

Interview with Prof. Lucie Vandewalle, KU Leuven, Belgium



Prof. Lucie Vandewalle is Emeritus professor at the Faculty of Engineering Science of the Katholieke Universiteit Leuven (KU Leuven), Belgium. Prof. Vandewalle was the recipient of the Robert L'Hermite Medal in 1990. In 1994 she became Chair of the RILEM Technical Committee (TC) 162-TDF: *Test and design methods for steel fibre reinforced concrete*; the TC secretary was Dirk Nemegeer, BEKAERT S.A., Belgium. TC 162-TDF produced [4 recommendations](#) and [5 Round-robin test papers](#); one important outcome of this TC was the [recommendation of a bending test on a notched beam](#), which led to the European Standard EN 14651 that has become a benchmark for the characterisation of the toughness of FRC worldwide. Her manuscript [Fibre reinforced concrete: new design perspectives](#), published in *Materials and Structures* and authored together with M. di Prisco and G. Plizzari in 2009, has been cited hundreds of times. Prof. Vandewalle was also the editor, together with B. Schnütgen, of the proceedings [PRO31, International RILEM Workshop on Test and Design Methods for Steel Fibre Reinforced Concrete - Background and Experiences](#), held in Bochum, Germany, in March 2003. She has been a very active member of *fib*, co-authoring 1) Chapters 5.6 and 7.7 of *fib* Model Code 2010, and 2) *fib* bulletin 105 *fibre reinforced concrete* in 2023; she received the *fib* Medal of Merit in 2021.

22 February 2024

Dr Daniela Ciancio - RILEM Implementation Manager (RIM): Good morning Prof. Vandewalle and thank you for joining me today.

Prof. Lucie Vandewalle (Lucie): You can call me Lucie.

RIM: Thank you, Lucie. I am thrilled to interview a superstar like you today, active in RILEM, active in *fib*, a university professor, a board member of Belgian associations ([ie-net](#) and [BBG](#)), an engineering consultant... shall we start from your beginning in RILEM?

Lucie: Sure. My professor, professor Fernand Mortelmans, was a RILEM member, and when I was making my Ph.D. I became also a RILEM member. I don't remember anymore... it must have been sometimes at the end of the 80s...

RIM: It was 1988. In 1988, you published your first paper in *Materials and Structures*, co-authored by Prof. Mortelmans (*editor's note: Vandewalle, L., Mortelmans, F. [The bond stress between a reinforcement bar and concrete: is it theoretically predictable?](#). *Materials and Structures* 21, 179–181 (1988)*)

Lucie: Yes! And then in the 90s, I got the Robert L'Hermite medal. And I had to go to Brighton, UK. There, it was given to me and I had to give a small speech. Afterwards, in 1994, I was asked to become a convenor of a technical committee about the testing and design methods of steel fibre reinforced concrete. I didn't think I could do that, but they said "you have to do that!". I still remember the first meeting. It was in Saint-Rémy-lès-Chevreuse, near Paris. That worked well. I was the only woman in the group...

RIM: How did that work?

Lucie: Well... I think we did a good job. We had [four recommendations](#) published in *Materials and Structures* about testing of fibre reinforced concrete: one with beam testing, one with the uniaxial tensile test, and two recommendations regarding design, one with taking the strain into consideration and the other taking the crack width. We finalised the Technical Committee work with a Symposium in Bochum. I think that it was in 2003. We published the RILEM proceedings PRO 31.

RIM: You said you were invited to chair TC 162-TDF. Do you remember who invited you?

Lucie: I don't remember... Before TC 162-TDF we had a small committee in Belgium with people from the Belgian Building Research Institute (BBRI), the University of Ghent, KU Leuven, and BEKAERT, to set up design guides to calculate fibre reinforced concrete. I don't remember how it happened, because it was all at once... I was only 36 years old, so very young, and with all those men in the committee... but it worked well! I think we had about 15 meetings for the TC. We always started at noon with a small lunch, then in the afternoon we had the meeting, in the evening we had the dinner, and finally the day after we used to start at around 8:30 to work till 4:00 PM. We only had to take two days for the meeting. You met so many people! That was so nice! We had people from Canada, from the States, from Israel, from many countries in Europe, from Japan. It was at the beginning of my career, when it was very important to meet and know people. I also had a very good secretary, Dirk Nemegeer from the company BEKAERT. He was such a kind person! I think he was about 15 years older than me, and he was like a father for me.

RIM: I saw that you have worked a lot with Marco di Prisco (*editor's note: Prof. M. di Prisco, Politecnico di Milano, Italy, RILEM Fellow in 2023*).

Lucie: Yes, a lot! That was because after the RILEM TC, I became also the convenor of a *fib* working group on Fibre Concrete. I stopped that last year because I retired on 1st October 2023... we have to do it at 65... Marco is now the new convenor of *fib* TG 4.1 Fibre Concrete.

RIM: You do not sound as if you were eager to retire!

Lucie: No! In the last years I had a hard time. In 2018, in February, my husband died. Then at the end of April, I got diagnosed with ovarian cancer. 2018 was a terrible year. I got 18 chemo sessions and a very serious surgery... Hey, I'm still living! I'm still here.

