Multi-Comfort House

Design 60 stories tower in New York. USA

ISOVER MULTI-COMFORT HOUSE STUDENTS CONTEST

7th International Stage – Prague 2011

CertainTeed SAINT-GOBAIN

iZOCAM

ISOVER SAINT-GOBAIN

Prague, Czech Republic

May 18–21, 2011

Willkommen!
Сардэчна запрашаем!
Добре дошли!
Dobro došli!
Vítame Vás!
Tere tulemast!
Tervetuloa!
Кош келдіниздер!

Hoşgeldiniz!
Laipni lūgti!
Sveiki atvykę!
Bine ati venit!
Vítáme vás!
Dobrodošli!
Bienvenidos!
Welcome!

more information on
www.isover-students.com

Multi-Comfort House

Content

Multi-Comfort House

Introduction

HISTORY

The 7th International Stage of ISOVER Multi-Comfort House Students Contest took place in the beautiful city of Prague during 18th and 21st of May.

This years competition gathered students from 19 countries and 45 Universities.

The newcomers from Belarus, Rhode Island, New York (USA) joined the participants form: Austria, Bulgaria, Croatia, Czech Republic, Estonia, Finland, Germany, Kazakhstan, Latvia, Lithuania, Romania, Serbia, Slovakia, Slovenia, Spain, Turkey, United Kingdom and the Pennsylvania (USA).

ASSIGNMENT

The subject of the 2011 competition was the creative approach to the concept of energy efficient construction for the high rise buildings. The aim was to design a multiple use tower according to ISOVER Multi-Comfort-House definition.

The participants will had to design a sustainable sky scraper in a part of Lower Manhattan called Greenwich South. The building has to have the building physics performance of an ISOVER Multi-Comfort House.

The new high rise had to have about 60 floors above a base of about 5 stories with a maximum horizontal size of each floor above the base of 53m according to New York City.

FINAL STAGE

The International event has started with the opening of the exhibition of all the projects and a welcome speech of Mr. Dariusz Kurowski Innovation and Commercial Excellence Manager.

The members of the jury were:

- Professor Marvin J. Malecha - Dean of the College of Design at North Carolina State University.
- Professor Jan Tywoniak - University ČVUT - Prague.
- Jean-Baptiste Rieunier, Program Manager, Saint Gobain CRIR

Members of the jury

The second day of the contest was dedicated to the 52 presentations of the national winners. For 5 minutes each team had the opportunity to present their project.

Winners of the international prizes,
ISOVER Multi-Comfort House Students Contest 2011

Multi-Comfort House

The International Winners 2011

On 20th of May all the participants were guests of the ČVUT University in Prague for a lecture about Energy Efficiency followed by a boat trip on Vltava.

The day ended with the gala dinner and the announcement of the winners.

Afterwards the celebration continued in the disco until the dawn...

Participants of the ISOVER Multi-Comfort House Students Contest 2011

THE INTERNATIONAL WINNERS 2011

- The first prize went to Marian Lucký from Slovakia.
- The second prize went to Ankur Modi, Suruchi Modi and Chuyu Qiu from United Kingdom.
- The third prize went to Erick Fernández Ávalos and Nara Martins Telles from Spain.

  The high quality of the projects forced the jury to announce four special awards.

- The teams: Niko Mähönen from Finland, Daniel Hitchko, Jason Bottoni and Lauren Printz from USA, Kateřina Blahutová and Veronika Kommová from Czech Republic and Volkan Dalagan from Turkey received the special prizes for their concepts and ideas.

Marian Lucký from Slovakia, the winner of the first prize

Ankur Modi, Suruchi Modi and Chuyu Qiu from United Kingdom, the winners of the second prize

Erick Fernández Ávalos and Nara Martins Telles from Spain, the winners of the third prize

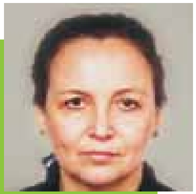
Niko Mähönen from Finland, winner of special prize

Daniel Hitchko, Jason Bottoni, Lauren Printz from USA, winners of special prize

Kateřina Blahutová, Veronika Kommová from Czech Republic, winners of special prize

Volkan Dalagan from Turkey, winner of special prize

The Professors



ASSISTANT PROFESSOR DI DR. KARIN STIELDORF — Austria

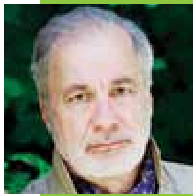
Graduated architecture at the Innsbruck and Vienna Universities of Technology. She has practical experience in architecture offices in Innsbruck and Vienna and wrote her thesis at the Department of Building Construction and Design (Solar and Low Energy Architecture in Austria, 1997, with Univ. Prof. DI Dr. E. Panzhauser). Since 1992 she has been an Assistant teacher at the Department for Construction and Design, with a main working focus on building physics, human ecology and sustainable building. Since 2001 she has been an Assistant Professor at the department for Architecture and Design. Since 2002 she has been teaching at the Sustainable Building and Design Group at the Department for Architecture and Design. Special thanks to the following professors for the support during the development of the students projects:

- Goran Papo, Univ. Lektor Dipl.-Ing.
- Ines Nizic, Senior Scientist Dipl.-Ing. Dr.techn.
- Jaafar Chalabi, Univ.Lektor Dipl.-Ing. Dr.techn.
- Jadric Mladen, Ass.Prof. Arch. Dipl.-Ing. Dr.techn.
- Klaus Krec, Ao. Univ. Prof. Dipl.-Ing. Dr. techn.
- Marjan Maftoon, Univ.Ass.Dipl.-Ing.

PROFESSOR LITVINOVA ANNA — Belarus

Architect, Designer, associate professor, head of the "Architectural surrounding design" department of the Architect faculty of Belarussian National Technical Univercity.
The Belarusian scientist, architect and teacher. She graduated from the Architectural Faculty of the Belarusian Polytechnic Institute. In 1974 she successfully defended his thesis, for the first time in the Soviet Union on the theme "Road architecture". From 1973 to 2005 she worked in the national road organizations in Belarus, starting as a senior engineer at the Institute "Belgiprodor" to the Deputy Director General - the chief architect of RUP "Beldortsentr." Since 2005 - Dean, Faculty of Architecture BNTU. Doctor of Architecture.
Researcher in the field of transport architecture and history of the roads development in Belarus. Author of 7 books and over 200 other scientific papers.
Author of the project of the memorial sign "Pachatak darog Belarus" on October Square in Minsk, the architectural design of bridges and overpasses in Minsk, Vitebsk, Mogilev, Gomel, Orsha, the projects of public buildings in Minsk and Minsk region. She developed over 120 projects of architectural and graphic design, facilities improvement of roads in Belarus. Awarded with six silver medals at USSR Exhibition of Economic Achievements, signs "Honorable roader" I and II degree, the medal of St. Cyril of Turov, Diplomas issued by Minsk Regional Executive Committee, Minsk City Council, the Ministry of Education, Ministry of Construction and operation of highways, the Ministry of Nature and the Environment.

DOCTOR OF ARCHITECTURE SARDAROV ARMEN — Belarus



Doctor of architecture, Dean of the Architect department of Belarusian National Technical Univercity Architect, designer and a leading expert in the field of architectural design and coloring, design of color and their study in architectural school. Head of the department “Design of architectural environment” at National Technical University since 2002, Associate Professor.
In 1980, graduated from the Dnepropetrovsk Civil Engineering Institute in speciality “Architecture,” in 1992 - postgraduate studies (by correspondence) at the Belarusian State Polytechnic Academy. Since 1986 - Member of the USSR Union of Architects, the Belarusian Union of Architects. Full member of the AAU MOOSAO of the Republic of Belarus.
Winner of the Special Prize of the President of the Republic of Belarus in the field of criticism and art history in 2003, Vth BSA National Festival of Architecture, International Science Project Competition and Exhibition mode on-line “Artistic Design Culture In the Era of Information Technologies”, Russia, 2008
For creative achievements in the training of future architects awarded diplomas of the Belarusian Union of Architects and the Belarusian Union of Designers. The head of 30 graduation diploma projects (starting with 1998) marked by I and II degrees certificates in international and national contest of the best graduation projects (2 Grand Prix of the Republican contests.) Co-author of a textbook, “Architectural coloring”(two books), author over 50 scientific publications in domestic and foreign editions. The participant of republican and international conferences, symposiums, congresses and exhibitions. Jury member of international and national competitions in the field of architecture and design
Author and coauthor of over 50 completed and implemented significant works of architecture and design (Belarus, Russia, Ukraine, Crimea, Armenia, Lithuania).

ASSOCIATE PROFESSOR DR. ARCH. BORIANA GENOVA — Bulgaria

Boriana Genova was born in 1950 in Sofia. She graduated Architecture at Engineering Institute for Higher Education major in urban planning in 1974 and started her career as an architect. In 1976 she started work as a research associate at the Health Research, Technological and Design Institute. For the next three years arch. Genova worked for her doctor’s degree at the Moscow Architectural Institute.
Since 1982 arch. Doctor Genova works at the University for Architecture, Engineering and Geodesy in Sofia first at the research laboratory and later at the department for residential buildings. Since 2000 she leads the Department for residential buildings.
As a scientist and research arch. Genova worked on different problems and regulations in the field of health and social service buildings, education and residential buildings. At the Architectural University arch. Genova holds lectures in Residential and Social Buildings as well as Urban Planning

PROFESSOR LJUBOMIR MIŠČEV▣ D.I.A. — Croatia

Born in 1954 and graduated from the Faculty of Architecture in Zagreb in 1979. Since 1979 has been working in the Institute of Architecture and as an associate at the Department of Architectural Design. Since 1991 has been teaching Energy and Ecology Architecture. He became a senior lecturer in1994/95 and an assistant professor in 1996/97. Since 1997/98, has been a supervisor for Graduation thesis courses and in 1999/00 the head for courses in Integral Work. Completed the post-graduate program in Urban and Physical Planning in 1982; registered scientist. He attended a specialist seminar in Architecture and Practical Design in Lisbon in 1993: EU DG XVII. Since 1985 has been engaged in the Croatian project Passive Solar Housing Architecture and in international research projects in Energy and Ambience Rehabilitation in Housing. He received awards from the Croatian State Administration of Environmental Protection in 1995 and from Ford Motor Company for the protection of nature and cultural heritage in 2000. Since 2000, has been head of the International Summer School of Architecture in Motovun. Chairman of the Association of Zagreb's Architects from 2001-2005. The president of Croatian section in International Solar Energy Society (ISES) and vice-president of Croatian Centre for renewable energy sources (CERES).
Head of EU projects for Croatia; PASS-NET (with the support of Intelligent Energy Europe - IEE) - the three years project (2007-2010) that promotes passive house as a standard of building in EU as of PERFECTION, IDES-EDU projects etc.

DR. ING. ARCH. RADEK KOLA ÍK — Czech Republic

Born in 1964 he graduated in 1987 from University of Architecture, Urban Design and Landscape Design, University of Technology in Brno. In 1989 he obtains his postgraduate degree in architecture from the Academy of Fine Arts in Prague.
From 2007 he is professor at Czech Technical University Prague.

DOC. ING. ARCH. PETR MEZERA, CSC. — Czech Republic

Born in 1939. Graduated CVUT - Czech technical University in Prague – architecture and town building in 1974. Chartered architect at Czech Chamber of Architects. From 1965 till 1969 worked as a designer of sports buildings at Prague project institution. Lecturer at the Faculty of Civil Engineering (1969-1976) and Faculty of architecture (1977-1992) at CVUT. Member of expert committee at Ministry of Education. Since 1991 works as a designer at PRO. ARCH yet teaching at Faculty of Civil Engineering.

ING. ARCH. LUBOŠ KNYTL — Czech Republic

Born in 1959 and gratuated from the Faculty of Architecture at the Czech Technical University in 1983. Afterwards he started to work as a technical assistant in the department of theory and development of architecture, where he worked particularly in renovation studios. He has been engaged in individual project designing since 1990 - initially in the free association AAC Studio and since 1991, with M. Perlík under the name AP Studio. He also works at the Faculty of Architecture at the Czech Technical University.

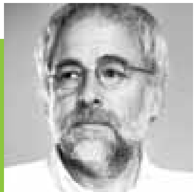
PROFESSOR IRINA RAUD — Estonia

Born in Tallinn in 1945, she graduated in 1969 from Tallinn National Art Institute, followed be postgraduate studies at the Moscow Institute of Architecture. During 1969-1990 worked at the national company Eesti Projekt where she started as architect and became the head of department. Between 1990 and 1992 was the chief architect and deputy mayor of Tallinn. In 1992, in collaboration with Otto Raud, formed the architectural office R-KONSULT.

Since 2006 she is professor and Head of the Architectural Institute of the Faculty of Architecture and Environmental Engineering at the Tallinn University of Applied Sciences. Since 1972 Member of Union of Estonian Architects, 1993 correspondent Member of German Academy for Urban and Regional Planning (DASL), 1996 Member of the Academy of Arte, Berlin, department of Architecture.

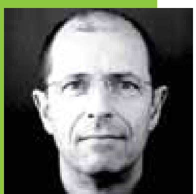
PROFESSOR JOUNI KOISO-KANTTILA — Finland

Born in 1947 he graduated from the Department of Architecture at the University of Oulu in 1973 and made his PhD in architecture in 1976. He has been teaching architecture at the Department of Architecture, University of Oulu since 1976. He is professor of Architecture from 1988 and now he also acts as the coordinator of Candidate of Technology program at the department. He has had his own architect's company for thirty years and he has designed numerous buildings in northern and central Finland. He has been actively involved wood constructions, wooden architecture and energy efficiency research. He is also the head of the National Graduate School of Wood Constructing and Design and the leader of national Modern Wooden Town Program financed by the Finnish Government. He is a member of Finnish Academy of Technology and has received several national awards for wooden architecture.



PROFESSOR DIPL. ING. LUDWIG RONGEN — Germany

Since 1992 is appointed Professor on the Faculty of Architecture on the University of Applied Science in Erfurt for design, structural theory and in particular for energy efficience building. In 1993 he has organized and managed department for the restoration. From 2004 till 2006 he was Dean of the Faculty of Architecture and since 2008 he is the executive supervisor of the Master degree program “passive house +”. He has also built up the cooperation with the Faculty of Architecture on the University Chengdu, China. He is the guest professor on the Sichuan University Chengdu and Southwest Jiaotong University Chengdu in China. He is constantly proving the current architecture praxis in the own office in Wassenberg (Germany), which has currently 20 employees and is working on the projects around energy efficient buildings in the new buildings and renovation. Since May 2011 he carries on an architectural office also in China (Changzhou). He has realized numerous passive houses as a pioneer such as the first European nursing home and the first prefabricated modulated multi-family passive house worldwide. He is an author and co-author of numerous publications and books and is permanently proving his architectural know-how by taking a part on the competitions. He is also working closely with the PHI (Passive House Institute) and DBU (German Federal Foundation for Environment) on research and development projects, actually the DBU-research project “Passive Houses for di erent climates (Dubai, Las Vegas, Yekaterinburg, Shanghai and Tokio)”, together with the Passivhouse Institute Darmstadt (Germany).



