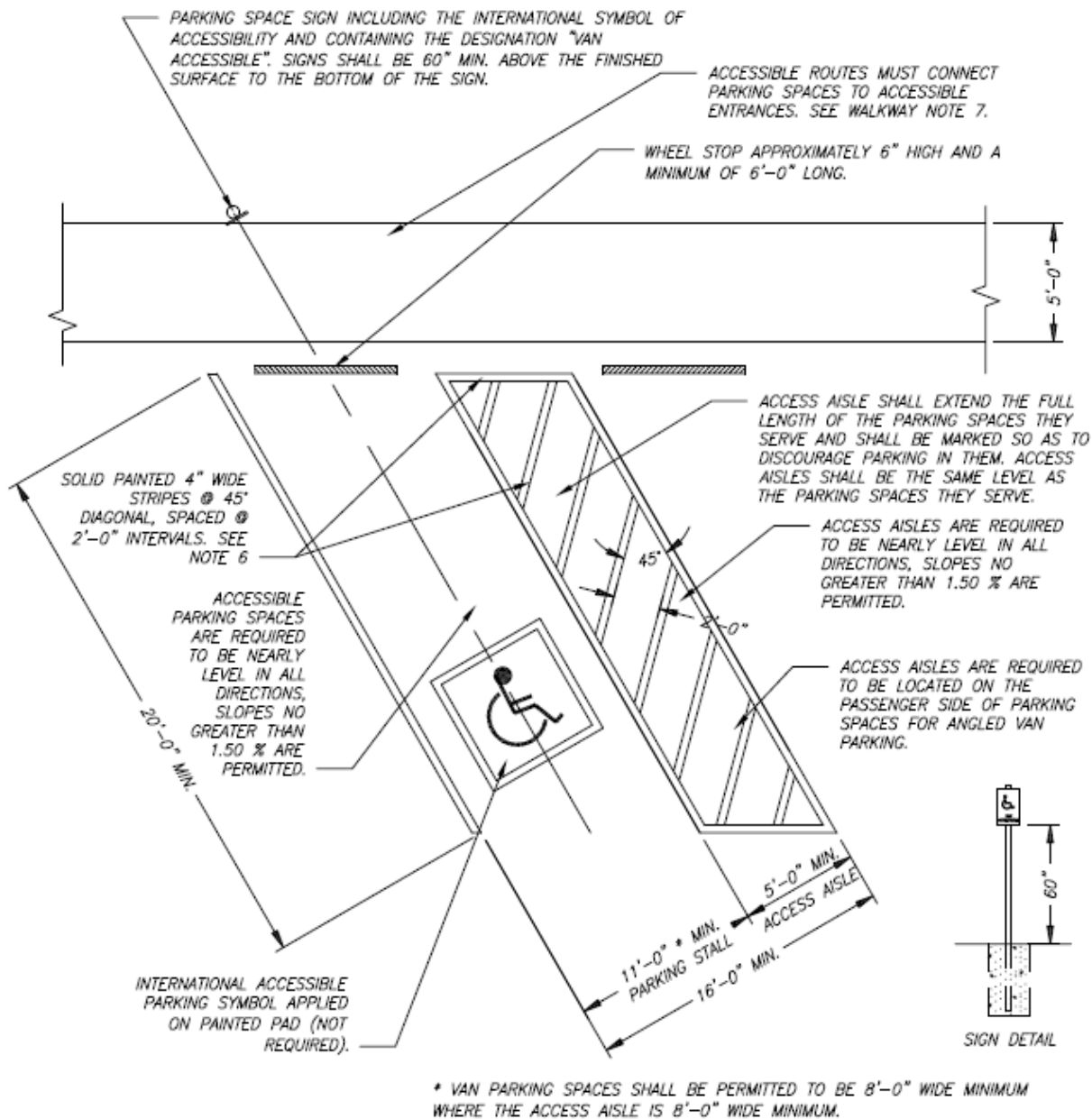
FIGURE G-2: VAN ACCESSIBLE PARKING SPACE



NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES AND ABAAS WHERE APPROPRIATE
5. PARKING AND WALKWAY SURFACE CAN BE CONCRETE OR ASPHALT
6. THE METHOD AND COLOR OF MARKING ARE NOT SPECIFIED BY THESE REQUIREMENTS BUT MAY BE ADDRESSED BY STATE OR LOCAL LAWS OR REGULATIONS.
7. WALKWAY TO HAVE LESS THAN 1.50% CROSS SLOPE AND 4.50% RUNNING SLOPE.

