

**PROJECT CASE STUDY**

**WATER EFFICIENCY PROJECT**

Spero Hotel

145 Guest rooms

At the Request of: PEB

504 Taylor St.

90% Projected Occupancy

8/9/2021

San Francisco, CA 94102



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

|  |           |                |
|--|-----------|----------------|
| Reduce Utility Costs (water, sewer & energy) | \$ 36,949 | per year       |
| Investment                                   | \$ 7,805  | ROI 2.5 months |

|                           |         |                  |
|---------------------------|---------|------------------|
| Reduce Water Consumption  | 985,792 | gallons per year |
| Reduce Energy Consumption | 4,386   | 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 ACHIEVEMENTS



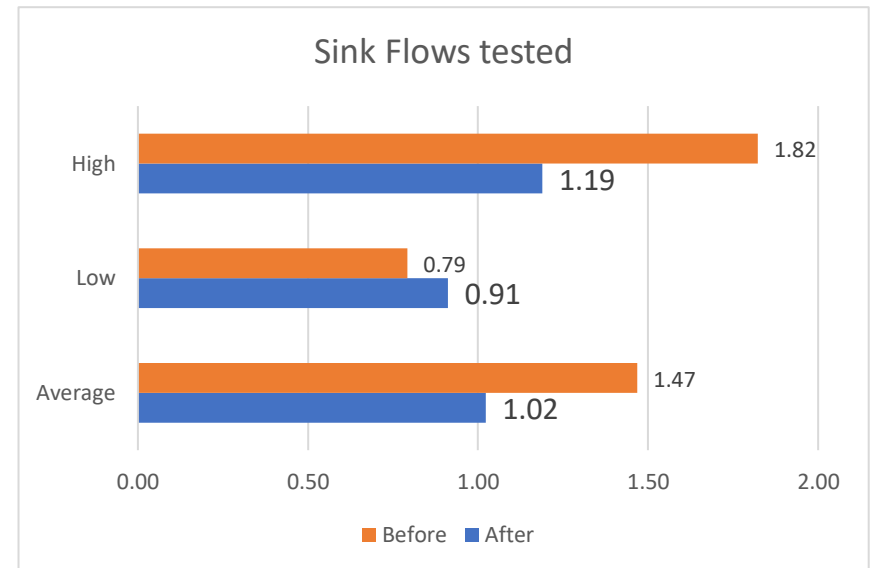
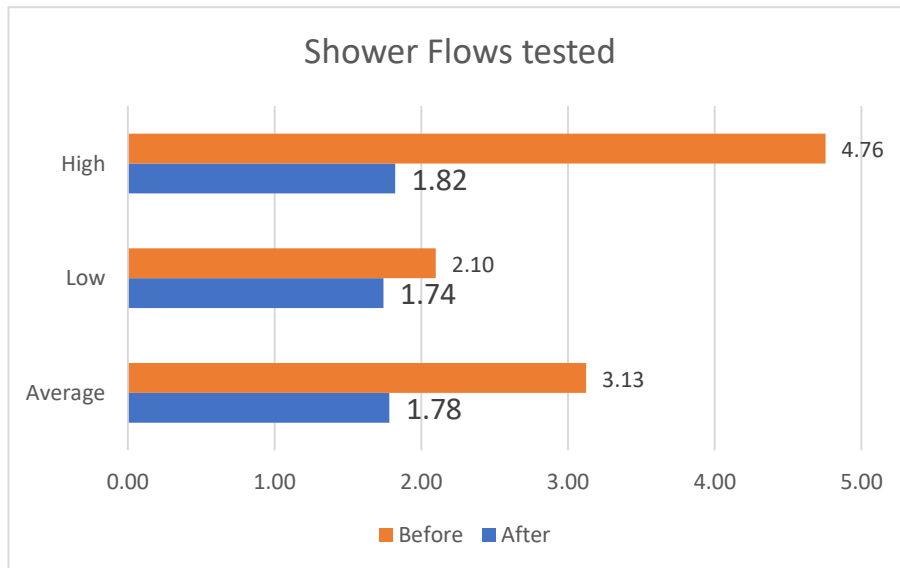
## PROBLEM - SOLVED

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

|                   |                            |                  |                 |
|-------------------|----------------------------|------------------|-----------------|
|                   |                            | <b>COST</b>      |                 |
| Excess Water Use  | 1,124,156 gallons per year | \$ 27,333        | Water & Sewer   |
| Excess Energy Use | 4,386 therms per year      | \$ 7,506         | Energy          |
|                   |                            | <b>\$ 34,839</b> | <b>Annually</b> |

