

# Harnett County Environmental Health

File/Permit Number: SFD2501-0002

## IMPROVEMENT PERMIT

County: Harnett

PIN/Lot Identifier: 0642-96-1938.000

Owner: KB Home Raleigh

Applicant: \_\_\_\_\_

Property Location: 696 Thomas Gage Dr

Subdivision (if applicable) Birchwood Grove

Lot #: 43

Block: \_\_\_\_\_ Section: \_\_\_\_\_

New

Expansion

System Relocation

Change of Use

Facility Type: SFD (56'x43')

Number of bedrooms: 5 Number of Occupants: 10 Other: \_\_\_\_\_

Design Wastewater Strength:  Domestic  High Strength  Industrial Process Wastewater

Proposed Design Daily Flow: 600 GPD Proposed LTAR (Initial): .35 Proposed LTAR (Repair): .35

Proposed Wastewater System Type\*: Accepted System (Initial) Pump Required:  Yes  No  May be required

Proposed Wastewater System Type\*: T&J Panel (Repair) Pump Required:  Yes  No  May be required

*\*Please include system classification for proposed wastewater system types in accordance with Rule .1301 Table XXXII*

Effluent Standard:  DSE  HSE  NSF/ANSI 40  TS-I  TS-II  RCW

Saprolite System (Initial):  Yes  No Saprolite System (Repair):  Yes  No

Fill System (Initial):  Yes  No If yes, specify:  New  Existing (when adding more than 6 inches of fill to system area provide a fill plan)

Fill System (Repair):  Yes  No If yes, specify:  New  Existing (when adding more than 6 inches of fill to system area provide a fill plan)

Usable Depth to LC (Initial)\*: 48 Usable Depth to LC (Repair)\*: 48 \* Limiting Condition

Max. Trench Depth (Initial)\*: 36 Max. Trench Depth (Repair)\*: 36 \* Measured on the downhill side of the trench

Artificial Drainage Required:  Yes  No If yes, please specify details: \_\_\_\_\_

Type of Water Supply:  Private well  Public well  Shared well  Municipal Supply  Spring  Other: \_\_\_\_\_

Drainfield location meets requirements of Rule .0508: Yes  No  Drainfield location meets requirements of Rule .0601: Yes  No

Permit valid for:  Five years [site plan submitted pursuant to GS 130A-334(13a)]  No expiration [plat submitted pursuant to GS 130A-334(7a)]

Permit conditions:

Authorized Agent's Printed Name: Oliver Tolksdorf REHS

Expiration Date: 1/1/30

Authorized Agent's Signature: \_\_\_\_\_

Date: 1/16/25

**\*See attached site sketch\***

The issuance of this permit in no way guarantees the issuance of other permits. The permit holder is responsible for checking with appropriate governing bodies in meeting their requirements. This permit is subject to revocation if the site plan, plat, or the intended use changes. The Improvement Permit shall not be affected by a change in ownership of the site. This permit is subject to compliance with the provisions of 15A NCAC 18E and to the conditions of this permit.

# Harnett County Environmental Health

File/Permit Number: SFD2501-0002

## CONSTRUCTION AUTHORIZATION

County: Harnett PIN/Lot Identifier: 0642-96-1938.000

Owner: KB Home Applicant: \_\_\_\_\_

Property Location: 696 Thomas Gage

Facility Type: SFD (56'x43')

Number of bedrooms: 5 Number of Occupants: 10 Other: \_\_\_\_\_

New  Expansion  Repair  System Relocation  Change of Use

Basement?  Yes  No Basement Fixtures?  Yes  No

Crawl Space?  Yes  No Slab Foundation?  Yes  No

Type of Wastewater System\* Accepted System (Initial) T&J Panel (Repair)

*\*Please include system classification for proposed wastewater system types in accordance with Rule .1301 Table XXXII*

Design Daily Flow: 600 GPD Wastewater Strength:  Domestic  High Strength  Industrial Process Wastewater

Rule .0403(e) Engineering Design Utilizing Low-flow Fixtures and Low-flow Technologies (S.L. 2013-413 and 2014-120)?  Yes  No  
*(if yes, please provide engineering documentation)*

Effluent Standard:  DSE  HSE  NSF/ANSI 40  TS-I  TS-II  RCW

Type of Water Supply:  Private well  Public well  Shared well  Municipal Supply  Spring  Other: \_\_\_\_\_

### Installation Requirements/Conditions

Septic Tank Size: 1250 gallons Total Trench/Bed Length: 375 feet Trench/Bed Spacing: 9 feet on center

