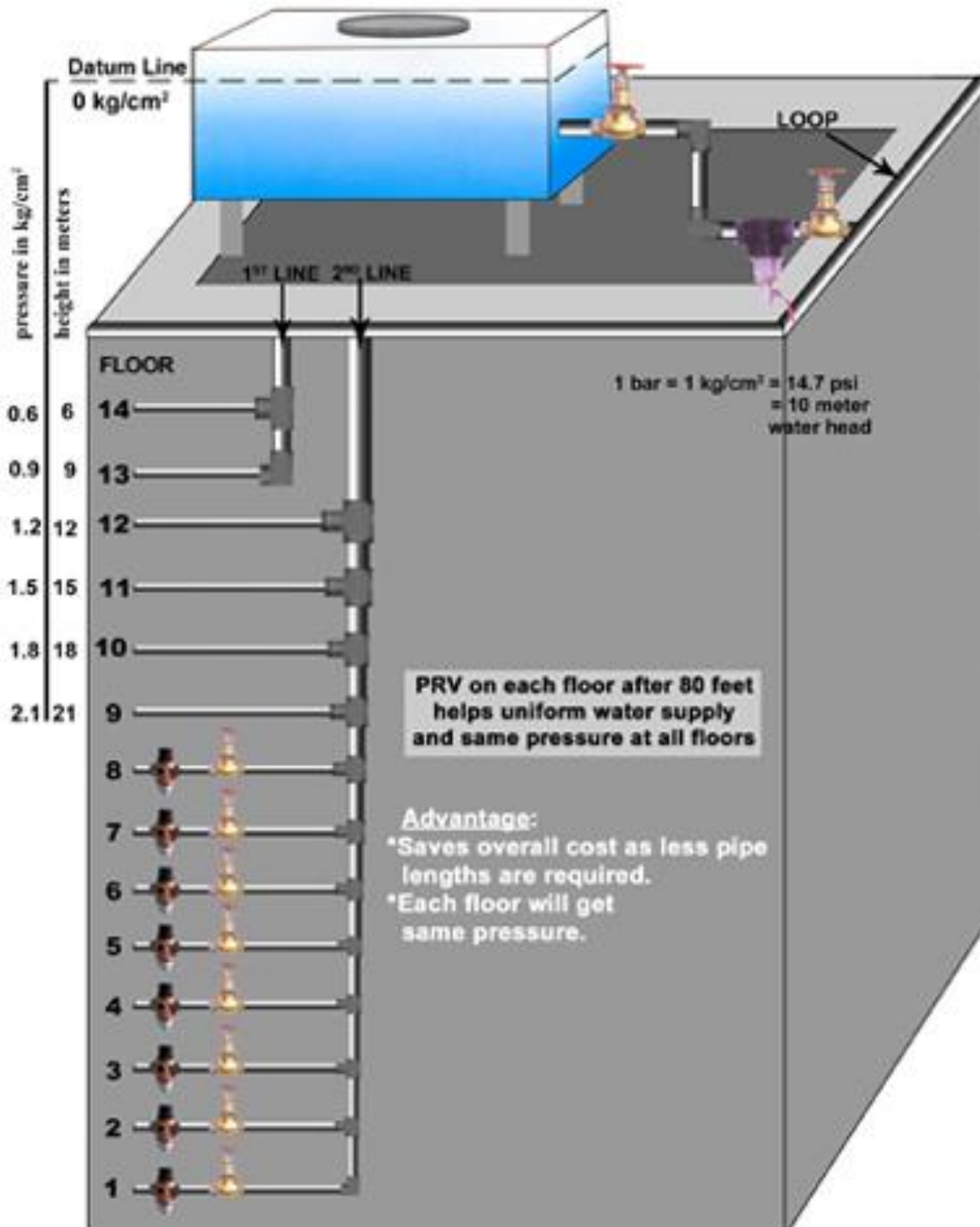


Advantage of a single downtake line with branch PRVs (UPVC/ CPVC Body PRV W21) versus a common PRV for multiple branches.

