

# TOTO®

## Ultramax®

MS854114E - Eco Ultramax  
MS604114CEFG - Ultramax II  
MS604114CUFG - Ultramax II 1G®

Beautifully engineered in a single unit, the Ultramax HET incorporates thoughtful innovation with simple elegant design and TOTO's dedication to respecting water. The Ultramax HET offers sleek lines, is simple to install, and features performance design that focuses on your comfort. Choose the Eco Ultramax which utilizes TOTO's E-max flushing system or the Universal Height Ultramax II with TOTO's Tornado Flush™ system, available in 1.28gpf or 1G options.



### Performance Dashboard

#### Features & functionality

- Wide 3" flush valve is 125% larger than conventional 2" flush valves
- Wide 2-1/8" computer designed, fully glazed trapway
- Sleek, high profile one-piece toilet
- Complete with SoftClose® seat, or upgrade to Washlet®
- ADA compliant (Ultramax II and Ultramax II 1G)

#### Visit TOTO for more product specifications:

Eco Ultramax – [MS854114E](#), [MS854114EG](#)  
Ultramax II – [MS604114CEF](#), [MS604114CEFG](#), [MS604114CEFRG](#)  
Ultramax II 1G – [MS604114CUFG](#)

CSI MasterFormat™ #22 41 13.13

#### Environmental performance

##### Improved by:

- Lower water use
- 50% of all electricity from renewable resources
- Kiln exhaust heat reused to power product dryers
- Upcycling of post industrial porcelain waste into ceramic floor tile

##### Certifications & rating systems:

- WaterSense® certified
- CALGreen® compliant
- Declare™ label
- Contributes to earning credits in LEED®

[See LCA results & interpretation](#)

[See material health results & interpretation](#)



TOTO PeoplePlanetWater Smart Fact:  
TOTO donates all unusable, cracked ceramic tiles to Crossville Tile to be recycled and re-used as floor tiles.



## SM Transparency Report™ + Material Health Overview

#### VERIFICATION

LCA

3rd party verified



Self-declared

Transparency Report

Certified



Self-declared

Material evaluation

3rd party verified

Self-declared



Validity: 09/17/15 – 09/17/18  
TOT – 09/17/15 – 011

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## LCA & material health results & interpretation

## Ultramax® MS854114E, MS604114CEFG, & MS604114CUFG

### Life cycle assessment

### Material health

#### Scope

Cradle to grave  Cradle to gate with options  Cradle to gate

#### Functional unit

One toilet in a U.S. household that functions for 10 years. The period of 10 years is modeled as the period of application based on the average economical lifespan for residential applications. The technical lifespan is longer. The economical lifespan of commercial applications can be longer or lower due to aesthetic replacements or more intense use. The implication is that the LCA model assumes that the application ends at year 10 and that the materials will be treated in an end-of-life scenario.

Reference service life: 10 years  
Data reporting period: 2012-2013

#### Default use phase scenario

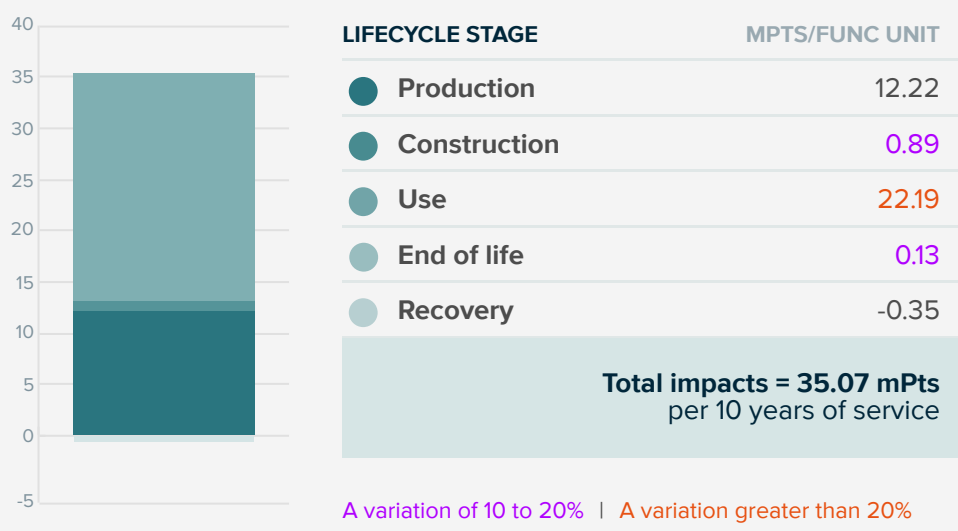
Eco Ultramax MS854114E and Ultramax II MS604114CEFG: 10 years of service in a U.S. household with 1.28 gallon/use and 5.1 flushes/day and 2.6 people resulting in 61,951 gallons.