Trench/Bed Width: 36 inches LTAR: .35 gpd/ft<sup>2</sup> Usable Depth to LC (Initial)\*: 36 <sup>†</sup>*Limiting condition*

Soil Cover: 12 inches Slope Corrected Maximum Trench/Bed Depth<sup>†</sup>: 24 inches <sup>†</sup>*Measured on the downhill side of the trench*

Pump Tank Size (if applicable): 1250 gallons Requires more than one pump?  Yes  No

Pump Requirements: \_\_\_\_\_ ft. TDH vs. \_\_\_\_\_ GPM Grease Trap Size (if applicable): \_\_\_\_\_ gallons

Distribution Method:  Serial  D-Box or Parallel  Pressure Manifold(s)  LPP  Other: \_\_\_\_\_

Artificial Drainage Required: Yes  No  If yes, please specify details: \_\_\_\_\_

**Legal Agreements** *(If the answer is "Yes" to any type of legal agreements, please attach a copy of the agreement.)*

Multi-party Agreement Required [Rule .0204(g)]:  Yes  No

Easement, Right-of-Way, or Encroachment Agreement Required [Rule .0204(d)]:  Yes  No

Declaration of Restrictive Covenants:  Yes  No Pre-Construction Conference Required: Yes  No

Management Entity Required:  Yes  No Minimum O&M Requirements: \_\_\_\_\_

Conditions: \_\_\_\_\_

The requirements of 15A NCAC 18E are incorporated by reference into this permit and shall be met. Systems shall be installed in accordance with the attached site sketch. ***This Construction Authorization is subject to revocation if the site plan, plat, or the intended use changes.*** The Construction Authorization shall not be affected by a change in ownership of the site. This Construction Authorization is subject to compliance with the provisions of 15A NCAC 18E, or 15A NCAC 18A .1900, as applicable, and to the conditions of this permit.

Authorized Agent's Printed Name: Oliver Tolksdorf REHS

Expiration Date: 1/16/29

Authorized Agent's Signature: \_\_\_\_\_

Date: 1/16/25

**\*See attached site sketch\***



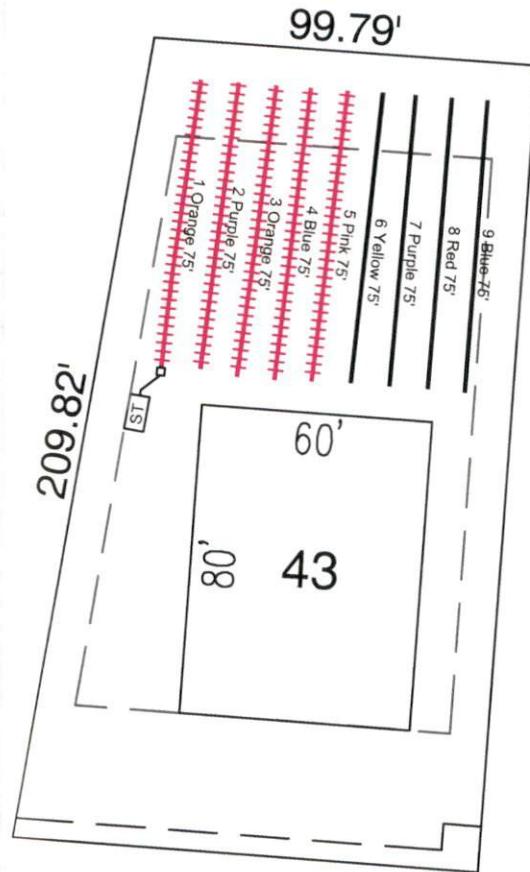
SITE PLAN

SFO2501-0002

- \*Keep tanks and drain lines 10' from property lines.
- \*Not a survey.
- \*Not a guarantee of a septic permit.
- \*Keep supply lines >5' from property lines.
- \*Some lines are flagged longer in the field than lengths indicate.
- \*No grading septic area.

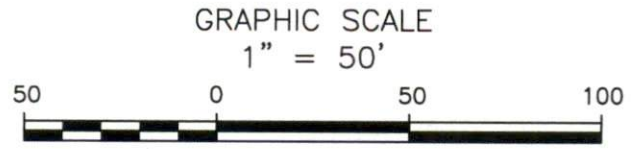
System:   
 Repair: 

1/16/25  
 QCS-75



System: Pressure Manifold  
 Lines: 1-5, (375')  
 Ezflow or Chambers 20%  
 0.35 Soil LTAR  
 36" Trench Bottom

Repair: Pressure Manifold  
 Lines: 5-9, (300')  
 T&J Panel 50% Reduction  
 0.35 Soil LTAR  
 36" Trench Bottom



