

Appendix 20 – Developed Recreation Site Maintenance and Replacement

D R A F T

Sustainable Recreation Site Facilities Coronado National Forest

By Debby Kriegel, Tom Cassell, and Walt Keyes - May 4, 2015

Introduction

Developed recreation sites and facilities constructed and maintained by the Coronado National Forest should demonstrate a commitment to land stewardship by using materials fit into the landscape, convey a positive and recognizable USFS image, and minimize maintenance costs. This document provides recommendations for various facilities based on decades of experience with existing materials that date back to the 1930s, as well as more modern materials. Both historic materials and newer materials have strengths and limitations, and some traditional Forest Service materials don't hold up well in conditions here in the arid Southwest. With declining budgets, limited field staff, and increasing public use, selecting facilities and materials that minimize maintenance is more important than ever. The guidelines provided here are focused on maximizing sustainability by reducing both short-term (O&M) and long-term (deferred maintenance) costs. These recommendations should be used in combination with other guidance including accessibility standards, the Built Environment Image Guide, and the Coronado NF Sign Guidelines. Occasionally there may be a reason to stray from these recommendations (such as at historic sites or where a strong architectural theme already exists), but in the majority of locations across the forest, these guidelines apply.

Buildings and Structures

Restroom Buildings

Recommendations: Vault restroom buildings. Concrete block masonry or concrete.

Things to Avoid: Composting restrooms, which are very high maintenance. Avoid wood trim; where a wood look is desired, use painted Hardiplank (or equal).

Sources: Romtec and CXT.

Notes: Flush toilets should only be used in urban settings.

Use door hardware that minimizes maintenance; a push/pull plate with a deadbolt latch eliminates the need for a separate lock and latch.



CXT Rocky Mountain Building (Middle Bear Picnic Area), Romtec 1-hole Aspen Building (Rose Canyon Campground), Painted Hardiplank Eaves, and Push/Pull Plate with Deadbolt Latch.

Ramadas

Recommendations: All steel.

Things to Avoid: Wood structures.

Sources: Classic Recreation Solutions and Poligon.



Poligon Hexagon Ramada (Whitetail Group Site), Classic Recreation System 4 Post and 2 Post Ramadas (Sunny Flat Campground and Molino Basin Picnic Area)

Roofs

Recommendations: 24-26 gauge steel with factory color is best.

Things to Avoid: Wood shakes or shingles. Asphalt shingles.

Notes: Asphalt and wood roofing components may be considered to satisfy historical requirements.



Standing seam metal roofs at Sabino Canyon Visitor Center and a bulletin board in Rose Canyon Campground (note: most roofs on the forest should be dark brown).

Decks

- Recommendations: Plastic/wood composite (Trex or equal), cedar, or redwood. Use pressure treated wood for structural components.
- Things to Avoid: Lower durability wood decking.
- Sources: Trex is available at Grant Road Lumber
- Notes: Consider integrally colored solid concrete slabs or concrete pavers for decks which can be placed on the ground.



Trex deck at Palisades Visitor Center.

Surfacing & Travelways (Roads,

Parking, Paths, Pedestrian Areas)

Parking Areas

- Recommendations: 3" thick aggregate is best. Use asphalt only where high use would make maintenance impractical. Consider concrete surfacing in small confined areas.
- Things to Avoid: Never use less than 2" of hot mix asphalt depth in parking lots. Avoid chip seal applications in parking lots.
- Notes: Asphalt surfacing requires regular crack/fog sealing.

Vehicle Control

- Recommendations: Boulders are best. Concrete or steel bollards are acceptable near buildings. Wheelstops can be effective in parking areas. Consider roadside ditching to limit vehicles leaving roadway. A simple steel fence (with one low horizontal rail) may be appropriate in some locations.
- Things to Avoid: Avoid cables (liability issues) and wood fences (maintenance issues)
- Notes: Select large boulders and set into ground in a natural appearing arrangement. Do not create hazards of boulders and bollards below the sight-line of the



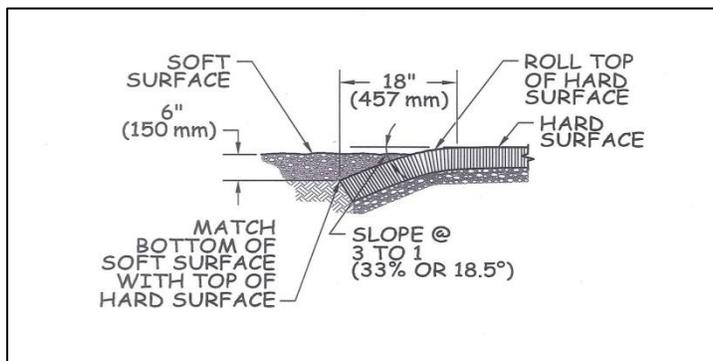
Steel fence at Alambre OHV area and well-placed boulders in Sabino Canyon.

