LOOKBOOK

GRATINGS IN ARCHITECTURE
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Aesthetic, functional and sustainable

The demands on today’s residential and functional architectures are manifold. Imaginativeness, individuality and aesthetics are just as important as functionality, cost efficiency and sustainability. Innovative gratings are a perfect combination of all these requirements for a wide range of applications. Whatever the need - façades, stairs or floorings, sunshades, bridges or interior design: Gratings will set no limits to the imagination of designers and principals alike. Made of steel, stainless steel or aluminium, they have excellent static properties and can be combined with various other materials. Let yourself be inspired by the versatile application examples presented on the following pages. Please do not hesitate to contact the member companies of the Industrieverband Gitterroste e. V. (IGI) (Grating Manufactures Industrial Association) for detailed advice.
Façades

Project: Grating facade Rotocoat
Location: Veldhoven 11, 8271 RE Ijsselmonden (The Netherlands)
Grating Type: Louvre gratings
  Bearing bar: 30 x 3 mm
  Cross bar: 30 x 2 mm, 45°
  Mesh: 33 x 99 mm
Material: Steel
Surface protection: Galvanized
Special features: Façade gratings provide excellent protection against direct sunlight and maintain privacy combined with other properties such as transparency, translucency and unlimited ventilation.
The façade is the true face of a building. Thus, the design is vital for the impression of a building. Gratings create unprecedented design options compared to the standard uniformity of glass, panels or masonry. A façade made of gratings provides individual style. It is this interplay between coherent surface and transparency, between solid materials and the ease of processing which holds this special aesthetic appeal.

Gratings are modern construction elements, which combine a stylish look with many other functional advantages in façade design. They allow good ventilation and maintain privacy. Their low weight simplifies the planning of the gratings façade. High corrosion resistance ensures a permanently stylish look with low maintenance, even if the gratings are exposed to wind and climate all year round.

Louvre gratings are a flexible option for sunshades.
The combination of various spacings allows a coherent surface without compromising an extravagant façade design.

**Project:** Architectural grating façade, Dejo
**Location:** Ambachtsstraat 3, 8471 AA Wolvega (The Netherlands)
**Grating Type:** Louvre gratings,
Bearing bar: 30 x 2 mm
Cross bar: 45 x 2 mm, 50°
Mesh: 49 x 99 mm Pressure-Locked Gratings
Bearing bar: 30 x 2 mm
Cross bar: 10 x 2 mm
Mesh: 33 x 33 mm
**Material:** Aluminium powder coated white
**Surface protection:** Galvanized and powder-coated with RAL 9006
**Special features:** The designer used gratings to create a façade which maintains privacy and at the same time protects from sunlight, and offers a broad range of optical highlights, e.g. by combining different spacings, grid dimensions or colours.
Flowing contours:
Gratings adapt to any idea.

Project: Roof and ceiling of the second Coen tunnel
Location: Amsterdam (The Netherlands, part of motorway A10)

Grating Type: Louvre gratings
Bearing bar: 50 x 3 mm
Mesh: 44 x 44 mm

Material: Steel
Surface protection: Galvanized and powder-coated
Special features: No matter how unusual the position, heavy louvre gratings can be installed safely with the right fixing system. There is virtually no limit in terms of design ideas.
Thanks to their structure and the various colours available, gratings offer virtually no limit for customized façade design.

**Project:** Building Ottho Gerhard Heldringstichting (centre for pedagogic and psychiatric treatment of young people)

**Location:** Wageningsestraat 104, 6671 DH Zetten, (The Netherlands)

**Grating Type:** Louvre gratings
Bearings bar: 50 x 2 mm
Mesh: 66 x 99 mm

**Material:** Steel

**Surface protection:** Façade: galvanized and powder-coated, hinged window: with contrasting colours

**Special features:** Gratings allow individual colour options, the picture shows a shade similar to the COR-TEN steel; so that they either unobtrusively fit into a designed façade or provide an optical highlight.
Linear appearance with good ventilation – gratings are an ideal option for car parks.

Project: Centrum Galerie Dresden
Location: Prager Strasse 15, 01069 Dresden (Germany)
Grating Type:
- Ceiling patterns: Pressure-Locked Gratings/full gratings
- Bearing bar: 30 x 3 mm
- Cross bar: 30 x 3 mm
- Mesh: 33 x 33 mm
- Façade: Pressure-Locked Gratings
- Bearing bar: 60 x 3 mm
- Mesh: 33 x 100 mm

Material:
- Ceiling patterns: Steel,
- Façade: Aluminium

Surface protection:
- Ceiling patterns: galvanized and powder-coated
- Façade: anodized version (aluminium natural)

Special features:
The ceiling consists of galvanized and powder-coated gratings with welded perforated plates, so they can be bolted directly onto the carrier construction. The mesh of 33 x 100 mm provides a highly transparent wall cladding, the design selected (bearing bars and cross bars flush at the interior side) produces a linear external appearance.
Gratings give façades a unique look due to the fascinating play of light.

