



2022-IPR-A5001-FGIV-021909

**FG IV Scientist - Exploratory Research Project  
Novel Modular and Reusable Panels for  
Safe & Carbon-Free Buildings (REUSE)**

**POSITION AS:**

Contract Agent Function Group IV

Contract staff, art. 3b of the Conditions of Employment of Other Servants:  
<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1962R0031:20110101:EN:PDF>

**WE ARE:**

As the science and knowledge service of the Commission, the mission of DG Joint Research Centre (JRC) is to support EU policies with independent evidence throughout the whole policy cycle.

The JRC is located in 5 Member States (Belgium, Germany, Italy, the Netherlands and Spain).

Further information is available at: <https://ec.europa.eu/jrc/>

The JRC offers a vacancy for a Contract Agent within the Exploratory Research Project “Novel Modular and Reusable Panels for Safe & Carbon-Free Buildings” (REUSE). The JRC Exploratory Research Programme (ER) is a strategic initiative characterised by ideas that might lead to novel results and qualitatively enrich current JRC scientific work.

The vacancy is within the Directorate E, Space, Security and Migration. The directorate’s mission is among others to focus on emergency preparedness, response, disaster risk management and resilience in cases of natural and man-made hazards.

The operational scientific research will take place in the unit E.4, Safety and Security of Buildings within a team of experimentalists and numerical modellers who provide reference results relevant to the European standardization in the building and construction sectors. Further information is available at: <https://ec.europa.eu/jrc/en/research-facility/elsa>

The unit A.5 Scientific Development is in charge of the overall JRC Exploratory Research Programme.

**WE PROPOSE:**

A position to carry out scientific and technical tasks in accordance with the Exploratory Research Project “Novel Modular and Reusable Panels for Safe & Carbon-Free Buildings” (REUSE) with:

- Special emphasis on exploring the use of modular timber panels combined with innovative dry connections resulting in seismic resistant buildings and also enabling the possibility to reuse these panels at the end of buildings’ lifetime and
- In support to policies, with special focus on the seismic and energy retrofitting of the existing EU buildings to support the ‘renovation wave’ of buildings initiative of the European Green Deal and the New European Bauhaus initiative, with a specific reference to the Circular Economy Action Plan COM(2020) 98, with regard to promoting the durability and adaptability of buildings.

In Europe, buildings account for 36% of the CO2 emissions and about 40% of the overall energy consumption, while at the end of their lifetime they generate enormous amounts of demolition waste. Meanwhile, collapses or damages of existing buildings during strong earthquakes have resulted in significant economic costs and loss of human lives. With demolition and reconstruction being neither an economically viable nor an environmentally friendly solution, the European Green Deal emphasises the need for EU Member States to engage in a renovation wave of their buildings. In addition, the New European Bauhaus initiative envisions safe, sustainable and beautiful renovated buildings for people to live together.

The exploratory research project REUSE aims at developing novel re-usable panels and innovative modular construction techniques that will contribute to the decarbonisation of the European building stock. Novel prefabricated panels (e.g., cross-laminated-timber or other lightweight high-performance

materials) with high seismic and thermal resistance will be explored as a solution for the construction of new seismically safe, energy efficient and environmental friendly buildings. Moreover, the use of innovative connection systems will also be used to exploit modular construction for buildings, which can be rapidly disassembled and re-used, exploring the concept of design-for-deconstruction and re-use. The effectiveness of REUSE concepts applied to a full-scale building will be validated experimentally at the European Laboratory for Structural Assessment (ELSA) reaction wall facility.

The successful candidate will engage into all activities within the REUSE project, this including:

- Design innovative modular wall panelling systems with dry connections; the design should contemplate fast assembly/disassembly operations and effective reusability of structural components while delivering building envelopes of high aesthetics;
- Set-up of experimental models, i.e. design of panels and their connections, design of the test set-up(s) for seismic testing;
- Perform seismic simulations for fully modular building with dissipative connections;
- Set-up a new methodology enabling the design-for-deconstruction and re-use concepts of modular building elements for reducing environmental impacts;
- Develop a new Design-for-Deconstruction (DfD) methodology to manage end-of-life building materials and design buildings that facilitate adaptation for reducing environmental impacts;
- Experimental results treatment;
- Project management;
- Provide regular and accurate reports on scientific activities every twelve months and a final report;
- Report to the Project Leader on progress, achievements and potential problems in a timely manner;
- Provide feedback and maintain interactive communication with colleagues;
- Explain the research activities and achievements to third parties, such as scientific communities and the general public;
- Write, publish and present scientific reports, articles and conference papers.

#### **WE LOOK FOR:**

A scientist with the following qualifications:

- A doctoral diploma in civil/structural engineering, earthquake engineering, architecture or field relevant to the position; alternatively completed university studies of at least three years attested by a diploma and at least five years professional experience in a field relevant to the position;
- Previous research or professional experience relevant to the topic of the call (i.e. modular building construction; innovative dry connections; life-cycle assessment);
- Solid record of research activities including publications relevant for the post in international peer-reviewed journals is an advantage;
- Good oral and written communication skills in English (B2) are essential.

In addition, the following competences will be considered as an advantage:

- Previous research or professional experience on innovative dissipative connections;
- Ability to work in a team and in a multi-cultural environment;
- The candidate is expected to be creative and work independently.

#### **EMPLOYMENT CONTRACT DURATION:**

20 months employment contract for the Exploratory Research project “Novel Modular and Reusable Panels for Safe & Carbon-Free Buildings” (REUSE)

This type of contract can be renewed for maximum 6 years (initial contract and possible renewals).

#### **PLACE OF WORK:**

Ispra, Italy

**ELIGIBILITY CRITERIA:**

Candidates for this contract agent post shall:

– (i) have passed a valid EPSO CAST selection procedure;

or

– (ii) be registered in the EPSO Permanent CAST <https://epso.europa.eu/en/documents/call-expressions-interest-0>

or– (iii) be registered in the specialised call for researchers [https://joint-research-centre.ec.europa.eu/working-us/jobs-jrc/temporary-positions/contract-staff-members/function-group-iv/job-opportunities-research-fellows-european-commission\\_en](https://joint-research-centre.ec.europa.eu/working-us/jobs-jrc/temporary-positions/contract-staff-members/function-group-iv/job-opportunities-research-fellows-european-commission_en) (used mainly by the JRC).

With a valid application number to one of the above, you may then apply for this specific vacancy at JRC through: <http://recruitment.jrc.ec.europa.eu/?type=AX>.

**RECRUITMENT POLICY:**

The JRC

- Cultivates a workplace based on respect for other people and the environment.
- Embraces non-discriminatory practices and equality of opportunity. In case of equal merit, preference will be given to the gender in minority.