



**Bateman Civil Survey Company, PC**

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

June 1, 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 5  
170 John Stark 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 5 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 5. 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.

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 5**

	Item	Model	Gal/min. or flush	Number of Fixures	Base Flow From 1982	Percent Water Savings
Master	Shower Trim	Moen T2282EP	1.8 gal/minute	1	5.5 gal/minute	67%
	Lavatory Faucet	Moen 6802	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 6802	1.2 gal/minute	1	3.0 gal/minute	60%
	Shower Trim	Moen TL2369EP	1.8 gal/minute	1	5.5 gal/minute	67%
Powder	Lavatory Faucet	Moen 6802	1.2 gal/minute	1	3.0 gal/minute	60%
Toilets	Master, Powder, 2	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 (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



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 ± 3°


## 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

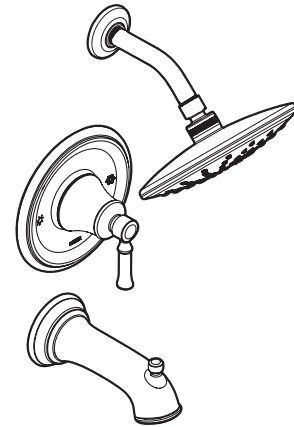
## STANDARDS

- 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 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

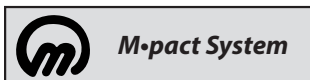
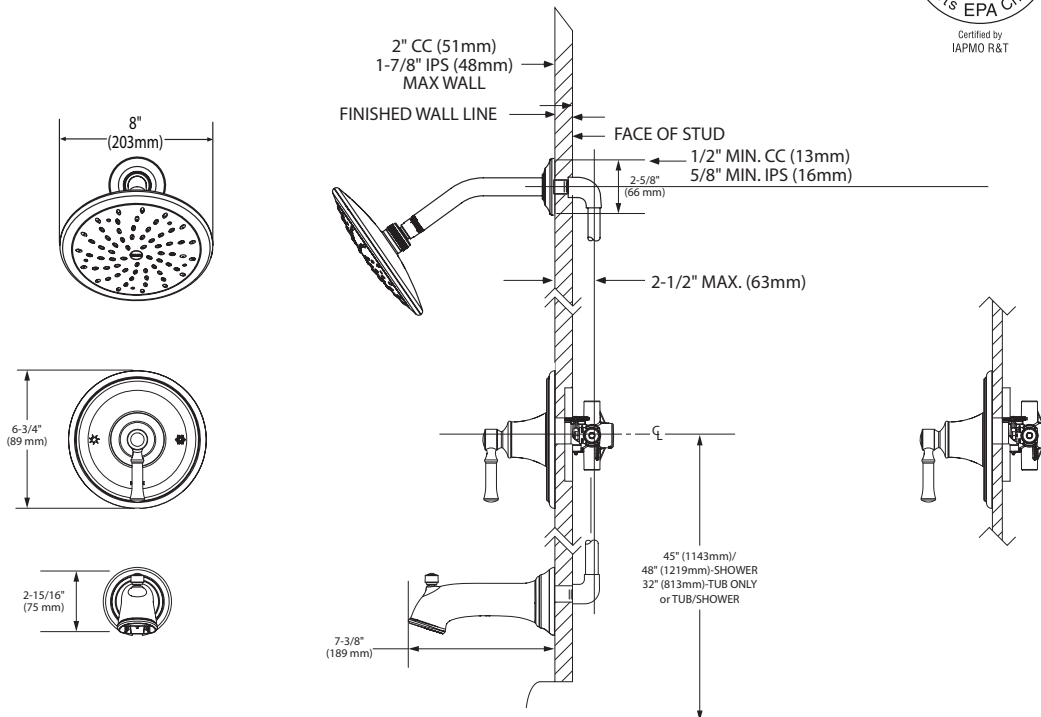
Visit [www.moen.com/support](http://www.moen.com/support) for complete details and limitations



## DARTMOOR™ POSI-TEMP® Single-Handle Tub/Shower Trim Kit with Rainshower

**Models:** T2282EP series - shower trim only  
T2283EP series - tub/shower trim

**Valves:** 62300 series  
2500 series



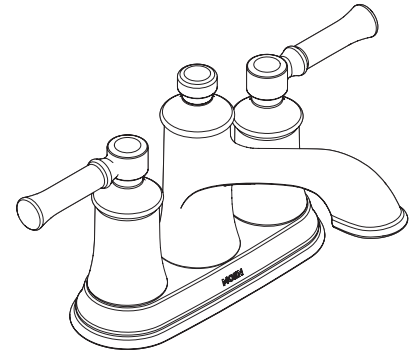
## CRITICAL DIMENSIONS

(DO NOT SCALE)