**Project:** Rabobank Groene Hart  
**Location:** Noordeinde 61, 2371 CN Roelofarendsveen  
(The Netherlands)  
**Grating Type:** Pressure-Locked Gratings  
Bearing bar: 40 x 2 mm  
Mesh: 33 x 33 mm  
Full cell gratings  
Bearing bar: 50 x 3 mm  
Cross bar: 50 x 3 mm  
Mesh: 66 x 66 mm  
**Material:** Steel  
**Surface protection:** Galvanized  
**Special features:** Gratings are not only ideal to complement an existing façade, but may also form a façade of its own, e.g. in car parks. They protect safely against intruders or birds, but also allow fresh air and light inside the building.
Project: BMW Car Park
Location: Munich (Germany)
Grating Type: Pressure-Locked Gratings
Bearing bar: 50 x 2 mm
Mesh: 64 x 64 mm
Material: Steel
Surface protection: Galvanized
Special features: This version includes special grating segments which were assembled on site (final dimensions 2500 x 2700 mm) to underline the stylish look.
Project: New building of the Arts Centre, Library of the Georg August University Göttingen
Ceilings

A ceiling is more than just the upper end of a room. Its design may affect the environment as a whole. With their perforated structure, gratings hold particular appeal for this purpose. E.g. they allow ceilings which appear to glow from inside. Whether as ceiling patterns or floor constructions – gratings always provide an individual solution of rugged stability without compromising a transparent surface.

From a distance, the gratings impart a uniform appearance. The transparent effect is visible only when getting closer. Thus, an open but still uniform look can be achieved in ceilings.
Gratings create ceilings which appear to glow from inside.

Project: New building of the Arts Centre, Library of the Georg August University Göttingen  
Location: Heinrich-Düker-Weg 14, 37073 Göttingen (Germany)  
Grating Type: Pressure-Locked Gratings/full gratings  
Bearing bar: 70 x 3 mm  
Cross bar: 70 x 3 mm  
Mesh: 66 x 66 mm  
Material: Aluminium  
Surface protection: E6C0 anodized version, (aluminium natural)  
Special features: Ceiling gratings with bearing bars and cross bars of same height produce an overall uniform appearance. A transparency effect is visible only with a viewing angle of 41°. The free cross section of 89% makes it possible to install the lamps above the ceiling mirror.
Bright sunlight is magic; it gives your room a friendly atmosphere and has a positive effect on health. However, dazzling direct sunlight can quickly become a nuisance. Sun blades, shutters, or blinds may block dazzling sunlight, but they also filter a major share of the daylight and darken the rooms.

Gratings work similar to tree leaves – they are fixed sunshades but their open structure is transparent to light – only the direct sunlight is dimmed. The light enters the room as diffuse light, so that the room remains pleasantly bright.
Project: Berlin State Library
Location: Unter den Linden 8, 10117 Berlin (Germany)
Grating Type: Pressure-Locked Gratings
Bearing bar: 40 x 2 mm
Mesh: 31 x 31 mm with hinges

Material: Steel
Surface protection: Galvanized
Special features: Sunshades for the reading room of the State Library. The gratings can be folded open to clean the glass below.
SUNSHADES

Protection against direct sunlight and maintaining a high portion of daylight - both is possible with sunshade gratings.

Project: Office building, Magdeburg
Location: 39104 Magdeburg (Germany)
Grating Type: Pressure-Locked Gratings
Bearing bar: 40 x 3 mm
Mesh: 33 x 33 mm
Material: Steel
Surface protection: Galvanized
Special features: Galvanized Pressure-Locked Gratings ensure a sunshade angle of 53° at the façade. Nevertheless, the building face seems to be transparent, indirect sunlight is only slightly reduced.
Gratings can be used as support of plants which grow over the years and provide natural shade.