PROFESSOR ROLF GRUBER — Germany

Born in 1953, graduated from Technical University Munich. He worked on the Art Academy Munich on the professorship for urban renewal and residential issues. After 2 years work and study in USA (UCLA Los Angeles, CUNY New York, projects with Charles Moore) he taught on the University of Hannover and worked in own architect office. Since 1991 he is the Professor for architectural design and building theory on the University of Applied Sciences in Erfurt. His work is always related to the building praxis and since 1996 he managed the office “Lofthaus” with partner Rolf Bollwahn in Erfurt. His main focus is on the public buildings, energy efficiency and all aspects of the sustainability. For the wooden frame office building he got the Thuringian architecture prize in 2001. One of his most important projects were Judiciary canter in Jena and extension of the German radio station building in Erfurt. His pedagogic work he is related to the architectural design, building typology and the designing methods. He is also very active in the creating the networks and cooperation with Universities in China, USA and Indonesia and is organising the international workshops for the cultural exchange.

ASSISTANT PROFESSOR PRIYEMETS OXANA — Kazakhstan

Born in 1973 in Russian Federation in Bryansk region she graduated from the University of Almaty, Faculty of Architecture, Kazakhstan, in 1996. Since 1988 she has been working as an Assistant Professor of the Architecture Faculty. Since 2008, she has been taken up a post of an Assistant of Dean on international communications and external relations. The main teaching directions are architectural graphic, bread boarding and composition. Together with her students she is involved in several competition and exhibitions.

ARCHITECT U- IS BRATUŠKINS — Latvia

Born in 1961 he obtains his professional degree of Architect in 1984 and the Master of Architecture in 1995. In 2006 he obtains the Doctor of Architecture degree with a doctorate thesis - "Development of Public Open Spaces of Riga Medieval Centre in the 19th and 20th Centuries".

He is a Member of Latvian Association of Architects and the author of many public and dwelling buildings in Riga and other towns of Latvia.

Actually he is the Dean of the Faculty of Architecture and Urban Planning of Riga Technical University. He has regular publications in the almanac "Architecture and Construction Science"//"Scientific Proceedings of Riga Technical University" and local professional magazine "Latvijas Arhitektūra".

LECTURER DR. ARCH. MIHAI OPREANU — Romania

He is architect and lector at the Urbanism and Architecture University Ion Mincu, Bucharest, Technical science cathedra, since 1990. He has done serial research studies in ecological, bio-climatic and energy - efficient architecture as well as in historical monument restoration. Post-graduate in Architecture from UAIM Bucharest and Techniques History at EHESS Paris: Ambient Physics, Architectural Ecology and Technology, Restoration and Conservation. During 1994 and 2002 he participated to restoration workshop UAUIM - Ecole de Chaillot, Paris. He has regular articles in local architecture magazines "Arhitectura" and "Arhitext-Design" and also in "Monuments Historiques".

PROF. DR. ING. IRINA BLIUC — Romania

Prof. dr.eng. Irina Bliuc graduated from Civil Engineering Faculty, “Gh.Asachi” Technical University of Iasi. She accomplished the doctoral thesis in 1984, in the same university, the topic being related to Energy Efficiency and Comfort in Residential Buildings. The rich academic experience achieved in Faculty of Architecture and in Faculty of Civil Engineering and Building Services from “Gh. Asachi” Technical University of Iasi is reflected by course like: Buildings Physics, Constructions in Buildings, Renewable Energies, Modern Finishing Methods Used in Buildings Industry.
The field of research is represented by: Energy Efficiency and Sustainable Buildings, Indoor Environment Quality and the Users’ Satisfaction, Adapting Buildings to Climate Changes. She encouraged the co-operation between universities, being the promoter of such a research project, its subject being “Systems of Integrated Solutions for Thermal Rehabilitation of Buildings”. Prof. Irina Bliuc is author and co-author of several technical books and papers published in important journals or proceedings of national and international congresses and conferences.
She is also member of CIB, W077 – Facilities Management and Maintenance.

PROFESSOR MIHAILO TIMOTIJEVIĆ — Serbia

Born in 1949 in Belgrade he graduated from the Faculty of Architecture at the University of Belgrade.
He was head of the Department for Architectural and Urban Design between 2000 and 2002 and President of the Faculty Council between 2002 and 2004.
Since 2004 he is Dean and professor of the Faculty of Architecture. His practical and theoretical courses in bachelor and master programmes are aimed at developing architectural design skills seen as a process of functionality and as a fore thinking space in urban context, with special approach in analyses of its urban and natural elements relation. Theoretical courses: Education & Child Care and Urban Reconstruction

ARCH. ZORAN LAZOVIĆ — Serbia

Born in London. He graduated from the Architecture University of Belgrade and perfected his professional career at the Royal Academy of Fine Arts in Copenhagen. Arch. Lazovic attended the Architectural Faculty DEA in Belleville, Paris and obtained his license for professional work in France. He was a major architect at DOMELA & SARFATI, Paris.
Since 1989 arch. Lazovic has been teaching Methodology of Architectural Design at the University of Belgrade. Some of his recent big projects are the Residential complex in Novi Belgrade, a Sports complex in Belgrade and the Observatory at Geocentre in Denmark

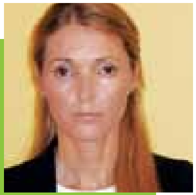
ING.ARCH. HENRICH PIFKO, PHD ■ Slovakia

Born in 1959, he is currently teaching at the Faculty of Architecture of the Slovak University of Technology in Bratislava, at the Institute of Ecological and Experimental Architecture where he is the sponsor of the educational module "Architecture and Environment". In addition to teaching he is authorized architect (SKA), specialized in green architecture and passive houses (he is Certified Passive House Designer). He is vice-president of the Institute for Passive Houses (iEPD) and founding member of ArTUR (Architecture for Sustainable Development) NGO. He participated in international research projects (e.g. EcoCity, Oikodomos) and he is co-author of the book "Effective Housing" and of a number of other publications.

ASSOCIATE PROFESSOR DR. MARTINA ZBAŠNIK-SENEGAČNIK ■ Slovenia

Born in 1961 in Ljubljana. She graduated from the University of Ljubljana, Faculty of Architecture, Slovenia, in 1986. Since 1988 she has been working at the faculty as a teaching assistant. She received a Master's degree in 1992 and in 1996 a Ph. D. degree (Negative influences of building materials on the environment and human beings). In 2000 she became the assistant professor and in 2009 the associate professor. She attended the international ecological seminars (ecological materials and building technologies). Since 2001, she has been teaching the subject of Ecological architecture. She writes scientific and professional articles in domestic and foreign literature. Dr. Zbašnik-Senegačnik has published two books; the last one is about passive houses (2007), the first book about this topic in Slovene language. She also takes part in architectural and research projects.

She organizes and leads additional professional education for architects from the practice. The topics of these courses focus on different building technologies. Recently featuring lectures about low-energy and passive houses. In 2008 she founded The Passive House Consortium.



PROFESSOR BEATRIZ INGLÉS GOSÁLBEZ — Spain

Beatriz Inglés Gosálbez graduated from the Escuela Técnica Superior de Arquitectura de Madrid (E.T.S.A.M.) in 1992, she did both specializations, building and town planning, and Master in Intelligent Buildings and Sustainable Construction, Restorations and Renovation of buildings and Structure Design and Calculation. She began her professional activity as collaborator in diverse offices of recognized prestige. A founder member of INGOS arquitectura y medio ambiente (since 1994). Through a series of award-winning sustainable design projects and buildings, she has created a national reputation as sustainable architect.
At present time, she is professor at Universidad Europea de Madrid (UEM) since 1998 at the Building Technology Department, with a main working focus on human ecology and sustainable building. She has coordinated the development of sustainable competitions with students.

COORDINATOR MANUEL MONTESDEOCA CALDERÍN — Spain

Architect of School of Architecture, Las Palmas de Gran Canaria (EA ULPGC) since 1986.
Scholarship holder Plan de Formación de Personal Investigador el Ministerio de Educación y Ciencias (1987-1989). Associate Professor of Department of Building Construction, Las Palmas School of Architecture (1990-2006). Collaborating Professor at Department of Building Construction since 2006, teaching Construction III, centered in control of energy demand of buildings, energy efficiency, sustainable architecture and cero emission buildings.
Have been investigating about "Sands of Gran Canaria and its implications in fabrications of concrete" and "Thermal and hygrothermal behavior of north facing facades". Currently working on a guide to "Study of the envelope of the building, using materials in the Canary Islands", in a specific agreement in collaboration with Department of Public Construction and administration of Public Transport of Comunidad Autónoma de Canarias.

Posgraduate Courses: Conference on "el Código Técnico de la Edificación" (Technical Building Code). U.L.P.G.C. 2007. Since 2010, member of Laboratory of Investigation of Architectural Projects (LIP(a)).

ARCHITECT CARMEN SÁNCHEZ-GUEVARA SÁNCHEZ — Spain

Graduated from School of Architecture, Technical University of Madrid (UPM).
She teaches at the Master on Environment and Bioclimatic Architecture (MAYAB) and works as Students Advisor at the School of Architecture, Technical University of Madrid (UPM).
She develops her research work at the Bioclimatic Architecture in a Sustainable Environment Research Group (ABIO). Her activity is focused on building sustainable retrofitting and building energy consumption.

ASSISTANT PROFESSOR DR. GÜLTEN MANIO□LU — Turkey

Gülten Manio□lu is an architect and researcher and lecturer in the Faculty of Architecture at Istanbul Technical University (ITU) since 1993. Her post-graduate education involves "Evaluation the Heating Performance of the Building Envelope in Relation to the Heating Period from the Standpoint of the Bioclimatic Comfort and Energy Conservation". She received her doctorate in the Department of Architecture at ITU, with a focus on "An Approach for the Determination of Building Envelope and Operation Period of Heating System According to Energy Conservation and Life Cycle Cost" (2002). She worked in several researches on Energy Efficiency in Buildings. For her post-doc studies she worked with Prof. Hugo Hens at Katholic University Leuven in Building Physics Laboratory on a research Project "Extremely low energy and low pollution residential buildings" where she studied on passive houses. She has several publications on Passive Climatization, Energy Conservation in Built Environment, Ecologic Architecture, Solar Energy Utilisation in Buildings, Energy Efficient Building Design, Design with Climate, Sustainability in Traditional Architecture, Energy Costs, Active Systems (HVAC systems and sanitary application) in Built Environment. She is currently working as an Assistant Professor in the Environmental Control Unit at the Faculty of Architecture of ITU. Since 2009 she is a board member of the International Association of Building Physic (IABP).

ARCH. DAVID NICHOLSON-COLE — UK

Lecturer at University of Nottingham since 1975 with special interest in studio teaching of Design and Construction, and this included computer modelling in the 1990s. In recent years he moved his focus to sustainable architecture and tall buildings. Following cooperative tall building work with Antony Wood and Philip Oldfield, he created the one year postgraduate course of M. Arch in Sustainable Tall buildings in 2009, the world's first and only course of that name, which has now run two full years at Nottingham, with a cohort of international students. The course is CTBUH accredited and is well supported by a team of visiting architects and experts. His recent personal research has been in combining solar thermal and photovoltaic technology with heat pumps to create carbon zero performance. This has been successful on his house, and he is working on means of applying it to tall buildings and retrofit of existing buildings.

LECTURER PHILIP OLDFIELD — UK

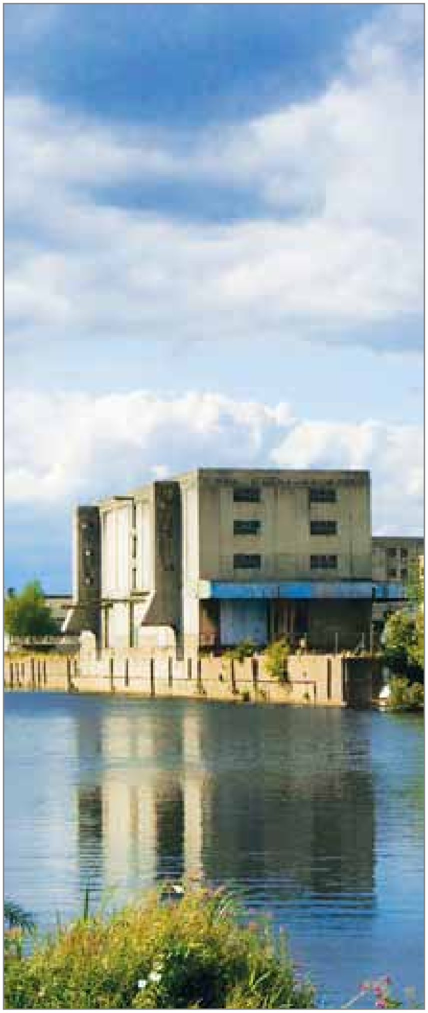
Philip Oldfield is a Lecturer in Architecture at the Department of Architecture and Built Environment, University of Nottingham. His role at Nottingham sees him co-coordinate the 'Masters Course in Sustainable Tall Buildings', whilst he has also taught architecture at universities in Chicago, Singapore and Venice.
Philip is an active member of the Council on Tall Buildings and Urban Habitat (CTBUH), and is Co-Chair of the CTBUH Research, Academic and Postgraduate Working Group, whilst he also sits on the Editorial Board for the quarterly CTBUH Journal. His research interests are focused primarily on tall buildings, sustainability and embodied energy / carbon. Current research activities include:

- The Carbon Implications of Tall: A Life Cycle Energy / Carbon Analysis of High-Rise Buildings
- Double-Skin Facades: The Carbon Equation - an investigation into the embodied and operational carbon impacts of double-skin facades in office buildings in the UK
- The PassivHaus Skyscraper: An Investigation into the Opportunities and Challenges for PassivHaus Performance in High-Rise Residential Buildings in Temperate Climates
- The creation of a 'roadmap' to identify and prioritise research within the field of tall buildings, undertaken in conjunction with the CTBUH, CIB and UNESCO.

