



United States  
Department of  
Agriculture



U.S. Department of Transportation  
Federal Highway Administration

# Forest Service Trail Accessibility Guidelines (FSTAG)

## Pocket Version



Forest  
Service

National Technology &  
Development Program

1523-2812-MTDC  
Recreation

October  
2015

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Cover—Three generations enjoy a hike through a beautiful mountain meadow.

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# Forest Service Trail Accessibility Guidelines (FSTAG)

## Pocket Version

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**Missoula, MT**

**2E22A08 Pocket Guide for FSTAG**

**October 2015**

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## 7.0 Application

The Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) and the Forest Service Trails Accessibility Guidelines (FSTAG) are the legally enforceable standards for facilities, routes, and features within the National Forest System. FSTAG applies to all trails in the National Forest System that meet **all three** of the following criteria:

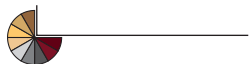
- Are new or altered
- Have the Federal Trail Data Standard (FTDS) designation designed use of “Hiker/Pedestrian”
- Connect directly to a trailhead or to a trail that currently substantially complies with the FSTAG

FSTAG provides guidance for maximizing the accessibility of trails while protecting the unique characteristics of the natural setting. Although the guidelines are not legally enforceable outside of the National Forest System, they may be used by other entities to define best practices for recreation areas.

FSTAG does not apply to:

- Maintenance work (routine or periodic repair of existing trails, recreation sites, or facilities).
- Trailheads, the constructed features at trailheads, and routes connecting those features. These must comply with the applicable technical provisions of the FSORAG and Architectural Barriers Act Accessibility Standards (ABAAS).
- Most buildings; recreational facilities that are not addressed in the FSORAG or FSTAG must comply with the applicable requirements of the ABAAS.
- Associated constructed features (such as tent pads, fire rings, and pit toilets) located along National Forest System trails. These must comply with the FSORAG.
- Boating and fishing facilities, swimming pools, play areas, sports arenas, miniature golf courses, and amusement parks. These must comply with chapter 10: Recreation Facilities of the ABAAS.

Side trails or other routes leading from a trail to associated constructed features must comply with the requirements for trails, not those for outdoor recreation access routes.





## 7.1 Conditions for an Exception

Where described in individual sections of the guidelines, some specific technical requirements may be reduced or changed if one or more of the following conditions exists on a trail. The exception shall not be used on the portion of the trail where the condition does not exist. If no exception is provided for the technical requirement, no exception is allowed. All other appropriate design options should be considered before applying the exception.

Some specific technical requirements also contain general exceptions that may be applied irrespective of the presence of a condition for an exception, if the general conditions for the exception are met. These are detailed specifically in the applicable sections and shall not be used for other features.

**Condition for an Exception 1.** Where compliance with the technical provision is not practicable due to terrain.

**Condition for an Exception 2.** Where compliance with the technical provision would fundamentally alter the function or purpose of the facility, trail, or the setting.

**Condition for an Exception 3.** Where compliance with the technical provision cannot be accomplished with the prevailing construction practices.

**Condition for an Exception 4.** Where compliance is precluded because the cultural, historic, or significant natural features are eligible for protection under Federal, State, or local law by the following:

- Endangered Species Act (16 U.S.C. §§ 1531 et seq.),
- National Environmental Policy Act (42 U.S.C. §§ 4321 et seq.),
- National Historic Preservation Act (16 U.S.C. §§ 470 et seq.),
- Wilderness Act (16 U.S.C. §§ 1131 et seq.),
- 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.

## 7.2 General Exceptions

The basis for the determination that General Exception 1 or General Exception 2 apply shall be documented and maintained with the records of the construction or alteration project. Documentation shall include the rationale for that determination, which conditions for exception and which exceptions apply, the date of the determination, and the name of the individuals who made the determination. There is no standard format for this documentation; each unit may develop its own format to meet its specific needs.

**7.2.1 General Exception 1.** Where a condition in section 7.1 prohibits full compliance with a specific requirement in section 7.4 on a trail segment, that trail segment shall comply with the specific requirement to the maximum extent practicable.