Central Carolina Soil Consulting, PLLC  
 1900 South Main Street, Suite 110  
 Wake Forest, North Carolina 27587  
 Phone (919)569-6704 Fax (919)569-6703

5-Bedroom Septic Layout  
 5bedroom with Engineered Flow Reduction  
 Lot 43, Birchwood Grove Subdivision  
 Harnett County, North Carolina

|                   |
|-------------------|
| Job# : 3753       |
| Drawn By : AH     |
| Date : 12/31/2024 |
| Revision:         |
|                   |
|                   |



**Bateman Civil Survey Company, PC**

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

December 23, 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 43  
696 Thomas Gage 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 43 pursuant to session law 2014-120 and 2013-413. The proposed home will have **5** bedrooms and under the current flow calculations provided in the state rules would have a daily flow of **600** 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 43. 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 20% for the use of low flow fixtures. This will provide an adjusted daily flow of 96 gallons per bedroom per day and a total flow of **480** gallons per day for the proposed 5-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 20% we anticipate the concentration levels of both BODs and TSS to be around 275 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, PE, PLS*  
09838E23DC404AD...



Thomas Speight, P.E  
(seal)

12/30/2024

| Birchwood Grove Lot 43 |                         |               |                   |                   |                     |                       |
|------------------------|-------------------------|---------------|-------------------|-------------------|---------------------|-----------------------|
|                        | 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 T908     | Fill & Release    | 1                 | Fill & Release      | 0%                    |
| Kitchen                | Kitchen Sink Faucet     | Moen 5925     | 1.5 gal/minute    | 1                 | 3.0 gal/minute      | 50%                   |
| Powder                 | Laundry Faucet          | Moen 5010     | 1.2 gal/minute    | 1                 | 3.0 gal/minute      | 60%                   |
| Bath 3                 | 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%                   |
| Bath 5                 | Lavatory Faucet         | Moen 5010     | 1.2 gal/minute    | 1                 | 3.0 gal/minute      | 60%                   |
|                        | Shower Head             | Moen T5152EP  | 1.8 gal/minute    | 1                 | 5.5 gal/minute      | 67%                   |
| Toilets                | Master, Powder, 2, 3, 4 | Gerber 28-990 | 1.3 gal /flush    | 4                 | 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 (600 BASE)                   | 144    | 120     | 120    | 72   | 18   | 18    | 12         | 96             | 600    |
| PERCENT OF SAVINGS FROM WATER SAVING FIXURES | 63%    | 58% avg | 67%    | 0%   | 0%   | 0%    | 0%         | 0%             | 40%    |
| ADJUSTED FLOW (GALLONS)                      | 53     | 50      | 40     | 72   | 18   | 18    | 12         | 96             | 359    |



# 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 ± 2°

## 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](http://www.moen.com/support) for complete details and limitations

