

# Short Project Notes

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## 1. *Structural Concrete* Editor in chief Luc Taerwe's interview

The *fib* journal *Structural Concrete* recently introduced a new article type, the Short Project Note. We posed the following questions about this exciting initiative to Editor in Chief, Professor Luc Taerwe:

### **Wiley: Why has *Structural Concrete* introduced Short Project Notes?**

Luc Taerwe: We started this initiative to support the *fib* mission to act as a “bridge between research and practice”. We know that a lot of our readers, and *fib* members, are practicing engineers, and not all of them are writing (or reading) full scientific research articles as part of their work. We wanted to create a forum for them to share short notes about important and innovative work, and preliminary research from current projects, so that it can reach the wide, global audience that *Structural Concrete* enjoys.

### **Wiley: What types of papers can be submitted as a Short Project Note?**

Luc Taerwe: As Editor in Chief I'm looking for descriptions of current projects – recently completed or under construction – and what I really want to see are the innovative aspects of design or execution. Submissions are limited to two printed pages, including images, so you will need to be concise, and really focus on what is novel.

As these Notes are intended to give our readers a quick overview, there will be no abstract or conclusion section, and no references. If you have a particularly good image you can also propose it for the cover of the issue in which it appears in print – this is a great way to raise the profile of your project to *fib* members globally.

### **Wiley: How can I submit my Short Project Note to *Structural Concrete*?**

Luc Taerwe: Full instructions about how to prepare your Short Project Note for submission are available in our guidelines for authors here: <https://onlinelibrary.wiley.com/page/journal/17517648/homepage/forauthors.html>

Once your manuscript is ready, it should be submitted online at: <https://mc.manuscriptcentral.com/suco>. Follow the step-by-step instructions and indicate clearly that you want your submission to be considered as a Short Project Note.

### **Wiley: How will Short Project Notes be reviewed?**

Luc Taerwe: I assign submissions to a member of the Advisory Editorial Board, and they review the suitability of the proposal for publication and suggest any necessary revisions. It is worth noting that our publisher, Wiley, offers English language editing services to help you polish your proposal prior to submission if English is not your native language – this can speed up the review process because the reviewer can focus on the technical content of your Note.

### **Wiley: If my Short Project Note is accepted, how quickly will it be published?**

Luc Taerwe: Once any necessary revisions have been made, I send finally accepted manuscripts to Wiley for production. You are then able to track progress of your paper through to online publication – this is typically within 5 weeks of acceptance. *Structural Concrete* issues are published six times a year, so it can take a little longer for your Short Project Note to appear in print. But as soon as the article is online you can share links to it with your colleagues, so they can read and cite it!

## 2. Guidelines for Authors

### 2.1 Preparing a submission

Papers should be submitted online at <https://submission.wiley.com/journal/SUCO>. Manuscripts should be submitted with double line spacing and wide margins. The first page should include the full title of the paper and the full name(s) of the author(s), followed by their position held and the institution(s) where the work was done. The contact address, telephone number, and e-mail address of the lead author should also be supplied. Photographs of the author(s), clearly identified, should also be supplied.

Please try to use an official email address when registering to the submission system. Email providers such as Yahoo, Google or Microsoft sometimes block our emails.

Please also make sure to enter the full and correct contact details of you and your co-authors. These addresses will be used to send you the author copies when your paper has been accepted and published in the journal *Structural Concrete*.

If you are submitting a Short Project Note or Discussion Paper (see below for further details), please make that clear in your submission.

### 2.2 General guidelines

Short Project Notes are intended to provide a description of a relevant project that has been built or is in the process of execution. The original or novel aspects in design or execution should be clearly indicated. Short Project Notes have to comply with the following conditions:

- the length will be strictly limited to 2 printed pages, including any images (submissions are limited to 1,000 words, excluding references, notation, tables and figures)
- there will be no abstract or conclusion section
- no references will be mentioned in the text
- a maximum of four references may be provided at the end of the paper

Short Project Notes will be assigned by the Editor in Chief to a member of the Advisory Editorial Board, who will review the suitability of the proposal for publication and suggest any necessary revisions.

### 2.3 Submission

Short Project Notes should be submitted online at: <https://submission.wiley.com/journal/SUCO>. Please refer clearly in the submission that this is a Short Project Note.