**7.2.2 General Exception 2.** If, after applying General Exception 1, it is determined that it is impracticable to provide a trail complying with section 7.4, the trail shall not be required to comply with section 7.4. Notification of this determination shall be sent to the Access Board. The [optional form](http://www.access-board.gov/outdoor) at <<http://www.access-board.gov/outdoor>> may be used. For long-distance trails, this exception applies to the trail segments that are planned for construction or alteration in a given planning period, rather than over the entire length of the trail.

**7.2.2.1** The use of General Exception 2 is reasonable where one or more conditions for an exemption in section 7.1 and at least one of the following limiting factors exist:

**Limiting Factor 1.** The combination of trail running slope (grade) and cross slope exceeds 1:2.5 (40 percent) for over a distance of 20 feet (6 meters).

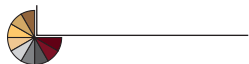
**Limiting Factor 2.** The surface is not firm and stable for a distance of 45 feet (14 meters) or more.

**Limiting Factor 3.** The minimum trail width is 12 inches (305 millimeters) or less for a distance of at least 20 feet (6,100 millimeters).

**Limiting Factor 4.** A trail obstacle of at least 30 inches (770 millimeters) in height extends across the full width of the trail.

**Limiting Factor 5.** One or more conditions for an exception exist that result in significant deviations from the technical provisions of sections 7.4.1 through 7.4.8 for more than 15 percent of the length of the trail.

**7.2.2.2** Where General Exception 2 permits exemption of an entire trail from the requirements of section 7.4.1 through 7.4.8, it may be beneficial to construct a portion of the trail to meet the trail accessibility guidelines. Consider doing so especially if a prominent feature (such as a scenic view, waterfall, or other feature that would be of interest to visitors) is located between the trail terminus and the first extreme environmental barrier, and there are few or no significant conditions requiring exceptions on that portion of the trail.





## 7.3 Definitions

All trail-related definitions used in the FSTAG are from the Forest Service Manual or Handbook, the Forest Service Infrastructure Trails Module, Trail Assessment and Condition Survey (TRACS) reference materials, or are mandated by the Access Board.

## 7.4 Technical Requirements

**7.4.1 Surface.** The trail tread surface, including resting intervals and passing spaces, shall be both firm and stable.

**7.4.2 Clear Tread Width.** The clear tread width of the trail shall be at least 36 inches (915 millimeters), as shown in figure 1.

**Exception:** Where a condition for an exception prevents achieving the required width, the clear tread width may be reduced to 32 inches (815 millimeters) minimum. If the condition for an exception prevents achieving the reduced width of 32 inches (815 millimeters), comply to the extent practicable.

### 7.4.3 Slope

**7.4.3.1** The running slope (grade) of trail segments shall comply with this section, as shown in table 7.4.3.1, and shall be consistent over the distances cited.

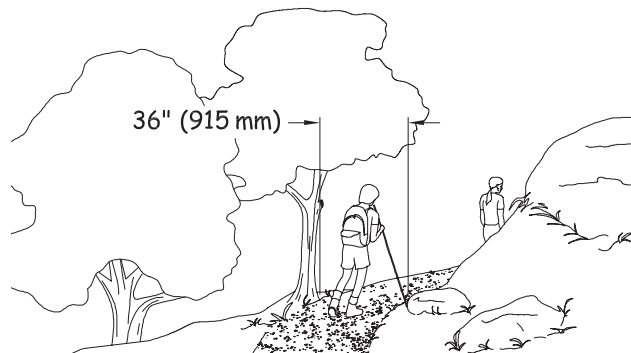


Figure 1—The requirement for clear tread width on a trail.

- Trail running slope (grade) of up to 1:20 (5 percent) is permitted for any distance.
- The running slope of any segment of a trail shall not be steeper than 1:8 (12 percent).
- No more than 30 percent of the total trail length may exceed a running slope (grade) of 1:12 (8.33 percent).
- Where the running slope (grade) of a segment of a trail is steeper than 1:20 (5 percent), the maximum length of the segment shall be in accordance with table 7.4.3.1, and a resting interval complying with section 7.4.4 shall be provided at each end of the segment.

**7.4.3.2** The cross slope shall not exceed 1:20 (5 percent). Where the surface is paved or is elevated above the natural ground, the cross slope shall not be steeper than 1:48 (2 percent).

**7.4.4 Resting Intervals.** Where the trail grade exceeds 1:20 (5 percent), resting intervals shall be provided, as shown in table 7.4.3.1.