RIM: Yes you are!

Lucie: But Marco, and also Giovanni Plizzari (*editor's note: Prof. G. Plizzari, University of Brescia, Italy, RILEM Fellow in 2023*)... they're so nice persons. They are like family for me! For the celebration of my retirement, Marco gave a speech about the evolution of fibre reinforced concrete and what I have done in the last 30 years on this matter.

RIM: I read that you are called [Lucie Beton](#). Is it true?

Lucie: Yes! Beton is the Flemish name for Concrete. To the students of KU Leuven, I am known as Lucie Beton.

RIM: Do you miss teaching?

Lucie: Things have changed a lot since the pandemic. We had to teach online and at the beginning the students were upset: "we cannot go anymore to the course", "we don't see or chat with our colleagues". But now, a lot of students don't come to the course anymore. They like that the courses

are online, that they can watch a video. It's totally different. It's a pity. You lose the contact with the students.

RIM: Would you remember something funny or interesting of your time in RILEM?

Lucie: I remember during my years in RILEM the feeling of becoming like a family. Each time that we had a TC meeting, everything was well organised. We had meetings in Paris, in Milan, in Haifa, in Bochum, in Stuttgart, also with Professor Reinhardt (*editor's note: Prof. Dr.- Hans W. Reinhardt, University of Stuttgart, Germany, RILEM Honorary member in 2009*), and Prof. Stang (*editor's note: Prof. Henrik Stang, Technical University of Denmark, Robert L'Hermite Medallist in 1991*), other very nice persons! It was very pleasant to go to the meetings.



Some members of the RILEM Technical Committee (TC) 162-TDF: Test and design methods for steel fibre reinforced concrete. Prof. Vandewalle is the fifth from the right along the front row. Image courtesy of Prof. Vandewalle.

RIM: RILEM nowadays is very much interested in the carbon footprint of the built environment (*editor's note: see [GLOBE](#)*). What is your personal view on this matter?

Lucie: CO₂ emission is becoming very important. Regarding the use of steel fibres in concrete, in certain type of structural elements, its use decreases the total amount of reinforcement and therefore less CO₂ during the construction phase. But you can also reuse steel fibres from demolished fibre reinforced concrete: it has less performance, about 20 % less, but you can reuse them, so that's also very important. We are doing some research on this topic and a paper will be presented at the next [BEFIB conference in Dresden](#).

RIM: Looking forward to reading that paper!

Documents produced by the RILEM Technical Committee TC 162-TDF: *Test and design methods for steel fibre reinforced concrete*

Round-robin test papers

- 1) Barr, B.I.G., Lee, M.K., de Place Hansen, E.J. *et al.* Round-robin analysis of the RILEM TC 162-TDF beam-bending test: Part 3—Fibre distribution. *Mat. Struct.* **36**, 631–635 (2003). <https://doi.org/10.1007/BF02483283>
- 2) Barr, B.I.G., Lee, M.M., de Place Hansen, E.J. *et al.* Round-robin analysis of the RILEM TC 162-TDF beam-bending test: Part 2—Approximation of δ from the CMOD response. *Mat. Struct.* **36**, 621–630 (2003). <https://doi.org/10.1007/BF02483282>
- 3) Barr, B.I.G., Lee, M.K., de Place Hansen, E.J. *et al.* Round-robin analysis of the RILEM TC 162-TDF beam-bending test: Part 1—Test method evaluation. *Mat. Struct.* **36**, 609–620 (2003). <https://doi.org/10.1007/BF02483281>
- 4) Barr, B.I.G., Lee, M.K., Barragán, B. *et al.* Round-robin analysis of the RILEM TC 162-TDF uni-axial tensile test: Part 1. *Mat. Struct.* **36**, 265–274 (2003). <https://doi.org/10.1007/BF02479620>
- 5) Barr, B.I.G., Lee, M.K., Barragán, B. *et al.* Round-robin analysis of the RILEM TC 162-TDF uni-axial tensile test: Part 2. *Mat. Struct.* **36**, 275–280 (2003). <https://doi.org/10.1007/BF02479621>

Recommendations

- 1) σ - ϵ -Design method. *Mat. Struct.* **33**, 75–81 (2000). <https://doi.org/10.1007/BF02484159>
- 2) Bending test. *Mat. Struct.* **33**, 3–5 (2000). <https://doi.org/10.1007/BF02481689>
- 3) Uni-axial tension test for steel fibre reinforced concrete. *Mat. Struct.* **34**, 3–6 (2001). <https://doi.org/10.1007/BF02482193>
- 4) Design of steel fibre reinforced concrete using the σ -w method: principles and applications. *Mat. Struct.* **35**, 262–278 (2002). <https://doi.org/10.1007/BF02482132>
- 5) Bending test. *Mat. Struct.* **35**, 579–582 (2002). <https://doi.org/10.1007/BF02483127>
- 6) σ - ϵ -Design Method. *Mat. Struct.* **36**, 560–567 (2003). <https://doi.org/10.1007/BF02480834>.