Renault Store - Technical specifications

The curved facades of showrooms

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1.1 Preamble

RENAULT expects all those involved in the "Renault Store" programme to meet their obligations in terms of results as per the requirements of the Technical Specifications. The general rules and specificities set out below are to be considered as the minimum necessary that has to be done to achieve the expected result.

1.2. Safety of persons and property

The supplier shall be able to provide proof that it has analysed the risks related to the services it is to provide and that its personnel and any sub-contractors have undergone sufficient training. Strict compliance with legislation in terms of safety and protection of workers is required.

1.3. Respect for the environment

Materials and methods which make it possible to reduce harm to the environment shall be used wherever possible (recyclable materials, energy-saving technologies, toxicity of materials and products used, etc.).

The supplier shall be able to provide proof that it has the various administrative permits (operating permit, environmental permit) necessary to manufacture the various items of equipment and that it complies with the operating conditions required by the legislation in force or by the specific operating conditions in the countries concerned.

A global approach such as the ISO 14001 standard is recommended. e.

1.4. Quality

The supplier shall be able to provide proof that it works in accordance with ISO 9000 quality assurance standards, formal certification being particularly recommended in this regard. The signwriter shall attach a specific Quality Plan to its offer to assure RENAULT of its capacity to supply finished products and spare parts that are compliant with the contractual requirements, within the set time periods. It shall request its sub-contractors to do likewise.

The procedures applied must make it possible to:

- Be sure that the parts and products purchased, manufactured and supplied shall neither be used nor delivered before they have been checked and be recognized as compliant.
- Procedures shall be set out for identifying causes of non-compliance, which make it possible to provide sustainable solutions that can be applied more widely to resolve the non-compliance and prevent it reoccurring.

These operations shall be recorded in the appropriate documents and be approved by RENAULT prior to being applied more widely.

- Track changes in the quality of products and assembly and removal services using inspection and audit indicators (incidents, complaints, etc.).

This tracking shall result in preventive or corrective actions; they shall be approved by RENAULT before being applied.

General technical requirements

1.5. Compliance of messages and colours

Visuals must comply with the official images contained in this document.

All shades have a 40% satin finish unless specified otherwise. Particular attention should be paid to complying with the colour code.

Compliance with the tolerances for the L.a.b. is required.

2.1. General technical standards

The reference base to be followed for design and manufacturing shall, at the very least, be that required by Eurocode standards.

The regulations relating to the dimensioning of structures in force in each of the countries concerned shall be complied with taking climatic conditions into account.

The following obligations in terms of results must be met:

- Supported under their own weight, the equipment must appear perfectly horizontal and vertical.
- The parallel alignment of separate elements must be observed.
- Under normal wind conditions (Cf. NV65 and NF EN1991-1-4 (Eurocode 1)), the permissible bend between the fastening and the point most distant from the fastening (dimension "d") shall not exceed d/100.

2.1.1. CLIMATIC CONDITIONS

Wind loads to be considered for the design of structures shall be taken from the Eurocode 1 rules (EN 1991-1-3): zones 4 (28 m/s), roughness IIIb, force coefficient equal to 1.80.Any structure situated in an unfavorable geographical area with regard to this load case shall be subject to a special design basis in order to meet the applicable standards.

2.1.2. DESIGN RULES

2.1.2.1 aluminum structures

Design rules for aluminum structures - most recent edition of DTU rules (currently, July 1976).

Applicable standard for the execution of structures: NF EN 1090-2 and Eurocode 9.

2.1.2.2 Steel structures

Design rules for steel structures CM 66 » - most recent edition.

Applicable standard for the execution of structures: EN 1093 and Eurocode 3.

2.1.2.3 Concrete blocks

Concrete blocks shall be of "weight" type with minimum reinforcement.

The concrete to be used shall have an ordinary Portland cement (OPC) content of 400 kg/m3 (s' 28=300 bars - s28=25 bars).

General technical requirements

2.1.2.4 Design calculations for plastic elements

Adapt the CM 66 rules using a safety coefficient of 2 for the stresses.

2.1.3. MATERIALS

2.1.3.1 General remarks

The materials used shall all be first-choice materials suitable for their envisaged use and they shall be used in accordance with the rules of best industry practice for the profession and in compliance with the standards and regulations in force in France and in the Countries in which they are intended to be used.

The materials used shall not have any defect that is likely to compromise the durability of the structures. The equipment shall be easy to clean, maintain and service.

The materials shall be capable of withstanding harsh climatic conditions such as rain, snow, hail, condensation, dust and salt spray.

Operation must be guaranteed between - 20 and + 80 ° C.

2.1.3.2 Steels

Steels shall be either "hot finished" as per NF EN 10210 or "cold finished" as per NF EN 10219-1 and 2. The quality of the steels shall be stated on the production drawings and it goes without saying that the mechanical properties of the different types of steels must be taken into account for stability calculations.

All elements shall be manufactured in a covered, sheltered location.

After machining, welding, drilling, notching, etc. the elements shall be prepared prior to anti-corrosion treatment: brushing of welds, careful deburring, cleaning, shot peening and sand blasting.

The anti-corrosion treatment shall be performed by hot galvanization of a minimum of 80 µm and shall provide fault-free protection for at least the period of the ten-year guarantee.

No machining may be carried out once the parts have undergone anti-corrosion treatment.

All fasteners and hardware (including hinges) shall be made of 18/10 stainless steel (NFE 25.033).

2.1.3.3. aluminum

The reference standard is NF EN 573-1. Parts used in a supporting structure shall be chosen from the "6000" series. For parts which are not used in a supporting structure, the "1000" series shall be acceptable.

The alloys are to be weldable.

The parts shall be carefully deburred and the welds shall be brushed before any protective treatment.

The visible parts of equipment shall be treated by the application of paintwork performed according to a "Qualicoat"-type procedure.