Ultramax II 1G MS604114CUFG: 10 years of service in a U.S. household with an average of 1.0 gallon/use and 5.1 flushes/day and 2.6 people resulting in approximately 48,399 gallons.

#### Material composition greater than 1% by weight

PART	MATERIAL	AVG. % WT.
Ceramic	Ceramic	83.6%
Packaging	Cardboard	10.1%
Seat	Polypropylene	4.7%
	Other	1.6%

#### Total impacts by life cycle stages [mPts/func unit]



#### What's causing the greatest impacts

##### All lifecycle stages

The use stage and the production stage are equally important and dominate the results for all impact categories.

The impact of the use stage is mostly due to the embedded energy arising from acquisition, treatment and distribution of the water used during the operation of the product. The production stage has the most significant contributions to fossil fuel depletion (mostly defined by crude oil, hard coal and natural gas extraction activities as well as polypropylene manufacturing), non-carcinogenics (mostly defined by zinc production and processing, the natural gas used at the kiln and the disposal of hard coal ash) and ecotoxicity (mainly caused by electricity production, the disposal of slags and hard coal ash as well as zinc and copper production and processing).

The contributions covered under the construction/installation stage are mostly associated with the product delivery to the market and the disposal of packaging materials, mainly corrugated cardboard. The recovery stage includes recycling processes and benefits by preventing the need to produce primary materials. Recycling is a relevant factor for some of the impact categories, offsetting a portion of the impacts caused by production. Additionally, the delivery of the product to the construction/installation site as well as the processes for dismantling the product and final waste treatment during the end of life stage are slightly relevant in the majority of the impact categories.

##### Production stage

The ceramic parts dominate the material contribution except for eutrophication and non-carcinogenics.

Corrugated board has major contributions to the eutrophication and non-carcinogenics impact categories. The die casting of zinc has a significant contribution to the non-carcinogenic impact category. The injection molding process has a significant contribution to the carcinogenics impact category while the steel parts have a significant contribution to fossil fuel depletion. The remaining parts and processes contribute between 7% and 18% of the overall impacts in the rest of the categories.

##### Sensitivity analysis

The deviations at the production stage are a combination of the variation in amount of the ceramic component of the two products (10-20% deviation) caused by the differences in the firing yield and production efficiency. Use phase deviations (over 20%) are a result of differences in the product's water consumption and associated operational energy use. The Ultramax II 1G uses 22% less water than the other two Ultramax versions: The Eco Ultramax and Ultramax II. The deviations at the construction/installation and end of life stages are mainly due to the weight difference of the finished product after packaging, which is driven by the difference in the ceramic component weight in the two products.

##### Multi-product weighted average

Results represent the weighted average using production volumes for the products covered. Variations of specific products for differences of 10-20% against the average are indicated in purple; differences greater than 20% are indicated in red. A difference greater than 10% is considered significant.

#### TOTO PeoplePlanetWater. programs improving environmental performance

- Dual-Max®, E-Max®, Tornado Flush™, 1G®, and EcoPower® technologies reduce water consumption in the use phase
- Energy efficiency programs optimize the firing process
- 50% electricity from renewable energy
- 100% of post-industrial ceramic waste is recycled

See how we make it greener

### LCA results

LIFECYCLE STAGE	PRODUCTION	CONSTRUCTION	USE	END OF LIFE	RECOVERY
Information modules: Included   Excluded*	<b>A1 Raw Materials</b>	<b>A4 Transportation/Delivery</b>	<b>B1 Use</b>	<b>C1 Deconstruction/Demolition</b>	<b>D1 Recycling</b>
*Installation and deconstruction/demolition are mostly manual. The toilets and/or urinals should not need repair, maintenance or replacement during the modeled life time.	<b>A2 Transportation</b>	<b>A5 Construction/Installation</b>	<b>B2 Maintenance</b>	<b>C2 Transportation</b>	D2 Recovery
Reuse and energy recovery are not modeled for toilets and/or urinals.	<b>A3 Manufacturing</b>		<b>B3 Repair</b>	<b>C3 Waste processing</b>	D3 Reuse
			<b>B4 Replacement</b>	<b>C4 Disposal</b>	
			<b>B5 Refurbishment</b>		
			<b>B6 Operational energy use</b>		
			<b>B7 Operational water use</b>		