Concrete Slabs (sidewalks, pads, etc.)

- Recommendations: Reinforcement with rebar is best particularly for slabs that might experience vehicular traffic. Welded wire mesh is acceptable for walkways only. Minimum

concrete thickness is 4 inches for walks and 6 inches for vehicular traffic areas. Minimum strength 3000 psi. Always include air entrainment for slabs. Consult engineering on structural slabs.

Things to Avoid: Avoid unreinforced concrete slabs, especially if any vehicles will drive on them
Notes: Where visitors will walk onto concrete slabs from unpaved areas, consider a VanHorn roll (below) to provide a low-maintenance and accessible transition



Stream Crossings

Recommendations: Concrete low-water crossings are most desirable because of maintenance and access considerations. Pipe and box culverts will keep vehicles from environmental damage. Steel bridges work well in some locations. Modular bridge components have proven to be relatively cost effective. Discuss all stream crossings with Engineering.

Things to Avoid: Wood superstructure bridges.

Sources: Bridges: Big R and Continental

Notes: Install bridges only where necessary, as they require regular inspections and are the most expensive solution to implement. On trails, no structure is best.



Steel pedestrian bridge at Mt. Wrightson Picnic Area.

Guardrail

Recommendations: Consider long-term maintenance and replacement. Use galvanized on most roads (especially if there is other galvanized rail along the road). Consider applying Natina (or equal) to reduce the shininess. Cor-ten blends into the landscape much better than galvanized and is recommended in areas where pedestrian use is common (e.g., Sabino Canyon and Madera Canyon). .

Things to Avoid: Acid-etched. Although this material looks great and is the guardrail used on Mt. Lemmon Highway, it is troublesome to obtain when replacement rails are needed.



Cor-ten guardrail (left) and galvanized guardrail (right).

Pedestrian Surfacing

- Recommendations: Concrete is lowest maintenance. Compacted soil or stabilized decomposed granite 1/4+ minus is acceptable if regular maintenance will occur or use is low.
- Things to Avoid: Never use asphalt on areas without regular vehicle traffic. Avoid chip seal for pedestrian surfacing.
- Notes: Consider accessibility. Where needed, build pedestrian walkways wide enough for a maintenance vehicle (6-8 ft for a golf cart or truck).



Concrete walkways at Mt. Wrightson Picnic Area.

Steps

- Recommendations: Concrete is best. Stone is acceptable.
- Things to Avoid: Avoid timber and recycled timber (or plastic) steps. Never fill treads between timbers with concrete.
- Notes: If timber is necessary for steps, install boulders on ends to reduce erosion and consider metal nosings to protect wood.



Concrete steps at Whitehouse Group Site and timber steps in Rose Canyon Campground (photo on right is a close-up of steel nosings).

Site Amenities

Picnic Tables

Recommendations: Concrete is best. Powder coated tables are acceptable

Things to Avoid: Avoid wood tables. Avoid expanded metal tables in locations where vandalism is a problem and where visitors are likely to place cooking vessels on them (the coating can melt).

Sources: Outdoor Creations



Concrete table at Mt. Wrightson Trailhead and expanded metal tables at Whitetail Group Site.

Pedestal Grills and Fire Rings

Recommendations: Steel.

Sources: RJ Thomas

Notes: Ensure that grills have drain holes. Install fire brick under campfire rings to simplify maintenance.



Firebrick under a Campfire ring at Molino Basin Campground.

Signs (entry, pay stations, host, site numbers, trailheads, kiosks, interpretation)

Recommendations: Most signs should be metal or recycled plastic for most signs. For interpretive signs, anodized aluminum is the most durable and sustainable; if color is necessary, select a material with a minimum 10-year warranty.

Things to Avoid: Wood signs and posts. Silkscreened signs (difficult to clean graffiti).

Sources: Wood Product Signs, Pannier Graphics, Country Classics, Interpretive Graphics, iZone, Rock Art, Desert Barricades.

Notes: Self-weathering steel posts look good and need no maintenance. See also CNF Sign Guidelines 2014



Firebrick under a Campfire ring at Molino Basin Campground.

