Buildings: Deep Renovation

Come è noto, il Ministero dello Sviluppo Economico ha avviato una revisione della Strategia Energetica Nazionale. Una revisione necessaria, considerati gli obiettivi climatici al 2030 e la rapidissima entrata in vigore dell’Accordo di Parigi. Nel comparto dell’edilizia sarà necessario un deciso salto di qualità. Le emissioni climateranti, stabili negli ultimi 25 anni a causa della crescita dei consumi energetici del terziario, dovranno infatti vedere alla fine del prossimo decennio un taglio compreso tra il 15 e il 26% in base all’obiettivo (-33% rispetto al 2005) indicato per l’Italia per i settori non energerivi, cioè non coperti dall’Emissions Trading System. Occorrerà dunque predisporre nuovi sistemi di incentivazione che progressivamente spostino l’attenzione dagli interventi di efficienza sulle singole costruzioni, sfruttando le opportunità dell’offerta del mondo delle innovazioni nei materiali, nelle soluzioni implantistiche e nelle modalità organizzative. Una delle strade che paiono interessanti ed applicabili in alcuni specifici contesti riguarda l’industrializzazione del processo di rifiualizzazione energetica nata con l’esperienza olandese di Energiesprong che si sta diffondendo in Francia, Regno Unito, Germania e che si è diffusa anche nel nostro Paese. La riduzione dei costi del 40%, il drastico contenimento dei tempi (palazzine di 3-4 piani rivisitate in 2-3 settimane) e l’azzzeramento dei combustibili fossili, rendono questo approccio particolarmente significativo.

As is known, the Italian Ministry of Economic Development has launched a review of the National Energy Strategy. This revision is necessary, given the climate targets for 2030 and the swift entry into force of the Agreement of Paris. In the building sector a remarkable qualitative leap forward will be required. The greenhouse gas emissions, whose levels have been stable over the past 25 years due to the energy consumption growth in the service sector, will indeed have to be reduced by 15-20% by the end of the next decade, according to the objective set for Italy (-33% compared to 2005) for non-energy intensive sectors, that is those not covered by the Emissions Trading System.

It will therefore be necessary to arrange new incentive systems that will gradually shift the focus from efficiency measures on individual apartments, typical of the tax credits of 65%, to more effective tools, such as those suggested by Enea and Green Building Council Italy which provide for the involvement of “Cassa Depositi e Prestiti” to anticipate large amounts of the needed capital.

At the same time, it is also necessary to increase the level of offer of the building sector, taking advantage of the opportunities provided by innovations in materials, system solutions and organizational tools. One interesting path that has applications in some specific contexts concerns the industrialization of the energy renovation process, started with the Dutch experience of Energiesprong that is spreading in France, UK, Germany and is being introduced also in our Country. The cost reduction of 40%, the drastic shrinkage of time needed (3-4-storey buildings regenerated in 2-3 weeks) and the resetting of fossil fuels, make this approach particularly significant.

Gianni Silvestrini
President of Green Building Council Italy
This contribution wishes to raise questions that aim at comparing the potential of photovoltaic material to conventional construction materials, and to suggest the possible steps needed to overcome the barrier of acceptance of PV in different urban contexts, different historic centers and different cultures. As stated in the previous article, sustainability, energy efficiency and onsite or nearby renewable energy sources are the most important concepts that contemporary architecture pursues for a zero energy or emission building model (ZEB). All cities and buildings around the globe are going to keep all the benefits that the wind and solar power have already witnessed on the earth surface. Photovoltaic (solar electric) modules are clean, safe and efficient devices that have long been considered a logical material for use in buildings. Recent technological advances have made photovoltaic (PV) systems suitable for direct integration into building construction. PV module size, cost, appearance and reliability have advanced to the point where they can function within the architectural parameters of conventional building materials. A building essentially provides free land and structural support for a PV module, and the module in turn displaces standard building components. The added value of colorful photovoltaic panels give to designer new opportunities of integrating artistically colored photovoltaic systems. Someone says that the PV panels disfigure the landscape, but a spontaneous question raises: who has declared that the red color of a tile or the grey color of the cement is better for all than a cobalt blue color of the PV cell?

Optimizing BIPV applications is a function of many variables: construction methods and materials, photovoltaic technology and module fabrication, insulation levels and orientation, and electrical costs. Architectural application of BIPV is generally applicable. Flat roofs differ from inclined ones primarily in the nature of the waterproofing layer (e.g., asphalt, membrane). Roof mounted systems which are not fully integrated may be either ballast mounted or rack mounted. Anyway, fully integrated BIPV roofing systems must perform the function of a standard roof and hence issues such as water tightness, drainage, and insulation are important for all systems.

