

# MOSCOW WATER DEPARTMENT

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## THE BUILDING:

The Moscow Water Department is an office building at the North end of Main Street. It houses offices for the city's water management. It is also used as a model building for wisescaping. The building has a unique roof shape that directs rainwater to two opposite corners.



# WATER USE: CONVENTIONAL & AS IS

6 occupants X 15 gal. per person = **90 gal.** per day

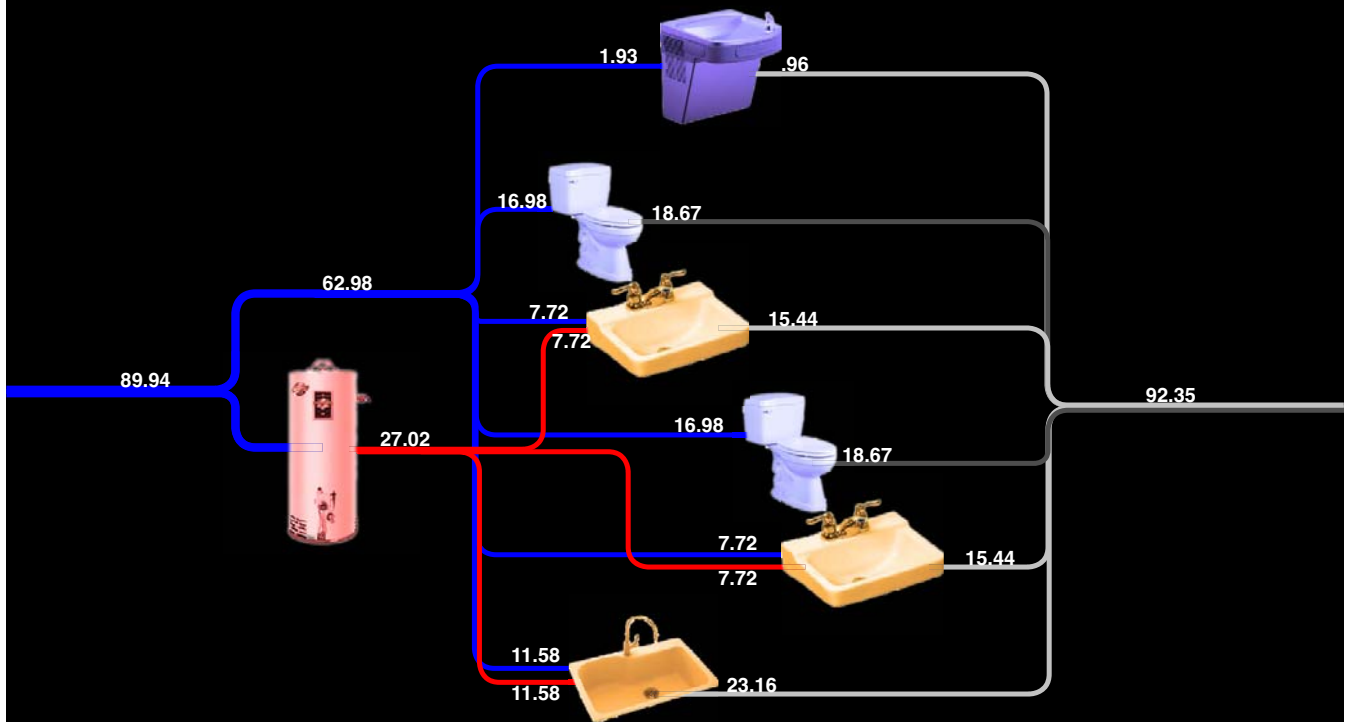
	#	WSFU	FU	GPF
Service Sink	1	3	3	<b>23.16</b>
Toilet	2	2.2	4.4	<b>33.96</b>
Fountain	1	.25	.25	<b>1.93</b>
Lav Sink	2	2	4	<b>30.88</b>
<b>Total</b>			<b>11.65</b>	<b>89.94</b>

GPFU= 90 gal./11.65FU

GPFU= **7.72**

GPF= FU(7.72)

# WATER USE: CONVENTIONAL & AS IS (IN GALLONS)



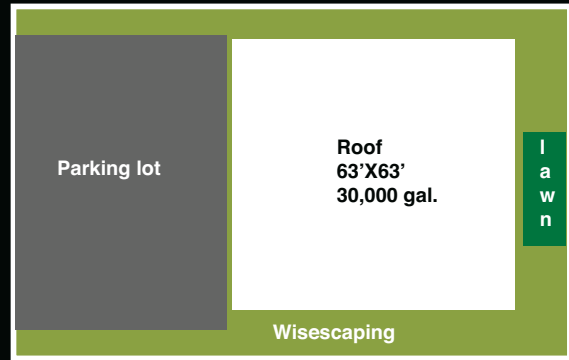
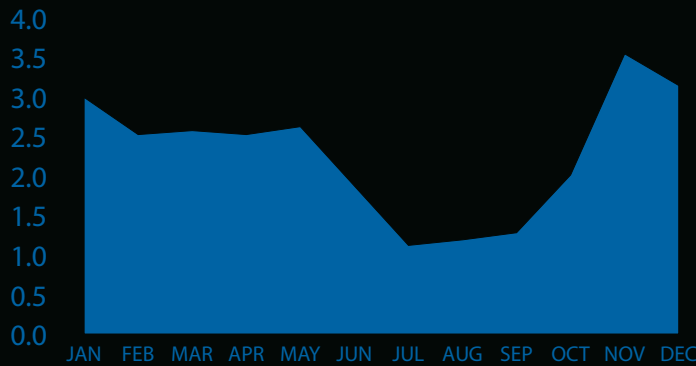
# STORMWATER:

Moscow Receives 27.37in of rain per year

The roof has the potential of catching 30,000 gal. per year.

