

ANNEX 24

Recommendations on auxiliary construction elements for concrete bridges

1 Scope

When building bridges, ancillary structures and elements are normally used in order to facilitate the building process, so that the work may be carried out as effectively as possible, from the technical as well as economic point of view.

The ancillary structures and elements used in the construction of bridges are diverse, being able to present different characteristics according to the methods of execution and the singularity of the works.

Additionally, the constructive techniques are submitted to a continuous evolution and updating, incorporating new technological advances with the aim of improving the processes constructive, and for whose application it can be required the design and construction of specific auxiliary elements.

The diversity of ancillary structures and elements existing, and those others that could be used in the future, does necessary to establish complementary recommendations with the aim of facilitating and unify, as much as possible, what is related to their design, use, assembling, and dismantling of these auxiliary elements to be used in the construction of bridges.

The purpose of this Annex is to establish recommendations with the above objective and addressed with priority to the continuous improvement of the safety in construction works.

2 Classification of ancillary elements used in the construction of bridges

To the effects of the application of this Annex, the structures and auxiliary elements for the construction of bridges can be classified in:

- Auxiliary elements type 1: falsework, framed falsework, slipform for piers, crane towers, elevation means to reach piles and decks, supporting towers, and
- Auxiliary elements type 2: mobile falseworks, launching girders, formwork advancing wagons for cantilever bridges, cantilever advancing wagons and deck pushing devices.

3 Design of ancillary elements

For any type of ancillary device used in the construction of a bridge, the Constructor must draw up a complete specific project for its use endorsed by the corresponding Professional Association . In an annexe of this project shall be included, et least, the following documents:

- For auxiliary elements type 1: calculation report; definition drawings for all components and a handbook with the procedures the for first mounting, and
- For auxiliary elements type 2: beside the previously described documents, has to be included a handbook for movements instructions in mobile elements, for placing concrete operations, if were the case, and for dismounting. A kinematics study and the technical requirements of the component materials, as well as the procedure for checking the acceptance.

All these documents have to be signed by a competent technician, with accredited experience in bridges and ancillary elements used in the construction.

In addition, where the ancillary equipment supports or amends the structure of the element being built, the contractor shall, prior to its use, submit to the Project Management a report drawn up by the designer of the building element that shows that it will support the loads transferred by the ancillary device with the same quality and safety as laid down in the aforementioned design.

4 Fulfillment of the current legislation

All ancillary equipment used in the construction of bridges, the components thereof and the projects for their utilization shall bear with the specific current applicable regulations in Spain as well in the EU and be in possession of the CE marking, provided this marking is in force.

5 Assembly, use and disassembly of ancillary elements

During the assembly, use and dismantling phases of any ancillary element for the construction of bridges, and during the functioning and transfer of any mobile component, all operations relating to these phases must be supervised and coordinated by experts with appropriate academic and professional qualifications, who must be assigned to the company owning the ancillary element. They shall be on site, permanently and exclusively dedicated to each ancillary element, and must moreover verify that said elements comply with the draft specifications, both with regard to their construction and their operation. In case of ancillary elements type 2, every technician shall have permanent and exclusive dedication to every ancillary element.

In addition, after the assembly of the ancillary structure or element, and before it enters into service, a certificate shall be issued by the company owning the ancillary element, signed by a competent expert, stating that it has been correctly assembled and that it complies with the draft and with the regulation in force. The certificate must be countersigned by the constructor where this entity is not the same as the company owning the ancillary element. A copy of the certificate shall be forwarded to the Project Management designed by the Owner.

The Work Manager shall be responsible for ensuring that the use of the ancillary device, during construction, complies with the design and in the corresponding manuals, and shall lay down volumes and performance to be obtained by each unit, in accordance with the characteristics of the ancillary element, so that the safety conditions laid down in the design are guaranteed at all times.

6 Reuse of ancillary elements

In case of ancillary elements type 2, mobile elements previously used in other structures, and having only studies for adaptation, shall not be used in a new construction. Their components elements could be used, provided that they were included in the specific project referred to in Article 3