

# APPENDIX E

## MANUFACTURED/MOBILE HOME PARKS AND RECREATIONAL VEHICLE PARKS

### Part A

#### Manufactured/Mobile Home (M/H) Park Definitions and General Requirements

##### E 1 Manufactured/Mobile Home.

**E 1.1 Manufactured/Mobile Home Accessory Building or Structure.** A building or structure that is an addition to or supplements the facilities provided to a M/H. It is not a self-contained, separate, habitable building or structure. Examples are awnings, cabanas, ramadas, storage structures, carports, fences, windbreaks, or porches.

**E 2 Manufactured/Mobile Home Lot.** A portion of a M/H park designed for the accommodation of one M/H and its accessory buildings or structures for the exclusive use of the occupants.

##### E 3 DELETED

### General

**E 4** The M/H park plumbing and drainage systems shall be designed and installed in accordance with the requirements of this appendix and the requirements of this code.

**E 5** Before any plumbing or sewage disposal facilities are installed or altered in any M/H park, duplicate plans and specifications shall be filed and proper permits obtained from the department or departments having jurisdiction. Plans shall show in detail:

- (A) Plot plan of the park drawn to scale, indicating elevations, property lines, driveways, existing or proposed buildings, and the sizes of M/H lots.
- (B) Complete specification and piping layout of proposed plumbing systems or alteration.
- (C) Complete specification and layout of proposed sewage disposal system or alteration.
- (D) The nature and extent of the work proposed, showing clearly that such work will conform to the provisions of this code.

### Part B

#### Manufactured/Mobile Home Park Drainage System Construction

##### E 6 Drainage Systems.

A drainage system shall be provided in all M/H parks for conveying and disposing of all sewage. Wherever feasible, connection shall be made to a

public system. All new improvements shall be designed, constructed, and maintained in accordance with applicable laws and regulations. Where the drainage lines of the M/H park are not connected to a public sewer, all proposed sewage disposal facilities shall be approved by the Authority Having Jurisdiction prior to construction.

##### E 7 Material.

Pipe and fittings installed underground in M/H park drainage systems shall be of material approved for the purpose. M/H lot drainage inlets and extensions to grade shall be of material approved for underground use within a building.

##### E 8 Drainage (Sewage) Lines.

All drainage (sewage) collection lines shall be located in trenches of sufficient depth to be free of breakage from traffic or other movements and shall be separated from the park water supply system as specified in this code. Drainage (sewage) lines shall have a minimum size and slope as specified in Tables E-1 and E-2.

##### E 9 M/H Lot Drainage Inlet and Lateral.

- (A) **Size.** Each lot shall be provided with a drainage inlet not less than three (3) inches (76 mm) in diameter.
- (B) The lateral line from the inlet to the sewage drain line shall slope at least one-fourth (1/4) inch per foot (20.9 mm/m). All joints shall be watertight.
- (C) All materials used for drainage connections between a M/H and the lot drainage inlet shall be semi-rigid, corrosion-resistant, non-absorbent, and durable. The inner surface shall be smooth.
- (D) Provision shall be made for plugging or capping the sewage drain inlet when a M/H does not occupy the lot. Surface drainage shall be diverted away from the inlet. The rim of the inlet shall extend not more than four (4) inches (102 mm) above ground elevation.

##### E 10 DELETED

##### E 11 Pipe Size.

- (A) Each M/H lot drainage inlet shall be assigned a waste loading value of twelve (12) drainage fixture units, and each park drainage system shall be sized according to

Table E-1 or as provided herein. Drainage laterals shall be not less than three (3) inches (76 mm) in diameter.

- (B) A park drainage system that exceeds the fixture unit loading of Table E-1 or in which the grade and slope of drainage pipe does not meet the minimum specified in Table E-2 shall be designed by a registered professional engineer.

**E 12 M/H Drain Connector.**

- (A) An M/H shall be connected to the lot drainage inlet by means of a drain connector consisting of approved pipe not less than Schedule 40, appropriate fittings and connectors, and not less in size than the M/H drainage outlet. An approved cleanout shall be provided between the M/H and the lot drainage inlet. The fitting connected to the lot drainage inlet shall be a directional fitting to discharge the flow into

the drainage inlet.

- (B) A drain connector shall be installed or maintained with a grade not less than one-fourth (1/4) inch per foot (20.9 mm/m). A drain connector shall be gastight and no longer than necessary to make the connection between the M/H outlet and the drain inlet on the lot. A flexible connector may be used at the lot drainage inlet area only. Each lot drainage inlet shall be capped gastight when not in use.