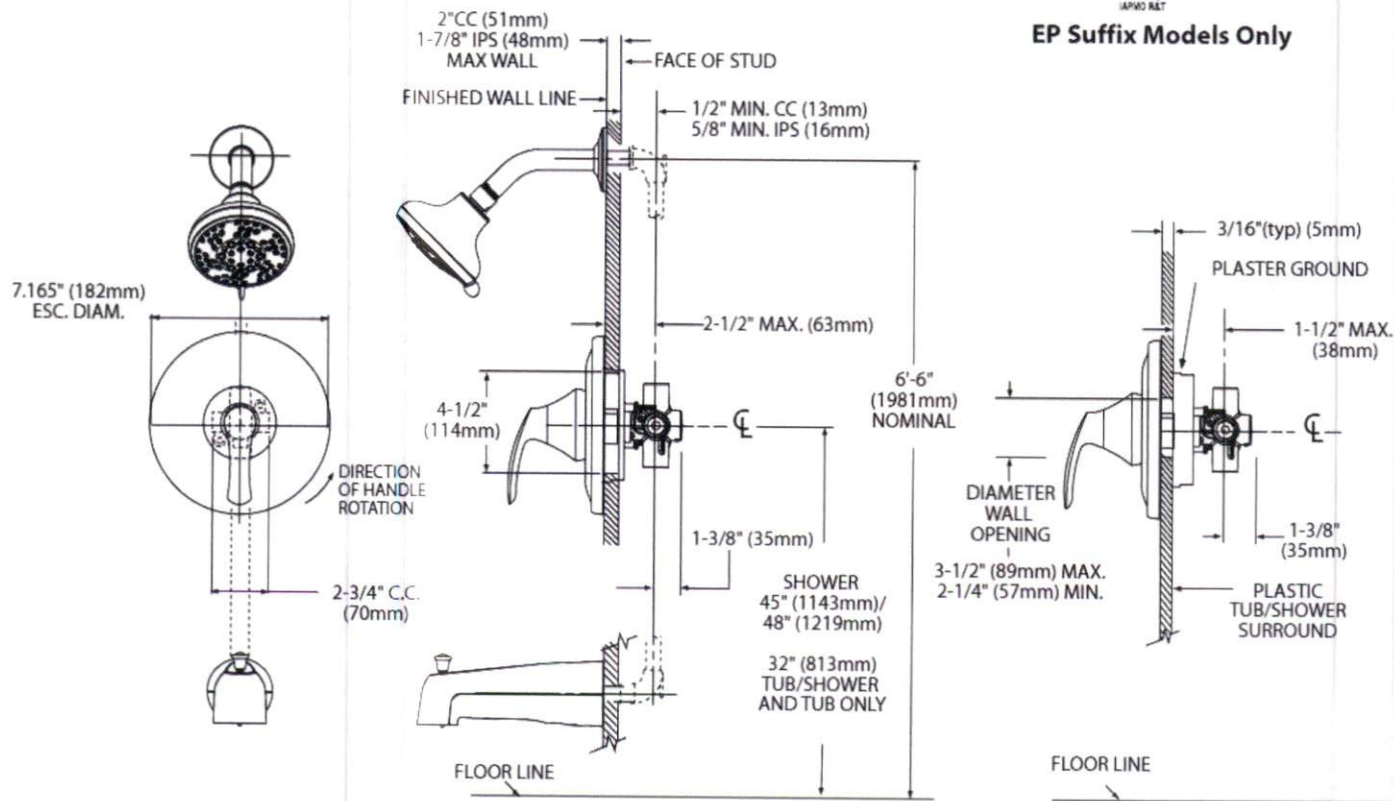


## Seena™ Posi-Temp® Single-Handle Tub/Shower

**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](http://www.moen.com/support) for complete details and limitations

## OPTIONS (See Illustrated Parts page)

- Thin and thick deck mounting hardware kits available

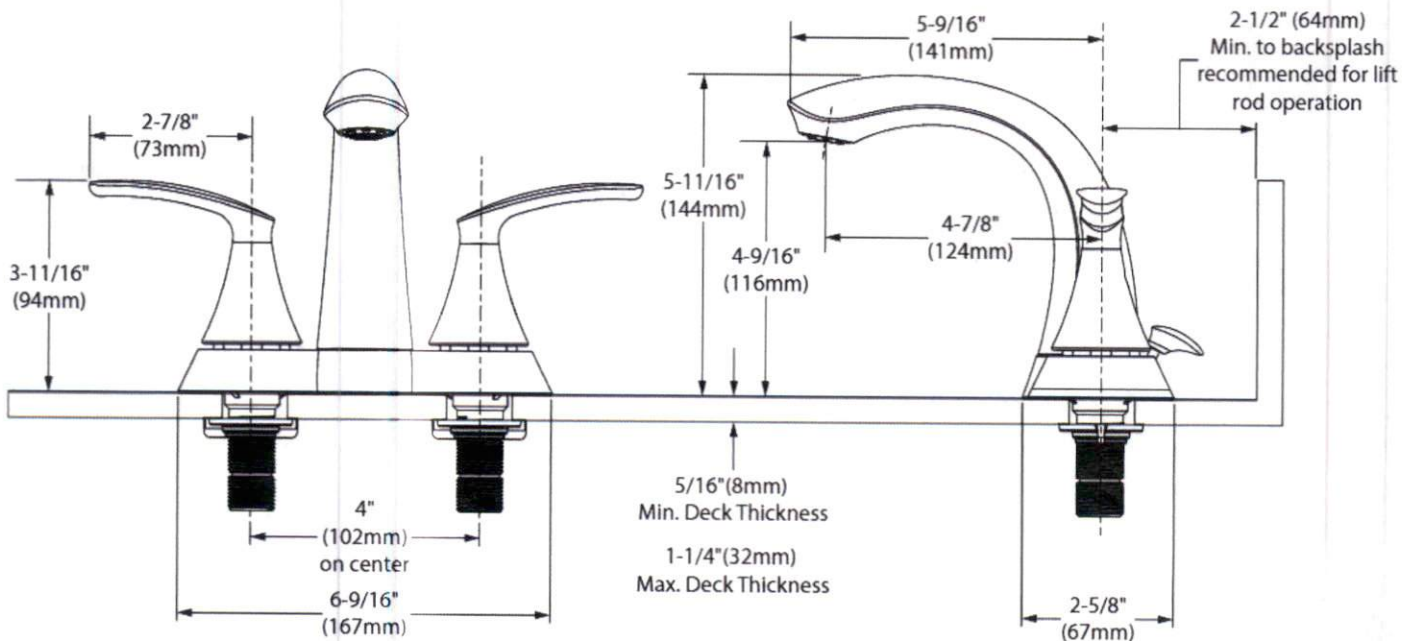


## SEENA™

### Two-Handle 4" Centerset Lavatory Faucet

#### Models:

5010 series includes pop-up waste



## CRITICAL DIMENSIONS

(DO NOT SCALE)





