



# LCA & Construction 2012

Nantes, 10-12 July 2012

Date	Tuesday July 10 <sup>th</sup>		
Room	Auditorium		
Time	Session	Authors (number)	Title
8.00 AM	Opening of registration desks and checkroom		
8.30 AM	Opening of symposium		
9.00 AM	Keynote lectures and introductions	Ventura A.	Introduction to the symposium: Life Cycle Assessment, in-between Research, standards, regulations and application
9.10		Guinée J.	Life Cycle Assessment : Past, Present and Future
9.40		Horvath A.	Life Cycle Assessment in civil engineering
10.00		Chevalier J. & Peuportier B.	Life cycle assessment methodologies in the construction sector: From research to current application
10.10		Kohler N.	Life Cycle Assessment of buildings
10.30	Coffee break and poster session		
11.00 AM	LCI data : validation, aggregation, uncertainties Chair : Isabelle Blanc	Padey et al. (12107)*	Understanding LCA results variability developing global sensitivity analysis with Sobol indices: a first application to photovoltaic systems
11.20		Kohler et al. (12108)	Integrated Life Cycle Analysis: benchmarks and uncertainties
11.40		Lupsea et al. (12120)*	Leaching of construction products during their use stage: proposal for a reliable LCI of the released substances in water and soil
12.00		Lasvaux et al. (12123)*	Relevance of a French simplified LCI database using building products industry data
12.30 PM	Lunch		

\* articles nominated by at least one of the reviewers for the symposium best article award (offered by Bouygues construction)

Date	Tuesday July 10 <sup>th</sup>		
Room	Auditorium		
Time	Session	Authors	Title
2.00 PM	Methods for buildings Chair: Kathrina Simonen	Lebert et al. (12111)*	Environmental performances of buildings identification of reference values through a statistical analysis
2.20		Lasvaux et al. (12114)*	Towards a reduced set of indicators in buildings LCA applications: a statistical based method
2.40		Habert et al. (12119)	A new energy indicator for life cycle analysis of buildings
3.00 PM		Lavagna et al. (12090)	The role of the functional equivalence in LCA of buildings and building products
3.20		Ventura et al. (12106)*	How to use LCA to assess materials as eco-design parameters in construction projects?
4.00 PM	Coffee break and poster session		
5.00 PM	Decision and management Chair: Tony Parry	Tremblay et al. (12105)	Integrating LCA in the decision making process for the choice of flexible or rigid pavement: the MTQ experience
5.20 PM		Clarens et al. (12088)*	Network aspects of pavement management optimization using life cycle assessment
5.40 PM		Horvath S. et al. (12092)*	Decision making methodology for retrofit of high-rise concrete buildings based on life cycle assessment scenarios
6.00		Rivallain et al. (12115)*	Genetic multi-criteria optimization for existing buildings holistic retrofit
6.30	End of session		
7.00 PM	Welcome cocktail		

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Date	Wednesday July 11 <sup>th</sup>		
Room	Auditorium		
Time	Session	Authors (number)	Title
8.00 AM	<i>Opening of registration desks and checkroom</i>		
8.30	LCA case studies and methods for infrastructures Chair: John Harvey	Cleary et al. (12065)	Using Life Cycle Assessment to compare wind energy infrastructures
8.50		Vandanjon et al. (12072)	Practical guidelines for Life Cycle Assessment Applied to railways project
9.10		D'Aloia et al. (12084)*	LCA applied to tunnels: potential environmental impacts of construction materials
9.30 AM		Gomes et al. (12116)	Life Cycle Assessment of orthotropic steel bridge decks covered with bituminous concrete or UHPFRC topping layer
9.50		Goyer et al. (12104)*	Environmental Evaluation of gravel emulsion
10.15		Requin et al. (12109)	Life cycle analysis and special geotechnical works: development of an operational calculation tool
10.40	<i>Coffee break and poster session</i>		
11.00 AM	Dynamic LCA: Service life and indicators Chair: Vanderley John	Peuportier et al. (12062)	LCA application in urban design
11.20		Peuportier et al. (12063)	Evaluation of electricity related impacts using a dynamic LCA model
11.40		Collinge et al. (12095)*	Measuring whole building performance with dynamic LCA: a case study of a green university building
12.00		Bergman et al. (12103)	Developing a dynamic life cycle greenhouse gas emission inventory for wood construction for two different end-of-life scenarios
12.40	<i>Lunch</i>		

Room	Room I		
Time	Session	Authors	Title
8.00 AM	<i>Opening of registration desks and checkroom</i>		
8.30	Case studies for buildings Chair: Bruno Peuportier	Meijer et al. (12089)*	Is there an optimal insulation thickness? An LCA-based study on the environmental performance of insulation materials and natural gas consumption
8.50		Simonen et al. (12067)	Environmental products declarations for building materials and products: US policy and market drivers
9.10		Annemans et al. (12124)	Life Cycle Assessment in architecture practise: the impact of materials on a flemish care home
9.30		Palaniappan et al. (12078)	Application of Life Cycle Assessment for a residential building construction
9.50		Bueno et al. (12070)	Comparative Life cycle assessment: structural masonry of concrete and clay block
10.10		Killpack et al. (12068)	The path to zero impacts environmental building declarations based on LCA
10.40	<i>Coffee break and poster session</i>		

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Date	Wednesday July 11 <sup>th</sup>		
Room	Auditorium		
Time	Session	Authors	Title
2.00 PM	Methods for construction materials Chair: Amnon Katz	Da Silva et al. (12086)	Representativeness of CO2 emissions and energy consumption of steel in construction in Brazil
2.20		Leroy et al. (12085)*	Tackling recycling aspects in EN15804
2.40		Gomes et al. (12117)*	Environmental evaluation of reinforced steel sold on the French market
3.00 PM		Hodkova et al. (12122)	Guidelines for the use of existing Life Cycle Assessment data on building materials as generic data for a national context
3.20		Ferraz de Campos et al. (12080)	CO2 emission and residues of amazon rainforest lumber – Preliminary results
3.40		Bernard et al. (12126)	Life Cycle Inventory: bitumen
4.00 PM	<i>Coffee break and poster session</i>		
4.30	End of life, waste and allocation Chair: Jeroen Guinée	Bozhilova-Kisheva et al. (12075)*	An integrated life cycle inventory for demolition processes in the context of life cycle sustainability assessment
4.50		Van den Heede et al. (12102)*	Strength related global warming potential of fly ash (+ silica fume) concrete with(out) mass/economic allocation of the by-products' impact
5.10		Huang et al. (12081)*	Importance of co-product allocation method in Pavement Life Cycle Assessment
5.40		Habert et al. (12118)*	An allocation method based on relative profit between industrial sectors
6.00		Ventura et al. (12066)*	Organic materials for construction: questioning the Concept of feedstock energy
6.20	<i>End of sessions</i>		
7.00 PM	<i>Gala dinner</i>		

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Date	Thursday July 12 <sup>th</sup>		
Room	Auditorium		
Time	Session	Presenters	Topic
8.00 AM	Opening of registration desks and checkroom		
8.30 AM	Introduction		
8.40	Feedback from scientific sessions of day 1 and 2		
9.00 AM	Standardization	Schmincke E. (Five Winds International, Germany)	European framework of environmental regulations and EN 15804 standard: Environmental product declarations - Core rules for the product category of construction products
9.30		Boucher F. (AFNOR, France)	European standard in a national context: example of the development of a French EPD program based on both EN15804 and a national appendix
9.50	Regulation	Elalouf Z. (DHUP, France),	Development of a regulation for the Environmental Product Declaration of products implemented in buildings
10.00		Wathier V. (CGDD, France)	From LCA to a consciousness of energy consumption for citizens, what labelling?
10.10	Questions		
10.30	Coffee break and poster session		
11.00 AM	Contracting owners	Rabiller M. (Nantes city, France)	Integration of LCA in construction projects
11.10	Industrials	Sing Ch. (Lafarge, France)	Feedbacks concerning the use of LCA into products design
11.20		Boyeux B. (Bioressources constructions, France)	Feedbacks concerning the environmental assessment of bio-based products
11.30	Construction companies	Gobin C. (EGF-BTP, France)	Integration of LCA into building projects
11.50	Questions		
12.00	Lunch		

Date	Thursday July 12 <sup>th</sup>	
Room	Auditorium	
Time		
2.00 PM	Introduction	
2.10 PM	<p>Round Table 1:</p> <p>Invited experts: I. Blanc C. Gobin D. Kellenberger J. Payet M. Sié B. Peuportier S. Vaxelaire</p>	<p><b>Title:</b> Limits of LCA for future research challenges</p> <p><b>Purpose:</b> This round table will discuss the current weaknesses (from a scientific point of view) on the application of LCA to the construction sector and the addressed issues in its implementation. The invited experts will be mainly academic and industrial researchers with different backgrounds: knowledge in LCA databases for the construction sector, uncertainty and data quality among others. An achievement of this first round table will be to identify the need for further research.</p> <p><b>Examples of questions that will be raised during this round table:</b></p> <p><i>How to take into account the uncertainty of the LCA data/method/results with its implementation in current standards (e.g. ISO, CEN, national EPD programs) or regulations?</i></p> <p><i>How to provide operational/user-friendly LCA software for the construction sector as well as provide accurate results?</i></p> <p><i>How to ensure that the LCA results are comparable among the different LCA software for the construction sector? Do we need a unified database?</i></p>
3.30	Coffee break and poster session	