Benches

Recommendations: Concrete, composite wood/plastic (Trex or equal), and expanded metal

Things to Avoid: Wood benches.

Sources: Pilot Rock



Composite benches in Madera Canyon.

Trash Bins and Food Lockers

Recommendations: Steel, order with paint color FSC 20059

Sources: Bearsaver



Trash and recycling bins in Sabino Canyon, and food storage lockers at Molino Basin Group Site

Hydrants

- Recommendations: Woodford Sanitary Yard Hydrant, ADA, Self-closing, Model S4H. Install a metal support post.
- Things to Avoid: Avoid freeze proof hydrants in low elevations and in other locations where the hydrants are drained in the winter
- Sources: Woodford Manufacturing, www.woodfordmfg.com, 800-621-6032



Tent Pad Edging

- Recommendations: Natural edging (such as stone) or nothing is best. Interlocking retaining wall block on one side of pad is acceptable when topography requires it..
- Things to Avoid: Wood edging.
- Notes: A cut-in pad is lower maintenance than one built entirely or partially on fill. Install drainage ditch around tent pads when appropriate..



*Tent pad at
Molino Basin
Campground*

Tent Pad Fill

- Recommendations: Mix site soil with crusher fines, AB and/or DG.
- Things to Avoid: Wood superstructure bridges.
- Notes: Maximum particle size ½”.

Hitching Posts

- Recommendations: Metal
- Things to Avoid: Wood

Other

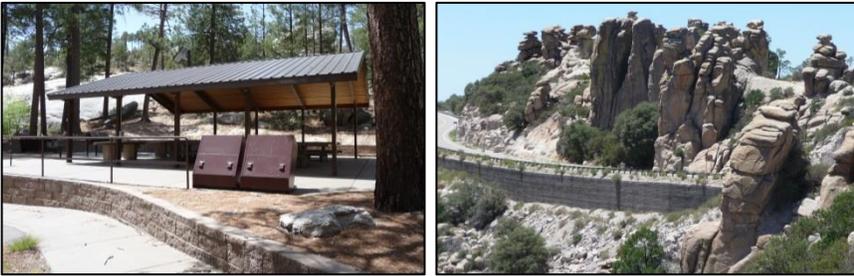
Retaining Walls at Campsites and Picnic Sites

Recommendations: Interlocking split-faced blocks. Use Tierra Brown 1 to blend with landscape colors and make it easier to match colors in future.

Things to Avoid: Avoid stone walls and mortared non-structural walls.

Sources: Young Block Co, Tucson

Notes: Amestone or Keystone



Interlocking block retaining wall at Bobcat Group Site and Hilfiker retaining wall on Mt. Lemmon Highway.

Structural Retaining Walls

Recommendations: Colored/textured concrete or masonry units are best. Stone-faced CMUs are acceptable when stone is needed to match existing site features. Reinforced earth walls (e.g., Hilfiker) are acceptable for roadways and trails

Slope Protection

Recommendations: Where feasible, lay back slopes to mimic nearby natural slope angles which have acceptable vegetation and revegetate the constructed slope with similar species. Riprap and retaining walls are acceptable in some locations, alone or in combination with laying back slopes.

Notes: Use dark rock similar to on-site rock, or if unavailable, consider a rock stain treatment. Use an 'eyebrow ditch' above the cut to direct drainage away from cut face.



Rock placed on slope at Mt. Wrightson Trailhead.

Handrails and Railings

Recommendations: Steel. Allow to oxidize, then seal.

Things to Avoid: Avoid painting metal railings whenever possible. Avoid wood.



Unpainted steel handrail at Palisades Visitor Center.

Paint Colors

Recommendations: Use Federal Standard Color (FSC) 20059 (dark brown) and Dunn Edwards “Adobe” trim on most facilities

Things to Avoid: Don’t paint materials that don’t need to be painted; once something is painted it will need to be repainted regularly



Notes: Painting numerous facilities the same color simplifies maintenance. See paint color recipes on following page.

*Bulletin board in Madera Canyon.
Note: Painting trim a different color is optional.*

Coronado National Forest – Paint Color Guidelines

May 2010

For comments and questions, please contact Debby Kriegel, (520) 388-8427, dkriegel@fs.fed.us

General Guidelines

- Use the following 2 colors: Federal Standard Color 20059 (brown) and Dunn-Edwards "Adobe" (tan).
- Brown (20059) shall be the main paint color. Adobe shall be a minor color.
- Paint small facilities entirely 20059 brown. This includes trash bins, food lockers, railings, bulletin boards, bollards, painted picnic tables and benches, fire poster sign frames, etc.
- Paint utility structures entirely 20059 brown. This includes storage buildings, water tanks, fences, etc.
- Where the backs of signs are painted, use 20059 brown.
- When roofs are painted, use 20059 brown.
- Use Adobe only when 2 colors are needed to bring public attention to a building or facility. Examples include painted signs, and trim on public buildings (visitor centers, restrooms, entry stations, etc.).
- Exceptions to these colors are very rare, but may be necessary at historic sites (such as the Cave Creek Administrative Site) and where there are major established paint colors themes (such as at Sabino Canyon Visitor Center).

