



Bateman Civil Survey Company, PC

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

April 15, 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 87
244 Saint Claire Drive, 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 87 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 87. 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 87						
	Item	Model	Gal/min. or flush	Number of Fixures	Base Flow From 1982	Percent Water Savings
Master	Shower Head	Moen TL182EP	1.8 gal/minute	1	5.5 gal/minute	67%
	Lavatory Faucet	Moen 6172	1.2 gal/minute	2	3.0 gal/minute	60%
Kitchen	Kitchen Sink Faucet	Moen 7864	1.5 gal/minute	1	3.0 gal/minute	50%
Bath 2	Lavatory Faucet	Moen 6172	1.2 gal/minute	1	3.0 gal/minute	60%
	Shower Head	Moen TL2353EP	1.8 gal/minute	1	5.5 gal/minute	67%
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



Buy it for looks. Buy it for life.®

Specifications

DESCRIPTION

- Metal construction with various finishes identified by suffix
- Includes non-metallic showerhead, arm, flange and non-metallic diverter tub 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 ± 3°

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
- Accommodates back to back installations
- Nonmetallic/nonferrous and stainless steel material

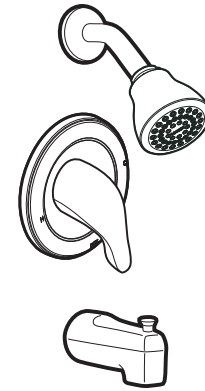
STANDARDS

- 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

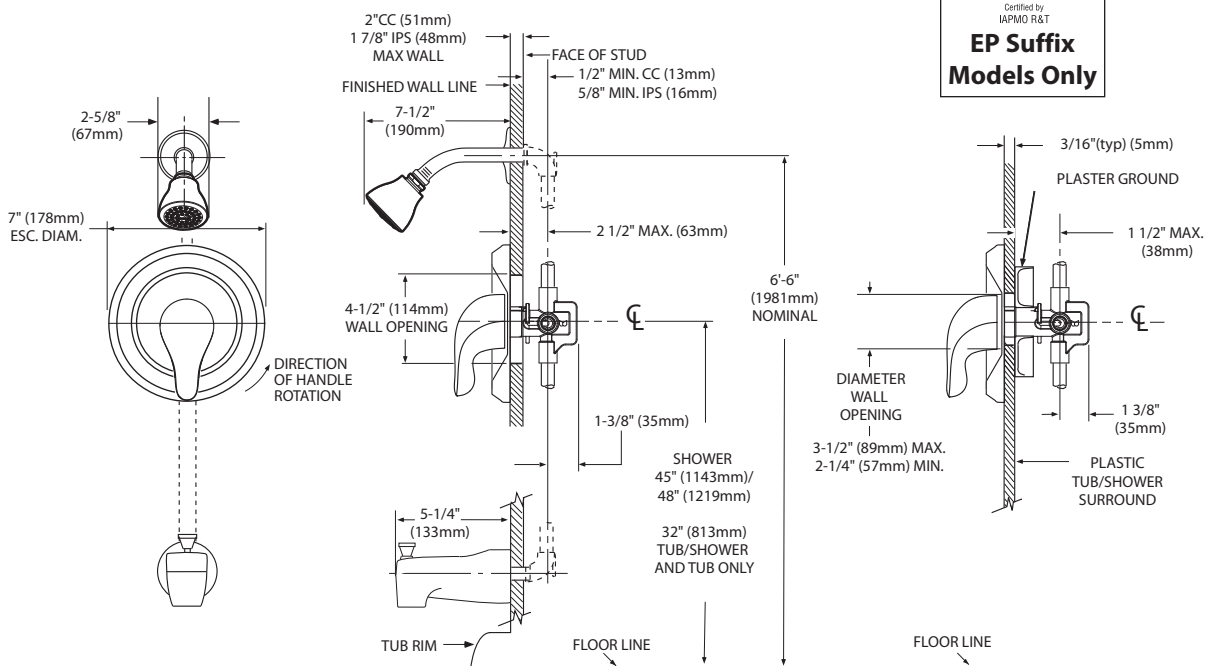
- Lifetime limited warranty against leaks, drips and finish defects to the original consumer purchaser
- 5 year warranty if used in commercial installations



CHATEAU® POSI-TEMP® Single-Handle Tub/Shower Trim Kit

- Models:** TL181 series - valve trim only
(Bulk Packed 12 per carton)
TL182 series - shower trim only
(Bulk Packed 12 per carton)
TL183 series - tub/shower trim
(Bulk Packed 12 per carton)

- Valves:** 62300 series
2500 series



CRITICAL DIMENSIONS

(DO NOT SCALE)



