



# European Construction Sector Observatory

## Policy measure fact sheet

# Luxembourg

## NEOBUILD Innovation Hub

## Thematic Objective 3

February 2017

<b>Implementing body:</b>	NEOBUILD SA
<b>Key features &amp; objectives:</b>	Establishment of an innovation hub to support the innovation needs of construction companies and to promote innovation in eco-friendly construction through project developments, technological demonstrations and networking events and conferences.
<b>Implementation date:</b>	05/2011 – ongoing
<b>Targeted beneficiaries:</b>	Construction companies
<b>Targeted sub-sectors:</b>	Construction, eco-innovation
<b>Budget (EUR):</b>	Not disclosed

### In a nutshell

In Luxembourg, eco-innovation and the circular economy are priority areas, with the country boasting a thriving eco-innovation ecosystem of cleantech companies active in the fields of eco-construction and renewable energy<sup>1</sup>. They are actively supported by numerous public agencies, research organisations and the government. However, there has been a decline in the average number of construction-related patent applications<sup>2</sup>.

The Council for Economic Development and Construction (CDEC) was founded in 2008 to help construction enterprises to construct more energy efficient and environmentally responsible buildings. CDEC created the NEOBUILD Innovation Hub in 2011 in order to institutionalise sustainable and ethical construction and operate as an information platform for eco-friendly construction. NEOBUILD SA is run by NEOBUILD SA, an independent, private entity to promote research, development and innovation in the sustainable construction sector.

As the first technological innovation hub in sustainable construction, NEOBUILD aims to become a platform for the promotion of innovative sustainable construction technologies and solutions for SMEs, to contribute and manage their development,

and support their implementation in Luxembourg.

### General description

NEOBUILD is an innovation hub that supports and promotes innovation projects on sustainable construction. The hub provides a range of innovation and business support services to organisations that are developing innovation projects. Services include, for example: innovation consulting, coaching and management; building information management (BIM) solutions; and an in-house test laboratory for new products, materials and systems.

Supported by the Ministry of Economy and Foreign Trade, NEOBUILD is forming alliances at national level – for example, with the Centre de Recherche Public Henri Tudor (CRP-HT) as the co-animator of debates. NEOBUILD is also building on collaboration with other European countries, such as France, Germany, Belgium and Switzerland.

NEOBUILD has three main lines of activity:

- **Economic Development** services include Technology Watch, information awareness, technology transfer for sustainable construction, development of new businesses and skills;
- **Innovation services** include: technological innovation project development and support; R&D project identification and partnership building; RTDI infrastructure; and innovation promotion work;
- **Management platform for RTDI projects:** Implementation of technological innovation projects on sustainable construction, identification and evaluation, financing and development, business and commercialisation models.

The hub aims to support and develop innovative solutions by providing companies with the help they need to develop projects and commercialise the technologies and solutions they create in the following areas of competence:

- Eco-materials, such as innovative applications, multi-functional elements, performance approaches, eco-design;

- Eco-technologies (technical equipment, management flows);
- Green ICTs;
- Project design, management and organisation (management and organisation know-how, global cost savings, certification, labelling).

Alongside a multi-phase process to help companies develop innovative projects, NEOBUILD also provides support in the monitoring and implementation of projects.

NEOBUILD's activities have resulted in the setup of a number of pilot projects, including:

- ENDOTHERM/ENDO VAC – Development of prefabricated concrete blocks with an integrated thermal isolator at high and very-high performance;
- DECID – Foresight laboratory on the conception and construction of buildings at medium and long-term, grouping all relevant stakeholders of the sustainable construction sector in Luxembourg;
- Sustainable Construction Label – Development of a label for sustainable buildings. The objective is to develop a labelling framework in Luxembourg in order to substitute for foreign labels that focus on the import of foreign technologies;
- Geothermal inverse activation of concrete foundations – Storage and transfer of geothermal energy through probes in deep concrete foundations;
- Build Flow – Online management system for enterprises in the construction sector, notably SMEs, including workflow tools (price offers, invoices, databases, clients), and a website host for all participants.

NEOBUILD has recently also set up two INTERREG projects at European level.

NEOBUILD acts as a platform for companies active in the construction sector. It is financed to great extent by offering different kinds of service packs to its members:

- **Standard Service:** Cost-free and available by signing up on the website. It includes access to the newsletter, access to the forum, restricted access to the platform and direct online registration for events in the cluster;
- **Bronze Service Pack:** Access to the cluster's infrastructures (subject to availability); preferential rates for events organized by the cluster (following the event) and access to the NEOBUILD online platform, i.e. access to collection of technical-commercial data;
- **Silver Service Pack:** Privileged access to the RDI services of the cluster; access to the technological monitoring service; restricted access to monitoring data from the cluster laboratories; preferential access to advertising space in the cluster and access to the laboratory and test rooms for setting up innovative products;
- **Service Pack Gold:** In addition to the Silver Service Pack, this service pack includes access to NEOBUILD building

measurement equipment as well as the monitoring system and results.

