



Bateman Civil Survey Company, PC

2524 Reliance Avenue
Apex, NC 27539
(919) 577-1080/fax (919) 577-1080

May 31, 2024

Harnett County Environmental Health Department
Harnett County Environmental Health,
900 S 9th St.
Lillington, NC 27546

RE: Wastewater Daily Flow Calculations

Birchwood Grove Lot 179
412 Saint Claire Drive, Fuquay Varina, Harnett County, North Carolina 27526
Project #3753

Dear Harnett County Staff:

Bateman Civil Survey Company in conjunction with Central Carolina Soil Consulting (CCSC) are proposing wastewater daily flow calculations for a single-family home located at Birchwood Grove Lot 179 pursuant to session law 2014-120 and 2013-413. The proposed home will have **4** bedrooms and under the current flow calculations provided in the state rules would have a daily flow of **480** gallons per day. That would be based on 120 gallons per bedroom.

Household flow rates from the 15 NCAC 18A section of the state rules relied on fixture flow rates from 1982 and calculated the flows for common fixtures to established average flows for the purpose of calculating household daily flows and septic system based on those flows. The data for the historic fixture flows was taken from the EPA 2002 Onsite Wastewater Treatment Systems Manual.

The attached spreadsheet contains the flow reducing fixtures that are proposed for Birchwood Grove Lot 179. The table includes flow rates for the flow reducing fixtures as well as flow rates from the state rules and the percentage of water savings. On average the proposed fixtures provide a 42% savings.

We are requesting a reduction of 25% for the use of low flow fixtures. This will provide an adjusted daily flow of 90 gallons per bedroom per day and a total flow of **360** gallons per day for the proposed 4-bedroom house.

Calculations for effluent strength are shown below based on a 20% reduction in flow with a base flow concentration of 220 mg/l for both BODs and TSS. High strength effluent levels are considered to be higher than 350 mg/l for both BODs and TSS. Based on a reduction in flow of 25% we anticipate the concentration levels of both BODs and TSS to be around 293 mg/l well below the 350 mg/l threshold.

If you need further information or have any questions, please contact Matt Burdette at (919) 422-2827 or Tom Speight at 919-577-1080 2524 Reliance Ave, Apex NC 27539.

Sincerely,

BATEMAN CIVIL SURVEY COMPANY
NCBELS# C-2378.

DocuSigned by:
Thomas Speight, Jr, P.E, PLS
09838E23DC404AD...



Thomas Speight, P.E
(seal)

5/31/2024

Birchwood Grove Lot 179						
	Item		Gal/min. or flush	Number of Fixures	Base Flow From 1982	Percent Water Savings
Master	Shower Head	Moen T5152EP	1.8 gal/minute	1	5.5 gal/minute	67%
	Lavatory Faucet	Moen 5010	1.2 gal/minute	2	3.0 gal/minute	60%
	Tub Trim	Moen T523	Fill & Release	1	Fill & Release	0%
Kitchen	Kitchen Sink Faucet	Moen 7864	1.5 gal/minute	1	3.0 gal/minute	50%
Bath 2	Lavatory Faucet	Moen 5010	1.2 gal/minute	1	3.0 gal/minute	60%
	Shower Head	Moen T5153EP	1.8 gal/minute	1	5.5 gal/minute	67%
Powder	Lavatory Faucet	Moen 5010	1.2 gal/minute	1	3.0 gal/minute	60%
Toilets	Master, 2, Powder	Kohler K-5298	1.0 gal /flush	3	3.5 gal/minute	71%

FIXTURES	TOILET	FAUCET	SHOWER	LEAK	BATH	OTHER	DISHWASHER	CLOTHES WASHER	TOTALS
PERCENT OF HOUSE HOLD WATER USE	24%	20%	20%	12%	3%	3%	2%	16%	100%
GALLONS PER DAY (480 BASE)	115	96	96	58	14	14	10	77	480
PERCENT OF SAVINGS FROM WATER SAVING FIXURES	71%	58% avg	67%	0%	0%	0%	0%	0%	42%
ADJUSTED FLOW (GALLONS)	33	40	32	58	14	14	10	77	278