**Part C**

**M/H Park Water Supply**

**E 13 General Requirements.**

An accessible and adequate supply of potable water shall be provided in each M/H park. Where a public supply of water of satisfactory quantity, quality, and pressure is available at or within the boundary of the park site, connection shall be made thereto and its

**TABLE E-1  
Drainage Pipe Diameter and Number of Fixture Units on Drainage System**

Size of Drainage Pipe		Maximum Number of Fixture Units
Inches	mm	
2*	51	8
3	76	35
4	102	256
5	127	428
6	152	720
8	203	2640
10	254	4680
12	305	8200

\*Except six unit fixtures

**TABLE E-2  
Minimum Grade and Slope of Drainage Pipe**

Pipe Size		Slope per		Pipe Size		Slope per	
		100 ft. (30.5 m)				100 ft. (30.5 m)	
Inches	mm	Inches	mm	Inches	mm	Inches	mm
2	51	25	635	6	152	8	203
3	76	25	635	8	203	4	102
4	102	15	381	10	254	3-1/2	89
5	127	11	279	12	305	3	76

supply used exclusively. When a satisfactory public water supply is not available, a private water supply system shall be developed and used as approved by the Authority Having Jurisdiction.

#### **E 14 Lot Service Outlet Size.**

Each M/H lot shall be provided with a water service outlet delivering potable water. The water service outlet riser shall be not less than three-fourths (3/4) inch (19.1 mm) nominal pipe size and capable of delivering twelve (12) water supply fixture units.

#### **E 15 DELETED**

#### **E 16 Pressure.**

Each M/H park water distribution system shall be so designed and maintained as to provide a pressure of not less than twenty (20) pounds per square inch (138 kPa) at each M/H lot at maximum operating conditions.

#### **E 17 Water Distribution Piping.**

Park water distribution systems shall be designed to deliver a minimum of twelve (12) water supply fixture units to each lot and installed with materials as set forth in Chapter 6 and/or Appendix A of this code.

#### **E 18 Shutoff Valve.**

A separate water shutoff valve shall be installed in each water service outlet at each M/H lot. Where a listed backflow protective device is installed, the service shutoff shall be located on the supply side of such device.

#### **E 19 Backflow Preventer.**

Whenever a condition exists in the plumbing of a M/H that may create a cross-connection, a listed backflow preventer shall be installed in the water service line to the M/H at or near the water service outlet. When a hose bibb or outlet is installed on the supply outlet riser in addition to the service connector, a listed backflow preventer shall be installed on each additional outlet.

#### **E 20 Pressure-Relief Valve.**

Whenever it is required to install a backflow preventer at the M/H lot service outlet, a listed pressure-relief valve shall be installed in the water service line on the discharge side of the backflow preventer. Pressure-relief valves shall be set to release at a pressure not to exceed one hundred fifty (150) pounds per square inch (1,034 kPa). Pressure-relief valves shall discharge toward the ground. Backflow preventers and pressure-relief valves shall be at least twelve (12) inches (305 mm) above the ground.

#### **E 21 Mechanical Protection.**

All park water service outlets, backflow preventers, and pressure-relief valves shall be protected from damage by vehicles or other causes. Such protection

may consist of posts, fencing, or other permanent barriers.

#### **E 22 M/H Water Connector.**

An M/H shall be connected to the park water service outlet by a flexible connector, such as copper tubing or other approved material not less than three quarter (3/4) inch nominal (19.1 mm) interior diameter.

#### **E 23 Water-Conditioning Equipment.**

**(A) Permit Required.** A permit shall be obtained from the Authority Having Jurisdiction prior to installing any water-conditioning equipment on an M/H lot. Approval of the park operator is required on all applications for a permit to install such equipment. If the water-conditioning equipment is of the regenerating type, and the park drainage system discharges into a public sewer, approval of the sanitary district or agency having jurisdiction over the public sewer is required.

**(B) Approval.** Regenerating water-conditioning equipment shall be listed and labeled by an approved listing agency.

**(C) Installation.** Regenerating units shall discharge the effluent of regeneration into a trap not less than one and one-half (1-1/2) inches (38 mm) in diameter connected to the M/H park drainage system. An approved air gap shall be installed on the discharge line a minimum of twelve (12) inches (305 mm) above the ground.

#### **E 24 Testing.**

Installations shall be tested and inspected as required by Chapter 3 of this code.