Buy it for looks. Buy it for life.®

# Specifications



## DARTMOOR™ Two-Handle Centerset Lavatory Faucet

**Models:** 6802 series  
66802 (bulk)

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



### DESCRIPTION

- Metal construction with various finishes identified 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

- Flow is limited to 1.2 gpm max (4.5L/min) at 60 psi

### CARTRIDGE

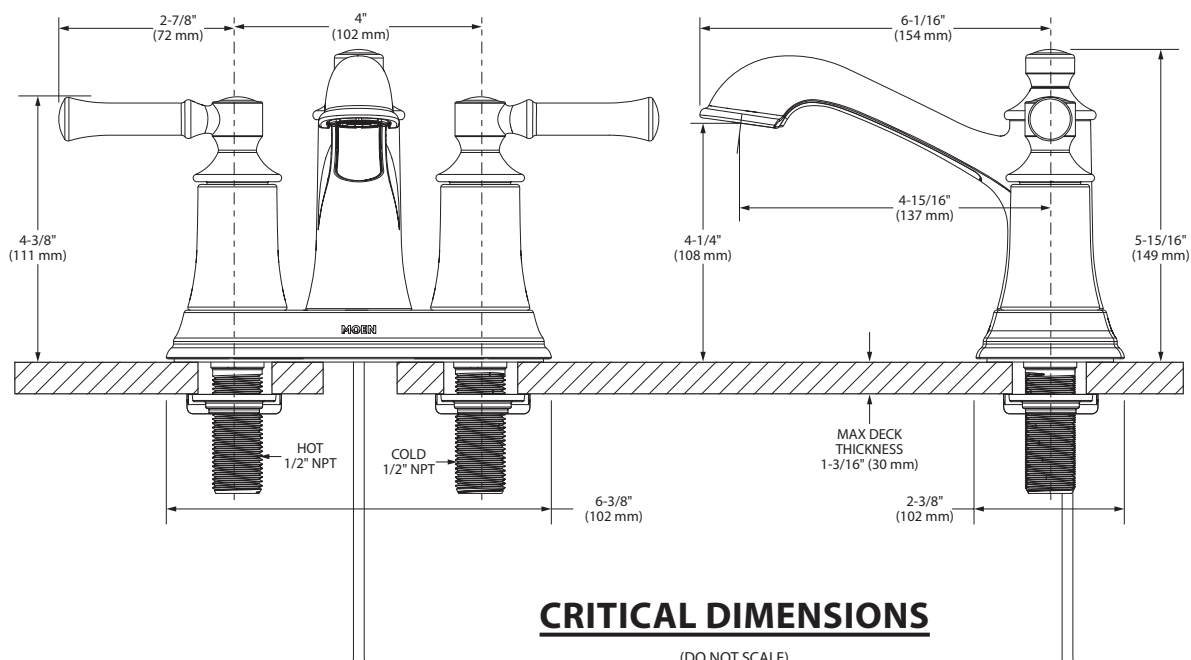
- 1234 cartridge design
- Nonmetallic, nonferrous and stainless steel material