### 2.4 Text Preparation

Spelling should follow the first spelling in the latest edition of the Oxford English Dictionary. Abbreviations should conform in general to the recommendations of the current edition of BS 350: Part I. SI units should be used unless a paper describes a project which used imperial units, in which case these should be given and a table of the conversion factors supplied. Trade and place names should have initial capital letters.

Mathematical expressions should be presented in clear form. Each equation should be typed on a separate line and be numbered consecutively. A notation should be provided on a separate sheet. Greek characters should be identified in the margin when they first occur. Matrix and vector quantities should be identified in the notation.

#### 2.4.1 Figures

Only those drawings and photographs essential to the understanding of the text should be included. It is essential that the original artwork files are supplied as individual files. Figures should be referred to in the text and listed on a separate sheet in the order in which they appear.

Figures must be a minimum of 600 dots per inch (dpi) for line drawings and 300 dpi for all other images. Photographs must be of good quality with sharp focus and clear definition. Photographs must be supplied as tif, jpg or eps format. The width of the image should be at least 1500 pixels or 'dots', using a digital camera setting of 1500 x 1000 pixels or scanning a 150 x 100 mm print or drawing at a resolution of at least 300 dpi.

## 2.4.2 Tables

Tables should be numbered consecutively and referred to in the text. They should not duplicate information already given in the text nor contain material which would be better presented graphically. Tabular matter should be as simple as possible, with brief column headings and a minimum number of columns.

## 2.4.3 Supporting Information

Supporting information is information that is not essential to the article, but provides greater depth and background. It is hosted online and appears without editing or typesetting. It may include tables, figures, videos, datasets, etc.

Visit Wiley's FAQs on supporting information: <https://authorservices.wiley.com/author-resources/Journal-Authors/Prepare/manuscript-preparation-guidelines.html/supporting-information.html>. Note: if data, scripts, or other artefacts used to generate the analyses presented in the paper are available via a publicly available data repository, authors should include a reference to the location of the material within their paper.

## 2.4.4 References

References should be prepared according to the Publication Manual of the American Psychological Association (6<sup>th</sup> edition). This means in text citations should follow the author-date method whereby the author's last name and the year of publication for the source should appear in the text, for example, (Jones, 1998). The complete reference list should appear alphabetically by name at the end of the paper.

A sample of the most common entries in reference lists appears below. Please note that a DOI should be provided for all references where available. For more information about APA referencing style, please refer to the APA FAQ. Please note that for journal articles, issue numbers are not included unless each issue in the volume begins with page one.

### 2.4.4.1 Journal article

Beers, S. R., & De Bellis, M. D. (2002). Neuropsychological function in children with maltreatment-related posttraumatic stress disorder. *The American Journal of Psychiatry*, 159, 483–486. doi:10.1176/appi.ajp.159.3.483.

### 2.4.4.2 Book edition

Bradley-Johnson, S. (1994). *Psychoeducational assessment of students who are visually impaired or blind: Infancy through high school* (2<sup>nd</sup> ed.). Austin, TX: Pro-ed.

## 2.4.5 Copyright

Authors are responsible for obtaining permission from the owners of the copyright when reproducing material in their paper which has been published elsewhere. Papers with more than one author should be submitted with a letter signed by all authors or a declaration by the lead author that the paper has been approved by all the other authors. The copyright transfer agreement must be also uploaded.

## 2.5 Cover images

If you would like to submit relevant, high quality and attractive images from your paper for possible inclusion on the cover, please email your suggestions to [covers@wiley.com](mailto:covers@wiley.com) for consideration. Images must be original and you must have permission to use them on the cover. Please know that the Editor in Chief will make the final decision about the cover illustration, and we ask authors for a fee to contribute toward the production cost of cover illustrations.

Please see our Cover FAQ at <https://authorservices.wiley.com/author-resources/Journal-Authors/Promotion/journal-cover-image.html> for details on cover image preparation.

## 2.6 Editing, Translation and Formatting Support:

Wiley Editing Services can greatly improve the chances of your manuscript being accepted. Offering expert help in English language editing, translation, manuscript formatting and figure preparation, Wiley Editing Services ensures that your manuscript is ready for submission.

## 2.7 Data Sharing and Availability

Please review Wiley's policy [here](#). This journal expects data sharing.

The journal expects authors to share the data and other artefacts supporting the results in the paper by archiving it in an appropriate public repository. Authors should include a data accessibility statement, including a link to the repository they have used, in order that this statement can be published alongside their paper.

