

Jobbnorge ID: 284108
Deadline: 8/15/2025
Website: <http://www.ntnu.no>
Scope: Fulltime
Duration: Temporary

The Department of Structural Engineering has a vacancy for a

PhD Candidate in Timber Engineering

This is NTNU

NTNU is a broad-based university with a technical-scientific profile and a focus in professional education. The university is located in three cities with headquarters in Trondheim.

At NTNU, 9,000 employees and 43,000 students work to create knowledge for a better world.

You will find more information about working at NTNU and the application process [here](#).

Video: <https://youtu.be/Xt-yHCN5QS0>

About the position

We have a vacancy for a Ph.D. Candidate within the timber structures' group at the Department of Structural Engineering.

The timber structures group at NTNU has had a great development over the last years. The research interests of the group are focused on development of structural concepts for mid-rise timber buildings, timber bridges with long spans, development of high-performance connections based on threaded rods, static and dynamic testing of timber components and investigation of fracture and high-cycle fatigue. The research methods are based on both small-scale and full-scale experimental testing and on Finite Element Modelling.

Timber structures have gained increasing attention in the European construction field because of their sustainability, cost effectiveness, and reduced self-weight. The use of wood is particularly beneficial because of its low carbon footprint compared to other construction materials such as concrete and steel. Wood products can achieve high mechanical performance not only at the material level, but also at structural level, as it was proved by the recent efforts to design and construct high timber buildings in Europe. Such buildings require performant connections in terms of stiffness and resistance to achieve sufficient serviceability and safety. Performant moment-resisting connections can contribute to the lateral stiffness of the building, reducing the need for diagonal bracing or walls and allowing for more spacious buildings. An innovative moment-resisting beam-to-column connection has recently been developed at NTNU, based on friction, and utilizing threaded rods as fasteners.

The design life of load-carrying wooden structures is recommended to be up to 100 years by the Eurocodes. However, the long-term mechanical deterioration of wood driven by cyclic variations of the environmental conditions is a challenging topic for large structures. Furthermore, increasing circularity and prolonging the service life of buildings and structural components is a step forward towards more sustainable, resource-efficient, cost-effective, and environmentally friendly construction. Therefore, the response of the connection subjected to long-term loading and moisture effects should be investigated, as well as the potential for disassembling/reassembling. Moreover, design recommendations about the long-term performance need to be developed for the application of such connections.

About the project

The scope of this Ph.D. project is to investigate the long-term behaviour of moment-resisting connections with threaded rods subjected to permanent load under varying climate conditions and evaluate the long-term effects on the structural response of buildings.

The research will involve both finite element modelling and experimental work. The research will involve cooperation within the framework of an international project.

The Ph.D. position holder will be required to work in Trondheim, together with the rest of the timber structures group.

Your immediate leader is Associate Professor Francesco Mirko Massaro.

Duties of the position

- Complete the PhD training consisting of courses (minimum 30 ECTS credits)
- Review of existing literature on long-term response of timber connections.
- Experimental testing of threaded rods embedded in timber subjected to permanent load under varying climate conditions.

- Evaluation of long-term properties of connections with threaded rods by use of experimental and/or finite element method.
- Assessment of the effects of creep deformations on the ultimate and serviceability limit state of timber buildings with connections consisting of threaded rods.
- Determination of the required tolerances of the connections to facilitate reassembly of structural components.
- The Ph.D. candidate shall publish the research outcomes in internationally recognized journals and conferences.

Be prepared for changes to your work duties after employment.

Required selection criteria

- You must have an academically relevant background in Structural Engineering or equivalent.
- You must have a Master's degree in structural engineering or equivalent. Your course of study must correspond to a five-year Norwegian course, where 120 credits have been obtained at master's level. Master students can apply, but the master's degree must be obtained and documented before starting the position and no later than October 2025.
- You must have a strong academic background from your previous studies and have an average grade from your Master's degree study, or equivalent education, which is equal to B or better compared to [NTNU's grading scale](#). If you do not have letter grades from previous studies, you must have an equally good academic foundation. If you have a weaker grade background, you may be considered if you can document that you are particularly suitable for a PhD education.
- You must meet the requirements for admission to the [faculty's doctoral program](#)
- You must have good written and oral English language skills

PLEASE NOTE: For detailed information about what the application must contain, see paragraph "About the application".

The appointment is to be made in accordance with [NTNU's guidelines for recruitment positions](#) and [Regulations for the degrees philosophiae doctor \(ph.d.\) and philosophiae doctor \(ph.d.\) in artistic development work at the Norwegian University of Science and Technology \(NTNU\)](#) for general criteria for the position.

Preferred selection criteria

- Suitable background within structural engineering and/or timber engineering.
- Knowledge of Finite Element software (e.g. Abaqus or similar)
- Programming skills (e.g. Matlab, Python or similar).
- Knowledge of European standards for the design of buildings (Eurocodes)

Personal characteristics

To complete a doctoral degree (PhD), it is important that you are able to:

- be highly motivated and diligent.
- be able to work both independently and as part of a group.
- be able to cooperate within the framework of an international project.
- have good communication skills in scientific writing and oral presentations.

Emphasis will be placed on personal qualities.