#### **E 25 through E 41 DELETED**

### **Part E**

#### **Recreational Vehicle Parks Definitions and General Requirements**

#### **E 42 Recreational Vehicle (RV).**

A vehicular-type unit primarily designed as temporary living quarters for recreational, camping, travel, or seasonal use, that either has its own motive power, or is mounted on or towed by another vehicle. The basic entities are camping trailer, fifth-wheel trailer, motor home, park trailer, travel trailer, and truck camper.

#### **E 43 Recreational Vehicle Park.**

A plot of land upon which two (2) or more recreational vehicle sites are located, established, or maintained for occupancy by recreational vehicles of

the general public as temporary living quarters for recreation or vacation purpose.

**E 44 Recreational Vehicle Site.**

Within a recreational vehicle park, a plot of ground intended for the accommodation of a recreational vehicle, a tent, or other individual camping unit on a temporary basis.

**E 45 General.**

All plumbing shall be installed in accordance with the plumbing codes of the Authority Having Jurisdiction and with this appendix.

**Part F**

**Recreational Vehicle Park Toilet and Shower Facilities**

**E 46** Toilets and urinals shall be provided at one (1) or more locations in every recreational vehicle park. They shall be convenient of access and shall be located within a five hundred (500) foot (152.4 m) radius from any recreational vehicle site not provided with an individual sewer connection.

**E 48 DELETED**

**E 47** Facilities for males and females shall be appropriately marked.

**E 49** The interior finish of walls shall be moisture resistant to a height of four (4) feet (1,219 mm) to facilitate washing and cleaning.

**E 51 DELETED**

**E 50** The floors shall be constructed of material impervious to water and shall be easily cleanable. Any building having water-flush toilets shall be provided with a floor drain in the toilet room. This drain shall be provided with means to protect the trap seal as required by this code.

**E 52** If separate facilities are provided for men and women, urinals shall be acceptable for no more than one-third (1/3) of the toilets required in the men's facilities, except that one (1) urinal may be used to replace a toilet in a minimum park. Only individual stall or wall-hung types of urinals shall be installed. Floor-type trough units shall be prohibited.

**E 53** Toilets shall be of an approved, elongated bowl type and shall be provided with seats with open fronts.

**E 54** Each toilet shall be in a separate compartment and be provided with a door with a latch for privacy and a holder or dispenser for toilet paper. Dividing walls or partitions shall be at least five (5) feet (1,524 mm) high and shall be separated from the floor by a space not greater than twelve (12) inches (305 mm).

**E 55** Toilet compartments shall be not less than

thirty (30) inches (762 mm) in width (no toilet shall be set closer than fifteen (15) inches (381 mm) from its center to a side wall) and there shall be not less than thirty (30) inches (762 mm) of clear space in front of each toilet.

**E 56** Each toilet room for women shall be provided with a receptacle for sanitary napkins. The receptacle shall be of durable, impervious, and readily cleanable material, and shall be provided with a lid.

**E 57** Each shower, if provided, shall have a floor area of thirty-six (36) inches by thirty-six (36) inches (914 mm x 914 mm) and shall be capable of encompassing a thirty (30) inch (762 mm) diameter circle and shall be of the individual type, and each shower area shall be visually screened from view, with a minimum floor area of thirty-six (36) by thirty-six (36) inches (914 mm x 914 mm) per shower. Each shall be provided with individual dressing areas screened from view and shall contain a minimum of one (1) clothing hook and stool (or equivalent bench area).

**E 58** Each shower area shall be designed to minimize the flow of water into the dressing area and shall be connected to the drainage system by means of a properly vented and trapped inlet. Each such area shall have an impervious, skid-resistant surface; wooden racks (duck boards) over shower floors shall be prohibited.

**E 59** Every toilet building shall have a minimum ceiling height of seven (7) feet (2,134 mm) and, unless artificial light is provided, a window or skylight area equal to at least ten (10) percent of the floor area shall be provided.

All doors to the exterior shall open outward, be self-closing, and shall be visually screened by means of a vestibule or wall to prevent direct view of the interior when the exterior doors are open. Such screening shall not be required on single toilet units.

**E 60** Every toilet room shall have permanent, non-closable, screened opening(s), having a total area not less than five (5) percent of the floor area and opening directly to the exterior in order to provide proper ventilation. Listed exhaust fan(s), vented to the exterior, the rating of which in cubic feet per minute is at least twenty-five (25) percent of the total volume of the room(s) served, shall be considered as meeting the requirements of this subsection. All openable windows and vents to the outside shall be provided with fly-proof screens of not less than number sixteen (16) mesh.

**Part G**

**Recreational Vehicle Park Potable Water Supply and Distribution**

**E 61 Quality.**

The supply or supplies of water shall comply with the appropriate potable water standards of the state or local health authority or, in the absence thereof, with the Drinking Water Standard of the Federal Environmental Protection Agency. (See 42 CFR Part 72, subpart J.)