Philip has had peer-reviewed papers published in the Journal of Architecture, CTBUH Journal, Urbanism and Architecture and Architectural Science Review. In addition he has written articles for STRUCTURE Magazine (USA), BbICOTHbIE (Russia) and The Big Project (UAE) amongst others.

PROFESSOR CHRISTOPHER M. PASTORE ■ USA

Professor, Co-Director of the Engineering and Design Institute Philadelphia University. Started in 1995. Education: BA Mathematics, MS Mathematics, PhD Materials Science & Engineering. Work on several projects around the composite renewable materials, especially flax and crab shells. By modifying the chemistry using natural materials the cross-linked polymer was produced that is capable of withstanding environmental forces, but when exposed to another naturally occuring agent will begin biodegradation. Exploration of shredded paper money to see what interesting building materials can be produced. We developed a hybrid shredded money/recycled PET fiber to make a board panel as a replacement for particle board. The water resistance and density showed very favorable results, with improved screw hold strength compared to particle board. After studying the construction and corresponding thermal transfer properties of medieval cathedrals in Europe design and build a wine storage facility in the US which is almost entirely passive (there is a back up HVAC system in case of emergency due to the value of the stored wines). Work on podcast entitled “EcoMan and The Skeptic” which is about green homes and buildings and science news.



Invitation for Competition Submissions ISOVER Multi-Comfort House - Students Contest 2012

Regeneration & Community development

International, two-stage, open competition, 2012 edition

Content:	Regeneration and community development in Trent Basin, Nottingham, UK
Participants:	Students
Organizer:	Saint-Gobain Insulation with the participation of national Saint-Gobain ISOVER, CertainTeed and IZOCAM organizations
Official Website:	www.isover-students.com

The subject of the 2012 competition is the design of a sustainable community within the regeneration program of the Trent Basin area, Nottingham, UK.

The project will consist in developing a sustainable neighbourhood, providing accommodation for 12-15 families and essential services to assure an effective live-work scheme, plus to develop a vision of regeneration of a larger area where this neighbourhood is placed, in which infrastructure, offices, leisure and recreation are conceived to reutilize existing buildings and to provide an effective integration to the city.

Participating countries in ISOVER Multi Comfort House Students Contest - 2012 Edition

All this in view to explore a new paradigm of sustainable post-industrial regeneration.
The International stage of the competition will take place May 22-25th, 2012 in Bratislava, Slovakia

More information about the new edition of the contest as well as full task, pictures and documents, site plan can be found at www.isover-students.com

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Multi-Comfort House

GREENWICH TOWER IN NEW YORK CITY

7th ISOVER Multi-Comfort House Students Contest 2011

ISOVER SAINT-GOBAIN

CHRIS
PRECHT

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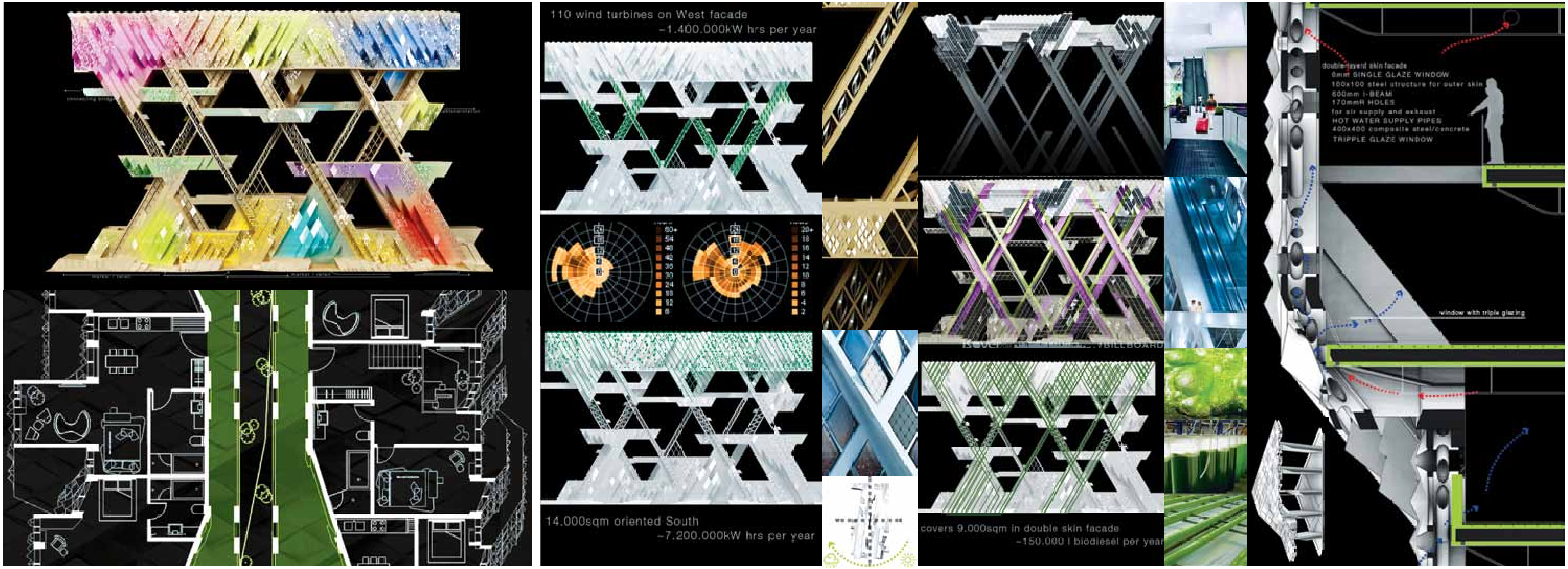
110 wind turbines on West facade
~1.400.000kW hrs per year
14.000sqm oriented South
~7.200.000kW hrs per year
covers 9.000sqm in double skin facade
~150.000 l biodiesel per year
double-layerd skin facade
6mm SINGLE GLAZE WINDOW
100x100 steel structure for outer skin
600mm I-BEAM
170mmR HOLES
for air supply and exhaust
HOT WATER SUPPLY PIPES
400x400 composite steel/concrete
TRIPPLE GLAZE WINDOW
window with triple glazing

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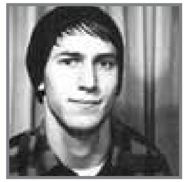
RAINER STADLBAUER



THOMAS SPINDELBERGER

PAUL RAKOSA

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system >> infrastruktur >> rahmenbedingung für das wachstum

lageplan

städtebauliche situation 1:1000

ein einfaches regelwerk definiert die topoliogie und die grundlegende struktur. überlagert durch ein globales set an regeln werden n-varianten generiert, alle innerhalb der grenzwerte und so dass der gesamte lösungsraum abgedeckt werden kann. mittels fitnesskriterien werden diese generierten varianten bewertet. die variante mit der maximalen strukturellen offenheit gewinnt.

basisgeometrie

einsatzpunkt · typologie

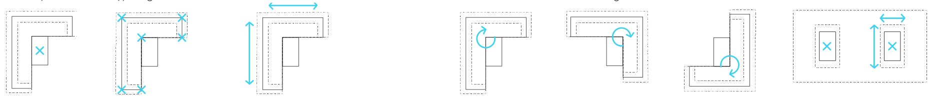
lokale manipulation

skalieren

globale manipulation

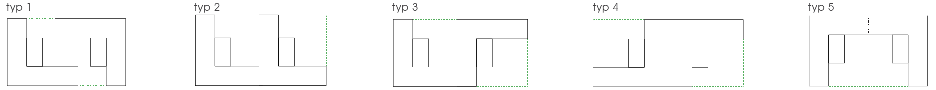
rotation um 90, 180 oder 270 grad

verschieben der kerne



mögliche positionierung der geschossplatten um die kerne

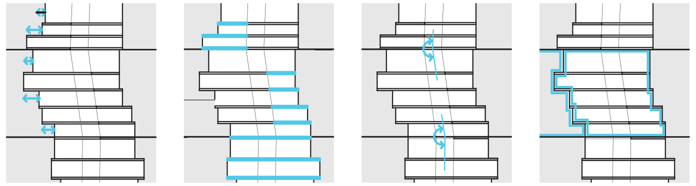
typ 1 · typ 2 · typ 3 · typ 4 · typ 5



generieren und bewerten

n-versionen innerhalb der grenzwerte

varianz der verschiebung der platten · varianz der drehung · varianz der kerne · verhältniss innenraum zu aussenraum



system >> wachstum >> innerhalb der rahmenbedinungen

simulation der besiedelung

wachstum der zellen gesteuert über die zeit t

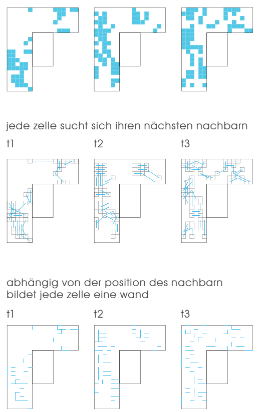
t1 · t2 · t3

jede zelle sucht sich ihren nächsten nachbarn

t1 · t2 · t3

abhängig von der position des nachbarn bildet jede zelle eine wand

t1 · t2 · t3



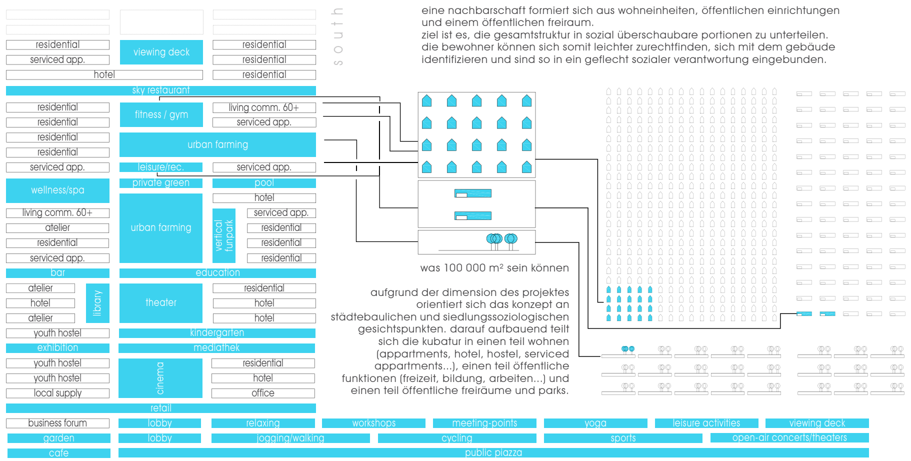
basierend auf dem populären cellularen automaten „conway's game of life" wird ein möglicher lebenszyklus simuliert wobei die blauen zellen die besiedelten bereiche darstellen. beeinflusst kann das wachstum nicht nur durch die regeln sondern auch durch die zeit t werden. wobei sich mit zunehmender zeit ein stabiler zustand einstellt.

...e zelle ...ht sich ...n nächsten ...chbarn wobei ... netz an linien der jeweils nächsten nachbarn entsteht.

das im zweiten schritt entstandene netz wird benutzt um festzulegen welche zellen miteinander verbunden sein sollten und wo wände errichtete werden können. dabei entsteht ein möglicher grundriss.

funktionen

beispielhafte anordnung der funktionen



eine nachbarschaft

eine nachbarschaft formiert sich aus wohneinheiten, öffentlichen einrichtungen und einem öffentlichen freiraum.
ziel ist es, die gesamtstruktur in sozial überschaubare portionen zu unterteilen. die bewohner können sich somit leichter zurechtfinden, sich mit dem gebäude identifizieren und sind so in ein geflecht sozialer verantwortung eingebunden.

was 100 000 m² sein können

aufgrund der dimension des projektes orientiert sich das konzept an städtebaulichen und siedlungssoziologischen gesichtspunkten. darauf aufbauend teilt sich die kubatur in einen teil wohnen (appartments, hotel, hostel, serviced appartments...), einen teil öffentliche funktionen (freizeit, bildung, arbeiten...) und einen teil öffentliche freiräume und parks.

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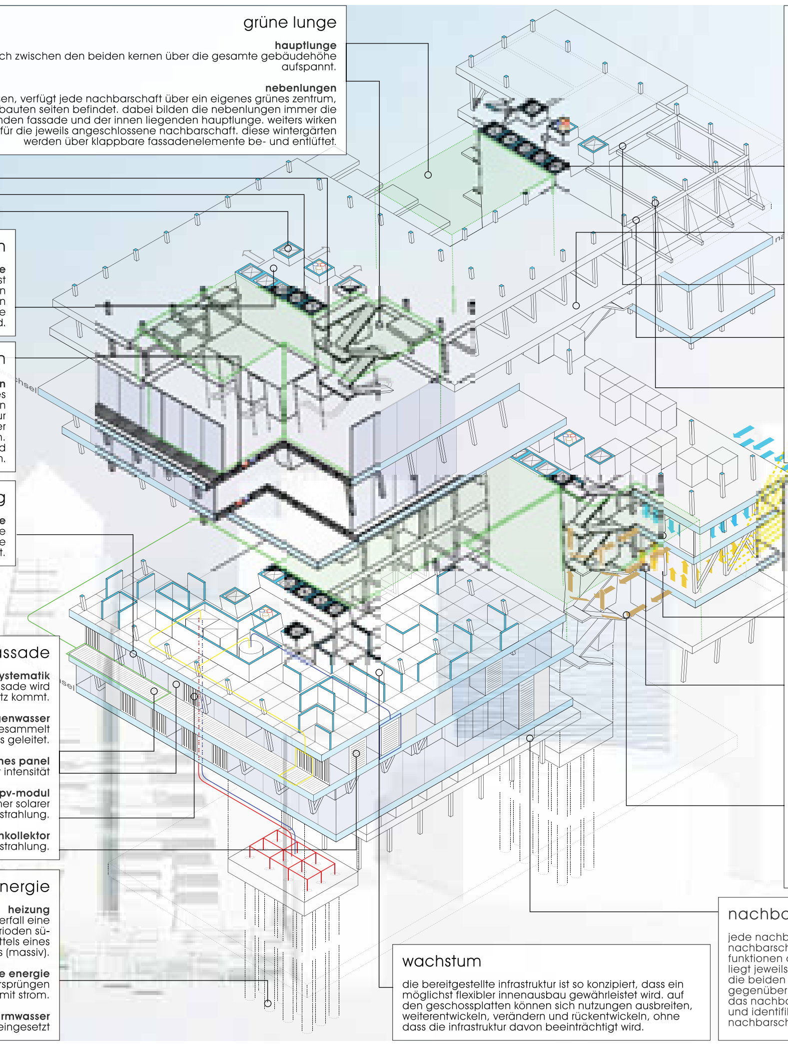
agevillvertical

isometrie >> infrastruktur >> rahmenbedingung für das wachstum



erschliessung

treppen
jeweils an der nicht verbauten schmalseite der kerne angebracht, bilden dieses das lokale erschliessungssytem für eine nachbarschaft (5 geschosse). im gesamtsystem wirken diese einzelnen abschnitte als durchlaufende fluchttreppe.

