



Bateman Civil Survey Company, PC

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

May 22, 2022

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

RE: Wastewater Daily Flow Calculations

Birchwood Grove Lot 16
316 John stark Dr., Fuquay Varina, Harnett County, North Carolina
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 16 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 16. 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 40% 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.

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.



Thomas Speight, P.E
(seal)

Birchwood Grove Lot 16						
	Item	Model	Gal/min. or flush	Number of Fixures	Base Flow From 1982	Percent Water Savings
Master	Shower Head	Moen T3002EP	1.8 gal/minute	1	5.5 gal/minute	67%
	Lavatory Faucet	Moen 6145	1.2 gal/minute	2	3.0 gal/minute	60%
Kitchen	Kitchen Sink Faucet	Moen 5925	1.5 gal/minute	1	3.0 gal/minute	50%
Bath 2	Lavatory Faucet	Moen 6145	1.2 gal/minute	1	3.0 gal/minute	60%
	Shower Head	Moen T3003EP	1.8 gal/minute	1	5.5 gal/minute	67%
Powder	Lavatory Faucet	Moen 6145	1.2 gal/minute	1	3.0 gal/minute	60%
Toilets	Master, 2, 3	Gerber Maxwell Tank 28-990	1.28 gal /flush	3	3.5 gal/minute	63%

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	63%	58% avg	67%	0%	0%	0%	0%	0%	40%
ADJUSTED FLOW (GALLONS)	43	40	32	58	14	14	10	77	288

DESCRIPTION

- Metal construction with various finishes identified by suffix
- Includes showerhead, arm, flange and diverter tub spout

OPERATION

- Lever style handle with red/blue temperature indicator on the escutcheon
- 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 $\pm 3^\circ$


FLOW

- EP suffix models are limited to 2.0 gpm (7.6 L/min) max for products manufactured prior to June 30, 2018. EP suffix models manufactured after June 30, 2018 are limited to 1.75 gpm (6.6 L/min) max.

CARTRIDGE

- 1222 cartridge design
- Accommodates back to back installations
- Nonmetallic, nonferrous and stainless steel material

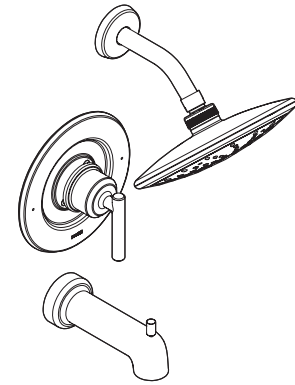
STANDARDS

- Third party certified to meet ASME A112.18.1/CSA B125.1 and all applicable requirements referenced therein
- EP suffix models are third party certified to WaterSense®
- **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