It is really incredible how, despite of the low cost of PV per kW, many Italian building’s flat rooftops are not yet endowed with PV panels. Moreover, the flat position avoids, in those terraces with border curb, the problem of environmental constraints or aesthetic ones and also a flat PV panels layer-made rooftop displaces forward the maintenance costs of a standard floor terrace, this last one subject almost every 25 years to high costs of regeneration. In the II part of BIPV we will highlight the technologies for the integration of renewable energy sources on the façade, skylight, atria and shading elements.

Francesco Paola Lamachia
President of the first Italian Network of Zero-Energy Buildings
During the last months, EU countries have been finalizing the update of their Renovation Strategies, which will be delivered to the European Commission by April 2017. Today, the energy renovation rates of buildings, in particular deep renovation, are generally very modest and far from the levels that will enable the achievement of the long-term objectives referred to by Directive 2012/27/EU. The policies and measures adopted in almost all Member States so far are deemed ineffective to foster energy efficiency improvement of the building stock on a large scale. With the 2017 updates of national strategies, a qualitative leap is expected in terms of ambition and actual impact.

Build Upon, a two-year project funded in the frame of Horizon 2020, has supported Policy Makers in 13 countries with the purpose of encouraging, in fact, the significant increase in the impact of their strategies. Along with the European Network of the World Green Building Council, 13 national Green Building Councils, led by GBC España, joined efforts and developed coordinated paths of multi-sectorial dialogue, according to the many dimensions of the Union's diversity.

GBC Italy has led the partners in the key design phase of national dialogue strategies, elaborating methodologies, tools, criteria. Build Upon is currently the largest collaborative project in the world focused on building renovation. The introduction of collaborative policy making in the construction industry on such a broad scale is an innovative element with respect to the national and European systems of the renovation stakeholders that could be considered radical. The numbers state that the initial expectations corresponding to the project objectives have been collectively exceeded: supported by 250 active members of national work groups, nearly 2,000 key stakeholders (the target was 1,000) in nearly 100 events (80 was the target) have collaborated on targeted paths, shared barriers and best practices, in order to identify priority actions to be taken into consideration for the update of national strategies, forwarded then to competent Policy Makers.

Together with the involved stakeholders, the mappings of key stakeholders, of barriers to the diffusion of energy improvement and of successful practices have been codified and developed in coordinated terms for all the Countries participating in the project and others. On the open portal RenoWiki, hosted on the Build Upon website, it is possible to find about 750 European initiatives that represent the current reference for overcoming the barriers to the development of energy renovation.

Presenting the measure of the impact of initiatives, where available, RenoWiki is a tool that aims to support the comparison of solutions, analysis of replicability and dialogue among experts.

The reports of the 8 Italian dialogue events are available on the project website, with extended versions in Italian and the executive summaries in English. The route developed has been shared with 18 change leaders of the national work group representing ENEA and GBC Italia members. During the Italian workshops, 53 key stakeholders have identified 54 priorities for action, organized by category of barriers to the scaling up of building renovation and summarized in 10 priority action lines. More information is provided, starting with a summary of the discussion of the experts involved, to transparency in the release of degrees of consensus and support of stakeholder categories for priority actions. Numerous therefore the starting points available for in-depth analysis, but perhaps most of all it is worth highlighting the growth of a network of organizations and people that have been able to lavish contributions of extraordinary quality and quantity. To all we express our heartfelt thanks!

Sebastiano Cristoforetti
Italian Coordinator and Project Manager- Build Upon
Nel suggestivo ambiente del Pirelli
Hangar Bicocca, a Milano si svolge,
ogni ultimo martedì del mese, l’Innovation Pub,
um momento di confronto su temi scientifici e
technologici, un forum in cui studenti, ricercatori,
representanti della comunità scientifica e delle
aziende si incontrano in un contesto informale.
L’Innovation Pub è nato per soddisfare il bisogno di
fornire accesso alle informazioni necessarie per portare
un’idea innovativa fuori dai laboratori e sul mercato.
Ed è quello che sta accadendo a Glass to Power, società
Spin-Off dell’Università di Milano Bicocca costituita sei mesi
fa e che vede tra gli attori principali Management
Innovation.
Lo scorso 28 febbraio Emilio Sassone Corsi, Amministratore Delegato di Glass to Power, è stato invitato a
parlare all’Innovation Pub sul tema “Innovazione: dallo scouting
alla gestione - Glass to Power, come nasce un’azienda di
successo”. Dopo una breve introduzione in cui ha parlato della
metodologia NAUTILUS® e di come questa è stata applicata a due
esempi di successo (Green Energy Storage e Glass to Power), un
centinaio di persone sono intervenute attivamente al dibattito subissando
domande il relatore. Ne è venuto fuori un vero e proprio brainstorming
sulle opportunità di innovazione all’interno di una Università giovane e
dinamica come Bicocca e su come affrontare le tematiche del trasferimento tecnologico e dell’accesso al mercato.
L’intervento conclusivo è stato fatto dal Prof. Danilo Porro, Pro-Rettore
alla Valorizzazione della Ricerca, il quale ha presentato in antepenultima
un bellissimo video che annuncia la costituzione di una Fondazione tra le
Università di Milano Bicocca, Bergamo, Brescia e Pavia. Si chiamerà U4I, University
for Innovation, e avrà l’obiettivo di supportare l’ultimo miglio, quello più
difficile da percorrere per un’idea innovativa, perché
le idee di professori e ricercatori possano
tradursi in realtà. Ne parleremo in dettaglio su questa Newsletter quanti prima.