**E 62 Sources.**

Only water approved by a regulating agency shall be acceptable. Where an approved public water supply system is available, it shall be used. Where the park has its own water supply system, the components of the system shall be approved. A water supply system that is used on a seasonal basis shall be provided with means for draining.

**E 63 Prohibited Connections.**

The potable water supply shall not be connected to any nonpotable or unapproved water supply, nor be subjected to any backflow or back-siphonage.

**E 64 Supply.**

The water supply system shall be designed and constructed in accordance with the following:

- (A) A minimum of twenty-five (25) gallons (94.6 L) per day per site for sites without individual water connections.
- (B) A minimum of fifty (50) gallons (189.3 L) per day per site for sites with individual water connections.
- (C) A minimum of fifty (50) gallons (189.3 L) per day per site if water-flush toilets are provided in rest rooms.

**E 65 Pressure and Volume.**

Where water is distributed under pressure to any individual site, the water supply system shall be designed to provide a minimum flow pressure of twenty (20) pounds per square inch (137.8 kPa) with a minimum flow of two (2) gallons (7.6 L) per minute at any outlet. The maximum pressure shall not exceed eighty (80) pounds per square inch (551 kPa).

**E 66 Outlets.**

Water outlets shall be convenient to access and, when not piped to individual RV sites, shall not be located farther than three hundred (300) feet (91.4 m) from any site. Provisions shall be made to prevent accumulation of standing water or the creation of muddy conditions at each water outlet.

**E 67 Storage Tanks.**

Water storage tanks shall be constructed of impervious materials, protected against contamination, and provided with locked, watertight covers.

Any overflow or ventilation openings shall be down-facing and provided with corrosion-resistant screening of not less than number twenty-four (24) mesh to prevent the entrance of insects and vermin. Water storage tanks shall not have direct connections to sewers.

**Part H**

**Recreational Vehicle Park Water Connections for Individual Recreational Vehicles**

**E 68** When provided, the water connections for potable water to individual recreational vehicle sites shall be located on the left rear half of the site (left side of RV).

**E 69** Each potable water connection shall consist of a water riser pipe that shall be equipped with a threaded male spigot located at least twelve (12) inches (305 mm) but not more than twenty-four (24) inches (610 mm) above grade level for the attachment of a standard water hose. The water riser pipe shall be protected from physical damage per this code. This connection shall be equipped with a listed anti-siphon backflow prevention device.

**E 70 Drinking Fountains.**

If provided, drinking fountains shall be in conformance with the requirements of this code.

**TABLE E-3  
Demand Factors for Use in Calculating Gas Piping Systems in M/H Communities**

No. of Manufactured Home Sites	Btu/h per Manufactured Home Site
1	125,000
2	117,000
3	104,000
4	96,000
5	92,000
6	87,000
7	83,000
8	81,000
9	79,000
10	77,000
11–20	66,000
21–30	62,000
31–40	58,000
41–60	55,000
Over 60	50,000

**Note:**  
In extreme climate areas, additional capacities shall be considered.

**Part I**

**Recreational Vehicle Park Drainage System**

**E 71** An adequate and approved drainage system shall be provided in all RV parks for conveying and disposing of all sewage. Where available, parks shall be connected to a public sewer system.

**E 72 Material.**

Pipe and fittings installed in the drainage system shall be of material listed, approved, and installed per this code.

**E 73** The minimum diameters of drainage laterals, branches, and mains serving RV sites shall be in accordance with the following table:

**Table E-4**

Maximum Number of Recreational Vehicle Stands Served	Minimum Pipe Sizes Inches (ID) Nominal (mm)	
5	3	76
36	4	102
71	5	127
120	6	152
440	8	203

**E 74** The sewer lines shall be located to prevent damage from vehicular traffic.

**E 75** Cleanouts shall be provided per Chapter 7 of this code.

**Part J**

**Recreational Vehicle Site Drainage System Inlet**

**E 76** When provided, the site drainage system inlet connections for individual RVs shall be located so as to prevent damage by the parking of RVs or automobiles and shall consist of a sewer riser extending vertically to grade. The minimum diameter of the sewer riser pipe shall be three (3) inches (76 mm), and it shall be provided with a four (4) inch (102 mm) inlet or a minimum three (3) inch (76 mm) female fitting.

**E 77** When provided, the sewer inlet to individual RV sites shall be located on the left rear half of the site (left side of the RV).