DESCRIPTION

- Metal construction with various finishes identified by suffix
- 1/2" IPS connections
- Hot and cold temperature indicators available
- Installation through 3 holes, 1" min. diameter, and 4" on center
- Includes metal pop-up waste assembly (6172)
- Includes 50% metal/50% plastic waste assembly (66172)

OPERATION

- Lever style handles with optional hot & cold indicators available
- Maximum handle rotation angle is 90° to full on for either handle
- Hot side counterclockwise to open (clockwise to close)
- Cold side clockwise to open (counterclockwise to close)

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

- 1234 cartridge design
- Nonmetallic, nonferrous 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
- 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

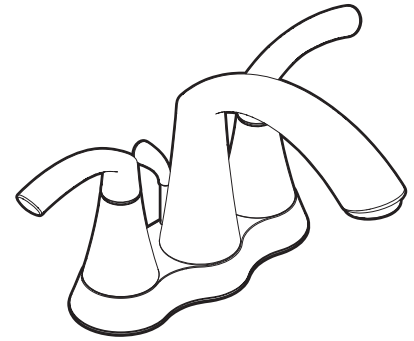
WARRANTY

- Limited lifetime warranty against leaks, drips and finish defects to the original homeowner
- 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)

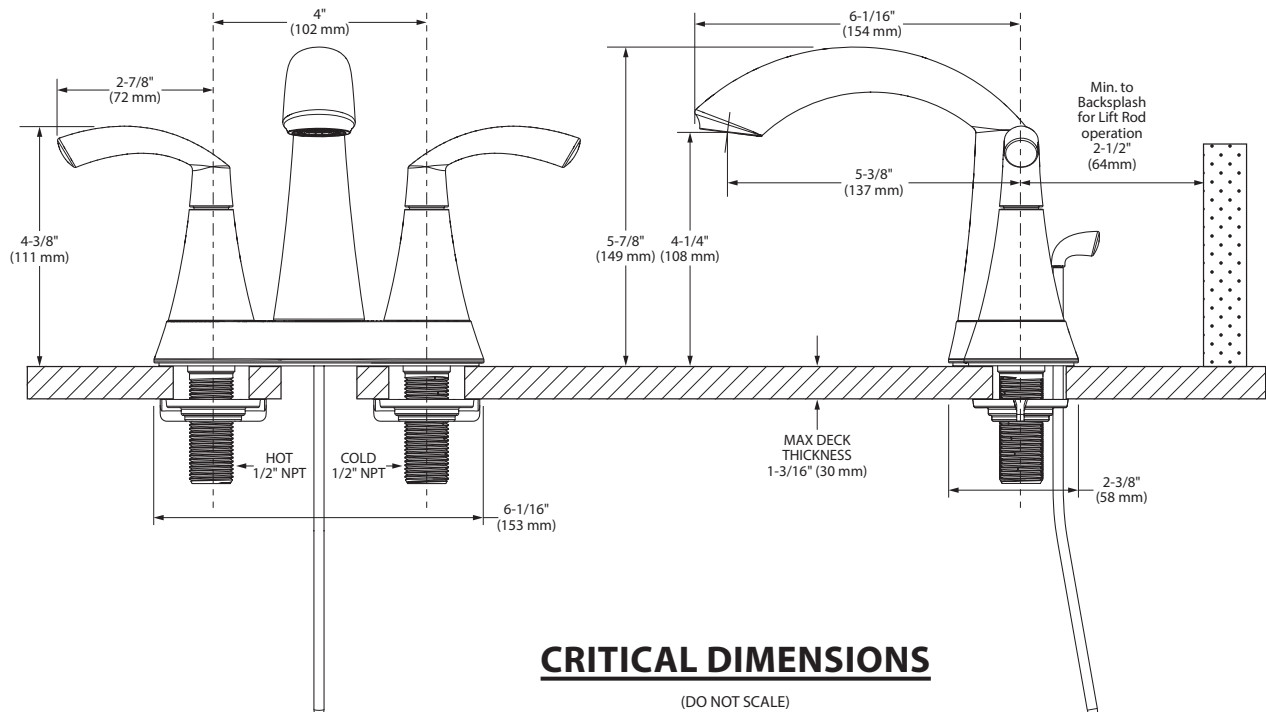
- Thin and thick deck mounting hardware kits available



GLYDE™
Two-Handle 4" Centerset
Lavatory Faucet

Models: 6172 series and 66172
(bulk) includes
pop-up waste

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



DESCRIPTION

- Reflex™ pulldown system offers smoother operation, easy movement and secure docking
- PowerBoost™ Spray Technology
- Duralock™ quick connect installation
- Metal construction with various finishes identified by suffix
- Pulldown spray with 68" braided hose
- High arc spout provides height and reach to fill or clean large pots while pullout wand provides the maneuverability for cleaning or rinsing
- 360° rotating spout
- Flexible supply lines with 3/8" compression fittings

