speco technologies®

simply unique.

Commercial Audio

Reference Guide

Commercial Audio Overview

speco technologies

What Is a 70 Volt Sound System & What Is It Used For?

A 70 Volt Sound System is comprised of amplifiers, speakers with transformers, microphones, volume controls, a telephone system interface and an assortment of wires used as connections. It is generally used for commercial sound applications where there is a need for electronically amplifying and distributing sound for the functions of paging, playing music and/or pre-recorded messages to a commercial environment.

What Are The Components That Make Up a 70 Volt Sound System?

• **Centralized Amplifier:** The central unit of a 70 Volt System is the amplifier that boosts the sound signal to be distributed to pre-established speakers or paging horn loudspeakers.

There are power amplifiers, which are rack-mountable and have no external controls, and packaged amplifiers, which have pre-amp features such as volume controls, bass and treble controls, etc., that are built into the amplifier; thus making it a pre-amplifier and power amplifier all in one unit.

Amplifiers have many diverse features and input and output connections. They can feature XLR MIC Connectors or MIC terminal strip connections, auxiliary/RCA inputs for music sources, and 600 ohm telephone inputs.

Most commercial amplifiers have speaker outputs for 4/8/16 ohms and 70V systems. Most Speco Technologies amplifiers offer a 'Music on Hold' output feature to allow customers on hold to hear music or prerecorded advertising.

•**Speakers:** There are several different types of speakers including in-ceiling, in-wall, baffle and flush-mount cone speakers or horn loudspeakers.

Optimal speaker selection for each installation depends on the application where the speaker is being used. It can also depend upon the size of the area needed to be covered, the ambient noise level of the environment, whether the speaker will be used for foreground/background music or voice, and whether the speaker will be used indoors or outdoors.

For 70 Volt Systems in commercial applications, the speaker must have a transformer mounted on it to be used.

• **Transformers:** Transformers that are used on 70 Volt System speakers are step-down transformers that convert the high-voltage/low-current coming from the amplifier to the low-voltage/high-current signal going to the speaker.

A transformer most often has multiple wattage taps that allow each speaker to be individually set as to how much wattage will enter the speaker, and how loud each speaker will be. Transformers can be sold individually to be mounted on a speaker or premounted on a speaker.

• **Phone System Interface Device:** These systems are used to connect a phone system to the speaker system via an amplifier for paging purposes.

• **Microphones:** Located in the front end of the system, they will receive the delivered sound. Microphones are typically low impedance devices that require a shielded cable so as to not to interfere with the amplifier or speaker wires.

• **Wires:** Generally, speaker wire is determined by the length of the run and wattage utilized:
For wire runs less then 50 ft. and 50 Watts of power or less use 16 wire gauge.
For wire runs more than 50 ft. or over 50 Watts of power use 14 gauge wire.

• **Volume Controls/Attenuators:** Allow adjustment of volume to speakers.

What Are The Benefits of Using a 70 Volt Sound System?

• **A 70 Volt System uses a basis of high voltage to result in a lower current when distributing power to a sound system.**
Power equals Voltage times current, thus a higher voltage will result in a lower current needed to arrive at a desired power load.
By not having excessive, wasted current, long runs of wire can be prevented from overheating. **This makes 70 Volt Systems very energy efficient.**
Many municipalities in America actually require the use of 25 Volt transformers because certain electrical codes will classify a 25 Volt system as low voltage, thus making it safer.

• Generally speaking, **70 Volt Systems are much more cost efficient than an 8 ohm speaker system** when dealing with volume installation of speakers.

• **70 Volt Systems are easier to design than 8 ohm speaker systems**. The impedance does not have to be matched throughout the 70 Volt system as it would on an 8 ohm based system.

• **70 Volt Systems can have their speakers daisy chained in parallel together without worry.** Because 70 Volt speakers come with transformers, impedance is not an issue unless an excessive amount of speakers are going to be installed together. (It is recommended to use multiple wire runs back to the amplifier as opposed to a single run.) This will reduce location problems that occur and make it easier to find by isolating it on individual small speaker runs.

What Are The Benefits of Using a 70 Volt Sound System? (cont'd)

• **An easy calculation is all that is needed in determining the amount of wattage needed by your amplifier**. Take the total wattage requirement of the 70 Volt speakers, or "load", include a 20% safety buffer to the upside and you will obtain the minimum RMS wattage.