Membership fees depend on the size of the company. As CDEC members have already contributed financially to the setup of NEOBUILD, a 50% reduction is provided.

**Table 1: Monthly membership fees for NEOBUILD by member company size**

	1-15	16-50	51-250	250-1000	>1000
<b>Standard</b>	€0	€0	€0	€0	€0
<b>Bronze</b>	90	150	240	450	900
<b>Silver</b>	180	250	400	700	1000
<b>Gold</b>	540	750	1200	2100	3000

Source: Neobuild (2011). *Règlement d'Ordre Intérieur*<sup>3</sup>

NEOBUILD also receives contributions from two construction federations representing 800 enterprises, from which it receives a share of their membership fees<sup>4</sup>. There are also a dozen private companies that contribute directly to the activities. The majority of expenses are then used for activities such as conferences and workshops, as well as the organisation's personnel. Some revenues are also generated from services provided by NEOBUILD to other entities, such as the organization of exclusive events.

In 2013, the organisation's newly built headquarters, the NEOBUILD Innovation Centre, opened its doors. The building is a semi-experimental building, complying with the Horizon 2020 "zero energy" standard. The building covers a surface area of 2,100m<sup>2</sup> and also hosts the Living Lab. The purpose of the Living Lab is to create a facility that captures the physical parameters of the environment in which tested construction technologies are intended to be used, e.g.: temperature and humidity<sup>5</sup>. The Centre's facilities also include a showroom to enable manufacturers to showcase and demonstrate their products and innovations.

## Achieved or expected results

NEOBUILD has achieved to develop a very good reputation known by enterprises and the government, both confirming the impact of its conferences and events. What is more, NEOBUILD reports are well known and are circulated widely across different sectors. Collaboration is taking place on a permanent basis with different organizations, in particular in the neighbouring countries, e.g. Belgium, the Netherlands and France. Collaboration is also taking place with foreign investors, frequently in order to develop innovative products.

One of NEOBUILD's successes is the creation of a stable community of construction companies, research institutes and public organisations. Around 1,500 participants are regular attendants of NEOBUILD events and conferences. Today, the Innovation Pole can draw upon a significant number of followers

on social media, including newsletter receivers – there are currently close to 700 subscribers. In addition, more than 5,000 people receive the group’s magazine comprising a wide range of different organisations, including banks and real estate agencies.

NEOBUILD has also set up six working groups on a variety of subjects:

- NZEB: Nearly Zero Energy Buildings;
- Lenoz: Luxembourg sustainable housing certification;
- Acoustic: Rules of Good Practice;
- Ventilation: Rules of Good Practice;
- BIM: Building Information Management (National Strategy);
- BIM-Enterprises: Building Information Management (coordination enterprise).

**Table 2: Key impact data on NEOBUILD**

Number of recipients of the NEOBUILD magazine	+5000
Number of participants in conferences	+2000
Number of subscribers to the newsletter	+700
Number of enterprises engaged in projects	+200
Number of materials, products and integrated processes through NEOBUILD Innovation Centre	+100
Number of events organised to date	+30
Number of innovation projects developed	+20

Source: NEOBUILD presentation: *Le NEOBUILD Innovation Living Lab Précurseur des Zero Energy Buildings*<sup>6</sup>

NEOBUILD is contributing to the implementation of objective 3 of the European Construction 2020 Action Plan<sup>7</sup>. In its role as Luxembourg’s first technological innovation pole for sustainable construction, NEOBUILD’s aim and remit is to work with companies to support the research, development and commercialisation of innovative solutions that target resource efficiency and environmental performance. It is also designed to accelerate the dissemination and uptake of innovative solutions and best practices.

## Perspectives and lessons learned

From the **perspective of NEOBUILD**, the initiative shows that despite being the first innovation hub of its kind, it makes sense to launch initiatives with the support of the private sector. According to NEOBUILD, one of its main assets, and an advantage over public sector organisations, is that it is operating in a business environment. As a result, it can interact directly with industry and businesses to gain a first-hand understanding of the themes that they would like to see implemented and supported. NEOBUILD can then take appropriate action<sup>8</sup>. The organisations also profit from the size of the country that allows it to react rapidly to emerging social and economic developments.