Date	Thursday July 12 <sup>th</sup>	
Room	Auditorium	
Time		
4.00 PM	Round Table 2:  Invited experts: R. Schenck Y. Le Guern H. Teulon A. Guerrero N. Dhoye I. Jouve A. Combelles J. Lacroix	<b>Title:</b> Application of LCA : knowledge transfer and best practices  <b>Purpose:</b> The second round table will be focusing on the decision makers and stakeholders of the construction sector. Given that standards and regulations already exist, the round table will discuss how to implement the LCA into practice and how to ensure that this implementation leads to real environmental improvement. The invited experts will have an experience regarding the implementation of LCA in practice. The round table will gather various professionals coming from research, consultancy, institutions, industries and construction companies. The discussions will be divided into several operational aspects like: the critical review and verification process of LCA data, tools and softwares used in practice, the feedback of professionals regarding the issues addressed by the use of LCA in the construction sector among others. An achievement of this first round table will be to contribute to better articulate the on-going implementation of LCA by the different stakeholders.  <b>Examples of questions that will be raised during this round table:</b>  <i>How to certify the LCA data that are used in the LCA tools?</i>  <i>How should be conducted the critical review / third-party verification process? How to ensure the independence of the parties?</i>  <i>How to adapt the LCA software for the construction sector to the needs of practitioners (architects, design offices, companies...)?</i>
5.15	<i>Best article award and closing session</i>	
5.30	<i>End of symposium</i>	

Date	Jeudi 12 Juillet		
Salle	Auditorium		
Heure	Session	Présentateurs	Thème
8.00	<i>Ouverture de l'accueil et des vestiaires</i>		
8.30	<i>Introduction</i>		
8.40	<i>Synthèse des présentations scientifiques des deux premiers jours</i>		
9.00	Normalisation	Schmincke E. (Five Winds International, Germany)	Présentation du cadre européen réglementaire et de la norme EN 15804 : Déclarations Environnementales des Produits (EPD) – Règles de base pour la catégorie des produits de construction
9.30		Boucher F. (AFNOR, France)	Application de la norme européenne EN 15804 dans un contexte national : exemple de la France avec le développement d'une annexe nationale complémentaire
9.50	Règlementation	Elalouf Z. (DHUP, France),	Exemple de mise en place d'un décret relatif à la déclaration environnementale des produits destinés à un usage dans les bâtiments
10.00		Wathier V. (CGDD, France)	De l'ACV vers une conscience de la consommation énergétique pour le citoyen, quel étiquetage?
10.10	<i>Questions</i>		
10.30	<i>Pause et session posters</i>		
11.00	Maîtres d'ouvrage	Rabiller M. (Nantes Métropole)	Prise en compte de l'ACV dans les projets de construction
11.10	Industriels	Sing Ch. (Lafarge, France)	Retours d'expériences sur l'utilisation de l'ACV dans la conception des produits
11.20		Boyeux B. (Bioressources constructions, France)	Retours d'expériences sur l'évaluation environnementale des produits bio-sourcés
11.30	Entreprises de construction	Gobin C. (EGF-BTP, France)	Intégration de l'ACV dans les projets de bâtiments
11.50	<i>Questions</i>		
12.00	<i>Déjeuner</i>		

Date	Jeudi 12 Juillet	
Salle	Auditorium	
Heure		
14.00	<i>Introduction</i>	
14.10	Table Ronde n°1:  Experts invités I. Blanc C. Gobin D. Kellenberger J. Payet M. Sié B. Peuportier S. Vaxelaire	<b>Titre:</b> Les limites de l'ACV pour les futurs enjeux de la recherche  <b>Objectif:</b> Cette table ronde abordera les faiblesses actuelles de la méthode ACV (d'un point de vue scientifique) notamment pour son application dans le secteur de la construction, ainsi que les questions soulevées pour son utilisation pratique. Les experts invités sont issus du monde de la recherche académique et industrielle, reconnus pour différentes compétences : connaissances sur les données et les indicateurs de l'ACV, leurs incertitudes et leur qualité, pour le secteur de la construction. L'une des retombées de cette table-ronde serait d'identifier de futurs enjeux de recherche.  <b>Exemples de questions qui seront soulevées:</b> <i>Quelles sont les incertitudes des données/ de la méthode/des résultats de l'ACV et comment les concilier avec l'utilisation de l'ACV dans les normes (ISO, CEN, programme EPD) et les réglementations?</i>  <i>Quels sont les besoins logiciels pour fournir des outils conviviaux et opérationnels, fiables et utilisables dans le secteur de la construction?</i>  <i>Comment s'assurer de la comparabilité des résultats entre les différents outils pour le secteur de la construction? Avons-nous besoin de méthodes et de bases de données unifiées?</i>
15.30	<i>Pause et session posters</i>	