• **70 Volt Systems allow the volume of each individual speaker in a specific area to be set using wattage taps.** The higher the wattage taps are set on individual speakers, the more power the speaker consumes, the louder the speaker will be.

• **The speaker transformer serves as a safeguard** to make sure individual speakers are not damaged by excessive wattage.

Designing a 70 Volt System:

Which Type of 70V Speaker Should I Use?

In-Ceiling Speakers – Best utilized in 8, 10 & 12 ft. drop ceilings in professional environments with low noise levels. Great for background music and/or paging. Ceiling support brackets should be used with in-ceiling speakers.

Wall Baffle or Wall Mount Speakers – Best utilized when the ceiling's height is prohibitive to speaker placement and/or speakers can not be mounted on the ceiling at all.

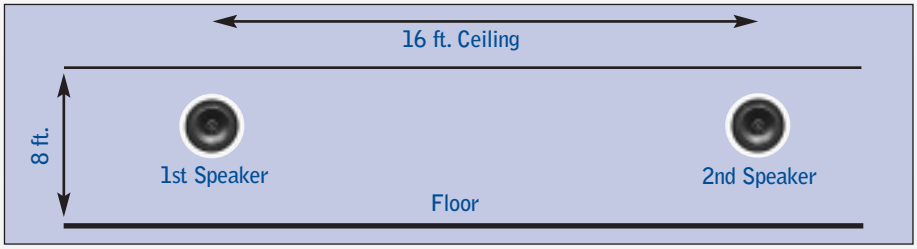
PA Horns – Horns are usually utilized in loud environments when distinct, and powerful paging messages are needed or when large areas must be covered. In addition, most PA Horns are weatherproof and are used for outdoor applications such as loading docks and sports fields.

How Many Speakers Should I Use?
Determining Proper Use Quantity For In-Ceiling Speakers:

The industry standard for calculating the proper amount of in-ceiling speakers for a specific area is to should have twice the space from the floor to the ceiling between the placement of each speaker on the ceiling, as shown in Diagram 1:

Diagram 1: Speaker Spacing on Ceilings

Ceiling Speakers Should be Spaced Apart at Twice the space of the Ceiling Height



For example, if your installation involves an 8 foot ceiling, then the speakers should be placed 16 feet apart on a square footage basis which equals 256 ft. of ceiling area covered. The following square area coverage chart shows specific ceiling heights:

Speaker Square Footage Coverage for Ceiling Heights

	Height of Ceiling	Spacing of Speakers (Ceiling height x2)	Square feet coverage per Speaker
8 foot ceiling	8 ft.	16	16 x 16 = 256 ft.
10 foot ceiling	10 ft.	20	20 x 20 = 400 ft.
12 foot ceiling	12 ft.	24	24 x 24 = 576 ft.

As you will notice, lowering the ceiling height results in the less square footage coverage per speaker, or the more speakers you will need. This is due to there is less downward space for sound dispersion before it reaches the listener.

On the following page there is an easy reference chart for determining the correct number of speakers needed for a specific area to assure proper dispersion of sound.

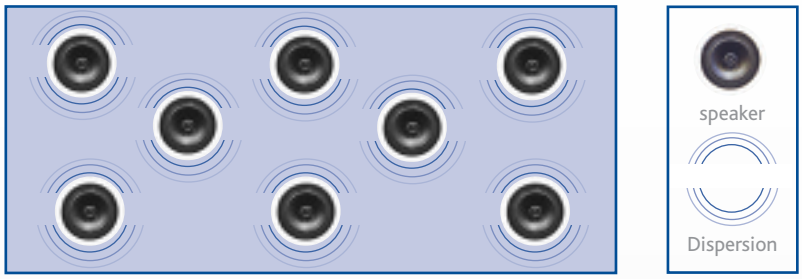
Correct Number of In-Ceiling Speakers Needed for Proper Sound Dispersion in Room Areas

