

# Michigan Department of Environment, Great Lakes, and Energy (EGLE) Pre-Flushing Event Guidance for School Plumbing

## How to Determine Flushing Zones for the High Velocity Flushing Method

### Introduction

This protocol provides guidelines in *determining zones* for the flushing events intended to systematically remove both aged water and particulates from the system after extended periods of water stagnation. This must be done first in order to follow the procedures listed in the *EGLE Guidance for Flushing School Plumbing* document. This type of flushing is based on maintaining a flushing water velocity of at least three feet per second in the building's service line once to twice per year. Suggested times for this type of flushing are after school dismisses for summer break and before the start of the next school year (June and August, respectively). This type of flushing involves all building water outlets.

### Note:

The determination of zones will take some planning in advance of the actual flushing event(s) and will depend on the complexity of your plumbing system, building shape and size, and the number and location of water outlets. Zone determination may take some time and adjustments to reach a three foot per second water velocity during the flushing event.

### Procedure

1. Conduct a plumbing system assessment.

The first step that must be taken is to conduct a plumbing system assessment. If available, use a blueprint of the building. You may wish to have the help of a licensed plumbing contractor. Walk-through the building to locate all water supply lines entering the building, the location of the water meter(s), pipe sizes and configurations, direction of cold-water flow throughout the building, valve locations, and the locations of all water outlets. Record the information on a plumbing profile document and floor map (or blueprint) and label this document as your "Water Flushing Zone" plan. A plumbing profile document template may be found online at [www.michigan.gov/schoolwater](http://www.michigan.gov/schoolwater).

2. Look at your blueprint or floor plan.

Next, look at your blueprint or floor plan to see any "visual zones" such as building wings, additions, room groupings, or multiple floors (building levels). Compare what you see visually with the plumbing configuration, flow of cold water, and water outlets.

You may have to make some initial zone assumptions, run a trial zone flush (see *Guidance for Flushing* document, Steps 8 & 9), and adjust the zones if needed to get the desired three feet per second velocity through the meter.

Some small buildings may have only one "zone" while larger buildings may have multiple zones. The key factor is that you create your zones as big or small as needed in order to get the proper velocity through the meter. You may have to add outlets to your zone or put some outlets in a different zone.

3. Label the zones with numbers.

If you have more than one zone, label the zone closest to the meter as “Zone 1”, then branch out with the flow of cold water to adjacent zones with successive labeling (“Zone 2, Zone 3, etc.) as needed. Essentially, you are trying to bring clean water into the building and not drag “dirty” or “old” water through the building. Start with Zone 1 closest to the watermain and end with your last zone furthest from the watermain. You might want to use a highlighter to outline the zones on the floor plan (see example below).

4. Initial Zone Determination Test.

To see if you can get three feet per second through the meter, you will need to do a trial run. You will need to gather a team of people to help. It is suggested to have a minimum of one person at the meter, one person per restroom, and two people to roam around and make sure unattended faucets (kitchen sinks, class sinks, fountains, utility sinks, etc.) are not over flowing. Having more people always makes it easier but the previous is an estimate of the bare minimum. Once you and your team are ready, follow the *EGLE Guidance for Flushing School Plumbing* procedure and if you get three feet per second through the meter for each zone, you have a verified plan to use for your flushing events!

Example of Zone Plan:

