



Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110, Wake Forest, NC 27587
Office Number: 919-569-6704

Acknowledgment of Subsurface wastewater evaluation and septic design by Central Carolina Soil Consulting, PLLC. for Cotton Farms, Lot 10 (PIN: 0643-35-5902), for issuance of an IP and CA.

For Improvement Permit (IP) issuance:

"The LSS/LG evaluation(s) attached to this application is to be used to issue an Improvement Permit in accordance with G.S. 130A-335(a2) and (a3)."

For Construction Authorization (CA) issuance:

"The plans or evaluations attached to this application are to be used to issue a Construction Authorization in accordance with G.S. 130A-335(a2), (a5) and (a6)."

The LSS evaluation attached to this application was used to produce and design a subsurface wastewater septic system for permitting to obtain an IP and CA in accordance G.S. 130A-335(a2), (a3), (a5) and (a6).

Owner:

Ken Harvey Homes, LLC

Owner's representative:

Andy Beard

Date:

7.13.23

CONSTRUCTION AUTHORIZATION FOR G.S. 130A-335(a2)

County: _____

PIN/Lot Identifier: _____

Issued To: _____

Property Location: _____

AOWE/PE Plans/Evaluations Provided: Yes No If yes, name and license number of AOWE/PE: _____

Facility Type: _____

 New Expansion Repair System Relocation Change of UseBasement? Yes No Basement Fixtures? Yes No

Type of Wastewater System* _____ (Initial) _____ (Repair)

**Please include system classification for proposed wastewater system types in accordance with 15A NCAC 18A .1961 Table V(a)*Design Daily Flow: _____ GPD Wastewater Strength: domestic high strength industrial processSession Law 2014-120 Section 53, Engineering Design Utilizing Low-flow Fixtures and Low-flow Technologies? Yes No
(if yes, please provide engineering documentation)**Installation Requirements/Conditions**

Septic Tank Size: _____ gallons Total Trench/Bed Length: _____ feet Trench/Bed Spacing: _____ feet on center

Trench/Bed Width: _____ inches LTAR _____ gpd/ft²Additional Soil Cover: _____ inches Slope Corrected Maximum Trench/Bed Depth²: _____ inches *** Measured on the downhill side of the trench**

Aggregate Depth: _____ inches above pipe _____ inches below pipe _____ inches total

Pump Tank Size (if applicable): _____ gallons Requires more than 1 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 [.1937(h)]: Yes NoEasement, Right-of-Way, or Encroachment Agreement Required [.1938(j)]: Yes NoDeclaration of Restrictive Covenants: Yes NoPre-Construction Conference Required: Yes No

Conditions: _____

The construction and installation requirements of Rules .1950, .1952, .1954, .1955, .1956, .1957, .1958, and .1959 are incorporated by reference into this permit and shall be met. Systems shall be installed in accordance with the attached system layout.

AOWE/PE Print Name: _____ Expiration Date: _____

AOWE/PE Signature:  _____ Date: _____**This AOWE/PE submittal is pursuant to and meets the requirements of G.S. 130A-335(a2) and (a5).*****See attached site sketch***

This Section for Local Health Department Use OnlyInitial submittal received: _____ by _____
Date Initials

G.S. 130A-335(a5) states the following:

When an applicant for a Construction Authorization, or an Improvement Permit and Construction Authorization together, submits a Construction Authorization, or an Improvement Permit and Construction Authorization application together, the permit fee charged by the local health department, the common form developed by the Department, and any necessary signed and sealed plans or evaluations conducted by a person licensed pursuant to Chapter 89C of the General Statutes as a licensed engineer or a person certified pursuant to Article 5 of Chapter 90A of the General Statutes as an Authorized On-Site Wastewater Evaluator, the local health department shall, within five business days of receiving the application, conduct a completeness review of the submittal. A determination of completeness means that the Construction Authorization or Improvement Permit and Construction Authorization includes all of the required components. If the local health department determines that the Construction Authorization or Improvement Permit and Construction Authorization is incomplete, the local health department shall notify the applicant of the components needed to complete the Construction Authorization or Improvement Permit and Construction Authorization. The applicant may submit additional information to the local health department to cure the deficiencies in the Construction Authorization or Improvement Permit and Construction Authorization. The local health department shall make a final determination as to whether the Construction Authorization or Improvement Permit and Construction Authorization is complete within five business days after the local health department receives the additional information from the applicant. If the local health department fails to act within any period set out in this subsection, the applicant may treat the failure to act as a determination of completeness. The applicant may apply for the building permit for the project upon the decision of completeness of the Construction Authorization or Improvement Permit and Construction Authorization by the local health department or if the local health department fails to act within five business days. The Authorized On-Site Wastewater Evaluator or licensed engineer submitting the evaluation pursuant to this subsection may request that the local health department revoke or suspend the Construction Authorization or Improvement Permit and Construction Authorization for cause. Upon written request of the Authorized On-Site Wastewater Evaluator or licensed engineer, the local health department shall suspend or revoke the Construction Authorization or Improvement Permit and Construction Authorization pursuant to G.S. 130A-23. The Department shall develop a common form for use as the Construction Authorization.

The review for completeness of this Construction Authorization was conducted in accordance with G.S. 130A-335(a5). This

Construction Authorization is determined to be:

 Incomplete (If box is checked, information in this section is required.)The following items are missing: _____
_____Copies of this were sent to the AOWE/PE and the Applicant on _____
Date

State Authorized Agent: _____ Date: _____

 Complete

State Authorized Agent: _____ Date of Issuance: _____

This Construction Authorization is issued pursuant to G.S. 130A-335(a2) and (a5) using the signed and sealed plans or evaluations attached here. 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 the Laws and Rules for Sewage Treatment and Disposal and to the conditions of this permit.

The Department, the Department's authorized agents, and the local health departments shall be discharged and released from any liabilities, duties, and responsibilities imposed by statute or in common law from any claim arising out of or attributed to plans, evaluations, preconstruction conference findings, submittals, or actions from a person licensed pursuant to Chapter 89C of the General Statutes as a licensed engineer or a person certified pursuant to Article 5 of Chapter 90A of the General Statutes as an Authorized On-Site Wastewater Evaluator in GS 130A-335(a2), (a5), and (a7). The Department, the Department's authorized agents, and the local health departments shall be responsible and bear liability for their actions and evaluations and other obligations under State law or rule, including the issuance of the operations permit pursuant to GS 130A-337.

Construction Authorization Expiration Date: _____

See attached site sketch

Re-submittal of Construction Authorization

LHD USE ONLY: This CA resubmittal received: _____ by _____ <div style="display: flex; justify-content: space-around; width: 100%; font-size: small;"> Date Initials </div>

The following items are being resubmitted pursuant to G.S. 130A-335(a5) for issuance of the Construction Authorization:

I, _____ hereby attest that the information required to be included with this re-submittal
Authorized Onsite Wastewater Evaluator (Print Name)
 is accurate and complete to the best of my knowledge and that the proposed Construction Authorization meets all applicable federal, State, and local laws, regulations, rules, and ordinances.

<i>Signature of Authorized On-Site Wastewater Evaluator</i>	<i>Date</i>
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The section below is for Local Health Department use after submittal of items noted as missing above.

LHD Follow-up Completeness Review of Construction Authorization

The review for completeness of this Construction Authorization re-submittal was conducted in accordance with G.S. 130A-335(a5). This Construction Authorization is determined to be:

Incomplete (If box is checked, information in this section is required.)

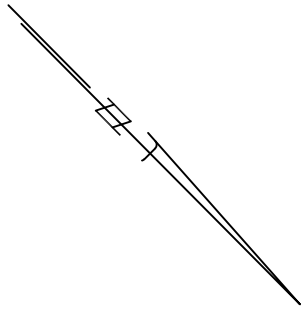
The following items are missing:

Copies of this were sent to the AOWE/PE and the Applicant on _____
Date

State Authorized Agent: _____ Date: _____

Complete

State Authorized Agent: _____ Date: _____



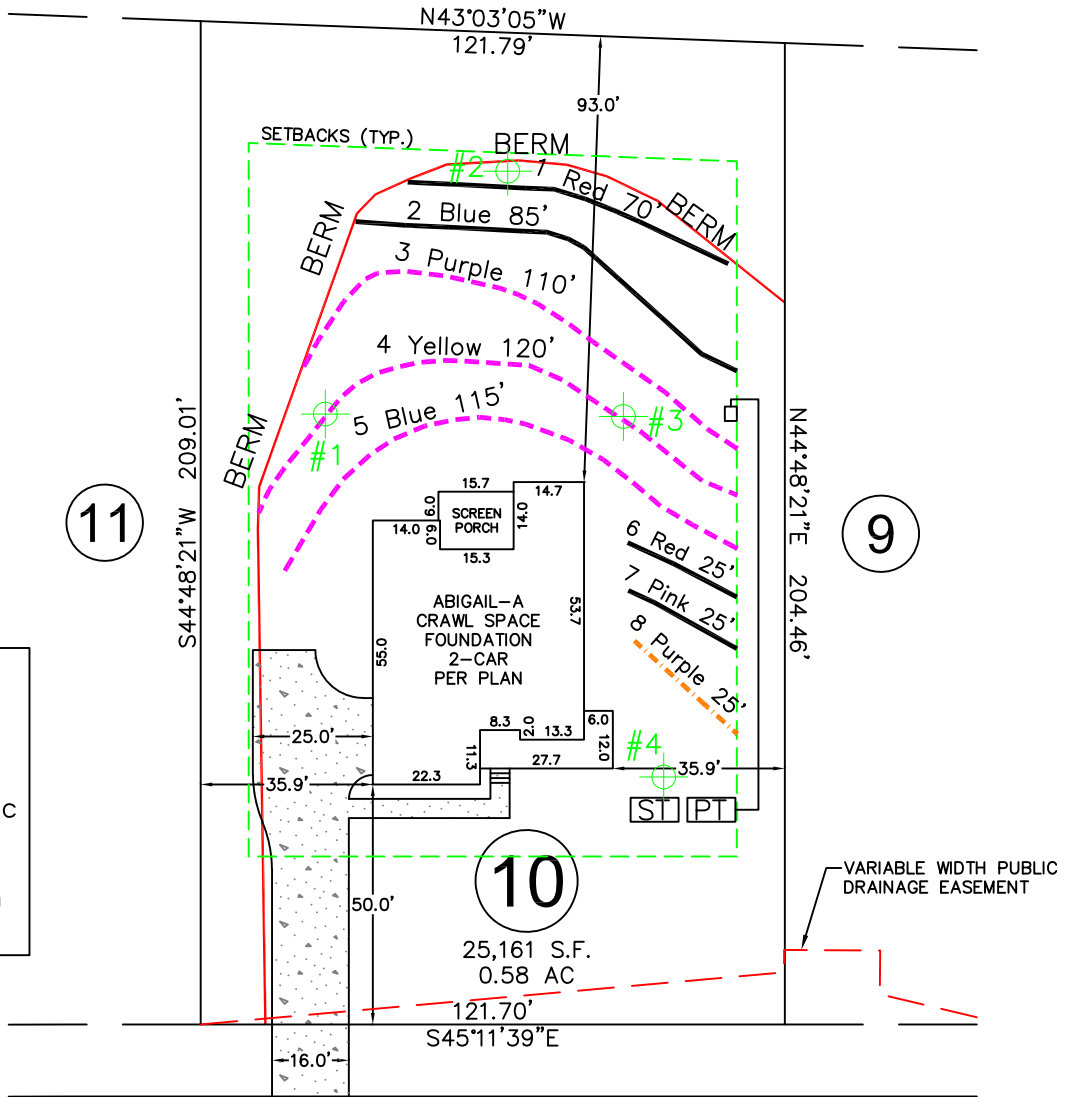
System =

Repair =

Not Used =

= 1000 gallon septic & pump tanks

= profile description locations



HOOK DRIVE

50' PUBLIC R/W & UTILITY

- *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.
- *No adding soil within septic area
- *No rutting-up septic area
- *No cuts of >2' within 15' of septic areas