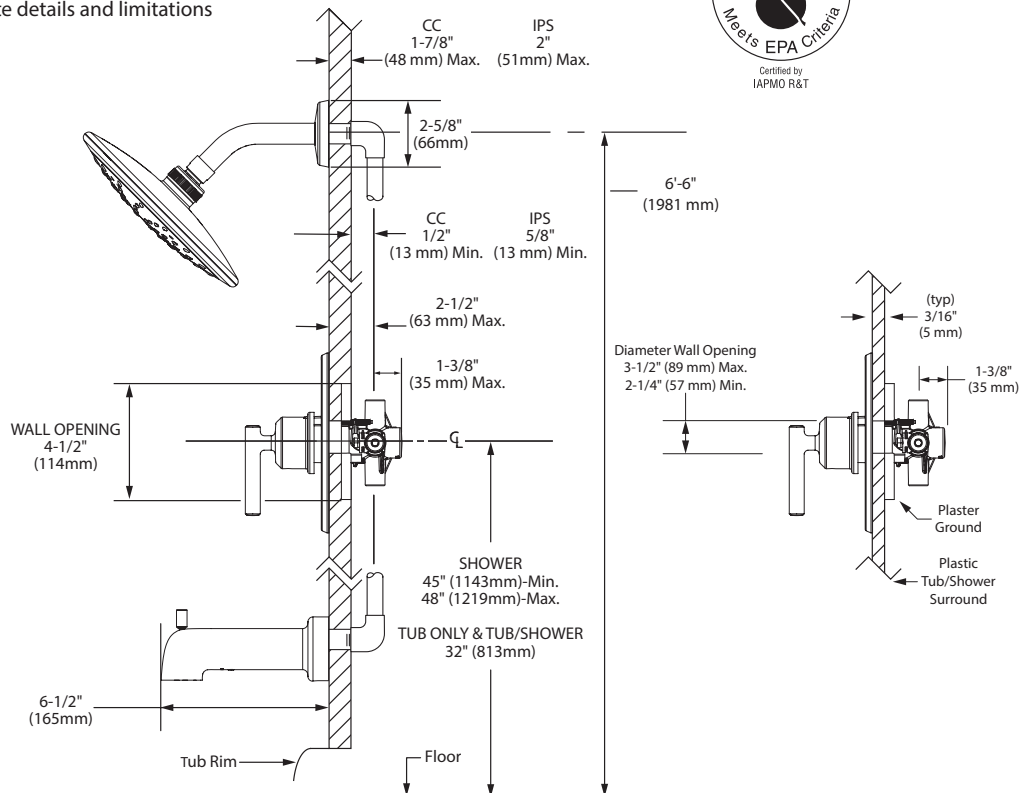
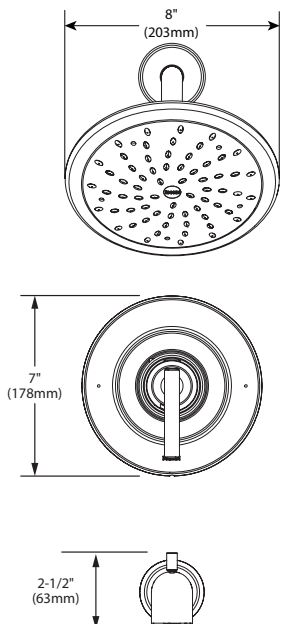
Visit www.moen.com/support for complete details and limitations



GIBSON™ Single-Handle Tub/Shower Trim Kit

Models: T3002EP series - shower trim only
T3003EP series - tub/shower trim

Valves: 62300 series
2500 series



THICK WALL APPLICATION CRITICAL DIMENSIONS

(DO NOT SCALE)

THIN WALL APPLICATION

MOEN®

Specifications

DESCRIPTION

- Metal construction with various finishes identified by suffix
- Flexible supply lines with 3/8" compression fittings
- Includes metal pop-up waste assembly
- Includes optional 3 hole deck plate (escutcheon)

OPERATION

- Lever style handle with hot/cold temperature indicators
- Temperature controlled by 100° arc of handle travel

FLOW

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

CARTRIDGE

- 1255™ Duralast™ cartridge
- Nonmetallic/nonferrous and ceramic material

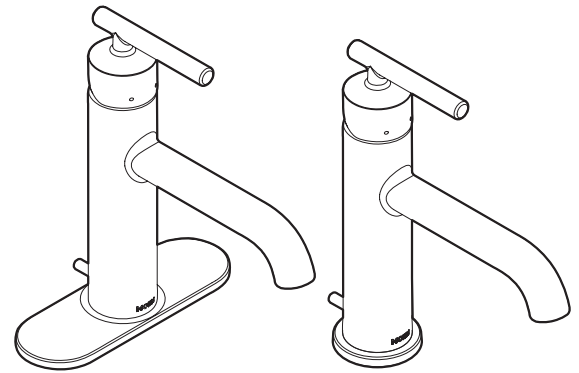
STANDARDS

- Third party certified to WaterSense®, ASME A112.18.1/CSA B125.1, and all applicable requirements referenced therein
- Certified to 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 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