Purchasing Paint

There are currently 3 paint companies that can correctly match Brown 20059 and Adobe. Other paint companies have not yet matched these colors, and do not ask for "Forest Service Brown", as these words will not ensure the correct color.

Paint Store	Locations	Brown: Federal Standard Color 20059	Tan: Adobe (or equal)
Dunn-Edwards	4320 E. Speedway Blvd., Tucson, (520) 327-6011 7525 E. Broadway Blvd., Tucson, (520) 296-3875 4039 N. Oracle Rd., Tucson, (520) 887-7100 6741 N. Thornydale Rd., Tucson, (520) 219-7252	Recipe #2-17-06 ("Forestry Brown, United States"), available at Speedway store (520) 327-6011. If paint is purchased at a different Dunn-Edwards location, have the store call the Speedway store for the recipe.	Dunn-Edwards stock color (DEC726)
Sherwin-Williams	4759 E. Speedway Blvd., Tucson, (520) 323-7105 8450 E. Broadway Blvd., Tucson, (520) 298-5545 5757 N. Oracle Rd., Tucson, (520) 293-2151 1802 W. Grant Rd., Tucson (520) 323-8080	Order #0E0036937A8649. Gallon recipe. Ultra deep base. Color: Custom 20059 FED STAND 20059 BAC Blend-a-Color OZ 32 64 128 W1 White 13 1 - B1 Black 2 4 - - N1 Rev Umber 4 30 - 1 R2 Maroon 32 1 1 G2 New Green 1 - 1 Sher-Color Formula	Order #0E0036937A8649. Gallon recipe. Extra base. Color: Custom DEC 726 ADOBE MATCH BAC Blend-a-Color OZ 32 64 128 B1 Black 17 - - R2 Maroon 6 - - Y3 Deep Gold 4 7 1 - W1 White - 40 - - Manual Formula
Home Depot	Tucson, Nogales, Sierra Vista, and Safford	NOT RETURNABLE BEHR PREMIUM PLUS EXT SATIN ENAMEL (MANUAL) DEEP BASE (9340) QUART COLORANT OZ 48 96 L RAW UMBER 2 18 0 R EXTERIOR RE 0 5 0 Phone #: (520) 408-7201 TUCSON/ORACLE (R) 7/14/06 08:22 - GDS - 0414	NOT RETURNABLE BEHR PREMIUM PLUS EXT SATIN ENAMEL ** CUSTOM COLOR MATCH ** PASTEL BASE (95602-9560) QUART COLORANT OZ 48 96 B LAMP BLACK 0 6 0 C YELLOW OXID 1 2 0 I BROWN OXIDE 0 8 1 Phone #: (520) 408-7201 TUCSON/ORACLE (R) 7/12/06 12:33 - G - 0414

Additional Sources

Recreation Site Material:

Granular Surface Material for: Rec Sites- trails, table areas, etc.

Arizona Trucking-Material Yard

4055 S. Alvernon Way

Tucson, AZ 85714

Phone: 520-299-1007

<http://arizonatruckingandmaterials.com>

Delivery included in price "Coronado Brown Minus 1/4"" (OR Coronado Brown Minus 3/8" if other is not available.)
\$25.00/Ton \$75.00 flat delivery charge to Sabino for 16-25 tons. A bit more to deliver up the mountain. **Meets
ABA, ADA, ADAAG

Recreation Site Components:

Pilot Rock/R.J. Thomas Manufacturing

- 1.) Regular Covered Grill: EC-26 with B3 (bolt on) base. S6-optional swivel shelf (not included)
- 2.) Regular Grill: H-16 B6 (base)
- 3.) Regular Double: N2-2032
- 4.) Large Double: L-1500/S
- 5.) Large Covered Grill: EC40/S with B3 Surface Mount Post
- 6.) Accessible Fire Ring: LDW-36/18
- 7.) Hydrant: Woodford Sanitary Yard Hydrant, ADA, Self-closing, Model S4H