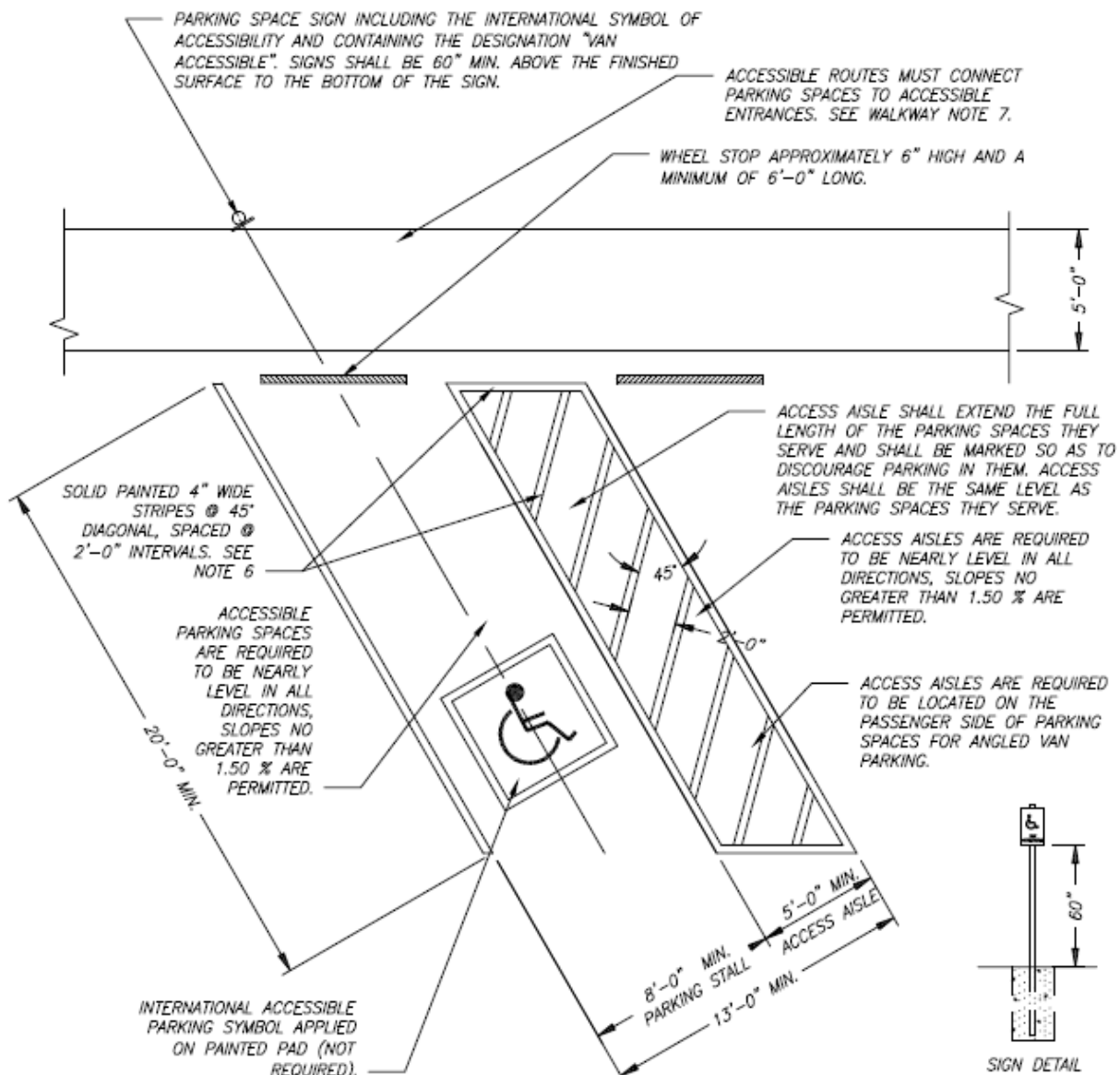
FIGURE G-3: CAR ACCESSIBLE PARKING SPACE



NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR
5. PARKING AND WALKWAY SURFACE CAN BE CONCRETE OR ASPHALT
6. THE METHOD AND COLOR OF MARKING ARE NOT SPECIFIED BY THESE REQUIREMENTS BUT MAY BE ADDRESSED BY STATE OR LOCAL LAWS OR REGULATIONS. BECAUSE THESE REQUIREMENTS PERMIT THE VAN ACCESS AISLE TO BE AS WIDE AS THE PARKING SPACE, IT IS IMPORTANT THAT THE AISLE BE CLEARLY MARKED.
7. WALKWAY TO HAVE LESS THAN 1.50% CROSS SLOPE AND 4.50% RUNNING SLOPE.
8. ANGLED VAN PARKING SPACES SHALL NOT BE PERMITTED TO SHARE COMMON ACCESS AISLE.

