

Wall Guide Installation & Maintenance Instruction

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Prepared by Overseas Business Unit

1. Purpose

The purpose of the Wall Guide Installation and Maintenance Instruction (hereinafter referred to as "this instruction") is to promote the safety and smooth flow of road traffic and create a better road environment.

The safety facilities on the road are designed and installed to ensure safe and smooth traffic flow, address inadequate structures, and pursue the safety of road users. Among these, the Wall Guide is a road accessory intended to guide drivers' line of sight.

Road accessories refer to facilities or structures installed by the road management authority to ensure convenient use, safety, and smooth traffic flow on roads, as well as for other road management purposes. These include road safety facilities such as Wall Guides, median barriers, and speed humps.

This instruction stipulates the basic and detailed aspects regarding the design, specifications, materials, installation, construction, and maintenance of the Wall Guide. The purpose of this instruction is to assist road managers in the proper installation and management of the Wall Guide, ensuring that road users can drive more safely and comfortably as a result of the road managers' efforts.

Additionally, this instruction aims to contribute to the improvement of road environments by promoting safety at night and guiding drivers' line of sight during the day through the consistent and continuous installation of the Wall Guide nationwide.

2. Scope of Application

This instruction details the installation and management standards for the Wall Guide and are intended for practitioners to use in the execution of the Wall Guide installation and management projects.

The Wall Guide is a facility designed to guide the driver's line of sight. Traditional visibility enhancement safety facilities have been widely installed and operated on roads, but their lack of uniformity in design and specifications has limited their effectiveness as road safety facilities. To address this issue, this instruction has been established for the design, specifications, materials, and installation methods of the Wall Guide.

This instruction provides the general technical standards for the installation and management of the Wall Guide. Therefore, each road management agency should use this instruction as a basis to ensure that the Wall Guide appropriates for the specific road functions, conditions, and terrain are installed.

The tasks related to the installation and management of Wall Guides shall be carried out in accordance with this instruction. For other similar existing or new products not specifically covered by this instruction, they are subject to in line with this instruction until separate regulations are established.

3. Definition of Terms

Wall Guide refers to;

- 1) a facility installed to guide drivers' line of sight during the day and at night by indicating the edge of the road and the line of the road with a product that satisfies the color of Article 6.3 and the reflective performance of Article 6.4 of this instruction.
- 2) a facility that guides safe and smooth vehicle driving by indicating changes in the road geometry or conditions ahead to drivers on both straight and curved sections of the road.
- 3) a facility designed to clearly indicate the linear and curvature of the road in areas with poor visibility, such as flat horizontal curves, changes in elevation, enabling drivers to clearly perceive the road's alignment and curvature.
- 4) visibility-enhancing safety facilities installed to clearly guide the driver's line of sight during nighttime and inclement weather conditions.

Especially during nighttime driving, drivers attempt to illuminate the road and its surroundings using headlights to assess the road conditions. However, the range that can be perceived with headlights alone is limited, making it difficult to obtain the aforementioned driving standards, which can impede safe and smooth driving.

To address this issue, road lighting facilities are installed as accessories to the road, but their installation and maintenance incur significant costs. Therefore, they are selectively installed based on factors such as traffic volume and road specifications. Additionally, road markings utilize the reflected light from headlights, but they may not function effectively in rainy conditions.

Considering cost-effectiveness, the Wall Guide can be considered an effective visibility-enhancing safety facility for guiding sight at night.

Roads are equipped with suitable road geometrical structures according to their forms, ensuring necessary auxiliary facilities including road traffic safety installations for safe driving. The structure of a road is designed to exceed the design specifications suitable for its function. Therefore, drivers not only rely on safety facilities but also establish appropriate driving standards and drive accordingly while actually driving.

When these driving standards are highly appropriate in guiding the line of sight, drivers can easily grasp the road situation, enabling smooth driving and effectively preventing traffic accidents.

4. Functions

During nighttime, there is a tendency for an increase in traffic accident rates when road lighting is inadequate, and accidents involving vehicles veering off the road can be seen as a typical type of accident due to the absence of sight guidance. Especially in cases where the traffic volume does not warrant the installation of road lighting, the necessity and effectiveness of installing Wall Guides, which are more cost-effective and easier to install compared to road lighting, become more apparent. Furthermore, the loss of visibility in road markings due to rain or snow can threaten driver safety, increase driver fatigue, and inevitably lead to negative evaluations of the road's service level by road users, as it hampers the transmission of information regarding the road's alignment and edges.

The Wall Guide is defined as a facility installed to prevent vehicles from veering off the road by reflecting light from the vehicle's headlights back in a direction approximately parallel to the incident direction, thus providing drivers with information about the road's alignment ahead during nighttime. This facility is subject to be widely applied in locations such as highways, arterial roads, roads with low traffic volume, relatively long straight sections, and short straight sections where the road width varies. It complements road markings by providing drivers with

information to perceive the road's alignment. In particular, when road markings are obscured by snow, Wall Guides become the sole means of providing linear information, and they also serve as an additional function to perceive the road's alignment during snow removal operations.

The Wall Guide shall be installed in locations where providing information about the road's alignment and edges to drivers is difficult. They are subject to be installed in the following sections, and their installation should be comprehensively reviewed based on the structure of the road and traffic conditions.

5.1. Straight sections with a design speed of 50 km/h or higher

During the day, drivers typically rely on road markings and guardrails as visual cues for navigation, but at night, the effectiveness of such facilities in guiding sight decreases significantly. The visibility of road shapes and other features is limited to the performance range of the vehicle's headlights. Generally, as driving speed increases, drivers tend to rely more on the alignment of the road ahead. Considering this tendency and the decreased effectiveness of sight-guiding facilities such as road markings and guardrails at night, the need for installing Wall Guides becomes more pronounced with higher speeds at night.

When all vehicles are approaching each other at night, it's necessary to dim the headlights, adjust the direction of light downwards, or temporarily turn them off. When following closely behind another vehicle, the direction of the headlights should be adjusted downwards. Moreover, when driving in areas with frequent traffic, it's recommended to maintain the headlights aimed downwards.

Considering the traffic conditions on general national highways, driving with the headlights aimed downwards allows for better visibility of obstacles within a range of approximately 40 meters ahead on the road.

On the other hand, braking distance varies according to speed. When driving at 40 km/h, the required braking distance is 40 meters. At speeds below 40 km/h, drivers can identify obstacles on the road or road edges with the headlights and stop accordingly. Therefore, if driving at speeds exceeding 40 km/h, the distance required to stop exceeds the range visible with headlights, making it difficult to perceive the road's alignment or confirm road edges. Consequently, for speeds exceeding 50 km/h, especially on straight sections, the necessity for installing Wall Guides increases.

5.2. Sections where the road alignment changes

Even on sections of the road with lower design speeds, installation of Wall Guides is particularly recognized as necessary in order to ensure smooth traffic flow and prevent accidents. They are installed in the following sections where the effectiveness of the Wall Guide installation is high and the need for installation is particularly acknowledged:

On straight roads or gently curved roads where the alignment changes suddenly due to the emergence of a flat horizontal curves, it becomes difficult to guide the line of sight according to the road alignment. Especially at night, greater caution is required from a traffic safety perspective. By installing Wall Guides in such locations, drivers can perceive the abrupt changes in road alignment, leading to smoother driving and effective accident prevention.

5.3. Sections where the number of lanes or the width of the roadway changes

Sections where the number of lanes changes, where the configuration of lanes changes, or where the width of the roadway narrows pose challenges to traffic safety and smooth flow. Installing

Wall Guides in such areas helps drivers perceive changes such as lane numbers, ensuring smooth traffic flow and preventing accidents effectively. Installing Wall Guides in areas where it is necessary to clearly indicate the edge of the road, such as roads with adjacent waterways, is highly effective.

In car-only lanes and major arterial roads, it is essential to enhance visibility for improved driving safety and communication, especially considering the higher speeds. Therefore, Wall Guides shall be installed continuously on roads entering or exiting main roads, access facilities, rest areas, and makeshift rest areas connected to the main roads.

In areas with short lighting sections or where road lighting is dimmed, the Wall Guides shall be installed to ensure continuity in sight guidance and driving safety.

Particularly in areas with poor road alignment conditions, hazardous sections, accident-prone areas, weather changes, and other special conditions, Wall Guides must be installed to prevent accidents promptly.