**E 78** The sewer riser pipe shall be firmly imbedded in the ground and protected against damage from movement. It shall be provided with a tight-fitting plug or cap, which shall be secured by a durable chain (or equivalent) to prevent loss.

**E 79** DELETED

**Part K**

**Recreational Vehicle Park Sanitary Disposal Stations**

**E 80** Each station shall be level and convenient of access from the service road and shall provide easy ingress and egress for recreational vehicles.

**E 81 Construction.**

Unless other approved means are used, each station shall have a concrete slab with the drainage system inlet located so as to be on the road (left) side of the recreational vehicle. The slab shall be not less than three (3) feet by three (3) feet (914 mm x 914 mm), at least three and one-half (3-1/2) inches (89 mm) thick and properly reinforced. The slab surface is to be troweled to a smooth finish and sloped from each side inward to a drainage system inlet.

The drainage system inlet shall consist of a four (4) inch (102 mm) self-closing, foot-operated hatch of approved material with the cover milled to fit tight. The hatch body shall be set in the concrete of the slab with the lip of the opening flush with its surface to facilitate the cleansing of the slab with water. The hatch shall be properly connected to a drainage system inlet, which shall discharge to an approved sanitary sewage disposal facility.

**E 82** DELETED

**Part L**

**Recreational Vehicle Park Water Supply Stations**

**E 83** A potable watering station, if provided for filling recreational vehicle potable water tanks, shall be located at least fifty (50) feet (15,240 mm) from a sanitary disposal station. When such is provided, adjacent to the potable water outlet shall be posted a sign of durable material not less than two (2) feet by two (2) feet (610 mm by 610 mm) in size. Inscribed thereon in clear legible letters on a contrasting background shall be: POTABLE WATER. NOT TO BE USED FOR FLUSHING WASTE TANKS. The potable water shall be protected from backflow by means of a listed vacuum breaker located downstream from the last shutoff valve.

**E 84** DELETED

The following Table is not adopted as a part of this code and is provided for the convenience of the code user.

Number of R.V. or Tent Camping Spaces	Number of Toilet Fixtures				Number of Lavatories			Number of Bathing Fixtures		
	Men's Toilets	Men's Urinals	Women's Toilets	Unisex Toilets	Men's Lavatories	Women's Lavatories	Unisex Lavatories	Men's Bathing Facilities	Women's Bathing Facilities	Unisex Bathing Facilities
1 - 15	1	1	1	2	1	1	2	1	1	2
16 - 30	1	1	2	3	1	2	3	2	2	3
31 - 60	2	1	3	5	2	3	5	3	3	6
61 - 90	3/2*	1	4	7	3	4	7	5	5	9
91 - 120	4/3*	1	5	9	4	5	9	6	6	12
121 - 150	5/4*	1	6	11	5	6	11	8	8	15
151 - 180	6/4*	2	8	14	6	6	12	9	9	18
181 - 210	7/5*	2	10	17	6	7	13	11	11	21
211 - 240	8/6*	2	11	19	7	7	14	12	12	24
241 - 270	9/6*	3	13	22	7	8	15	14	14	27
271 - 300	10/7*	3	14	24	8	8	16	15	15	30

**Instructions:**

1. Provide the number of sanitary facilities required for each gender. Unisex sanitary facilities may be substituted for gender specific facilities when provided according to this table.
2. The number of men's toilets is based on the ratio of 1 toilet for every 30 camping spaces. \*This number may be reduced by 1/3, as indicated in the table, when the specified number of urinals is provided.
3. Women's toilets are based on a ratio of 1 toilet for every 22 spaces.
4. Unisex toilets are based on the total number of men's and women's toilets. Each unisex toilet facility shall be equipped with a urinal with no reduction in the number of toilets.
5. Portable toilet and lavatory plumbing fixtures can be used if approved by Oregon Public Health Services.
6. Lavatories are based on the ratio, of 1 lavatory for each toilet up to 6, then 1 lavatory for every 2 toilets thereafter.

7. Unisex lavatories are based on the total number of men's and women's toilets.
8. Lavatories are only required when flush toilets are provided.
9. Bathing facilities are not required in recreation parks. If bathing facilities are provided, they should be installed according to this table which is based on the ratio of 1 tub or shower per gender for every 20 campers based on 2 campers per each space.
10. Only 10% of those spaces equipped with water and sewer connections intended for the exclusive use of self-contained recreational vehicles need to be used in determining the number of required sanitary facilities within the park.
11. Those spaces equipped with water and sewer connections intended for the exclusive use of self-contained recreational park trailers over 8 1/2 feet in width do not need to be counted when determining the number of required sanitary facilities within the park.

