**Composition and application of public address sound system**

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The broadcasting and sound system covers a wide range, from shopping malls, schools, hotels, stations, terminals, squares to venues, theaters, stadiums, etc. are all closely related.

1.1 In civil construction engineering design, broadcasting systems can be divided into the following categories:

A. Public broadcasting systems for public areas (shopping malls, stations, terminals, shopping malls, restaurants, corridors, classrooms, etc.) and parking lots.

This type of system is mainly used for voice broadcasting, so clarity is paramount. Moreover, such systems often broadcast background music in peacetime, and can be converted to emergency broadcasts in the event of a disaster or emergency.

B. Broadcast audio system for hotel rooms.

Such systems include room audio broadcasts and emergency broadcasts, often delivered by bedside tables located in the guest rooms. The room broadcasts contain a number of freely selectable bands. In the case of emergency broadcasts, room broadcasts are automatically interrupted and automatically switched to emergency broadcasts.

C. Hall sound reinforcement system represented by auditorium, theater and gymnasium.

This is a professional sound reinforcement system, which not only considers electro-acoustic technology problems, but also involves architectural acoustics. Both of them must be balanced and should not be neglected. Such broadcast systems often have comprehensive multi-purpose requirements, which can be used not only for the sound reinforcement of the venue language, but also for performances in the arts. For large-scale live sound systems, the electric power is low. Tens of thousands, more than tens of thousands of watts, it is necessary to use high-powered speakers and power amplifiers, in the system configuration and equipment selection have certain requirements, while paying attention to the load of the power line.

D. Broadcast audio system for conference rooms, lecture halls, etc.

Such systems are generally also systems that are set up for background music and emergency broadcasts provided by public broadcasts, but because of their particularity, conference broadcast systems are often set up separately in conference rooms and lecture halls. For higher requirements or international conference halls, special audiovisual systems such as simultaneous interpretation systems, conference voting systems, and large-screen projection televisions are also required.

As can be seen from the above, the broadcast audio systems for various buildings, hotels and other civil buildings can be basically classified into three types:

The first is the Public Address System (PA), which is a cable broadcast system, which includes background music and emergency broadcast functions. It is usually combined to play background music or other programs, and is converted into an alarm when there is an emergency such as a fire. broadcast. The microphone used for broadcasting in such a system is generally not in the same room as the speaker broadcasted to the public, so there is no problem of acoustic feedback, and the constant pressure transmission is a typical system; the second is the hall sound reinforcement system, such a system The use of professional audio equipment, and requires a high-powered speaker system and amplifier, because the microphone and the speaker for sound reinforcement are in the same hall, there is the problem of acoustic feedback and even howling, and because of the short distance, the system is generally The use of low-impedance direct transmission; the third is a dedicated conference system, although it is also a sound reinforcement system, but has its special requirements, like the sound interpretation system.

1.2 The composition of the broadcast audio system

No matter which kind of broadcast sound system, it can be basically divided into four parts: program source equipment, signal amplification and processing equipment, transmission line and speaker system.

Program source equipment: The program source is usually provided by radio broadcasting, laser phonograph and recording deck, in addition to microphones and electronic musical instruments.

Signal amplification and processing equipment: including mixers, preamplifiers, power amplifiers and various controllers and audio processing equipment.

The primary task of this part of the equipment is signal amplification, followed by signal selection. The mixer and preamplifier are similar in function and status (of course, the mixer's functions and performance indicators are higher), their basic functions are to complete the signal selection and preamplification, in addition to the volume and sound effects for various Adjustment and control. In order to better perform frequency equalization and timbre beautification, the graphic equalizer is also separately input. This part is the "control center" of the entire broadcast sound system. The power amplifier amplifies the signal from the preamplifier or the mixer, and then pushes the speaker through the transmission line.

Although the transmission line is simple, it has different requirements depending on the system and the transmission method. For the auditorium, theater, etc., because the distance between the power amplifier and the speaker is not far, the direct feeding method of low resistance and large current is generally adopted, and the transmission line requires a dedicated speaker line. For the public broadcasting system, since the service area is wide and the distance is long, in order to reduce The loss caused by the transmission line often adopts a high-voltage transmission mode. Since the transmission current is small, the transmission line is not required to be high.

Speaker System: The speaker system requires the entire system to be matched, and the choice of its position should be realistic. Auditoriums, theaters, dance halls, sound quality, sound quality requirements, and speakers generally use high-power speakers; and public broadcasting systems, because it is not so high requirements for sound, generally use 3W-6W ceiling speakers.

1.3 Characteristics of the broadcasting system The background music is referred to as BGM, which is the abbreviation of BackGroundMusic. Its main function is to cover up the noise and create a relaxed and harmonious atmosphere. If the listener does not concentrate on listening, the position of the sound source cannot be discerned, and the volume is small. It is a music that creates a relaxed and pleasant atmosphere.

Therefore, there are two effects of background music. One is to cover up the environmental noise psychologically, and the other is to create an atmosphere that suits the indoor environment. It is widely used in hotels, hotels, restaurants, shopping malls, hospitals, office buildings and so on. The music should be lyrical or relaxed, and the intense music is not appropriate.

Background music is not stereo, but mono music. This is because stereo requirements can distinguish the sound source orientation and have a sense of depth, while background music is not conscious to hear where the sound comes from, and does not want The location of the sound source is felt, and the sound source is required to be concealed, and the volume is lighter, so as not to affect the two people's opposite speech.

1.4 Features of the fire broadcast function

Fire broadcasts are activated when an accident occurs (so it is closely related to personal safety) and fire broadcasts have the following characteristics:

The fire alarm signal should have the highest priority in the system, and it can cut off the status of background music and calling people.

It should be easy for the fire alarm personnel to operate.

Transmission cables and speakers should be fire resistant.

In the case of AC power outage, the alarm broadcast should also be implemented.

Second, the general order of public broadcasting engineering design

The term "public broadcasting" as used herein refers to a sound transmission of a cable transmission, which is commonly used in shopping malls, public venues, buildings, and communities, for background music broadcasting, paging broadcasting, and forced insertion of forcible broadcasting. The design of this type of public broadcasting project is usually carried out in the following order:

1. First of all, we should consider the selection and configuration of broadcast speakers.

2. Selection of broadcast power amplifier

3. Broadcast partition

Shopping mall public address system structure

The structure of the public broadcasting system of the shopping mall consists of four parts: broadcasting power amplifier, audio input/output, sound equipment, and intelligent broadcasting. The four are organically integrated into a unified public address system. The structure is designed to take into account the needs of the mall and the construction cost of the system.