expressaufzüge
je fünf aufzüge pro kern verbinden die nachbarschaften miteinander, wobei die expressaufzüge je nachbarschaft nur auf einer ebene halten.

lokale aufzüge
jede nachbarschaft verfügt über zwei lokale aufzüge, welche jedes geschoss der jeweiligen nachbarschaft erschliessen.

grüne lunge

hauptlunge
ist jenes vertikale atrium, welches sich zwischen den beiden kernen über die gesamte gebäudehöhe aufspannt.

nebenlungen
an die hauptlunge angeschlossen, verfügt jede nachbarschaft über ein eigenes grünes zentrum, welches sich an den jeweils unverbauten seiten befindet. dabei bilden die nebenlungen immer die verbindung zwischen der aussenliegenden fassade und der innen liegenden hauptlunge. weiters wirken die nebenlungen wie ein wintergarten für die jeweils angeschlossene nachbarschaft. diese wintergärten werden über klappbare fassadenelemente be- und entlüftet.

kern

ausgänge
der kern ist so konzipiert, dass möglichst viele verbindungen zu den beiden verbauten seiten der geschossplatten möglich sind.dies hat zur folge, dass eine flexible grundrisslösung ermöglicht wird.

aufbauten

geschossplatten
auf dem statisch erforderlichen trägerrost liegt ein ausbetoniertes trapezblech, welches den doppelboden aufnimmt. der doppelboden ermöglicht eine vollkommen flexible leitungsführung, sodass die infrastruktur auf die jeweilige grundrisslösung reagieren kann und kann ebenfalls mit einer fussbodenheizung ausgestattet werden.
die untersicht bildet eine abgehängte decke . diese ist akustisch aktiv und kann die notwendigen einbauten aufnehmen.

selbstverschattung

vorsprünge
das vor- und zurückspringen der geschossplatten erzeugt eine selbstverschattung, die abhängig von der himmelsrichtung die grenze für die aussenliegende fassade bildet.

isometrie >> wachstum >> innerhalb der rahmenbedinungen

fassade

systematik
je nach intensität der sonneneinstrahlung an einer stelle der fassade wird entschieden, welcher der drei paneltypen zum einsatz kommt.

regenwasser
wird an den vorspringenden geschoßplatten, sowie an den dachflächen gesammelt und zu den grünbereichen des gebäudes geleitet.

geschlossenes panel
wärmegedämmtes verschattungselement bei niedriger intensität

panel mit pv-modul
transparente photovoltaikmodule für die stromgewinnung bei hoher solarer einstrahlung.

panel mit sonnenkollektor
für die warmwasseraufbereitung bei mittlerer intensität der sonneneinstrahlung.

energie

heizung
die energiepfähle der pfahlplattengründung werden genutzt um im winterfall eine grundlastheizung zu bewerkstelligen und während auftretender hitzeperioden sü-dorientierte bereiche zu kühlen. die temperierung der räume funktioniert mittels eines thermodoppelbodens (massiv).

elektrische energie
pv module auf fassade, dach und teilweise auch auf den horizontalen vorsprüngen versorgen die wärmepumpen der energiepfähle sowie die lüftungsanlagen mit strom.

warmwasser
solarkollektoren werden für die warmwasseraufbereitung eingesetzt

wachstum

die bereitgestellte infrastruktur ist so konzipiert, dass ein möglichst flexibler innenausbau gewährleistet wird. auf den geschossplatten können sich nutzungen ausbreiten, weiterentwickeln, verändern und rückentwickeln, ohne dass die infrastruktur davon beeinträchtigt wird.

tragwerk

statikkonzept
die ebenen lasten auf zwei kerne, welche alle 5 geschosse miteinander verbinden, um so einen grossen torsionsteifen gesamtkern zu schaffen. die kraftschlüssige verbindung der beiden kerne erfolgt mittels „synchronisationsebenen", welche als geschosshohe fachwerke ausgeführt werden.

kerne
stahlbetonkerne mit teilweisen öffnungen übernehmen die haupttragfunktion, sowie die aussteifung.

synchronisationsebenen
zwei geschossplatten dienen hier als ober- und untergurt, dazwischen wird über die gesamte geschosshöhe ein stahlfachwerk ausgebildet.

hauptträger
in verlängerung der kerne liegen stahl I-profile, welche die last der nebenträger aufnehmen.

nebenträger
stahl I-profile in einem raster von 4m bilden das traggerüst der geschossplatten

stützen
die vertikallasten, welche nicht von den kernen aufgenommen werden können, lasten auf einem 4m stützenraster. diese stützen stehen auf dem stahlfachwerk der synchronisationsebenen auf.

klima

...zonen
...en, welche ...qualitäten erfordern, sind ...on der grünen lunge ... diese dient als pufferraum im sommer- und winterfall.

sommerfall
frischluft wird von aussen zugeführt, abluft wird in die gtüne lunge abgesaugt und kaminartig nach oben geführt.

winterfall
zuluft ebenfalls von aussen, allerdings über einen wärmetauscher vortemperiert. abluft wird in die lunge abgeführt und dient dort zur heizung.

mechanische lüftung
gewährleistet den ständigen luftwechsel um die innenräume mit komfort- und hygienegerechte raumluft zu versorgen.

fensterlüftung
darüber hinausgehend besteht die möglichkeit, die fenster in die grüne lunge ganzjährig zu öffnen. dies stellt eine steigerung des komforts dar, der in den meisten geschossen aufgrund der windgeschwindigkeiten nicht möglich wäre.

nachbarschaftszentrum

jede nachbarschaft besitzt ein nachbarschaftszentrum in dem öffentliche funktionen angesiedelt sind. dieses zentrum liegt jeweils auf der synchronisationsebene, die die beiden kerne und somit auch die beiden gegenüberliegenden nachbarschaften verbindet. das nachbarschaftszentrum wirkt als impuls und identifikationsmerkmal der jeweiligen nachbarschaft.

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DANIEL
MAYER

THOMAS
RÖGELSPERGER

AUSTRIA
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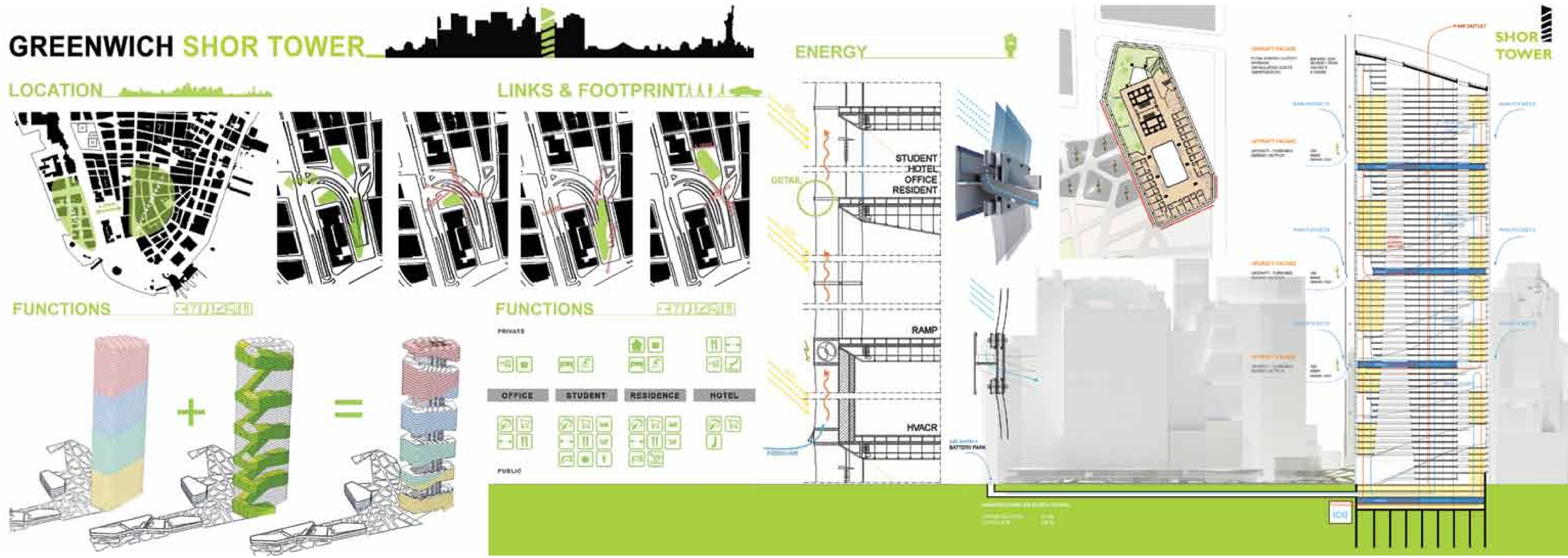
GREENWICH SHOR TOWER
LOCATION
LINKS & FOOTPRINT
FUNCTIONS
FUNCTIONS
PRIVATE
OFFICE
STUDENT
RESIDENCE
HOTEL
PUBLIC
ENERGY
DETAIL
STUDENT
HOTEL
OFFICE
RESIDENT
RAMP
HVACR
BATTERY PARK
SHOR
TOWER

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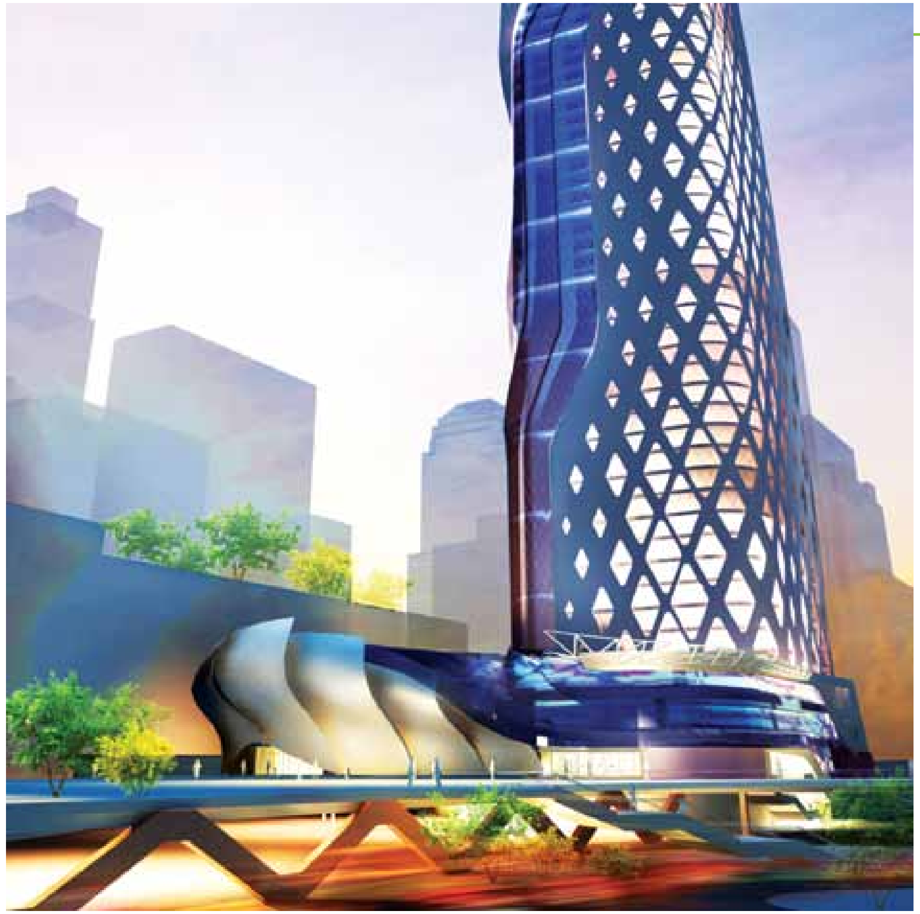
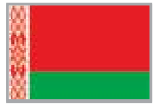


