



Bateman Civil Survey Company, PC

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

February 29, 2024

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

RE: Wastewater Daily Flow Calculations
Cotton Farms Lot 7
148 Hook Drive Fuquay Varina, Harnett County NC
Job #4609

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 Cotton Farms Lot 7 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 Cotton Farms Lot 7. 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 36% 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 25% 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)

3/4/2024

Cotton Farms Lot 7						
	Item	Model	Gal/min. or flush	Number of Fixures	Base Flow From 1982	Percent Water Savings
Master	Shower Head	Moen T2152EP	1.8 gal/minute	2	5.5 gal/minute	67%
	Lavatory Faucet	Moen 6610	1.5 gal/minute	2	3.0 gal/minute	50%
Powder	Lavatory Faucet	Moen 6610	1.5 gal/minute	1	3.0 gal/minute	50%
Kitchen	Kitchen Sink Faucet	Moen 7185	1.5 gal/minute	1	3.0 gal/minute	50%
Bath 2	Lavatory Faucet	Moen 6610	1.5 gal/minute	2	3.0 gal/minute	50%
	Shower Head	Moen T2153EP	1.8 gal/minute	1	5.5 gal/minute	67%
Toilets	Master, Powder, 2	Gerber Maxwell Tank 28-170	1.6 gal /flush	3	3.5 gal/minute	54%

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	54%	50%	67%	0%	0%	0%	0%	0%	36%
ADJUSTED FLOW (GALLONS)	53	48	32	58	14	14	10	77	306



Buy it for looks. Buy it for life.®

Specifications

DESCRIPTION

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

OPERATION

- 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

- Showerhead is limited to 2.5 gpm (9.5 L/min) at 80 psi
- EP suffix models are limited to 1.75 gpm (6.6 L/min) at 80 psi
- NH suffix models contain no showerhead

CARTRIDGE

- 1222 cartridge design
- Nonmetallic/nonferrous and stainless steel materials
- Accommodates back to back installations

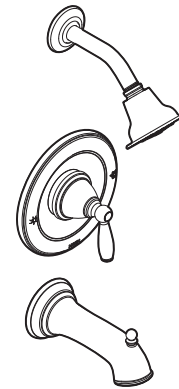
STANDARDS

- 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

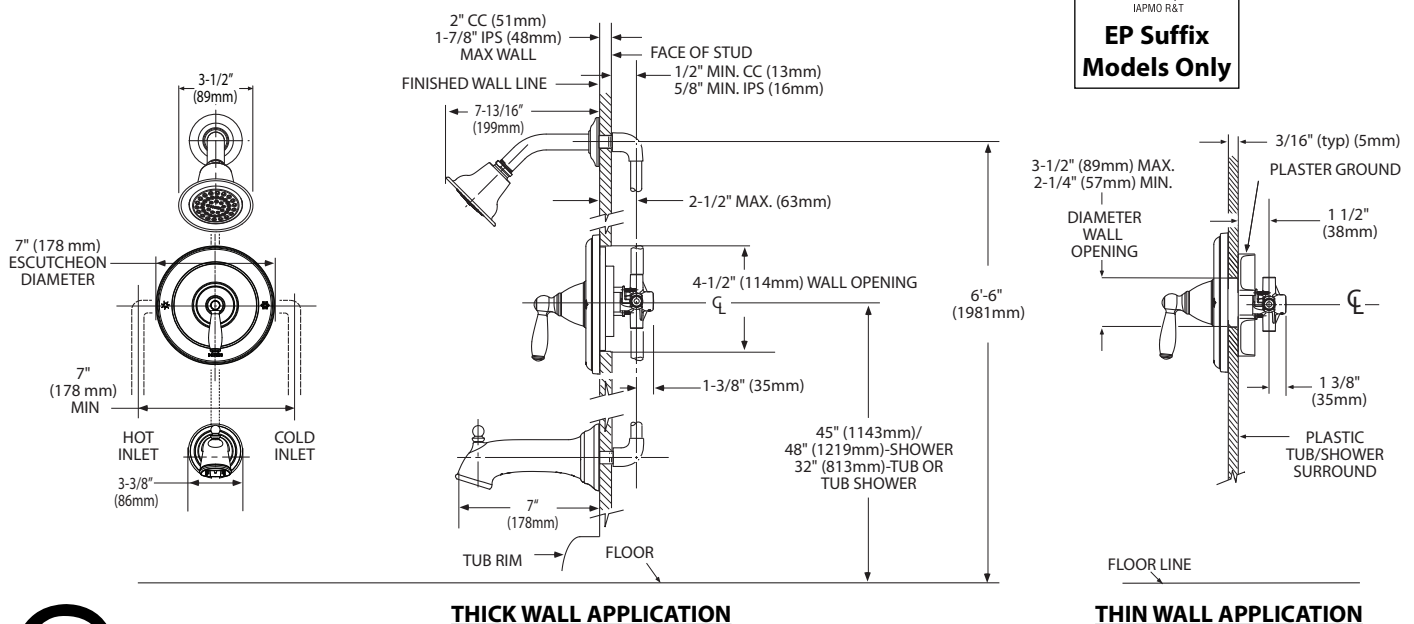
- Lifetime limited warranty against leaks, drips and finish defects to the original consumer purchaser
- 5 year warranty if used in commercial installations