<table>
<thead>
<tr>
<th><strong>Project:</strong></th>
<th>Bus station, Mönchengladbach</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location:</strong></td>
<td>Europaplatz, 41061 Mönchengladbach (Germany)</td>
</tr>
<tr>
<td><strong>Grating Type:</strong></td>
<td>Forge-Welded Gratings</td>
</tr>
<tr>
<td><strong>Mesh:</strong></td>
<td>60 x 100 mm</td>
</tr>
<tr>
<td><strong>Material:</strong></td>
<td>Steel</td>
</tr>
<tr>
<td><strong>Surface protection:</strong></td>
<td>Galvanized and powder-coated</td>
</tr>
<tr>
<td><strong>Special features:</strong></td>
<td>The selected wide mesh of the Forge-Welded-Grating with round wires appeals through its visual lightness, which underlines the colour design and offers a good support for the ivy.</td>
</tr>
</tbody>
</table>
Installed as flooring, gratings create even areas with little effort. They are an ideal substructure for people and vehicle traffic, equalize depressions and other uneven spots, drain rainwater quickly and are humidity resistant.

Gratings safely cover hollow spaces, e.g. areas above equipment, and, depending on the design vehicles can cross. Special slip-proof structures ensure a safe grip even when wet. The gratings can be designed to produce graphic effects which are a real eye catcher in the landscape.
Project: Sky Office Düsseldorf
Gratings make technical requirements such as smoke and heat exhausts an eye-catching element in design.

**Project:** Sky Office Düsseldorf  
**Location:** Kennedydamm 24, 40476 Düsseldorf (Germany)  
**Grating Type:** Pressure-Locked Gratings  
**Bearing bar:** 60 x 5 mm  
**Mesh:** 33 x 33 mm  
**Material:** Steel  
**Surface protection:** Galvanized  
**Special features:** Covering a heat ventilation system with gratings for vehicle traffic. This application puts the cross bars upside down, not on top as usual, which creates the desired linear appearance. This concept with different bearing bar orientations generate different, desired design effects.
The combination of various material such as concrete, steel, and bamboo demonstrates that functional buildings need not have a cold, rational, and unemotional impression.

**Project:** Car park at the Leipzig Zoo  
**Location:** Pfaffendorfer Straße 29, 04105 Leipzig (Germany)  
**Grating Type:** Welded Pressure-Locked Gratings  
**Bearing bar:** 30 x 3 mm  
**Mesh:** 34 x 38 mm  
**Material:** Steel  
**Surface protection:** Galvanized  
**Special features:** This sophisticated “gratings wave” was designed and assembled with special elements.
A home that follows the sun.
Gratings ensure permanent access despite the equipment required.

- **Project:** Sun home
- **Location:** Rietberg (Germany)
- **Grating Type:** Pressure-Locked Gratings
  - Bearing bar: 30 x 2 mm
  - Mesh: 31 x 9 mm
- **Material:** Steel
- **Surface protection:** Galvanized
- **Special features:** The complete home including the gratings platform turns to adjust the exact radiation angle between the solar panels and the sun. Over night, the home will turn back. The gratings cover the necessary equipment.
Bridges span from one riverbank to the other, cross valleys and offer a direct path from one side to the other. The construction is often a real masterpiece of static calculation. On the one hand, the bridge must be very stable, on the other hand, it should be as lightweight as possible. Gratings as bridge flooring provide a solid substructure for vehicle traffic. Thanks to the transparent structure, the bridge looks less solid, suggests lightness and flexibility.

Gangway gratings allow a glance into the depths and nevertheless ensure absolute safety. Gratings as a jetty prove their long service life in a humid environment. They do not corrode and, if designed properly, ensure a safe grip.

Project:
Porsche-Zentrum Düsseldorf
Ideal load carrier: Gratings as bridge flooring provide a solid substructure for vehicle traffic.

<table>
<thead>
<tr>
<th>Project</th>
<th>Porsche-Zentrum Düsseldorf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Klaus-Bungert-Strasse 2, 40468 Düsseldorf (Germany)</td>
</tr>
<tr>
<td>Grating Type</td>
<td>Pressure-Locked Gratings as Heavy-Duty Gratings</td>
</tr>
<tr>
<td>Bearing bar</td>
<td>60 x 5 mm</td>
</tr>
<tr>
<td>Cross bar</td>
<td>10 x 3 mm</td>
</tr>
<tr>
<td>Mesh</td>
<td>33 x 33 mm</td>
</tr>
<tr>
<td>Material</td>
<td>Steel</td>
</tr>
<tr>
<td>Surface protection</td>
<td>Galvanized, serrated bearing bars and cross bars</td>
</tr>
<tr>
<td>Special features</td>
<td>The excellent slip-proof properties of gratings provide a strong grip for vehicles and pedestrians alike, who may walk along on even areas or inclinations independent of the weather.</td>
</tr>
</tbody>
</table>
Inherent safety: Serrated gratings ensure maximum grip.