ILYA
DORAKHAU

YURY
LITVINSKI

04

BELARUS
Belarussian National Technical University



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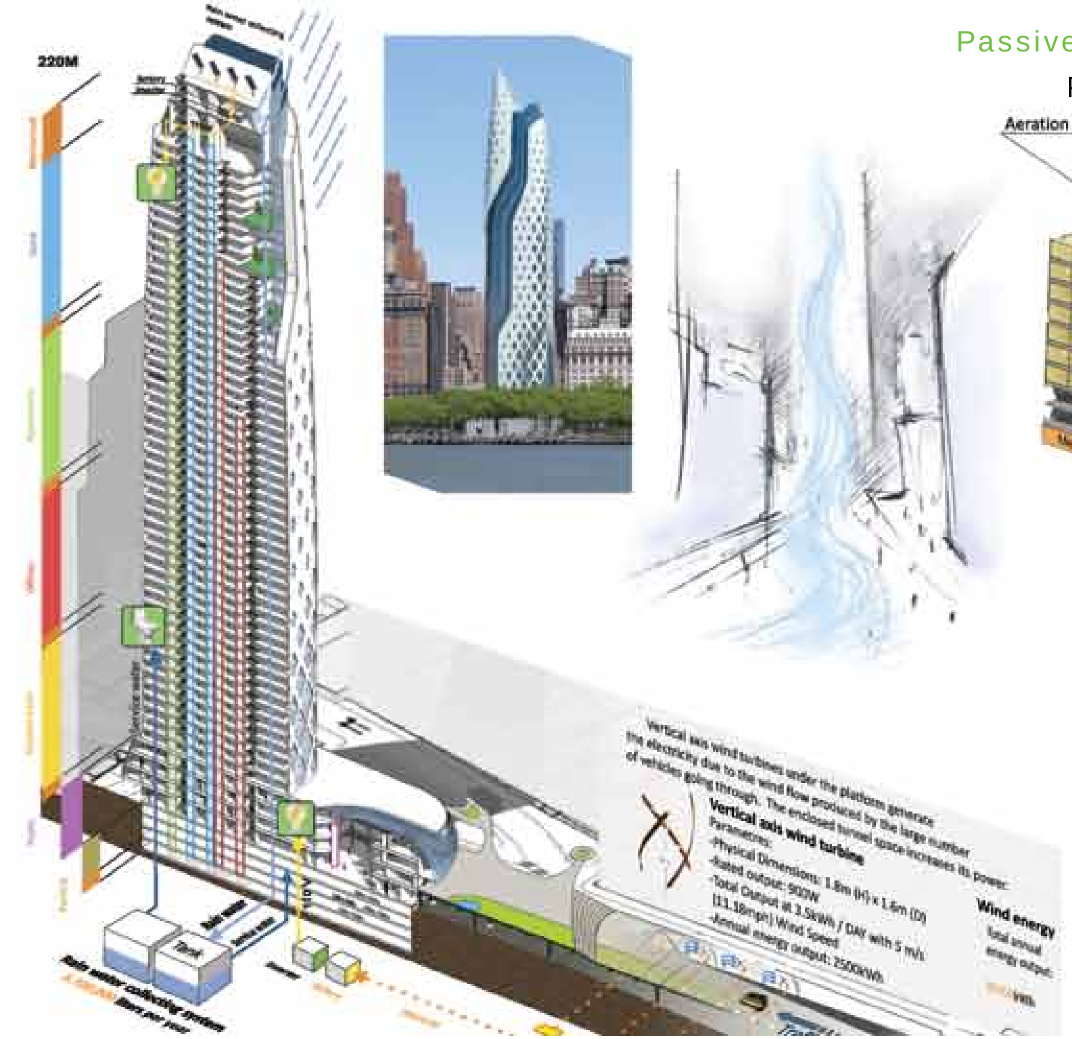
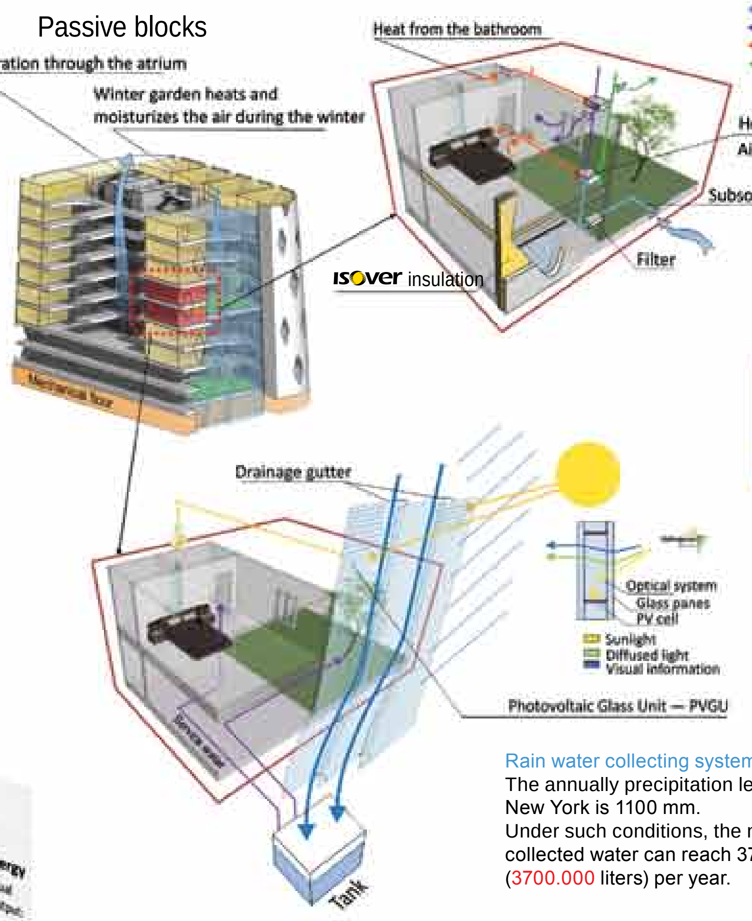


Passive house strategy

Passive blocks



Rain water collecting system

The annually precipitation level in New York is 1100 mm.
Under such conditions, the number of collected water can reach 3700m³ (3700.000 liters) per year.

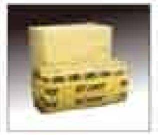
Typical wall section

Composite aluminum panel, 5 mm. λ=0,35 W/m.K
Specifications:
Front: aluminum alloy sheet coated with fluro-carbon resing (PVDF) roasting painting
Core: non-toxic fireproof polyethylene
Back: aluminum allay sheet coated with polyester resin painting

Detail

For the best sound and heat insulation properties of enclosing structures, were used materials produced by Saint-Gobain.

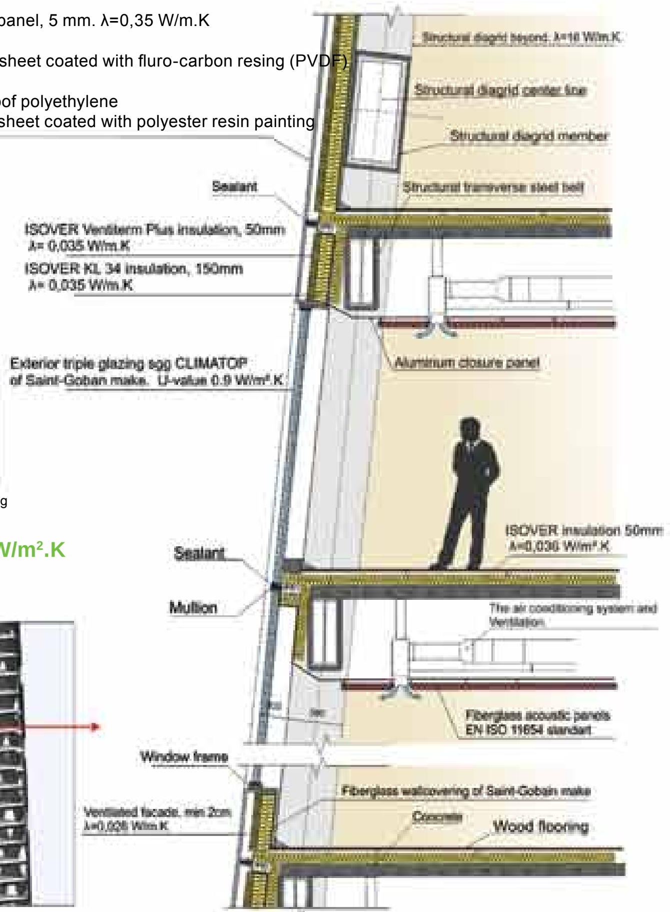

ISOVER Ventiterm Plus


ISOVER KL 34


Exterior triple glazing sgg CLIMATOP

Overall outer wall U-value 0.14 W/m².K

Maximum space heating requirement is 15 kWh/m²a per year



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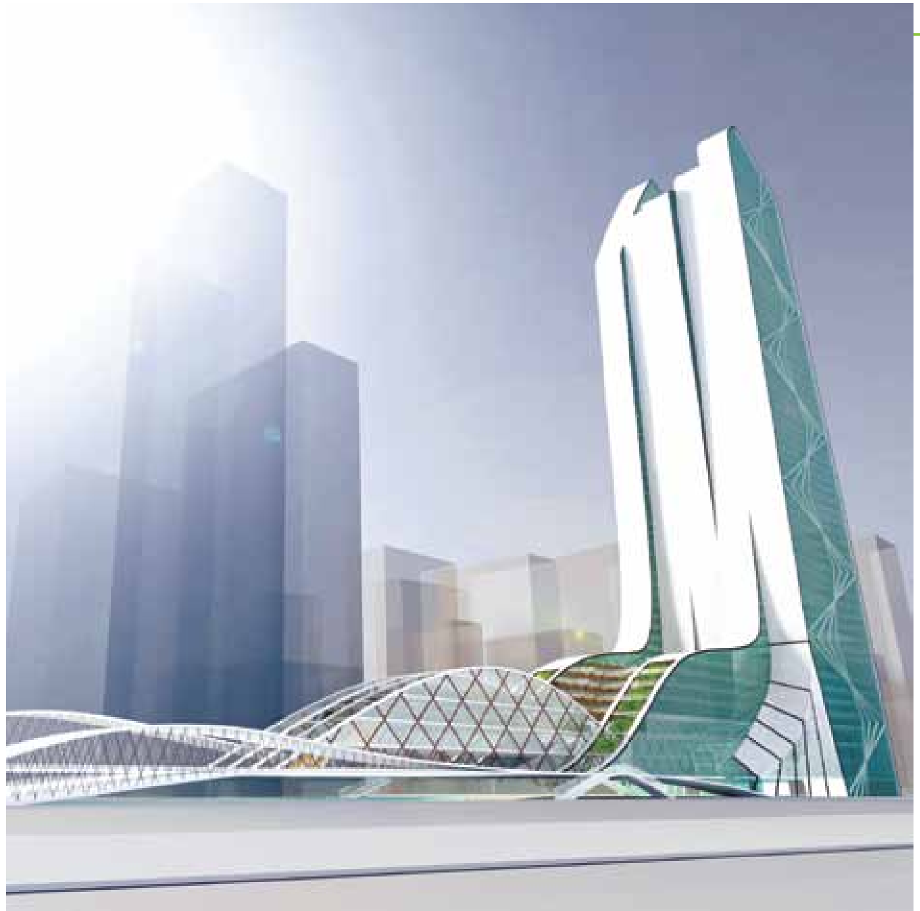

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SOBOLKOV

BELARUS
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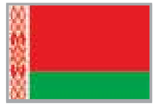

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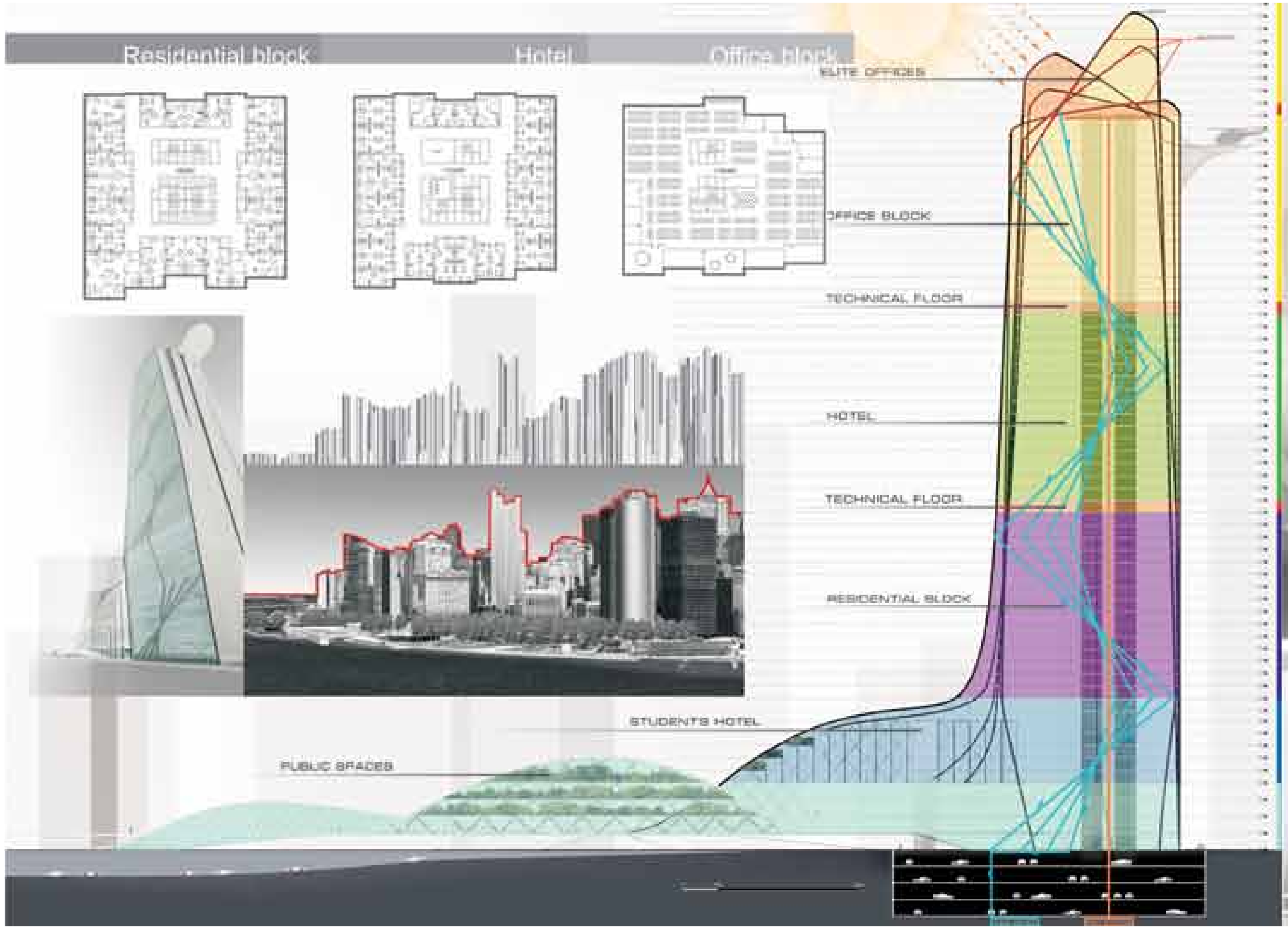
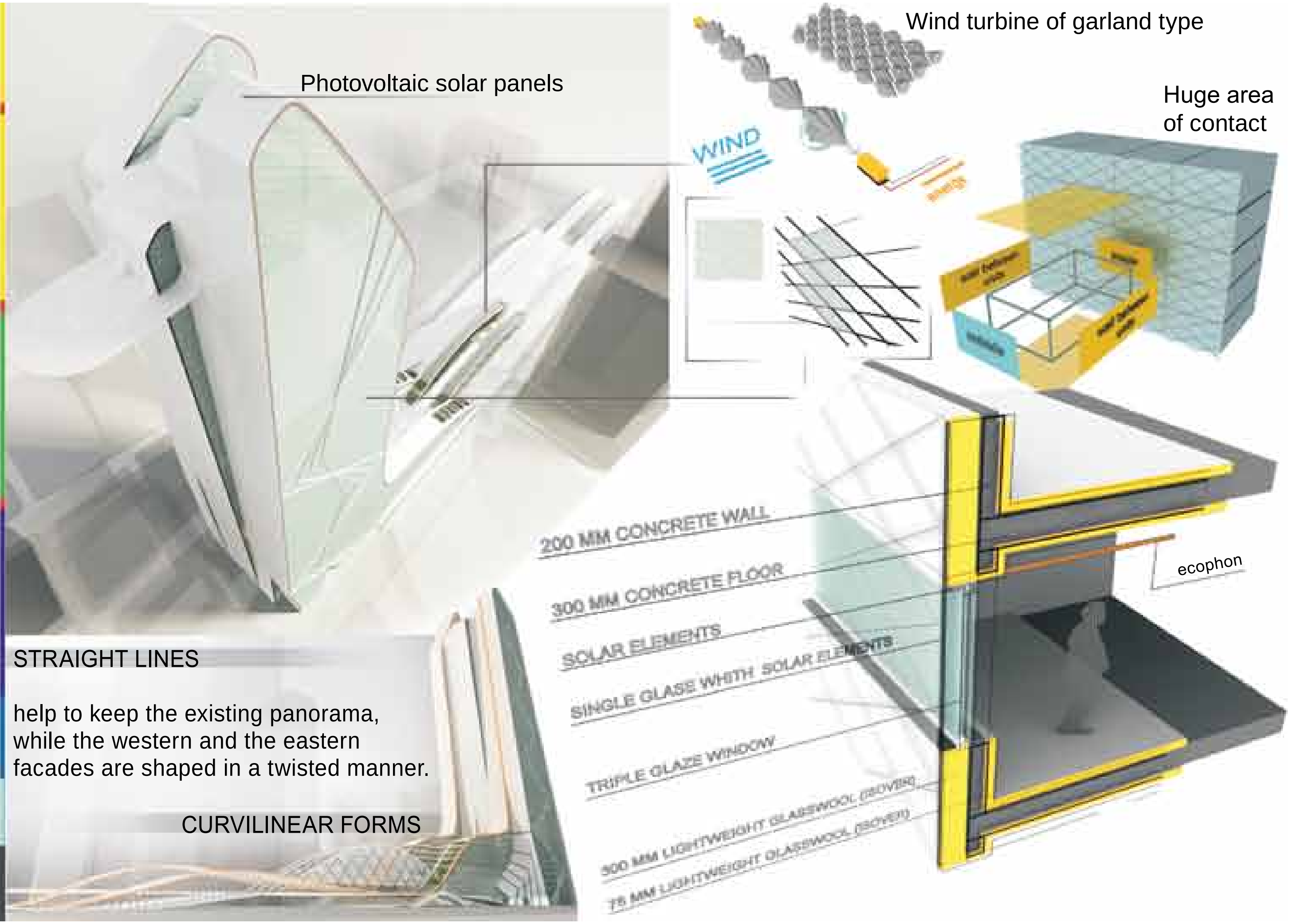