### SM 2013 Learn about SM Single Score results

Impacts per 10 years of service	12.22 mPts	0.89 mPts	22.19 mPts	0.13 mPts	-0.35 mPts
Materials or processes contributing >20% to total impacts in each lifecycle stage	Ceramic parts production as well as raw materials transport.	Transportation of the product to installation site or consumer and disposal of packaging.	Volume of water use during the operation of the product and the embedded energy use (such as electricity) in the water used.	Transport to waste processing, waste processing and disposal of material flows transported to a landfill.	Plastic and metal components' recycling processes.

### TRACI v2.1

A variation of 10 to 20% | A variation greater than 20%

LIFECYCLE STAGE	PRODUCTION	CONSTRUCTION	USE	END OF LIFE	RECOVERY	
<b>Ecological damage</b>						
Impact Category	Unit					
<b>Acidification</b>	kg SO <sub>2</sub> eq	9.51E-01	5.49E-02	1.41E+00	6.59E-03	-2.83E-02
<b>Ecotoxicity</b>	CTU <sub>e</sub>	1.58E-02	1.65E+01	1.30E+02	1.91E+00	-2.61E+00
<b>Eutrophication</b>	N eq	6.16E-02	6.22E-03	1.19E-01	5.70E-04	-6.53E-03
<b>Global warming</b>	kg CO <sub>2</sub> eq	1.15E+02	8.47E+00	2.12E+02	1.15E+00	-2.94E+00
<b>Ozone depletion</b>	kg CFC-11 eq	5.86E-06	8.59E-09	8.84E-06	1.35E-07	-2.63E-07
<b>Human health damage</b>						
Impact Category	Unit					
<b>Carcinogenics</b>	CTU <sub>h</sub>	1.66E-06	8.93E-08	4.43E-06	9.50E-09	-1.43E-07
<b>Non-carcinogenics</b>	CTU <sub>h</sub>	2.42E-05	8.58E-07	1.97E-05	1.05E-07	-4.39E-07
<b>Respiratory effects</b>	kg PM <sub>2.5</sub> eq	6.78E-02	1.03E-03	9.35E-02	4.30E-04	-3.29E-03
<b>Smog</b>	kg O <sub>3</sub> eq	6.41E+00	1.61E+00	9.76E+00	1.81E-01	-3.89E-01
<b>Resources depletion</b>						
Impact Category	Unit					
<b>Fossil fuel depletion</b>	MJ surplus	2.11E+02	1.17E+01	1.42E+02	2.19E+00	-4.90E+00

### References

- LCA Background Report**  
TOTO Sanitary Ceramic Products - Ultramax LCA Background Report (public version), TOTO 2015
- SM Transparency Report Framework**  
**Part A:** LCA Calculation Rules and Background Report Requirements | Version 2015 (Based on EN15804+A1; in compliance with ISO 14040-44, 14025)  
**Part B:** Product Group Definition – Residential Toilets

SM Transparency Reports enable purchasers and users to compare the environmental performance of products on a life cycle basis. They are designed to present information transparently to make the limitations of comparability more understandable. SM Transparency Reports of products that comply with the same Product Group Definition (PGD) and include the same life cycle stages, but are made by different manufacturers, may not sufficiently align to support direct comparisons. They therefore, cannot be used as comparative assertions unless the conditions defined in ISO 14025 Section 6.7.2. 'Requirements for Comparability' are satisfied.

### Rating systems

The intent is to reward project teams for selecting products from manufacturers who have verified improved life-cycle environmental performance.