BRANTFORD™ POSI-TEMP™ Single-Handle Tub/Shower Trim Kit

- Models:** T2151 series - valve trim only
T62151 (Bulk Packed 12 per carton)
T2152 series - shower trim only
T62152 (Bulk Packed 12 per carton)
T2153 series - tub/shower trim
T62153 (Bulk Packed 12 per carton)

- Valves:** 62300 series
2500 series



CRITICAL DIMENSIONS

(DO NOT SCALE)

FOR MORE INFORMATION CALL: 1-800-BUY-MOEN

www.moen.com



Buy it for looks. Buy it for life.®

Specifications

DESCRIPTION

- Metal construction with various finishes identified by suffix
- 1/2" IPS connections
- Includes metal pop-up waste assembly

OPERATION

- Lever style handles
- Maximum handle(s) rotation angle is 90° to full on
- Rotate hot side counterclockwise to open (clockwise to close)
- Rotate cold side clockwise to open (counterclockwise to close)

FLOW

- Flow is limited to 1.5 gpm max (5.7L/min) at 60 psi, for products made before October 2008 flow is limited to 2.2 gpm max (8.3 L/min)

CARTRIDGE

- 1224 cartridge design
- Nonmetallic and stainless steel material

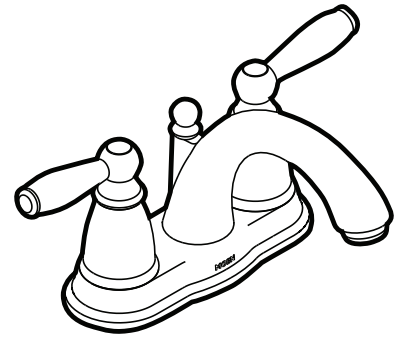
STANDARDS

- Third party certified to WaterSense®, ASME A112.18.1/CSA B125.1 and all applicable requirements referenced therein
- Certified to NSF 61/9 & 372
- 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
- 5 year warranty if used in commercial installations