FIGURE G-4: DIAGONAL VAN ACCESSIBLE PARKING SPACE



NOTES:

1. THESE FIGURES ARE CONCEPTUAL LAYOUTS
2. FIGURES ARE NOT TO SCALE
3. NOT TO BE USED AS CONSTRUCTION DRAWINGS
4. DESIGNER WILL CONFIRM COMPLIANCE WITH DESIGN CODES, ABAAS, AND ACCESSIBILITY COORDINATOR
5. PARKING AND WALKWAY SURFACE CAN BE CONCRETE OR ASPHALT
6. THE METHOD AND COLOR OF MARKING ARE NOT SPECIFIED BY THESE REQUIREMENTS BUT MAY BE ADDRESSED BY STATE OR LOCAL LAWS OR REGULATIONS. BECAUSE THESE REQUIREMENTS PERMIT THE VAN ACCESS AISLE TO BE AS WIDE AS THE PARKING SPACE, IT IS IMPORTANT THAT THE AISLE BE CLEARLY MARKED.
7. WALKWAY TO HAVE LESS THAN 1.50% CROSS SLOPE AND 4.50% RUNNING SLOPE.
8. ANGLED CAR PARKING SPACES SHALL NOT BE PERMITTED TO SHARE COMMON ACCESS AISLE.

FIGURE G-5: DIAGONAL CAR ACCESSIBLE PARKING SPACE

Appendix H – Foot Trail and Beach Access

Foot Trails

A. Trail Access

Trails shall be accessible where a trail is directly connected to a trailhead or another accessible trail. Trails that are designed for use other than pedestrians shall not be required to comply with these accessibility standards.

1. Facilities Found Along a Trail —

Twenty percent, but not less than one of each, of facilities found along a trail such as campsites, picnic sites, and viewing areas must comply with the ODAAG. These facilities are not required to be connected to an ORAR.

2. Portions of a Trail —

If the conditions on a portion of a trail are such that does not permit full compliance with accessibility standards and guidelines under one or more of the Conditions for Exception (noted below), then that portion shall comply with the accessibility standards to the maximum extent possible and feasible. Where the Condition(s) for Exception are no longer present, the remainder of the trail is required to meet ODAAG.

3. Entire Trail —

If it is determined to be impracticable for an entire trail to comply with accessibility standards using the Conditions for Exception (noted below), then document the basis for the determination and maintain the document with the records for the construction or alteration of the trail. This determination is to be made on a case-by-case basis. Notify the U.S. Access Board when it is determined that an entire trail cannot be made accessible due to the Conditions for Exception (noted below).

a. Conditions for Exception:

- Compliance is not feasible due to terrain.
- Compliance cannot be accomplished with the prevailing construction practices.

- Compliance would fundamentally alter the function or purpose of the facility or the setting.
- Compliance is precluded by the:
 - Endangered Species Act
 - National Environmental Policy Act
 - National Historic Preservation Act
 - Wilderness Act, or other Federal, State, or local law, the purpose of which is to preserve threatened or endangered species; the environment; or archaeological, cultural, historical, or other significant natural features.

B. Trailheads

Where provided within the boundaries of a trailhead, 20 percent, but no less than one of each type of outdoor constructed feature (i.e., water hydrants, trash cans, picnic tables, etc.) shall comply with the ODAAG and be connected by an ORAR

1. ORARs —

These paths shall connect accessible parking spaces to the starting point of the trail and all of the site amenities. Accessible parking shall meet the current standards found in ABAAS.

2. Trail Signs —

New trailhead signs are required to conform to accessibility standards found in ODAAG regardless of whether the newly constructed or altered trail complies. The visitor will therefore have enough information to determine the usability of the trail or trail segment. All new trail signs must include the following information:

- Length of the trail or trail segment.
- Surface type.
- Typical and minimum tread width.
- Typical and maximum running slope.
- Typical and maximum cross slope.

C. Technical Requirements

Trail surfaces, passing spaces, and resting intervals are to be firm and stable. *(A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.)*

1. Clear Trail Width —

Clear tread width is to be a minimum of 36 inches, but can be reduced to 32 inches for a maximum length of 24 inches, provided that the reduced-length segments are separated by trail segments that are a minimum of 48 inches long by 36 inches wide.

