

Events

Recent Italian Events on BIM

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In the last few years, several important events related to BIM have taken place in Italy. As known, BIM is the acronym of Building Information Modeling, a work system for structuring information during the process of building design. Professional associations as well as the academic world have been exploring its potentialities, with an aim to upgrading study programs, or as a new field of work to be developed in scientific research.

It should be remembered that BIM is the result of a long experimentation that, although it has been defined in detail only in the last decade, lays its foundations between the 1960s and 1970s. Among the most active researchers in this field, Charles Eastman [1] is certainly to be counted: starting from the 1970s, he has had a number of significant results that have led to today's information management system.

We have to remember, however, that the BIM should not be considered only as an advanced representation tool of a three-dimensional model. In fact, this data system requires several agents to work in close relationship with one another, to share information: the designer, the draftsman, the structural engineer, the technologist, the plant engineer, but also the

customer, the firm and the builders, including the people who will be dealing with the future maintenance of the building.

In the debate on BIM, Italy currently occupies a marginal position, as few professional studios have adopted this protocol. England and the United States, for years, have adopted technical codes based on specific requests from their respective institutional bodies in order to improve the quality of work associated with the construction world, but also to have a general reduction of construction costs. In general, all Europe is gradually starting to adopt the standards set by BIM, while a certain delay is reported in South America and in the Asian countries.

This wide range of professionalism enables a good public participation in events organized on this subject, accompanied by an ever-expanding group of students involved.

Among the first initiatives, the *Modelazione 3D e BIM* (3D Modeling and BIM) Conference on May 8-9, 2015, organized by the Faculty of Architecture of the Sapienza University of Rome, must be remembered, which has been replicated in the following years. The first day, dedicated to many topics related to advanced processing (from modeling to image manage-

ment to 3D printing), dealt with the creation of specific workshops for architecture and design, graphics and animation, engineering and prototyping, while the second day focused on the specific themes of BIM.

After about one year (April 21-22, 2016), Sapienza University organized a second edition, entitled *3D Modeling & BIM - Applicazioni e possibili sviluppi futuri* (3D Modeling & BIM - Applications and possible future developments), with a remarkable increase both in the number of participants, and academics from various Italian universities, and in terms of contents and experiences. This is documented by the book (in Italian and English) edited by Tommaso Empler [2]—the organizer of the event—gathering together all the papers and further contributions to the themes of the initiative in more than 600 pages. Papers include those by Jean Pierre Monclin on the experience of moka-studio; by Massimiliano Lo Turco on the theme of the definition of a national protocol; by Antonella di Luggo on the relations between Heritage and BIM for knowledge and management of cultural heritage; and Carlo Bianchini's work on the possible relationships between 3D acquisition, modeling and BIM.

In 2016 we had two more contribu-

Fig. 1. Screenshot of the website of the scientific journal DisegnareCon, No. 16, 2016, dedicated to BIM dimensions.



tions to BIM that need to be mentioned: the Issue No.16 of the online journal DisegnareCon [3] directed by Mario Centofanti on 'B.I.M. Dimensions,' containing eighteen essays and the afterword of the editors Roberto Mingucci, Stefano Brusaporci and Stefano Cinti Luciani; and the BIM debate day entitled *Brainstorming the BIM model*, organized by the Polytechnic University of Milan on November 25th and moderated by Cecilia Bolognesi. In the first case, network publishing enabled experiences to be shared widely, as the texts were published in both Italian and English, while the single day debate allowed reflection on similar topics, comparing activities and optimizing logical processes connected to Building Information Modeling.

In both cases, contributions were often centered on the relationship with the existing architectural fabric and the use of new BIM technologies to enhance knowledge of heritage. This twofold concern was addressed at the meeting at the Polytechnic, which was organized into two separate sections, namely: *Il modello BIM e l'antico* (The BIM model and the ancient model) with essays by Carlo Bianchini, Fabrizio Apollonio, Raffaella Brumana, Stefano Brusaporci, Andrea Giordano, Paolo Borin, Tommaso Empler, Cettina Santagati; and *Il modello BIM ed il progetto per le nuove costruzioni* (The BIM model and the project for new constructions) with essays by Giovanni Chiabrando, Anna Osello, Graziano Mario Valenti, Massimiliano

Lo Turco and Maurizio Bocconcino, Carlo Zanchetta, Salvatore Barba, Vincenzo Donato and Cecilia Bolognesi. The introduction by Stefano Della Torre, Rossella Salerno and Vito Cardone set the general terms of the discussion, and reflections by Livio Sacchi, Cristiana Achille, Andrea Rolando, Angelo Ciribini and Claudio Vittori Antisari, on activities in earthquake areas, of great relevance, brought the topic to the dramatic present of the recent devastating earthquake in Central Italy.

