



## CARR-BILT SPECIFICATIONS

MODEL: SHENANDOAH

SIZE: DOUBLE VAULT TOILET

Revised: January 2010



## SCOPE

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Contractor to furnish a pre-assembled precast concrete double vault toilet building. Building shall have two individual ADA compartments. Building to be delivered and placed on owner's prepared site in accordance with manufacturer's recommendations. Precast building to be CARR-BILT<sup>®</sup> brand SHENANDOAH Model as manufactured by Carr Concrete Corporation, Waverly, WV. Building to be provided by manufacturer with all necessary openings as specified by contractor in conformance with manufacturer's structural requirements.

The work of this section consists of prefabrication, on-site delivery, off loading and placement of a precast concrete vault toilet at a prepared site.

## MANUFACTURER CRITERIA

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- A. ACI-318-02, "Building Code Requirements for Reinforced Concrete". Concrete Reinforcing Institute, "Manual of Standard Practice".
- B. ANSI/ASCE-7-02 "Building Code Requirement for Minimum Design Loads in Buildings and Other Structures".
- C. Include provisions of the 2006 IBC Code.
- D. Concrete Reinforcing Institute, "Manual of Standard Practice".
- E. Fabricator must be plant certified by The Precast/Prestressed Concrete Institute (PCI) and the National Precast Concrete Association (NPCA).
- F. Building fabricator must have a minimum of 10 years experience manufacturing and setting transportable precast concrete buildings.
- G. No alternate building designs to the CARR-BILT<sup>®</sup> building will be allowed unless pre-approved by the owner 10 days prior to the bid date.
- H. Building shall come with a 10-year warranty.

## DESIGN CRITERIA

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### Standard model dimensions

- A. Floor Plan: 10'-0"W x 12'-0"L.
- B. Exterior Elevation: 11'-2"H including floor slab.
- C. Gabled Roof shall have a minimum 7:12 pitch from the centerline of the building towards the short wall. The roof shall have a minimum 6 inch overhang along all sides of the building. Building shall come standard with either a simulated metal ribbed or a simulated cedar shake exterior roof finish.
- D. Roof, floor, and wall panels must each be produced as individual monolithic panels. No roof, floor, horizontal or vertical wall joints will be allowed, except at corners. Wall panels shall be set on top of and attached to the floor panel.
- E. Roof, floor and wall panel thickness are determined by design loads, engineering calculations and exterior finishes for a sustainably designed building.
- F. Accessibility - Prefabricated restroom toilet building shall conform to the requirements of the "Uniform Federal Accessibility Standards" (UFAS) and the "Americans with Disabilities Act Accessibility Guidelines" (ADAAG). Buildings shall have full 60-inch turning diameter in each interior and entry area.
- G. Vault design shall utilize the US Forest Service' "Sweet Smelling" technology for the vault ventilation system.

### Design loads

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|----------------|---|
| A. Wind Load:  | 120 mph minimum   |
| B. Snow Load:  | 250 psf   |
| C. Earthquake: | Withstand the effects of a seismic group 1 seismic design category E Earthquake |

Building design is engineered to meet or exceed local building code requirements.

## SUBMITTALS

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- A. Engineering calculations that are designed and sealed by a professional engineer, licensed to practice in the state where the project is located, shall be submitted for approval.
- B. Product literature shall be provided for all plumbing, electrical and miscellaneous installed fixtures demonstrating compliance with these specifications.
- C. Sample copy of 10-year warranty must be submitted.



## PRODUCT

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### Materials

- A. Concrete: Steel-reinforced, 5000-PSI minimum 28-day compressive strength, air-entrained (ASTM C260).
  - a. All concrete is to be cast in environmentally controlled conditions.
  - b. Color additives will conform to ASTM C979.A.
  - c. The same brand and type of color additive will be used throughout the manufacturing process
  - d. All ingredients will be weighed and the mixing operation will be adequate to ensure uniform dispersion of the color pigment throughout the concrete mix.
- B. Reinforcing Steel: ASTM A615, grade 60 unless otherwise specified.
- C. Caulking: Joint between building and floor slab shall be caulked on the exterior and interior surface of the joints. Caulking shall be SIKAFLEX-1A elastic sealant or equal.
- D. Panel Connections: All panels shall be securely fastened together utilizing cast-in steel embeds. Steel is to be of structural quality, hot-rolled carbon complying with ASTM A283, Grade C. All connections points are to be recessed and welded. Weld attachments are to be cold galvanized after welding is completed, and all connection recesses grouted flush.