6. Structure

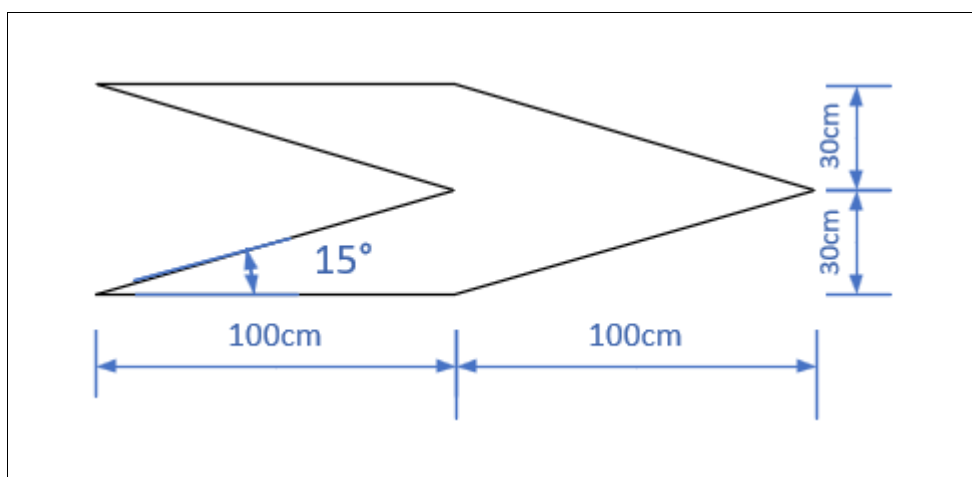
6.1. Shape

The Wall Guide in which it does not require a holder to fix the reflector differs from existing delineator signs; rather, it is considered as the reflector itself.

The shape of the reflector can vary, such as arrows, depending on the location of installation.

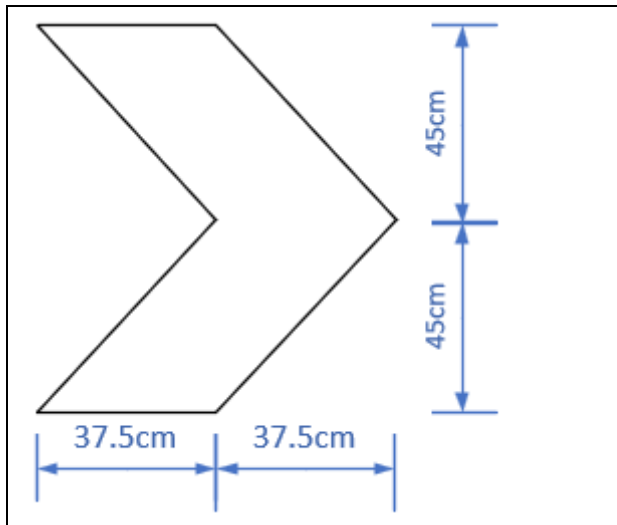
To ensure continuity in the geometric structure of the route, the concept of design sections applied in road design is also applied to the design of Wall Guides.

To maintain consistency in sight guidance and facility installation, the same type of Wall Guide is recommended to be installed and managed.



<Figure 1> Example of Wall Guide in the shape of an Arrow

This is an example of a suitable shape for installation on straight and curved sections with speeds exceeding 50 km/h:



<Figure 2> Example of the Wall Guide Arrow Shape

This is an example of a suitable shape for installation on straight and curved sections below 50km/.

6.2. Material

The material used for the Wall Guide should have sufficient strength, excellent durability, and be easy to maintain.

The visibility is greatly affected by the reflective performance of the reflector. Retroreflection here refers to the reflection of light back in a direction close to the direction from which it came, and visibility refers to the extent to which an object is seen by a person.

The durability test of the Wall Guide is divided into visual inspection, waterproof test, temperature cycle test, and weather resistance test, and is conducted as follows. The test is conducted by measuring 5 samples and at least 4 out of the 5 samples should meet the standard values. If they do not, another 5 samples are collected and the same test is conducted again, after which all 5 samples should meet the standard values.

① Visual inspection

The finished samples should not have any cracks, bubbles, deformation, or contamination on the reflective surface when inspected visually by the examiner.

② Waterproof test

After leaving the Wall Guide at a temperature of 65°C for 10 minutes, immerse it in 21°C water for 10 minutes. Then, take it out, wipe off the water with a soft cloth, and measure its reflective performance. It should meet the standard value.

③ Temperature cycle test

After placing the Wall Guide in a chamber set to 65°C and maintaining it for 4 hours, gradually lower the temperature inside the chamber for approximately 2 hours until it reaches -20°C, then maintain it for 4 hours. This process should be repeated three times consecutively. There should be no visible cracks or peeling detectable to the naked eye.

④ Weather resistance test

For the test, securely fix the Wall Guide to the shelf of the testing machine. The testing device should use a xenon light source and the light source should be positioned vertically above the center axis of the rotating shelf where the sample can be placed.

Furthermore, the Wall Guide must be positioned at an equal distance from the center of the light source to receive an equal amount of light, and the sample should be rotated once every minute

(1rpm±0.1).

The testing device should have an automatic light amount control device for the Xenon lamp, and the wavelength of the light being irradiated should be adjustable automatically within the range of 340nm, as well as the illumination, temperature, humidity, and rainfall conditions.