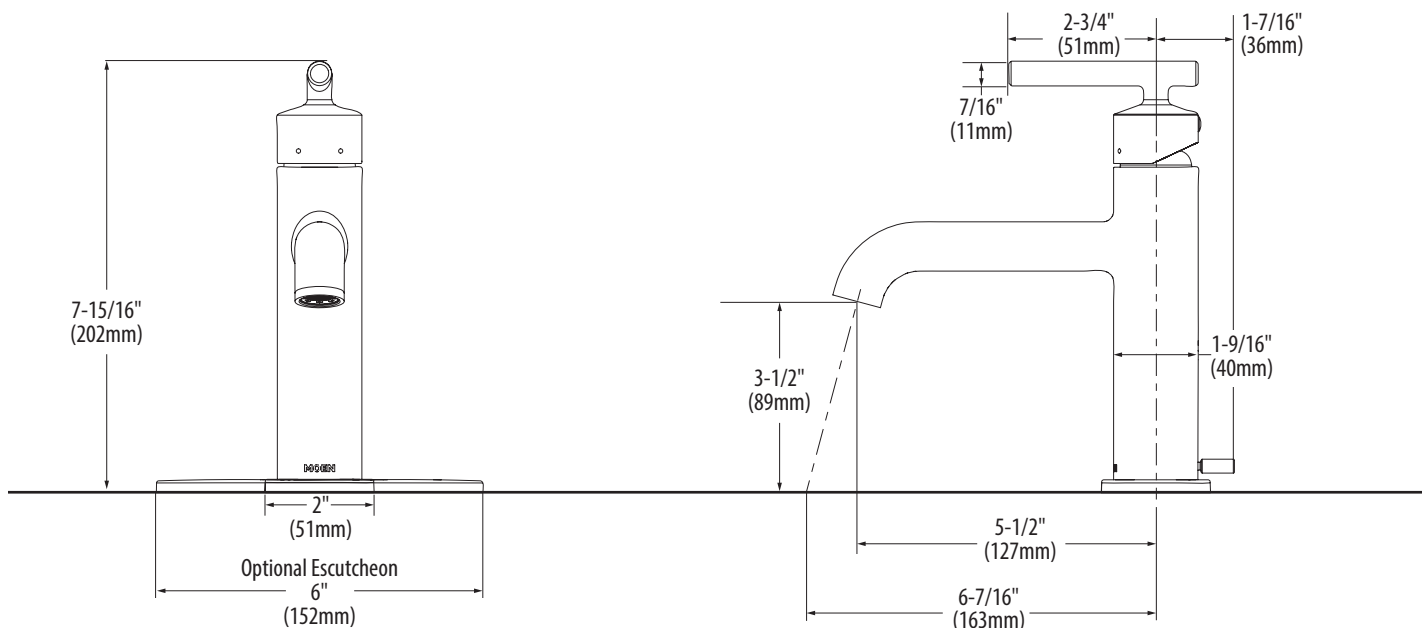
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Gibson™
Single-Handle Lavatory Faucet

Models: 6145 series

NOTE: THIS FAUCET IS DESIGNED TO BE INSTALLED THROUGH 1 HOLE, 1-1/4" MIN. DIA.



CRITICAL DIMENSIONS

(DO NOT SCALE)

FAUCET DESCRIPTION

- Pulldown system offers smooth operation, easy movement and secure docking
- Metal construction with various finishes identified by suffix
- Quick connect installation - Duralock™
- PowerBoost™ spray technology
- Pulldown spray with 68" braided hose
- Flexible supply lines with 3/8" compression fittings
- High arc spout provides height and reach to fill or clean large pots while pulldown wand provides the maneuverability for cleaning or rinsing
- 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 pullout or retracted position

FLOW

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

CARTRIDGE

- 1255™ Duralast™ cartridge for single handle faucets

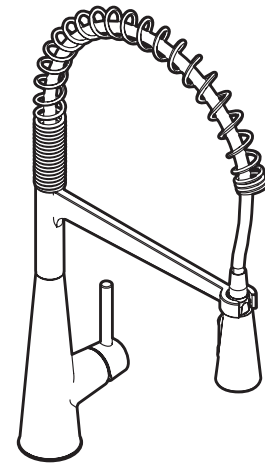
STANDARDS

- Third party certified to IAPMO Green, ASME A112.18.1/CSA B125.1 and all applicable requirements 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

