Schroeder 2020

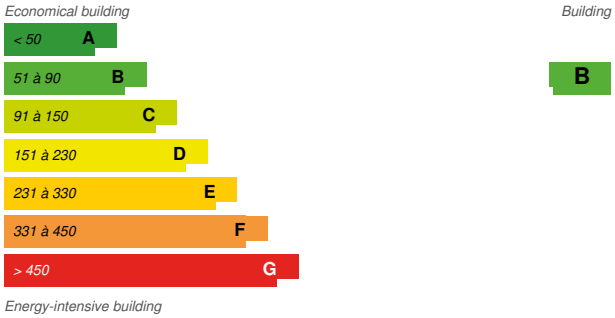
by Schroeder & Associés / 2021-01-07 06:37:51 / Luxembourg / 6671 / FR

Primary energy need :

86 kWhep/m².an

(Calculation method : RGD du 31 août 2010 - bâtiment fonctionnel)

ENERGY CONSUMPTION



Building Type : Office building < 28m
Construction Year : 2018
Delivery year : 2020
Address 1 - street : 13 rue de l'Innovation L-1896 KOCKELSCHEUER, Luxembourg
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 15 000 m² SHON (fr)
Construction/refurbishment cost : 25 000 000 €
Cost/m2 : 1666.67 €/m²

Certifications :

DGNB DGNB

General information

This building was awarded the Health & Comfort Prize of the Green Solutions Awards 2020-21, at both the national and international levels.

In 2013, the idea of building a new office building for the head office of Schroeder & Associés SA was born. After a long evaluation of available construction sites, the choice fell in 2016 on a plot in the new area of 'PARCLUXITE' activities in Kockelscheuer, located to the south of Luxembourg City.

We have tried to transpose our slogan “Engineering the future together” as much as possible in the design of our building, a landmark building that resembles a firm of consulting engineers resolutely oriented towards the future.

See more details about this project

https://paperjam.lu/article/secteur-construction-tourne-ve
https://paperjam.lu/article/schroeder-associes-demenage-a-

Data reliability

3rd part certified

Photo credit

Raoul Somers

Stakeholders

Contractor

Name : Schroeder & Associés
Contact : contact@schroeder.lu / +352 44 31 31 - 1
https://www.schroeder.lu

Construction Manager

Name : AU21
Contact : +352 46 15 61
http://www.au21.lu

Stakeholders

Function : Contractor

Schroeder & Associés

+352 44 31 31 201

https://www.schroeder.lu
Client - Structure

Function : Designer

ARCHITECTURE & URBANISME 21

+352 46 15 61

Architect

Function : Other consultancy agency

GOBLET LAVANDIER & ASSOCIÉS

+352 43 66 76 1

Engineering-technical

Function : Others

BCR

+352 44 31 31 500

Sign up

Function : Others

NEOBUILD

+352 26 59 56 75

Innovation advice

PARC LUXITE / POUDRERIE

+352 36 70 62 387

Activity park

Function : Others

äResto

+352 26 17 73 1

Restaurant

Function : Others

ERNST & PARTNER

+49 651 910420

Landscaper

Function : Others

BIM CONSULT

+352 28 55 38 – 1

BIM Specialist

Function : Others

SECOLUX

+352 46 08 92 1

Fire expert / Control office

Service Incendie de Roeser

+352 36 92 32 254

Firefighter / Technical Service

SL – SANDRA LEIDNER

+49 651 99147761

Restaurant design

Function : Others

VIRTUAL RANGERS

info@virtual-rangers.com

VR application Building visualization

Contracting method

Separate batches

https://www.construction21.org/luxembourg/data/sources/users/1046/20210107060121-bim-award-et-dalux---intervenants.docx

Owner approach of sustainability

In 2013, the idea of building a new office building for the head office of Schroeder & Associés SA was born. After a long evaluation of available construction sites, the choice fell in 2016 on a plot of the new business zone " PARCLUXITE "in Kockelscheuer, located to the south of the City of Luxembourg.