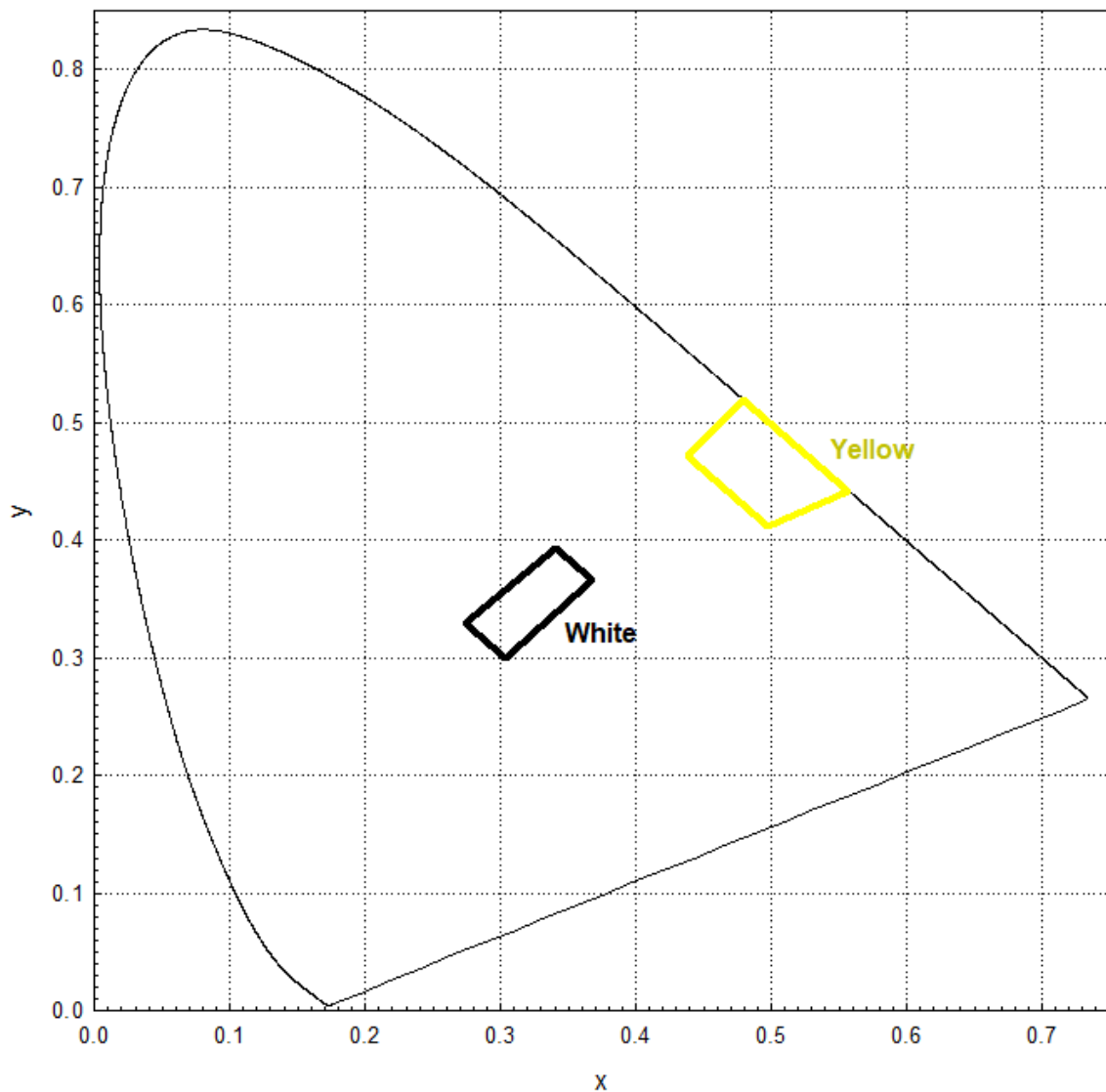
For the radiation intensity required for the test, it should be 0.35W/m², with a light wavelength of 340nm. The light exposure/rainfall duration should be 18 minutes, with the light exposure duration being 102 minutes. When irradiating light without rainfall, the sample temperature (black panel temperature) should be 63±3°C, with a relative humidity of 50±5%. The total test duration should be 720 hours.

Water used for rainfall conditions should have a pH 6.0 to 8.0 and purity with solid particles below 20ppm. After the weathering test, when measuring the reflective performance of the Wall Guide, it should meet at least 80% of the standard value.

6.3. Color

The color of the Wall Guide shall be white or yellow, and the chromaticity shall fall within the range of the chromaticity coordinates below, as measured according to the chromaticity measurement method.

Color	Chromaticity coordinates range				
		1	2	3	4
White	x	0.303	0.368	0.340	0.274
	y	0.300	0.366	0.393	0.329
Yellow	x	0.498	0.557	0.479	0.438
	y	0.412	0.442	0.520	0.472
<u>Chromaticity measurement method</u> 1) Light source : CIE standard illuminant D65 2) Observer : 2° 3) Geometry : 45/0					



The Wall Guide can be effective by continuously installing the same color as possible.