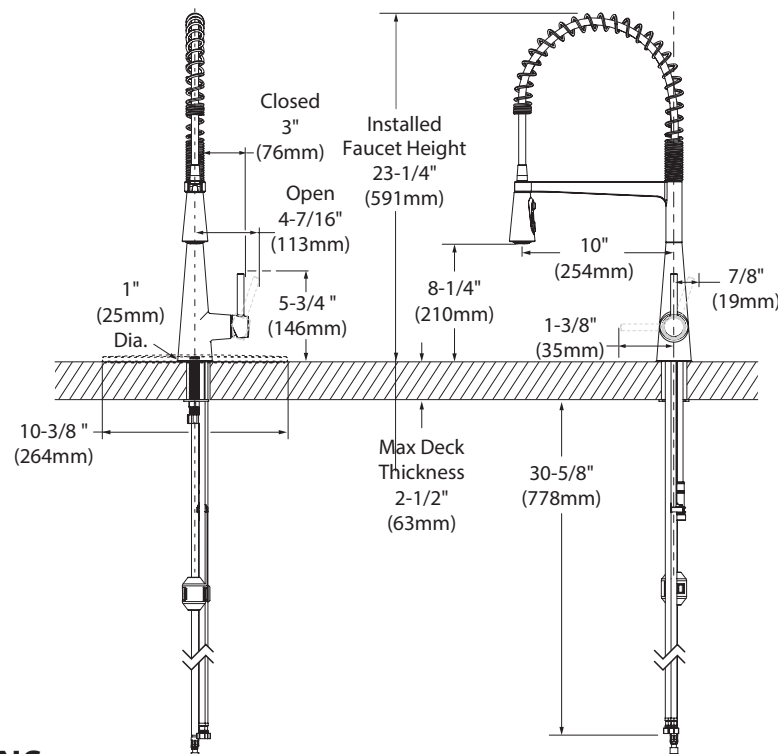
Visit www.moen.com/support for complete details and limitations



Sleek™
Single Handle Pre-Rinse Spring
Pulldown Kitchen Faucet

Model: 5925 series

NOTE: this faucet is designed to be installed through 1 or 3 holes, 1-1/2" (38mm) min. dia.



CRITICAL DIMENSIONS

(DO NOT SCALE)



VITREOUS CHINA

TOILET
21-918

LAVATORIES

TOILETS

BIDETS / URINALS

CAST IRON



MAXWELL® 1.28 ErgoHeight™ 17" High Elongated Toilet

12" Rough-in

Features:

- 1.28 gpf/4.8 Lpf high efficiency two-piece toilet
- Elongated ErgoHeight™ bowl
- Dual-fed siphon jet
- Pilot fill valve
- 3" flush valve
- 2" glazed trapway
- Color matched front tank lever (white only)
- Optional insulated non-sweating tank
- Optional right-handed trip lever
- Available in White, Bone and Biscuit
- 2 bolt caps
- ADA Compliant

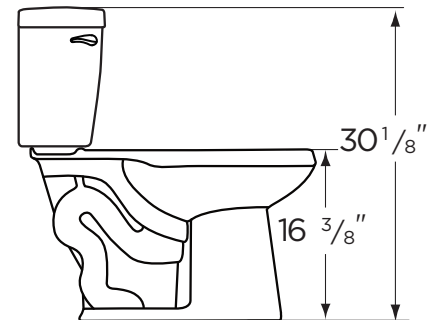
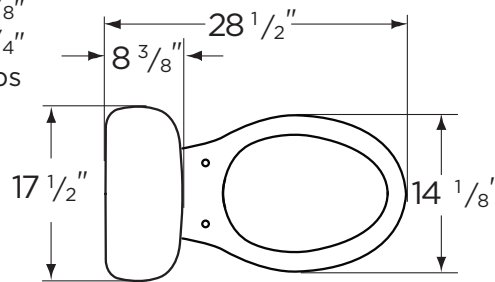


Specifications: Bowl—#21-928 Front Bowl
Seat not included

Tank—#28-990

Dimensions:

- Height 30 1/8"
- Width 17 1/2"
- Depth 28 1/2"
- Rough-in 12"
- Water Surface from Rim 6 1/2"
- Trapway 2"
- Water Surface 8 7/8" x 7 3/8"
- Water Seal 2 1/4"
- Shipping Weight 85.5 lbs



THIS FIXTURE QUALIFIES ACCORDING TO ASME TEST PROCEDURES AS A HIGH EFFICIENCY WATER CLOSET WITH AN AVERAGE CONSUMPTION OF 1.28 gpf (4.8 Lpf) OR LESS.



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Job Name	
Date	
Model Specified	
Quantity	
Customer	
Contractor	
Architect/engineer	