<p>System: Pressure Manifold Lines: 3-5, (345') Accepted Status System 0.3 Soil LTAR 24" Trench Bottom</p>
<p>Repair: Pressure Manifold Lines: 1-2 & 6-7, (205') T&J Panel Block System (Horizontal) 0.35 Soil LTAR 16" Trench Bottom with 6" of cover</p>

GRAPHIC SCALE
1" = 40'



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

4-Bedroom Septic Layout
 360 gal/day per Engineered Flow-Reduction
 Lot 10, Cotton Farms Subdivision
 Harnett County, North Carolina

Job#: 4609
Drawn By: JR
Date: 06/14/2023
Revision:

Pressure Manifold
Septic System Design

for

Cotton Farms S/D, Lot 10
Harnett County, North Carolina

Designed by:

James Rice
Central Carolina Soil Consulting, PLLC
Wake Forest, North Carolina

07/08/2023

Cotton Farms S/D, Lot 10
Contact Information

Client: Ken Harvey Homes
Attn: Andy Beard
Street Address: 4909 Unicon Drive, Suite 107
Wake Forest, NC 27587
Phone: 919-999-4150
Email: andy.beard@kenharveyhomes.com

Designer: Central Carolina Soil Consulting, PLLC
Attn: Jason Hall
Designed By: James Rice
Street Address: 1900 South Main Street, Suite 110
Wake Forest, NC 27587
Office Phone: 919-569-6704
Cell Phone: 910-740-3226
Fax: 919-569-5703
Email: jrice@centralcarolinasoil.com

Cotton Farms S/D, Lot 10
Layout/Design Specifications

Facility Type:	Single Family Home
# of Bedrooms:	4
Daily Flow:	360 gal/day per engineered flow-reduction
L.T.A.R.:	0.3 gal/day/sq.ft
Trench Depth:	24 in
Trench Width:	36 in
Stone Depth:	EZ-FLOW in
Manifold Length:	36 in
Manifold Diameter:	4 in sch 80pvc
Supply Line Length:	102 ft
Supply Line Diameter:	2 in sch 40pvc
Supply Line Volume:	17.75 gallons
Friction Loss + Fitting Loss:	3.66 ft(supply line length + 70' for fittings in pump tank)
Design Head:	2 ft
Elevation Head:	12.60 ft
Total Head:	18.26 ft
Dose Volume:	152.49 gals
% of Pipe Vol.	0.68
Drawdown:	7.62 in @ 20.0 gal/in
Pump Run Time:	5.03 Mins
Control Panel:	SJE Rhombus Model112 control panel (or approved equivalent)
Pump:	Zoeller: Model 140 (or approved equivalent)
Septic Tank Effluent Filter:	Polylok PL-68 residential effluent filter (or approved equivalent)
Septic Tank:	Brantley 1,000 Gallon ST
Pump Tank:	Brantley 1,000 Gallon PT

**Cotton Farms, Lot 10
TAP CHART**

Bench Mark	is = 100.00		Location of BM						Elevation Head	12.60
Pump tank elev.	9.5	90.50	Pump elev.	85.10	Manifold elev.				97.70	
line	color	rod read	Elevation	length	hole size	flow/tap	gal/day	trench area	LINE LTAR	
3	Purple	3.30	96.70	110	3/4in SCH 80	10.1	120.00	330	0.3636	
4	Yellow	4.30	95.70	120	3/4in SCH 80	10.1	120.00	360	0.3333	
5	Blue	5.30	94.70	115	3/4in SCH 80	10.1	120.00	345	0.3478	

total feet = 345 gal/min = 30.3 LTAR = 0.3000

LTAR + %5 0.3150

% of Dose Vol.	68	Des. Flow	360	(ltar W/ INOV)	0.6000
Dose Volume	152.49	Pump Run=	11.88	(ltar W/ INOV + 5%)	0.6300
Dose Pump Time	5.03	Tank Gal/IN	20		
Drawdown in Inches	7.62				

**Cotton Farms, Lot 10
T&J Panel Block Repair, TAP CHART**

Bench Mark	is = 100.00		Location of BM						Elevation Head	13.50		
Pump tank elev.	9.5	90.50	Pump elev.	85.10	Manifold elev.				98.60		Spacing of	
line	color	rod read	Elevation	length	hole size	flow/tap	gal/day	trench area	LINE LTAR	# of Panels	Panels (in)	
1	Red	2.40	97.60	70	1/2in SCH 40	7.11	112.81	210	0.5372	16	6.1	
2	Blue	2.90	97.10	85	3/4in SCH 80	10.1	160.25	255	0.6284	20	4.8	
6 & 7	Red/Pink	6.30	93.70	50	1/2in SCH 80	5.48	86.95	150	0.5796	12	3.7	

**total feet = 205 gal/min = 22.69 Total Number of Panels: 48
T&J Panel Block Orientation: Horizontal**

LTAR = 0.3000

LTAR + %5 0.3150

% of Dose Vol.	0	Des. Flow	360	(ltar W/ INOV)	0.6000
Dose Volume	240.00	Pump Run=	15.87	(ltar W/ INOV + 5%)	0.6300
Dose Pump Time	10.58	Tank Gal/IN	20		
Drawdown in Inches	12.00				

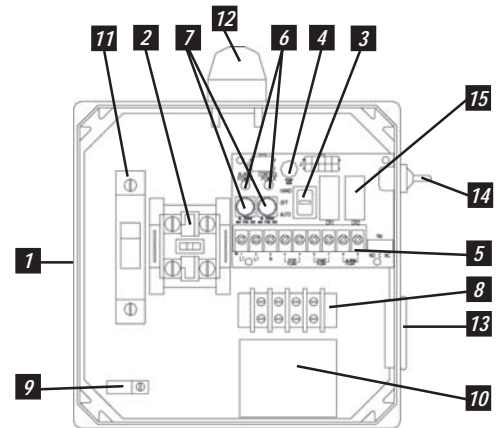
MODEL 112 Control Panel

Single phase, simplex motor contactor control.

The Model 112 control panel provides a reliable means of controlling one 120, 208, or 240 VAC single phase pump in pump chambers, sump pump basins, irrigation systems and lift stations. Two control switches activate a magnetic motor contactor to turn the pump on and off. If an alarm condition occurs, an additional alarm switch activates the audio/visual alarm system.

PANEL COMPONENTS

1. **Enclosure** measures 8 x 8 x 4 inches (20.32 X 20.32 X 10.16 cm). Choice of NEMA 1 (steel for indoor use), or NEMA 4X (ultraviolet stabilized thermoplastic with removable flanges for outdoor or indoor use).
* Options selected may increase enclosure size and change component layout.
2. **Magnetic Motor Contactor** controls pump by switching electrical lines.
3. **HOA Switch** for manual pump control (mounted on circuit board).
4. **Green Pump Run Indicator Light** (mounted on circuit board).
5. **Float Switch Terminal Block** (mounted on circuit board).
6. **Alarm and Control Fuses** (mounted on circuit board).
7. **Alarm and Control Power Indicators** (mounted on circuit board).
8. **Pump Input Power and Pump Connection Terminal Block**
9. **Ground Lug**
10. **Terminal Block Installation Label**
11. **Circuit Breaker** (optional) provides pump disconnect and branch circuit protection.



Model Shown 1121W914X

STANDARD ALARM PACKAGE

12. **Red Alarm Beacon** provides 360° visual check of alarm condition.
Note: NEMA 1 style utilizes a door mounted indicator in lieu of a beacon.
13. **Alarm Horn** provides audio warning of alarm condition (83 to 85 decibel rating).
Note: NEMA 1 style utilizes an internally mounted buzzer in lieu of horn.
14. **Exterior Alarm Test/Normal/Silence Switch** allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition has been cleared.
15. **Horn Silence Relay** (mounted on circuit board).

NOTE: other options available.

FEATURES

- Entire control system (panel and switches) is UL Listed to meet and/or exceed industry safety standards
- Dual safety certification for the United States and Canada
- Standard package includes three 20' Sensor Float® control switches
- Complete with step-by-step installation instructions
- Three-year limited warranty



SJE
Rhombus
CONTROLS

PO Box 1708, Detroit Lakes, MN 56502

1-888-DIAL-SJE • 1-218-847-1317

1-218-847-4617 Fax

email: sje@sjerhombus.com

www.sjerhombus.com

SEE BACKSIDE FOR COMPLETE LISTING OF AVAILABLE OPTIONS.

112 **1** **W** **1** **2** **4** **H** **3A, 8A, 8C, 15A**

MODEL 112

ALARMPACKAGE

- 0 = select options or no alarm package
- 1 = alarm package (includes test/normal/silence switch, fuse, red light, horn & float)

ENCLOSURE RATING

- I = Indoor, NEMA 1 (metal)
- W = Weatherproof, NEMA 4X (engineered thermoplastic)

STARTING DEVICE

- 1 = magnetic motor contactor 120/208/240V
- 9 = magnetic motor contactor 120V only

PUMP FULL LOAD AMPS

- 0 = 0-7 FLA
- 1 = 7-15 FLA
- 2 = 15-20 FLA
- 3 = 20-30 FLA

PUMP DISCONNECTS

- 0 = no pump disconnect
- 1 = pull-out with safety deadfront in a 10"x8" enclosure
- 4 = circuit breaker 120V (select STARTING DEVICE option 9 above)
120/208/240V (select STARTING DEVICE option 1 above)

FLOAT SWITCH APPLICATION

- H or L = pump down or pump up
- X = no floats
- WITH alarm package
- WITHOUT alarm package

OPTIONS *Listed below*



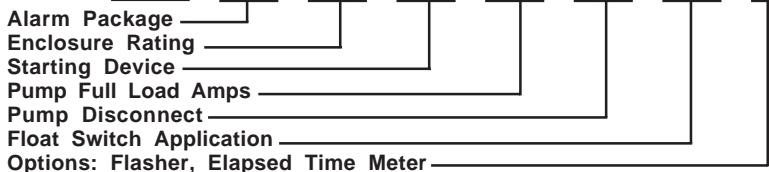
ENCLOSURE UPSIZE - If you selected 3 or more of the ★ options, or one ★★ option, a one-time enclosure upsize fee would apply.

If additional features are required, call the factory for a quote on either a SJE-Rhombus Pro-Line or Engineered Custom control panel.