We have tried to transpose our slogan “Engineering the future together” as much as possible in the design of our building, a benchmark building that resembles a firm of consulting engineers resolutely oriented towards the future.

The design of the supporting structure was the subject of a competition of ideas from our various teams of internal experts. The decision was taken on the basis of a multi-criteria analysis integrating parameters related to ecology, circular economy, long-term flexibility, construction costs and times, site logistics, and aesthetics. The chosen concept is characterized by an ideal integration of each available construction material, such as reinforced concrete, metal framework and construction timber. The strengths of each material are used to the best in order to ultimately provide a durable and functional building.

The entire building was modeled using the *Building Information Modeling (BIM) method, which made it* possible to have continuous exchanges within the study group between the architect and the civil and technical engineers. The production plans for the site were generated based on the coordinated BIM model and conflicts on site were reduced considerably.

As we have opted for a new concept of workspaces based on open offices combined with collaborative spaces “Think-tanks” as well as more informal meeting spaces “Lounges”, we have set up working groups. interns who had the task of defining and developing new working and collaboration methods. In parallel with the development of the studies and the implementation of the project, “All staff” meetings were organized to inform and involve employees in the realization of our “SA2020” project.

Architectural description

When the company Schroeder & Associés decides to embark on the construction project of its own office building, its requirement is to create a benchmark building that is like a firm of consulting engineers resolutely oriented towards the future.

“Engineering the future together”, its new slogan describes this state of mind well.

The mission of Architecture & Urbanisme 21 Yvore Schiltz et Associés consisted in implementing the visions of the client, developing a functional building and creating a place allowing employees to live an intense relationship with their workplace and the surrounding nature. . This has meant giving up the rigidity of a classic administrative building, the challenge being to free up a fluid dimension close to nature, particularly in terms of traffic flows and meeting areas.

The project had to excel both in terms of the quality of the implementation and the functionality of the spaces, and in terms of the innovative technicality and durability of the construction.

An international competition aiming to develop different possible construction methods in order to achieve a hybrid construction. Thus the supporting structure and the slabs were made of reinforced concrete.

One of the main priorities of the project being prefabrication, most of the load-bearing elements and in particular the active slabs were produced in the workshop and assembled on site. This procedure allowed precise implementation of the technical elements to be integrated into the slabs and ensured rapid assembly on site. Made up of wooden construction modules, the facade elements were entirely made in the workshop. Thus, the integration of glazed frames and lamellar toroids could be carried out under optimal conditions, guaranteeing high precision of assemblies and connections. Only the final cladding was installed directly on site.

- Yvore Schiltz

If you had to do it again?

We could have supported the architect even more closely in the APS phase by our teams of in-house experts, which would have enabled even better development of the construction materials used.
As well as the AR modeling by the Virtual Rangers team which could also have already been done in the APD phase of the project, which would have facilitated dialogue and collaboration in internal working groups.

Building users opinion

From the point of view of BIM stakeholders:
The use of the BIM method in the project brought unexpected fruits very early on. Not only did it allow better collaboration within the study group, but it also allowed collaborators, future users of the office, to project themselves on the site and in the building. During the “All staff” meetings, it was not simply a question of keeping our colleagues informed of decisions and progress of the work, but rather of an exchange open to debate and receptive to ideas and criticism. Therefore, people who were not directly involved in the project felt included and had a better vision of the “SA2020” concept.

From the occupants' perspective:
- Modern solar collector automatic shutter
- Good temperature, good brightness
- Terrace for pleasant dining
- Green walls inside the very pretty building
- Multimedia system: very satisfied with the televisions, computers and IT equipment in the meeting rooms
- The building is adapted to our needs and facilitates communication between colleagues, in particular thanks to its large spaces and friendly break rooms. In addition, we are lucky to be in the middle of the forest and close to the main axes.