## 2.8 Author Licensing

If a paper is accepted for publication, the author identified as the formal corresponding author will receive an email prompting them to log in to Author Services, where via the Wiley Author Licensing Service (WALS) they will be required to complete a copyright license agreement on behalf of all authors of the paper.

Authors may choose to publish under the terms of the journal's standard copyright agreement, or OnlineOpen under the terms of a Creative Commons License: <https://authorservices.wiley.com/author-resources/Journal-Authors/open-access/onlineopen.html>. General information regarding licensing and copyright is available online: <https://authorservices.wiley.com/author-resources/Journal-Authors/licensing/licensing-info-faqs.html>.

If the OnlineOpen option is not selected the corresponding author will be presented with the copyright transfer agreement (CTA) to sign. The most recent version of the CTA can be found online (<https://authorservices.wiley.com/author-resources/Journal-Authors/licensing/licensing-info-faqs.html>) along with the terms and conditions.

To review the Creative Commons License options offered under OnlineOpen, please visit this page: <https://authorservices.wiley.com/author-resources/Journal-Authors/licensing/open-access-agreements.html>. (Note that certain funders mandate a particular type of CC license be used; to check this please visit this page: <https://authorservices.wiley.com/author-resources/Journal-Authors/open-access/author-compliance-tool.html>.)

Self-Archiving Definitions and Policies: Note that the journal's standard copyright agreement allows for self-archiving of different versions of the article under specific conditions. For more detailed information about self-archiving definitions and policies, please visit this page: <https://authorservices.wiley.com/author-resources/Journal-Authors/licensing/self-archiving.html>.

Open Access fees: Authors who choose to publish using OnlineOpen will be charged a fee. A list of Article Publication Charges for Wiley journals is available online: <https://authorservices.wiley.com/author-resources/Journal-Authors/open-access/article-publication-charges.html>.

Funder Open Access: For more information on Wiley's compliance with specific Funder Open Access Policies, please visit this page: <https://authorservices.wiley.com/author-resources/Journal-Authors/open-access/affiliation-policies-payments/funder-agreements.html>.

## Takubogawa Bridge

The Tokugawa Bridge (Figure 1) is a 10-span continuous butterfly web box girder highway bridge, whose longest span is 87.5 m. “Butterfly Web Bridge” is a new type of bridge structure and this bridge is the world first application of this structure. The “Butterfly” name comes from factory-fabricated web panels shaped like butterfly wings. This bridge project was started in August 2010 and was completed in August 2013.

This characteristically shaped web forms a structure that exhibits a behaviour similar to that of a double Warren truss. Due to the butterfly shape of the panels, the shear forces acting on the web are primarily transferred to the panels as compressive and tensile strength. In this structure, the concrete resists the compressive forces transferred to the panels, whereas the tensile forces are counterbalanced by the compressive stress due to prestressing steel. The panels used as webs are placed in the direction of the bridge axis independently of one another, barely affecting the prestressing in the



FIGURE 1 View of the Takubogawa Bridge

bridge axis direction. Moreover, this is a simple structure in which the panels are connected to the upper and lower deck slabs linearly using dowels with no need to connect adjacent panels, thus facilitating a rapid construction.

In order to confirm the behaviour of the butterfly web panel—a member made into an unprecedented shape—a 3-D elastic Finite Element Method (FEM) analysis was conducted to examine the stress distribution under loading. Based on these analysis results, loading tests were also conducted on 1/2-size specimens to confirm the consistency between the actual and the analysed behaviours. The analysis results agreed with the test results, demonstrating that the behaviour of the butterfly web panel can be simulated by analysis. In addition, a nonlinear 3-D FEM analysis was conducted to confirm the behaviour of the entire bridge after panels damage under increased loads. The analysis results revealed that, after yielding of prestressing steel in the panel under the largest shear force, damage does not progress concentrically in the panel. Instead, prestressing steel in adjacent panels yields in a progressive manner, demonstrating the ductile behaviour of this structure.