Residential block
Hotel
Office block
ELITE OFFICES
OFFICE BLOCK
TECHNICAL FLOOR
HOTEL
TECHNICAL FLOOR
RESIDENTIAL BLOCK
STUDENTS HOTEL
PUBLIC SPACES


Photovoltaic solar panels
Wind turbine of garland type
WIND
Huge area
of contact
STRAIGHT LINES
help to keep the existing panorama,
while the western and the eastern
facades are shaped in a twisted manner.
CURVILINEAR FORMS
200 MM CONCRETE WALL
300 MM CONCRETE FLOOR
SOLAR ELEMENTS
SINGLE GLASS WHITH SOLAR ELEMENTS
TRIPLE GLAZE WINDOW
300 MM LIGHTWEIGHT GLASSWOOL (ISOVER)
75 MM LIGHTWEIGHT GLASSWOOL (ISOVER)
ecophon

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ISOVER SAINT-GOBAIN

YULIYA
OMELIASHKO

ANDREI
KURASH

BELARUS
Belarussian National Technical University

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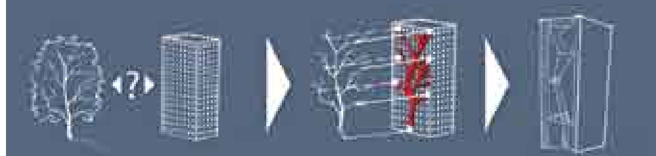
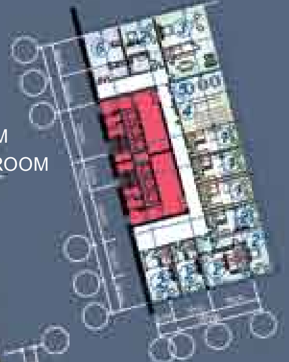
CONCEPT



TYPICAL FLOORS

1 STANDART ROOM
2 JUNIOR SUIT
3 KING SUIT
4 SHOWROOM
5 MEETING ROOM
6 THECHNICAL ROOM



1 LIVING ROOM
2 BEDROOM
3 KITCHEN
4 GARDEN
5 BATHROOM

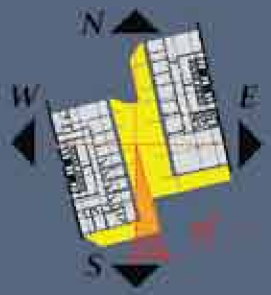
FUNCTIONAL SOLUTIONS

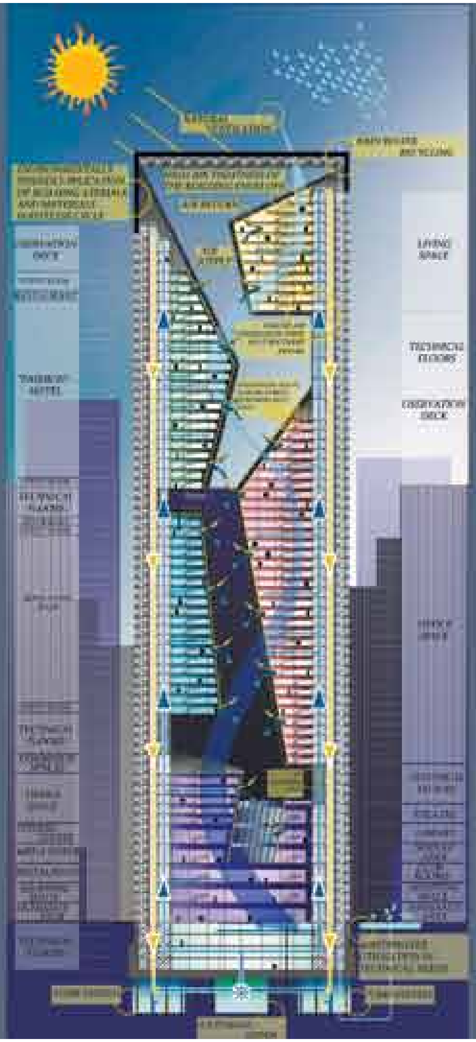
The multifunctional complex includes 5 major blocks:

On the underground level technical floors are located, where engineering equipment of the multi-comfort house is placed. The Charge of all functional blocks is carried out through them.

THE LOCATION AND DIRECTION OF THE BUILDING

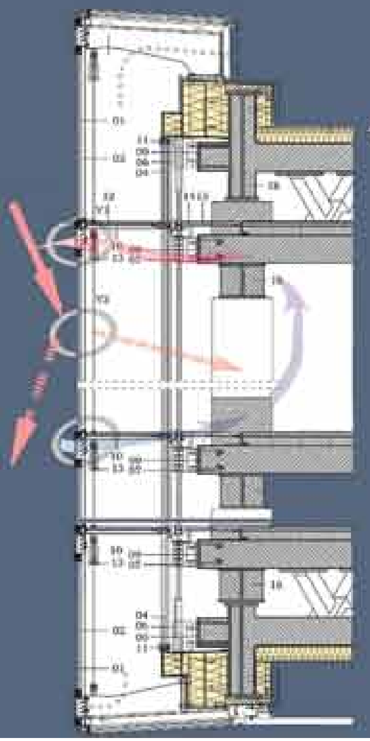
Southward direction of the main facade of a passive house (the deviation from the axis by 30% in the east or west direction possible) provides the optimal active and passive solar energy (solar heat flow). Large windows, facing the east or west, is disadvantageous. Summer during sunrise and sunset, they will accumulate a large amount of solar energy, in winter, when the days are much shorter, on the contrary will not generate enough energy.





ENERGY SAVINGS

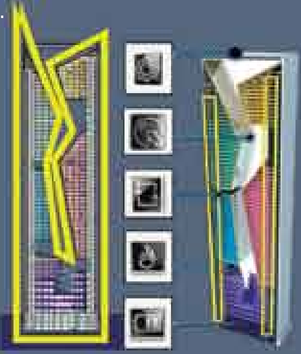
Built on the basis of a thermos principle, the passive house really corresponds to its name, actively using "passive" components: heat-insulated windows, heat distribution systems in heated rooms and uppermost effective heat insulation, that guarantees the absence of heat losses inside the building.



Typical Facade Detail

ENERGY EFFICIENCY

Energy efficiency of the multi-comfort house is achieved by co-integration of several energy-efficient systems: local generating systems (integrated to the construction of the building solar photoelectric installations, gas microturbines); the elements of natural ventilation dominate in the ventilation system; system of "solar" hot water supply.



1.Triple glazing in laminated safety glass with aluminium cover caps.
2.Vertical steel flats 60/40, e = 2,00
3.Horizontal transom made of steel tube 70/40.
4.Twin wall argon gas-tilled glazing, external toughened safety glass.
5.Crutchof the roof steel.
6.Top cable fixing point.
7.Swaged cable
8.Heat-insulating material ISOVER OLE/Y, γ=0,12 WT/mK
9.Steel anchor points embedded in concrete for 06-08.
10.Steel flats for bracing the outer skin and as support for grille 12.
11.Galvanised steel cantilevers with insulated glazing over the top for attaching 02.
12.Cellular concrete blocks, P=500кg/м3 γ=0,12 WT/mK.
13.Aluminium louvre blinds, b =100 m .
14. Smoke proof dividers made of sheet steel.
15.Aluminium grilles.
16.Structural support system made from prefabricated steel tube.

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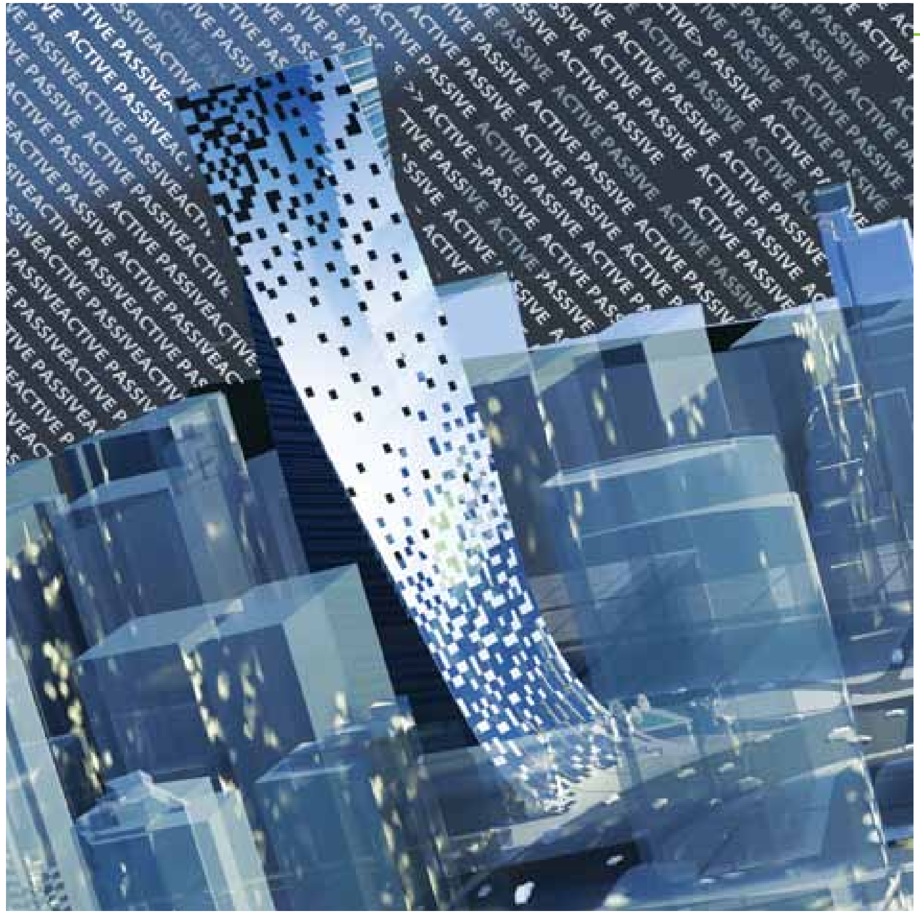

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VLADISLAV VELKOV

BRANIMIR BROZIG

SLAVCHO FILIPOV

BULGARIA

University of Architecture, Civil Engineering and Geodesy, Sofia

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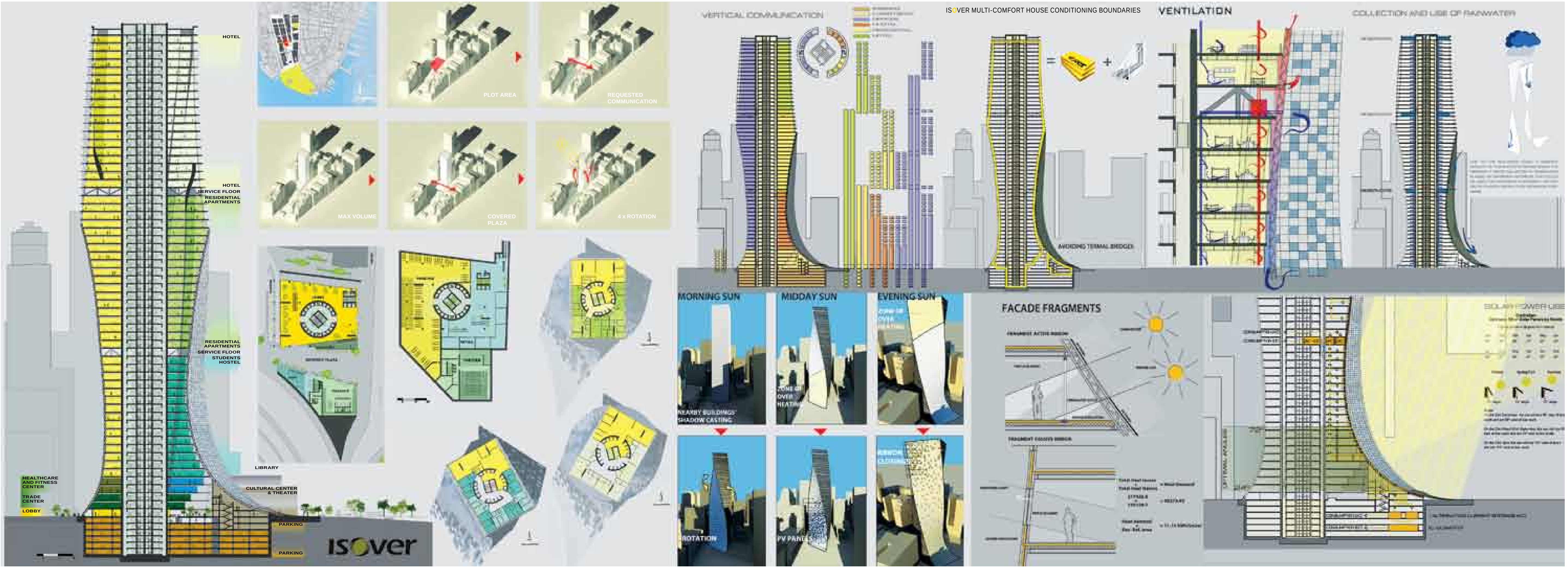
HOTEL
HOTEL
SERVICE FLOOR
RESIDENTIAL APARTMENTS
RESIDENTIAL APARTMENTS
SERVICE FLOOR
STUDENTS HOSTEL
HEALTHCARE AND FITNESS CENTER
TRADE CENTER
LOBBY
LIBRARY
CULTURAL CENTER & THEATER
PARKING
PARKING
isover
PLOT AREA
REQUESTED COMMUNICATION
MAX VOLUME
COVERED PLAZA
4 x ROTATION
VERTICAL COMMUNICATION
ISOVER MULTI-COMFORT HOUSE CONDITIONING BOUNDARIES
VENTILATION
COLLECTION AND USE OF RAINWATER
AVOIDING TERMAL BRIDGES
MORNING SUN
MIDDAY SUN
EVENING SUN
ZONE OF OVER HEATING
NEARBY BUILDINGS' SHADOW CASTING
ZONE OF OVER HEATING
ROTATION
PV PANELS
RIBBON CLOSING
FACADE FRAGMENTS
SOLAR POWER USE