**7.4.4.1** The resting interval shall be at least 60 inches (1,525 millimeters) long.

**7.4.4.2** Where resting intervals are provided within the trail tread, resting intervals shall be at least as wide as the widest segment of the trail tread leading to the resting interval, as shown in figure 2. Where resting intervals are provided adjacent to the trail tread, the resting interval clear width shall be 36 inches (915 millimeters) minimum.

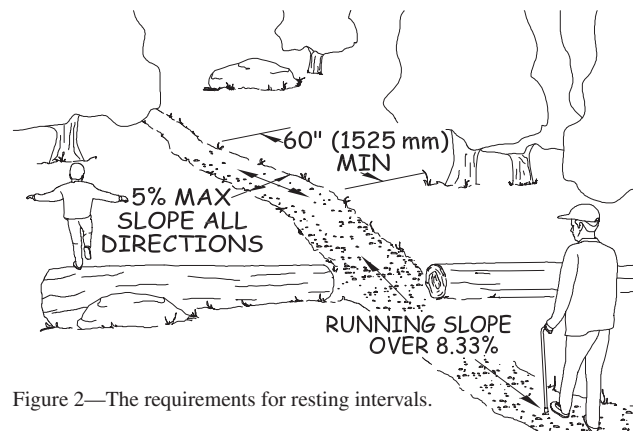


Figure 2—The requirements for resting intervals.

Table 7.4.3.1 Trail Running Slope (Grade) and Segment Length Between Resting Intervals.

Running Slope (Grade) of Trail Segments		Maximum Length of Segment Between Resting Intervals
Steeper than	But not steeper than	
1:20 (5 percent)	1:12 (8.33 percent)	200 feet (61 meters)
1:12 (8.33 percent)	1:10 (10 percent)	30 feet (9 meters)
1:10 (10 percent)	1:8 (12 percent)	10 feet (3.05 meters)





**7.4.4.3** The slope of a resting interval shall not exceed 1:20 (5 percent) in any direction. Where the surface is paved or is elevated above the natural ground, the cross slope shall not be steeper than 1:48 (2 percent) in any direction.

**7.4.4.4** Where resting intervals are provided adjacent to the trail tread, a T-shaped turning space shall be provided. The turning space shall have arms and base at least 36 inches (915 millimeters) wide. The crossarm shall be at least 60 inches (1,525 millimeters) long and be centered on the intersection with the base. The base must be at least 24 inches (610 millimeters) long. Vertical alignment between the trail tread, turning space, and resting interval shall be nominally level. The passing space shown in figure 3 meets or exceeds the requirements for a turning space. The trail tread, turning space, and resting interval may overlap.

**7.4.5 Passing Spaces.** Trails with a clear tread width less than 60 inches (1,525 millimeters) shall provide passing spaces at intervals of 1,000 feet (300 meters) maximum. Passing spaces and resting intervals may coincide or overlap.

**7.4.5.1 The passing space shall be either:**

- The intersection of two trails providing a T-shaped space where the base and the arms of the T-shaped space extend 48 inches (1,220 millimeters) minimum beyond the intersection, as shown in figure 3. Vertical alignment at the intersection of the trails that form the T-shaped space shall be nominally level.

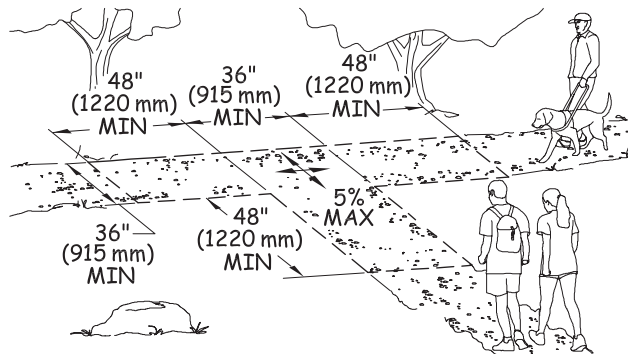


Figure 3—The requirements for passing spaces at T-intersections also meet or exceed the requirements for a turning space at a resting interval.

- A space 60 inches (1,525 millimeters) by 60 inches (1,525 millimeters) minimum, as shown in figure 4.

