

# Job Title: Structural Design Engineer TCWS-012

Requisition ID **6520** - Posted - (France, 13067 St Paul Lez Durance Cedex) - **Construction and Installation - New Posting**

The ITER Organization brings together people from all over the world to be part of a thrilling human adventure in southern France—building the ITER Tokamak. We require the best people in every domain.

We offer challenging full-time assignments in a wide range of areas and encourage applications from candidates with all levels of experience, from recent graduates to experienced professionals. Applications from under-represented ITER Members and from female candidates are strongly encouraged as the ITER Organization supports diversity and gender equality in the workplace.

Our working environment is truly multi-cultural, with 29 different nationalities represented among staff. The ITER Organization Code of Conduct gives guidance in matters of professional ethics to all staff and serves as a reference for the public with regards to the standards of conduct that third parties are entitled to expect when dealing with the ITER Organization.

The south of France is blessed with a very privileged living environment and a mild and sunny climate. The ITER Project is based in Saint Paul-lez-Durance, located between the southern Alps and the Mediterranean Sea—an area offering every conceivable sporting, leisure, and cultural opportunity.

To see why ITER is a great place to work, please look at this video

**Application deadline:** 28/08/2022

**Domain:** Construction Domain

**Department:** Plant Construction Department

**Division:** Mechanical Implementation Division

**Section:** Tokamak Cooling Water System Section

**Group:** TCWS Delivery

**Job Family:** Construction

**Job Role:** Engineer – 2

**Job Grade:** P2

**Language requirements:** Fluent in English (written & spoken)

**Contract duration:** Up to 5 years

***Specific note:*** *This vacancy is for less than 4 years, the employment contract is valid until December 2025, while it will be subject to the contract renewal process according to the staff regulations.*

## **Purpose**

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As a Structural Design Engineer, you will be responsible for the design and analysis of the structural supports for the Tokamak Cooling Water System (TCWS) piping and equipment.

You will also contribute to the procurement and the successful construction of the TCWS piping system, in addition to participating in the pre-assembly and pre-testing of the TCWS piping system.

## **Background**

The ITER TCWS has three separate primary heat transport systems supported by three additional systems, with a requirement to remove approximately 1,000 Megawatts of heat. These systems perform safety functions for confinement of radioactive material, confinement of high energy liquid, and decay heat removal which is generally lower in magnitude (less radioactive material, pressure, and decay heat) but of similar function to commercial fission reactors. The systems have 33 km of nuclear-grade piping, which is a comparable size to a commercial fission reactor water system.

## **Key Duties, Scope, and Level of Accountability**

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- Produces static and dynamic stress analysis calculations and reports of the TCWS piping and equipment supports and structures according to ASME Code Section NF and ANSI / AISC using GTSTRUDL, Staad Pro, ANSYS or similar software;
- Maintains a fluent dialog with 3D designers and support designers to agree on the optimal required support configuration;
- Produces loads reports in coordination with other sections and clients (Buildings, etc.);
- Monitors the structural analysis produced by industry or Domestic Agencies (DAs) for the assigned systems;
- Issues Engineering Work Packages for the TCWS and reviews construction and installation work packages
- Participates in the design and conformity assessment of the TCWS equipment according to the French regulations (ESP/ESPN) and follows required design codes and standards as per Licensing Design Basis;
- Maintains full and fruitful involvement in the systems design, fabrication and modularization of TCWS equipment according to the prescriptions of the French Nuclear Regulator - Autorité de Sûreté Nucléaire (ASN) and also follows the indications of the concerned Agreed Notified Body (ANB);
- Participates in the manufacturing of TCWS piping and equipment;
- Supports the design, procurement, assembly and/or installation and operation of the TCWS equipment in close collaboration with Domestic Agencies and other ITER Departments/Offices;
- Supports a fruitful and continuous integration in Cooling Water System commissioning and supporting issues concerning commissioning technical specifications and procedures;
- Implements the technical control of the Protection Important Activities, as well as their propagation to the entire supply chain;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- May be required to work outside ITER Organization reference working hours, including nights, weekends and public holidays.

### Measure of Effectiveness

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- Produces the stress reports of the TCWS equipment supporting structure in a timely manner;
- Produces and reviews work packages in line with relevant deadlines and quality standards,
- Provides contractors with input data and reviews their deliverables in due time;
- Ensures safety and functional requirements flow-down are satisfactory and well propagated;
- Communicates and collaborates effectively with all internal and external stakeholders, including DA partners and contractors;
- Proactively proposes feasible solutions for specific requests or process improvement.

### Experience & Profile

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- **Professional Experience:**
  - Minimum 5 years' experience in the design of steel structures and piping supports for nuclear facilities within complex international environments or projects;
- **Education:**
  - Master's Degree or equivalent in Nuclear, Mechanical, Structural or Civil Engineering.
  - The required education degree may be substituted by extensive professional experience involving similar work responsibilities and/or additional training certificates in relevant domains.
- **Language requirements:**
  - Fluent in English (written and spoken).
- **Technical Competencies and demonstrated experience in:**
  - Structural Design: Practical design solutions of steel structures for Nuclear facilities to structural design codes AISC, Eurocode, etc. Structural static analysis and seismic analysis

- with excellent knowledge of coupling effects between equipment or piping and structures, as well as other dynamic effects, like those induced by rotating machines;
- Piping Systems: Piping stress analysis and producing all documentation needed for prefabrication and installation of nuclear piping systems and supports;
  - Interface management: Identify, resolve and maintain technical and functional interfaces related to steel structures and piping supports;
  - Familiarity with CAD drawings and software (e.g. SSD, Autocad, AVEVA E3D, CATIA/ENOVIA) would be advantageous;
  - Basic experience in the System Engineering of complex Nuclear projects;
  - Basic experience in the Cold Sinks Engineering of complex systems and projects would be advantageous;
  - Knowledge of ASME III related chapters and French ESP/ESPN regulations will also be considered advantageous;
- **Behavioral Competencies:**
    - Collaborate: Ability to facilitate dialogue with a wide variety of contributors and stakeholders;
    - Communicate Effectively: Ability to adjust communication content and style to deliver messages to work effectively in a multi-cultural environment;
    - Drive results: Ability to persist in the face of challenges to meet deadlines with high standards;
    - Manage Complexity: Ability to analyze multiple and diverse sources of information to understand problems accurately before moving to proposals;
    - Instill trust: Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity.
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***The following important information shall apply to all jobs at ITER Organization:***

- Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, ITER Values (Trust; Loyalty; Integrity; Excellence; Team mind set; Diversity and Inclusiveness) and Code of Conduct;
- ITER Core technical competencies of 1) Nuclear Safety, environment, radioprotection and pressured equipment 2) Occupational Health, safety & security 3) Quality assurance processes. Knowledge of these competencies may be acquired through on-board training at basic understanding level for all ITER staff members;
- Implements the technical control of the Protection Important Activities, as well as their propagation to the entire supply chain;
- May be requested to work on beryllium-containing components. In this case, you will be required to follow the established ITER Beryllium Management Program for working safely with beryllium. Training and support will be provided by the ITER Organization;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- Informs the IO Director-General, Domain Head, or Department/Office Head of any important and urgent issues that cannot be handled by line management and that may jeopardize the achievement of the Project's objectives.