Note: The premise of having many more branches on same downtake line is based on the fact that when each branch/ floor will have same pressure the issue of water starvation on higher floors when lower floors draw water simultaneously will not be there. (i.e., there will be uniform flow rate available on each floor.)

Note: Sample illustration is of a gravity supply system. Ring mains system also can be similar.



1. **Lesser duct space needed.** Since the no. of parallel lines are reduced there is lesser duct space needed. And this is a big advantage especially when duct spaces are congested.
2. As this PRV can be fixed individually on each branch, there will be **no conflict between needs of owners on Last branch and first branch** of the downtake for pressure. Generally top branches of the zone tend to need more pressure and lower branches suffer from pressurization damages as they get much higher pressures.
3. **Eliminates issues of non-accessibility.** As these PRVs are fixed on each branch entering the apartment, it can be fixed near windows in hand reaching areas.
4. **Overcomes service issues when home owner is unavailable.** Also, often the homeowner from whose house the main PRV has to be accessed for repair/ service PRV is travelling or house is locked for other reasons for days at stretch. And at times homeowners are simply uncooperative, especially in high end projects. This has been a major challenge faced by technicians / plumbers who service these main line PRVs and obviously by other homeowners on lower branch/floors who have to suffer with lesser flow or excessive pressures. With branch PRVs this issue is completely eliminated.
5. **Optimized water conservation.** Although PRV are installed for water saving (apart from protection of gadgets) this function is compromised in the Indian scenario where 1 PRV is catering to more and more branches. The typical flow rate across a running tap or shower increases by 45% merely because of pressure increase from 1.5 bar as on top branch to 3 bar on lowest branch. Which means when averaged out overall water consumption will be approximately higher by 25% than as compared to when each branch is having same pressure. This has special significance when consideration of green building is there.
6. **Finally, the Cost.** While these advantages are evident one will think of cost repercussion. Fortunately, with the advent of the UPVC PRV the economics are turned in favor of a single stack downtake line with PRVs on each branch.

Factors causing overall Cost Reduction by use of UPVC PRV in Projects.

- **Reduced lengths of pipes and Labour costs** by reducing the number of downtake lines as number of branches can be drawn from single line. (Barring top 2 to 3 branches where pressures are very less.)
- **Lesser no. of clamps** required as pipe length is reduced indirectly saving the cost.
- Varie's W21S UPVC PRV with Solvent Cement End connections can **eliminate the cost of MTA and unions and corresponding labour costs**. Even in solvent end connections there is no need to remove PRV during the servicing because of the cartridge design of PRV. A new cartridge / spindle means a new PRV. This means the PRV body fixed into the pipe will never need to be removed and this is why MTA and union etc. can be eliminated. Moreover, although the body is of UPVC (CPVC option is there) it is fully loaded with brass inserts inside for strength and longer life. (5 years warranty offered)
- **Saves on cost of the 2no.s ball valves** (or 4 no.s if a bypass arrangement is planned) needed before and after each PRV in conventional downtake design. While using a branch PRV no additional ball valve is needed. One ball valve is anyway provided. The second ball valve generally needed after PRV to create a no flow condition at time of pressure setting or checking will not be needed as a person doing pressure setting/ checking is present in same bathroom / kitchen and can himself ensure that all taps are closed.
- **Probability factor for simultaneous/ peak demand can be reduced from 65% to 50%**. In zoning system of 5 to 6 (or more) branches generally pipe diameters are calculated as per 65% peak load factor. However, when there are more branches to a single line the peak load factor can be 50%. Lesser peak load factor means lesser pipe diameter and lesser costs.
- Uniform pressure on each branch means further savings in water consumption. **lesser demand for water further enables lesser pipe diameters**.
- Instead of multiple ball valves required at the start of multiple down take lines, **only one ball valve at the start of one downtake line** is required.