CODE	DESCRIPTION	CODE	DESCRIPTION
<input type="checkbox"/>	1A Red beacon only / no audio <i>(must select 1E if floats included)</i>	<input type="checkbox"/>	11C NEMA 1 alarm panel <i>must select option 6A</i>
<input type="checkbox"/>	1C Horn only / no visual <i>(must select 1E if floats included)</i>	<input type="checkbox"/>	11D NEMA 4X alarm panel <i>must select option 6A</i>
<input type="checkbox"/>	1E Alarm float	<input checked="" type="checkbox"/>	★14B Main disconnect (rotary style, mounted through door) non-fused
<input checked="" type="checkbox"/>	3A Alarm flasher	★★ <input type="checkbox"/>	0-20 FLA (total of both pumps)
<input type="checkbox"/>	★ 3B Manual alarm reset	★★ <input type="checkbox"/>	20-30 FLA (total of both pumps)
<input type="checkbox"/>	★ 4A Low level cutout <i>(select option 4D if floats included)</i>	<input checked="" type="checkbox"/>	15A Control / alarm circuit breaker <i>Does not include the circuit board as in standard.</i>
<input type="checkbox"/>	★ 4B Red low-level indicator & alarm <i>(must select 4A also)</i>	<input type="checkbox"/>	16A 10' cord in lieu of 20' <i>(per float)</i>
<input type="checkbox"/>	4D Low-level float	<input type="checkbox"/>	16B 15' cord in lieu of 20' <i>(per float)</i>
<input type="checkbox"/>	★ 5A Thermal cutout/heat sensor auto reset (for pumps w/thermal switch leads)	<input type="checkbox"/>	16C 30' cord in lieu of 20' <i>(per float)</i>
<input type="checkbox"/>	★★5E Seal failure circuit & red indicator (2 wire)	<input type="checkbox"/>	16D 40' cord in lieu of 20' <i>(per float)</i>
<input type="checkbox"/>	6A Auxiliary alarm contact, form C type	<input type="checkbox"/>	17A SJE SignalMaster® / mounting strap ● <i>(per float)</i>
<input checked="" type="checkbox"/>	★ 8A Elapsed time meter	<input type="checkbox"/>	17B SJE SignalMaster® / externally weighted ● <i>(per float)</i>
<input checked="" type="checkbox"/>	★ 8C Event (cycle) counter	<input type="checkbox"/>	17C Sensor Float® / internally weighted ▲ <i>(per float)</i>
<input type="checkbox"/>	★★9_A Pump overload specify amperage after number 9 followed by letter "A". Example: 912A = 12 amp pump.	<input type="checkbox"/>	17D Sensor Float® / externally weighted ▲ <i>(per float)</i>
★★ <input type="checkbox"/>	0-25 FLA	<input type="checkbox"/>	17E Sensor Float® Mini / pipe clamp ▲ <i>(per float)</i>
★★ <input type="checkbox"/>	25-30 FLA	<input type="checkbox"/>	17F Sensor Float® Mini / externally weighted ▲ <i>(per float)</i>
<input type="checkbox"/>	10E Lockable latch - NEMA 4X	<input type="checkbox"/>	19T TOA (Test/Off/Automatic) switch and pump run light through door mounted
<input type="checkbox"/>	10E Lockable latch - NEMA 1	<input type="checkbox"/>	19U HOA (Hand/Off/Automatic) switch and pump run light through door mounted
<input type="checkbox"/>	★10F Lightning arrester	<input type="checkbox"/>	19X Door mounted pump run indicator
<input type="checkbox"/>	★10K Anti-condensation heater	<input type="checkbox"/>	21A SJE PumpMaster® in lieu of on/off switches ●
		<input type="checkbox"/>	21B SJE PumpMaster® Plus in lieu of on/off switches ●
		<input type="checkbox"/>	21C Super Single® in lieu of on/off switches ●
		<input type="checkbox"/>	21D Double Float® in lieu of on/off switches ▲
			● Mechanically-activated ▲ Mercury-activated

SAMPLE

MODEL **112** **1** **W** **9** **1** **4** **H** **3A 8A**



Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



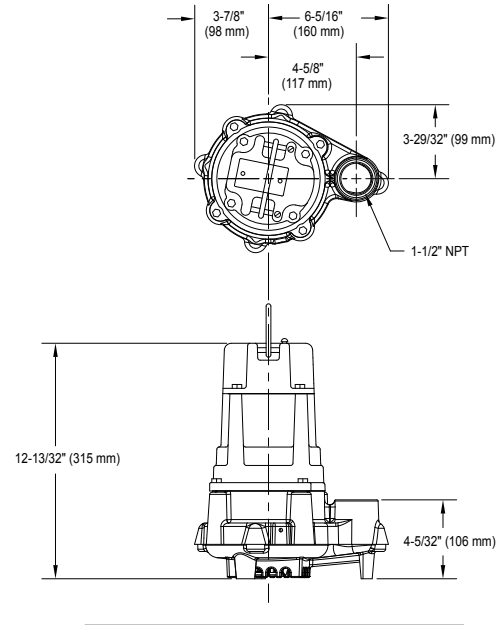
TECHNICAL DATA SHEET FLOW-MATE SERIES

Models 140/4140, 145/4145 Effluent / Dewatering Pumps

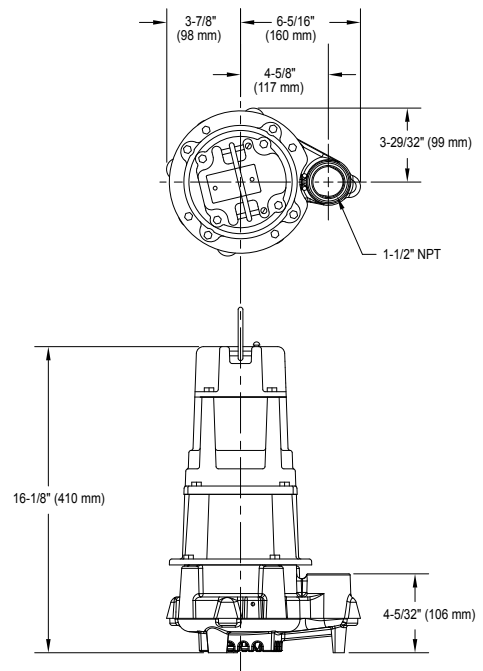
PRODUCT SPECIFICATIONS

MOTOR	Horse Power	3/4 - 1
	Voltage	115 or 230
	Phase	1 Ph
	Hertz	60 Hz
	RPM	3450
	Type	Permanent split capacitor
	Insulation	Class B
	Amps	6.0 - 13.0
PUMP	Operation	Automatic or nonautomatic
	Discharge Size	1-1/2" NPT
	Solids Handling	1/2" (12 mm), 3/4" (19 mm) spherical solids
	Cord Length	20' (6 m)
	Cord Type	UL listed, neoprene cord
	Max. Head	50' (15.2 m) or 74' (22.6 m)
	Max. Flow Rate	86 GPM (326 LPM) or 61 GPM (232 LPM)
	Max. Operating Temp.	130 °F (54 °C)
	Cooling	Oil filled
	Motor Protection	Auto reset thermal overload
MATERIALS	Cap	Cast iron
	Motor Housing	Cast iron
	Pump Housing	Cast iron
	Base	Cast iron
	Upper Bearing	Sleeve bearing
	Lower Bearing	Ball bearing
	Mechanical Seals	Carbon and ceramic
	Impeller Type	Single vane (145) or non-clogging vortex (140)
	Impeller	Engineered thermoplastic
	Hardware	Stainless steel
	Motor Shaft	JIS S45C steel
	Gasket	Neoprene

SINGLE SEAL



DOUBLE SEAL



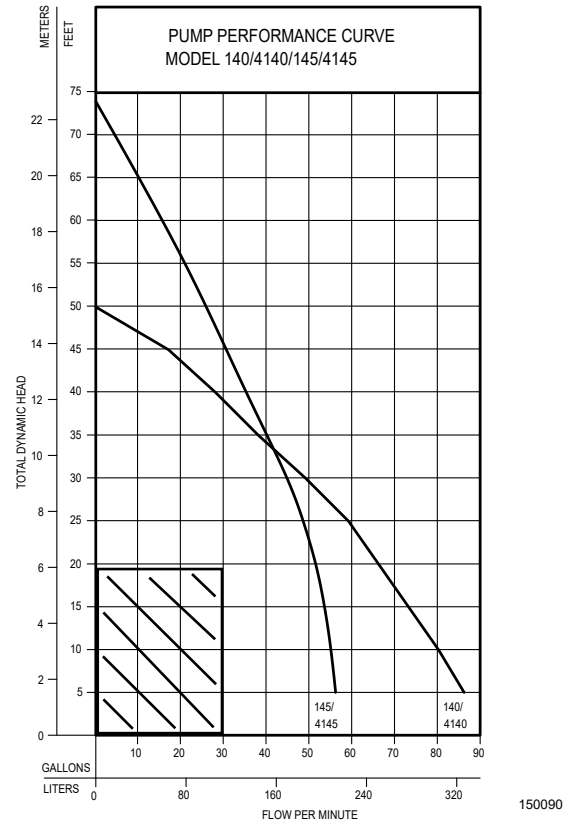
SK1524

NOTE: See model comparison chart for specific details.



TOTAL DYNAMIC HEAD FLOW PER MINUTE

MODEL		140/4140		145/4145	
Feet	Meters	Gal.	Liters	Gal.	Liters
5	1.5	86	326	56	212
10	3.0	80	303	55	208
15	4.6	73	276	53	200
20	6.1	66	250	51	193
25	7.6	59	223	48	182
30	9.1	49	185	45	170
40	12.2	28	106	35	132
50	15.2	--	--	26	98
60	18.3	--	--	16	61



Model	MODEL COMPARISON										
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex
N140	Single	Non	115	1	12.0	1	60	46	21	1 or 2	3
E140	Single	Non	230	1	6.0	1	60	46	21	1 or 2	3
BN140	Single	Auto	115	1	12.0	1	60	47	21	*	---
BE140	Single	Auto	230	1	6.0	1	60	47	21	*	---
E145	Single	Non	230	1	6.0	3/4	60	46	21	1 or 2	3
N145	Single	Non	115	1	13.0	3/4	60	46	21	1 or 2	3
BN145	Single	Auto	115	1	13.0	3/4	60	48	22	*	---
N4140	Double	Non	115	1	12.0	1	60	65	29	*	---
E4140	Double	Non	230	1	6.0	1	60	65	29	1 or 2	3
BN4140	Double	Auto	115	1	12.0	1	60	66	30	*	---
BE4140	Double	Auto	230	1	6.0	1	60	66	30	*	---
N4145	Double	Non	115	1	13.0	3/4	60	64	29	1 or 2	3
BN4145	Double	Auto	115	1	13.0	3/4	60	64	29	*	---

* Single piggyback switch included.

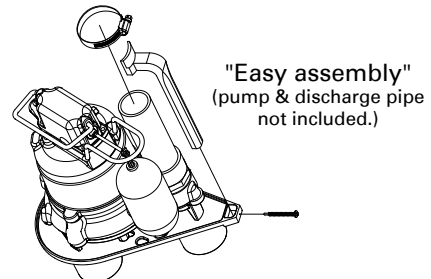
BN and BE models include a 20' (6 m) piggyback variable level pump switch. Additional cord lengths are available in 15' (5 m), 25' (8 m), 35' (11 m) and 50' (15 m). 50' (15 m) cord length is for 230 V only.

SELECTION GUIDE

- For automatic, use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
- See FM1228 for correct model of simplex control panel.
- See FM0712 for correct model of duplex control panel.

OPTIONAL PUMP STAND P/N 10-2421

- Reduces potential clogging by debris
 - Replaces rocks or bricks under the pump
 - Made of durable, noncorrosive ABS
 - Raises pump 2" (5 cm) off bottom of basin
 - Provides the ability to raise intake by adding sections of 1-1/2" or 2" (DN40 or DN50) PVC piping
 - Attaches securely to pump
 - Accommodates sump, dewatering and effluent applications
- NOTE: Make sure float is free from obstruction.



CAUTION

All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

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502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpump.com

PL-68 Filter and Tee

PL-68 is much more than just an effluent filter. The housing can also be used as an inlet baffle (tee) or an outlet baffle. The housing is designed to accept Polylok’s snap in gas deflector to deflect gas bubbles away from the tee and to keep the solids in the tank.

Features:

- Offers 68 linear feet of 1/16” filter slots, which significantly extends time between cleaning.
- Accepts 3/4” PVC handle.
- Locks in any 360° position when used with PL-68 Tee.
- PL-68 Housing can be used as an inlet or outlet tee.
- Gasket prevents bypass.

PL-68 Installation:

Ideal for residential waste flows up to 800 gallons per day (GPD). Easily installs in any new or existing 4" outlet tee.

1. Locate the outlet of the septic tank.
2. Remove the tank cover and pump tank if necessary.
3. Glue the filter housing to the outlet pipe, or use a Polylok Extend & Lok if not enough pipe exists.
4. Insert the PL-68 filter into tee.
5. Replace and secure the septic tank cover.