## SOLUTION

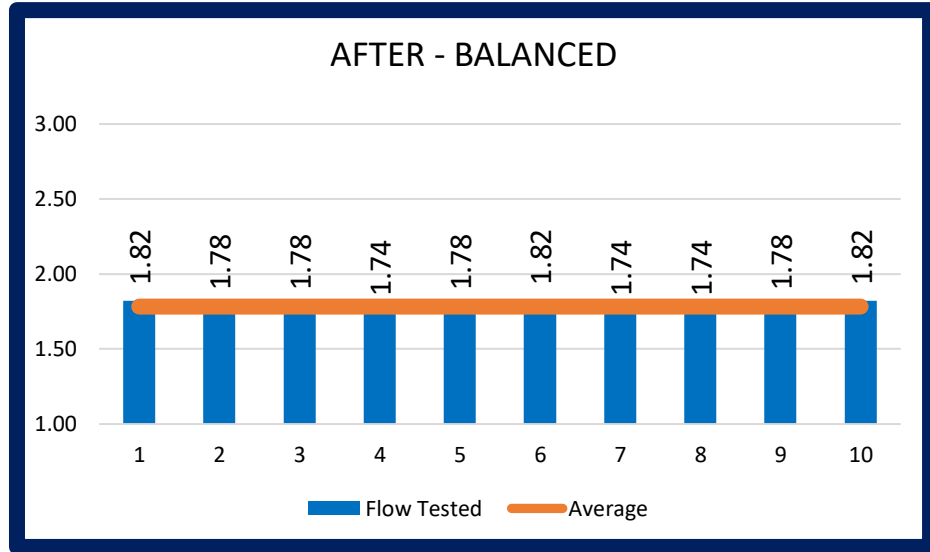
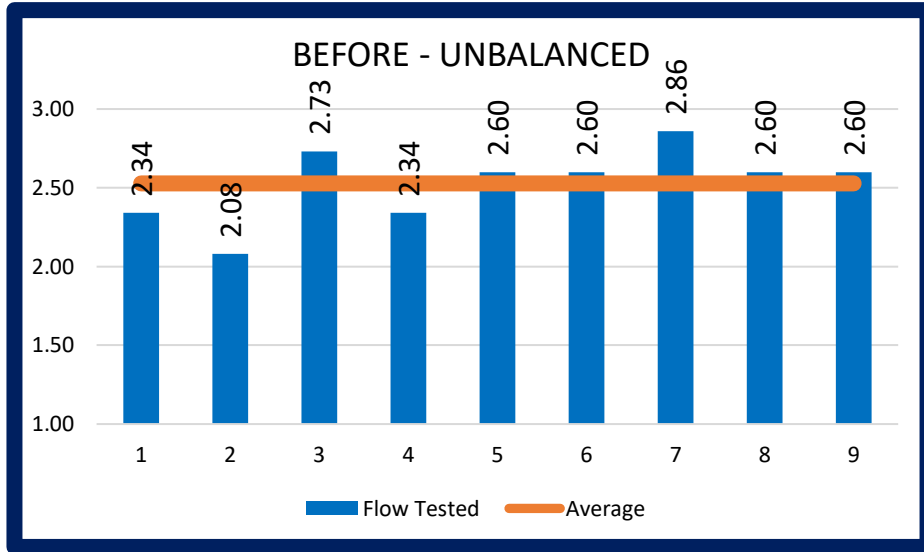
IWC Balanced flows in sinks and showers, delivering the same efficient flow in every room on every floor.



# OVERHEAD SHOWER FLOW COMPARISON



Flows are reported in gallons per minute



Comparitive Chart - gallons per minute

| Shower | Before | After | Delta |
|--------|--------|-------|-------|
| High   | 2.86   | 1.82  | 1.04  |
| Low    | 2.08   | 1.74  | 0.34  |
| Ave    | 2.53   | 1.78  | 0.74  |
| Spread | 0.78   | 0.08  | 0.70  |