Length of Installment Room

Width of Installment Room		10	15	20	25	30	35	40	50	60	70	80	90	100	110	120	130	140	150
10	8' Ceilings	1	1	1	2	2	2	2	3	4	4	5	6	6	7	8	8	9	9
	10' Ceilings	1	1	1	1	2	2	2	3	3	4	4	5	5	6	6	7	7	8
	12" Ceilings	1	1	1	1	1	2	2	2	2	3	3	4	4	5	5	5	6	6
15	8' Ceilings	1	1	1	2	2	2	2	3	4	4	5	6	6	7	8	8	9	9
	10' Ceilings	1	1	1	1	2	2	2	3	3	4	4	5	5	6	6	7	7	8
	12" Ceilings	1	1	1	1	1	2	2	2	2	3	3	4	4	5	5	5	6	6
20	8' Ceilings	1	1	2	2	2	3	3	4	5	6	6	7	8	9	10	10	11	12
	10' Ceilings	1	1	1	1	2	2	2	3	3	4	4	5	5	6	6	7	7	8
	12" Ceilings	1	1	1	1	1	2	2	2	2	3	3	4	4	4	4	5	5	5
25	8' Ceilings	2	2	2	3	3	4	4	5	6	7	8	9	10	11	12	13	14	15
	10' Ceilings	1	1	1	2	2	2	3	3	4	4	5	6	6	7	8	8	9	9
	12" Ceilings	1	1	1	1	1	2	2	2	3	3	3	4	4	5	5	6	6	7
30	8' Ceilings	2	2	2	3	4	4	5	6	7	8	10	11	12	13	14	15	17	18
	10' Ceilings	2	2	2	2	2	3	3	4	5	5	6	7	8	8	9	10	11	11
	12" Ceilings	1	1	1	1	2	2	2	3	3	4	4	5	5	6	6	7	7	8
35	8' Ceilings	2	2	3	4	4	5	6	7	8	10	11	13	14	15	17	18	20	21
	10' Ceilings	2	2	2	2	3	3	4	4	5	6	7	8	9	10	11	11	12	13
	12" Ceilings	2	2	2	2	2	2	2	3	4	4	5	5	6	7	7	8	9	9
40	8' Ceilings	2	2	3	4	5	6	6	8	9	11	13	14	16	17	19	20	22	24
	10' Ceilings	2	2	2	3	3	4	4	5	6	7	8	9	10	11	12	13	14	15
	12" Ceilings	2	2	2	2	2	2	3	3	4	5	6	6	7	8	8	9	10	10
50	8' Ceilings	3	3	4	5	6	7	8	10	12	14	16	18	20	22	24	26	28	29
	10' Ceilings	3	3	3	3	4	4	5	6	8	9	10	11	13	14	15	16	18	19
	12" Ceilings	2	1	2	2	3	3	3	4	5	6	7	8	9	10	10	11	12	13
60	8' Ceilings	4	4	5	6	7	8	9	12	14	17	19	21	24	26	28	31	33	35
	10' Ceilings	3	3	3	4	5	5	6	8	9	11	12	14	15	17	18	20	21	23
	12" Ceilings	2	2	2	3	3	4	4	5	6	7	8	9	10	11	13	14	15	16
70	8' Ceilings	4	4	6	7	8	10	11	14	17	19	22	25	27	30	33	36	39	41
	10' Ceilings	4	4	4	4	5	6	7	9	11	12	14	16	18	19	21	23	25	26
	12" Ceilings	3	3	3	3	4	4	5	6	7	9	10	11	12	13	15	16	17	18
80	8' Ceilings	5	5	6	8	10	11	13	16	19	22	25	28	31	35	38	41	44	47
	10' Ceilings	4	4	4	5	6	7	8	10	12	14	16	18	20	22	24	26	28	30
	12" Ceilings	3	3	3	3	4	5	6	7	8	10	11	13	14	15	17	18	19	21
90	8' Ceilings	6	6	7	9	11	13	14	18	21	25	28	32	35	39	42	46	49	53
	10' Ceilings	5	5	5	6	7	8	9	11	14	16	18	20	23	25	27	29	32	34
	12" Ceilings	4	4	4	4	5	5	6	8	9	11	13	14	16	17	19	20	22	23
100	8' Ceilings	6	6	8	10	12	14	16	20	24	27	31	35	39	43	47	51	55	59
	10' Ceilings	5	5	5	6	8	9	10	13	15	18	20	23	25	28	30	33	35	38
	12" Ceilings	4	4	4	4	5	6	7	9	10	12	14	16	17	19	21	23	24	26
110	8' Ceilings	7	7	9	11	13	15	17	22	26	30	35	39	43	47	52	56	60	65
	10' Ceilings	6	6	6	7	8	10	11	14	17	19	22	25	28	30	33	36	39	42
	12" Ceilings	5	5	4	5	6	7	8	10	11	13	15	17	19	21	23	25	27	29
120	8' Ceilings	8	8	10	12	14	17	19	24	28	33	38	42	47	52	56	61	66	70
	10' Ceilings	6	6	6	8	9	11	12	15	18	21	24	27	30	33	36	39	42	45
	12" Ceilings	5	5	4	5	6	7	8	10	13	15	17	19	21	23	25	27	29	31
130	8' Ceilings	8	8	10	13	15	18	20	26	31	36	41	46	51	56	61	66	72	78
	10' Ceilings	7	7	7	8	10	11	13	16	20	23	26	29	33	36	39	42	46	49
	12" Ceilings	5	5	5	6	7	8	9	11	14	16	18	20	23	25	27	30	32	34
140	8' Ceilings	9	9	11	14	17	20	22	28	33	39	44	49	55	60	66	72	77	82
	10' Ceilings	7	7	7	9	11	12	14	18	21	25	28	32	35	39	42	46	49	53
	12" Ceilings	6	6	5	6	7	9	10	12	15	17	19	22	24	27	29	32	34	37
150	8' Ceilings	9	9	12	15	18	21	24	29	35	41	47	53	59	65	70	76	82	88
	10' Ceilings	8	8	8	9	11	13	15	19	23	26	30	34	38	41	45	49	53	56
	12" Ceilings	6	6	5	7	8	9	10	13	16	18	21	23	26	29	31	34	37	39

