

PROJECT CASE STUDY

WATER EFFICIENCY PROJECT

Marker Hotel

208 Guest rooms

At the Request of: PEB

501 Geary St,

90% Projected Occupancy

San Francisco, CA 94102



How this property used Indoor Water Conservation's (IWC) Balanced Flow technology to:

Reduce Utility Costs (water, sewer & energy)	\$ 66,273 per year
Investment \$ 15,253	ROI 2.8 months

Reduce Water Consumption	1,794,208 gallons per year
Reduce Energy Consumption	7,983 therms per year

Summary

IWC's Water Use Assessment identified inefficiencies working with Management regarding water and energy usage.

IWC's Technicians measured variations in water pressure, source flow volumes, flow volumes and fixtures flows through the property to calibrate Flow Controller sizes.

IWC conducted a Post Installation audit to verify effectiveness of the solution.

PROJECT SUMMARY



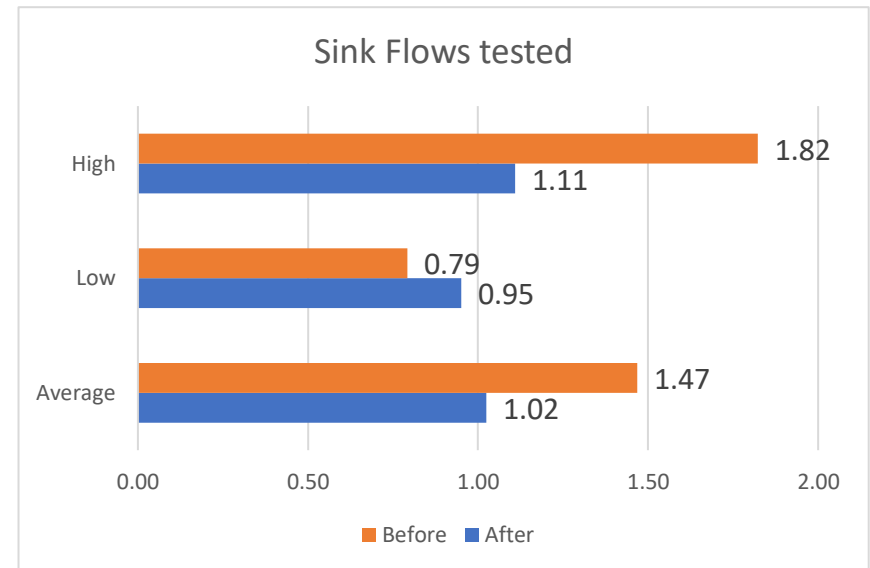
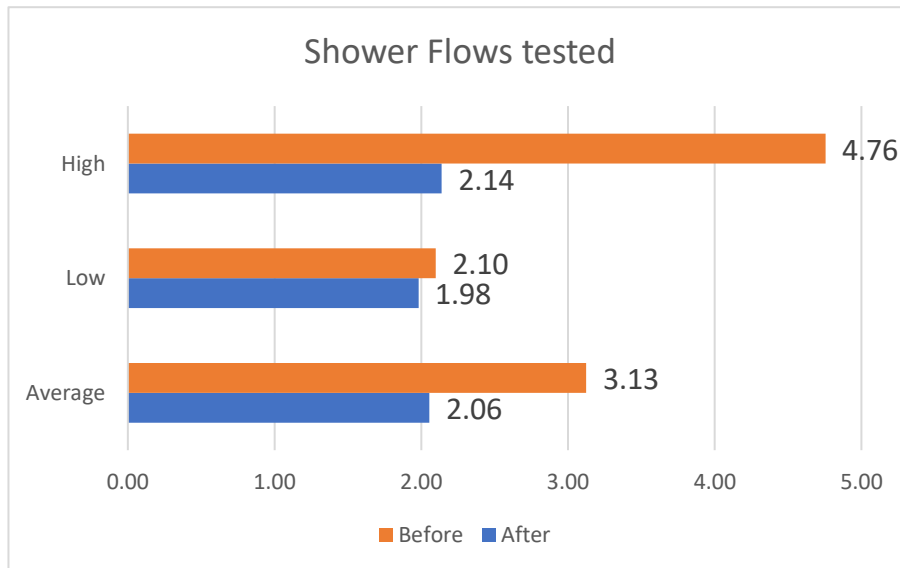
PROBLEM

Unbalanced Shower and Sink flows were causing inefficient water and energy use

		COST	
Excess Water Use	1,794,208 gallons per year	\$ 57,484	Water & Sewer
Excess Energy Use	7,983 therms per year	\$ 13,220	Energy
Excess Water, Sewer & Energy Costs		\$ 70,704	Annually