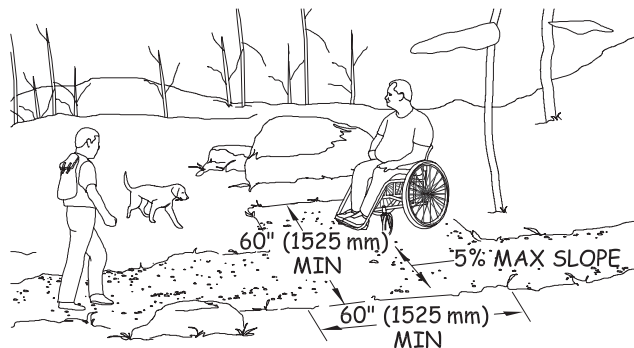


Figure 4—The requirements for passing spaces beside the trail.

**7.4.5.2** The cross slope of a passing space shall not exceed 1:20 (5 percent) in any direction.

**7.4.5.3** Where a segment of the trail does not comply with section 7.4, a passing space shall be located at the end of each adjacent trail segment that does comply with section 7.4.

**7.4.6 Tread Obstacles.** Tread obstacles on trails shall not exceed 2 inches (50 millimeters) in height measured vertically to the highest point. Where the trail surface is paved or is elevated

above the natural ground, tread obstacles shall not exceed one-half inch (13 millimeters) in height measured vertically to the highest point.

**7.4.7 Openings.** Openings in trail tread surfaces, trail resting spaces, and trail passing spaces shall be small enough to prevent passage of a ½-inch (13 millimeters) -diameter sphere. Elongated openings should be placed so that the long dimension is perpendicular, or as close to perpendicular as possible, to the main direction of travel, as shown in figure 5.

**Exception:** Where openings that do not permit the passage of a ½-inch (13 millimeters) sphere cannot be provided due to a condition for an exception, openings that do not permit passage of a ¾-inch (19 millimeters) sphere shall be permitted.

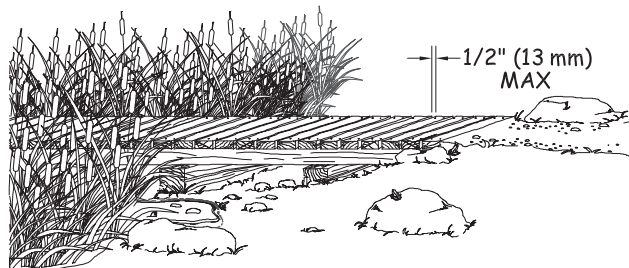
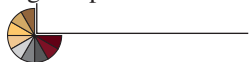


Figure 5—The requirements for openings that are perpendicular to the direction of travel on trail surfaces.







**7.4.8 Protruding Objects.** Constructed features, including signs, shall not extend into the trail tread more than 4 inches (100 millimeters) between 27 inches (685 millimeters) and 80 inches (2,030 millimeters) above the surface of the trail, as shown in figure 6.

**7.4.9 Trail Facilities.** Where provided on trails, facilities shall comply with the applicable provisions of the FSORAG. Outdoor

recreation access routes (ORARs) are not required at or between facilities on trails.

**Exception:** When the surface of the required clear ground space for trail facilities is not paved or is not elevated above the natural ground, slopes not steeper than 1:20 (5 percent) shall be permitted where necessary for drainage.

#### 7.4.10 Trailheads

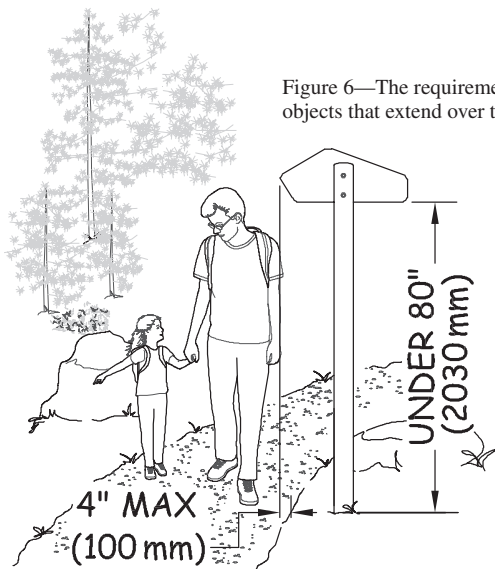
**7.4.10.1** Where provided within trailheads each outdoor constructed feature such as parking spaces, toilets, or camp sites shall comply with the applicable portions of the FSORAG and ABAAS.