### Finishes

- A. All Interior building wall surfaces shall have a smooth concrete finish.
- B. All exterior building walls shall be a barnwood texture (*optional textures available*).
- C. All exterior surfaces of the roof panels will be cast to simulate a metal ribbed roof. The underside of the overhang will have a smooth finish (*optional textures available*).
- D. Interior floor and exterior slabs shall be floated and troweled. A light broom finish shall be applied to help create a non-slip surface.

## PAINT / STAINING

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### Interior surfaces

- A. Inside floors shall be two-component, catalyzed, water borne polyamide epoxy (*gray, unless otherwise specified*).
- B. Interior walls and ceiling shall be two-component, catalyzed, water borne polyamide epoxy (*white, unless otherwise specified*).

### Exterior surfaces

- A. Exterior walls and roof of building shall be integrally pigmented with additives

conforming to ASTM C979. One (1) coat of a colored acrylic concrete stain matching integral color shall be applied to exterior wall and roof surfaces.

- B. Exterior of building shall be coated with one (1) coat of a clear silicone acrylic sealer and anti-graffiti coating.

## MATERIALS

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All material and fixture quantities are as shown on plan view of model drawing.

### **Grab bars**

- A. Grab bars shall be 18-gauge, type 304 stainless steel with 1-1/2" wall clearance. Grab bars shall comply with Americans with Disabilities Act (ADA) and meet ANSI A117.1.

### **Toilet paper dispenser**

- A. Dispenser shall be a two-piece dispenser, constructed of 3/16" thick brackets and 1/4" thick 304 stainless steel lock bar. Dispenser will be capable of holding two (2) or three (3) standard rolls of toilet paper.

### **Toilet riser**

- A. One piece, 18-inch high, elongated oval shaped, double wall, cross-link polyethylene, smooth surface, with high-impact styrene plastic seat and lid with stainless steel hardware.

### **Urinal (*Optional*)**

- A. One piece, cross-link polyethylene, smooth surface.

### **Double coat hook**

- A. Coat hook shall be double prong, type 304 16 gauge stainless steel.

### **Signage**

- A. Plastic signs mounted as shown on the drawings

## VENT

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All material and fixture quantities are as shown on plan view of model drawing.

- A. Provide a kick resistant metal louver with integral insect screen. Vent shall be installed in exterior wall of each restroom compartment. Louvers shall be 16" x 16" with inverted "Y" blades to limit vision. Exterior louvers shall be painted to match door color, in accordance with procedures specified within these specifications.

## WINDOW

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All material and fixture quantities are as shown on plan view of model drawing.

- A. Window frame shall be constructed from steel.
- B. Window glazing shall be ¼" thick translucent polycarbonate with a pebble finish.

## DOOR HARDWARE

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All material and fixture quantities are as shown on plan view of model drawing.

### Door

- A. Door and frames shall comply with or exceed Steel Door Institute "Recommended Specifications for Standard Steel doors and Frames" (ANSI/SDI-100-1985).
  - 1. Doors shall be 18-gauge 1-3/4" thick, 1 ½ hour fire-rated, grade II heavy-duty metal door with polyurethane foam core.
  - 2. Door frame shall be minimum 16 gauge steel
  - 3. Door hinges will be three (3) per door 4-1/2" x 4-1/2", adjustable tension, automatic closing, spring hinges with non-removable hinge pins.
  - 4. 2" Aluminum drip cap.
  - 5. Adjustable door sweep to be provided at the bottom of door.

### Lockset

- A. All locks shall meet the new ANSI/BHMA A156.2, Series 4000, and Grade 1 for key-in-lever locksets.
- B. Lever handles both inside and out.
- C. Locksets shall be provided standard with Pressure Release™.
  - 1. Both handles operates latch unless outside handle is locked by inside push-button.
  - 2. Push-button will automatically release when inside lever handle is turned or door is closed.
- D. Emergency slot on exterior so door can be unlocked from the outside with a coin, screwdriver and etc.
- E. US 26D finish.