General technical requirements

2.1.3.4. PMMA

The PMMA shall meet at least the following characteristics:

	Flat parts machined "cast" PMMA	Flat parts unmachined "extruded" PMMA
• Opal white (values for a test piece of 3mm thick)		
• Tensile strength	> 75 MPa	> 70 MPa
• Bending strength	> 130 MPa	> 120 MPa
• Bending modulus	> 3,250 MPa	> 3,000 MPa
• Unnotched CHARPY impact test strength	> 12 MPa	>10 MPa
• Expansion	< 1 mm / 1 m / 10°C	<1 mm / 1 m / 10°C
• Light transmittance	> 50 %	>33 %

The thermoformed panels shall be made of white, light diffusing, extruded PMMA in compliance with the sheet manufacturer's heating parameters.

Where parts made of PMMA are more than 100 cm high, they shall be hung from the top by an adhesive PMMA cleat.

The thickness of the sheets shall be calculated in compliance with the tensile strength standards set out above.

2.1.3.5. Polycarbonate

The polycarbonate sheet shall meet at least the following characteristics:

- Uncoloured appearance
- Density > 1.2 g/cm3
- Tensile strength: 60 Mpa
- Expansion < 0.7 mm / 1 m / 10°C
- Light transmittance > 90%

2.1.3.6. Expanded foam

These following characteristics must be met:

- Material 9010 white PVC
- Density > 50 g/cm3
- UV-stabilized: 14 MPa
- Shore hardness D > 75
- Expansion < 1 mm / 1 m / 10°C

2.1.3.7. Paint

Painted parts must have an even appearance across their entire surface.

Defects such as pores, fissures, grains of dust, runs or waves of paint shall not be tolerated.

General technical requirements

Samples of painted rough parts shall be tested and accepted by RENAULT, after having undergone the following tests performed by a certified body:

- Colour based on a LAB test with a MINOLTA 508 D colorimeter with D65 illuminant and the observer at 10° and specular component included (the tolerances in the CIELAB colour space are L +/- 1, a +/-1.5, b +/- 1.5).
- Gloss at 40 °: based on a test according to NF T 30064 standard.
- Gloss at 60 °: based on a test according to NF T 30064 standard
- Adhesion: resistance to peeling based on grid test.

  Class 1, as per P UW 150 1. NF T 30038 standard
- Colourfastness:

  QUV as per NF T 30036 after 200 hours of exposure.

Samples of each of the elements shall be supplied, upon request, to RENAULT for inspection.

2.1.4. ELECTRICAL EQUIPMENT

Assemblies with electrical equipment shall comply with the essential safety requirements of the European Union. Within this framework, the supplier shall obtain a certificate (for each type of equipment) which must clearly state the compliance of the assemblies, and thus of the components, with:

- requirements relating to the safety and protection of users and all other persons (directive 73/23/EEC without any lower voltage threshold)
- requirements relating to electromagnetic compatibility (directive 89/336/EEC).

The rating plate on each item of equipment shall display the CE mark indicating compliance with these requirements.

The regulations relating to low-voltage signage in force in each of the countries concerned shall be complied with taking climatic conditions into account.

In addition, the following requirements shall be met:

Electrical equipment shall be compliant with the standards in force from the series NFC 15-100, NFC 20-010 and NFC 20-030, NFC 71, NFC 32 for France and the IEC 60364 international standard.

This concerns the following in particular:

- Category one electrical installations and low-voltage illuminated signage installations.
- The fire behaviour of electrical equipment and the degree of protection of enclosures,
- Flexible and rigid low-voltage cables.

In addition, the equipment shall comply regulations relating to the suppression of interference in inhabited areas and shall thus be delivered with interference suppression.

General technical requirements

2.1.4.1 IP rating

All the electrical equipment shall have a protection rating of at least IP 44-D.

2.1.4.2 Protection against electric shock

All equipment shall be "class 1".

2.1.4.3 Fasteners

The converters shall be placed in areas not subject to standing water.

The cables and sheaths shall be fastened to structures at 50 cm intervals.

2.1.4.4 Cable routing

Every cable or sheath passing through a metal part shall be routed through a cable gland.

Connection boxes.

An IP 44 sealed plastic connection box shall be provided at the inlet to each assembly. This box shall be equipped with a 5-input connection pin for 4 mm wiring.

All the connection boxes shall have the markings P1+P2+P3+T+N.

2.1.4.5 LEDs

The white LEDs used shall have the following characteristics:

- Lifetime: 50,000 hours for a loss of initial luminous flux of 50 % at the end of the period
- 5 year guarantee for operation 10 hours per day with a maximum loss of luminous flux of 20 %
- Operating temperature of LEDs: between - 20° C and +50 °C.
- Minimum protection index: IP 67
- The LEDs used must comply with the following international standards: IEC 62504 TS Ed. 1, IEC 61231, IEC 62560 Ed 1, IEC 62031 LED module safety, IEC 61347-2-13 LED control gear.

2.1.4.6 Converters

The power supply converters for the LEDs shall have the following characteristics:

- Wide power supply voltage range (100 to 300 volts)
- Reversible protection against increase in temperature and overload
- Protection against short-circuits with automatic restart
- Minimum protection index: IP 67
- Operation compliant with: EN 55015, EN 61000-3-2, EN 61547, EN 61558-2-17

General technical requirements

2.1.5. FASTENERS AND HARDWARE

All fasteners and hardware used shall be made of stainless steel (non-magnetizable).

aluminum "pop" rivets are accepted as long as the steel rods are systematically removed.

For welding, the wires and electrodes are to be compliant with NF 81.830.

2.1.6. ANCHORING SYSTEMS AND FASTENINGS

The plinths for all equipments shall be completely removable without having to remove another element of the assembly. The plinths shall cover the attachment plates or fastenings. The attachment plates shall be easily accessible once the plinths have been removed.

For each of the assemblies which require a foundation block or fastening to a separate structure, the signwriter shall provide the elements necessary, as well as the conditions to be used to make design calculations for these elements (wind conditions and design calculation methods).