**7.4.10.2** At least one outdoor recreation access route complying with FSORAG section 2.0 shall connect the following places at trailheads:

- Accessible parking spaces or other arrival point
- Starting point of the trail
- Accessible outdoor constructed features, elements, spaces, and facilities within the trailhead

**Exception 1.** In alterations to existing trailheads, where a condition for exception prohibits compliance with a technical provision, the ORAR shall comply with FSORAG section 2.0 to the maximum extent practicable.

Figure 6—The requirements for constructed objects that extend over the trail.



**Exception 2.** Where elements, spaces, or outdoor constructed features are altered at trailheads but the circulation path is not altered, an outdoor recreation access route shall not be required.

**7.4.11 Trailhead Signs.** New trailhead information signs at trailheads serving newly constructed or altered trails shall comply with the following requirements.

**7.4.11.1** Trailhead signs shall be located centered at the back of a 30- by 48-inch (760- by 1,220-millimeter) minimum clear floor or ground space. The clear space shall not overlap the trail width but may overlap a resting space or passing space. The slope of the clear space shall not exceed 1:20 (5 percent) in any direction.

**7.4.11.2** Regardless of whether the trail is accessible, the signs shall include at minimum 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
- A statement that the posted information reflects the condition of the trail when it was constructed or assessed, including the date of the construction or assessment

Where more extensive trail information is provided (for example, an aerial map of the trail and related facilities), the location of specific trail features and obstacles that do not comply with the technical provisions in section 7.4 should be identified and a profile of the trail grade should be included.

**7.4.11.3** If materials need to be obtained from or manipulated on a sign or kiosk, the sign or kiosk shall be designed to meet the reach ranges in section 308 of the ABAAS, which are the same as those for inside administrative buildings.

**7.4.12 Gates and Barriers.** Where gates or barriers are constructed to control access to trails, gates and barriers shall comply with the following requirements.

**7.4.12.1** Gate openings and openings in barriers for hiker passage shall provide a clear width of 36 inches (915 millimeters).

**7.4.12.2** Gate hardware shall be 34 inches (865 millimeters) minimum and 48 inches (1,220 millimeters) maximum above the trail surface, shall be operable with one hand with 5 pounds (22.2 Newtons) or less of force, and shall not require tight grasping, pinching, or twisting of the wrist.





## Forest Service Trails Accessibility Guidelines Quick Reference Chart

FSTAG must be applied *before* initiating new construction or altering any National Forest System trail with a Designed Use of Hiker/Pedestrian. Figure 7 distills the implementation process into a flowchart that provides a quick reference while you work through the process.

### FSTAG Quick Reference

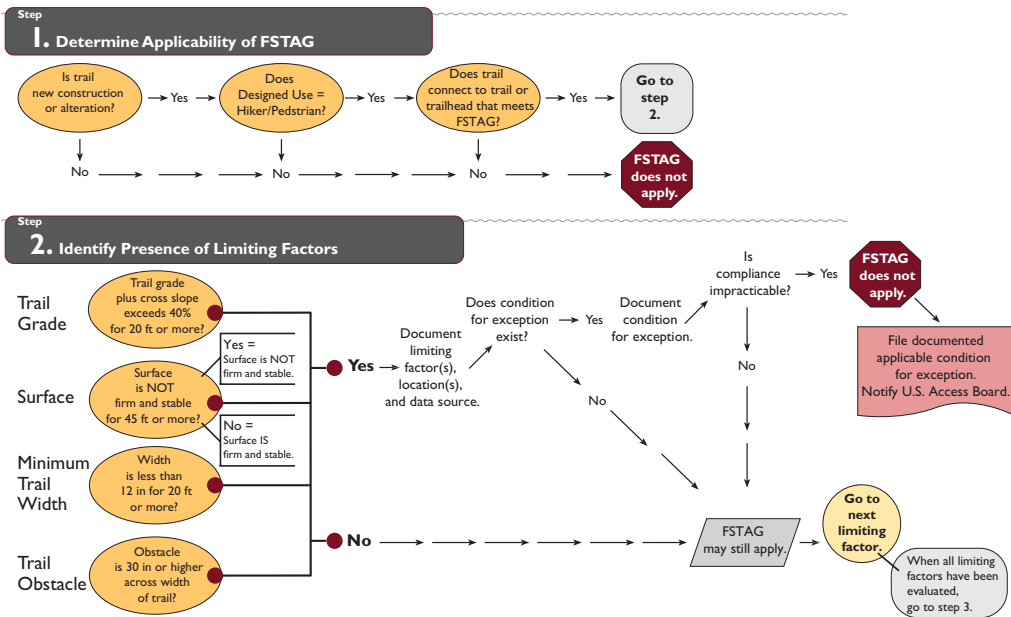
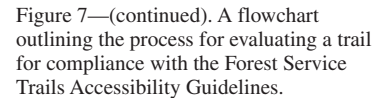