Once the proper quantities of speakers are determined, they should be set in the ceiling with an alternating pattern as shown in Diagram 2:

Diagram 2: Ceiling Speaker Layout on Ceiling



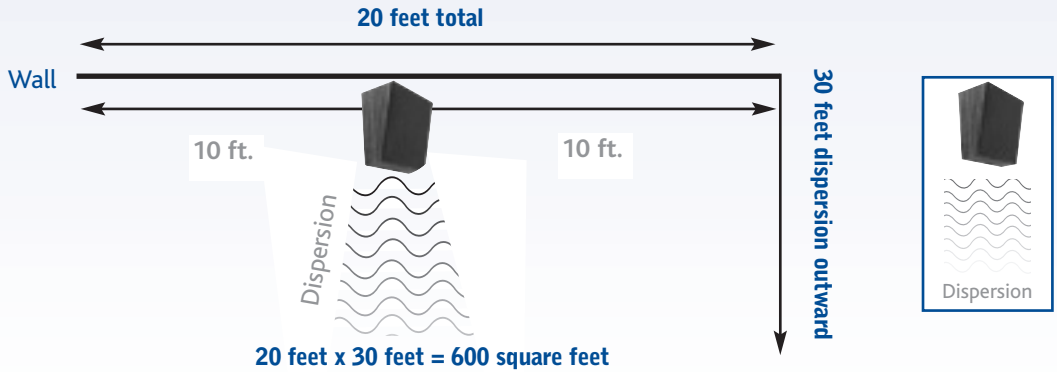
Determining Proper Quantity of Wall Baffle Speakers:

The amount of Wall Baffle Speakers needed for an installation is calculated by taking the square footage of the area that needs coverage and dividing it by 600 square feet:

Area of Square footage required	Divided by %	600 Square Feet	=	Number of Wall Baffle Speakers Required

600 ft. is an average estimate and is arrived at, by taking the usual side sound dispersement of a wall baffle speaker, (10 ft. to each side) while taking into consideration the usual sound projection outward (30 ft. outward) as detailed by the Diagram 3:

Diagram 3: Wall Baffle Speaker Dispersement View from Ceiling

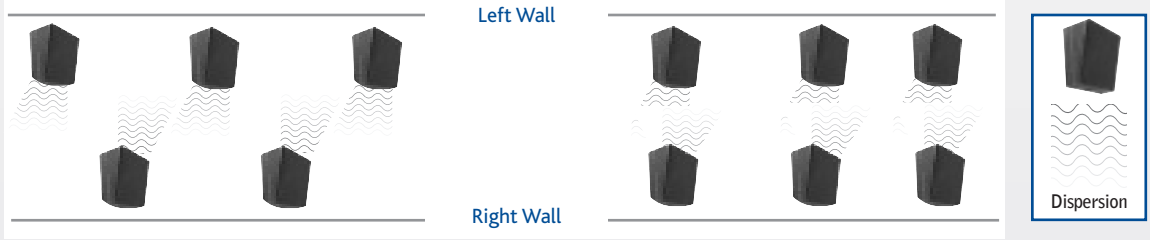


Wall Baffle Speakers should, whenever possible, be pointed in the same direction. It is very important that wall baffle speakers should not be positioned directly across from each other on opposing walls when covering a large area of space as shown in Diagram 4.

