

ICS 33.020

CCS P 76



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 50373-2019

**Design code for communication conduit and passage
engineering**

Issued on: September 25, 2019

Implemented on: January 1, 2020

**Issued by: Ministry of Housing and Urban-Rural Development of the
People's Republic of China;
State Administration for Market Regulation**

Table of Contents

- 1 General
- 2 terms
- 3 Basic Regulations
- 4 Determination of communication pipeline and channel routing and location
- 5 The location of communication pipelines and passages should not be selected near other pipelines buried deep.
- 6 Pipe selection
- 7 Buried depth of communication pipeline
- 8 Communication pipe bends and segment lengths
- 9 Communication pipeline laying
- 10 man (hand) hole settings
- 11 optical (electrical) cable channel
- 12 Design of optical (electrical) cable entry room

1 General

1.0.1 In order to meet the needs of modern urban construction and information development, coordinate the location of communication pipelines and passages in the city's underground space, coordinate the relationship with other urban engineering pipelines, and provide a basis for the planning and management of communication pipelines and passages, to formulate this standard.

1.0.2 This standard applies to the design of urban underground communication pipelines and channel engineering.

1.0.3 Communication channels should be constructed in advance, and the construction of communication channels and channels should conform to the principle of joint construction and sharing.

1.0.4 In the engineering design of communication pipelines and channels, stereotyped products that meet the relevant national technical requirements should be selected, and qualified pipes should be used in the project.

1.0.5 The construction of communication pipelines and channels shall not only comply with this standard, but also comply with the provisions of the current relevant national standards.

2.0.1 Trunk pipeline

It generally covers urban arterial roads and mainly connects core/aggregation nodes or communication pipes between core/aggregation nodes and access points, including outbound and main road pipes.

2.0.2 branch pipeline

It generally covers urban branch roads and mainly connects the communication pipeline between the main pipeline and the resident network pipeline.

2.0.3 Customer premises network (CPN) pipeline

The pipelines outside the red line of municipal planning mainly include communication pipelines in buildings and residential areas within the red line of architectural planning, as well as pipe grooves inside buildings, etc.

2.0.4 integrated communication building

The comprehensive communication building, the core computer room of the communication network, and the computer room where various business core equipment are located.

2.0.5 communication station telecommunication station

Relay stations and local network service convergence computer rooms generally refer to the computer rooms where various service convergence/convergence devices in the local network are located.

3 Basic Regulations

3.0.1 Communication pipeline and channel planning should be based on urban development planning and overall communication construction planning, and communication pipeline construction planning should be included in urban construction planning.

3.0.2 Communication channels and passages should be overall planned according to the development needs of each user unit and in accordance with the principle of joint construction and sharing.

3.0.3 The overall planning of communication pipelines should include planning and construction schemes such as main pipelines, branch pipelines, and resident network pipelines to form a pipeline network, and consider the feasibility and economy of implementation.

3.0.4 For newly built and rebuilt buildings, the embedded communication pipeline outside the building shall be carried out simultaneously with the construction of the building, and

shall be connected with the public communication pipeline.

3.0.5 For urban bridges, tunnels, high-grade highways and other buildings, communication channels should be constructed simultaneously or the location of communication channels should be reserved.

3.0.6 On a wide road with a large final pipe hole capacity, when the distance between the planned road red lines is greater than or equal to 40m, communication pipes or channels should be built on both sides of the road; when it is less than 40m, communication pipes should be built On the side with more users, cross-street pipelines should be built, or according to specific conditions.

3.0.7 Reconstruction and expansion of pipeline projects should first consider adding expansion holes on the top of the original pipeline, and it is not suitable to add expansion holes on both sides of the original pipeline.

3.0.8 The construction of communication pipelines and passages should be constructed simultaneously with the urban related underground pipelines.

4.0.1 The determination of communication channels and channel routing shall comply with the following regulations.

1 Communication pipelines and passages should cover the main roads, buildings and residential quarters in the city, and communication pipelines should also be built on the main roads in the suburbs of the city;

2 The selection of communication pipeline and channel routing should fully study the feasibility of branch construction on the basis of pipeline planning;

3 Communication pipelines and channel routing should be far away from harmful substances and chemical corrosion areas;

4. For communication pipelines and channel routing, priority should be given to choosing underground roads with fewer obstacles on the ground;

5 Communication pipelines and passages should not be built on roads that have been planned but have not yet been formed, or on roads that have been formed but the soil has not been consolidated, as well as in quicksand and muddy areas.

4.0.2 When selecting the location of communication pipelines and passageways, the following regulations should be met.

1. It should be built under the sidewalk. If it cannot be built under the sidewalk, it can be built under the non-motor vehicle lane or the green belt, and it is not suitable to be built under the motor vehicle lane;

2 The location of the communication pipeline building on the high-grade highway shall be selected according to the following order. under the central divider, on the road shoulder

and side slope, and within the roadside barrier;

3 The position of the communication pipeline and passage should be on the same side as the communication pole road;

4 The centerline of the communication pipeline and the channel shall be parallel to the centerline of the road or the red line of the building;

5 The location of communication pipelines and passages should not be selected near other pipelines buried deep.

4.0.3 Communication pipelines and channels should avoid being built on the same side of the road as gas pipelines, heat pipelines, oil pipelines, and high-voltage power cables.

4.0.4 When communication pipelines, passages and other underground pipelines and buildings are constructed on the same side, the minimum clear distance between communication pipelines, passages and other underground pipelines and buildings shall meet the requirements in Table 4.0.4.

Table 4.0.4 Minimum clear distance between communication pipelines, channels and other underground pipelines and buildings

Note. 1 When the main drainage pipe is laid later, the parallel net distance between the construction ditch of the drainage pipe and the existing communication pipeline shall not be less than 1.5m.

2 When the pipeline passes through the lower part of the drainage pipe, the clear crossing distance shall not be less than 0.4m.

3 Within the 2m range of the gas pipes with joints and auxiliary equipment, the communication pipes shall not intersect with the gas pipes.

4 When the protection tube is added to the power cable, the clear distance between the communication pipeline and the power cable shall not be less than 0.25m.

5 d is the outer diameter.

4.0.5 No other pipelines shall pass through the man (hand) hole.

4.0.6 The crossing angle between the communication pipeline and the railway and tramway should not be less than 60° . When crossing, the distance from the switch and regression line should not be less than 3m. When steel pipes are used at the intersection with tramways or electric railways, safety protection measures should be taken.

5 Determination of communication pipeline capacity 5.0.1 The capacity of pipe holes should be calculated according to the business forecast and specific conditions, and the number of pipe holes in each section can be estimated according to the provisions in Table 5.0.1.