SOLUTION

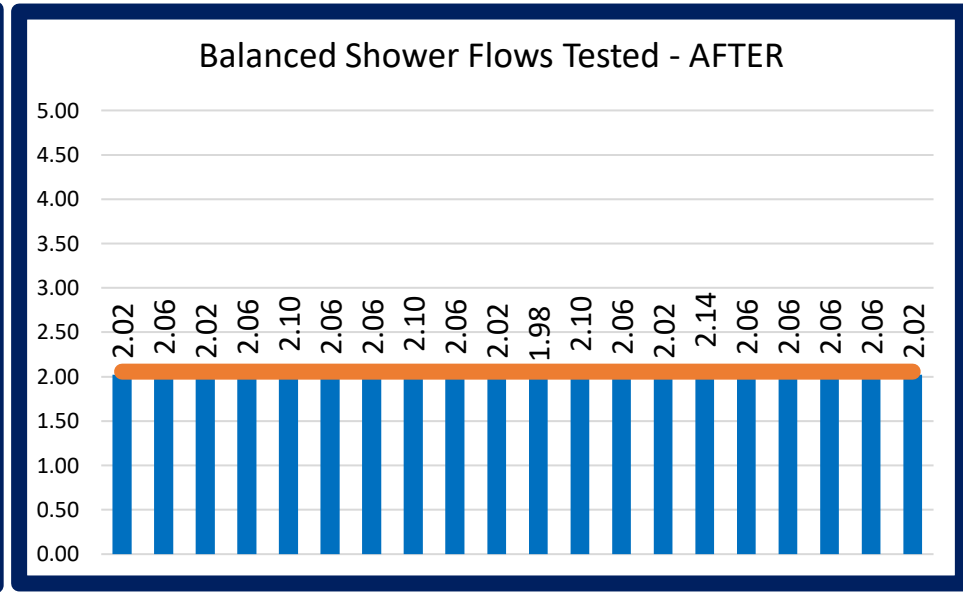
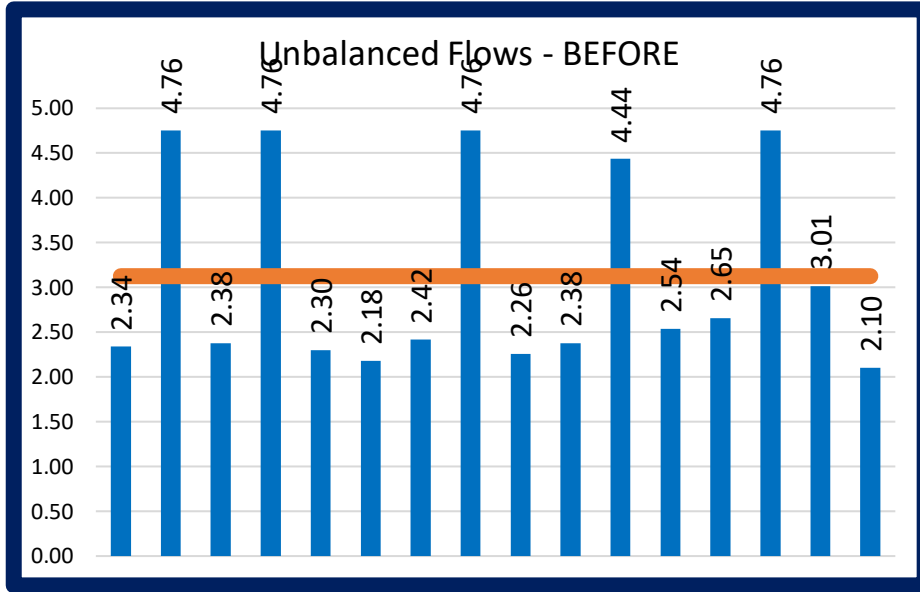
IWC Balanced flows in sinks and showers, delivering the same efficient flow in every room on every floor.





OVERHEAD SHOWER FLOW COMPARISON

Flows are reported in gallons per minute



*Speakman Anystream showerheads were not replaced, just balanced.

Comparitive Chart - gallons per minute

Shower	Before	After	Delta
High	4.76	2.14	2.62
Low	2.10	1.98	0.12
Ave	3.13	2.06	1.07
Spread	2.65	0.16	2.50