- LEED BD+C: New Construction | v4 - LEED v4**  
**MR Building product disclosure and optimization**  
Environmental product declarations

#### SM Transparency Report product credit values:

- LCA self-declared, Report self-declared 0 product
- LCA verified, Report self-declared 1/4 product
- LCA verified, Report certified 1 product

**Green Globes for New Construction and Sustainable Interiors**  
NC 3.5.1.2 Path B: Prescriptive Path for Building Core | NC 3.5.2.2 and SI 4.1.1  
Path B: Prescriptive Path for Interior Fit-outs

## SM Transparency Report™ + Material Health Overview

VERIFICATION	LCA
3rd party verified	<input checked="" type="checkbox"/> NSF
Self-declared	
Transparency Report	
Certified	<input checked="" type="checkbox"/> NSF
Self-declared	
Material evaluation	
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## LCA & material health results & interpretation

## Ultramax® MS854114E, MS604114CEFG, & MS604114CUFG

Life cycle assessment

**Material health**

### Evaluation program: Declare

**Declare** labels are issued to products disclosing ingredient inventory, sourcing and end of life options. Declare labels are based on the Manufacturers Guide to Declare, administered by the International Living Future Institute.

#### How it works

Material ingredients are inventoried and screened against the [Living Building Challenge](#) (LBC) Red List which represents the 'worst in class' materials, chemicals, and elements known to pose serious risks to human health and the greater ecosystem.

The Declare product database and label are used to select products that meet the Living Building Challenge's stringent materials requirements, streamlining the materials specification and certification process.

### Assessment scope and results

**Content inventory:** All ingredients identified by name and CAS #  
**Inventory threshold:** 100 ppm

#### Declaration status:

The Declare product database and label are used to select products that meet the LBC's stringent materials requirements, streamlining the materials specification and certification process.

- LBC Red List Free [?](#)
- LBC Compliant [?](#)
- Declared [?](#)

#### Eco Ultramax

#### Ultramax II

#### Ultramax II 1G



Click on each label to see the full declaration

### How this rating was achieved

#### Declare level

'Declared' is awarded to products when all the ingredients have been self-disclosed to promote transparency.

#### What's in the product and why

Manufacturing in the United States means that robust human labor, safety and environmental rules and regulations were followed. In addition, local sourcing of raw materials means that less smog and air pollution are generated as a result of transport. The ceramic body and glaze makes up ~92-93% of the total mass of the toilet. Therefore, manufacturing and transportation of the ceramic create the greatest human health impacts when compared to the overall manufacture of the entire toilet. By specifying an Ultramax toilet manufactured in the United States, the consumer helps mitigate these human health impacts.

#### Red List materials

The toilet trip lever handle is plated with chrome (Hexavalent Chromium VI). Chromium material is used as a decorative finish in applications where corrosion-resistance and durability are required. During the chrome plating process health hazards have been identified and are managed according to the OSHA Guidelines. Process controls are used to protect the environment and the production workers wear personal protection equipment. After the plating process the chrome surface is inert and does not pose any health risks. The trip lever in the final form does not represent any hazards to the user.

TOTO continues to investigate alternative finishes in order to reduce and/or eliminate Chromium VI on the toilet trip levers. Standard versions of the Ultramax use parts containing PVC (Polyvinyl Chloride), a plastic commonly used within the plumbing industry. The primary health concern is during the production process when the raw material components are in a powder or pelletized form. If inhaled or ingested the results can be toxic and potentially carcinogenic. In the final form, materials are inert and not a hazard to the users of the toilet.

**As part of TOTO's efforts to reduce health impacts, PVC-free versions of the Ultramax are available.** PVC parts have been removed and replaced with materials of compatible functional strength and chemical resistance. These alternative parts are sourced within the continental United States. It should be noted that there are no legislative or regulatory mandates to remove this material from a product, however, as part of our goal to mitigate adverse health impacts, TOTO has decided to move beyond compliance by voluntarily eliminating this compound.

#### Where it goes at the end of its life

TOTO encourages consumers to recycle their used toilet and toilet parts. Contact your local municipality for recycling programs.

### How we're making it healthier

#### Goals and plans for improvement:

- Utilize alternative materials to PVC, removing this compound from tank parts in all TOTO models.
- With no compromise to beauty, functionality, or durability, TOTO intends to offer alternative finishes for trip levers that do not require chromium VI.

[See how we make it greener](#)

### References

#### Declare

- TOTO USA, Declare label for Eco Ultramax MS854114E
- TOTO USA, Declare label for Ultramax II MS604114CEFG
- TOTO USA, Declare label for Ultramax II 1G® MS604114CUFG

#### Manufacturer's Guide to Declare

A comprehensive guide providing information about the program, the assessment methodology, how to submit material data to obtain a Declare label and how they are used to meet the Health & Happiness and Materials Petals of the Living Building Challenge.

