Jordán-Cuebas, F., Krogmann, U., Andrews, C. J., Senick, J. A., Hewitt, E. L., Wener, R. E., Sorensen Allacci, M., and Plotnik, D. (2017). "Understanding apartment end use water consumption in two green residential multistory buildings." J. Water Resour. Plann. Manage., in press.

Documentation:

This repository includes 5 files:

- **model_v1.m:** MATLAB code for the indoor water end use consumption model, the calculation of the model performance metrics, and the results. The code includes comments for each section.
- **model_v1.txt:** Plain text format version of model_v1.m.
- **inputdata_v1.mat:** MATLAB format data file including the "input" and the "metered" data in structured arrays (i.e., struct). The "input" struct contains the input data for the indoor water end use consumption model and includes three tables. The first two tables are the input data for the buildings ("input.one" and "input.two"), and the third table is the input data considering the water conservation measures for the buildings ("input.three"). The "metered" struct contains the water end use consumption data used to calculate the performance metrics and includes two tables, one for each building ("metered.one" and "metered.two").
- **inputdata_v1.xls:** Spreadsheet version of inputdata_v1.mat. The spreadsheet includes five tabs: the first three contain the "input" data for the indoor water end use consumption model, and the last two contain the "metered" end use water consumption data for the two buildings.
- **pca_v1.xls:** Spreadsheet containing the input data and the results of the principal component analysis.

How to run the model in MATLAB:

- Download the "model_v1.m" and "inputdata_v1.mat' files.
- Start MATLAB and open the folder with the downloaded files.
- Run "model_v1"
- Tables with results are generated in the MATLAB workspace.

Structure of the files in the MATLAB workspace:

- The cumulative distribution functions generated by Monte Carlo simulation for each parameter (e.g., shower frequency) are structured in the "distribution" struct, and the water end use consumption (e.g., shower water consumption) in the "modeled" struct. For example, the cumulative distribution function for the shower water consumption in Building #1 can be found in "modeled.one.shower", and the faucet water consumption in the bathroom sink in Building #2 in "modeled.two.faucet.bath".

Open source alternatives to MATLAB

- The code might run on open source alternatives to MATLAB. Search "matlab alternative" on any web search engine for the most current open source MATLAB alternatives.