Decreased high flow by 2.62 gpm, lowering utility costs

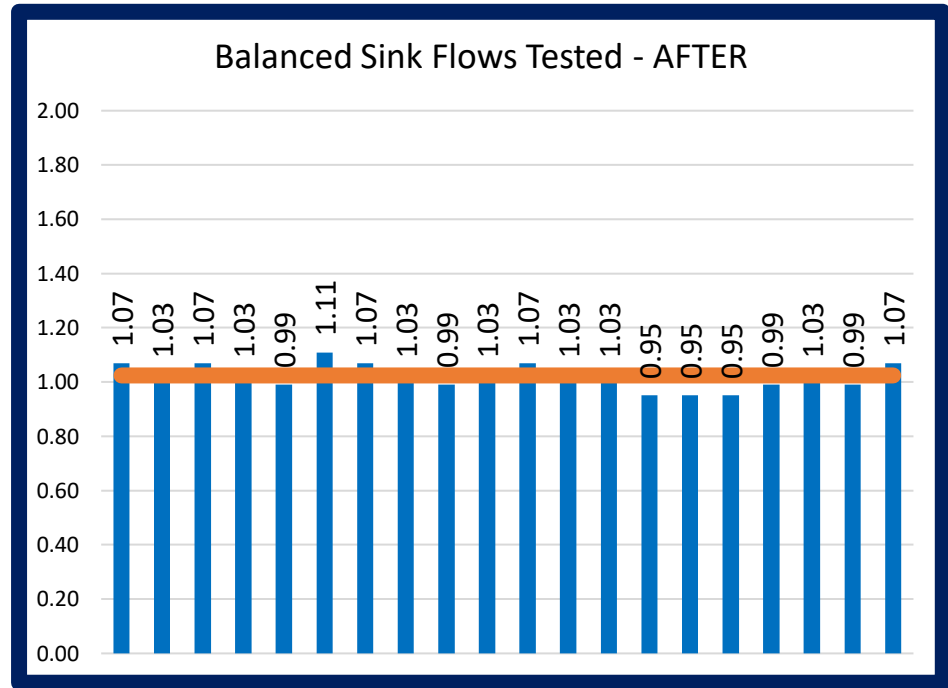
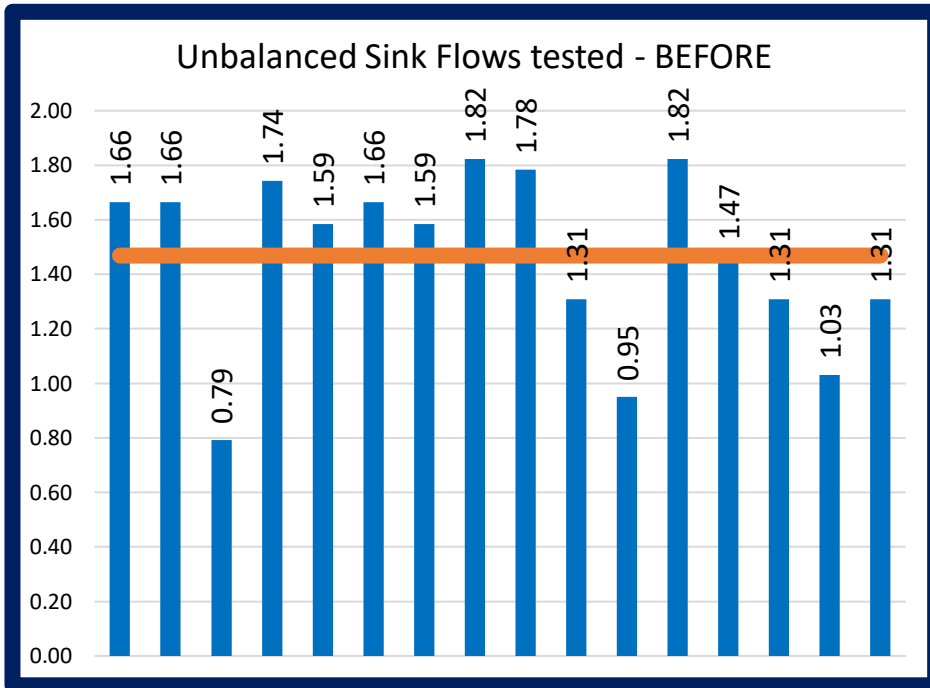
Decreased low flow by 0.12 gpm improving guest satisfaction

Balanced flows to 2.09 gpm, reducing average flows by 1.04 gpm

Reduced Gap in flows 2.50 gpm



BATH SINK FLOW COMPARISON



Bath Sink

Comparitive Chart - gallons per minute

	Before	After	Delta	
High	1.82	1.11	0.71	Decreased high flow by 0.71 gpm, lowering utility costs
Low	0.79	0.95	-0.16	Increased low flow by 0.95 gpm improving guest satisfaction
Ave	1.47	1.02	0.44	Balanced flows to 1.02 gpm
Spread	1.03	0.16	0.87	Reduce Gap by 0.87 gpm

COST & FLOW REDUCTION



Savings per Occupied room in gallons per day		24.93 gallons per day
Times: Water, sewer & energy rate per gallon	\$	0.0394 combined utility rate per gallon
SAVINGS PER OCCUPIED ROOM PER DAY	\$	0.98
Times: Estimated Occupied rooms per year		<u>67,452</u> (based on data provided by Management)
ANNUAL UTILITY COST SAVINGS - BALANCED FLOWS	\$	66,273 (estimated)

FLOWS TESTED	Sink	Overhead	
BEFORE - Unbalanced flows average gpm	1.47	3.13	gpm
AFTER - Balanced flows average gpm	<u>1.02</u>	<u>2.06</u>	gpm
Savings per fixture - gpm (gallons per minute)	0.44	1.07	gpm
	30%	34%	
USAGE VARIABLES			
Guests per room	2.00	2.00	
Usage per Guest (minutes)	<u>4.00</u>	<u>10.00</u>	
Total usage in minutes per room/day	8.00	20.00	minutes
Savings per fixture - gpm (gallons per minute)	<u>0.44</u>	<u>1.07</u>	gallons
Savings POR per day - gallons	3.55	21.38	24.93 gallons per day POR
Savings % per fixture	14%	86%	100%