### 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

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



### 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

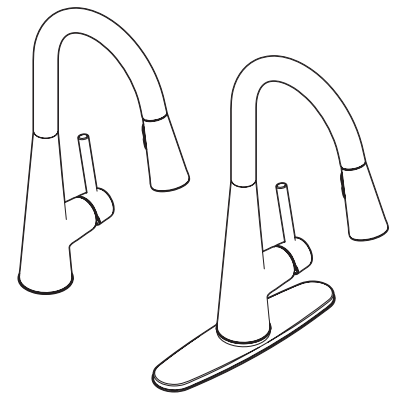
### STANDARDS

- 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

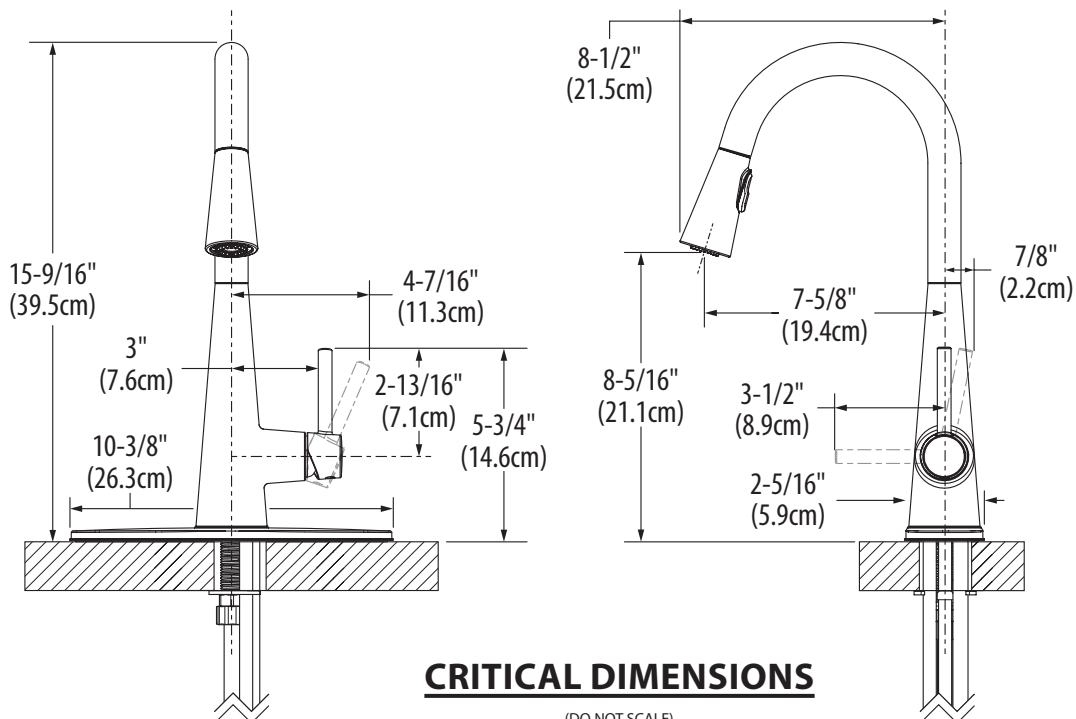
Visit [www.moen.com/support](http://www.moen.com/support) for complete details and limitations



**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.



## DESCRIPTION

- Metal construction with chrome plated finish
- Includes metallic shower arm and flange, non-metallic showerhead and non-metallic diverter tub spout

## OPERATION

- Lever style 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

## CARTRIDGE

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

## STANDARDS

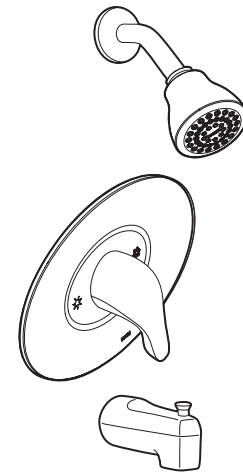
- Third party certified to meet ASME A112.18.1/CSA B125.1 and all applicable requirements referenced therein
- EP suffix models are third party certified to WaterSense®