Energy

Energy consumption

Primary energy need : 86,00 kWhep/m^2.an

Primary energy need for standard building : 115,00 kWhep/m^2.an

Calculation method : RGD du 31 août 2010 - bâtiment fonctionnel

Final Energy : 95,00 kWhef/m^2.an

Breakdown for energy consumption :
31 kWh / m2. year in electricity 64.1 kWh / m2 year in heating

Envelope performance

More information :
Exterior wall: 0.176 W / m2K Roof: 0.103 W / m2K Bottom slab: 0.159 W / m2K Vertical windows: 0.750 W / m2K Horizontal windows: 2 W / m2K

Air Tightness Value : 1,00

Renewables & systems

Systems

Heating system :

- Wood boiler

Hot water system :
- Wood boiler

Cooling system :
- Tape
- Radiant ceiling

Ventilation system :
- Double flow heat exchanger

Renewable systems :
- Solar photovoltaic
- Wood boiler

The high energy performance envelope as well as a suitable mass and inertia guarantee almost zero energy consumption (NZEB). The residual energy need is covered by renewable energy: pellet boiler and photovoltaic panels.

Solutions enhancing nature free gains :
Night ventilation system

Smart Building

BMS :
The building is designed as a connected building
Heating: regulators and sensors
Automatic shutters: solar collector
Electromobility: charging stations
Think-tank and meeting rooms: screen, webcam, microphone, connection of your own computer remotely ...
Parking: a special S&A interactive app enables information on available parking spaces, and remote consultation and reservation of the services offered in the building.

Users' opinion on the Smart Building functions :

Employees are very satisfied with the smart building functions that meet their needs.

Environment

Life Cycle Analysis

Eco-design material :

The building, by its structural choice, is fully accessible, modular, flexible, and removable. Its design corresponds to the "Building in layers" philosophy. The reinforced concrete load-bearing structure is reduced to slabs resting on posts, central cores and stairwells as well as a few load-bearing walls. The facades are made up of prefabricated timber frame elements and OSB bracing panels with blown cellulose insulation, which allow element replacement or end-of-life dismantling.

The use of BIM technologies throughout the chain, from design, construction and operation, allows the dismantling or reuse of end-of-life elements and materials to be programmed through a materials passport.

Indoor Air quality

Ventilation with recovery of energy and humidity in the winter phase, a CO2 detector with automatic adjustment, ecological, breathable, bio-based materials, and maintenance of the building with non-emissive products, make it possible to guarantee the quality of the building. optimal indoor air. Particular attention has been paid to the choice of construction materials: the vast majority of pollutant-free materials were chosen and checked beforehand before their implementation on site.

The rate of formaldehyde is, for the 3 measuring points: 0.004 mg / m3 - 0.006 mg / m3 - 0.009 mg / m3

Comfort

Health & comfort :

From the first reflections on the new headquarters of Schroeder & Associés, sustainable construction and the well-being of the future occupants of the building were among the main objectives.

The work areas are designed as protected, partitioned spaces, in a semi-transparent approach that offer both privacy and conviviality. Common workspaces, lounges and the company restaurant promote communication between employees. The workstations are adjustable and adaptable to the morphology of each employee, the furniture can be dismantled and repaired in the C2C spirit.

Particular attention is paid to the acoustic and visual comfort of the offices: natural and artificial lighting with detection of lighting conditions and automatic or

manual adaptation.

Acoustic comfort :

The new headquarters of Schroeder & Associés is located in a quiet area in the immediate vicinity of the City of Luxembourg. Surrounded by 580 hectares of woods and sheltered from the anthropogenic noise of the economic activities of the capital, it presents itself as a haven of peace and a base of tranquility, without significant road traffic.

Facade elements meeting the thermal requirements of a class A building, their sound insulation performance far exceeds the normative demands for sound protection against the relevant exterior sound levels. Windows closed, no outside noise penetrates the premises, with open windows, the fields of birds dominate the soundscape!