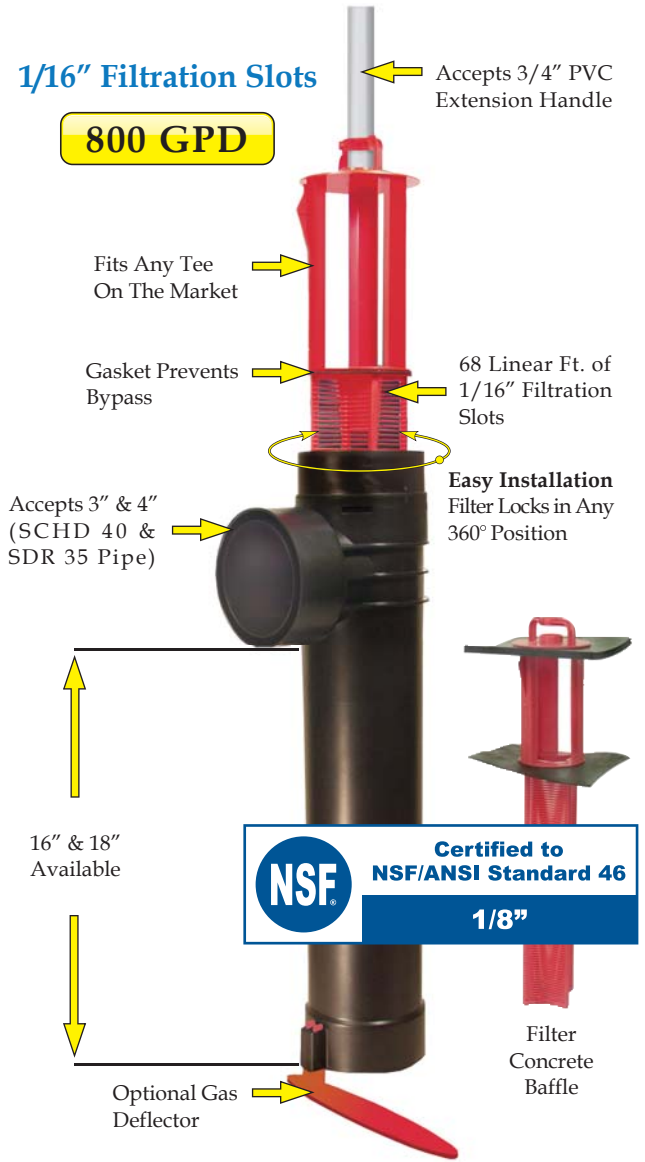
PL-68 Maintenance:

The PL-68 Effluent Filter will operate efficiently for several years under normal conditions before requiring cleaning. It is recommended that the filter be cleaned every time the tank is pumped, or at least every three years.

1. Do not use plumbing when filter is removed.
2. Pull PL-68 out of the tee.
3. Hose off filter over the septic tank. Make sure all solids fall back into septic tank.
4. Insert filter back into tee/housing.

Related Products:

PL-68 Filter Concrete Baffle
 Extend & Lok™



Extend & Lok™
 Easily installs into existing tanks.



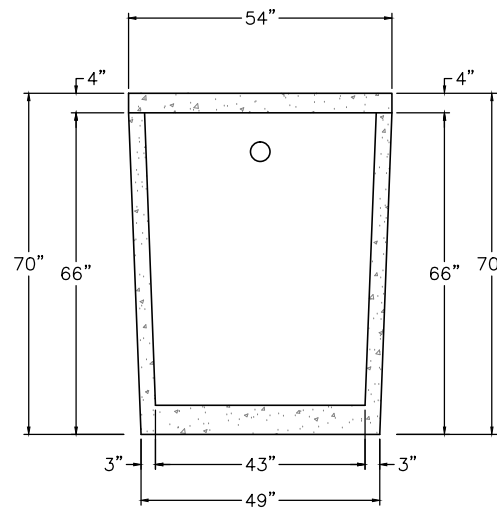
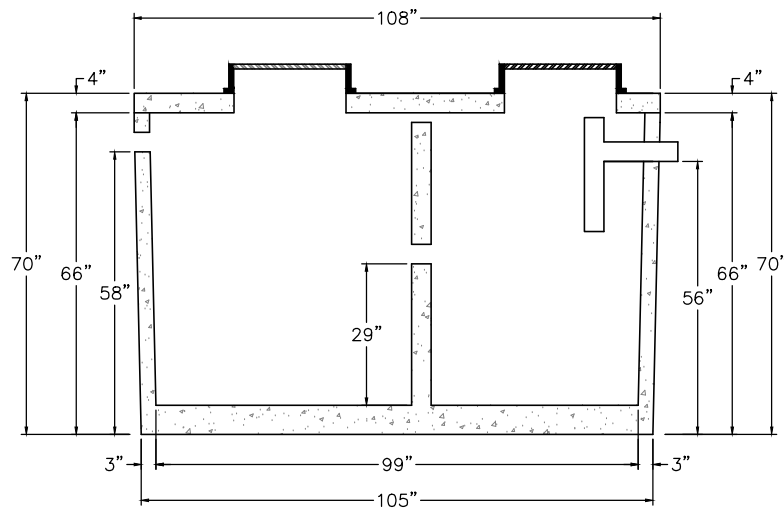
Spacer Bushing
 4" SCHD 40 to SDR 35



Spacer Bushing
 4" SCHD 40 to 110mm Pipe



2" Extender



1,000 ST 502
NTS

NON TRAFFIC BEARING

DAVID BRANTLEY & SONS
37 Pine Ridge Rd.
Zebulon, NC 27597
Office 252-478-3721
Fax 919-573-0443
1n1staller@gmail.com

PREPARED FOR : David Brantley & Sons
37 Pine Ridge Rd.
Zebulon, NC 27597

DATE : April 11, 2014

CONTACT:
CORY BRANTLEY

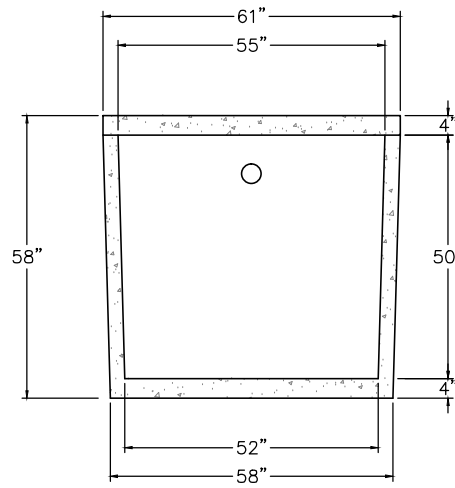
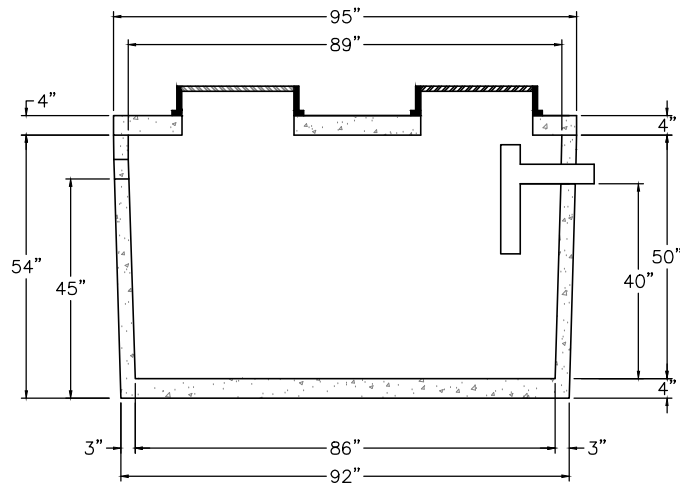
REVISION NO.
Original Submitted

Revision 1
Revision 2
Revision 3
Master Set

DATE
April 11, 2014

BRANTLEY TASK MODEL
1,000 ST 502

SHEET NUMBER
1 of 1



1,000 PT 237
NTS

NON TRAFFIC BEARING

DAVID BRANTLEY & SONS
37 Pine Ridge Rd.
Zebulon, NC 27597
Office 252-478-3721
Fax 919-573-0443
installer@gmail.com