Diagram 4: Correct and Incorrect Placement of Wall Baffle Speakers

A) Correct Wall Baffle Speaker Placement
(view from ceiling)

B) Wrong Wall Baffle Speaker Placement
(view from ceiling)



In Scenario B) that there is an overlap of sound dispersion and distortion. With Scenario A) there is proper dispersion and correct alignment.

Determining Proper Quantity Use For PA Horn Speakers:

The correct number of PA Horn Speakers can be determined by cross-referencing the square footage requirement and the type of noise environment. See chart below.

			Desired Square Footage of Coverage																										
Environment	**dB Class**	**Example**	**1**	**2**	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**95**	**100**	**125**	**150**	**200**	**225**	**250**	**300**
Quiet Areas	<70 dB	Restaurant																												
		Depart Store	1	1	1	3	4	5	6	8	9	10	11	13	14	15	16	18	19	20	21	23	24	25	31	38	50	56	63	75
Noisy Areas	71-85 dB	Factory																												
		Assembly Line	1	1	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	50	60	80	90	100	120
Extremely	>85 dB	Printing Press																												
Noisy Areas		Metal Shop	1	2	4	8	13	17	21	25	29	33	38	42	46	50	54	58	63	67	71	75	79	83	104	125	167	188	208	250

PA Horns should be placed at a height of 15 feet and positioned at a 60 degree angle towards the ground.
PA Horns should NEVER be positioned facing each other. When multiple PA Horns are needed in a line, what is known as a "diamond pattern" should be used as shown in Diagram 5.

Diagram 5: Proper Placement of PA Horns in "Diamond Pattern"

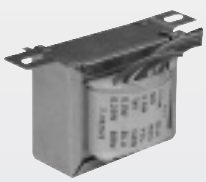
What Is The Purpose of a 70V Transformer on a Speaker?

A 70V transformer protects the speaker and only allows a certain wattage to pass through the transformer to activate the speaker depending on the sound requirement. The higher the wattage tap is set or wired, the louder the speaker will be. In addition, this transformer based system is current efficient by protecting the system from getting overheated from wasted power. Finally, a 70V transformer based system only requires the installer to make a quick calculation to obtain the required wattage needed for the system. Each speaker in the system is individually set at a certain tap. The wattage calculation requires adding all the tap requirements and then adding an increase of 20% as a safety buffer.

How Do I Wire a 70V Speaker?

Wiring a speaker with a 70 Volt transformer involves finding the correct colored wire extending from the transformer that corresponds with the desired wattage tap. Each colored wire's individual wattage tap should be marked on the transformer. Once the proper wire is found, connect it to the positive wire running from the amplifier. Then find the common wire extending from the transformer, usually black, and connect it with a wire running back towards the amplifier.

Some speakers have a transformer dial for selecting a desired wattage. This makes setup very easy by already providing one positive wire and one common wire for connections. All that's needed is to simply turn the transformer dial to the desired watt setting.



70V Transformer (T70255)

Transformer Dial

Which Wattage Tap Should I Set My Speaker or Horn To?

The following chart shows a basic guideline for wattage tap setting. This is simply for general reference.
Each job must be looked at individually, as there are many factors that go into determining the best wattage tap settings.

Basic Guideline to Select Wattage Tap Based on Sound Environment

Noise Level	Decibel	Examples	Cone Speaker Wattage Taps	PA Horns* Wattage Taps
Low Noise	55dB -	Doctor's Office	0.5	
	64dB	Department Store	1	
Medium Noise	65db -	Restaurant	2	
	74dB	Shipping Department	5	5
High Noise	75dB -	Supermarket	5	7.5
	82dB -	Factory	7.5	10
	84dB	Assembly Line	10	15
Maximum Noise	85dB+	Printing Press		30
		Metal Shop		40

**At an estimated 60 ft. of range*

What Wattage Amplifier Do I Need?

Normally, to arrive at the necessary wattage requirement for an amplifier in a particular location, you will need to take the total sum of wattage you need, (considering all speakers, horns and their wattage tap settings) then allow a 20 percent safety buffer to the upside. The worksheet below will aid in calculating this requirement.

Determining Your Amplifier Needs for Sound Systems

Step 1: Fill out Wattage Tap Requirement Chart (to right) to determine the number of speakers that will be used at each wattage tap for the amplifier.