GREENWICH TOWER IN NEW YORK CITY

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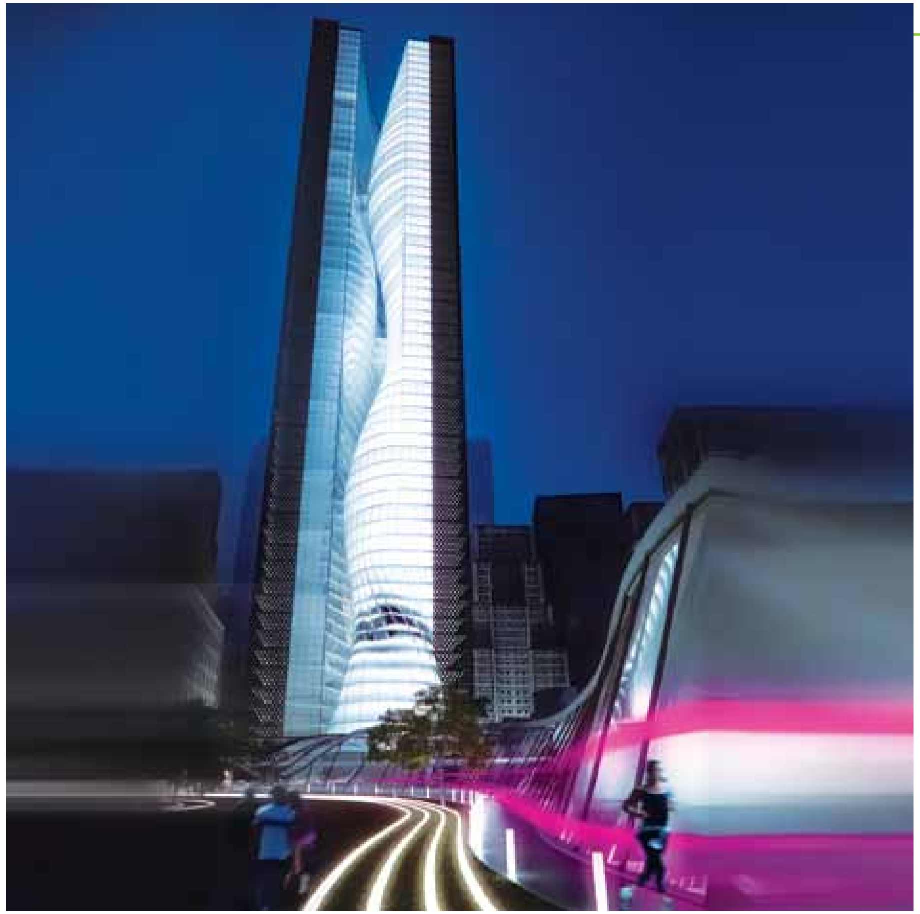

ISOVER SAINT-GOBAIN

STANISLAVA MARKOVSKA

DOBRINA ENCHEVA

TEOFANA HARALAMPIEVA

BULGARIA
New Bulgarian University, Sofia

II PRIZE
ISOVER Multi-Comfort House Students Contest
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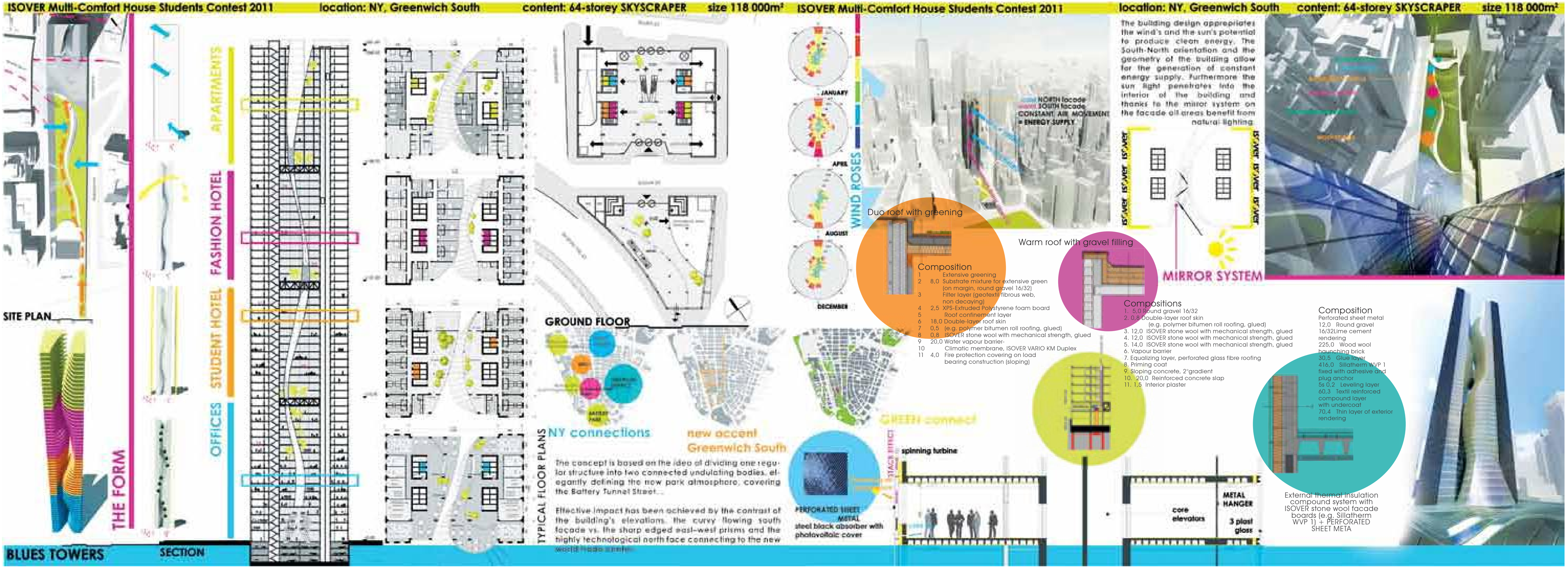
ISOVER Multi-Comfort House Students Contest 2011
location: NY, Greenwich South
content: 64-storey SKYSCRAPER
size 118 000m²
SITE PLAN
THE FORM
BLUES TOWERS
SECTION
APARTMENTS
FASHION HOTEL
STUDENT HOTEL
OFFICES
TYPICAL FLOOR PLANS
GROUND FLOOR
NY connections
new accent Greenwich South
The concept is based on the idea of dividing one regular structure into two connected undulating bodies, elegantly defining the new park atmosphere, covering the Battery Tunnel Street...
Effective impact has been achieved by the contrast of the building's elevations, the curvy flowing south facade vs. the sharp edged east-west prisms and the highly technological north face connecting to the new world trade center.
ISOVER Multi-Comfort House Students Contest 2011
location: NY, Greenwich South
content: 64-storey SKYSCRAPER
size 118 000m²
WIND ROSES
JANUARY
APRIL
AUGUST
DECEMBER
NORTH facade
SOUTH facade
CONSTANT AIR MOVEMENT
= ENERGY SUPPLY
The building design appropriates the wind's and the sun's potential to produce clean energy. The South-North orientation and the geometry of the building allow for the generation of constant energy supply. Furthermore the sun light penetrates into the interior of the building and thanks to the mirror system on the facade all areas benefit from natural lighting.
MIRROR SYSTEM
Duo roof with greening
Composition
1 Extensive greening
2 8,0 Substrate mixture for extensive green (on margin, round gravel 16/32)
3 Filter layer (geotextil fibrous web, non decaying)
4 2,5 XPS-Extruded Polystyrene foam board
5 Roof confinement layer
6 18,0 Double-layer roof skin
7 0,5 (e.g. polymer bitumen roll roofing, glued)
8 0,8 ISOVER stone wool with mechanical strength, glued
9 20,0 Water vapour barrier-
10 Climatic membrane, ISOVER VARIO KM Duplex
11 4,0 Fire protection covering on load bearing construction (sloping)
Warm roof with gravel filling
Compositions
1. 5,0 Round gravel 16/32
2. 0,8 Double-layer roof skin (e.g. polymer bitumen roll roofing, glued)
3. 12,0 ISOVER stone wool with mechanical strength, glued
4. 12,0 ISOVER stone wool with mechanical strength, glued
5. 14,0 ISOVER stone wool with mechanical strength, glued
6. Vapour barrier
7. Equalizing layer, perforated glass fibre roofing
8. Priming coat
9. Sloping concrete, 2°gradient
10. 20,0 Reinforced concrete slap
11. 1,5 Interior plaster
Composition
Perforated sheet metal
12,0 Round gravel
16/32Lime cement rendering
225,0 Wood wool haunching brick
30,5 Glue layer
416,0 Sillatherm WVP 1 fixed with adhesive and plug anchor
5s 0,2 Leveling layer
60,3 Textil reinforced compound layer with undercoat
70,4 Thin layer of exterior rendering
External thermal insulation compound system with ISOVER stone wool facade boards (e.g. Sillatherm WVP 1) + PERFORATED SHEET META
GREEN connect
spinning turbine
PERFORATED SHEET METAL
steel black absorber with photovoltaic cover
core elevators
METAL HANGER
3 plast glass

GREENWICH TOWER IN NEW YORK CITY

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ISOVER SAINT-GOBAIN

AYA
IRINKOVA

MARTIN
SHEKEROV

BULGARIA

University of Architecture, Civil Engineering and Geodesy, Sofia

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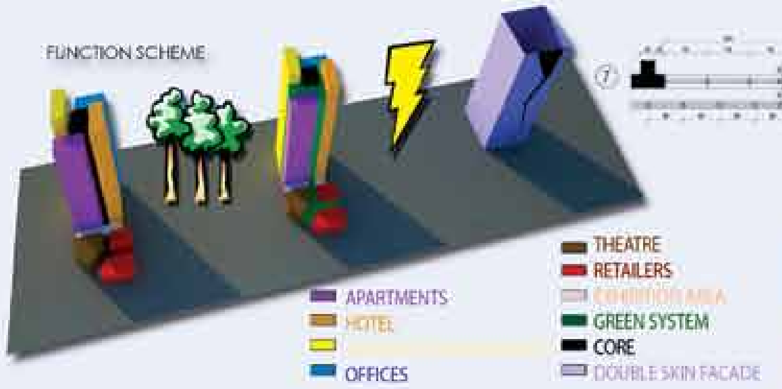
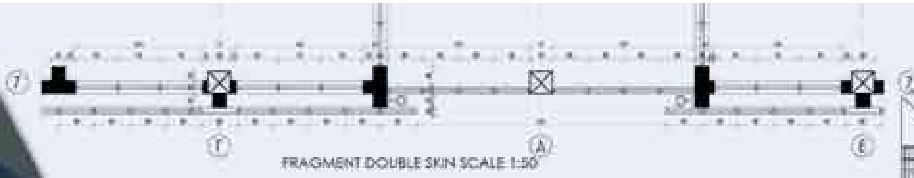
THE GREEN LIGHTNING

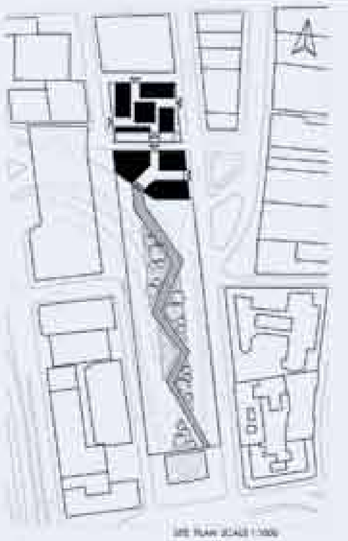
The population of man kind has increased four times for the last century and the energy demand more than twenty times.Future expectations are for increasingof the energy demand by at least 50% until 2030. Today we all have to think about the future more than ever, to save the nature and to use more alternate energy sources. Lighting strikes in New York City

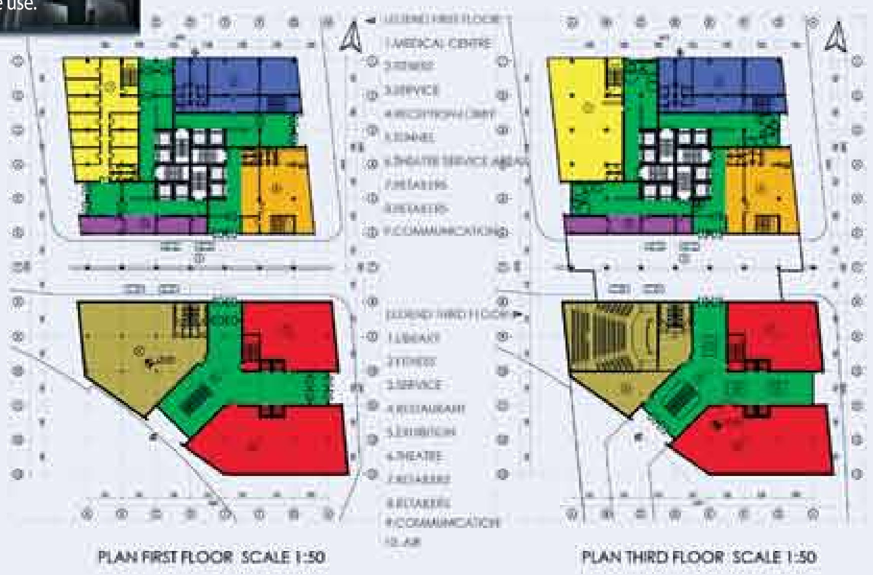
"The rooftops of taller buildings in New York City acr as lightning rods, protecting the surrounding shorter buildings from damage during electrical storms. The top of Empire State Building alone is struck by lightning over 100 times each year. The top of the Chrysler Building has been struck by lightning so often over the years that its famous spire was literally pockmarked by the impacts before recent restoration work repaired the damage. The incidence of lightning strikes elsewhere in lower Manhattan has increased greatly since the destruction of the World Trade Center and the loss of its extensive arrayof copper roof plating designed to safely channel electricity from lightning into the ground.