The colors of the Wall Guide are applied in white and yellow.

When viewed from the driver's position in the direction of driving, white Wall Guides are installed at places indicating the boundary between the road and the outside of the road, such as on the right side of the road, and yellow Wall Guides are installed at places separating traffic flow in the opposite direction, such as on the left side of the road or in the median strip.

However, even if yellow pavement markings indicating no parking or stopping are installed at the right boundary marking of the road, white Wall Guides are applied in these areas.

On highways where a certain section has concrete rigid safety barriers as a reference, on roads completely separated from the opposite direction, the left lane is designated in white. In such cases, the color of the Wall Guide is also applied in white, consistent with the pavement markings.

The color of the Wall Guide serves as a means to convey information to drivers. Generally, white, which has excellent reflective performance, is used. Yellow is used in sections where there is a need to indicate special areas such as hazards.

In the ISO 3864-1 standard, yellow signifies caution and danger. Yellow has relatively lower reflective performance compared to white, but it is generally used to indicate caution. Therefore, this standard carries the same meaning.

In terms of the color of the Wall Guide, when the color is the same, because there is a possibility not to determine whether it is on the inside or outside when viewed from a distance, different colors should be used when installing on the right and left sides. Therefore, this instruction applies a two-color system of white for the direction of driving and yellow for the opposite direction.

6.4. Reflective Performance

The reflective performance of the Wall Guide should be measured according to the test method for retroreflective materials, and the result should be equal to or greater than the values below.

(Unit : mcd/(lx·m²))

Observation Angle (α)	Color	White			Yellow		
	Entrance Angle(β_2) ($\beta_1=0$)	50°	60°	70°	50°	60°	70°
1.5°		7,000	5,000	2,000	5,000	3,500	1,000
2.0°		3,500	2,500	1,000	2,500	1,750	500
<u>Precautions</u> 1) The Entrance angle is measured by rotating in the β_2 direction. The direction of rotation is determined by the direction indicator (arrow mark) marked on the Wall Guide.							

6.5. Installation

The Wall Guide should be installed at the closest point to the outside of the roadway. The standard installation height is 60cm from the pavement to the center of the Wall Guide.

The Wall Guide should be installed continuously to ensure smooth guidance effect, and the installation interval according to the radius of a road's curve is as follows. The maximum installation interval for straight sections is 10m for general roads and 20m for highways.

<Table 1> Standard installation interval

(Unit : m)

Radius of curve	Installation interval	Radius of curve	Installation interval
Not more than 50	1.5	406~500	5.5
51~80	2.0	501~650	6.5
81~125	2.5	651~900	7.5
126~180	3.0	901~1,200	8.5
181~245	4.0	1,201~1,550	10
246~320	4.5	1,551~1,950	12.5
321~405	5.0	Not less than 1,951	15

For transition points where a curve connects to a straight section or a straight section connects to a curve, adjust the installation interval appropriately so that the Wall Guide appear visually continuous.

6.5.1. Installation Location

For continuous and smooth guidance, it is advisable to standardize the installation location of the Wall Guide. The Wall Guide should basically be installed on the left road edge and also on the right road edge in sections with particularly small curve radii or where the number of lanes changes.

For a continuous guidance effect, it is most desirable to install the Wall Guide on both the right and left sides. However, on left-turn curves with particularly small radii, installing the Wall Guide on the left road shoulder can significantly diminish the guidance effect, so they may be installed only on the right side.

In road sections with guardrails, bridges, retaining walls, etc., it is advisable to install the same type of Wall Guide, considering the continuity of visual guidance in the preceding and following sections.

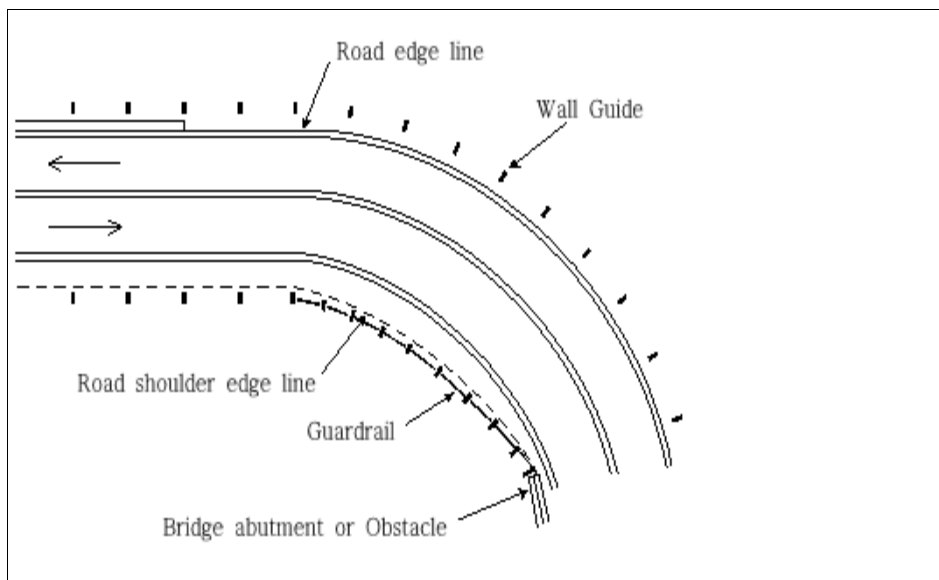
On the main line of roads exclusively for motor vehicles, the Wall Guide should be installed continuously on both the left road shoulder and the median strip. If there is no median strip and only a right road shoulder, it should also be installed continuously on the left road shoulder.