2.1.7. IDENTIFICATION PLATE

Each finished product shall be marked with a metal identification plate on the structure which shall show at least the following information:

- Name of the signwriter
- Product code and batch
- Month and year of manufacturing
- The CE Marking if it is illuminated.

2.1.8. STORAGE

The finished products shall be stored in a dry and well-ventilated location.

RENAULT inspectors shall be able to have access to them at any time.

2.2. Guarantees

The suppliers undertake to offer the guarantee conditions below for their products:

- 2 year guarantee on the installation against defects and faulty workmanship,
- 5 year guarantee on the electrical equipment including the LEDs and converters,
- 5 year guarantee on the adhesive elements,
- 5 year guarantee on digital printing (anti UV treatment),
- 5 year guarantee on workshop-lacquered sheet metal,
- 5 year guarantee on the chrome-plated diamonds,
- 7 year guarantee on sheet metal and profiles pre-lacquered by the aluminum manufacturer,
- 10 year guarantee on the internal structures,
- 10 year guarantee on the PMMA acrylic panels.

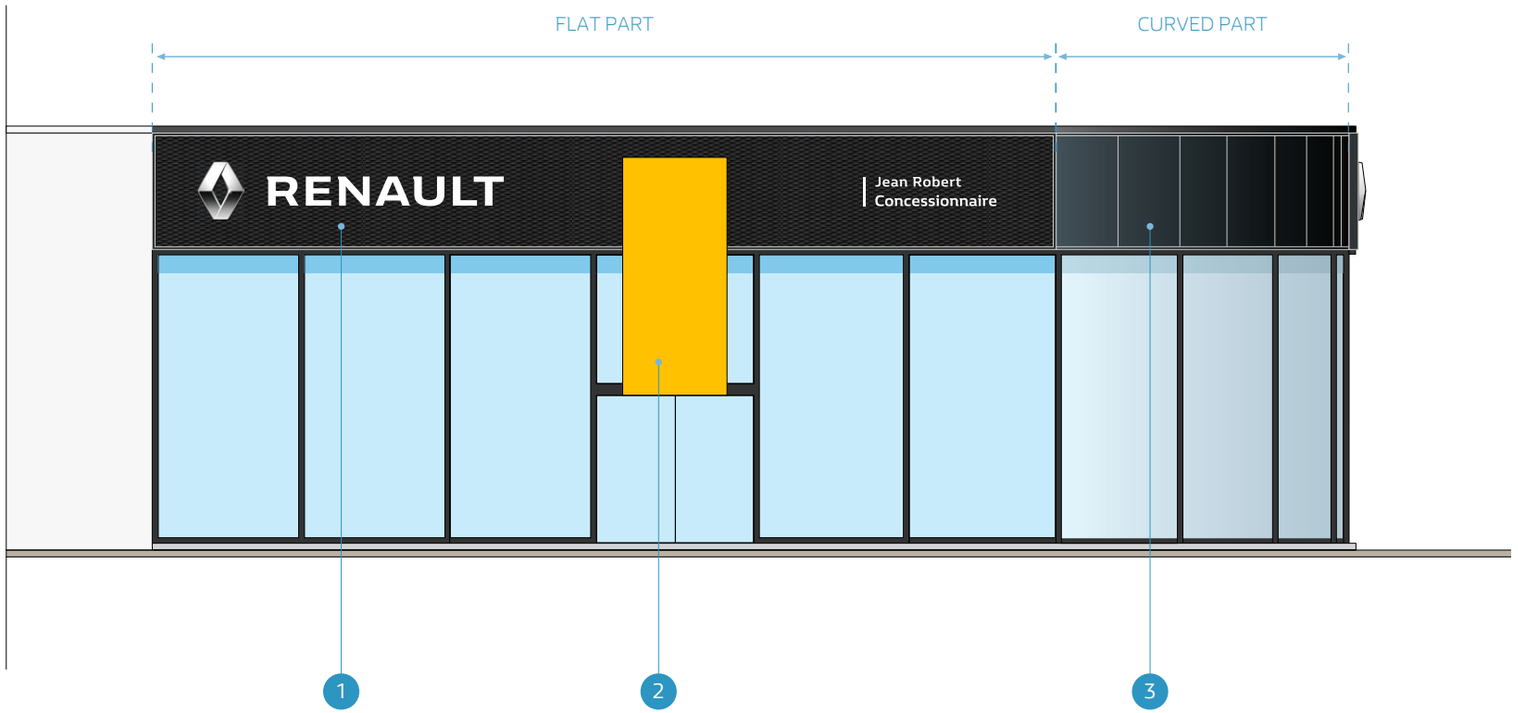
2
General remarks

General view of the main facade

Generic principle

The facades of showrooms with curved parts are identified as follows:

1. The flat parts are clad with metal mesh and facade markings (Renault signature and Dealer Name).
2. The overhead panel is positioned above the entrance.
3. The curved portion receives a coating of matte black sheets in the extension of the metal mesh.

