The ITER Platform
A clear, well sculpted outline

The levelling work for the ITER research facilities platform are due to be completed in March. It has been a successful operation despite the unpredictable weather conditions.

After nearly one year of preparation, the construction stage on the ITER platform is now one kilometre wide and four hundred metres long. It will be the base for the construction of about twenty ITER Research Facility buildings.

Originally the undulating countryside varied between 250 and 350 metres above sea level. The earthworks, levelling the land: at 35 metres involved the removal of 75 million cubic metres of earth or more which two-thirds have been re-used. Over an eight-month period, the operations of scrapers, bulldozers and enormous machines related each other very closely and managed to complete 95% of the earthworks. Unfortunately, the intervening rainy periods at the end of August and the beginning of 2009 seriously slowed down the progress. According to the French Weather Office this exceptional rainfall was more than three times the normal amount recorded locally.

In Cadarache, up to 86 mm were recorded in the month of December compared with only 2.2 mm in December 2007. These conditions can be considered as exceptional for summer and have been extremely restricting as we lost four months due to bad weather on a site that was originally planned to be completed within eight months”, explains Jean-François Carlier, responsible for the project called Vélimit. As a result the company had to employ lime treatment (see insert) on the unfinished areas. “This treatment only consumed a small part of the surface of the platform, about 15%”, he explains. Then the graders equipped with an enormous blade were able to start work again to finish the top of the foundation, levelling it to the nearest centimetre.

At the same time, the diggers continued patiently to spread the top soil from the site onto the embankments so that anti-erosion mesh could be installed and seeds could be sown. More recultivation of plots was necessary when the Mediterranean species are breeding.
The design studies for the final blueprints of the headquarters of the ITER Organization, under the contracting management of the ITER France Agency, are nearly finished. The calls for tender for the first batches have been launched. The first batches will be built before the end of the year and as many as three hundred people are expected to participate in the project over the next two years.

The European domestic agency called Fusion for Energy (F4E) organized two information days at the château de Cadenat, on the 4th and 5th of March in order to present their organisation to both technical and construction companies. The information sessions consisted of a general presentation of F4E and trade rules and as well as the first calls for tender which will be published by F4E throughout 2009 and 2010. The information sessions will be held on the site of ITER Headquarters.

Natural green-roofs

The roofs of the public reception areas, the logo and the restaurant will be a living roof. This type of roof has been widely used in Germany, Holland and Switzerland since the 1960s and has become popular more recently in France. Protective waterproofing components are placed on the roof and, along with a double layer of waterproofing, the grass roots are inset. In addition to their aesthetic appeal, these living roofs have many important qualities:

• Radiation and control of the roof radiation.
• Protection against thermal shocks, living roof thermal protection.
• Thermal inertia, a thermal roof can reach a surface temperature of up to 40°C, whereas on a flat roof, when the living roof is at 25°C, the thermal inertia will keep temperatures under 15°C.
• Soundproofing: a 20 cm thick substrate can reduce acoustic noise by nearly 40 dB.

Twenty calls for tender

The construction of the ITER Headquarters will generate around twenty calls for tender which will be published in several phases. The first calls for tender concern the enclosed and covered areas (roads, thermal networks, building shells, facades, roofs and waterproofing) and the external works related to the construction of the preparatory costs (new amenity areas). The ITER Headquarters has been designed to have electrically supplied comfort, ventilation, acoustics-damping, hydraulic, gas, light, water, ventilation, fire alarm, security and hygiene systems. These calls for tender are published in the official European Union journal and can be consulted on the website www.iterfrench.com.

Reaching the « environmental quality » goal

The design of ITER's Headquarters aims at "Environmental Quality". Considerable measures have been taken:

• A compact group of buildings to reduce the environmental impact
• Increased insulation mainly due to the use of natural materials
• A pleasing perspective on the natural landscape
• The thinness of the slats of the facade explains Jean-Michel Baratte, one of the designers: "It's due to a set of considerations which we call 'environmental' in the immediate vicinity".
• The opaque parts of the façade "forms a sort of wavy veil which allows natural light to enter and to modify our perception of the building, creating a sort of veil of light and the seasons."
• The architects Rudy Ricciotti and Laurent Bonhomme architectural views give it a sense of lightness.
• The designers say: "This façade gives an image of the large equipment in the immediate vicinity."