

## 2013/14 Undergraduate Research Grant Scheme

**Project title:** An investigation into the insitu assessment of the engineering properties of structural timber in old buildings

**University:** University of Bolton

**Supervisor:** Mike Bather

**Student:** tba

### **Aims of research:**

In timber codes of practice, there are a number of methods to visually assess a piece of timber in order to provide the basic information for its grading. The combination of grade and timber species allows timbers to be grouped into certain strength classes for the purposes of design.

None of the methods of grading were ever intended to be used for the structural appraisal of existing buildings. However, at present a structural engineer wishing to assess some insitu timber in an existing building may place reliance on these methods - which can provide some form of guidance.

The aim of this small piece of undergraduate research is to investigate the appropriateness and accuracy of visually grading old structural timbers (in accordance with the codes of practice) with regard to their engineering properties. This will be done by comparing the estimated properties of timber (based on visual inspections) with its actual tested properties.

### **Description of method:**

After carrying out a literature review of the topic:

1. Obtain a number of timber joists (ideally, from a positively identified old building - thus gaining information as to the likely age of the timbers and some indication of the environment within which they have worked).
2. Identify their species.
3. Make use of timber codes of practice to visually grade the timber joists and thus to estimate their engineering properties.
4. Test the joists in the laboratory to confirm their actual properties.
5. Consider and compare the estimated and actual properties of the old timber.

### **Benefits to structural engineering:**

It would be of benefit to practising engineers to know a little more of the appropriateness and accuracy of using the visual stress grading techniques of timber codes of practice to assess the engineering properties of old insitu timber.

**Proposed finish date:** June 2014