Step 2: Multiply the number of speakers by each wattage tap to determine total wattage requirement per tap setting (See Ex A).

Step 3: Add all the figures in the shaded area to determine the total wattage requirement for the amplifier.

Step 4: Match the total wattage requirement to the chart on the next page "Recommended Amplifier Wattage Chart" to determine acceptable RMS wattage the amplifier should have.

Step 5: Repeat this process for each amplifier system.

Wattage Tap Requirement Chart

	Set Wattage Taps		Number of Speakers at Set Tap		Total Wattage Requirement per Tap
Ex A)	5	X	10	=	50
	60	X		=	
	30	X		=	
	20	X		=	
	15	X		=	
	10	X		=	
	7.5	X		=	
	5	X		=	
	4	X		=	
	3.75	X		=	
	2.5	X		=	
	2	X		=	
	1.50	X		=	
	1.25	X		=	
	1.00	X		=	
	0.50	X		=	
	0.25	X		=	
	0.125	X		=	
	Total Sum of Shaded Area Represents Total Wattage Requirement				

Recommended Amplifier Wattage Chart

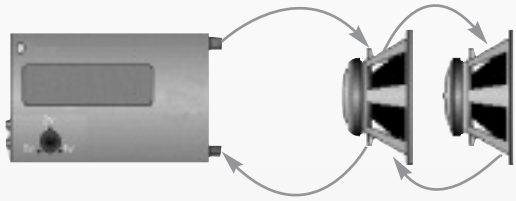
	Acceptable Amplifier RMS Wattage			
	15 Watt	30 Watt	60 Watt	120 Watt
If Sum Wattage Total is 12 Watts or Less	X	X	X	X
If Sum Wattage Total is between 13 and 24 Watts	X*	X	X	X
If Sum Wattage Total is between 25 and 48 Watts	X*	X*	X	X
If Sum Wattage Total is between 49 and 96 Watts	X*	X*	X*	X
If Sum Wattage Total is between 97 and 204 Watts	X*	X*	X*	X*
If Sum Wattage Total is between 205 and 216 Watts		X*	X*	X*
If Sum Wattage Total is between 217 and 240 Watts			X*	X*
If Sum Wattage Total is between 241 and 288 Watts				X*

** RMS Amplifier used in conjunction with Speco Technologies' P240A Power Booster Amp*

How Do I Wire a Commercial Run of Speakers?

Commercial Speakers should be wired in a "*PARALLEL RUN*", meaning the positive outbound connection of the amplifier or receiver should run to the positive terminal of the first speaker. Then from that positive terminal the wiring should proceed to the next speaker's positive terminal as detailed in Diagram 5 below. The return wiring from each common terminal goes to the next speaker on the return run's common terminal and finishes at the amplifier/receiver.

Diagram 5: Wiring Speakers in Parallel



Large runs with many speakers should be broken down into several smaller runs coming from the amplifier. If one speaker stops working it is easier to locate the problem if shorter runs are used instead of one continuous run.

Diagram 6: Proper Layout of Speaker Runs

This is the correct way to wire commercial speakers. If one speaker does not perform, the remaining speakers will still work and the problem will be easier to isolate.

What Wire Should I Use?

Generally, speaker wire is determined by the length of the run and the wattage utilized:

- **Wire runs less than 50 feet and utilizing 50 Watts of power or less use 16 Gauge wire.**
- **Wire runs more than 50 feet and/or over 50 Watts of power use 14 Gauge wire.**

When selecting your wire and line loss for length of speaker run, other specifications to consider are: UL Listing, Plenum Rating, weatherproofing, etc.

The Back of a Typical Amplifier

XLR Connectors receive plug-ins from Male XLR Microphones Connectors

70V Wiring can go out to speakers from these different zones. One positive terminal runs to the speakers (marked "75V/25V") and one common ("COM") terminal receives the wire back from the speakers.

Auxiliary Input/ RCA connectors allow inputs from a CD Player or other sound source

RCA Connector Outputs allow sound to exit and be recorded into another device

Adjusts the volume of Music-on-Hold

Where fuse is kept. Can be replaced if blown.

Switch that allows MIC #1 to override music playing.

AC plug for electrical cord

Inputs for AM & FM Radio antennas

Adjusts the volume of paging system.