Since the site is already wisescaped, so no extra water is needed for irrigation other than a small patch of grass. So we will use our rain water catchment to flush toilets.

The parking lot is paved, and causes significant runoff. If permeable pavers were used then there wouldn't be as much runoff.



# CISTERN SIZING:

2/3 of rain fall available for storage or **13.68"** per year

Roof area: 3969ft<sup>2</sup>

Collection of 30,000 gal. possible, we'll use one side of the roof, so **15,000** gal.

Toilets: 33.96gal. X 365 days= 12,395 gal. per year.

Cistern sizing: 33.96 X 90 days= **3,056** gal.

or

408.61ft<sup>3</sup> or 8x8x6 feet



# WATER USE: REDESIGN

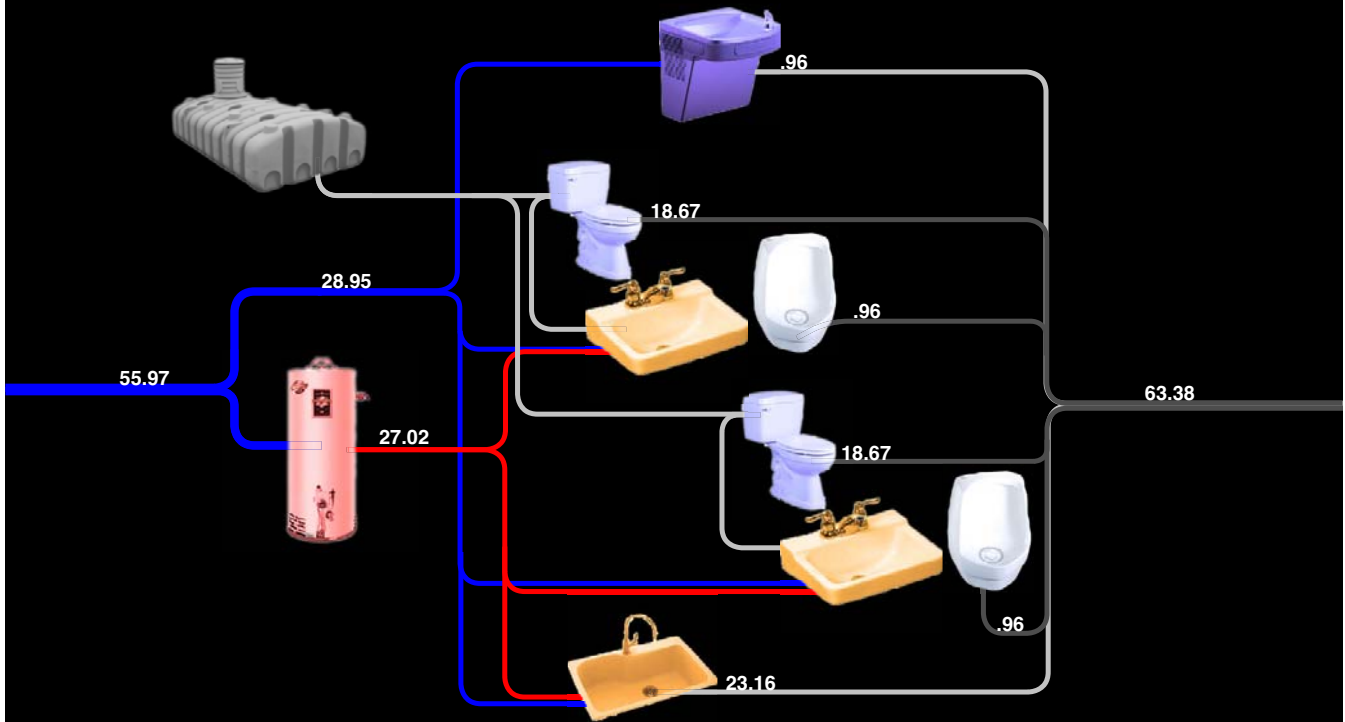
## Strategies:

- Use under sink gray water for flushing toilets as well as water from cistern
- Add waterless urinals (would decrease toilet usage, but is not calculated)

6 occupants X 15 gal. per person = 90 gal. per day

	#	WSFU	FU	GPF
Service Sink	1	3	3	23.16
Toilet	2	2.2	4.4	33.96
<b>Urinal</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>
Fountain	1	.25	.25	1.93
Lav Sink	2	2	4	30.88
<b>Total</b>			<b>11.65</b>	<b>89.94</b>

# WATER USE: redesign (in gallons)



# CONCLUSION:

We were able to decrease our water usage from the city by 37% and our waste water by 32%. However our conservation would be higher if we had calculated the decreased toilet use because of the waterless urinals. Our cisterns were more than large enough, and perhaps we could have re-sized them to take into account the gray water system. Or the remaining water could be used for irrigation of the wisecaping, which wouldn't be much at all. Overall though, it could help the Moscow Water Department be a better example of water conservation in the community.