### Dead bolt (*Optional*)

- A. Dead bolt shall have a double cylinder, 2 ¾" backset, and US26D finish.
  - 1. Locked or unlocked by key from outside and by turn on inside.
  - 2. Dead bolt automatically deadlocks when fully extended.

## VAULT CLEANOUT COVER

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- A. Plate for vault cleanout cover shall be 1/4" thick diamond plate aluminum. Lid shall be hinged and configured so that it can be locked with a padlock. A neoprene gasket shall be provided across the entire width and length of the lid to provide an airtight seal.

## VAULT LINER

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- A. The vault liner shall hold 1,000 gallons of waste or 15,000 uses per vault. Liner shall be a surface applied spray on black coating (*optional epoxy phenolic or ABS/LDPE or equivalent liners also available*).

## VENT STACK

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- A. Shall be a smooth 12" black PVC pipe extending continuous from waste vault chamber to above the roof ridge.

## INSTALLATION

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### Scope of work

Work specified under this Section relates to the placement of the CARR-BILT® unit on a customer prepared site.

- A. Install building in accordance with approved manufacturer's instructions.

### Location

It's the responsibility of the customer to:

1. Provide exact location by stakes or other approved method.
2. Provide clear and level site free of overhead and/or underground obstructions.
3. Provide access to the site for truck delivery and sufficient area for the crane to install and the equipment to perform the contract requirements

### Access to site

Contractor must provide a level unobstructed area large enough for a crane and a tractor-trailer to park adjacent to the pad. Crane must be able to place outriggers within 5'-0" of edge of pad and truck and crane must be able to get side by side under their own power. Clearance from overhead lines should follow OSHA guidelines for dimensions. Firm roadbed with turns that allow 65' low bed tractor-trailer must be provided directly to site A minimum of 24" clearance is required between this building and adjacent buildings (to allow removal of lifting attachments), check with local building codes for additional requirements.

## Excavation and Elevation

1. Comply with all applicable OSHA Standards for excavation.
2. Excavate for the installation of the toilet vault to a depth that will allow the structure site to be free draining after installation is completed. Allow for a 2" leveling course beneath the toilet vault. Stockpile topsoil in a separate pile at sites.
3. Finish floor elevation will be 4-6 inches above natural grade measured at the front (entrance) of the exterior slab unless otherwise approved by the customer. Ideally, the back of the building should be slightly higher to allow water to freely drain out of the toilet rooms. The customer may specify a finish floor elevation for buildings at some sites. The contractor will install buildings at these sites with the floor elevation within a plus or minus ½" of the specified floor elevation.

## Backfill and Compaction

1. Compact the natural ground at the bottom of the vault excavation with a whacker-type mechanical compactor or equivalent approved by the customer.
2. Install sand or aggregate bedding material for leveling course. Grade leveling course so there will be no high spots in the middle of the vault bottom. Compact with a whacker or approved equivalent tamper.
3. Set vault in place and check for level or appropriate slope. Backfill around structure. Use excavated material for backfill except those rocks larger than six inches in maximum dimension shall not be placed within six inches of the exterior vault walls.
4. Fill, adjacent to the building entry, will have excavated material placed in eight inch loose lifts and compacted a whacker-type mechanical compactor of equivalent approved by the customer.

## Vault Toilet Riser and Accessories

To be installed prior to delivery to the job site.

## Exhaust Pipe Installation

To be installed at the job site during building installation.

## WARRANTY

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Carr Concrete shall provide a warranty against defects in material or workmanship for a period of ten (10) years on all concrete components manufactured at our Waverly, WV location. The warranty is valid only when concrete is used within the specified loadings. Furthermore, said warranty includes only the related material necessary for the construction and fabrication of said concrete components. If found defective, Carr Concrete will, at its option, repair or replace any concrete component of the building. Upon receipt and approval of the delivered building – troubleshooting, installation, repair and shipping are the responsibility of the end user, unless otherwise agreed upon in writing between Carr Concrete and end user.

# VAULT TOILETS



CARR-BILT Shenandoah Vault Toilet

Non-concrete components are defined as any item not manufactured by Carr Concrete and include, but are not limited to, the following categories: electrical equipment, interior finishing, flooring, air circulation, security or entry. Any non-concrete component found to be defective shall be covered by the manufacturer's standard warranty of said non-concrete component. All troubleshooting, installation, repair and shipping of non-concrete components are the responsibility of the end user.