70 & 25 Volt Screw Terminals go out to speakers and are used a separation of 4 zones is not needed. Speaker Wire goes out through the "70V" or "25V" and returns through the "COM" terminal.

Accepts inputs from the telephone paging system so that you can page over the speaker system.

Music-On-Hold Screw Terminal Outputs go to the phone system and allow whatever sound/music being played through the amplifier to be heard by people/customers on hold.

Screw Terminal Outputs to be used if the system is based on 8 ohms (residential) only and not 70V (commercial). The positive outgoing speaker wire is connected to the proper ohm setting terminal and the speaker wire is returned through the "COM" terminal.

Audio Glossary

speco technologies

5.1 System: A designation describing a sound system incorporating 5 channels of sound/ speakers and one subwoofer.

Amp: The unit of measure used with an electric current.

Amplifier: An electronic component or device that takes low-level signals and recreates the signal with more power.

Attenuators: A device that reduces an amplified signal without distortion.

Baffle: A box-like structure that a speaker is placed into to enhance the bass sound of the speaker.

Bass: The lowest audible existing frequency range usually below 200 Hz.

Bookshelf Speaker: A small speaker which is designed to sit on a bookshelf or shelf.

Capacitors: Electrical devices that store charges.

Center Channel: A third front audio channel that is usually used to enhance the clarity of dialog being heard within a sound system.

Coaxial Speaker: A type of speaker driver where the high frequency driver (the tweeter) is located inside a low or mid-frequency driver (the woofer).

Crossover: A component that splits up the frequency depending on ranges and directs them to certain drivers.

Current: The flow of electricity through a circuit as measured in amps.

dB Decibel: A logarithmic scale measuring the intensity of the sound pressure level of a noise.

Digital Surround Sound:
See 5.1. definition

Driver: The cone-like component of a speaker that pushes back and forth to sound waves.

Dual Voice Coil: A speaker that accepts both right and left channels into one speaker providing full range sound in a smaller space than two speakers.

Floor Standing Speaker: A specific type of speaker enclosure with an acceptable level of sound height that stands directly on the floor.

Frequency: The number of repeating sound cycles in a given period, measured in hertz or kilohertz. Human hearing is usually 20Hz to 20KHz with the lower frequencies representing the bass and higher representing the treble.

Grille: An aesthetic front plate covering for speakers.

Horn: An element used to increase sound efficiency by placing the driver at the end of a megaphone-like structure.

Hz (Hertz): Number of cycles per second of sound waves used to measure frequency.

Impedance: The resistance to the flow of an electrical current as measured in Ohms.

kHz (Kilohertz): One thousand sound cycles per second.

Magnet: A component of a speaker that uses electromagnets to create movement of the driver reproducing sound.

Microphone: A device used to create an electrical signal representative of the sound striking it to be heard over speakers.

Midrange: The middle band of audio frequencies between 150/200 Hz to between 1,000/2,000 Hz.

Music on Hold Feature: An amplifier output feature which allows callers on a phone system that are holding to hear music or
supplied dialog.

Ohm: A measure of resistance in a circuit to an electric current.

Outdoor Speaker: A speaker that is weatherproofed.

Power Rating: The maximum amount of power in watts that an amplifier can put out or a speaker can be driven with.

RMS (Root Mean Square):
The average continuous power output an amplifier is capable of producing or a speaker is capable of receiving.

Subwoofer: A type of speaker used to reproduce the lowest portion of the frequency spectrum, usually 80Hz and below.

Sensitivity or SPL: A measure of the sound pressure level measured from a distance of one meter from a speaker when the speaker receives a 2.83-volt signal - 1 watt at 8 ohm.

Shielded: A term relating to specific speakers having their magnetic fields contained as to
not harm video displays.

Three-Way Speaker: A speaker system containing three individual drivers covering three frequency bands.

Transformer: An important component of the power supply that pulls electricity from a source and then transforms it into power that can be used in electronic devices.

Tweeter: A speaker driver designed for receiving high frequencies usually above 2,000 Hz.

Two-Way Speaker: A speaker system with two individual drivers covering two frequency bands.

Voice Coil: A tightly wrapped coil of wire attached to a speaker driver's diaphragm and located near the stationary magnet.

Watt: A measurement of power obtained by multiplying current by voltage.

Woofer: A speaker driver that handles low frequency signals.

XLR Connector: A plug connector usually at the end of a microphone wire that allows easy connection to an amplifier without the need to strip the wire to connect it to screw terminals.