**Project:** Weser Skywalk
**Location:** Hannoversche Klippen, Bad Karlshafen (Germany)
**Grating Type:** Pressure-Locked Gratings, serrated properties
  - Bearing bar: 30 x 2 mm
  - Mesh: 33 x 33 mm
**Material:** Steel
**Surface protection:** Galvanized
**Special features:** Accessible, serrated Pressure-Locked Gratings with additional notches at the bearing bars and cross bars. Serration class up to R12 acc. to BGR 181 are possible, which ensures a high degree of safety even under bad weather conditions and/or with unsuitable footwear.
The heavy duty material: Gratings as a jetty prove their long service life in particular in a wet environment.

**Project:** Jetty at the Grevelingenmeer
**Location:** Grevelingen (The Netherlands)
**Grating Type:** Pressure-Locked Gratings with granulate filling
Bearing bar: 30 x 3 mm
Mesh: 33 x 33 mm
**Material:** Steel und granulate
**Surface protection:** Galvanized with granulate filling
**Special features:** The granulate filling of the gratings creates a coherent flooring, which is comfortable for people crossing bridges or footbridges, because there is no view into the depths. Nevertheless, the gratings feature water draining and slip-proof properties, so there is little risk of injuries even in case of a fall or under wet or icy conditions.
Intarsia and inlays in gratings offer excellent design options which may be exploited even for closed, uniform areas.

Project:
Jetty at the Grevelingen Lake
Location:
Grevelingen (The Netherlands)
Grating Type:
Pressure-Locked Gratings with granulate filling
Bearing bar: 30 x 3 mm
Mesh: 33 x 33 mm
Material:
Steel and granulate
Surface protection:
Galvanized with granulate filling
Special features:
Thanks to the versatile colour options, the filled gratings fit well and easily in a natural environment. Thereby, a "cold" product made of steel merges well with the warmth of nature.

Grating Type:
Pressure-Locked Gratings with wooden infill
Bearing bar: 60 x 4 mm
Mesh: 111 x 99 mm
Material:
Steel
Surface protection:
Galvanized
Special features:
Gratings with wood perfectly adapt to the natural environment, and are ideal for bridge floorings in parks or as balcony floors. The bearing bars project slightly and the gratings feature slip-proof properties despite their wooden flooring. The product combines the natural look of wood with the long service life and the advantages of a grating – the best of two worlds.
Stairs and escape routes

Slip-proof properties and stability are crucial for stairs. Thus, gratings are ideal for stairs from one floor to the next and for escape routes both inside and outside of buildings. Used as stair railings, they are an attractive alternative to conventional railings. They are transparent, safe and, depending on the viewing angle, opaque as well.

Project: Science Park Linz (Austria)
Transparent, opaque, and always safe: Used in stairs, gratings demonstrate their diversity of strength.

Project: Science Park Linz
Location: Altenberger Strasse 66, 4040 Linz (Austria)
Grating Type: Pressure-Locked Gratings
Bearing bar: 40 x 2 mm
Mesh: 33 x 33 mm
Material: Steel
Surface protection: Galvanized and powder-coated
Special features: Transparent, but also opaque design of a staircase inside a building. The railings were designed without any additional posts and bolted to the existing balustrade with a special construction. This creates a uniform and homogeneous appearance. Powder-coated Pressure-Locked Gratings used for the treads with reinforced binding.
Gratings combine high safety standards with aesthetic design.

**Project:** ADO Stadium  
**Location:** Haags Kwartier 55, Den Haag (The Netherlands)  
**Grating Type:** Pressure-Locked Gratings  
Bearing bar: 30 x 2 mm and 40 x 2 mm  
Mesh: 31 x 31 mm  
**Material:** Steel  
**Surface protection:** Galvanized  
**Special features:** Staircases inside and outside a building manage the crowd safely during an event. Gratings staircase with fall protection assembled of large gratings.
Amazing views: Thanks to their transparency, gratings allow a glimpse into the depths, without risking one’s safe position.

Project: Wilhelminatoren Vaals
Location: Vaals (border triangle, the Netherlands)
Grating Type: Pressure-Locked Gratings with various bearing bars and spacings
Material: Steel
Surface protection: Galvanized
Special features: For safe walking even in wet condition, the tread steps are made of mainly closed, yet serrated profile gratings. The viewing platform, however, was deliberately made of open and transparent gratings, to give the visitors the special experience of an unrestricted view again. Panorama view in the true sense of the word.
**Project:** Place de Hotel de Ville  
**Location:** Marseille (France)  
**Grating Type:** Pressure-Locked Gratings  
Bearing bar: 30 x 2 mm  
Mesh: 16 x 99 mm  
**Material:** Steel  
**Surface protection:** Galvanized  
**Special features:** Grids with elevated collar as a designer tree grating. This application puts the cross bars deliberately upside down, which creates gratings with a new face. The eye of the visitor is guided specifically to the port.
A multitude of applications

Metal gratings are rugged, stable, have a long service life and withstand high loads. However, these properties do not affect the flexibility of the choice and type of metal applied. This way, gratings can be tailored for all conceivable applications.