On roads exclusively for motor vehicles, due to the high driving speeds and multiple lanes, installing the Wall Guide only on the left road shoulder reduces the visual guidance effect for vehicles.

Considering this, the Wall Guide should also be installed on the right side of the main line of roads exclusively for motor vehicles. At interchanges, rest areas, and similar locations, the Wall Guide should be installed on the outside of curves for entry and exit roads.

The Wall Guide should be installed at the closest point to the outside of the roadway. Generally, it is installed 0~200cm from the road edges according to the terrain.

In urban areas, the installation location is selected considering pedestrians, while in mountainous areas, it considers snow removal operations, and so on. The Wall Guide should be installed at regular intervals near the edge of the road. However, if there are obstacles at the roadside, they can be installed on the surface of the obstacle (Refer to <Figure 3>).



<Figure 3> Integrated installation of obstacles and the Wall Guide

6.5.2. Installation height

The standard installation height of the Wall Guide is typically below 60cm from the pavement, and careful attention should be paid to ensure that the Wall Guide is not obscured by trees, weeds, other facilities, etc. Here, the pavement refers to the surface of the driving lane closest to the

facility.

When the Wall Guide is installed on guardrails, retaining walls, etc., it is recommended to install the same type of Wall Guide used in the preceding and following sections at approximately the same height.

The Wall Guide should be installed considering that the reflective performance improves when it is installed lower than the center of the headlight.

However, in areas with significant changes in linear termination, installations should consider ensuring appropriate visual guidance.

6.5.3. Installation Interval

Wall Guides are subject to be installed continuously, but if they are installed at the same intervals, the gaps between the Wall Guides in sections with small horizontal curve radius appear visually larger, resulting in less effective guidance.

Therefore, regardless of the horizontal alignment, Wall Guides should be installed at intervals that appear visually consistent, and the standard installation intervals according to the road curve radius are as shown in Table 1.

The maximum installation interval is 10 meters for general roads and 20 meters for highways and other high-speed roads, with installations made in straight sections.

At transition points where a straight line connects to a curve, the Wall Guides must be installed to visually connect smoothly. Additionally, to inform drivers in advance of the point where the road alignment changes from a straight line to a curve, Wall Guides should be installed at least 500 meters in advance (in the straight section) from the transition point.

When the horizontal alignment changes directly from a curve to a straight line without a transition curve, applying the standard installation interval might result in excessively wide intervals at the curve connection points, making effective visual guidance difficult. Therefore, it is advisable to connect the transition points from curve to straight line by installing three Wall Guides.

The positions of the three installations should be at intervals of $2S$ for the first Wall Guide, $3S$ for the second, and $6S$ for the third, where S is the standard installation interval on the curve. After that, the installation should be applied as much as the maximum installation interval for straight sections. Figure 4 shows the installation intervals of Wall Guides at the connection sections of straight lines and circular curves.