During the development phase of the project, great importance was given to the acoustic comfort of employees who work in semi-private offices designed for up to 4 people at most. This choice was made to create an environment "without doors", but still allowing a minimum of sound protection between the respective offices. By means of an in-depth acoustic study, the various STI indices (Speech Transmission Index) between offices were simulated to deduce the necessary acoustic correction measures in the offices and corridors, in order to guarantee sufficient confidentiality between the different offices of the collaborators. In this context, not the limit of the noise level Leq was the acoustic indicator not to be exceeded, but the named STI. This reflection emanates from recent normative approaches, that it is not the sound level of the "noise" that is prejudicial to the acoustic comfort of employees, but that it is the inconvenience of spoken, unsolicited and irrelevant communication (ISE - Irrelevant Sound Effect) which come to the attention of people supposed to apply sustained cognitive efforts.

In order to be able to communicate with maximum intelligibility and in a suitable technical environment, the forty employees per wing have five fully equipped closed volumes (meeting rooms and think-tanks). Any formal and informal conversation is supposed to be relocated in these closed volumes with perfect soundproofing vis-à-vis semi-private offices. This choice was made deliberately, all the staff of Schroeder & Associés are experiencing this new cohabitation in a very positive way, the Management included and which, too, has given up closed and confined offices in favor of better communication and greater availability. .

Products

Product

Plastering / Partition / Insulation

KNAUF

09001 31-1000

Product category : Finishing work / Partitions, insulation

The solution was well accepted.

Windows

Metalica

+352 55 21 56 1

The solution was well accepted.

Light fixtures

Zumtobel

+352 26 44 03 50

Product category : HVAC, électricité / lighting

The solution was well accepted.

Concrete

Feidt

+352 26 12 62 10

Product category : Structural work / Structure - Masonry - Facade

The solution was well accepted.

Carpentry

Menuiserie Kraemer

+352 80 92 18 1

Product category : Finishing work / Millwork - Hardware

The solution was well accepted.

Carpet

Milliken

+44 20 7336 7290

The solution was well accepted

Floors

Lindner Group

+49 8723 20-0

Product category : Finishing work / flooring

The solution was well accepted.

Costs

Construction and exploitation costs

Renewable energy systems cost : 200 000,00 €

Cost of studies : 3 400 000 €

Total cost of the building : 27 320 000 €

Urban environment

The orientation of the building on the plot has made it possible to create three characteristic exterior areas: the entrance square, the large central patio giving access to the restaurant, the small patio with a landscaped outdoor space forming the transition from the square to the forest. .

Vegetation: Maximum use of local shrubs

Entrance area / access road: Delimitation of spaces by a cut hedge, flower beds with covering vegetation, raised bed with assortment of perennials and herbs, solitary shrubs

Courtyard: Raised flowerbeds with assortment of perennials and herbs, solitary shrubs

Park: Large shrubs arranged randomly in the park, grassy islets. Development of a forest edge around the property, made up of wild plants and shrubs typical of the region

Land plot area

Land plot area : 7 750,00 m^2

Built-up area

Built-up area : 52,00 %

Parking spaces

From the creation of the building, the motto has been to optimize the infrastructure, especially with regard to parking spaces for vehicles. On the one hand, the number of parking lot users has increased through the promotion of carpooling and on the other hand through intelligent management through an application for booking and releasing parking spaces.
60% of employees said they were ready to carpool. Thanks to an internal search for a carpooler, the percentage of officially registered carpooling was increased from 3% to 16%, or from 11 to 58 employees.
The IT department of Schroeder & Associates has also developed a system for intelligent management of parking spaces through an application. The goal is to increase the occupancy rate of current locations (cars, motorbikes, PRM).

Parking position: Underground 2 levels
Number of pitches 200
(including vehicle service spaces 23 / electro parking spaces 10 / carpooling spaces 25 / individual sites 140/2 disabled)
Moto 10 pitches
Bike Pitches 20
Scooter pitches 10

Outdoor parking
3 delivery
11 Visitors (including 2 electro and 1 Handicapped)
10 bikes and 10 scooters

Building Environnemental Quality

Building Environmental Quality

- Building flexibility
- biodiversity
- works (including waste management)
- consultation - cooperation
- acoustics
- comfort (visual, olfactive, thermal)
- waste management (related to activity)
- water management
- energy efficiency
- renewable energies
- maintenance
- building end of life management
- mobility
- building process
- products and materials

Contest

Reasons for participating in the competition(s)

En 2013 est né l'idée de construire un nouvel immeuble de bureaux pour le siège social de Schroeder & Associés S.A. Après une longue évaluation de sites de construction disponibles, le choix s'est porté en 2016 sur une parcelle de la nouvelle zone d'activités« PARCLUXITE » à Kockelscheuer, située au sud de la Ville de Luxembourg.