OPERATION

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

FLOW

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

CARTRIDGE

- 1255™ Duralast™ cartridge for Single-Handle Faucets
- Engineered polymers, non-ferrous and stainless steel materials

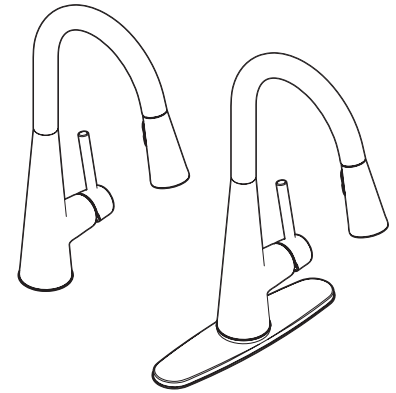
STANDARDS

- Third party certified to IAPMO Green, ASME A112.18.1/CSA B-125.1 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
- ADA ♿ for lever handle
- The backflow protection system in this device consists of two independently operating check valves, a primary and a secondary which prevent backflow

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

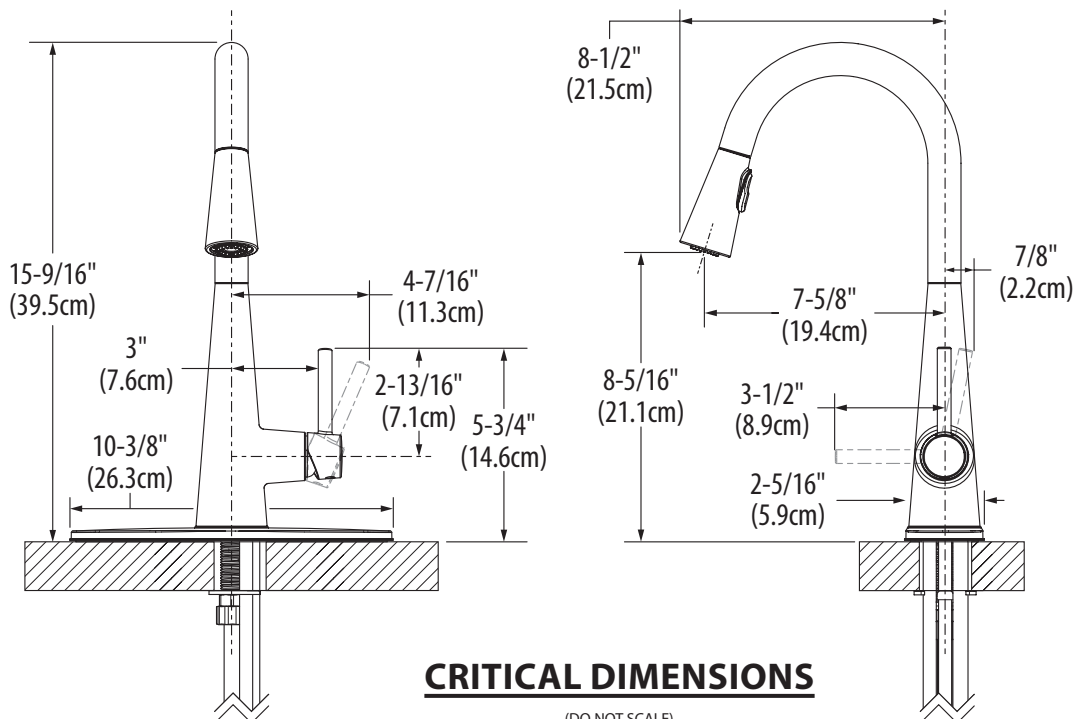
Visit www.moen.com/support for complete details and limitations



Sleek™
Single-Handle High Arc
Pulldown Kitchen Faucet

Models: 7864 series

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





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Specifications

DESCRIPTION

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

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 $\pm 3^\circ$

FLOW

- Showerhead is limited to 2.5 gpm (9.5 L/min) Max
- EP suffix models are limited to 1.75gpm (6.6 L/min) Max

CARTRIDGE

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

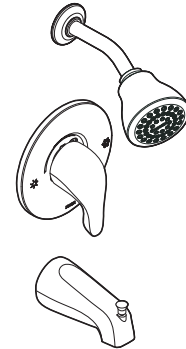
STANDARDS

- Third party certified to meet ASSE 1016, 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