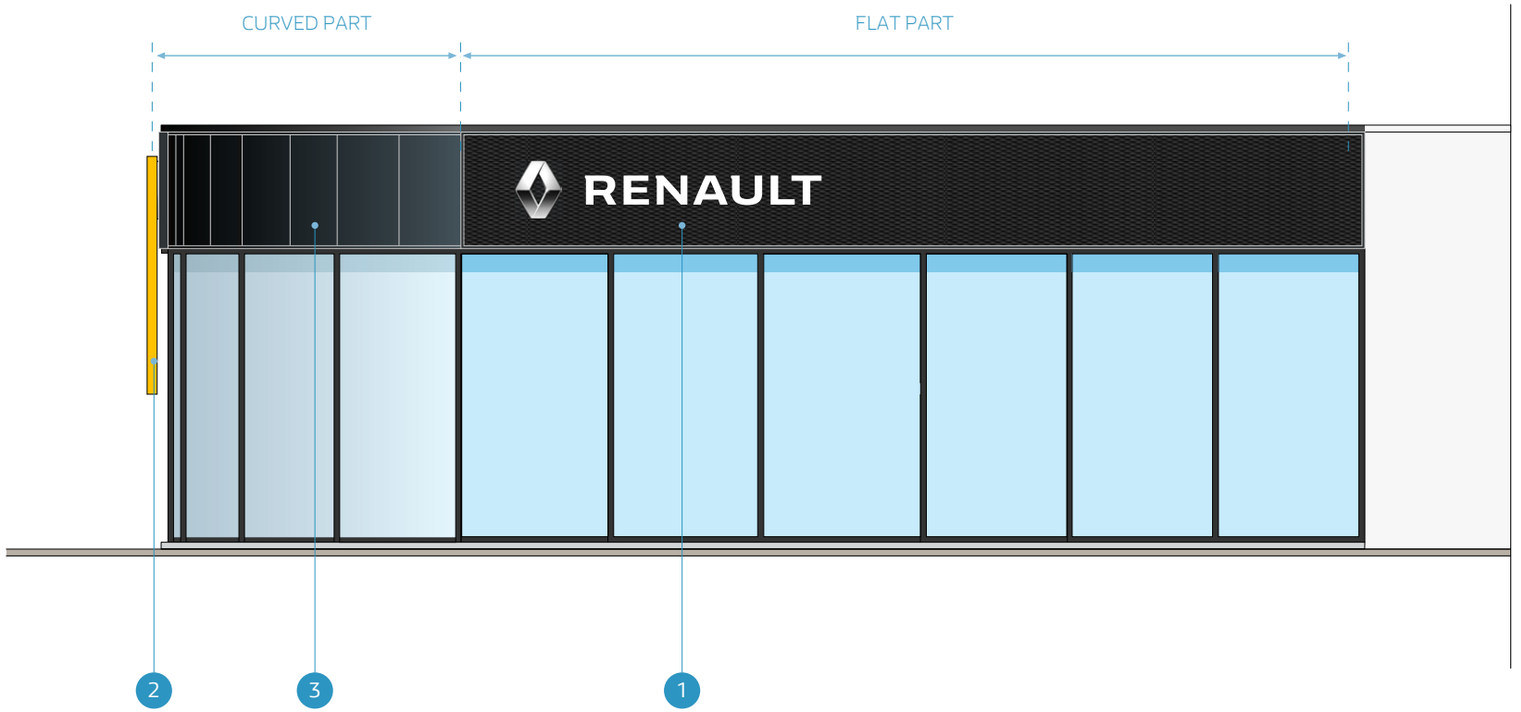


General view of the secondary facade

Generic principle

The secondary facade, when flat, is claded with metal mesh and is identified by a Renault signature:

1. The flat parts are claded with metal mesh and facade markings (Renault signature)
2. Overhead panel (main facade)
3. The curved portion receives a coating of matte black sheets in the extension of the metal mesh.

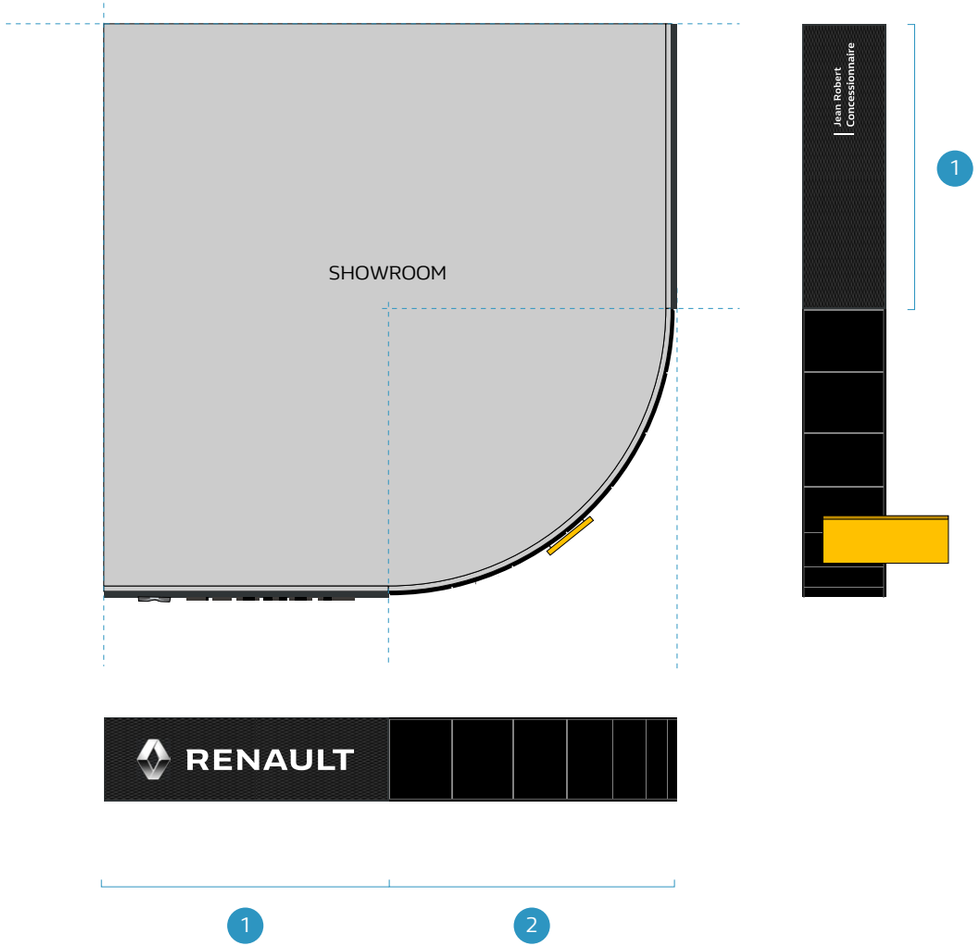


Treatment of entrances on curved façade

Principles of application

When the entrance of the showroom is located in the curved part, the following rules apply:

1. The flat parts are cladded with metal mesh and facade markings (Renault signature and Dealer Name).
2. The curved portion receives a coating of matte black sheets in the extension of the metal mesh. The overhead panel is positioned above the entrance on the curved section.