2. Passing Spaces —

Where the clear tread width is less than 60 inches, passing spaces shall be provided at intervals of 1,000 feet maximum. Passing spaces and resting intervals (included below) can share the same space. If the full length of the trail does not comply, the last passing space is to be located at the end of the segment that does comply. It is strongly encouraged to provide trails of 60-inch minimum clear tread width where they are heavily used, elevated above or installed below grade, or where boardwalks are installed to cross wetlands, water crossings, etc.

Passing spaces are to be either a space 60 inches by 60 inches minimum located adjacent to the trail or an intersection of two trails that provides a "t-shaped" space where the base and arms of the "t" extend a minimum of 48 inches beyond the intersection. Vertical alignment at the junction of the trails that create the t-shaped space shall be on the same plane.

3. Tread Obstacles —

Where the trail surface is concrete, asphalt, or boards, tread obstacles on trails, passing spaces, and resting intervals shall not exceed 0.5 inch in height. Where the trail surface is other than concrete, asphalt, or boards, tread obstacles can be a maximum of 2 inches in height (less is better). Where possible, tread obstacles should be separated by a distance of 48 inches to allow for maneuvering around the obstacle.

4. Trail Surface Openings —

Openings in the trail surface and their related passing spaces and resting intervals shall not allow the passage of a 0.5-inch sphere.

Elongated openings shall be placed so the long dimension is perpendicular to the dominant direction of travel.

5. Running Slope - Surface Type —

ODAAG has several provisions and exceptions to meet running slope accessibility compliance depending on the surface type. Consult with an accessibility specialist for specific requirements and exceptions to ensure compliance.

6. Running Slope - Segment Length —

Any accessible trail segment shall not exceed 12.5 percent. The table below (adopted from ODAAG) provides details of running slope requirements for segments less than 12.5 percent. An accessible resting interval is required at each end of the segment.

Table 1017.7.1 (ODAAG) Running Slope/Resting Intervals		
Running Slope of Trail Segment		Maximum Length of Segment
Steeper than	But not Steeper than	
5%	8.33%	200 feet
8.33%	10%	20 feet
10%	12.50%	10 feet

7. Cross Slope —

If the trail surface is concrete, asphalt, or boards, the cross slope is not to exceed 2.08 percent at any point along its length. If the trail surface is other than concrete, asphalt, or boards, the cross slope cannot exceed a maximum of 5 percent.

8. Resting Intervals —

Resting intervals can be provided within the usable trail tread but must be at least as wide as the widest segment of the trail leading to the resting interval. It is recommended that resting intervals be provided adjacent to the trail to allow passage of other users along trail.

Resting intervals shall be a minimum of 60 inches long. If located within the trail tread, the space shall be as wide as the widest segment of the trail. If located adjacent to the trail, the space shall be 36 inches wide and provide a t-shaped space in compliance with ABAAS.

The surface must be firm and stable. (*A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.*) If the space is constructed in concrete, asphalt, or boards then the slope shall not exceed 2.08 percent in any direction. If the surface is constructed of material other than concrete, asphalt, or boards then the slope is allowed to increase up to 3.03 percent in any direction if needed for drainage (but not for other reasons).

9. Protruding Objects —

Constructed elements (e.g. signs and other post-mounted objects) along trails, at resting intervals, passing spaces, or other trail spaces may pose a danger to persons who are blind or who have low vision.

Constructed elements with leading edges more than 27 inches but not more than 80 inches above the ground surface shall protrude 4 inches maximum horizontally into the path of travel.

Free-standing objects mounted on posts or pylons shall overhang the path of travel 12 inches maximum when such are located 27 inches minimum and 80 inches maximum above the path of travel. Where a sign or other obstruction is mounted between posts or pylons and the clear distance between the posts or pylons is greater than 12 inches, the lowest edge of such sign or obstruction shall be 27 inches maximum or 80 inches minimum above the path of travel.

10. Gates and Barriers —

Where gates and barriers control access to trails, the clear width of the constricted opening shall comply with standard width and hardware compliance. Refer to ABAAS [404.2.3](#) and [404.2.7](#).

Beach Access

Pedestrian access points to a beach include parking facilities that serve beaches, dune crossings, stairways, and ramps leading from walkways to the beach. They do not include user-created pathways.

A. Beach Access Routes

Routes can be permanent or removable. At least one beach access routes is required for every 0.5 mile of shoreline managed by the

entity. However, the number of beach access routes is not required to exceed the number of pedestrian access points provided.

Beach access routes are to coincide with or be located in the same area as the pedestrian access points.

If a Condition for Exception (noted below) does not permit full compliance within a portion of a beach access route, that portion should still comply with the provision to the maximum extent feasible. If it is determined to be impracticable for an entire beach access route to comply, then a beach access route shall not be required.