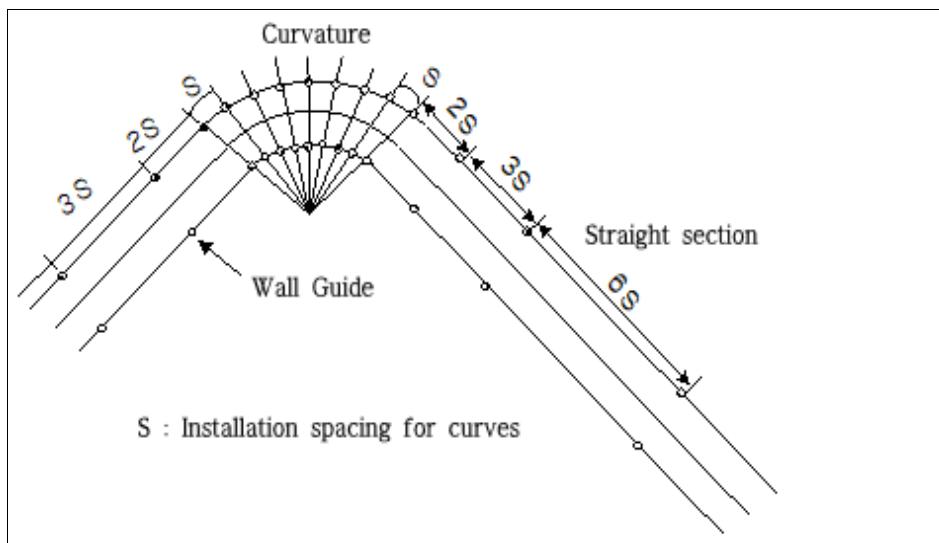


Figure 4: Wall Guide Installation Interval (Connection Section between Straight Line and Circular Curve)

When installing Wall Guides in sections where the number of lanes or the width of the roadway changes, the installation intervals should be set to accurately indicate these changes.

When Wall Guides are installed only on the road edge, the same method of determining installation intervals as used for the left side should be applied.

When installing Wall Guides on both the outer and inner sides of the curve, the Wall Guides on the outer side are installed at the standard interval, while those on the inner side are placed symmetrically with respect to the centerline of the road, forming a right-angle symmetry with the Wall Guides on the outer side. Figure 5 shows an example of this installation.

On roads entering and exiting interchanges, rest areas, and lanes for changing speeds, the usual driving speed is lower. Additionally, since there are relatively few sections with a curve radius of 650m or more, maintaining continuity is challenging with a maximum installation interval of 20m. Therefore, the maximum installation interval in these areas is set to 10m.

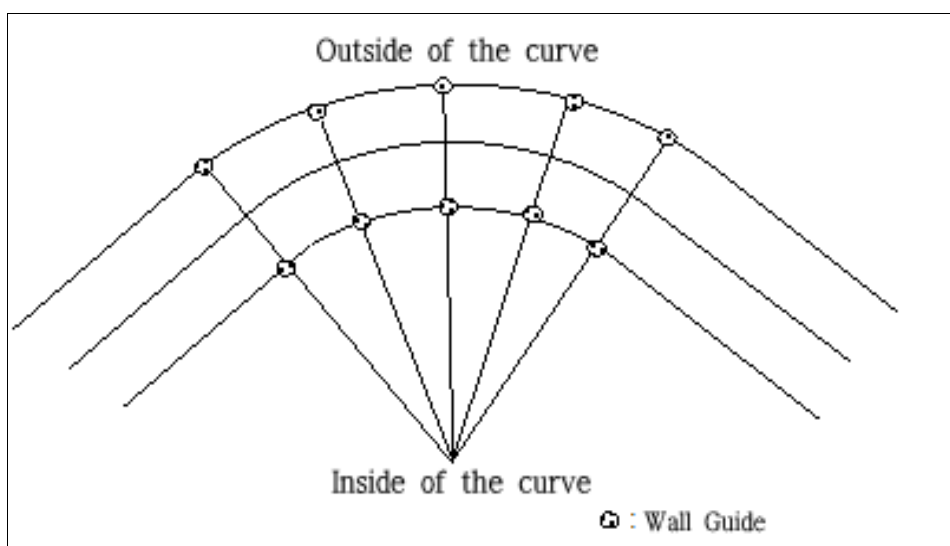


Figure 5: Installation Method on Outer and Inner Sides of a Curve

When installing Wall Guides on guardrails, the installation should be at the closest point to the standard interval.

When installing Wall Guides on traffic islands, the installation intervals should be determined to ensure proper visual guidance.

If Wall Guides are installed on guardrails, railings, retaining walls, etc., they should be continuously installed according to the standards applied to regular road sections, using the same type of Wall Guides used in the adjacent sections to maintain visual guidance.

If Wall Guides appear discontinuous in areas where the vertical alignment changes sharply, adjust the installation intervals to ensure smooth visual guidance.

When installing Wall Guides on existing roads without road alignment data to determine the curve radius, calculate the curve radius at the installation points according to Figure 8 and Equation 1, and install them at the standard intervals specified in this instruction.

6.5.4. Installation Angle

The standard for the installation angle of the Wall Guide is to install it horizontally relative to the direction of the vehicle's travel. In sections with a small curve radius, if installing the Wall Guide horizontally relative to the direction of the vehicle's travel results in insufficient reflective light, it is advisable to change the installation angle based on a driving survey.

validity period of the installed product to the client for approval. The client may conduct inspections on separate test samples as needed.