Special case of rotunda showrooms

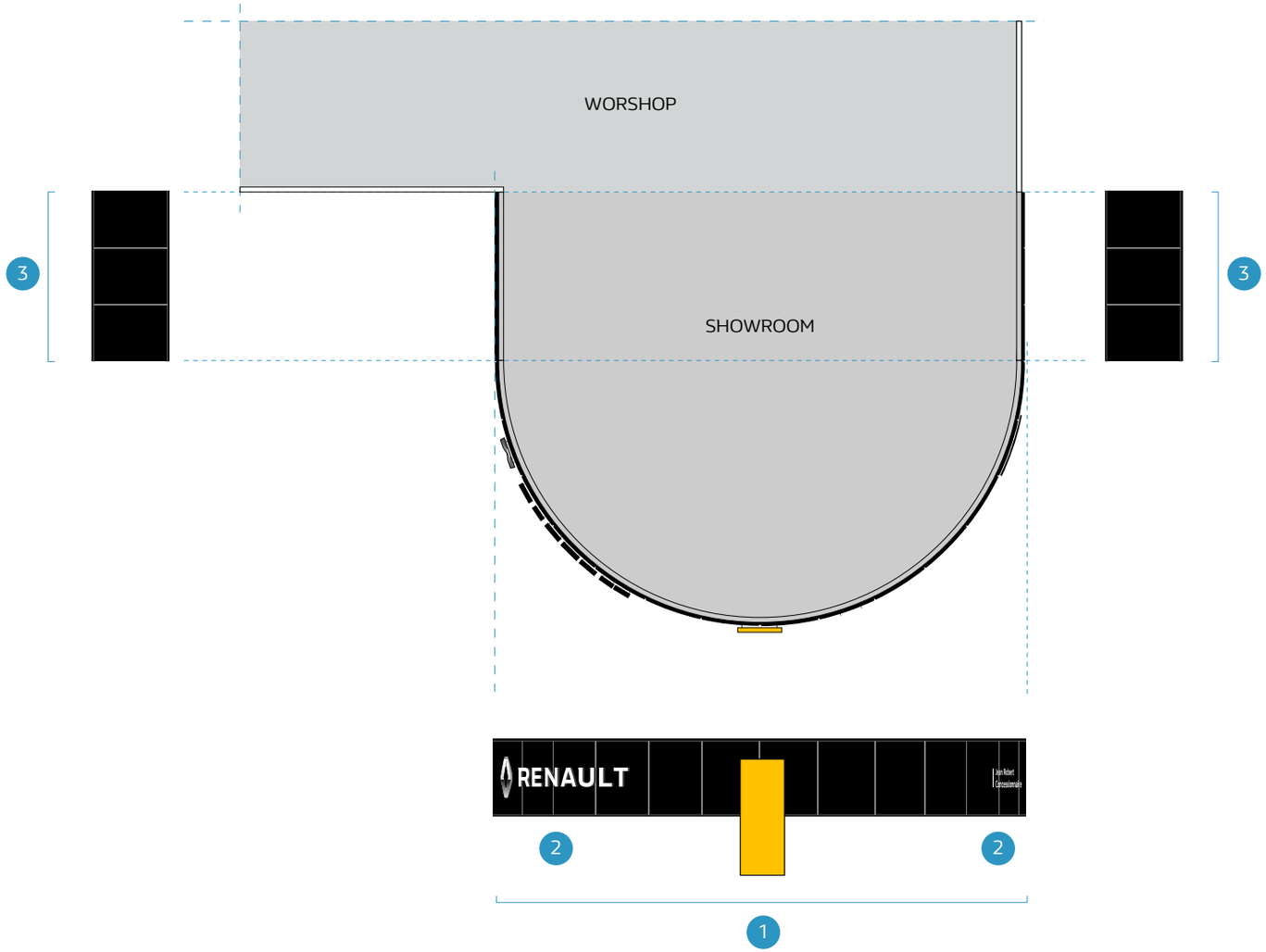
Principles of application

When the showrooms are rotund (major curved parts 180 to 360 °), it may happen that the facade markings must be applied to the curved parts:

- because the flat parts are too narrow for façade markings,
- because the visibility of the flat parts does not allow an efficient identification of the site.

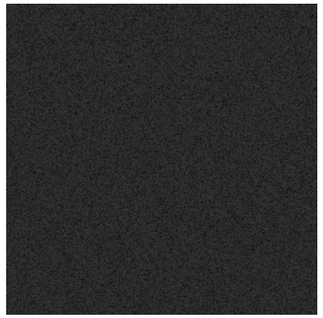
In this case, the following rules apply:

1. The curved parts receive a coating of matt black sheets. The overhead panel is always positioned above the entrance on a curved part of the facade.
2. Exception, the Renault signature and the Dealer Name are positioned on both sides of the entrance on the curved parts of the facade.
3. The plane parts (appearing in minor) receive a covering of matt black sheets (and not of mesh) in the continuity of the curved parts.