### Rating systems

#### LEED v4, Building product disclosure and optimization Material Ingredients

#### Credit values:

- Option 1. Material ingredient reporting 1 product
- Option 2. Material ingredient optimization 1 product

#### Living Building Challenge Living Building Challenge 3.0



#### Materials petal:

- Imperative 10. Red List Free
- Imperative 12. Responsible Industry
- Imperative 13. Living Economy Sourcing

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## How we make it greener

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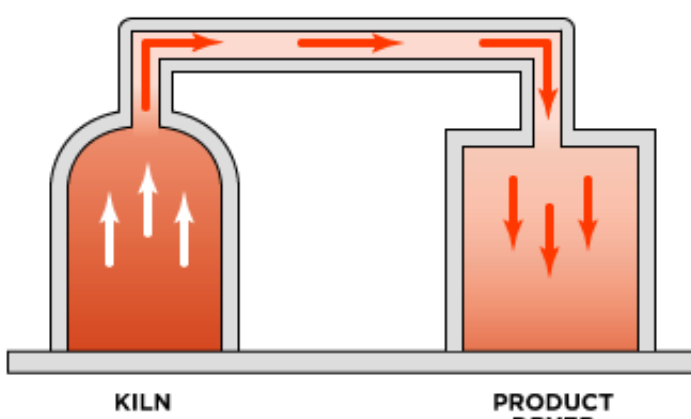
Collapse all