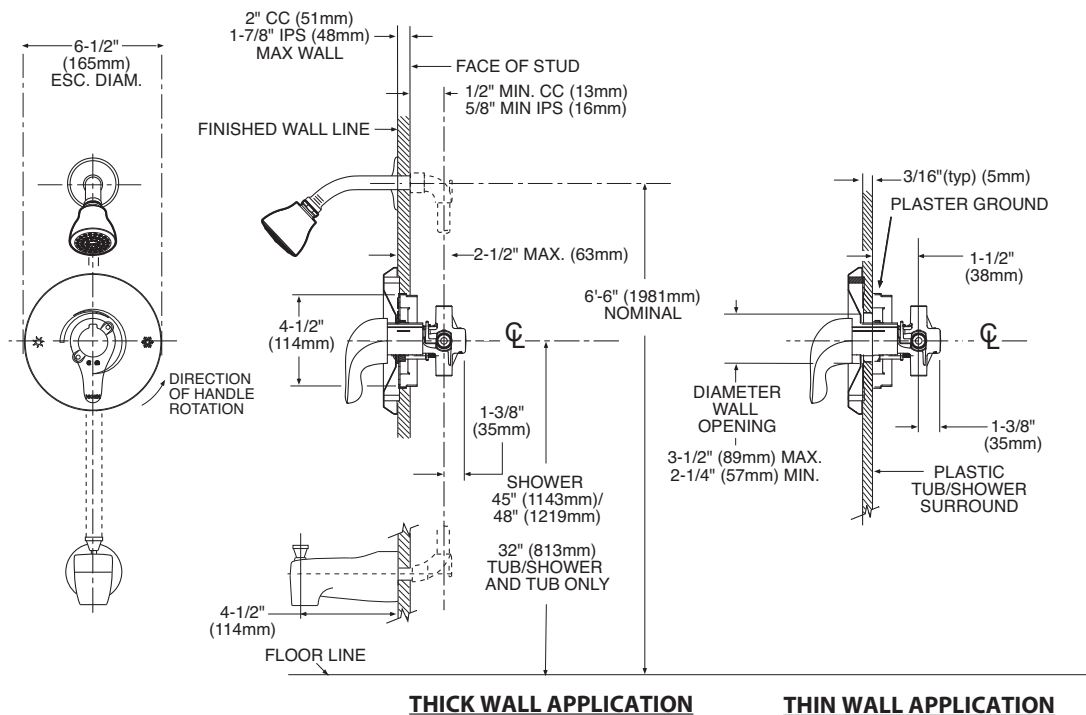
- Lifetime limited warranty against leaks, drips and finish defects to the original consumer purchaser
- 5 year warranty if used in commercial installations



CHATEAU® POSI-TEMP® Single-Handle Tub/Shower Valve

Model: L2353
L2353EP

Model: L2363 (with 1/4 Turn Stops)



CRITICAL DIMENSIONS

(DO NOT SCALE)



VITREOUS CHINA

TOILET
21-912

LAVATORIES

TOILETS

BIDETS / URINALS

CAST IRON

MAXWELL® 1.28 Elongated Toilet

12" Rough-in

Features:

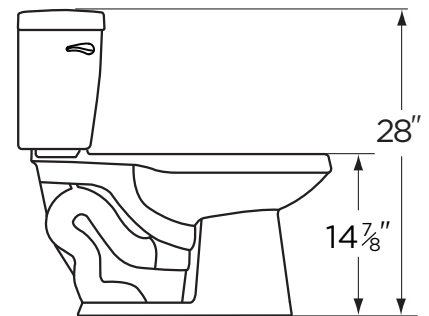
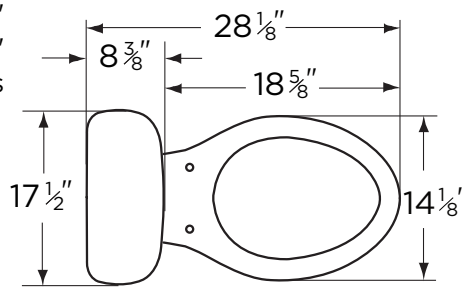
- 1.28 gpf/4.8 Lpf high efficiency two-piece toilet
- Elongated bowl
- Dual-fed siphon jet
- Pilot fill valve
- 3" flush valve
- 2" glazed trapway
- Color matched front tank lever (white only)
- Optional insulated non-sweating tank
- Optional right-handed trip lever
- Available in White, Bone and Biscuit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



Specifications: Bowl—#21-962 Elongated Bowl Tank—#28-990
Seat not included

Dimensions:

- Height28"
- Width 17 1/2"
- Depth 28 1/8"
- Rough-in.....12"
- Water Surface from Rim5 7/8"
- Trapway 2"
- Water Surface 10 7/8" x 7 1/2"
- Water Seal2 3/8"
- Shipping Weight 79.5 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.

HIGH EFFICIENCY TOILET
HET

www.gerberonline.com

Job Name	
Date	
Model Specified	
Quantity	
Customer	
Contractor	
Architect/engineer	