MOEN®

Specifications

DESCRIPTION

- Metal construction with various finishes identified by suffix
- Pressure balancing cycle valve design with an adjustable temperature limit stop
- 1/2" IPS connections
- Includes valve, tub spout, showerhead, arm and flange


OPERATION

- Lever style handle
- Handle operates counterclockwise through a 270° arc with off at 6 o'clock and maximum hot at the 9 o'clock position. Shut off in clockwise direction
- Adjustable temperature limit stop to control maximum hot water temperature
- Pressure balancing mechanism maintains selected discharge temperature to $\pm 2^\circ$

FLOW

- EP suffix models are designed to deliver 1.75 gpm (6.6 L/min) at 45 psi

STANDARDS

- Third party certified to: WaterSense®, ASME A112.18.1/CSA B-125.1 and all applicable requirements referenced therein
- Products marked with 1.75 gpm are compliant with California water efficiency regulations
- ADA  for lever handle

WARRANTY

- Lifetime limited warranty against leaks, drips and finish defects to the original homeowner
 - 10 year limited warranty when used in a multifamily installation
 - 5 year limited warranty when used in a commercial installation
- Visit www.moen.com/support for complete details and limitations

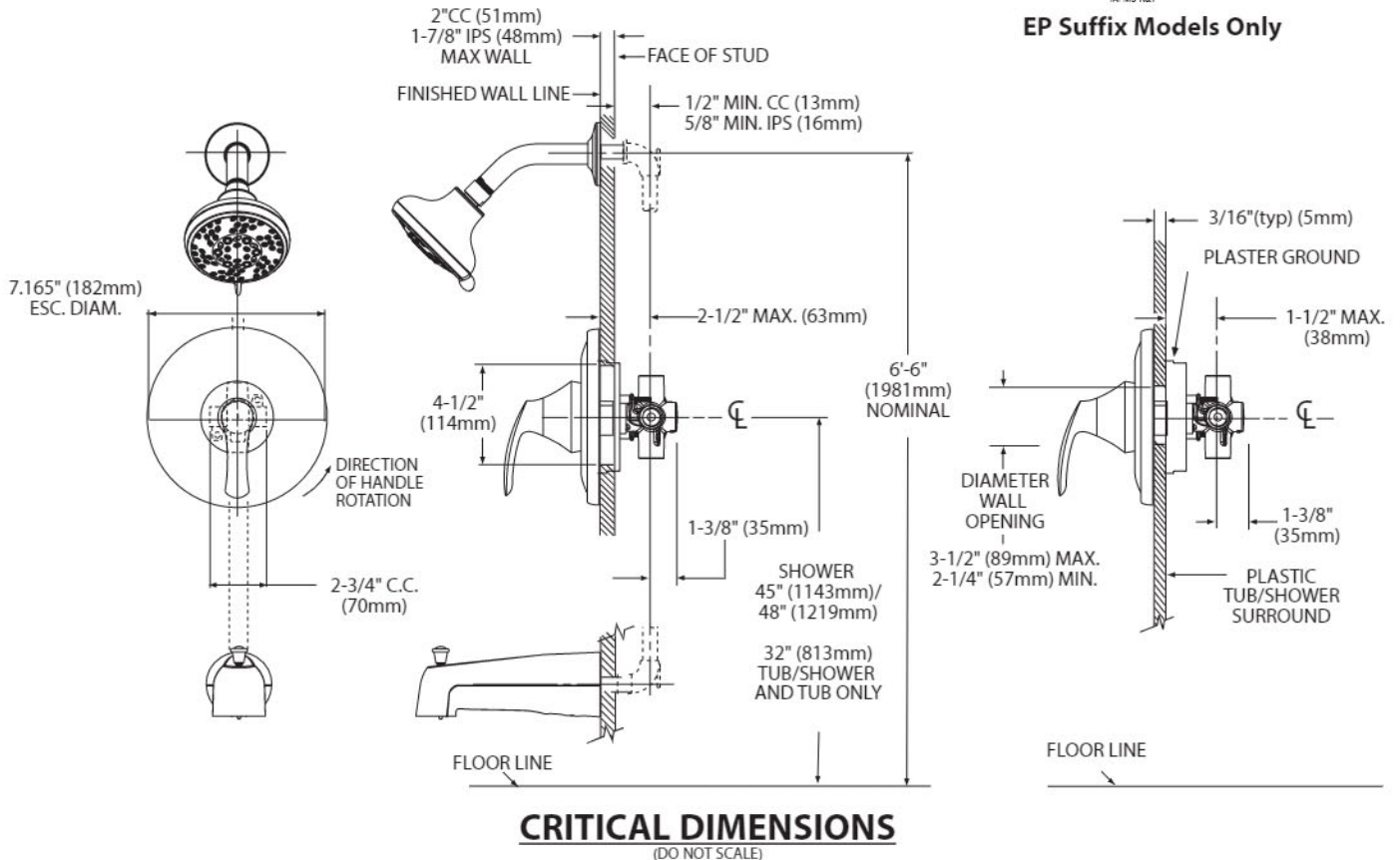


Seena™ Posi-Temp® Single-Handle Tub/Shower

Models: T5152EP series - shower trim only
T5153EP series - tub/shower trim