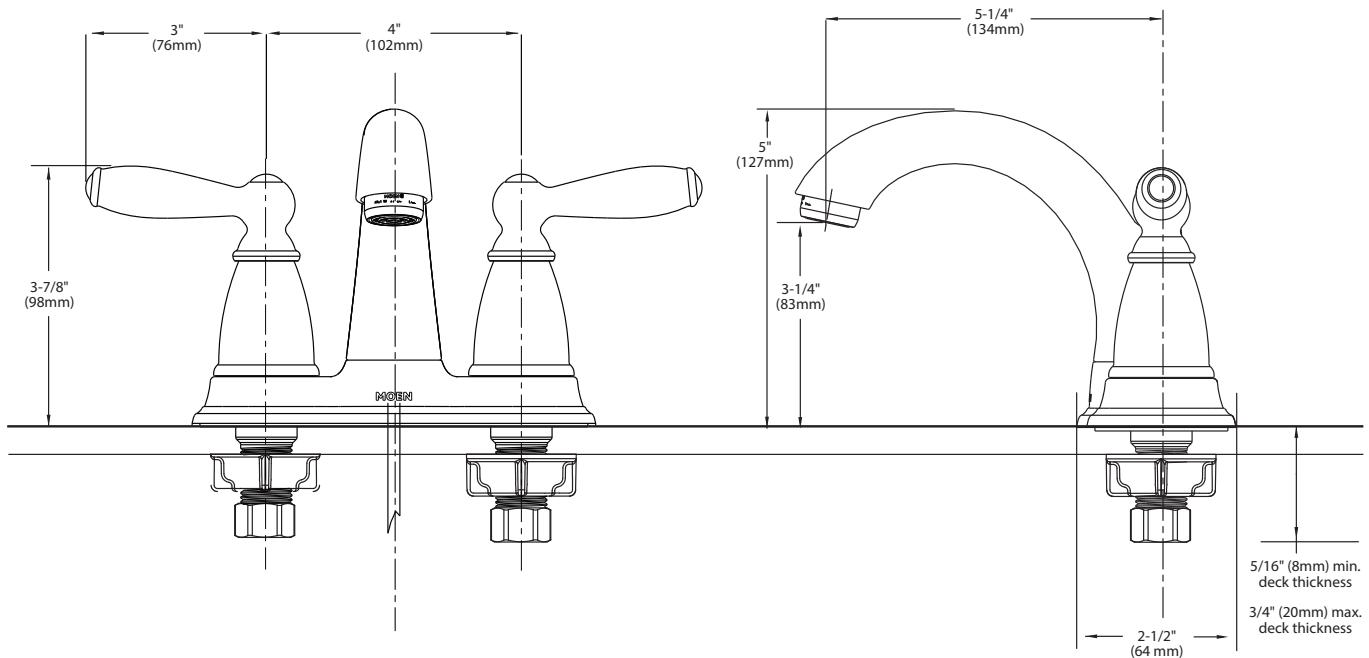


BRANTFORD™ 4" Lavatory Faucet with Metal Waste Assembly

Models: 6610 series

Bulk Model: 66610
(Bulk packed 6 per carton)
50/50 Waste Assembly

NOTE: THIS FAUCET IS DESIGNED TO BE INSTALLED THRU 3 HOLES, 1" MIN. DIA.



CRITICAL DIMENSIONS

(DO NOT SCALE)

MOEN®

Specifications

FAUCET DESCRIPTION

- Reflex™ pull-down system offers smooth operation, easy movement and secure docking
- Power Clean™ spray technology
- Metal construction with various finishes identified by suffix
- Quick connect installation
- Pullout 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 pull out wand provides the maneuverability for cleaning or rinsing
- 360° rotating spout

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
- When filling a vessel outside the sink, the pause feature conveniently stops the flow of water as the wand passes over the counter top

FLOW

- Flow is limited to 1.5 gpm (5.7 L/min) at 60 psi
- Power Boost™ Button activates Boosted Stream and Boosted Spray