Figure 7—A flowchart outlining the process for evaluating a trail for compliance with the Forest Service Trails Accessibility Guidelines.

## Forest Service Trail Accessibility Guidelines (FSTAG) Pocket Version





## **Web Links to Resources**

### **Access Board Impracticability Notification Form:**

[<http://www.access-board.gov/outdoor>](http://www.access-board.gov/outdoor)

### **Accessibility Guidebook for Outdoor Recreation and Trails:**

[<http://www.fs.fed.us/eng/php/library\\_card.php?p\\_num=1223%202806P>](http://www.fs.fed.us/eng/php/library_card.php?p_num=1223%202806P)

### **Architectural Barriers Act Accessibility Standards:**

[<http://www.access-board.gov/ada-aba/aba-standards-gsa.cfm>](http://www.access-board.gov/ada-aba/aba-standards-gsa.cfm)

### **Federal Trail Data Standards:**

[<http://www.nps.gov/gis/trails/Doc2/Federal\\_Trail\\_Data\\_Standards\\_Final\\_20111108.pdf>](http://www.nps.gov/gis/trails/Doc2/Federal_Trail_Data_Standards_Final_20111108.pdf)

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[<http://www.fs.fed.us/eng/php/library\\_card.php?p\\_num=1523%202811P>](http://www.fs.fed.us/eng/php/library_card.php?p_num=1523%202811P)

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### **Forest Service Trails Accessibility Guidelines:**

[<http://www.fs.fed.us/recreation/programs/accessibility/>](http://www.fs.fed.us/recreation/programs/accessibility/)

## Resource Text

Sections 5.1 (Camp Shelters) and 5.3 (Pit Toilets) of the “Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) Pocket Version” are included here for the convenience of those who provide camp shelters or pit toilets in association with trail projects. These sections are for use in areas with a Recreation Site Development scale level of 2 or less. For accessible recreation facility requirements, please see the “Forest Service Outdoor Recreation Accessibility Guidelines”; “Accessibility Guidebook for Outdoor Recreation and Trails”; or “Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) Pocket Version.”

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## 5.1 Camp Shelters

**5.1.1. General.** Camp shelters at single camping units shall comply with section 5.1. Where camping units contain more than one camp shelter, at least 20 percent, but not less than two, of the camp shelters shall comply with section 5.1. Camp shelters located on trails shall be connected to other constructed features in the unit by a trail complying with the FSTAG. Camp shelters located in a campground, not on a trail, shall be connected to other constructed features by an ORAR complying with section 2.0.

**5.1.2 Level or Sloped Entry.** Camp shelters providing roll-in access shall have a level or sloped entry that complies with the FSORAG outdoor recreation access route technical requirements if the camp shelter is in a campground with a development level of 3 or higher. If the camp shelter is located off a trail, the sloped entry must comply with the FSTAG trail requirements.

**5.1.3 Slope.** The slope of the surface of the clear floor or ground space inside the camp shelter shall not be steeper than 1:48 (2 percent) in all directions.





**5.1.4 Turning Space.** Where the camp shelter floor is not elevated above the trail or ORAR, a turning space that is at least 60 inches (1,525 millimeters) in diameter or T-shaped with a minimum 36 inches (915 millimeters) wide by 24 inches (610 millimeters) deep base centered on a minimum 36 inches (915 millimeters) wide by 60 inches (1,525 millimeters) long crossarm shall be provided.