We offer

- An exciting job with an important [mission](#) in society
- Developing tasks in a strong and international professional environment
- Career guidance and [follow-up during the PhD period](#)
- Open and inclusive working environment with committed colleagues
- [Working capital](#) that can be used to implement the project
- [Mentor programme](#) as a [new employee at NTNU](#)
- Favorable terms as a member of the [Norwegian Public Service Pension Fund \(SPK\)](#)
- Free Norwegian language training at a basic level ([A2](#)).

As a PhD Candidate at NTNU, you will have access to [employee benefits](#).

Diversity

Diversity is a strength, and at NTNU we aim to be an employer that reflects the diversity in society and that makes use of the potential of the population's collective skills. Our vision is [Knowledge for a better world](#) and [our values are creative, critical, constructive and respectful](#). We believe that an organization that is equal, diverse and gender-balanced is essential for us to achieve our goals.

We strive to attract employees with different skills, life experiences and perspectives to contribute to even better problem solving of our societal mission in research and education.

If you think this position is relevant and interesting, we encourage you to apply, regardless of gender, functional ability and cultural background, or whether you have been out of work for a period of time.

At NTNU we want to increase the proportion of women in scientific positions. We have a number of [measures](#) to promote equality.

Salary and conditions

In the position of PhD Candidate, code 1017, your gross salary will normally be NOK 550 800,-per annum depending on qualifications and seniority. A 2% statutory contribution to the State Pension Fund is deducted from the salary.

The employment period is 3 years (a 4-year period with 25 % career promotion work may be considered depending on the qualifications of the candidate).

For employment as a PhD candidate, it is a prerequisite that you gain admission to the [PhD programme in Engineering](#) within three months of your employment contract start date, and that you participate in an organized doctoral programme throughout the period of employment.

As an employee at NTNU, it is important that you keep yourself up to date with academic and organizational changes and adapt to them.

For the necessary professional and social interaction, it is a prerequisite that you are physically present and available to the institution on a daily basis.

The appointment is carried out in accordance with the principles of the [State Employees Act](#), and [Export control](#) (legislation that regulates the export of knowledge, technology and services). Candidates who, after assessment of the application and attachments, are considered to be in conflict with the criteria in the latter act, will not be able to be employed.

About the application

The attachments (including a description of your scientific work) must accompany the application as these documents form the basis of the application assessment. The documents must be in Norwegian/a Scandinavian language or English.

Please note: the application will only be assessed on the basis of the information we have received by the application deadline. Therefore, make sure that your application clearly shows how your skills and experience meet the criteria described above. The application and all attachments must be sent electronically via [Jobbnorge.no](#). If you are invited to an interview, you must bring certified copies of certificates and diplomas upon request.

The application must include:

- CV and certificates
- transcripts and diplomas for bachelor's and master's degrees. If you have not completed the master's degree, you must submit a confirmation that the master's thesis has been submitted.
- A copy of the master's thesis. If you recently have submitted your master's thesis, you can attach a draft of the thesis. Documentation of a completed master's degree must be presented before taking up the position.
- Name and contact information of three referees.
- If you have publications or other relevant research work.

If all, or parts, of your education has been taken abroad, we also ask you to attach documentation of the scope and quality of your entire education, both Bachelor's and Master's education, in addition to other higher education. If your institution uses "diploma supplement" (normal for most European institutions), you must attach this. A description of the documentation required can also be found [here](#). If you already have a statement from [Norwegian Directorate for Higher Education and Skills \(HK-dir\)](#), please attach this as well.

Joint work will be considered. If it is difficult to identify your contribution to joint work, you must attach a brief description of your participation.

When assessing the best qualified, we emphasize necessary qualifications such as education, experience and personal suitability. Motivation for the position, ambitions, and potential for research will also count when assessing the candidates.

NTNU recognizes a wide range of academic contributions and has committed itself to [The San Francisco Declaration on Research Assessment](#) and [CoARA](#) (responsible assessment of research and recognition of a greater breadth of academic contributions in accordance with NTNU's social mission).

General information

A public list of applicants with name, age, job title and municipality of residence is prepared after the application deadline. If you wish to be exempt from entry on the public applicant list, this must be justified. Assessment will be made in accordance with [current legislation](#). You will be notified if the exemption is not granted.

If you think this position looks interesting and in line with your qualifications, you are welcome to apply.

If you have any questions about the position, please contact Associate Professor Francesco Mirko Massaro, email francesco.m.massaro@ntnu.no. If you have any questions about the recruitment process, please contact Kristine Grønvold, e-mail: kristine.gronvold@ntnu.no.

Application deadline: 15.08.2025

For practical information about [working at NTNU](#), please visit [this webpage](#).

[The city of Trondheim](#) is a modern European city with a rich cultural scene. [Trondheim is the tech capital of Norway](#) with a population of 200,000. The Norwegian welfare state, including healthcare, schools, kindergartens and overall equality, is probably the best of its kind in the world. Professional subsidized day-care for children is easily available. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life and has low crime rates and clean air quality. career and family life, with a safe and inclusive community.

NTNU - knowledge for a better world

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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Department of Structural Engineering

We teach mechanical engineering, engineering and ICT, and civil and environmental engineering. The Department conducts internationally leading research and participates in several large national research projects. [The Department of Structural Engineering](#) is one of eight departments in [the Faculty of Engineering](#).

Additional information

Contact person:

Kristine Grønvold, HR konsulent

Phone: | E-mail: kristine.gronvold@ntnu.no

Place of service:

Høgskoleringen 1 7491 Trondheim (Trondheim Municipality)