PREPARED FOR : David Brantley & Sons
37 Pine Ridge Rd.
Zebulon, NC 27597

DATE : April 11, 2014

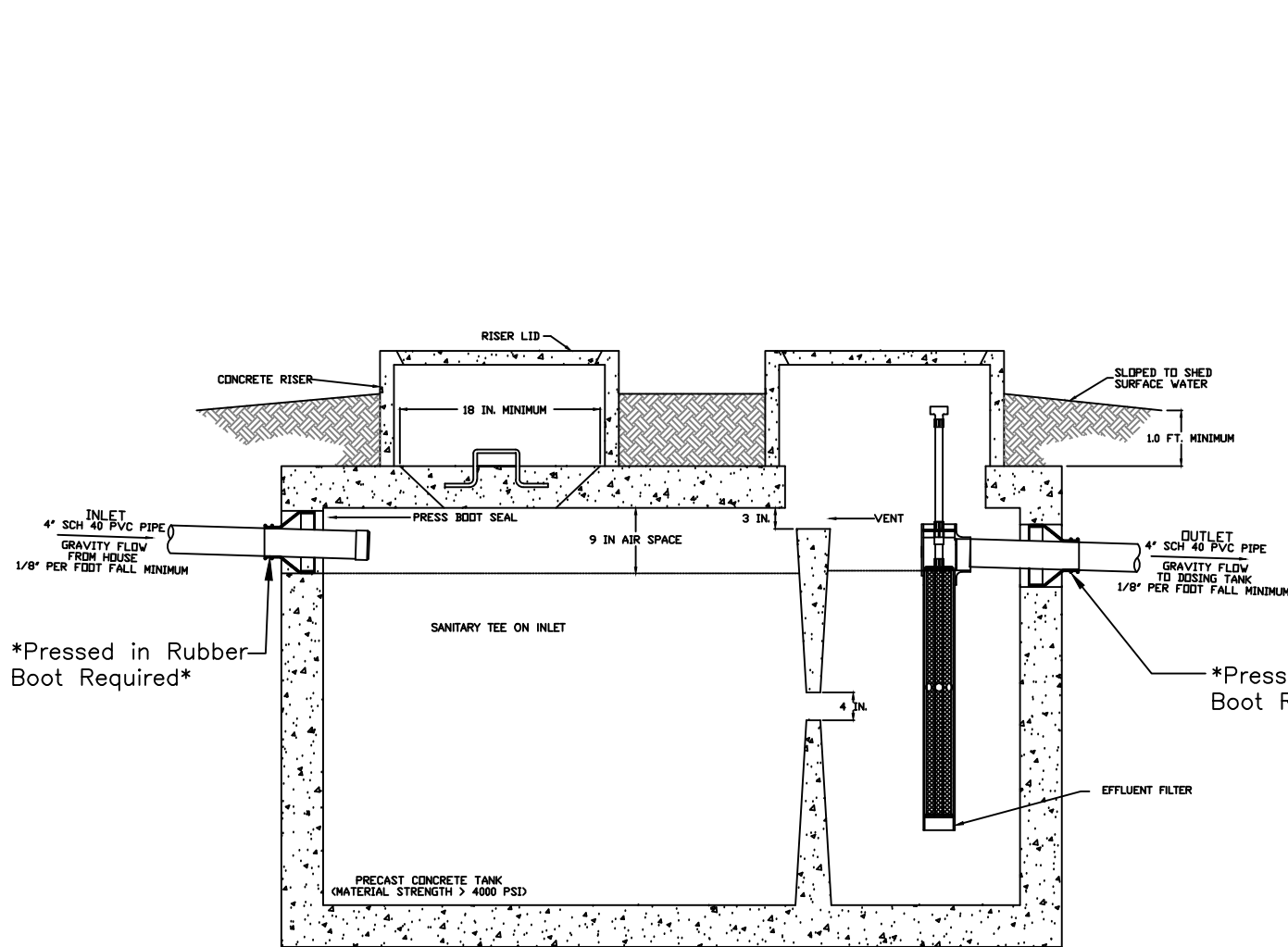
CONTRACT:
COPY BRANTLEY

REVISION NO.
Original Submittal
Revision 1
Revision 2
Revision 3
Master Set

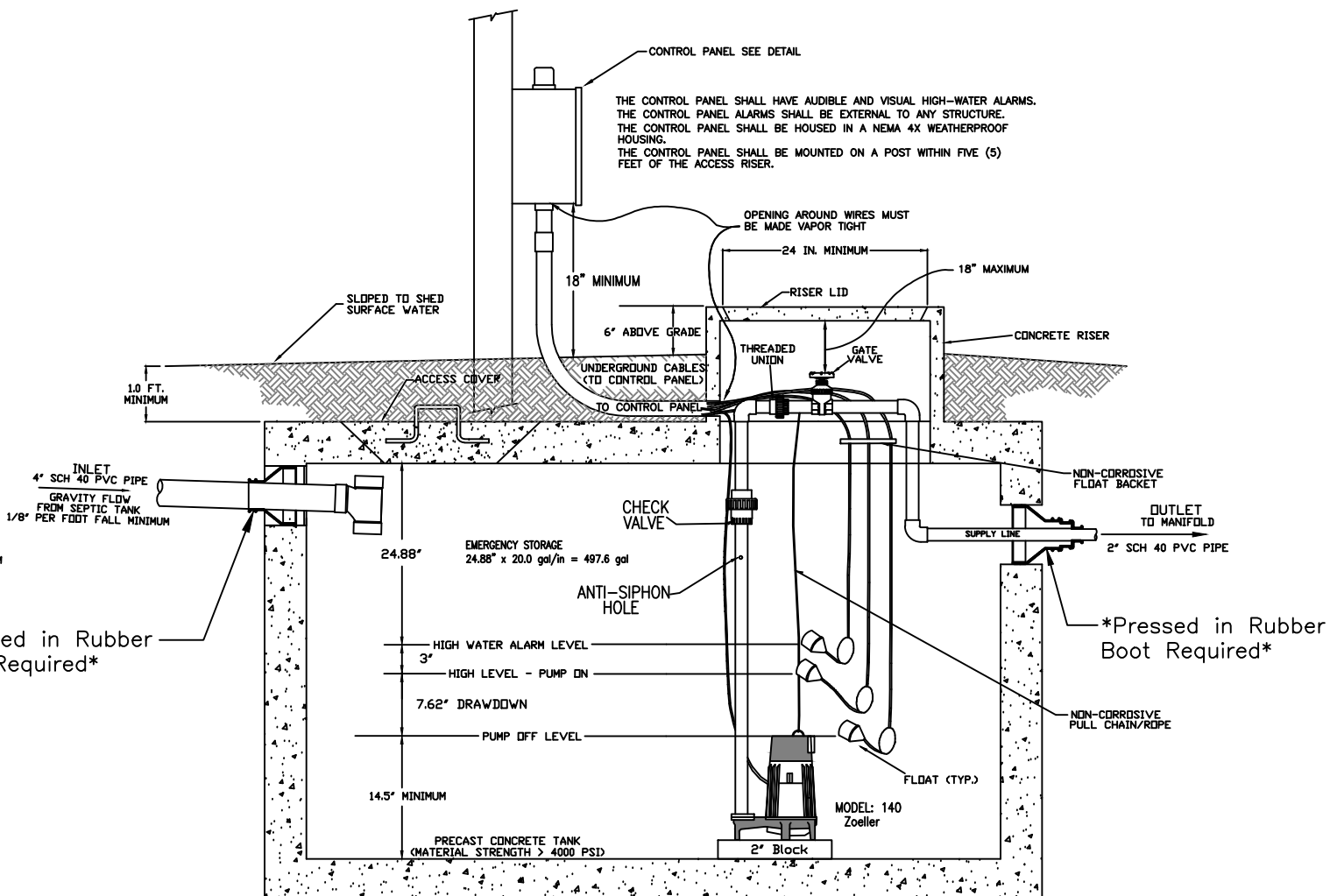
DATE
April 11, 2014

BRANTLEY TANK MODEL
1,000 PT 237

SHEET NUMBER
1 of 1



1000 GAL SEPTIC TANK SCHEMATIC
NOT TO SCALE



1000 GAL PUMP TANK SCHEMATIC
NOT TO SCALE

- NOTES
1. ALL TANKS SHALL BE LEAK TESTED SUCH THAT EXFILTRATION OCCURS AT A RATE WHICH DOES NOT EXCEED TEN GALLONS PER TWENTY-FOUR HOURS PER 1,000 GALLONS OF TANK CAPACITY
 2. ALL TANKS SHALL REST ON A BED OF #57 WASHED GRAVEL. THE MINIMUM THICKNESS OF THE GRAVEL BED IS 6 INCHES.
 3. ALL TANKS MUST BE APPROVED FOR USE BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL HEALTH (DEH).
 4. INVERTS SHOWN ARE APPROXIMATE. THE INSTALLER SHALL FIELD CONFIRM PRIOR TO CONSTRUCTION.
 5. ALL HARDWARE INSTALLED INSIDE OF TANKS SHALL BE OF STAINLESS STEEL.
 6. TANK DIMENSIONS VARY BY MANUFACTURER.
 7. DRAWDOWN WILL VARY WITH TANK DIMENSIONS.
 8. NO ELECTRICAL SPLICES SHALL BE MADE INSIDE THE PUMP TANK.

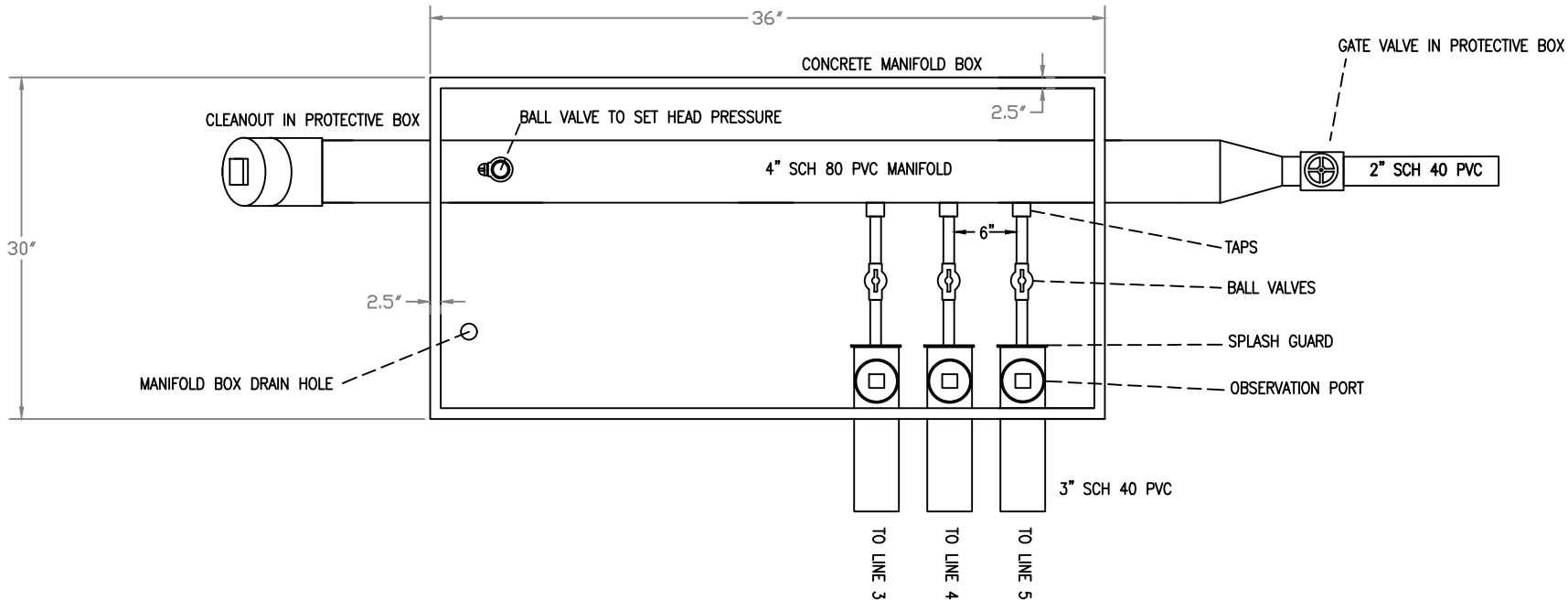


Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110
Wake Forest, North Carolina 27587
Phone (919)569-6704 Fax (919)569-6703

Septic and Pump Tank Details
Cotton Farms S/D, Lot 10
Harnett County, North Carolina

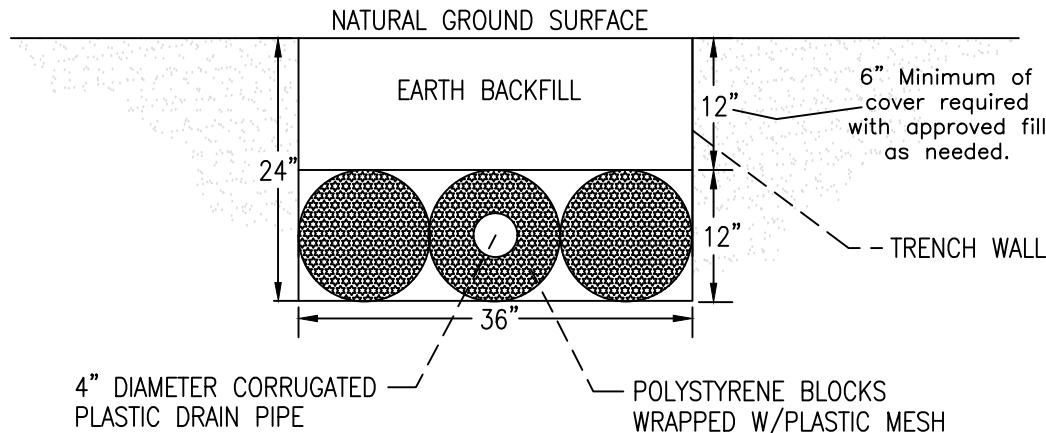
Job#: 4610
Drawn By: JR
Date: 07/08/2023

PRESSURE MANIFOLD DETAILS TOP VIEW

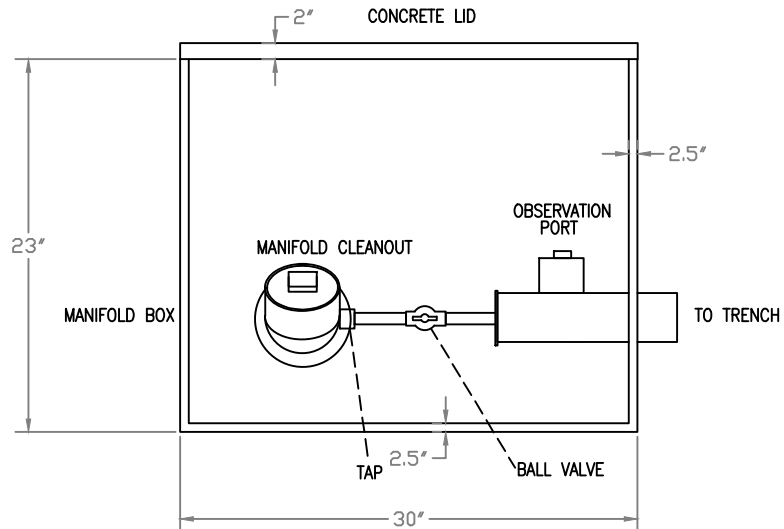


EZ-FLOW DETAILS

Example only: Installed trench bottom should match design.