Whatever needed – a boundary that fits, a lightweight and accessible floor construction or a shaped bench – the grating elements are so flexible in their application that they open new ways in architecture and design. Gratings allow realizing innovative designs with demanding aesthetics. Thanks to the long service life, the structure will last for years – even if the gratings are exposed to wind and weather all year round.
Round, straight, slanted:
Gratings adapt to the application – as required by the conditions of the location.

<table>
<thead>
<tr>
<th>Project:</th>
<th>Phoenix Lake</th>
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<tbody>
<tr>
<td>Location:</td>
<td>Dortmund, Hörde district (Germany)</td>
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<tr>
<td>Grating Type:</td>
<td>Pressure-Locked Gratings/full gratings</td>
</tr>
<tr>
<td></td>
<td>Bearing bar: 50 x 2 mm</td>
</tr>
<tr>
<td></td>
<td>Cross bar: 50 x 2 mm</td>
</tr>
<tr>
<td></td>
<td>Mesh: 49 x 49 mm</td>
</tr>
<tr>
<td>Material:</td>
<td>Steel</td>
</tr>
<tr>
<td>Surface protection:</td>
<td>Galvanized and powder-coated</td>
</tr>
<tr>
<td>Special features:</td>
<td>Here, gratings made of rigid steel allow particularly flexible applications. Bending the gratings even creates round shapes.</td>
</tr>
</tbody>
</table>
A resting place which does not corrode: Grating benches show what flexibility means.

Project: Shaped grating benches
Location: Cruquius (The Netherlands)
Grating Type: Pressure-Locked Gratings
  Bearing bar: 20 x 2 mm
  Cross bar: 10 x 2 mm
  Mesh: 22 x 33 mm
Material: Steel
Surface protection: Galvanized and powder-coated
Special features: Stable, weather-resistant, and rugged segment gratings bent to form a seat.
For modernization of old buildings, gratings allow many options for continued use and give the façade an up-to-date design. This creates a unique interplay of old and new.

**Project:** Fort Pampus Amsterdam  
**Location:** Pampus island in the IJmeer (The Netherlands)  
**Grating Type:** Pressure-Locked Gratings  
- Bearing bar: 30 x 3 mm  
- Mesh: 33 x 33 mm  
**Material:** Steel  
**Surface protection:** Galvanized  
**Special features:** Old and new often form a functioning unit and allow visitors to walk safely on new gratings through the old hallways of the UNESCO world heritage. Despite the new material, the old heritage dominates due to the transparent gratings.
Project: Bunkeratelier  
Location: Schmickstrasse 18, 60314 Frankfurt am Main (Osthafen, Germany)  
Grating Type: Pressure-Locked Gratings  
  Bearing bar: 30 x 2 mm  
  Mesh: 31 x 31 mm  
Material: Steel  
Surface protection: Galvanized  
Special features: These gratings have a functional purpose like fall protection and an aesthetic one, underlining the lightness of the wood glass construction.
Fascinating options

Forge-Welded Gratings
Forge-Welded Gratings boast of high strength, torsion resistance and optimum load distribution. Strength is hardly affected when cutting to length and size. The material is mainly steel, or stainless steel if requested. The twisted or round cross bars are pressed into the bearing bars under high pressure and electrically welded in one go.

Pressure-Locked Gratings
For Pressure-Locked Gratings, cross bars are pressed into tapered slotted bearing bars under high pressure. Thus, a solid, torsion resistant grid is formed. Pressed gratings are made of steel, stainless steel or aluminium.
About us

The Industrieverband Gitterroste e. V. (IGI) (Grating Manufactures Industrial Association) affiliates the leading European producers of gratings. The associated companies aim to maintain the high quality and safety standards of their products. This common goal resulted in the development of a generally accepted code of technical specifications on calculation and testing of steel gratings which is based on a research programme performed by the Material Test Office North Rhine Westphalia. Under the umbrella of the association, the member companies are intensely involved in the development and perfection of national and international industry standards. The companies act on arms-length basis and inform architects, designers, and clients about the wide range of grating options to solve individual challenges.
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