In the construction of the Wall Guide, care must be taken to prevent any issues arising from the construction process. During construction, measures must be taken to raise awareness among drivers, and on public roads, special consideration should be given to pedestrian safety. Additionally, the impact on underground utilities and other structures must also be considered. The installation of the Wall Guide must be carried out not only according to the design drawings and specifications but also safely and securely to fully ensure the functions presented in this instruction.

During the installation of the Wall Guide, care should be taken to prevent cracks, bubbles, stains, or scratches on the reflective surface.

When installing on concrete structures, particularly on reinforced concrete, the impact on the structure, such as rebar placement, should be considered, and sufficient measures should be taken to ensure it does not come loose. When installing with a mounting plate, ensure that the anchor bolts are securely fixed and that the mounting plate is completely adhered to the structure.

6.6.1. Detailed Construction Drawings

To promote traffic safety, each road management agency shall prepare detailed construction drawings or the installation location, installation interval, and quantity of the Wall Guide, taking into account the function of the road, the terrain, the presence of a central divider, etc., and have the contractor carry out the installation accordingly.

6.6.2. Product Selection and Quality Control

The Wall Guide should be selected from among products that meet the facility standards of this instruction by comprehensively reviewing initial reflective performance, economy, constructability, and continuity with existing facilities. To ensure the quality of the Wall Guide, the contractor must use and install products that have been pre-approved by the ordering institution before installation. To this end, the contractor must submit a test report indicating the conformity or non-conformity of similar products conducted by an accredited performance testing institution within one year prior to the scheduled contract date for approval by the ordering institution.

If this is not possible, the quality test results from an accredited institution for 20 randomly sampled test pieces of the Wall Guide to be installed on-site must meet the standards of this instruction. The cost of the test will be separately accounted for and paid by the client, on the condition that the quality test is passed. (However, this applies only to the cost of one test.)

The inspection of materials brought on-site will be based on the material performance results at the time of product application. However, if it is deemed that there may be deficiencies in the on-site materials, tests will be conducted in the same manner as during product selection.

6.6.3. Product Labeling

The Wall Guide must be labeled with the manufacturer's name or the product name in abbreviation, and the label attached to the packaging box and the product must include the manufacturing date, the manufacturer's name, and the product name or its abbreviation so that the manager can verify this during the installation period.

6.6.4. Post-Installation Checks

- 1) Verify that the Wall Guides are installed at the locations and intervals specified in the design drawings and that they do not obstruct pedestrian traffic or facility limits.
- 2) Check the attachment condition of the Wall Guides.

- 3) Ensure the height of the Wall Guides is appropriate.
- 4) Check for any scratches, damage, or contamination on the Wall Guides.
- 5) Confirm that the installation is as specified in the design drawings and specifications, and ensure that the site is properly restored after installation.

6.7. Maintenance

Inspect and maintain the Wall Guides to ensure they function properly. Based on the inspection results, clean the contaminated Wall Guides and repair the damaged ones.

The replacement cycle is five years, but the decision to retain or replace the Wall Guides should be made based on their condition after inspection.

6.7.1. Inspection

Inspections are typically carried out through routine patrols to check for any abnormalities, and the following items are inspected as needed:

- 1) Reflective condition
- 2) Wall Guide attachment condition
- 3) Presence of damage
- 4) Degree of contamination of the Wall Guide
- 5) Installation height, spacing, direction, and alignment
- 6) Installation direction of the Wall Guide
- 7) Visibility of the Wall Guide

Due to vehicle exhaust, dust, and muddy water, as well as damage caused by residents, the Wall Guides frequently become contaminated or damaged. Therefore, the contamination and damage of the Wall Guides should be inspected regularly. Additionally, periodic inspections should be conducted to check for visibility obstructions caused by weeds or trees.

Inspection methods include taking photographs or videos from the driver's seat at night to assess the overall loss of the guidance function, and then deciding on maintenance or replacement. In snow-covered areas, inspections should be carried out promptly after the snow melts.

6.7.2. Cleaning and Maintenance

Contamination of the Wall Guides reduces their guidance effectiveness, so they should be cleaned based on inspection results. At least two cleanings should be conducted annually, and more frequent cleanings should be carried out in heavily trafficked areas to ensure the Wall Guides function properly.

During cleaning, care must be taken not to scratch the surface of the Wall Guides.

Weeds and trees obstructing the Wall Guides should be removed as necessary based on visibility inspection results.

6.7.3. Repair

Immediate repairs should be made in case of damage or significant performance degradation of the Wall Guides. If repairs are simple, they can be done on-site; if the damage makes on-site repair difficult, the damaged Wall Guide should be removed and replaced with a new one. During replacement, the same design as the existing product should be used to ensure continuity of the facility and guidance within a specific section. Therefore, it is advisable for the facility manager to keep a sufficient stock of spare parts.