CARTRIDGE

- 1255™ Duralast™ cartridge for Single-Handle Faucets

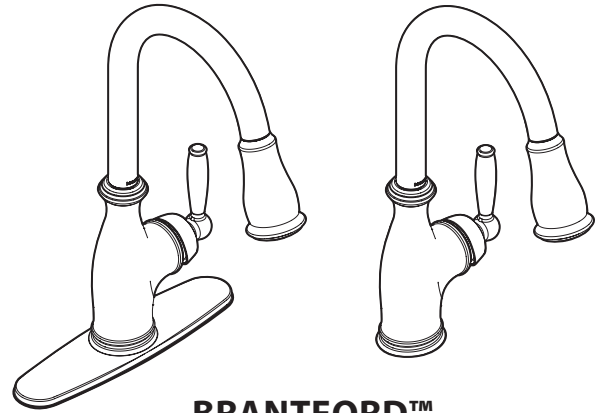
STANDARDS

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

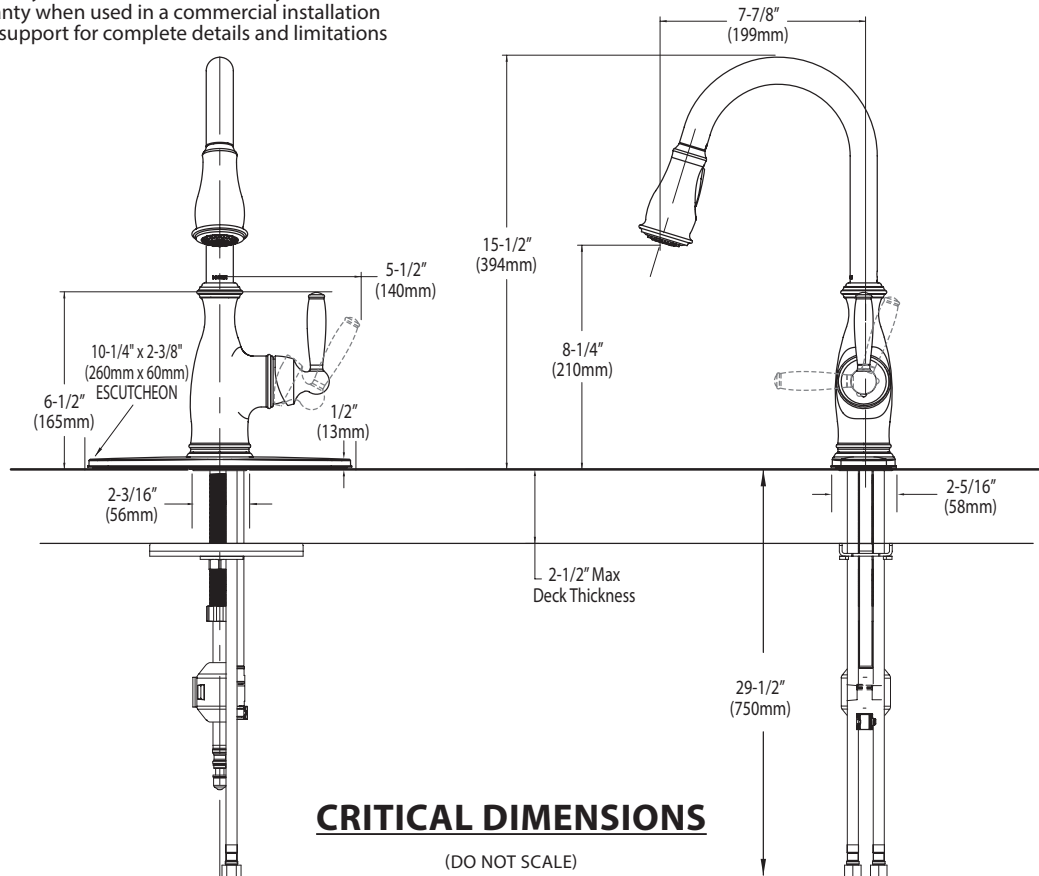
- Lifetime limited warranty against leaks, drips and finish defects to the original homeowner
 - 10 year limited warranty when used in a multifamily installation
 - 5 year limited warranty when used in a commercial installation
- Visit www.moen.com/support for complete details and limitations



BRANTFORD™ Single Handle High Arc Pulldown Kitchen Faucet

Models: 7185 series

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



TO ORDER PARTS CALL: 1-800-BUY-MOEN

www.moen.com



VITREOUS CHINA

TOILET
SE-21-118

LAVATORIES

TOILETS

BIDETS / URINALS

CAST IRON



MAXWELL® SE
ErgoHeight™
17" High Elongated Toilet

12" Rough-in

Features:

- 1.6 gpf/6 Lpf two-piece toilet
- Elongated ErgoHeight™ bowl
- Dual-fed siphon jet
- 2" flush valve
- 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

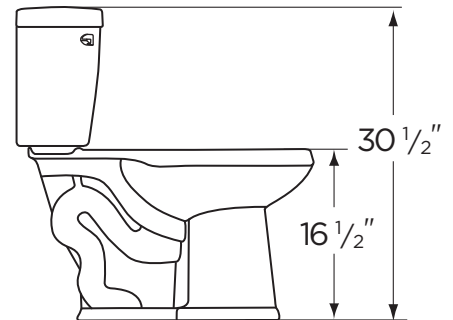
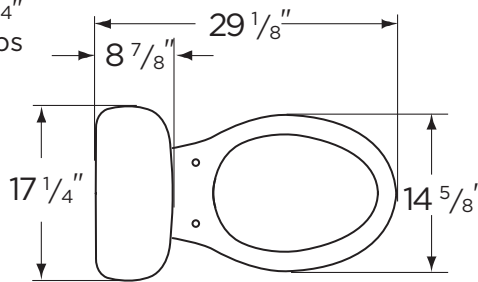


Dimensions:

- Height 30 1/2"
- Width 17 1/4"
- Depth 29 1/8"
- Rough-in 12"
- Water Surface from Rim 6"
- Trapway 1 3/4"
- Water Surface 10 3/8" x 7 3/4"
- Water Seal 2 1/4"
- Shipping Weight 77.5 lbs

Specifications: Bowl—#21-128 Elongated Bowl
Seat not included

Tank—#28-170



THIS FIXTURE QUALIFIES ACCORDING TO ASME TEST PROCEDURES AS A LOW CONSUMPTION WATER CLOSET WITH AN AVERAGE CONSUMPTION OF 1.6 gpf (6Lpf) OR LESS.



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Job Name	
Date	
Model Specified	
Quantity	
Customer	
Contractor	
Architect/engineer	