Date	Jeudi 12 Juillet	
Salle	Auditorium	
Heure		
16.00	Table ronde n°2:  Experts invités R. Schenck Y. Le Guern H. Teulon A. Guerrero N. Dhoye I. Jouve A. Combelles J. Lacroix	<b>Titre:</b> Application de l'ACV: transfert des connaissances et bonnes pratiques  <b>Objectif:</b> La seconde table ronde se focalisera sur les décideurs et les différents acteurs du secteur de la construction. Etant donné que des normes et des réglementations existent déjà, la table ronde abordera la manière dont l'ACV peut être mise en application, et si son utilisation peut conduire à de réelles améliorations environnementales. Les experts invités ont une expérience dans l'application de l'ACV à divers niveaux d'activité : chercheurs, consultants, animateurs de réseaux, industriels et entreprises de la construction. La discussion sera articulée en plusieurs parties sur les aspects opérationnels: la revue critique et la vérification des données, outils, logiciels, le retour des professionnels sur les problèmes rencontrés par l'application de l'ACV dans la construction, le mode de transfert des connaissances entre recherche et application. L'une des retombées souhaitée de cette table ronde serait de contribuer à une meilleure articulation de la mise en pratique de l'ACV par les différents acteurs.  <b>Exemples de questions qui seront soulevées:</b> <i>Comment vérifier/certifier les données ACV qui sont utilisées dans les outils logiciels?</i> <i>Comment conduire et assurer l'indépendance des revues critiques?</i> <i>Comment adapter les outils ACV pour la construction et pour les besoins particuliers des différents acteurs (architectes, concepteurs, entreprises de construction...)?</i>
17.15	<i>Remise du prix du meilleur article et clôture du symposium</i>	
17.30	<i>Fin du symposium</i>	

<b>Article n°</b>	<b>First author</b>	<b>Poster title</b>
12051	Cuerda	Energy retrofitting: building more to reduce environmental impacts?
12052	Asdrubali	Electric lighting energy consumptions of buildings and consequences in life cycle assessment
12053	Aguilar	Life Cycle Assessment of Structural System in Brazilian Buildings
12054	Cuéllar-Franca	LCA applied to the residential construction sector in the UK: carbon footprint of a detached and terrace house
12055	Gómez	Comparative LCA of three types of conventional and mechanic parking systems
12056	Houel	Life cycle assessment – construction of the new bridge OVER the river Cher (france)
12057	Trocme	Using and improving LCA as a decision making process
12059	Salmon	Methodological improvements in life cycle analysis of buildings: results from the COIMBA project
12060	Waldman	The stellar apartments: multifamily housing preconstruction LCA of the upgrade from earth advantage to passive house energy standards
12064	Bernagaud	LCA of ventilation equipment for road tunnel
12069	Robertson	A Comparative LCA of mid-rise office building construction alternatives: laminated timber or reinforced concrete
12076	Dolezal	Austrian research project ECOTimber – wood, used in sustainable building constructions
12077	Hurel	Environmental product declaration of a solid oak parquet and a multi-layer parquet (produced by subscribers of the French parquet federation)
12079	Lopez	Development of a life cycle assessment tool for construction, maintenance and use of civil engineering works
12082	Paleari	Life Cycle Sustainability assessment for zero energy buildings
12083	Adam	Environmental assessment of aggregates production in France-Methods and Indicators
12087	Linkosalmi	Energy and carbon balances of box buildings
12091	Sazedj	Comparison of embodied energy and carbon dioxide emissions of masonry building and conventional building with reinforced concrete structure
12093	Rashedul	Exergetic LCA of construction material: a case study applied to polypropylene and polyvinyl chloride

<b>Article n°</b>	<b>First author</b>	<b>Poster title</b>
12096	Fontana	Building environmental assessment: the application of LCA and ecological footprint to supermarkets, two practical case studies
12097	Basti	An integrated approach for sustainable design. Methodology and experimental application on a case study
12098	Henry	Integration of the biodiversity concept in the LCA
12099	Milovanovic	The sustainable Prefabricated wall panel system made of recycled aggregates
12100	Poullot	CUB2D « Concevoir Urbaniser Bâtir pour le Développement Durable » – Sustainability simulator
12110	Sié	Solution for implementation of Life Cycle Assessment as a help to decision tool at the planning phase of a construction project
12112	Anderson-Skold	LCA as a basis for a checklist for energy efficiency in road construction
12113	Wang	Case Studies of Life Cycle GHG emission and energy consumption of Pavement Rehabilitation
12127	Bricout	Making comparable life cycle information on construction materials available to the building industry
12128	Leroy	SEVE, assessment system for ecological, technical alternatives