



## CARR-BILT SPECIFICATIONS

MODEL: WAVERLY

SIZE: MODULAR (2-PIECE) MULTI-USER RESTROOM  
WITH CHASE

Revised: January 2010



## SCOPE

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Contractor to furnish a pre-assembled, pre-plumbed and pre-wired precast concrete transportable building. Building shall have one chase and two multi-user ADA restroom compartments. Building to be delivered and placed on owner's prepared site in accordance with manufacturer's recommendations. Precast building to be CARR-BILT® brand WAVERLY 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 flush 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® 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: 20'-0"W x 26'-0"L consisting of a two(2) 10'-0" x 26'-0" pre-assembled modules.
- B. Exterior Elevation: 12'-0"H including floor slab
- C. Floor Thickness: 6" minimum.
- D. Gabled Roof shall have a minimum 3:12 pitch from the centerline of the building towards the short wall. The roof shall have a minimum 12 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.
- E. 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.
- F. Roof, floor and wall panel thickness are determined by design loads, engineering calculations and exterior finishes for a sustainably designed building.
- G. Building modules shall be connected together onsite utilizing post-tensioned cables in integrally cast ducts. All exterior module-to-module joints shall be sealed with elastic sealant as outlined under MATERIALS section of these specifications.
- H. Plumbing shall be designed in accordance with the International Plumbing Code.
- I. Electrical system shall be designed in accordance with the International Electric Code.
- J. Accessibility - Prefabricated flush toilet buildings 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.

### Design loads

- A. Wind Load: 103 mph minimum
- B. Snow Load: 120 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.

## ELECTRICAL

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

All electrical wiring shall be in conduit, surface mounted in the service area and concealed in the user compartments, where applications allow. All wire shall be copper.

### Chase (service area)

1. Provide a 100-amp breaker panel in service area.
2. Provide incandescent fixture in service area, wired to manual switch.
3. Provide interior GFI receptacle.

### Exterior

- A. Lighting on the exterior of building shall be 35-watt high-pressure sodium photocell activated light.

### Restrooms

- A. Interior fluorescent light fixture shall be vapor proof; interior rooms shall be switch activated (*motion sensor switch available*).
- B. Hand dryer shall be air compression type with remote motor unit. Push button switch located in cast nozzle housing with flexible hose connecting blower motor, housing and nozzle. Power input 120VAC, 7A (*non-heated air*).
- C. Provide GFI receptacle next to each sink.

## PLUMBING

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

*Note: All plumbing shall be concealed in the chase service area*

- A. Waste and vent piping shall be ABS or PVC plastic and plumbed to meet Uniform Building Codes.
- B. Water piping shall be Copper tubing Type L, hard drawn. Provide a gate or ball valve at the inlet end of the water line. Size water lines to provide proper flushing action based on a nominal water pressure of 40 PSI.
- C. Provide a main shut-off valve and drain in the service area.
- D. Hose bib shall be provided in the service area.
- E. Floor drains shall be located in each restroom compartment of the toilet building.
- F. Double check back-flow preventer.
- G. Hammer arrester to be installed on water line.
- H. Trap primer distribution unit shall be installed.

## Toilet

- A. Toilet (*water closet*) shall be constructed of vitreous china. Toilet shall be wall hung, with siphon jet action. Provide back spud for concealed flush valve connection. Toilet shall be mounted with the top of the seat 17 inches above the finished floor. Seat will be heavy duty solid plastic with an open front (*optional stainless steel fixtures available*).
- B. Flush valve: Concealed closet flush-o-meter constructed of rough brass with water saver flow of 1.6 gallons per flush. Furnish valve with integral vacuum breaker and wall mounted push button.

## Urinal

- A. Urinal shall be constructed of vitreous china. Urinal shall be wall hung, with siphon jet action. Provide back spud for concealed flush valve connection. Urinal shall be mounted with the top of rim to meet (ADA) requirements from finished floor (*optional stainless steel fixtures available*).
- B. Flush valve: Concealed urinal flush-o-meter constructed of rough brass with water saver flow of 1.0 gallon per flush. Furnish valve with integral vacuum breaker and wall mounted push button.

## Lavatory

- A. Lavatory (*sink*) shall be constructed of vitreous china with overflow opening. Lavatory shall be wall hung, with concealed arm supports. Lavatory shall be mounted with the top rim to meet (ADA) requirements from finished floor (*optional stainless steel fixtures available*).
- B. Water valve shall be self-closing water set with indexed push button.

## 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.

### Mirror

- A. Mirror shall be 18"x 24" stainless steel.

### Stalls

- A. Stall partition walls to be produced of 3-inch concrete. Stall doors to be HDPE plastic.

### Signage

- A. Plastic signs mounted as shown on the drawings.

## VENTS

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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 1/4" 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.

## EXECUTION

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### Site preparation requirements (Manufacturer's recommendation)

- A. CARR-BILT® building as a minimum shall bear fully on a level, compacted crushed stone base that is at least one foot larger than the length and width of building.
- B. Stone shall be a minimum of 6" thick or down to firm sub-grade. The vertical soil capacity under stone shall be compacted to have minimum bearing of 1,500 pounds per

square foot. Stone shall be  $3/8$ " or smaller and must be screeded level within  $1/4$ " in both directions. Stone shall be placed within a perimeter form with flat and level top edge for screeding. Forming material shall remain around stone until after the building is set.

- C. The crushed stone base shall be kept within the confines of the soil or perimeter form. Do not allow the stone base to become unconfined so that it may wash, erode, or otherwise be undermined.

OR

- A. If building is placed on pavement or concrete slab, substrate below pavement or slab must have a vertical soil capacity of 1,500 pounds per square foot. Place stone or sand to 1" above highest point of area where building will be placed and at least 1'-0" wide all around the building footprint. Retain stone or sand with a perimeter form to prevent the material from washing out.
- B. Provide positive drainage for the fill, concrete pad, or slab as required.

## INSTALLATION

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### Scope of work

Work specified under this Section relates to the placement of the CARR-BILT<sup>®</sup> 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.
4. Water, electrical, and sewage site connections shall be placed per drawings. Must be placed to easily connect to the building.

### 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.

## 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.

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.

