



RHEINZINK® - FACADE SYSTEMS

FLAT-LOCK TILES









Design

Unique architectural visions have allowed RHEINZINK's flat-lock tile system to become a reality that opens up whole new architectural vistas. The optical effect created by this system is very impressive on larger facade areas. It is primarily used on vertical or near-vertical installations wherein the tile arrangement is the determining visual factor. The system's vertical lines can be used to accentuate a building's characteristic upward rise, whereas the horizontal seams can emphasize a structure that is deeply rooted in the ground below. Only the architect's creative intentions can decide which will dominate.

The line of the building highlighted herein (the EFI Energy Forum Innovation, in Bad Oeyenhausen, by Frank O. Gehry) is characterized by a horizontal arrangement of the longitudinal seam, which can be flexibly positioned.

The vertical lines carry the eye in an upward yet lateral slant, while the dominant horizontal seams impart a sense of balance and calm - similar to the vertical and horizontal joints in masonry.

A number of the building's shapes, combined with the custom-sized flat-lock tiles are reminiscent of Egypt's imposing and majestic pyramids, as if in places the piled blocks of chalky sandstone had been replaced by forms made of RHEINZINK.

Frank O. Gehry wanted to emphasize another design element as well: the autonomous position of each tile over and above the seam line. This was achieved by using shiny material.

As with other RHEINZINK facade systems, the fit of the flat-lock tiles creates a semi-open construction. In other words, weather and other effects of nature will affect each tile individually. Nuances in patination may vary from tile to tile. Playing on such a design is very daring, falling into the domain of masterful architecture. On the other hand, if such an effect is undesirable and a colour consistency is sought, this can be achieved by simply using preweathered tiles.

Flat-lock tiles offer an imaginative solution to almost any geometrically complex building construction (i.e. round, bent, curved). With smaller surfaces it is even possible to achieve a conical line. Furthermore the technical means are available to realize creative eave or corner arrangements and edges (i.e. round, angular, proud).

Application

The flat-lock tiles are folded on all four sides (two forward and two back) allowing the surrounding tiles to interlock therein. Additionally, clips are used to fix the tile to the substructure. An added advantage is that no machinery is required on site during installation.

RHEINZINK® sheet stock should be used as the base material to ensure maximum flatness. The tiles are made with a minimum thickness of 0.8mm.



The maximum overall length and width should be 3000 mm and 600 mm respectively. The minimum overall length and width should be 600 mm and 333 mm respectively. While a number of pre-set sizes are available, any tile size can be obtained within these parameters.

RHEINZINK can provide the complete flat-lock tile system - which is typically manufactured on receipt of the order. However, qualified sheet metal workers can also make these tiles themselves, using dies and a break. First the blanks are cut then the longitudinal and lateral folds are made, as well as any additional seams. As the tiles are prefabricated, it is imperative that the designer provide precise sizes and details.

Particular attention must be paid to symmetry and design intent when dealing with openings, windows and protruding corners. All surfaces will need to be measured and marked by hand or by laser, and the area will need to be lined out prior to fitting. Keeping in mind that the RHEINZINK® flat-lock tile system is a semi-open construction; a membrane may be required on sloped facades, depending on the type of construction and required protection.

One option is a separating layer of vent matting. Additionally, the entire area should be provided with a substructure of wooden sheathing to minimize damage from external impact. Care should be taken to ensure that there are no irregular surfaces on the substructure as these will telegraph to the facade tiles.

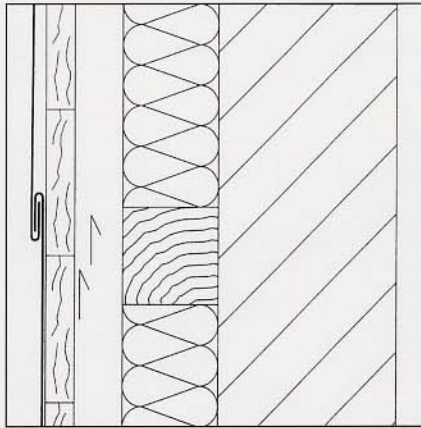
Naturally, the geometrical variety of building design using the flat-lock tile system can require customized solutions. Two such examples pertaining to Frank O. Gehry's project are of note:

1) In a protruding section of the building, a surface was designed with only a slight inclination. It was necessary not only to provide appropriate protection beneath the zinc, but also to fit the flat-lock tiles with additional seams to protect from wind driven elements.

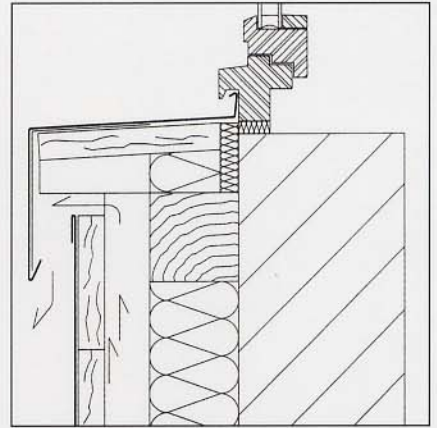
2) In a number of instances lower roof areas ran into vertical RHEINZINK® surfaces, as such the former needed to be extended safely beneath the vertical plane in order to avoid water collection or penetration.

Summary

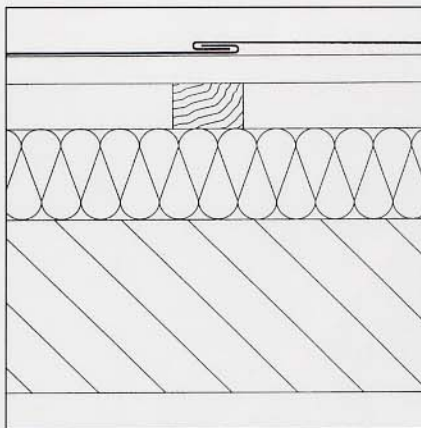
In conclusion, RHEINZINK's flat-lock tile system offers an alternative and imaginative design consideration for covering large facade areas. Additionally, RHEINZINK's ability to deliver the complete system makes for facades that can be easily and safely installed by the sheet metal industry.



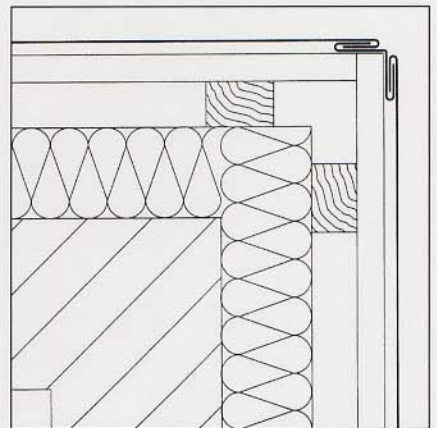
Flat-lock tile system: vertical section



Detail: window ledge connection



Flat-lock tile system: horizontal section



Detail: outer corner connection





