



School System Design

Rev 3.07

For Use with Version 3.10, or higher, System Design Tool. The System Design Tool is available on www.valcom.com/multipath

Due to complexities associated with schools, such as needs, size, etc., designing a MultiPath system can seem like a daunting task; however, obtaining the proper information will help ease the design process.

The following document will point out basic information to obtain before starting the design process, provide a School System Questionnaire to gain more substantial information and an optional School System Design Chart, which will help organize data for larger, more complex schools. The use of this document will ultimately assist in entering data into our System Design Tool, which is used in compiling an equipment list for the job being assessed.

The minimal information required to design a school intercom system is:

Is this a new or retrofit system?

Important Considerations for reusing existing cabling and/or speakers:

- a. Existing speakers will most likely have suffered deterioration from age and environment. If customers are replacing their intercom, odds are it is because it does not work to their satisfaction – this may very well be a result of the existing system speakers.
- b. Be aware that there are problems associated with terminating heavy gauge cable on 66 blocks.
- c. The wiring may not provide the needed number of conductors for your application.
- d. The quality of the wiring and its installation will not be under your control and may have an adverse effect on the quality of the completed system.

With all things considered, replacing the speakers is your best choice:

It will be necessary in any case to remove each existing speaker in order to change the tap setting. Replacement only takes a few moments more and the result is a known good speaker. Valcom offers many cost-effective speaker solutions from which to choose.

How many classrooms?

One classroom is considered one talkback zone. A classroom is generally the basis in determining the number of talkback zones needed in a school intercom/paging system. Normally, a classroom will contain a talkback speaker and a call button. Be sure to determine any classrooms not needing a call button. For larger talkback areas, such as laboratories or libraries, it is possible to combine talkback and one-way speakers in the same zone.

How many other areas will need an intercom (talkback) speaker?

These areas would each be included in the required number of talkback zones. Examples include offices, teachers' lounge, etc.

What type ceilings are in the different areas? Specifically, are they 2 foot wide drop ceiling?

This will determine the various speaker options suitable in a given area. For drop ceilings, we recommend the V-CTL. For hard cap ceilings, the V-C806PK is normally the speaker of choice.

How many outside horns do they need?

These horns may or may not be included in the same one-way zone, but knowing how many horns will ensure that proper power supplies are given. Providing a wall-mount volume control may be a consideration here for ease of adjustment.

How many speakers and what type will be required for other areas like the cafeteria, gymnasium and auditorium?

Normally, the cafeteria speakers will be spaced at a distance 2x the ceiling height. A normal size gymnasium will typically have two V-1030C (5 watt) horns. The auditorium could be either lay-in speakers (V-9022), pendant style speakers (V-1015B), 3W flex horns (V-1080), etc.

How long is each hallway and how high are the ceilings in the hallways?

Knowing the length of each hallway will help in determining the number of speakers that should be added to that hallway. Typically, the spacing of speakers along a hallway will be mounted at 2x the ceiling height (maximum distance being 2.3x the ceiling height).

In addition to this minimal information, a much better design requires the following info:

- 1) Which classrooms, hallways and other areas will connect to which IDF, or to the MDF. You can determine this by looking at the prints, picking logical IDF locations and assigning the classrooms, offices and common areas to each based upon logical wire routing.
- 2) Any and all locations that will require clocks – and what type of clocks they want.
- 3) How the school would like the hallways zoned out. This could be anywhere from a single zone for each hallway to a single zone for all hallways.
- 4) Any other “special” requirements (door unlock, VoIP distributions, CD player, local sound reinforcement for the gym, etc)

At minimum, the following School System Questionnaire should be completed in order to obtain an equipment list.

School System Questionnaire

How many classrooms?

Will all classrooms require a talkback speaker?
If no, then how many will not?

How many classrooms will need a call button?
Type of call-button required? (circle one)
Normal Emergency

Color of call-button required? (circle one)
Stainless White

How many classrooms will need a new speaker?

What type?

| | Qty. |
|--------------------------------|-------|
| 8" Round Ceiling Speaker | _____ |
| 2' x 2' Lay-In Ceiling Speaker | _____ |
| Wall-Mount Speaker | _____ |
| Total | ===== |

How many one-way zones are required?

Details:

If speakers are being reused, what type are they?
(25V, 70V, self-amplified)

Does the school need new clocks?

Quantity required?

What correction method? (circle one) 2-wire digital, 3-wire sync, wireless

| | Qty. |
|--------------|-------|
| Analog 12" | _____ |
| Analog 16" | _____ |
| Digital 2.5" | _____ |
| Digital 4.0" | _____ |
| Total | ===== |

Details:

Does the school want the system to synchronize existing clocks?

What type are they?

Would the school like a large display for the office area to indicate incoming calls?

Would the school like a Program Distribution Panel to simplify music source adjustment, provide command switch inputs for emergency tones and provide a user-friendly microphone input?

Would the school like an AM/FM/CD Program Control Panel?

Would the school like to add a microphone for general one-way announcements?

Does the school need more than eight relays to control external mechanisms such as electric door locks, lighting, signs, etc?