**5.1.5 Floor Height.** Where the floor at the entrance to the camp shelter is elevated above the ground surface, the floor shall be 17 inches (430 millimeters) high minimum to 19 inches (485 millimeters) high maximum measured from the clear ground space to the floor surface inside the camp shelter.

**5.1.6 Clear Floor or Ground Space.** A clear floor or ground space at least 36 inches (915 millimeters) by 48 inches (1,220 millimeters) positioned for a parallel approach shall be provided at the elevated entrance to the camp shelter. One full unobstructed side of the clear ground space shall adjoin or overlap the trail or ORAR, as applicable, or another clear ground space.

**5.1.7 Surface.** The surface of the clear ground space shall be firm and stable.

**5.1.8 Slope.** The slope of the surface of the clear ground space shall not be steeper than 1:48 (2 percent) in any direction.

**Exception:** When the surface is not paved or is not elevated above the natural ground, slopes not steeper than 1:33 (3 percent) shall be permitted where necessary for drainage.

**5.1.9 Doors.** Where provided, doors shall comply with ABAAS section 404, the same as for doors for buildings at administrative sites. The door shall not swing into or otherwise obstruct the clear floor or ground space or the turning space required by section 5.1.4.

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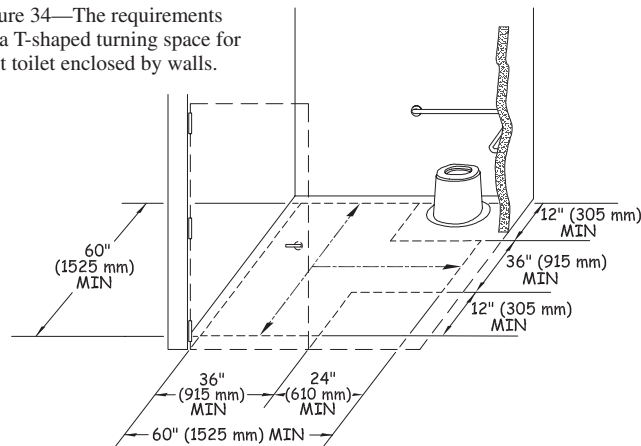
## 5.3 Pit Toilets

**5.3.1 General.** Pit toilets may only be provided in Forest Service recreation sites with a Recreation Site Development Scale level of 2 or less or at remote cabin locations. All pit toilets shall comply with section 5.3 and be connected to an ORAR complying with section 2.0. Where pit toilets are constructed in sites that are not accessed by motor vehicles, the pit toilet and all constructed features in the site shall be connected by trail segments complying with the FSTAG.

**5.3.2 Turning Space and Clear Floor or Ground Space.** Turning space and clear floor or ground space complying with section 5.3 shall be provided at pit toilets.

**5.3.2.1** The clear floor or ground space shall be 60 inches (1,525 millimeters) wide minimum measured parallel with the back of the pit toilet, and 56 inches (1,420 millimeters) deep minimum measured parallel to the sides of the pit toilet. A turning space that is at least 60 inches (1,525 millimeters) in diameter or T-shaped with a minimum 36 inches (915 millimeters) wide by 24 inches (610 millimeters) deep base centered on a minimum 36 inches (915 millimeters) wide by 60 inches (1,525 millimeters) long crossarm shall be provided, as shown in figure 34. The turning space and clear floor or ground space may overlap.

Figure 34—The requirements for a T-shaped turning space for a pit toilet enclosed by walls.



**5.3.2.2** The surface of the turning space and clear floor or ground space shall be firm and stable.

**5.3.2.3** The slope of the turning space and clear floor or ground space surface shall not be steeper than 1:48 (2 percent) in all directions.

**Exception:** When the surface is not paved or is not elevated above the natural ground, no slopes steeper than 1:33 (3 percent) shall be permitted where necessary for drainage.





### 5.3.3 Seats.

**5.3.3.1** The total height of the toilet seat on the riser for a pit toilet shall be between 17 inches (430 millimeters) and 19 inches (485 millimeters) above the floor or ground surface.

**5.3.3.2** Where walls or partitions are provided, the seat shall be positioned with a wall or partition to the rear and to one side of the seat for a left-hand or right-hand approach. The back of the riser shall be flush against the back wall. The centerline of the seat shall be 16 inches (405 millimeters) minimum to 18 inches (455 millimeters) maximum from the side wall or partition.