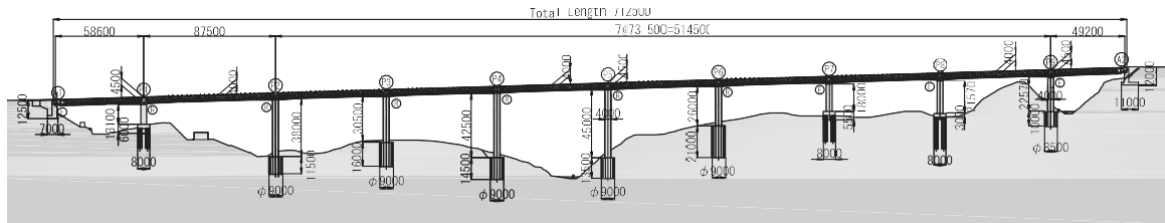
The concrete for butterfly web panel was developed based on the concept that it should be composed of commonly used materials instead of special materials so that it can be produced at as many plants as possible. Since the only reinforcing bars to be embedded in the panels were prestressing steel, the thickness of the panels was also restricted by the bar layout. For this reason, the design strength of concrete was set at 80 MPa so that the design-related requirements would be met with that thickness. The target strength was decided to be 100 MPa in consideration of the material variability. Moreover, steel fibres were used to prevent shear failure at the narrowed centres and cracking in the anchorages of prestressing bars. Based on testing of various types of reinforcing fibres, steel fibres of diameter 0.2 and length 22 mm were selected from among the cases that attained the target strength as those requiring the smallest fibre content and easily available (Figure 2).

As described above, butterfly web panels use an innovative material with steel fibre mixed into 80 MPa high-strength concrete. The panels are 150 mm thick and the prestressing steel components are 15.2 mm diameter strands with etched surfaces to enhance the adhesion of concrete.

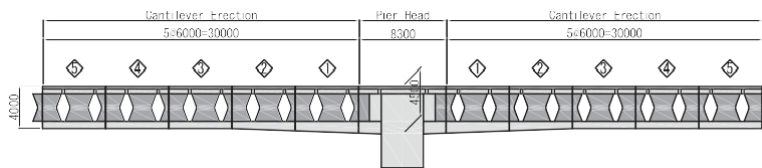


## Takubogawa Bridge

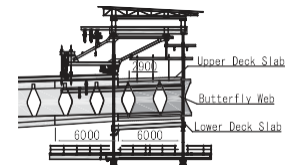
Side View



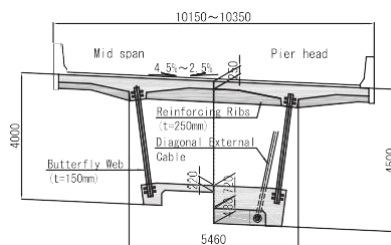
Segment Arrangement



Cantilevering Erection



Cross Section



Butterfly Web Panel

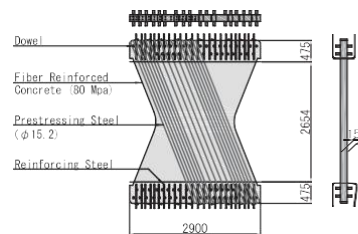


FIGURE 2 Drawings

There is no reinforcing steel, which makes the panels easy to work with and facilitate their maintenance. In addition, this material is extremely durable and represents a powerful technique for reducing the weight of concrete bridges. The butterfly web weight used for Takubogawa Bridge is 3 tons. This bridge is constructed according to the free cantilevering method and because of its lightness, the girder enables an erection segment length 1.5 times longer than that of ordinary cast-in-situ box girder. Consequently, a construction segment length of 6.0 m could be used, equivalent to the length of two butterfly web panels on each side of the bridge. Moreover, since the butterfly web panels are not continuous in the longitudinal direction, there is no need to join adjacent web elements, which also enhances execution efficiency. As a result, the construction speed of cantilevering can be increased about 50% compared to conventional cast-in-situ box girder method.

It is important to reduce the superstructure weight in an earthquake-prone country like Japan. Therefore, corrugated steel web bridges have been used in many projects. However, high maintenance cost will be required to keep the durability of the structure during their designed lifetime. This new type of bridge meets the requirement of lightness and low maintenance. In addition, the use of butterfly web reduces the weight of the superstructure by 10% compared to the

conventional cast-in-situ box girder, enabling a size reduction of the substructure as well. As described above, this structure is effective for rapid construction. For these reasons, this structure can help reduce construction costs as well as the environmental impact compared to a conventional structure. This makes Takubogawa Bridge a sustainable structure.

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