See LCA results by lifecycle stage

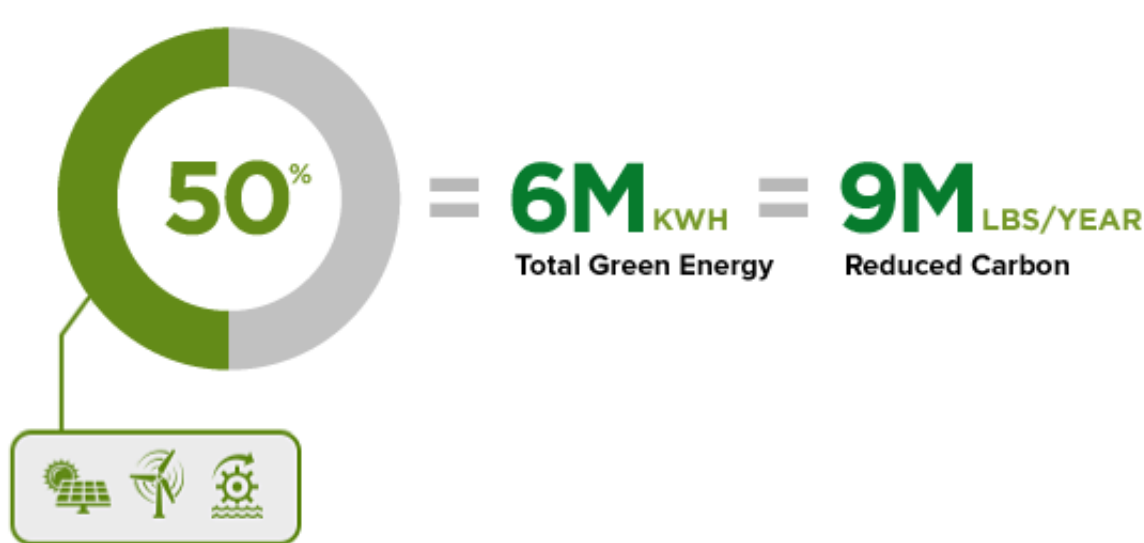
### PRODUCTION



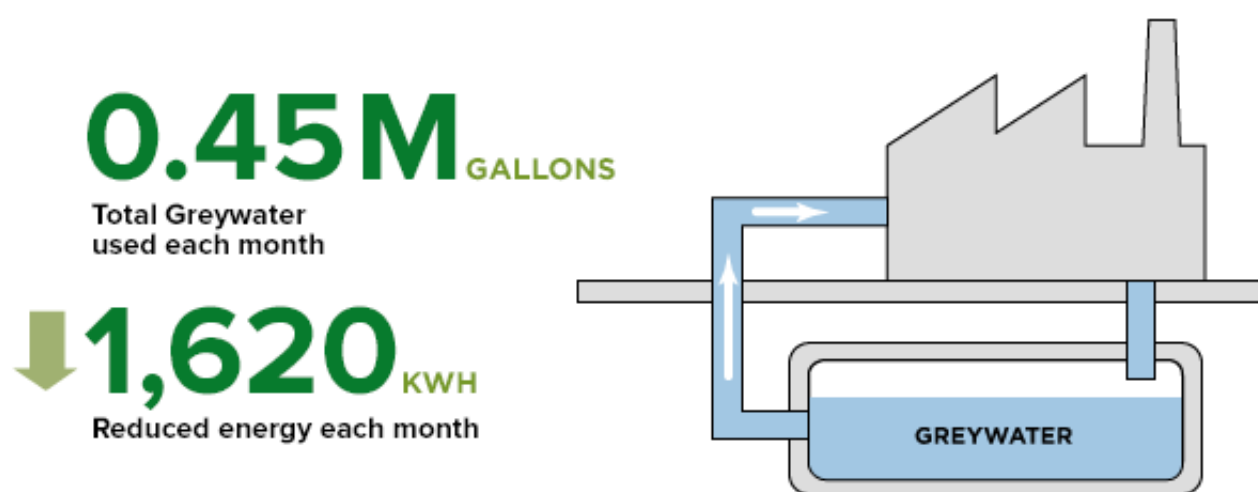
**↓ 15%**  
Less Natural Gas



Waste heat from the kilns is routed to the product dryer. This reduces 15% natural gas consumption.



50% of the electricity that TOTO uses is based on renewable energy generation. It's 6 million kilowatt hours of green energy, which means over 9 million pounds of carbon reduced each year.



0.45 million gallons per month of greywater is used in TOTO's operations. 1,620 of kwh in energy is reduced due to less potable water.



65% of all cardboard used is 100% recycled content.

### CONSTRUCTION



= **INCREASES** = **↓ 50%**  
Fill rate of a trailer      Reduced transportation cost

One-piece toilets are shipped with every other toilet upside down, increasing the fill rate of a truck trailer and cutting transportation cost in half.

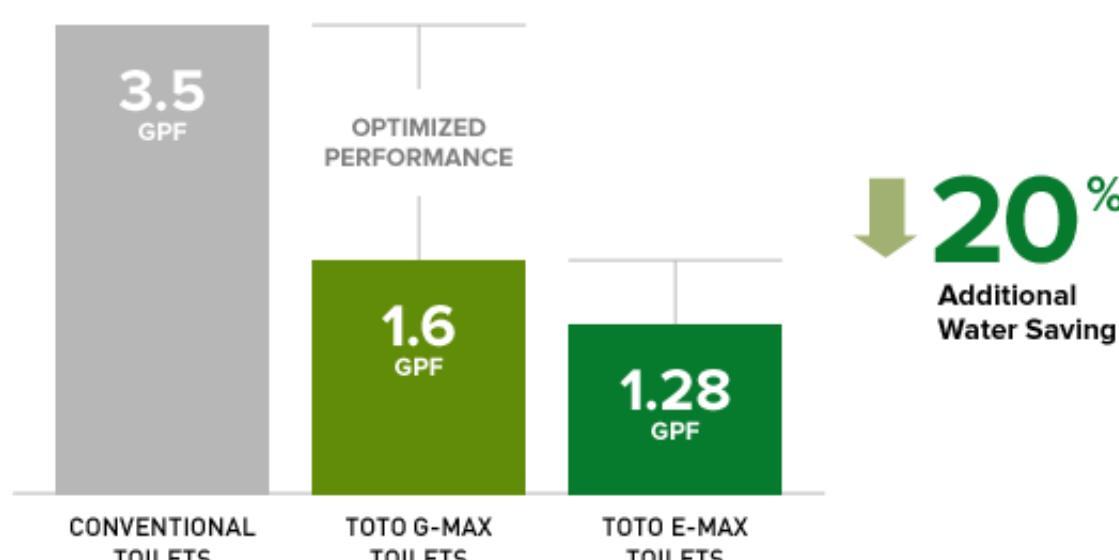


UPS parcel shipments are carbon neutral. TOTO is a registered SmartWay® Transport Partner.

### USE



The dual flush system reduces water in the use phase.



Utilizing the same proven engineering as our legendary 1.6 GPF G-Max flushing system, the 1.28 GPF E-Max reinforces TOTO's performance reputation while offering an additional water savings of 20%.

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