3
Technical principles

Coulours & materials

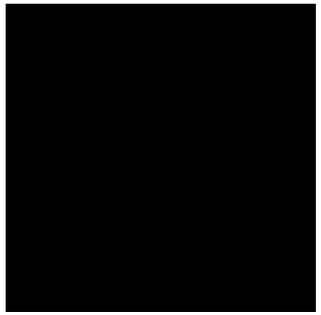


Dark grey metallic

- Post-lacquered aluminum sheet 20/10 th
- Satin finish with 40% gloss
- Metallic finish

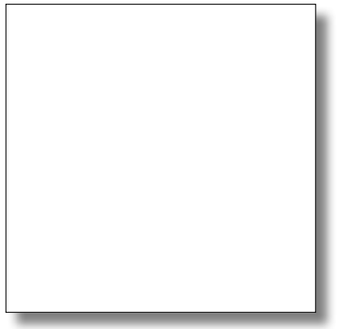
Bright chrome

- Diffusing PMMA injected with vacuum metallization and glossy protective varnish



Matt black eq. RAL 9005

- Pre-lacquered aluminum sheet 15/10 th
- Matte finish with 2% gloss



Pure white

- Satin or matte adhesive
- Diffusing PMMA 50% light transmission

Yellow Pantone 7408 EC

- Stretched canvas

Vertical section on curved parts

Constructive principle

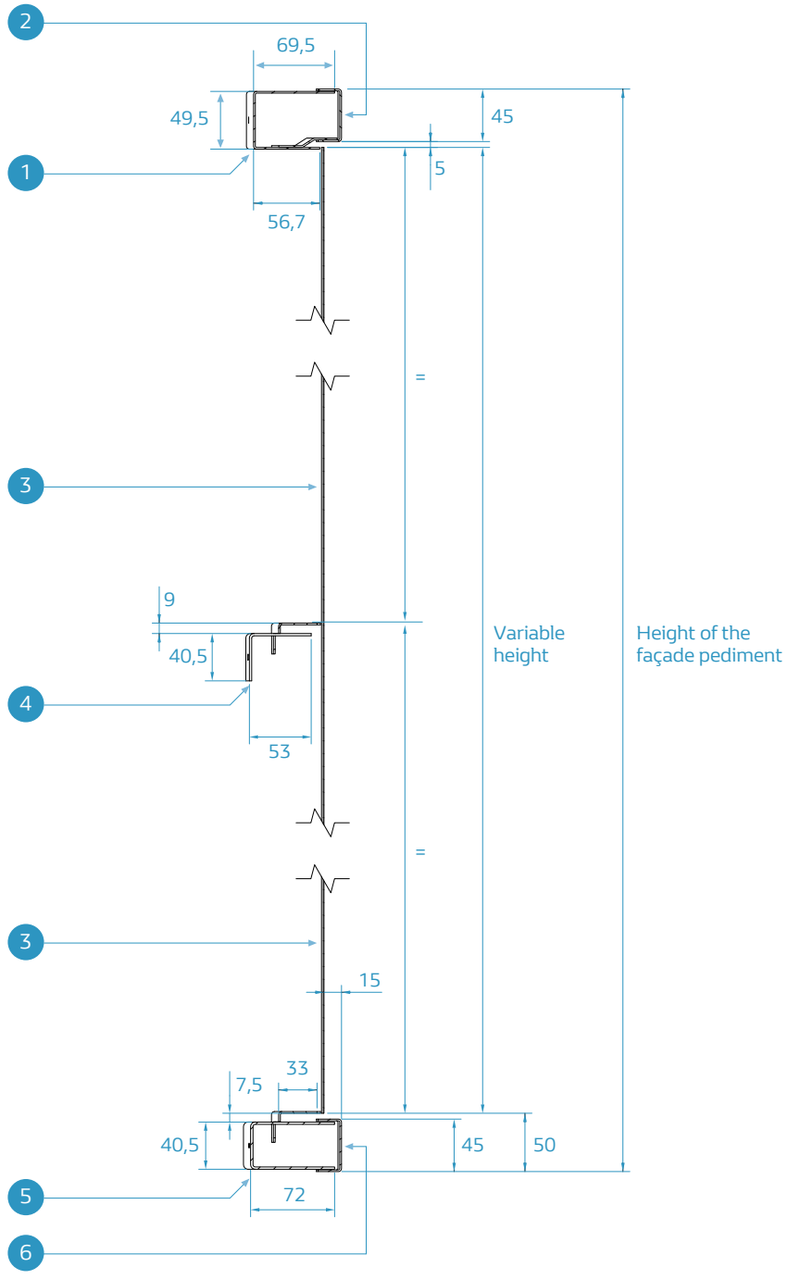
The curved parts of the facades are dressed according to a principle of reconstituted cassettes.

Horizontal curved rails with the clean radius of each facade are placed on a structure or directly on the facades.

A frontal cladding closes the front face of the slats resuming the design of the profiles of the fishnet headbands. 2 horizontal hollow funds of height 5 mm punctuate the facade.

Vertical plates are arranged between the hinges fixed by welding in the rear part.

A reinforcement in the rear part supports these sheets in the form of an intermediate cross.



