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SAVING WATER WITH IMPROVED CODES IN THE COLORADO BASIN STATES



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The Natural Resources Defense Council is...

- A non-profit organization for environmental education and advocacy
- Founded around the first Earth Day in 1970
- Staff \approx 400 in 6 US offices: NY, DC, SF, LA, MT, Chicago + Beijing
- Supported by foundations, individual donations, memberships, and (rarely) government grants
- Take an interdisciplinary approach to advocacy and analysis, e.g., law, science, engineering

Why Look at Building Codes?

- Building codes specify how new buildings and major renovations must be designed and constructed, and are written in mandatory, enforceable language.
 - Address construction and installation, not operation
- Intended to protect public health, safety and general welfare, with an increasing awareness of the role that building codes play in long-term water and energy use.
- Plumbing codes, as well as other types of codes, such as energy codes, set minimum requirements for design and construction.
- National model codes are updated on a 3-year cycle
- State and local code revision can be far more irregular

2 National Model Codes: ICC & IAPMO

Most local and state governments adopt a code developed by one of these two organizations:

International Code Council

(ICC)

Our focus:

Int'l Plumbing Code (IPC),
Int'l Residential Code (IRC)
Int'l Mechanical Code (IMC)
Int'l Energy Conservation
Code (IECC).



International Association of Plumbing and Mechanical Officials (IAPMO)

Our focus:

Uniform Plumbing Code
(UPC);
Uniform Mechanical Code
(UMC).



Key Code Provisions Relating to Water Use

- Toilet and urinal flush volumes
- Lavatory and kitchen faucet flow rates
- Showerhead flow rates
- Tub spout diverter leakage
- Multi-head shower controls and spacing
- Shower mixing valve rated flow
- Hot water pipe insulation
- Hot water pipe volume and/or length
- Graywater system requirements
- Commercial product performance -
 - dipper wells, food grinders, floor trap primers, etc.

Code Adoptions in the Colorado Basin States

	Plumbing Code	Energy Code
Arizona	IPC/UPC (local adoption)	IECC 2006 (local adoption)
California	UPC	State (Title 24)
Colorado	UPC (local adoption)	IECC 2003
Nevada	UPC (local adoption)	IECC 2012
New Mexico	UPC	IECC 2009
Utah	IPC	IECC 2012
Wyoming	UPC	none

Where to Find Water-Saving Code Language

- ICC: International Green Construction Code (IgCC) - 2015
- IAPMO: Green Plumbing and Mechanical Code Supplement (GPMCS) - 2015
- NRDC - library of code change proposals to the IAPMO and ICC model codes

Savings from Stronger Codes for Plumbing Products

Water Savings in 2030						
	Residential			Non-Residential		Total:
	Showerhead	Lavatory Faucet	Toilet	Urinal	Toilet	
	MGD			MGD		
Arizona	6.85	14.66	9.63	0.48	0.90	32.53
California	13.26	28.38	0.00	0.38	0.00	42.01
Colorado	1.57	3.36	4.38	0.14	0.24	9.68
New Mexico	0.09	0.20	1.41	0.01	0.01	1.72
Nevada	2.59	5.55	3.81	0.35	0.56	12.87
Utah	1.49	3.20	2.84	0.10	0.19	7.82
Wyoming	--	--	0.33	--	--	0.33
Total (MGD):	25.85	55.35	22.40	1.46	1.89	106.95
Total (acre-feet/year): 119,800						

Assumes 2018 effective date using WaterSense specification for toilets, California state standards for showerheads, faucets, and urinals; based on other information and projections available in 2012.

What Are We Waiting For?



- Urban uses are depletive uses of Colorado River water in 6 of the 7 basin states
- Bureau of Reclamation Basin Report projects likelihood of shortfall
- Code changes do not require new funding
- Code revisions do not require interstate negotiations
- Each state benefits from more water-efficient new buildings

Collaboration with Stakeholders in the Region



Water Efficiency Action
Network for the Colorado
River Basin (WEAN - CRB)

<http://www.wean-crb.org/>

Questions & Follow Up

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