EP Suffix Models Only



MOEN®

Specifications

DESCRIPTION

- Metal construction with finish identified by suffix
- 1/2" IPS connections for flexible hoses only; not for use with rigid or semi-rigid supply risers (3/8" Copper or Pex) with coupling nuts
- Installation through 3 holes, 1" min. diameter, and 4" on center
- Includes pop-up waste assembly

OPERATION

- Lever handles
- Maximum handle rotation angle is 90° to full on
- Hot side counterclockwise to open (clockwise to close)
- Cold side clockwise to open (counterclockwise to close)

FLOW

- Water usage is limited to the maximum flow rates as indicated by the corresponding product markings
 - 1.2 gpm max (4.5 L/min) at 60 psi

CARTRIDGE

- 1234 cartridge
- Nonmetallic and stainless steel material

STANDARDS

- Third party certified at WaterSense®, ASME A112.18.1/CSA B125.1, and all applicable requirements referenced therein including NSF 61/9 & 372
- Products marked with 1.2 gpm are compliant with California water efficiency regulations
- Complies with California Proposition 65 and with the Federal Safe Drinking Water Act
- ADA ♿ for lever handles

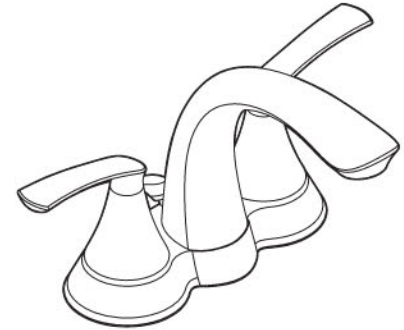
WARRANTY

- Limited lifetime warranty against leaks, drips and finish defects to the original consumer purchaser
- 10 year warranty when used in a multifamily installation
- 5 year warranty when used in a commercial installation