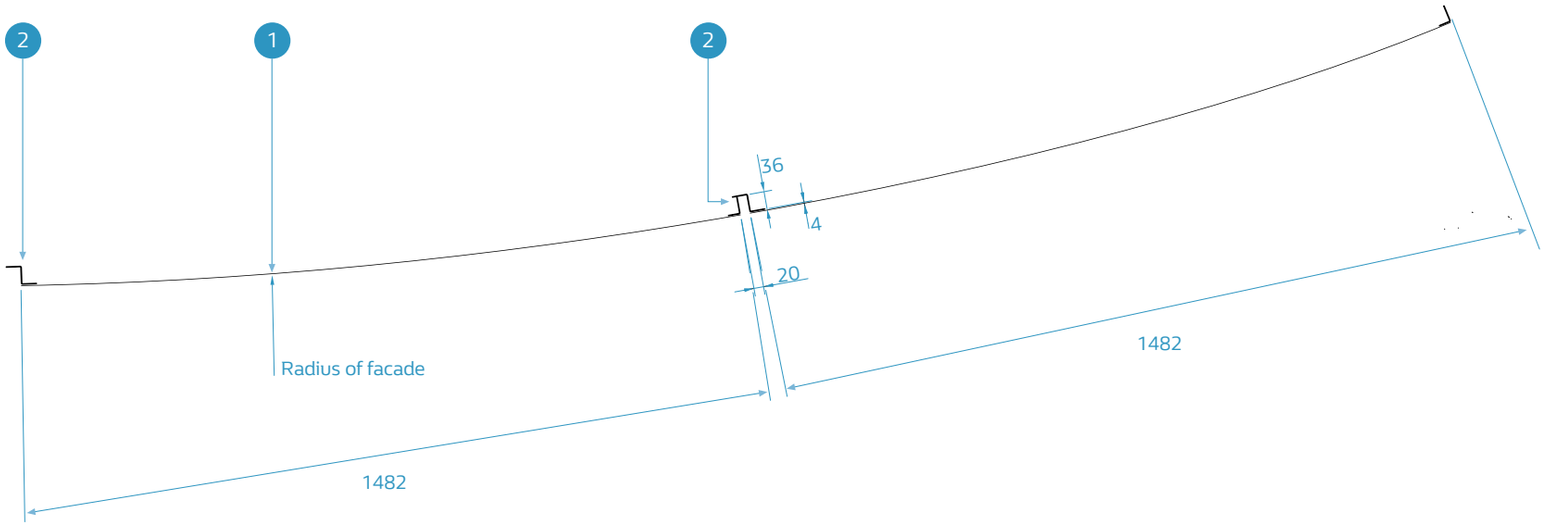
1. Upper curved profile
2. Upper curved cladding
3. Front panel
4. Intermediate crossing
5. Lower curved profile
6. Lower curved cladding

Horizontal section on curved parts

Principles

The curved facade cladding is made on the basis of 1500 mm nominal aluminum sheet cut to provide a controlled graphic rhythm.

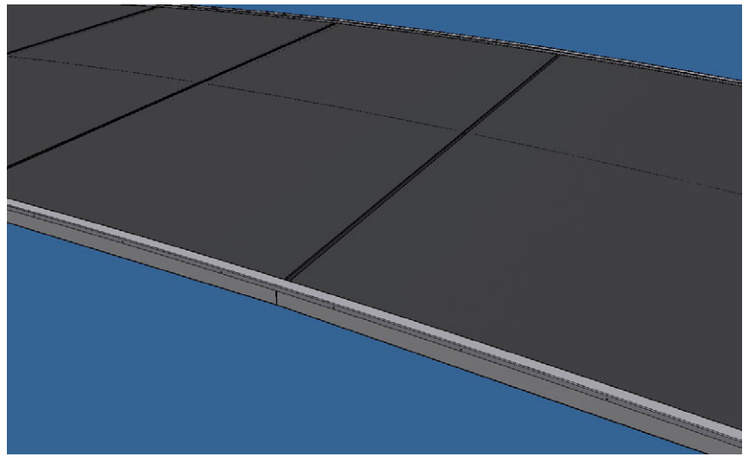
1. Each plate is bent to the specific radius of each facade.
2. The plates are connected to each other by a hollow bottom 20 mm wide created by a Z-folded piece glued to the back of the face.
3. A second piece folded in L completes to create the hollow bottom.



Manufacturing details

Description

1. The 20mm vertical hollow bottoms facilitate connection between panels by masking the bending and assembly tolerances of the panels.
2. Each hollow bottom consists of two distinct pieces allowing a slight variation in the distance between the edges of the panels. For this purpose, the Z-shaped back piece has a width of 30 mm.
3. Each panel has an intermediate reinforcement in the form of an L-shaped profile glued to the back of the panel.
4. The vertical hollow bottoms punctuate the facade.



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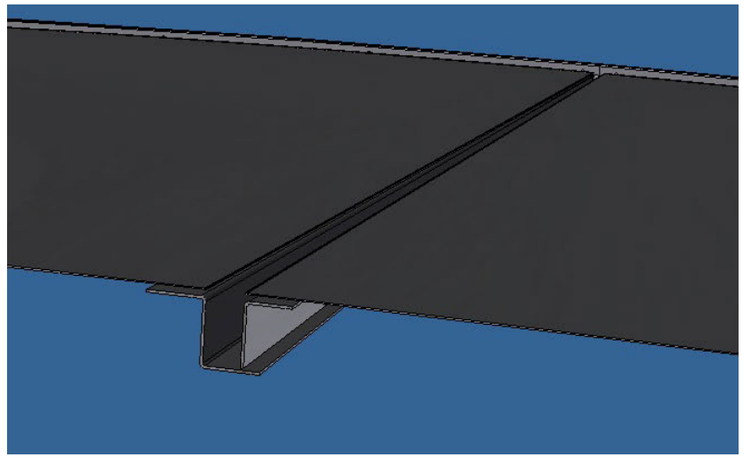

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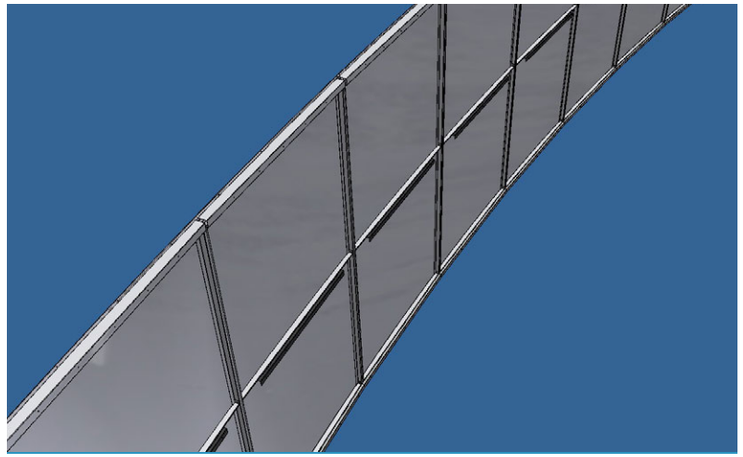