One of the difficulties that the organisation faces is that NEOBUILD is a pioneering platform on eco-innovation in Europe. As a result, there are hardly any lessons which can be learned from

previous initiatives. Despite being a small and agile country with the capacity to rapidly implement initiatives, Luxembourg’s construction sector is still a traditional business sector which tends to be slower than others to react to new developments. NEOBUILD, on the other hand, is able to react more rapidly to new developments which can complicate concerted action and collaboration with the public sector. The result is that some topics for events and conferences can occasionally be outdated.

Despite a supportive attitude from the government, receiving direct financial support was more difficult as NEOBUILD often deals with more technical issues. Even though the participation of public sector representatives in NEOBUILD events and conferences is relatively high, the organization of joint projects with the government proved to be more challenging.

An additional and more internal challenge for the NEOBUILD enterprise is that despite being available for different sectors and enterprises, financial support only comes from certain companies. This can be problematic because the financial supporters at times demand a special treatment.

From the **government perspective**, which has been supportive of NEOBUILD, energy efficiency is one of Luxembourg’s cornerstones to reach the 20-20-20 climate goals. Notably the building sector is the most vital sector to increase energy efficiency<sup>9</sup>. Innovation in eco-friendly construction, as supported by NEOBUILD, is an important element to ensure technological progress.

For the Ministry of the Economy the NEOBUILD Innovation Pole is a concrete example of how the circular economy can be put into practice<sup>10</sup>. Not only does it engage in valuable experimentation work with new materials, processes and technologies, it also provides very comprehensive support to construction companies, which is particularly beneficial for SMEs and that often lack the capacity to test their innovations in a Living Lab facility. Through conferences and events, the Innovation Pole is also facilitating knowledge transfer and the exchange of good practices between construction enterprises<sup>11</sup>.

From the **perspective of Lux Real, an association of real estate developers**, the NEOBUILD Innovation Centre is an effective testbed for the development of eco-friendly materials and technologies in construction. Enterprises are given the opportunity to test technologies under different temperatures, a facility that can be of great value to SMEs in construction in particular<sup>12</sup>.

Furthermore, the innovative potential of the NEOBUILD Innovation Centre is already reflected in the organisation’s building, a highly functional and customised building. An additional value of NEOBUILD for architects and real estate developers was the Sustainable Construction Award, organised in 2015 by NEOBUILD, together with Construction21. Next to the importance of learning about sustainable buildings all over Europe, and the value that this

brings, the laureates and winners receive considerable press attention which is useful for eco-friendly building in Europe.

## Endnotes

- <sup>1</sup> Luxinnovation, Luxembourg Ecoinnovation competencies, March 2015:  
<http://www.luxinnovation.lu/Publications/Luxembourg-Cluster-Initiative/Luxembourg-EcoInnovation-Competencies>
- <sup>2</sup> Joint Research Centre, IRI – Economics of Industrial Research & Innovation, The 2015 EU Industrial R&D Investment Scoreboard:  
<http://iri.jrc.ec.europa.eu/scoreboard15.html>
- <sup>3</sup> Pôle d'innovation technologique de la construction durable - Règlement d'Ordre Intérieur.
- <sup>4</sup> These are the Fédération des Entreprises de Construction et de Génie Civil (<http://www.fda.lu/organisations-membres/federation-des-entreprises-de-construction-et-de-genie-civil>) and the Groupement des Entrepreneurs du Bâtiment et des Travaux Publics.
- <sup>5</sup> European Commission, Business Innovation Observatory, 2013:  
<http://ec.europa.eu/DocsRoom/documents/13410/attachments/2/translations/en/renditions/native>
- <sup>6</sup> NEOBUILD, Le NEOBUILD Innovation Living Lab Précurseur des Zero Energy Buildings 2020:  
[http://www.businessclub-luxembourg.fr/fileadmin/user\\_upload/batimat\\_2015\\_neobuild\\_1.0.pdf](http://www.businessclub-luxembourg.fr/fileadmin/user_upload/batimat_2015_neobuild_1.0.pdf)
- <sup>7</sup> European Commission, Construction 2020 Action Plan, 2012:  
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0433:FIN:EN:PDF>
- <sup>8</sup> Interview with Francis Schwall, Director of NEOBUILD.
- <sup>9</sup> Info Green Luxembourg, Inauguration officielle du NEOBUILD Innovation Center, June 2015:  
<https://www.infogreen.lu/Inauguration-officielle-du-Neobuild-Innovation-Center.html>
- <sup>10</sup> Ibid.
- <sup>11</sup> Information exchange with Jacques Thill, Ministry of the Economy of Luxembourg.
- <sup>12</sup> Telephone Exchange with François Thiry, LuxReal.