Nous avons essayé de transposer au maximum notre slogan « Engineering the future together » dans la conception de notrei mmeuble, un immeuble de référence qui soit à l'image d'un bureau d'ingénieurs conseils résolument orienté vers l'avenir.

La conception de la structure portante a fait l'objet d'un concours d'idées de nos diverses équipes d'experts internes. La décision a été prise sur base d'une analyse multicritère intégrant les paramètres liés à l'écologie, l'économie circulaire, la flexibilité à long terme, les coûts et les délais de construction, la logistique de chantier, et l'esthétique. Le concept retenu se caractérise par une intégration idéale dechaque matériel de construction disponible, i.e. le béton armé, la charpente métallique et le bois de construction. Les points forts de chaque matériel sontutilisés au mieux afin de fournir en fin un immeuble durable et fonctionnel.

La modélisation entière de l'immeuble a été réalisée selon la méthode du Building Information Modeling (BIM). Ayant au préalable, suivi des formations approfondis sur les logiciels compatibles avec cette méthodologie, nous a permis d'avoir des échanges continus au sein du groupement d'études entre l'architecte et les ingénieurs en génie civil et génie technique. Grâce à cette coordination, les conflits sur chantier ont été considérablement réduits.

Comme nous avons opté pour un nouveau concept d'espaces de travail basé sur des bureaux ouverts combinés avec des espaces de collaboration « think-tanks » ainsi que des espaces de rencontres plus informelles « Lounges », nous avons mis en place des groupes de travail internes qui avaient la tâche de définir et développer des nouvelles méthodes de travail et de collaboration. En parallèle de l'évolution des études et de la réalisation du projet, des réunions « All staff » ont été organisées pour informer et impliquer les collaborateurs(rices) dans la concrétisation de notre projet dit « SA2020 ».

L'idée de départ était de présenter le bâtiment à sesfuturs occupants de façon innovante, décalée et sur différents supports, àsavoir une tablette en réalité augmentée, un écran tactile et un casqued'immersion virtuelle (VR). « Le défi a été de réaliser un projet qui soitdirectement compatible avec les trois supports. Le bâtiment est très gros, trèslourd aussi. Faire entrer autant de données dans une tablette, placer autantd'objets dans une scène tout en gardant une expérience utilisateur agréable etfluide, et en faisant en sorte que cela reste beau pour permettre auxutilisateurs de se projeter, était d'une grande complexité technique »

Building candidate in the category

Santé & Confort

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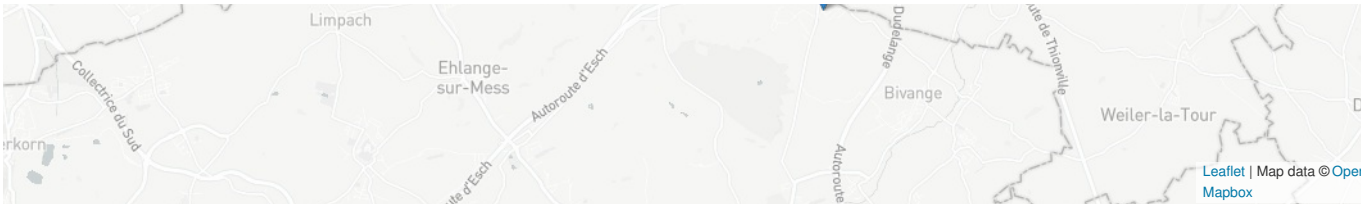

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