Glass to Power selected to represent Bicocca University
at Geneva 45th International Exhibition of Inventions

Dal 29 marzo al 2 aprile 2017, Glass to Power parteciperà su
invito dell’Università di Milano Bicocca al 45esimo Salone
Internazionale delle Invenzioni a Ginevra.
Il Salone Internazionale delle Invenzioni di Ginevra,
organizzato sotto l’alto patrocinio della
Confederazione Svizzera, dello Stato, della Città di Ginevra e dell’Organizzazione Mondiale
della Proprietà Intelectuale - WIPO è la più
importante manifestazione al mondo dedicata
esclusivamente all’invenzione. I partecipanti
troveranno più di 1,000 novità inedita pronte ad
essere commercializzate nei settori più diversi:
dall’Energia all’Informatica, dall’Orologeria al
Riscaldamento, dall’Agricoltura alla Medicina fino
all’Alimentazione, la Pubblicità e i Giochi. La
Giuria Internazionale costituita da 82 specialisti sarà incaricata di
esaminare ogni invenzione presentata al fine di conferire premi e
riconoscimenti. I numeri della scorsa edizione sono impressionanti:
un’area espositiva di 8.100 mq, 700 espositori da 40 Paesi, 57.000
visitatori da cinque continenti, 850 giornalisti radio e televisione.
L’edizione 2017 si presenta già oggi con prospettive migliori.
Glass to Power farà la sua parte!

In the suggestive environment of the
Pirelli Hangar Bicocca, in Milan the
Innovation Pub is held on the last Tuesday of
each month, a moment of discussion on
scientific and technological issues in a forum in
which students, researchers and representatives
of the scientific community and companies meet in
an informal context.
The Innovation Pub was started to satisfy the need of
providing the information necessary to bring an innovative
idea out of the laboratory and into the market. And that is
what is happening with Glass to Power, Spin-Off company of
the University of Milan Bicocca set up six months ago and
which has amongst its principal participants Management
Innovation.
On the 28th February Emilio Sassone Corsi, CEO of Glass
to Power, was invited to speak at the Innovation Pub on the theme
“Innovation: from scouting to management. Glass to Power, how a
successful company is born”. After a brief introduction in which he
spoke about the NAUTILUS® methodology and how this has been applied
to two examples of success (Green Energy Storage and Glass to
Power), about a hundred participants actively contributed to the debate
overwhelming the speaker with questions. What emerged was a real
brainstorming on the opportunities for innovation within a young and
dynamic University such as the Bicocca and on how to deal with issues
such as technology transfer and access to the market.
The concluding address was given by Prof. Danilo Porro, Rector’s
delegate for the exploitation of Research, who presented as a
preview a great video announcing the
constitution of a
Foundation between the
University of Milan
Bicocca, Bergamo,
Brescia and Pavia. It
will be called U4I,
University for
Innovation, and will have the
objectives of supporting the last mile,
the most difficult for an
innovative idea, so that
the ideas of professors and
researchers can become reality.

Glass to Power will participate, by invitation of the University of Milan Bicocca, in the 45th
International Exhibition of Inventions in Geneva.

The International Exhibition of Inventions in Geneva,
organized under the patronage of the Swiss
Confederation, the State, the City of Geneva and
the World Intellectual Property Organization
-WIPO is the most important event in the world to
be exclusively devoted to inventions.
Participants will find more than 1,000 absolute
novelties ready to be marketed in various fields:
from Energy to Computer Sciences, from Watch and
Clockmaking to Heating, from Agriculture to
Medicine and up to Foodstuffs, Advertising and
Games.
The International Jury made up of 82 specialists will judge each
invention exhibited and will select a number of them for prizes and
awards.
The figures from the 2016 edition are impressive: an exhibition area of
8,100 square meters, 700 exhibitors from 40 countries, 57,000 visitors
from five continents, 850 radio and television reporters. The 2017
edition presents itself with better prospects.
Glass to Power is ready play its part!