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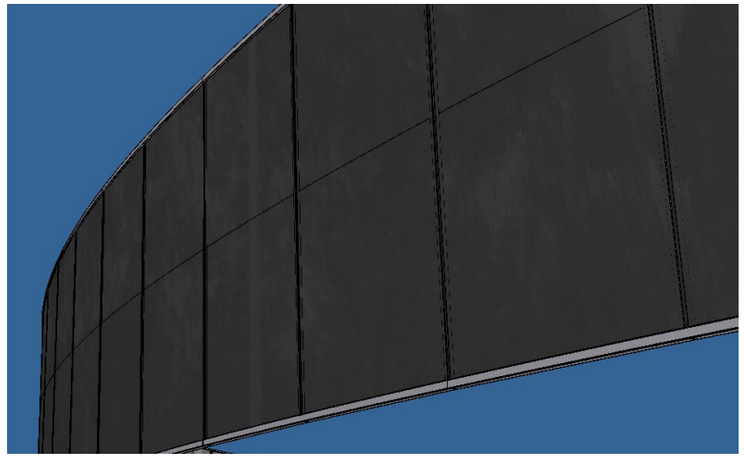

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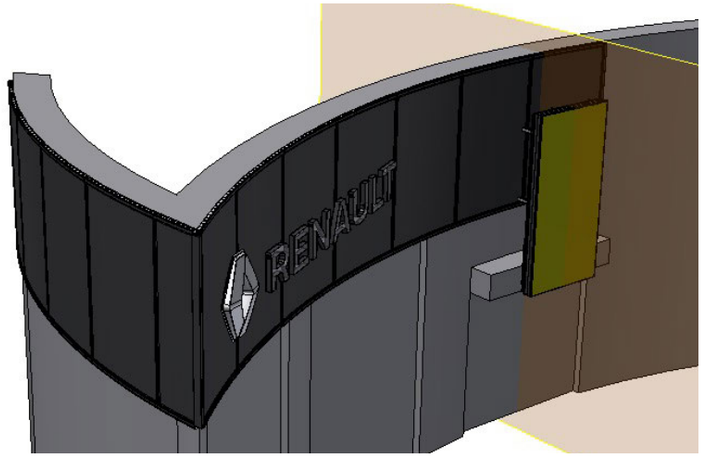
Special case of concave facades

Description

1. The panels are bent according to the curvature of the facade. The concavity of the facade can induce a significant offset of the overhead panel and the signature.
2. The angle of connection between the main and secondary facades is treated with a vertical profile placed in overlapping and masking the edge of the panels.
3. The panels are fixed on curved horizontal rails located in the upper part and in the lower part ensuring a faithful reproduction of the curvature of the facade.
4. The hollow bottoms punctuate the facade and contribute to the flatness of the panels (vertical Z).



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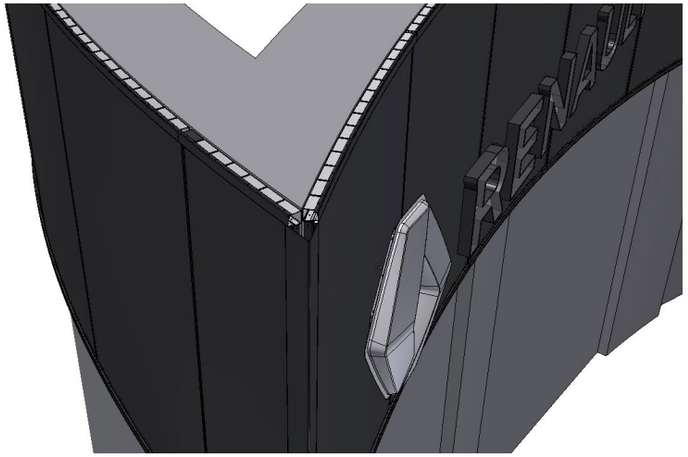

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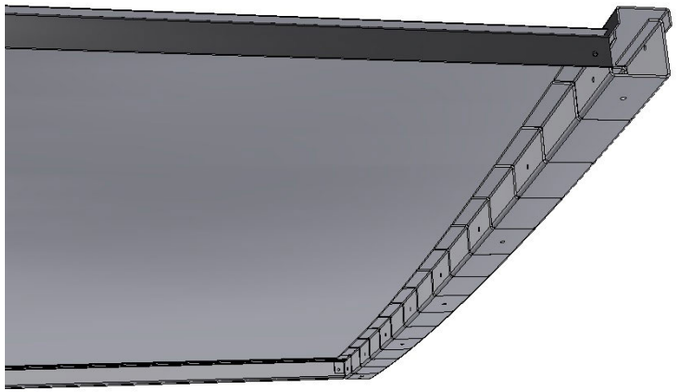

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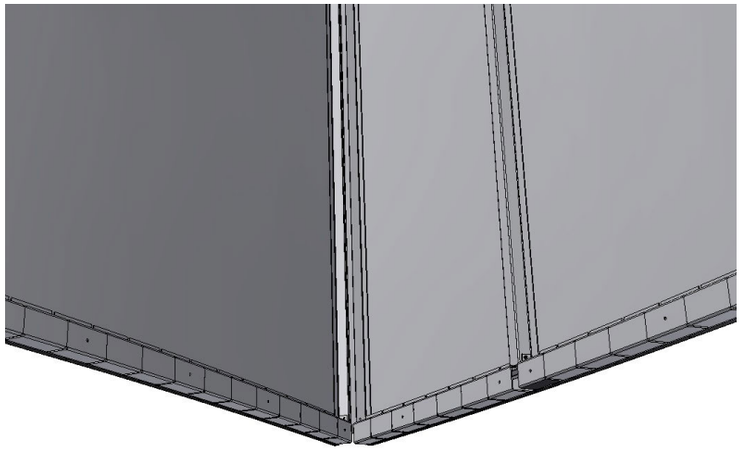

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