- **ADA**  for lever handle

## WARRANTY

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

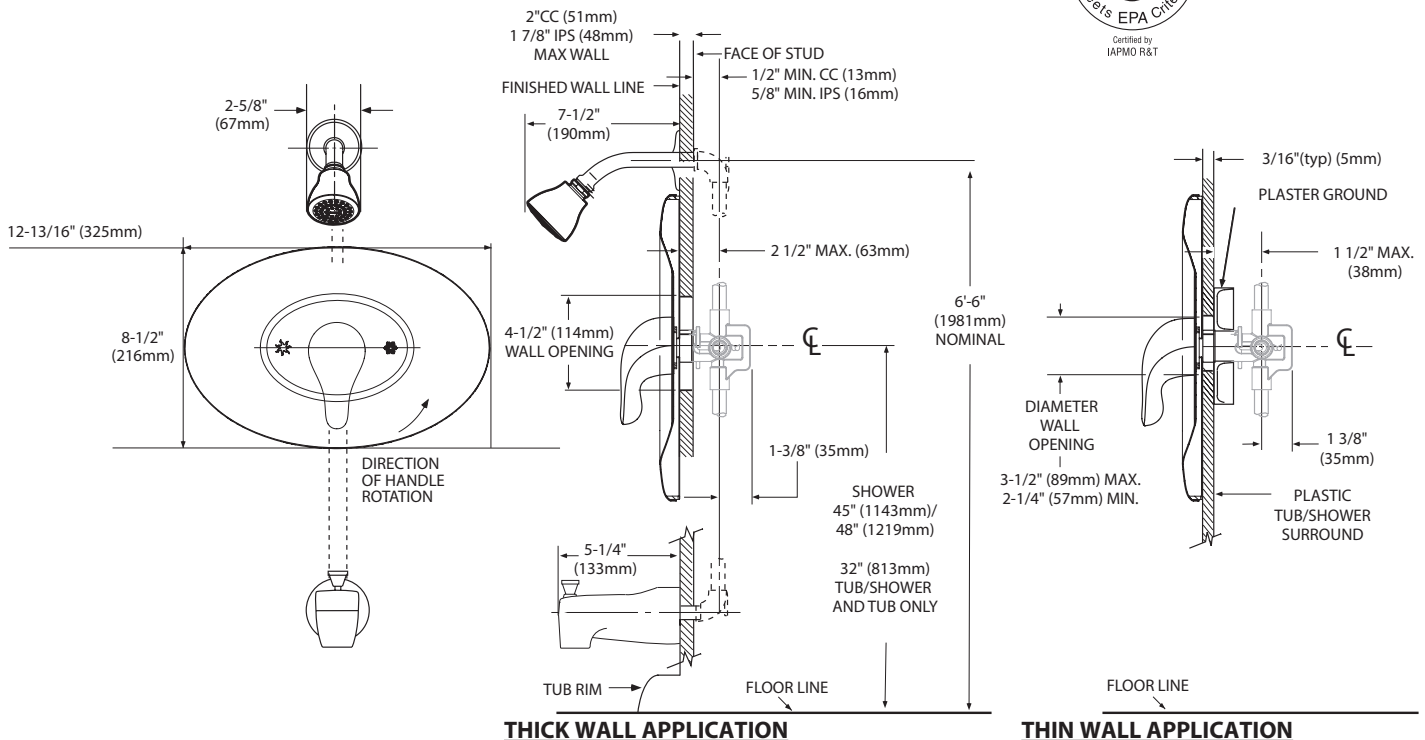
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## CHATEAU® POSI-TEMP® Single-Handle Tub/Shower Trim Kit

**Models:** TL2368EP series - shower trim only  
TL2369EP series - tub/shower trim

**Valves:** 62300 series  
2500 series





VITREOUS CHINA

TOILET  
**21-912**

LAVATORIES

TOILETS

BIDETS / URINALS

CAST IRON

# MAXWELL® 1.28 Elongated Toilet

12" Rough-in

### Features:

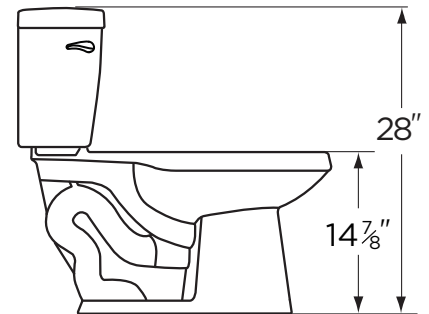
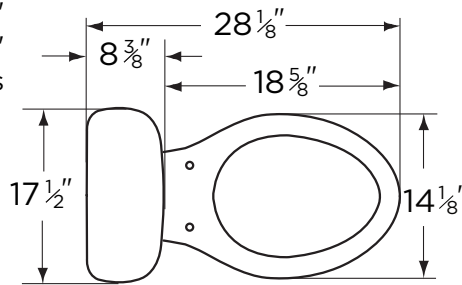
- 1.28 gpf/4.8 Lpf high efficiency two-piece toilet
- Elongated bowl
- Dual-fed siphon jet
- Pilot fill valve
- 3" flush valve
- 2" glazed trapway
- Color matched front tank lever (white only)
- Optional insulated non-sweating tank
- Optional right-handed trip lever
- Available in White, Bone and Biscuit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



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

### Dimensions:

- Height .....28"
- Width ..... 17 1/2"
- Depth ..... 28 1/8"
- Rough-in.....12"
- Water Surface from Rim .....5 7/8"
- Trapway ..... 2"
- Water Surface ..... 10 7/8" x 7 1/2"
- Water Seal .....2 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	