PRESSURE MANIFOLD DETAILS END VIEW



TAP SCHEDULE	
LINE #	TAP
3	3/4" SCH 80
4	3/4" SCH 80
5	3/4" SCH 80

- NOTE :
- EZ-FLOW INSTALLATION SHALL MEET THE REQUIREMENTS INCLUDED IN ITS INNOVATIVE APPROVAL
 - TRENCH BOTTOM SHALL BE AT LEAST 12" FROM ANY RESTRICTIVE SOIL LAYER
 - END CAP SHALL BE PROVIDED AT END OF ALL CORRUGATED PLASTIC PIPE LINES AND TRENCH BOTTOMS SHALL BE LEVEL
 - THIS IS A GENERIC TRENCH PROFILE SEE COUNTY PERMIT FOR TRENCH DEPTH.



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

Manifold and Trench Details
 Cotton Farms S/D, Lot 10
 Harnett County, North Carolina

Job#: 4610
 Drawn By: JR
 Date: 07/08/2023



Bateman Civil Survey Company, PC

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

July 2, 2023

Harnett County Staff
Harnett County Environmental Health Department
307 Cornelius Harnett Blvd, Lillington, NC 27546

RE: Wastewater Daily Flow Calculations

Cotton Farms Lot 10
218 Hook Drive, Fuquay-Varina, Harnett County, North Carolina
Project #4610

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 10 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 10. 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 37% 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.

DocuSigned by:

Thomas Speight, Jr, P.E, PLS

09838E23DC404AD...

Thomas Speight, P.E
(seal)



7/10/2023

Cotton Farms Lot 10

	Item		Gal/min. or flush	Number of Fixures	Base Flow From 1982	Percent Water Savings
Kitchen	Pot Filler	Moen S665	1.5 gal/minute	1	3.0 gal/minute	50%
	Kitchen Faucet	Moen 5923	5.5 gal/minute	1	5.5 gal/minute	0%
Laundry	Laundry Faucet	Moen 4736	4.0 gal/minute	1	4.0 gal/minute	0%
Bath 2	Lavatory Faucet	Moen T6142	1.2 gal/minute	1	3.0 gal/minute	60%
	Shower Head	Moen T2903EP	1.8 gal/minute	1	5.5 gal/minute	67%
Bath 3	Lavatory Faucet	Moen 6150	1.2 gal/minute	1	3.0 gal/minute	60%
	Shower Head	Moen T2903EP	1.8 gal/minute	1	5.5 gal/minute	67%
Bath 4	Lavatory Faucet	Moen 6150	1.2 gal/minute	1	3.0 gal/minute	60%
	Shower Head	Moen T2903EP	1.8 gal/minute	1	5.5 gal/minute	67%
Master Bath	Lavatory Faucet	Moen T6708	1.2 gal/minute	2	3.0 gal/minute	60%
	Shower Head	Moen T2472EP	1.8 gal/minute	1	5.5 gal/minute	67%
	Tub Faucet	Moen UT2903	Fill & Release	1	Fill & Release	0%
Toilets	Master, 2, 3, 4	Alto 3173	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 (480 BASE)	115	96	96	58	14	14	10	77	480
PERCENT OF SAVINGS FROM WATER SAVING FIXURES	63%	44% avg	67%	0%	0%	0%	0%	0%	37%
ADJUSTED FLOW (GALLONS)	43	54	32	58	14	14	10	77	302

MOEN®

Specifications

DESCRIPTION

- Metal construction with various finishes identified by suffix
- 1/2" IPS connection

OPERATION

- Flow levers operate counterclockwise through 180 degree arc with shut off at 6 o'clock and maximum flow at the 12 o'clock position. Shut off in clockwise direction


FLOW

- 5.5 gpm @ 60 psi

CARTRIDGE

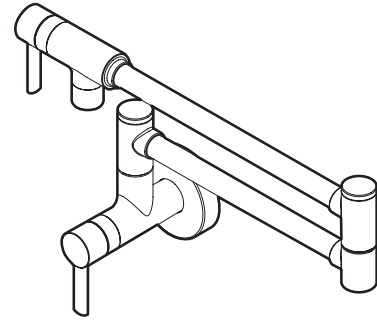
- 1224 cartridge design
- Nonmetallic and stainless steel materials

STANDARDS

- Third party certified to ASME A112.18.1/CSA B125.1 and all applicable requirements therein including NSF 61/9
- Contains no more than 0.25% weighted average lead content
- Complies with California Proposition 65 and with the Federal Safe Drinking Water Act
- **ADA**  for lever handle

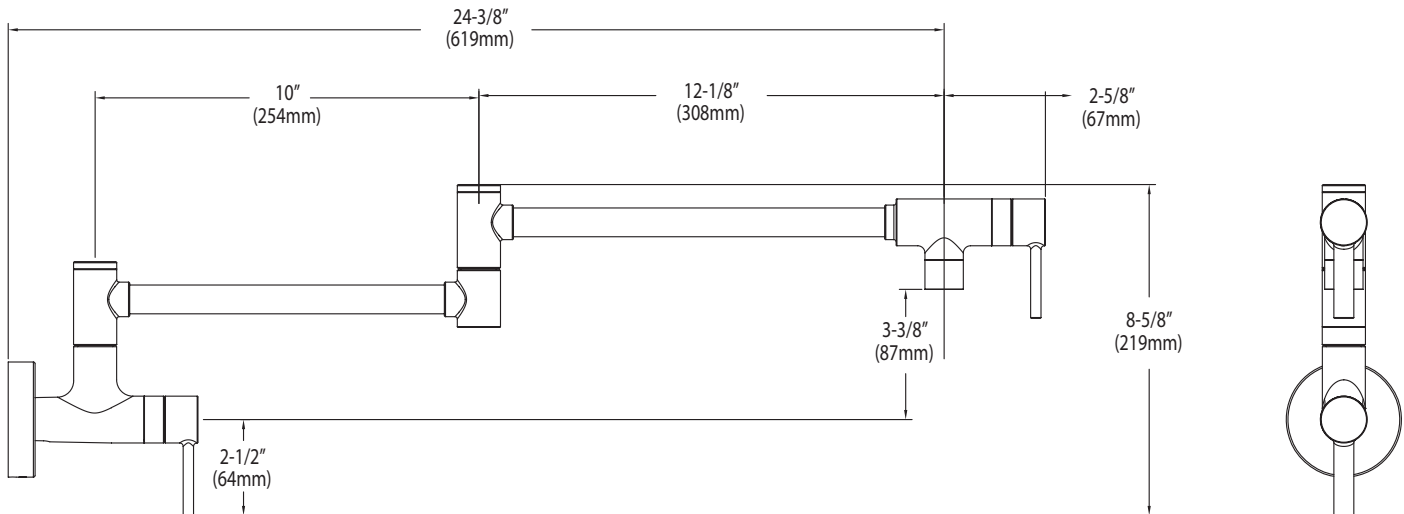
WARRANTY

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



Pot-Filler Faucet

Models: S665 series



CRITICAL DIMENSIONS

(DO NOT SCALE)

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

www.moen.com

MOEN®

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

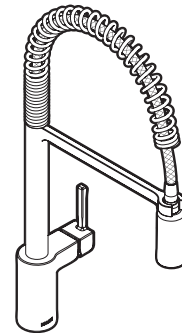
STANDARDS

- 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

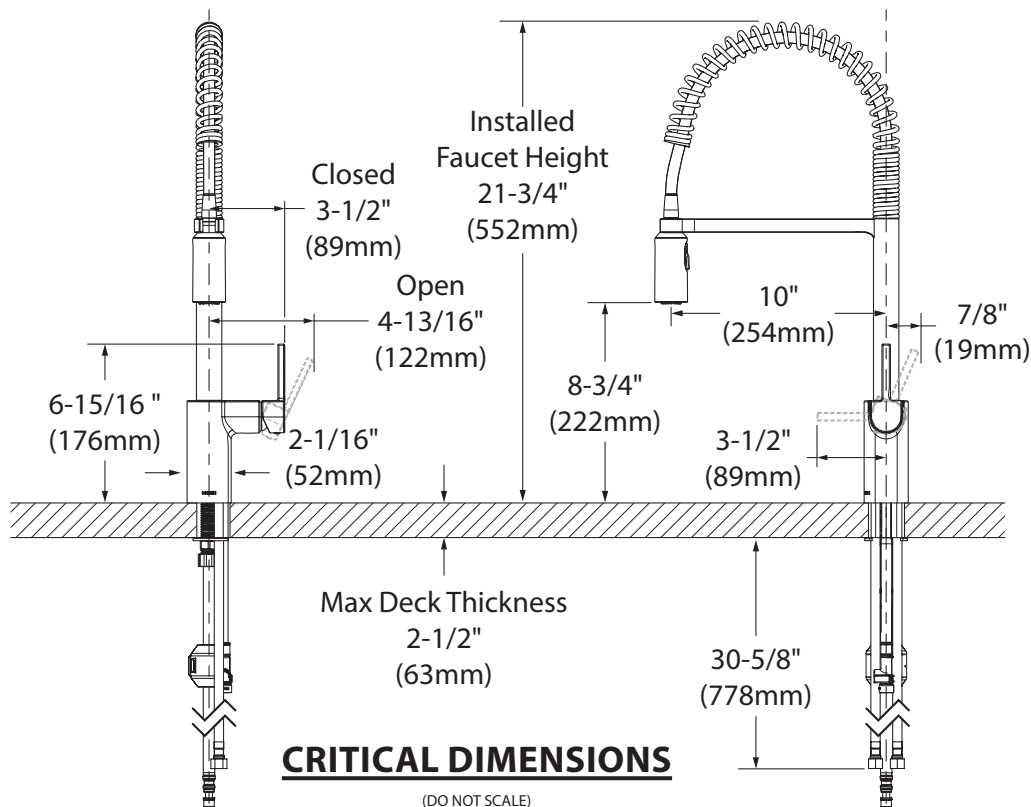
Visit www.moen.com/support for complete details and limitations



Align™ Single Handle Pre-Rinse Spring Pulldown Kitchen Faucet

Models: 5923 series

NOTE: this faucet is designed to be installed through 1 hole, 1-1/2" (38mm) min. dia. (optional 3-hole escutcheon 141002 available)



MOEN®

Specifications

DESCRIPTION

- Chrome plated surface
- 3/8" compression fittings
- Flexible supply lines

OPERATION

- Lever style handle
- Controlled through 90° arc of handle travel

FLOW

- Flow rate is 4.0 gpm

CARTRIDGE

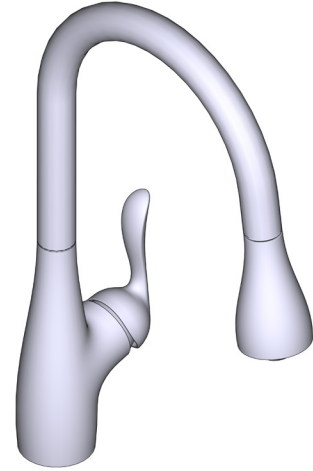
- 35mm ceramic cartridge

STANDARDS

- Third party certified to ASME A112.18.1/CSA B125.1 and all applicable requirements referenced therein
- ADA for lever handle

WARRANTY

- 5 year limited warranty against leaks, drips and finish defects to the original homeowner
- 5 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