However, if it is determined that an entire beach access route cannot comply due to the presence of one or more Conditions for Exception, document the basis for the determination and maintain that documentation with records dealing with the construction or alteration project. Notify the U.S. Access Board in such a case.

B. Conditions for Exception

- Compliance is not feasible due to terrain.
- Compliance cannot be accomplished with the prevailing construction practices.
- Compliance would fundamentally alter the function or purpose of the facility or the setting.
- Compliance is precluded by:
 - Endangered Species Act
 - National Environmental Policy Act
 - National Historic Preservation Act
 - Wilderness Act, or Other Federal, State, or local law the purpose of which is to preserve threatened or endangered species; the environment; or archaeological, cultural, historical, or other significant natural features.

Note: Consider all design options before determining whether the conditions for exception apply. The laws referenced above can limit construction in the outdoor environment and also apply where archaeological, cultural, historical, or other significant natural features are eligible for protection under Federal, State, or local law.

1. Connections —

Beach access routes shall connect an entry point to the beach to the high water level at a lake, pond, or reservoir beach.

2. Technical Requirements —

a. Surface and Clear Width:

The surface and related resting intervals shall be firm and stable. *(A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.)* The minimum clear width of beach access routes is to be 60 inches and is not to be reduced for safety purposes.

b. Obstacles:

If the surface is concrete, asphalt, or boards, obstacles are not to exceed 0.5 inch in height. If the surface is other than concrete, asphalt or boards, obstacles are not to exceed 1 inch in height. Where possible, obstacles should be separated by a distance of 48 inches minimum so persons who use wheelchairs can maneuver around them.

c. Openings:

Surfaces and their related passing spaces and resting intervals shall not allow the passage of a 0.5 inch sphere. Elongated openings shall be placed so the long dimension is perpendicular to the dominant direction of travel.

d. Running Slope:

The running slope of any segment of a beach access route is not to exceed 10 percent. The table below (adopted from ODAAG) provides details of running slope requirements for segments less than 10 percent. An accessible resting interval is required at each end of the segment.

Table 1018.7.1 (ODAAG) Running Slope/Resting Intervals		
Running Slope of Segment of Beach Access Route		Maximum Length of Segment
Steeper than	But not Steeper than	
5%	8.33%	50 feet
8.33%	10%	30 feet

e. Cross Slope:

If the surface is concrete, asphalt, or boards, the cross slope is not to exceed 2.08 percent at any point along its length. If the beach access route surface is other than concrete, asphalt, or boards, the cross slope cannot exceed a maximum of 3.03 percent if needed for drainage (but not for other reasons).

f. Resting Intervals:

Resting intervals can be provided within the usable trail tread but must be at least as wide as the widest segment of the trail leading to the resting interval. It is recommended that resting intervals be provided adjacent to the trail to allow passage of other users along the trail.

Resting intervals shall be a minimum of 60 inches long. If located within the route tread the space shall be as wide as the widest segment of the route. If located adjacent to the route the space shall be a minimum of 36 inches wide and provide a t-shaped space in compliance with ABAAS.

The surface must be firm and stable. *(A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentation.)* If the resting interval is constructed of concrete, asphalt, or boards then the slope shall not exceed 2.08 percent in any direction. If the surface is constructed other than concrete, asphalt, or boards then the slope shall not exceed 3.03 percent in any direction (but not for other reasons).

g. Protruding Objects:

Constructed elements (e.g. signs and other post-mounted objects) along beach access routes, at resting intervals, passing spaces, or other route spaces may pose a danger to persons who are blind or who have low vision.

Constructed elements with leading edges more than 27 inches but not more than 80 inches above the ground surface shall protrude 4 inches maximum horizontally into the path of travel.

Free-standing objects mounted on posts or pylons shall overhang the path of travel 12 inches maximum when such are located 27 inches minimum and 80 inches maximum

above the path of travel. Where a sign or other obstruction is mounted between posts or pylons and the clear distance between the posts or pylons is greater than 12 inches, the lowest edge of such sign or obstruction shall be 27 inches maximum or 80 inches minimum above the path of travel.

h. Elevated Crossings:

Where an elevated crossing is part of the beach access route, handrails and edge protection must meet all requirements under ABAAS.

The walking surface must extend a minimum of 12 inches beyond the inside face of the handrails, perpendicular to the handrails on both sides of the beach access route.

If a curb or other barrier is used, it must not allow the passage of a 4-inch diameter sphere between the barrier or curb and the lowest rail of the handrails along their entire length.

Note: Elevated crossings can be reduced to a minimum clear width of 48 inches and do not require resting intervals.

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