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Made-to-measure climbing formwork solution – all-round enclosure and formwork scaffold

Hotel Mélia La Défense, Paris

For the Hotel Mélia in the "La Defense" office district just outside Paris, Peri has developed a climbing formwork solution that not only provides complete enclosure of the structure but also serves as erection support for the precast parapets. Due to the spectacular design of this 4-star hotel – inspired by the shape of a ship's bow – the Peri solution, which is based on the RCS system, has been adapted to meet to a wide range of geometric as well as structural requirements.

The Hotel Meliá is being realized in what is an exposed location, directly at the entrance to the "La Défense" business sector overlooking the Arc de Triomphe and the Champs-Elysées. With 20 upper and 5 basement levels, it will reach a total height of 87 m after completion in 2014.

Due to the confined conditions on the construction site, crane time for the formworking operations was to be minimized; in addition, unobstructed and safe pedestrian access for the entire construction period have to be guaranteed. Further requirements from the side of the contractor were that the climbing formwork solution as well as the erection of the precast parapets ensured that – in those areas with in-situ concreting – the loads could be safely transferred from the steel formwork provided by the customer. The complex building floor plan with curvatures, offsets and different angled walls presented further challenges during the planning.

Complex form – all-round safe enclosure

The basis for the climbing formwork solution is the flexible RCS rail climbing system whose system components can be used for different applications. And it is thanks to this wide range of applications as well as the rentability of the system components, that the RCS solutions are very cost-effective. Through the climbing rail, the scaffold units are always connected to the structure by means of climbing shoes for the entire climbing procedure; as a result, it is impossible for the RCS

climbing unit to "drift" even during strong winds. Climbing can take place safely and quickly at any time.

For the various areas of the Hotel Meliá structure, Peri engineers developed four different protection panel concepts with specially adapted platforms that met the requirements that ensured safe and rapid construction progress. One particular challenge was the design of the forward and reverse-angled protection panels for the arch-shaped facade.

For the south-facing facade, the protective panel solution also serves the erection of the precast parapets in advance: here, the RCS rail is held in position on the parapets of the two lower floors by means of a special mounting and additionally anchored to the floor slabs. The prefabricated member of the upper floor can then be temporarily fixed in the mounting position using a system component of the Peri FTF facade formwork until a secure load-bearing connection with the floor slab has been formed.

As rear protective wall on the RCS scaffold, the construction team is using floor-to-ceiling side mesh barriers from the Prokit safety system. The PFR mesh barrier is 2.00 m high and 66 cm wide. With a weight of only 7.5 kg, it can be quickly mounted and requires very little effort; it can be easily fixed to the scaffold tubes with cable ties. Thanks to the possibility that the barrier can be subsequently fitted with tarpaulin on the inside, working areas can be heated in winter. In addition, this reliably prevents any materials falling to the ground so that pedestrians can safely pass through the construction site.

Formwork and scaffolding from one source

The overall concept from Peri included not only the climbing formwork solution but also the planning and delivery of the shoring as well as the slab formwork. Depending on the storey height and loads to be transferred, PEP and Multiprop slab props along with the Peri Up modular scaffold are being used.

Maximum safety for the user is also provided by the Gridflex girder grid slab formwork. With only a few system components and the systematic assembly sequence a closed girder grillage is quickly and safely realized with installation taking place from the slab level below. This is subsequently covered with formlining of choice. Filler areas can be closed by means of two compensation elements.

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"La Défense 2015“ – New glamour for Europe´s largest office district

The "La Défense" office district at the gates of Paris was created back in 1966. The business quarter is an extension of the so-called historical axis of the French capital – consisting of the Louvre, Place de la Concorde, Champs-Elysees and Arc de Triomphe. Through the extensive refurbishment work as well as a number of architecturally pleasing high-rise buildings, the attractiveness of the "La Défense" office district" will be enhanced.

Currently, "La Défense" has 3 million square metres of office space and around 1,500 companies are located here. For the approx. 170,000 employees as well as 20,000 residents, generously-sized green spaces and parks along with one of the largest shopping centres in Europe are available. With the long-term plan "La Défense 2015", 850,000 square metres of new office space will be created – on the one hand, through the release of new building land and, on the other, through the demolition of existing buildings. In addition, several office towers will be completely modernized.

Situated next to the Hotel Meliá in "La Défense" is, among other things, "La Tour Majunga". The construction progress for this office building, with its 45 floors and a height of 195 m, is also being supported by a Peri solution: the proven Trio formwork provides a fast and – thanks to the MXP platforms – particularly safe solution for the realization of the differently shaped walls in the basement levels. In addition, Peri has planned and delivered ACS hydraulic self-climbing formwork for the building core.



Photo 1
For the construction of the Hotel Meliá in the "La Défense" office district, Peri developed a comprehensive climbing formwork solution. This serves not only as an enclosure, which ensures the safety of the construction teams at all times, but also it supports the precast parapets during erection.
(Photo: PERI GmbH)

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Photo 2
The 2,00 m high mesh barriers from the Prokit safety system are also clad with sheeting thus creating a gap-free enclosure.
(Photo: PERI GmbH)



Photo 3
The climbing rails are held in position on the parapets of the basement levels and additionally fixed to the slab.
(Photo: PERI GmbH)

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Photo 4
The Peri solution also includes a landing platform that provides fast and safe transport of materials up to the next storeys.
(Photo: PERI GmbH)



Photo 5
For constructing the floor slabs, the Gridflex girder grid slab formwork system is being used. As all components are mounted from the floor below, completely safe assembly is guaranteed.
(Photo: PERI GmbH)



Photo 6
The "La Défense 2015" planning for the office district at the entrance to Paris includes a range of refurbishment projects and new buildings. Examples are the Hotel Mélia (foreground) and the Tour Majunga (in the background), whose cores are being formed with ACS self-climbing formwork.
(Photo: PERI GmbH)

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