Moen®

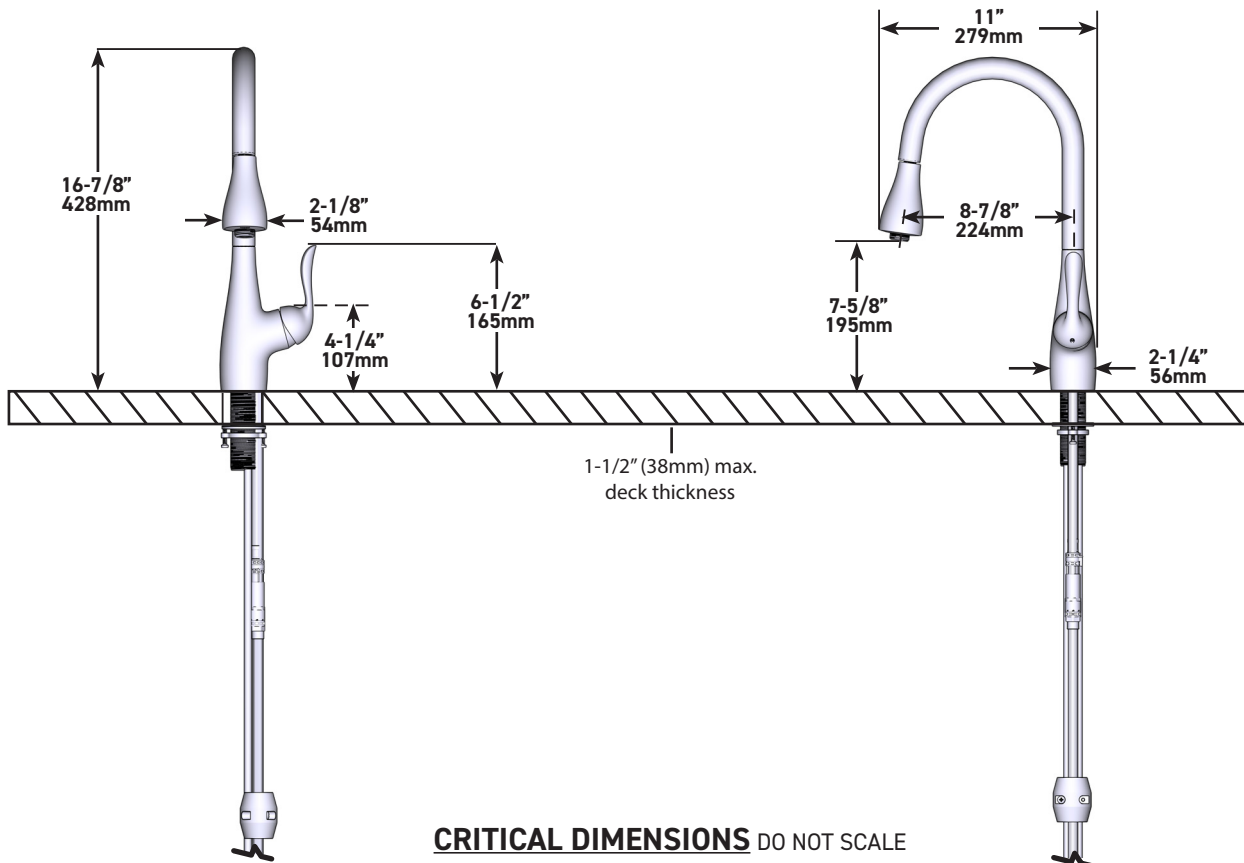
Laundry Faucet

MODEL: 4736

NOTE:

This faucet is designed to be installed through 1-1/4" (32mm) min - 1-1/2" (38mm) max dia. hole.

ADA 



MOEN®

Specifications

DESCRIPTION

- Metal construction with various finishes identifiable by suffix
- 1/2" IPS connections
- Hot and cold temperature indicators available
- Includes metal pop-up waste assembly

OPERATION

- Lever style handles
- 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

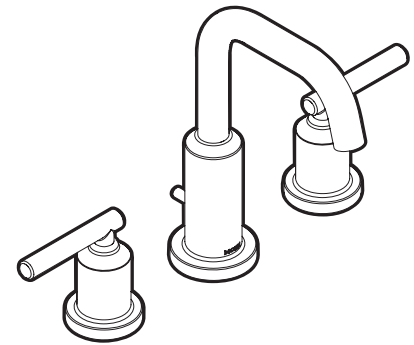
- 1234 cartridge design
- Nonmetallic, nonferrous and stainless steel material

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
- Complies with California Proposition 65 and with the Federal Safe Drinking Water Act
- ADA ♿ for lever handles

WARRANTY

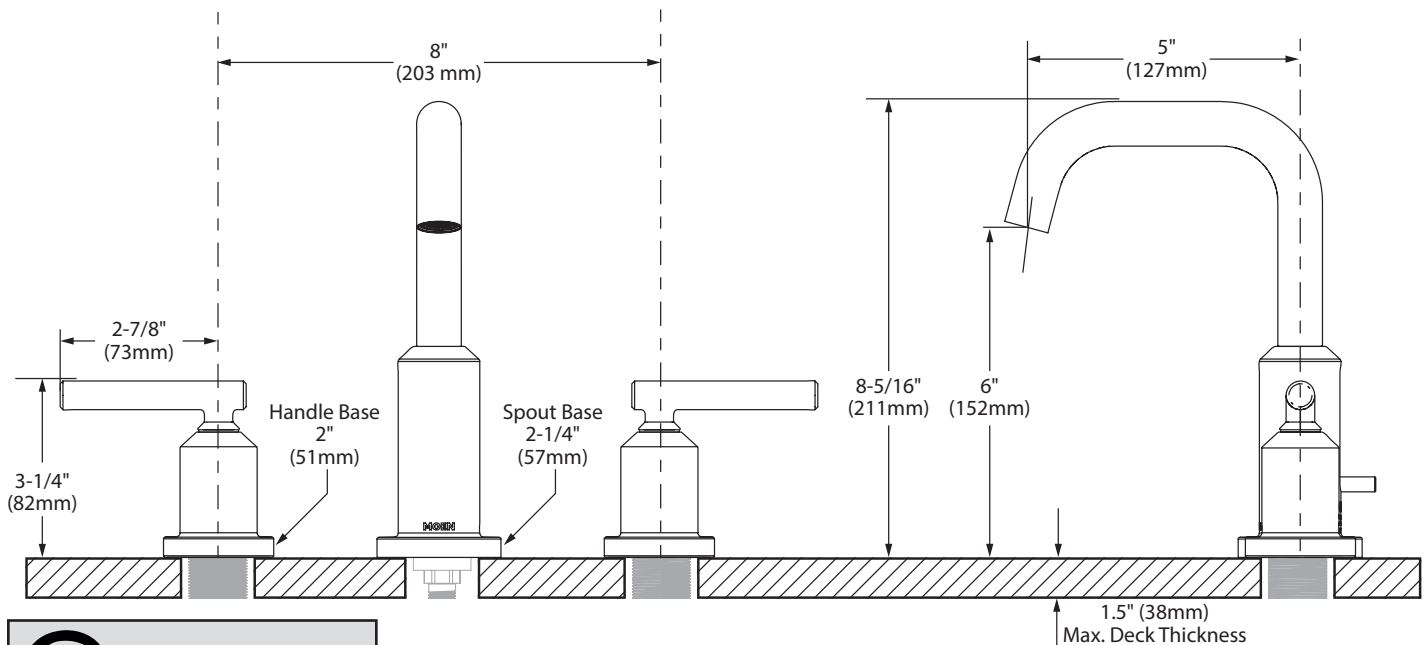
- Lifetime limited warranty against leaks, drips and finish defects to the original homeowner
 - 10 year limited warranty when used in a multifamily installation
 - 5 year limited warranty when used in a commercial installation
- Visit www.moen.com/support for complete details and limitations



Gibson™
Two-Handle Widespread
Lavatory Faucet

Models: T6142 series
Valve: 9000, 69000

NOTE: THIS FAUCET IS DESIGNED TO BE INSTALLED THROUGH 3 HOLES, 1-1/8" MIN. DIA.



CRITICAL DIMENSIONS

(DO NOT SCALE)



Buy it for looks. Buy it for life.®

DESCRIPTION

- Metal construction with chrome finish
- 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 1.75 gpm (6.6 L/min) at 80 psi
- NH suffix models contain no showerhead

CARTRIDGE

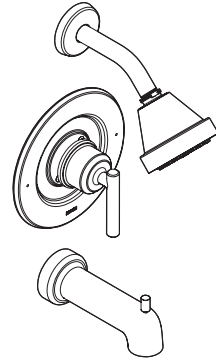
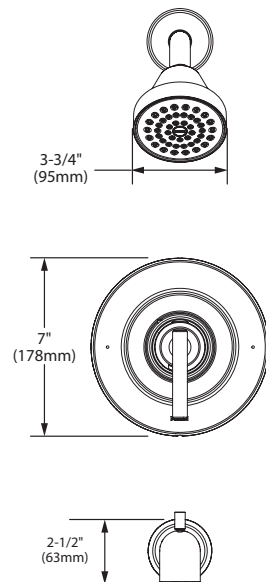
- 1222 cartridge design
- Accommodates back to back installations
- Nonmetallic, nonferrous and stainless steel material

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

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

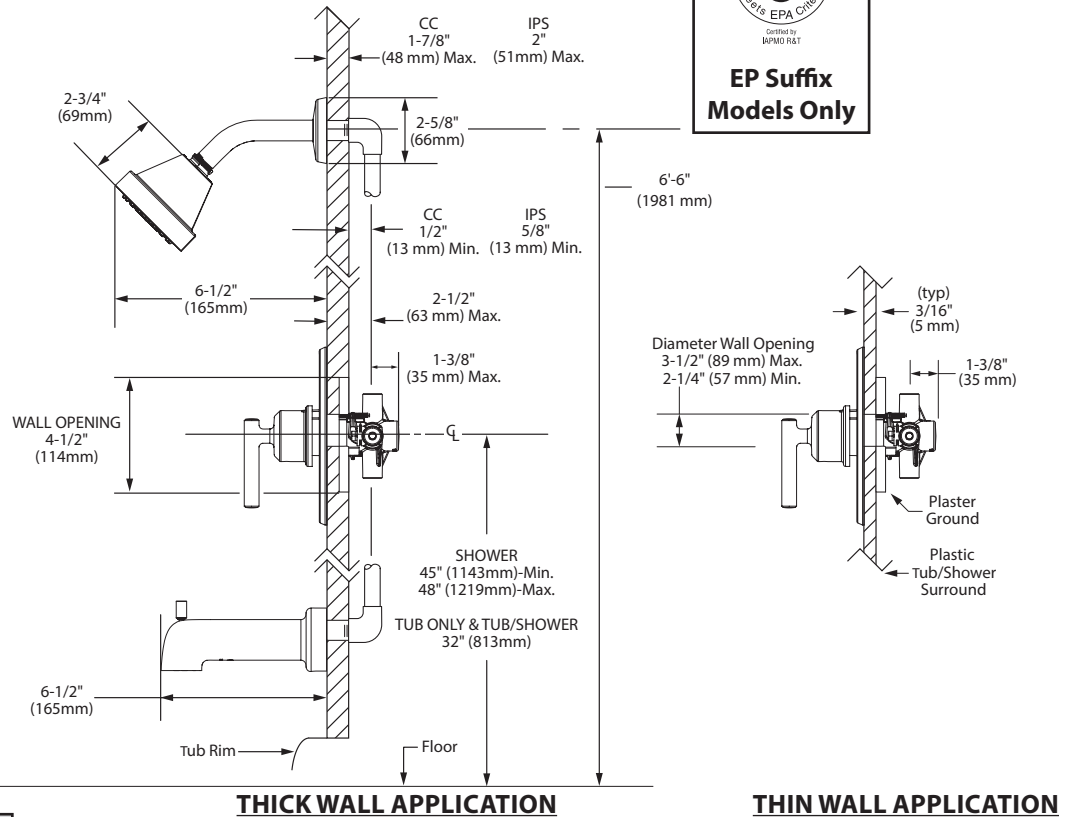
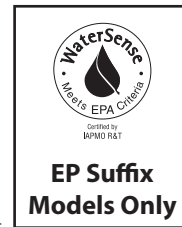


Gibson™

Single-Handle Tub/Shower Trim Kit

Models: T2901 series - valve trim only
T2902 series - shower trim only
T2903 series - tub/shower trim

Valves: 62300 series
2500 series



CRITICAL DIMENSIONS

(DO NOT SCALE)

MOEN®

Specifications

DESCRIPTION

- Metal construction with chrome plated finish
- ½" IPS connections will accept standard ball nose connection for 3/8" tubing
- 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)
- Rotating spout

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 Duralast® cartridge
- Nonmetallic and stainless steel material