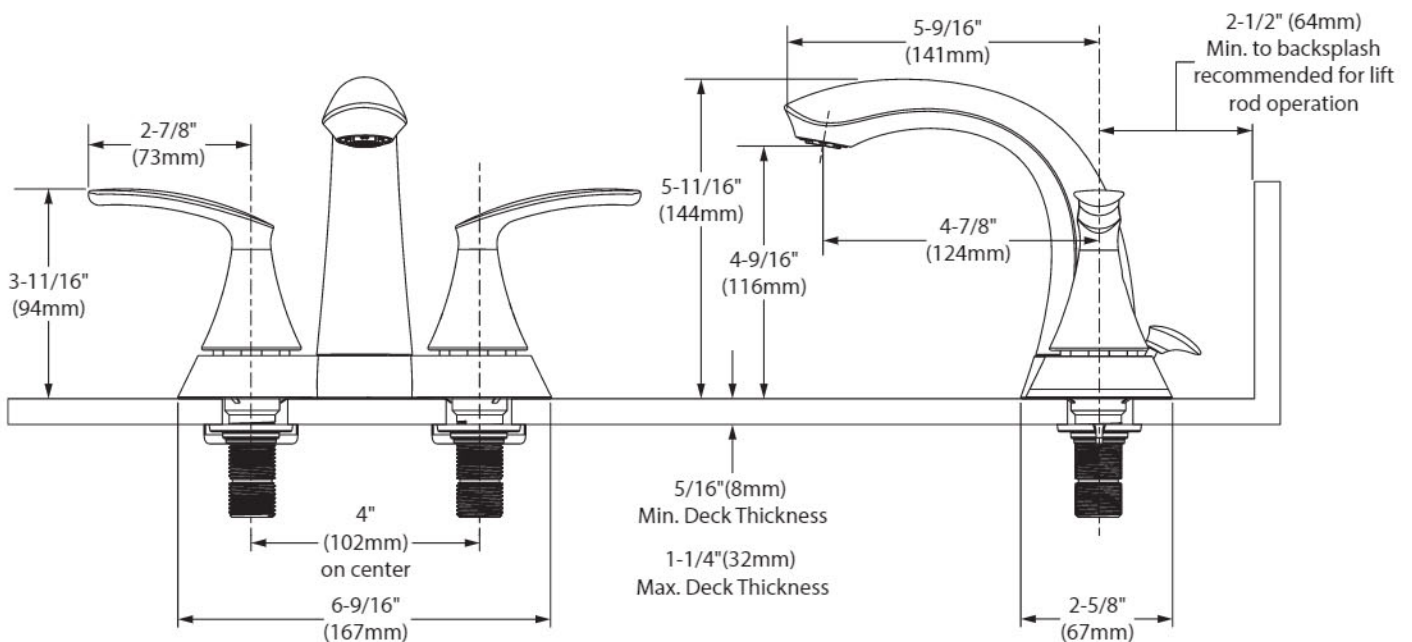
Visit www.moen.com/support for complete details and limitations

OPTIONS (See Illustrated Parts page)

- Thin and thick deck mounting hardware kits available

**SEENA™****Two-Handle 4" Centerset Lavatory Faucet****Models:**

5010 series includes pop-up waste



CRITICAL DIMENSIONS

(DO NOT SCALE)

MOEN®

Specifications

DESCRIPTION

- Versatile, hands-free convenience in the kitchen
- Optimized cleaning force with PowerClean™
- Allows users to control the faucet in 2 unique ways: Wave Sensor and familiar handle
- Powered by 6 AA batteries or optional AC adapter with power splitter
- High arc spout provides height and reach to fill or clean large pots while pull down wand provides the maneuverability for cleaning or rinsing
- Reflex™ pulldown system offers smooth operation, easy movement and secure docking
- Metal construction with various finishes identified by suffix
- Pulldown spray with 68" braided hose
- Flexible supply lines with 3/8" compression fittings
- Quick connect installation - Duralock™
- Faucet designed for handle to be mounted on right side

OPERATION

- Lever style handle
- Temperature controlled by 100° arc of handle travel
- Operates with less than 5 lbs. of force
- Operates in stream or spray mode in the pulldown or retracted position