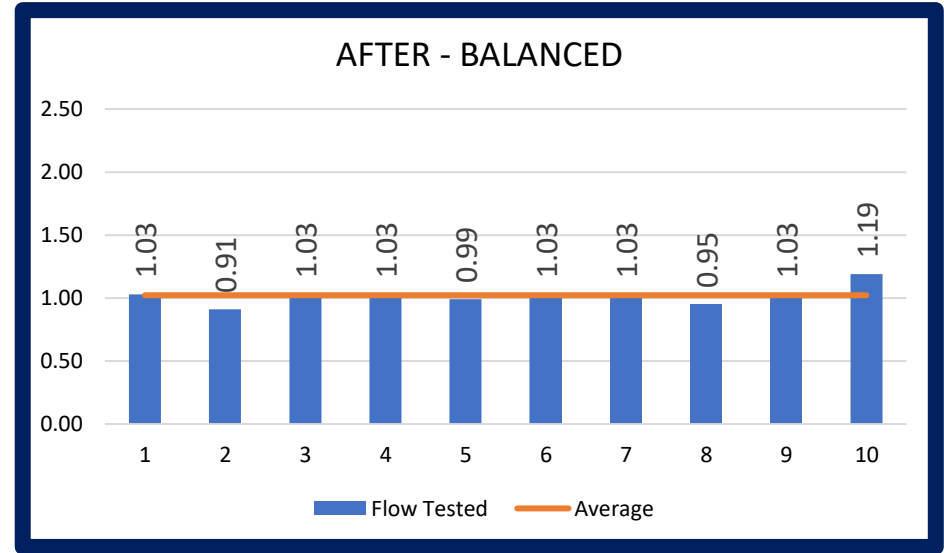
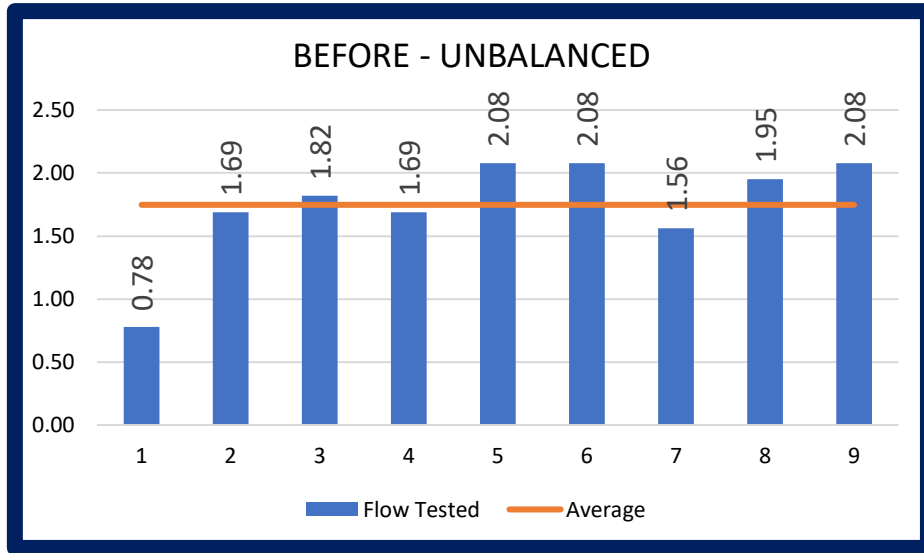
Reduced high flow tested, lowering utility costs

Reduced low flow tested, lowering utility costs

Reduced average shower flow 0.74 gpm

Significantly closed gap between high flows and low flows

# BATH SINK FLOW COMPARISON DETAIL



Comparitive Chart - gallons per minute

| Shower | Before | After | Delta |
|--------|--------|-------|-------|
| High   | 2.08   | 1.19  | 0.89  |
| Low    | 0.78   | 0.91  | -0.13 |
| Ave    | 1.75   | 1.02  | 0.73  |
| Spread | 1.30   | 0.28  | 1.02  |

Reduced high flow tested, lowering utility costs

Increased lowest flow test, improving guest satisfaction

Reduced average shower flow 0.73 gpm

Significantly closed gap between high flows and low flows

# COST & FLOW REDUCTION



|   |  |
|---|--|
| <b>Savings per Occupied room in gallons per day</b> | <b>20.70 gallons per day/room</b>                    |
| Times: Water, sewer & energy rate per gallon        | \$ 0.0375 combined utility rate per gallon           |
| <b>SAVINGS PER OCCUPIED ROOM PER DAY</b>            | <b>\$ 0.78</b>                                       |
| Times: Estimated Occupied rooms per year            | <u>47,633</u> (based on data provided by Management) |
| <b>ANNUAL UTILITY COST SAVINGS</b>                  | <b>\$ 36,949</b> (estimated)                         |

| <i><b>FLOWS TESTED</b></i>                     | <b>Sink</b> | <b>Overhead</b> | <b>Handheld</b> | <b>Kitchenette</b> |                              |
|--|-------------|-----------------|-----------------|--------------------|------------------------------|
| BEFORE - Unbalanced flows average gpm          | 1.75        | 2.53            | 0.00            | 0.00               |                              |
| AFTER - Balanced flows average gpm             | <u>1.02</u> | <u>1.78</u>     | <u>0.00</u>     | <u>0.00</u>        |                              |
| Savings per fixture - gpm (gallons per minute) | 0.73        | 0.74            | 0.00            | 0.00               |                              |
|  | 42%         | 29%             |                 |                    |                              |
| <br><i><b>USAGE VARIABLES</b></i>              |             |                 |                 |                    |                              |
| Guests per room                                | 2.00        | 2.00            | 0.00            | 0.00               |                              |
| Usage per Guest (minutes)                      | <u>4.00</u> | <u>10.00</u>    | <u>0.00</u>     | <u>0.00</u>        |                              |
| Total usage in minutes per room/day            | 8.00        | 20.00           | 0.00            | 0.00               |                              |
| Savings per fixture - gpm (gallons per minute) | <u>0.73</u> | <u>0.74</u>     | <u>0.00</u>     | <u>0.00</u>        |                              |
| <b>Savings POR per day - gallons</b>           | <b>5.80</b> | <b>14.89</b>    | <b>0.00</b>     | <b>0.00</b>        | <b>TOTAL</b><br><b>20.70</b> |
| Savings % per fixture                          | 28%         | 72%             |                 |                    | 100%                         |

gallons per day POR