STANDARDS

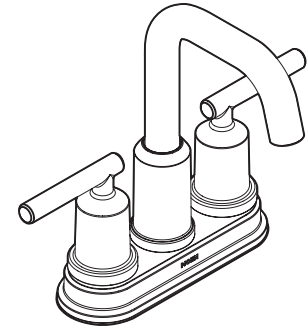
- Third party certified at WaterSense®, ASME A112.18.1/CSA B125.1, and all applicable requirements referenced therein including NSF 61/9 & 372
- Products marked with 1.2 gpm are compliant with California water efficiency regulations
- Complies with California Proposition 65 and with the Federal Safe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

WARRANTY

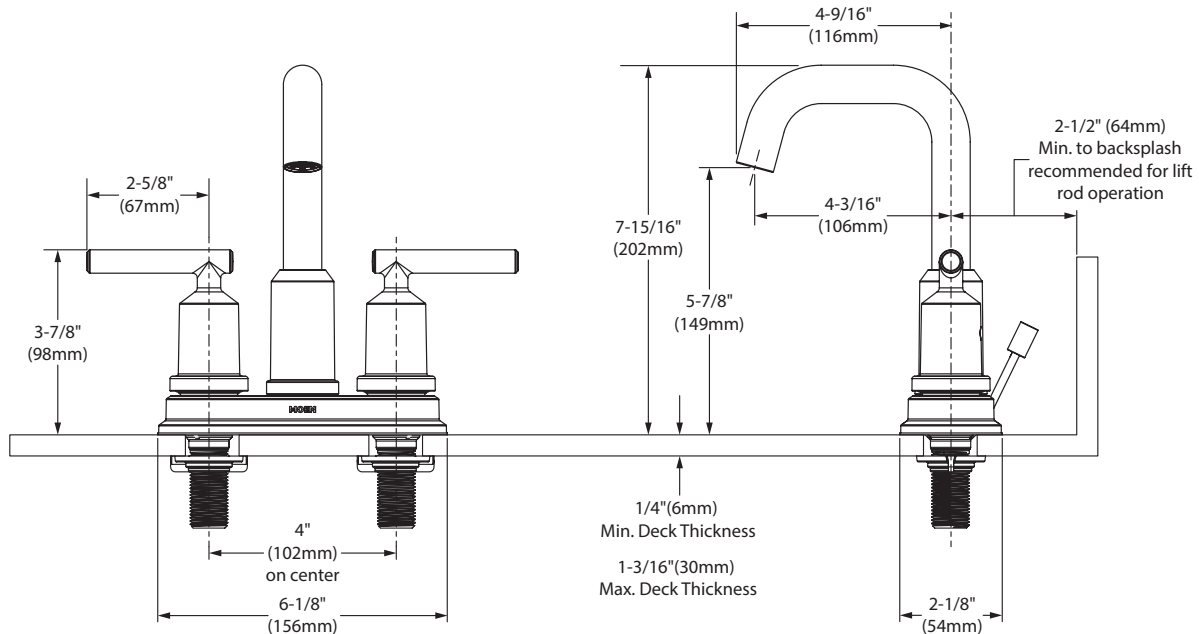
- Limited lifetime warranty against leaks, drips and finish defects to the original homeowner
- 10 year warranty when used in a multifamily installation
- 5 year warranty when used in a commercial installation

OPTIONS (See Illustrated Parts page)

- Thin and thick deck mounting hardware kits available

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

6150 includes metal waste



CRITICAL DIMENSIONS

(DO NOT SCALE)

MOEN®

Specifications

DESCRIPTION

- Metal construction with various finishes identified by suffix
- Compatible with M•pact™ valve system

OPERATION

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

FLOW

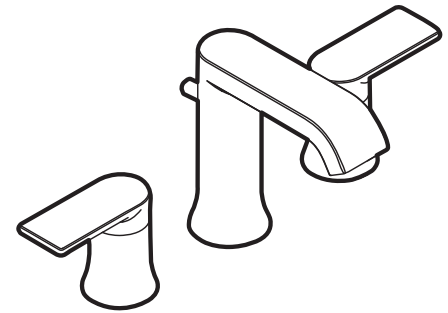
- Water usage is limited to these maximum flow rates as indicated by the corresponding product markings.
- 1.2gpm max (4.5L/min)

STANDARDS

- Third party certified to meet Watersense®, ASME A112.18.1/CSA B125.1 and all applicable requirements referenced therein
- ADA ♿ for lever handles
- Certified to NSF 61/9 + 372

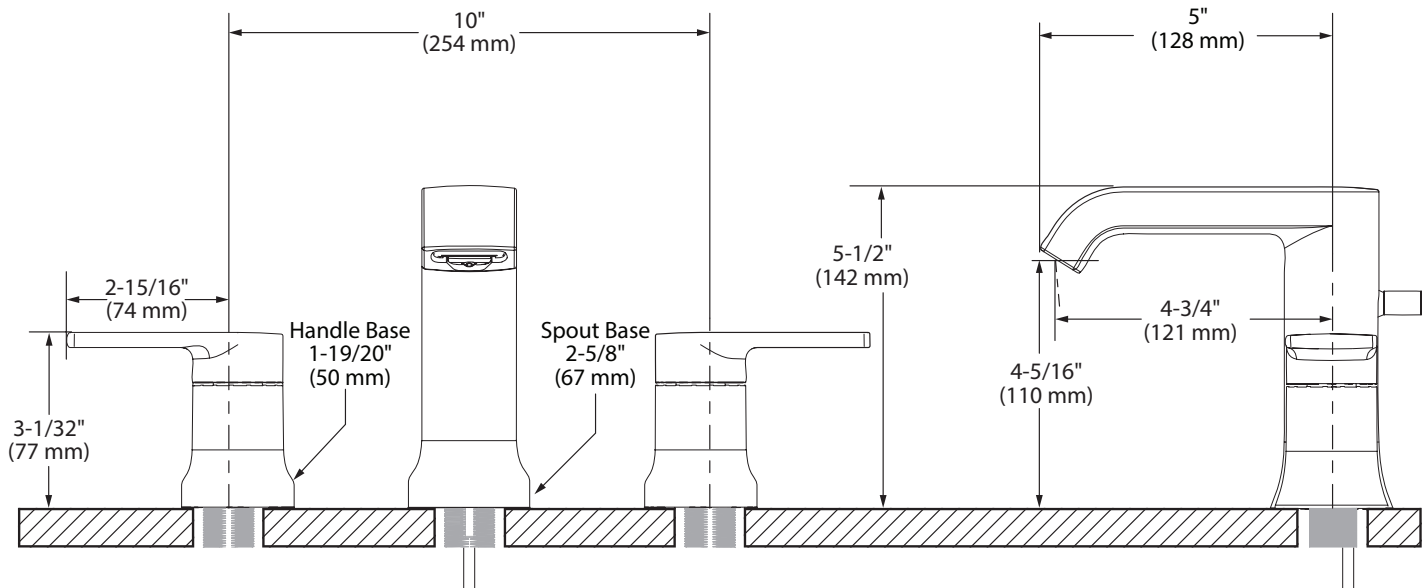
WARRANTY

- 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



GENTA™ LX
Two-Handle Widespread
Lavatory Faucet Trim
Models: T6708 series

Valves: 9000, 69000



CRITICAL DIMENSIONS

(DO NOT SCALE)

MOEN®

Specifications

DESCRIPTION

- Metal construction with chrome finish
- Includes showerhead, arm, flange and diverter spout

OPERATION

- Lever style handle with temperature red/blue 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 $\pm 3.6^\circ\text{F}$ ($\pm 2^\circ\text{C}$)
- 6 function showerhead


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 (6.7 L/min) max.

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 homeowner
- 10 year limited warranty when used in a multifamily installation
- 5 year limited warranty when used in a commercial installation

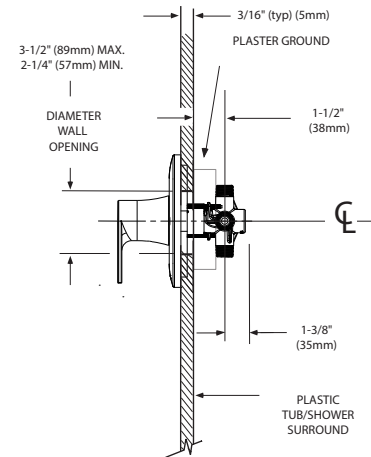
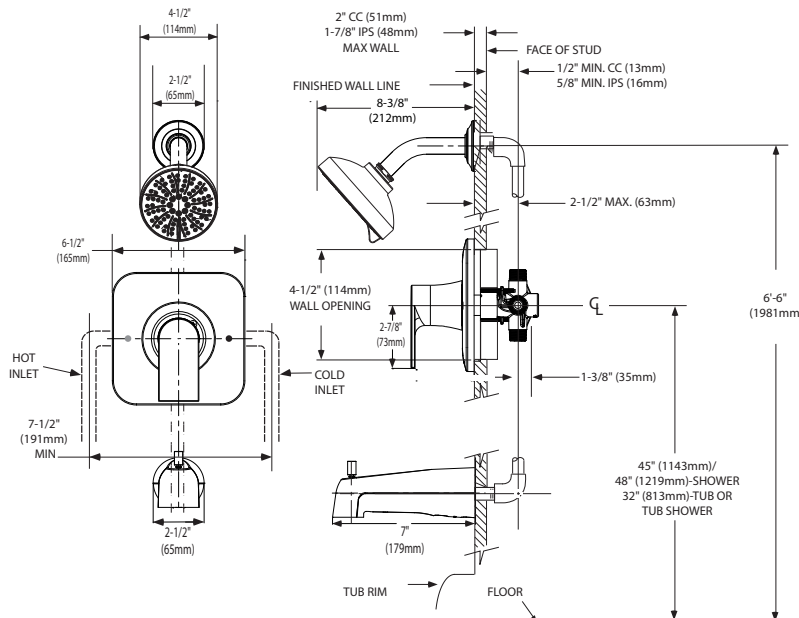
Visit www.moen.com/support for complete details and limitations



Genta™ LX POSI-TEMP® Single-Handle Tub/Shower Trim Kit

Models: T2471 series - valve trim only
T2472EP series - shower trim only
T2473EP series - tub/shower trim only

Valves: 62300 series
2500 series



CRITICAL DIMENSIONS

(DO NOT SCALE)



139NS-3173**Alto® 1.28****SmartHeight™, Elongated Front, Vitreous China, Two-Piece Toilet***mansfield.*


Features

- 3 bolt tank-to-bowl connection
- SmartHeight™ (16-1/2" high bowl) for maximum comfort
- 1.28 gpf / 4.86 lpf low water consumption
- Uses 20% less water than conventional toilets
- Elongated front bowl
- 3" hybrid flush valve
- Pilot operated fill valve
- 10" rough-in
- Color-match trip lever
- 1-7/8" glazed trapway
- The Mansfield® limited lifetime warranty
- Available in white and standard colors: biscuit & bone






Elongated Front







Model 139NS-3173
Toilet seat not included

Components

Model #	Description	Codes/Standards
139NS-3173	SmartHeight™, elongated front two-piece toilet. Less toilet seat and supply. Specify color.	  
139NS	SmartHeight™, elongated front toilet bowl only. 10" rough-in. Less toilet seat. Specify color.	
3173	Tank and cover only, with left hand, front-mount, color-match trip lever. With Fluidmaster fill valve. Less supply. Specify color.	
3173RH	Same as model 3173, with right hand, color-match trip lever. Less supply. Specify color.	
3122	Same as model 3121, with tank liner.	
3121RH	Same as 3121 with right hand trip lever.	
3120	Same as 3121 with chrome trip lever.	
3120RH	Same as 3120 with right hand trip lever.	
3174	Same as model 3173, with tank liner.	
SB200	Alto Elongated, toilet seat. Specify color.	

Other Options:

3121	Same as 3173 with Fluidmaster pilot valve and hybrid flush valve.	   
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**MADE IN USA**