**5.3.3.3** Where walls or partitions are not provided, the seat shall be positioned in a corner of the clear floor or ground space required by section 5.3.2 for a left-hand or right-hand approach. The back of the seat shall be flush against the perimeter of the clear floor or ground space, as shown in figure 35.

**5.3.4 Grab Bars.** Where walls or partitions are provided, grab bars complying with ABAAS section 604.5 and 609 shall be provided, the same as for grab bars for toilets in administrative buildings. Required locations are shown in figure 36.

**Exception:** Where the walls or partitions cannot support a vertical or horizontal force of 250 pounds (1,112 Newtons), grab bars shall not be installed. In such cases, the riser shall have

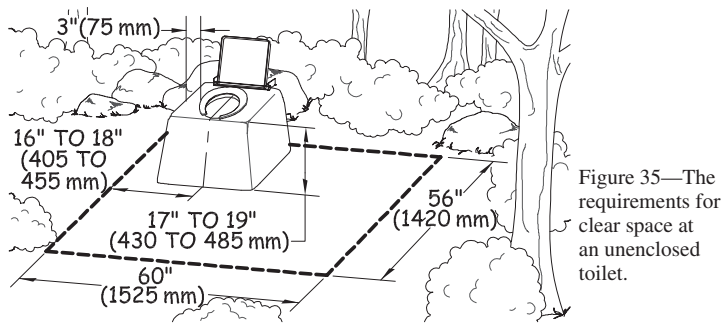


Figure 35—The requirements for clear space at an unenclosed toilet.

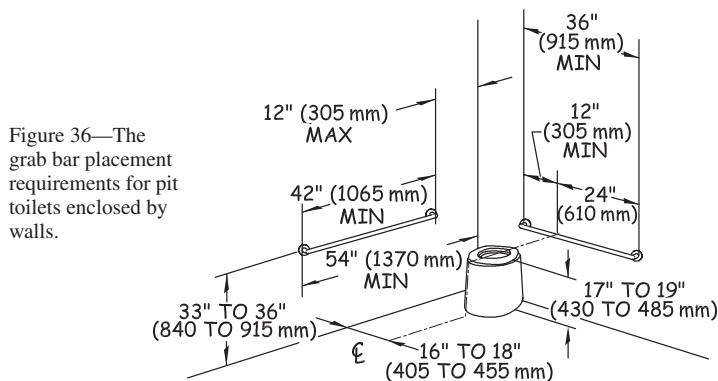


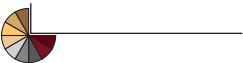
Figure 36—The grab bar placement requirements for pit toilets enclosed by walls.

vertical or nearly vertical sides and a flat area on each side of the seat that is about 3 inches (75 millimeters) wide.

**5.3.5 Doors.** Where provided, doors shall comply with ABAAS section 404, the same as doors for buildings at administrative sites. The door shall not swing into or otherwise obstruct the clear floor or ground space required by section 5.3.2.1.

**5.3.6 Entrance.** The entrance to the toilet shall be level with the surrounding surface.

**Exception:** Where bedrock, permafrost, or other environmental conditions prohibit a level entry or the toilet design (such as a composting toilet) necessitates a raised toilet structure, a sloped entry complying with the FSTAG provisions for a trail may connect the toilet entrance with the trail or ORAR. A 60-by 60-inch (1,220 by 1,220 millimeters) level landing must be provided outside the door to the toilet. Sloped entries do not require handrails.





## About the Author

**Kathleen Snodgrass** began working at MTDC as a multi-disciplinary project leader in 2001. She began her career with the Forest Service in 1984, working in facilities, landscape architecture, land line, and general engineering on the Nez Perce National Forest for about 10 years, and was the forest's facilities architect for about 7 years. Her publications include "A Guide to Maintaining the Historic Character of Your Forest Service Recreation Residence" and the "Accessibility Guidebook for Outdoor Recreation and Trails," which she co-authored with Janet Zeller and Ruth Doyle.

## Library Card

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This handy, helpful format of FSTAG provides detailed guidance for users who plan, design, construct, or maintain developed outdoor recreation areas, while maintaining the natural setting.

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Produced by the  
National Technology & Development Program  
Missoula, MT

1523-2812-MTDC