# Specifications

## 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

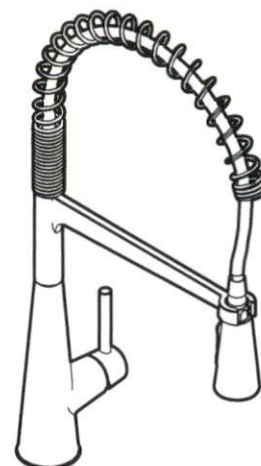
## STANDARDS

- 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

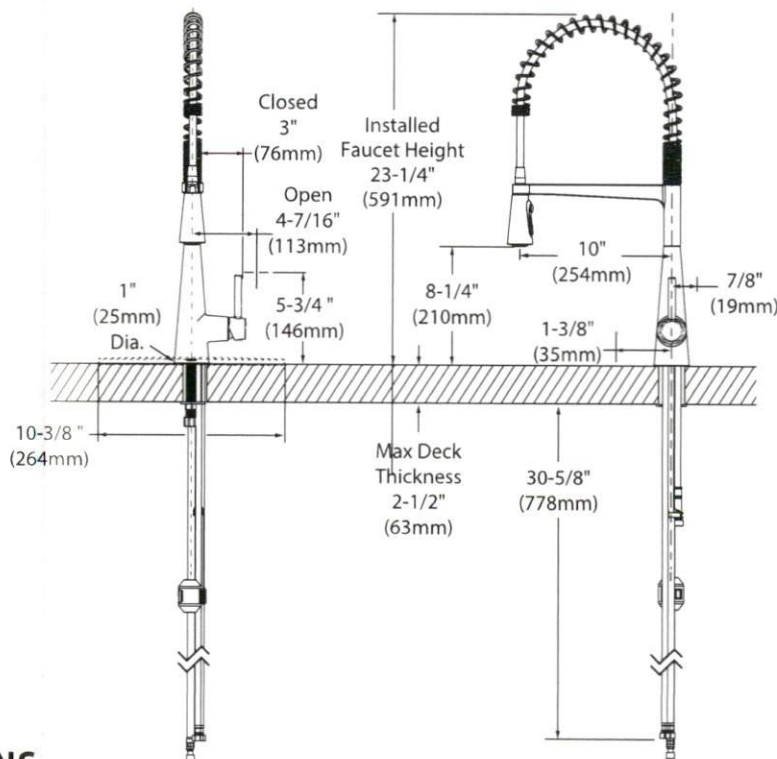
Visit [www.moen.com/support](http://www.moen.com/support) for complete details and limitations



**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**



**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

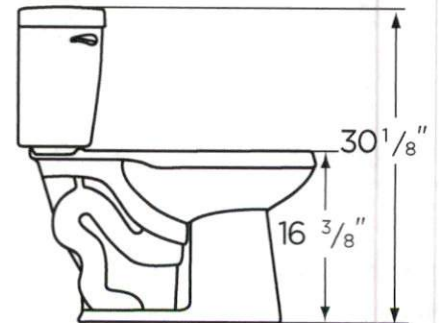
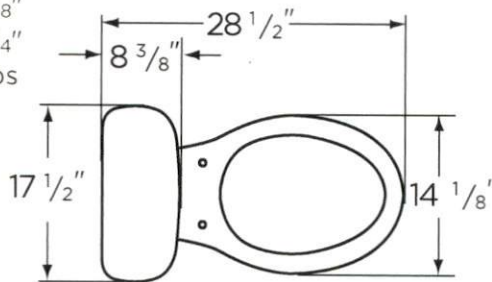


**Dimensions:**

- 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

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

Tank—#28-990



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.



|                    |  |
|--------------------|--|
| Job Name           |  |
| Date               |  |
| Model Specified    |  |
| Quantity           |  |
| Customer           |  |
| Contractor         |  |
| Architect/engineer |  |

www.gerberonline.com

LAVATOIRES TOILETS BIDETS / URINALS CAST IRON