FLOW

- Flow is limited to 1.5 gpm (5.7 L/min) at 60 psi

CARTRIDGE

- 1255™ Duralast™ cartridge for Single-Handle Faucets

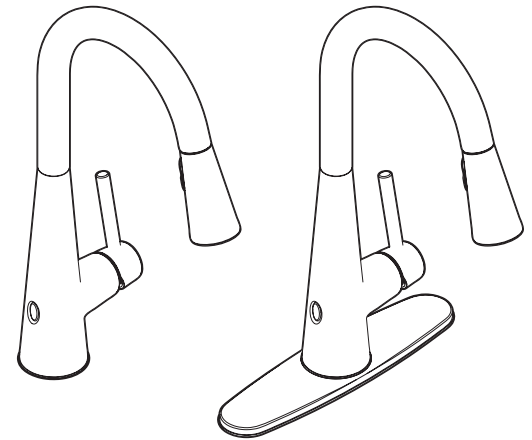
STANDARDS

- Third party certified to ASME A112.18.1/CSA B125.1 and all applicable requirements referenced therein including NSF 61/9 & 372
- Meets CalGreen and Georgia SB370 requirements
- Complies with California Proposition 65 and with the Federal Safe Drinking Water Act
- The backflow protection system in the device consists of two independently operating check valves, a primary and a secondary which prevent backflow
- ADA ♿ for lever handle

WARRANTY

- Lifetime limited warranty against leaks, drips and finish defects to the original homeowner
- 10 year limited warranty when used in a multifamily installation
- 5 year limited warranty when used in a commercial installation

Visit www.moen.com/support for complete details and limitations



Sleek™ MotionSense Wave™ Single Handle High Arc Pulldown Kitchen Faucet

Models: 7864EW series

NOTE: THIS FAUCET IS DESIGNED TO BE
INSTALLED THROUGH 1 OR 3 HOLES,
1-1/2" (38mm) MIN. DIA.



See pages 2 and 3 for dimensions

KOHLER®**Highline®**
Two-piece elongated toilet, 1.0 gpf
K-5298**Features**

- Two-piece design
- Elongated bowl offers added room and comfort
- Comfort Height® feature offers chair-height seating that makes sitting down and standing up easier for most adults
- Left-hand Polished Chrome trip lever
- Combination consists of the K-5308 tank and the K-5297 bowl
- MaP Premium residential toilets must flush with no more than 4.0 liters (1.1 gallons) and demonstrate a MaP rating of at least 600 grams (21 ounces) of solid waste removed in a single flush
- Eligible for consumer rebates in some municipalities
- 1.0 gpf (3.8 lpf)
- 2-1/8" (54 mm) fully glazed trapway
- Class Five® canister optimizes the flow out of the tank, harnessing gravity and the natural powerful reducing cascade of water to increase the power and effectiveness of the flush

Installation

- Standard 12" (305 mm) rough-in
- Three-bolt quick-connect installation
- Seat and supply line sold separately

Recommended Products/Accessories

K-5588 Purefresh® Deodorizing elongated toilet seat
 K-4108 PureWash® E750 Elongated bidet toilet seat with remote control
 K-5420 Low-Profile Bolt Caps
 K-9379 Trip Lever
 1023457 Wax Ring/Hardware Kit
 1265114 Connector Hose
 K-23726 Drain treatment

Included Components

K-5297 Elongated toilet bowl
 K-5308 Toilet tank, 1.0 gpf

**ADA****CSA B651****OBC****Codes/Standards**




ASME A112.19.2/CSA B45.1
 DOE - Energy Policy Act 1992
 EPA WaterSense®
 California Energy Commission (CEC)
 ADA
 ICC/ANSI A117.1
 CSA B651
 OBC
 IAPMO Certification

KOHLER® Toilets and Seats Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

Color tiles intended for reference only.

Color	Code	Description
	0	White
	96	Biscuit
	7	Black Black™

1-800-4KOHLER (1-800-456-4537)

Kohler Co. reserves the right to make revisions without notice to product specifications.

For the most current Specification Sheet, go to www.kohler.com USA or www.kohler.ca Canada

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THE BOLD LOOK
OF **KOHLER®**