Before the start of the third edition of the yearly BIM meeting at the Sapienza University of Rome, held in April 2017, another event devoted to these themes attracted the interest of professionals and students, entitled *BIM e HBIM tra ricerca e professione: esperienze scientifiche*, (BIM and HBIM between research and profession: scientific experiences) organized on March 6, 2017 in Bastia Umbra by the University of Perugia within the Expo-Casa fair. The event was presented by Paolo Belardi and chaired by Valeria Menchetelli, with the participation of Simone Monotti, president of the Federazione degli Ordini degli Ingegneri dell'Umbria (Federation of the Orders of Engineers in the Umbria Region)—who organized the meeting together with the 'Pietro Vannucci'Academy of Fine Arts of Perugia—and Vito Cardone, president of the Unione Italiana per il Disegno (Italian Union for Drawing). The session was attended by scholars and academics who presented the state of the art of their experiments in the field.

The topics of the seminar were: the digitization of built heritage (Simone Garagnani); BIM as a support in the innovation of the building process (Mar-

Fig. 2. Image of the third edition of the workshop 3D Modeling & BIM, Sapienza Università di Roma, April 19-20, 2017.



cello Balzani, Marco Medici and Federico Ferrari); the state of art of BIM for historical heritage (Carlo Bianchini); knowledge and project through BIM and Database (Mario Centofanti, Stefano Brusaporci and Pamela Maiezza); HBIM modeling between survey and metadata management (Paolo Clini and Ramona Quattrini).

The third edition of the *3D Modeling & BIM* workshop hosted at the Sapienza was dedicated to project, design and proposals for reconstruction, and

was held in the Valle Giulia campus in Rome, on April 19-20, 2017. This last event, compared to the previous ones, witnessed a remarkable participation by both students and teachers—from all over Italy—and by professionals, and was enlivened by a large debate concerning the introduction of these new technologies in professional practice. The contents of the papers presented and the ensuing discussions showed a higher level of awareness in the reflections on the

topics. It also showed a further maturity both in terms of content and for the discussions at the end of the presentations. After the introduction of Tommaso Empler (chair of the event), the greetings by Renato Masiani (vice-rector of the Sapienza University of Rome), Anna Maria Giovenale (dean of the Faculty of Architecture of Sapienza University), Carlo Bianchini (director of the Department of History, Design and Restoration of Architecture of Sapienza Univer-

sity), Vito Cardone (president of the Unione Italiana per il Disegno) and Edoardo Bianchi (president of the Associazione Costruttori Edili Romani, vice-president of the Opere Pubbliche ANCE), there was the introduction by Livio Sacchi, president of the Ordine degli Architetti, Pianificatori, Paesaggisti e Conservatori della Provincia di Roma (Order of Architects, Planners, Landscape Architects and Curators of Rome) who provided a general framework of reference on the subject, recalling the substantial change in design procedures in the BIM environment, based mainly on the circularity of the process thanks to alternation and complementarity of skills. Among the other papers of the morning, Francesco Ruperto addressed the issue of digitalization of the construction industry.

The two days developed with plenary sessions dedicated to the theme *BIM per il nuovo* (BIM for new buildings), *BIM per l'esistente* (BIM for ex-

istent buildings) and 3D Modeling. In the first session, there were contributions concerning the BIM regulations (Pavan), the validation of the BIM model for new construction (Bolognesi), the use of responsive surfaces with BIM (Sacco and Calvano); in the second session, topics related to advanced survey were discussed, both for the reconstruction of memory with HBIM models (Di Luggo, Scandurra, Pulcrano, Tarantino), and for the application of point clouds for building (Gioscia); some case studies have also been described, such as Louis I. Kahn's project for the Congress Hall in Venice (Sdegno, Cappochin), and the Villa Sarmatoris in Salmour (Lo Turco, Chiabrando, Farina, Galleano, Naretto), and that related to the façade of the basilica of San Michele in Pavia (Parinello and Mattion). The last session, on 3D modeling and other more general topics, addressed the themes of university education (Carnevali), the use of parametric representation in

research (Filippucci, Bianconi), digital representation for the dissemination of historical treatises (Baglioni, Fasolo, Mancini), photogrammetric survey and autostereoscopy (Quattrini, Nespeca, Mancini), the modeling of vaults in the drawings by Leonardo da Vinci (Di Bernardino, Carpiceci, Colonnese), digital modeling in naval production (Russo), the restitution of visual models for virtual museums (Casale, Ippoliti, Paris).

It was an intensely busy day of work which demonstrated the great attention paid to the topic by academics and professionals, and is to be considered a major achievement of the Italian University in recent years, directly involving the professions of architect and engineer. The role of the Italian Union for Drawing has proved to be of great relevance, not only for its activity of support and patronage, as a scientific society, but also thanks to the active work of many of its members, both as organizers of the various initiatives, and as valuable speakers.

Notes

[1] Eastman, C., Teicholz, P., Sacks, R., Liston, K. (2011). *BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors*. Hoboken: John Wiley and Sons.

[2] Empler, T. (ed.). (2016). *3D Modeling & BIM. Applicazioni e possibili futuri sviluppi / Applications and possible future developments*. Roma: DEI - Tipografia del Genio Civile.

[3] Since 2015, the address of the journal has been: <<http://disegnarecon.univaq.it>> (consulted on July 15, 2017). The archive of the previous issues (2006-2014) is also available on internet at <<https://disegnarecon.unibo.it>> (consulted on July 15, 2017).

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