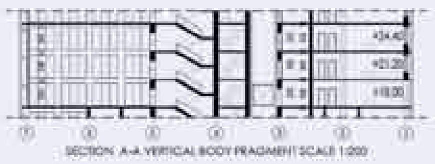
Many people don't know that clouds are charged with big amount of electricity. Lightnings from middle and lower clouds have energy that can light 100000 bulbs for an hour. If we could collect and reserve the energy from lightnings we will have an infinite energy resource.











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GREENWICH TOWER IN NEW YORK CITY

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IVAN FILIPOVIĆ

MARIN ČALUŠIĆ

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University of Zagreb, Faculty of Architecture

I PRIZE
ISOVER Multi-Comfort House Students Contest
Croatia national stage 2011

ISOVER SAINT-GOBAIN

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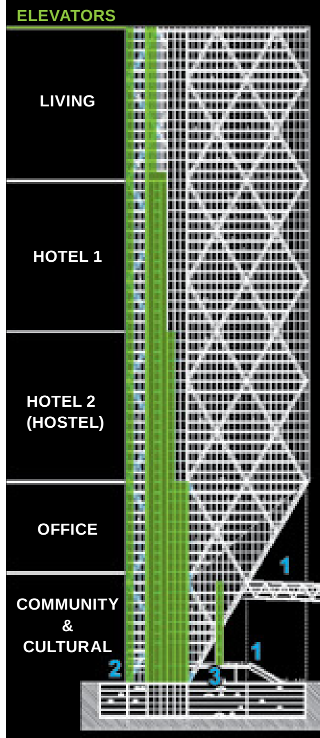
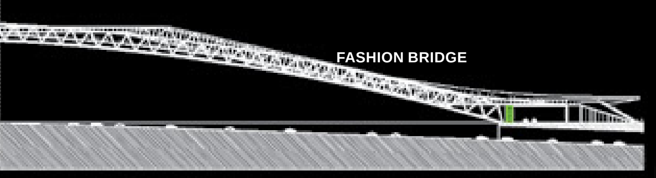
OUR PLANET IS THE JOY
OF SOMETHING MISERABLE.
TO THE DAYS OF JOY
SCRAMBLE RUN!
IN THE WORLD,
DYING IS NOT HARD ...
CREATE A LIFE FAR HARDER

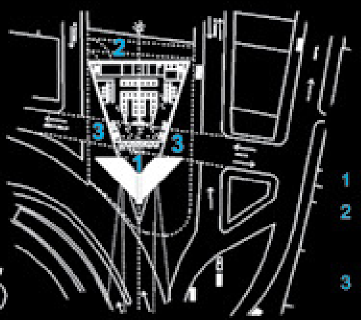
(Vladimir Mayakovski 1893-1930)





Live life every moment, outreach sensations, inhale fully, and to go forward with speed... It can only be one who is aware of the transience. And New York is just that! Life, it lives the speed of light and brilliance, always new and undiscovered, requires constant innovation. This complex project, it is this: Forms sensation, lights and functionality can only be understood by someone who lives prestigious blend of pragmatism and lasting gratification. The combination of profitable operation and enjoyment of consumption clearly targeted and focused effort and leave no doubts as to the meaning of zeal and pleasure... this project materialized as it takes 24 hours and open space with people who live symbiosis between earnings and spending.

Metal construction of skyscrapers and airy, elusive glass reflects the availability of work and life style, efficiency and profits. Skyscraper reflects a value orientation - glamour and fashion, to see and be seen, judged by experienced. Most of the tower core is structurally demanding to capture functioinality. In the literal sense of the picturesque combines work and home, leading from the heart rhythm of the holiday park and "charging".



FIRST FLOOR PLAN

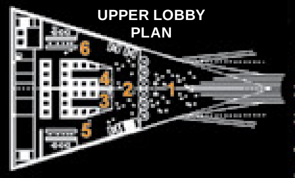
1 main entrance
2 drop off area hotel entrance to the garage emergency exit
3 new planned street

FASHION BRIDGE

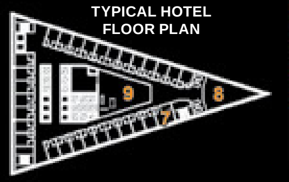
... to create a reason to come and a readon to stay - to create an icon that will establish a new identity and sense of place ...

Due to program task fashion design hotel, retail and bars as well as many other facilities with socio-cultural character is needed.
The above solution covering the ramps proposed tunnel construction bridge that connects the tower to Battery Park. The bridge was called "Fashion Bridge" and the content is filled with these social and cultural amenities, as well as fashion stores which can be accessed fr om a central "promenade".
Specifically, 7th Avenue in New york also called "Fashion Street" and it stretches from Central Park to the south. Although earlier ending goes straight to our location, so the newly planned resort, with and emphasis on "Fashion Bridge" continue these avenues and street fashion, which ultimately connects Central Park (in the middle of Manhattan) and Battery Park on the south.
With this design the complex structure was obtained witha very clear attitude about customers, whether it be on the visitors who walk around promenade on the bridge with supporting commercial, social and cultural amenities (+8.00 to +40.0 m), or users who live and work in it.

UPPER LOBBY PLAN



TYPICAL HOTEL FLOOR PLAN



1 main entrance
2 lobby
3 residential check-in
4 office check-in
5 fashion hotel reception
6 student hotel reception
7 rooms
8 open to below
9 additional contents

FASHION HOTEL SPACES

GUESTROOMS:
- King
- Double-doubles
- Handicapped
- Suites
- Manager's appartment
- Corridor

LOBBY:
- Flow area
- Seating
- Retail

FOOD AND BEVERAGE OUTLETS:
- Coffee shop
- Dell
- Snack bar
- Cocktail lounge
- Nightclub

FUNCTION AREAS:
- Ballroom
- Banquet rooms
- Meeting rooms
- Exhibit hall
- Projection booth

ADMINISTRATION:
Front office:
- Front desk
- Office manager
- Assistant manager
- Director of rooms
- Reception / secretary
- Work area / mail

Executive office:
- Reception
- General manager
- Secretary
- Conference room

FOOD PREPARATION:
- Main kitchen
- Banquet pantry
- Coffee shop pantry
- Bake shop
- Chef's office
- Dry food storage
- Refrigerated food storage
- Beverage storage
- Food controller office
- Toilets

EMPLOYEE AREAS:
- Security
- Personnel / reception
- Personnel manager
- Training room
- Files and storage
- Employee cafeteria

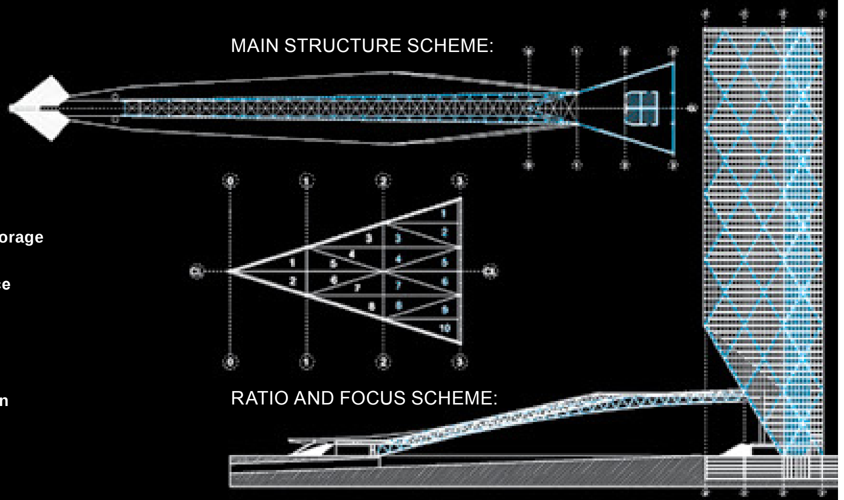
LAUNDRY AND HOUSEKEEPING:
- Laundry
- Supplies storages
- Housekeeper
- Secretary
- Lost and found

MECHANICAL AREAS:
- Mechanical plant
- Transformer room
- Emergency generator
- Fire pumps
- Elevator machine room

RECREATION:
- Swimming pool
- Whirlpool
- Exercise room
- Managers' office
- Equipment storage

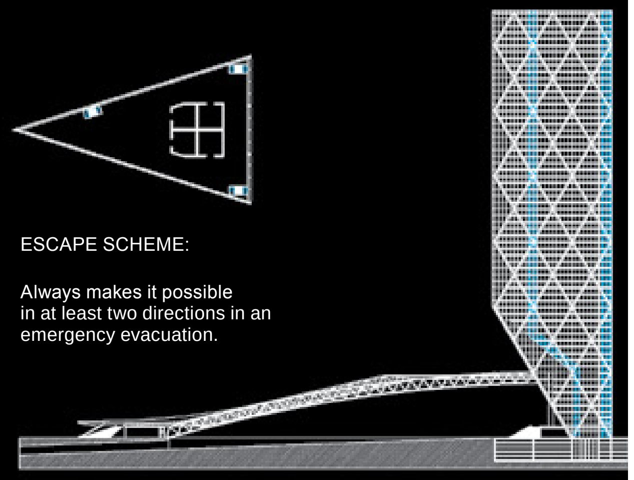
MAIN STRUCTURE SCHEME:

RATIO AND FOCUS SCHEME:



ESCAPE SCHEME:

Always makes it possible in at least two directions in an emergency evacuation.



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KREŠIMIR
ROMIĆ

MARTA
RIŽANA DRMIĆ

CROATIA
University of Zagreb, Faculty of Architecture

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THINGS FALL APART BUT DREAMS DON`T

CONCEPT

THINGS FALL APART, BUT DREAMS DON`T

AS IN YOU CAN DESTROY ANYTHING THAT IS MATERIAL BUT YOU CAN'T AS EASILY DESTROY A THOUGHT, A STRIVE, A DREAM.

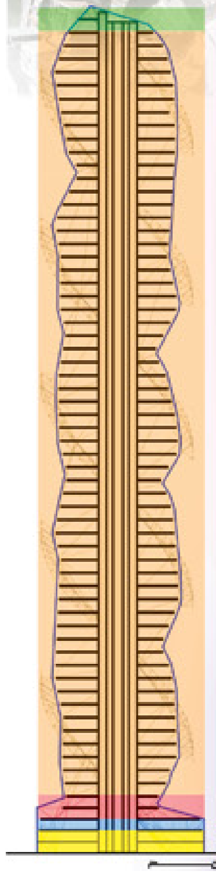
THE BIGGEST THOUGHTS I HAD WERE THOUGHTS ON LIFE. WHAT IS LIFE? WHAT'S WORTH HOLDING ON TO, DESPERATELY TRYING TO PUT MEANING INTO MY EXISTANCE. THEN IT CAME TO ME, IRONICLY IN A DREAM.

IT WAS THE ABILITY AND THE POWER OF DREAMS, TO ENVISION AND TO PLAN ON HOW TO ACHIEVE MY DREAMS. BY CONCENTRATING ON MY THOUGHTS I WAS ABLE TO MATERIALIZE WHAT I WAS THINKING, FIRST IT WAS A SIMPLE LINE ON A BLANK PIECE OF PAPER, THEN IT WAS A SQUARE, AND BEFORE YOU KNEW IT, IT WAS A SKYSCRAPER.

IN CONCLUSION A MAJORITY OF THINGS IN LIFE ARE PURELY MATERIAL, AND WE RARELY FOCUS ON OUR ESSENCE, AND ONLY IN GREAT TRAGEDY IS WHEN WE REALIZE HOW MATERIAL THINGS EASILY FALL APART BUT THE GOODNESS OF PEOPLE AND THEIR SPIRIT IS INDESTRUCTIBLE.

AND WHAT BETTER PLACE TO PRESENT THE IDEA OF IMMORTAL DREAMS AND UNIMAGINABLE SPIRIT, WHERE IN RECENT TIME THE PEOPLE OF NEW YORK DEMONSTRATED THAT THINGS FALL APART, BUT DREAMS DON'T.

IT'S NOT JUST ABOUT THE AMERICAN DREAM BUT THE PEOPLE'S DREAM INSTEAD, TO DESIRE, WORK, AND ACQUIRE DOING WHAT YOU LIKE AND STAYING MOTIVATED KNOWING... THE SKY IS THE LIMIT.



SECTION

- GYM + LOUNGE BAR
- 1. ¼ FASHION- AND DESIGN-HOTEL: ROOMS (60% SINGLE ROOMS, 40% DOUBLE ROOMS), SHOWROOM, DRESSING ROOMS, CONFERENCE ROOMS, KITCHEN, DINING ROOMS, BATH ROOMS
  2. ¼ STUDENT DESIGN –HOTEL: BUNK BEDS (4 BEDS PER ROOM, PRIVATE BATHROOM EACH), COMMON KITCHEN FOR EACH 6 BEDROOMS, COMMON DINING ROOMS
  3. ¼ RESIDENTIAL
  4. ¼ OFFICES
- HOTEL
- GARAGE
- RETAIL, ENTRANCE LOBBY FASHION HOTEL, ENTRANCE LOBBY STUDENT HOTEL, ENTRANCE LOBBY RESIDENTIAL

CONSTRUCTION DETAIL

SPATIAL STEEL GRID - 3 spatial grids that are spirally wrapped around the building that are connected to the truss on every floor, forming an equilateral triangle.

SPATIAL STEEL GRID - Spatial carrier that on each floor to stiffen the spiral mount with a concrete core carries the structure floor.

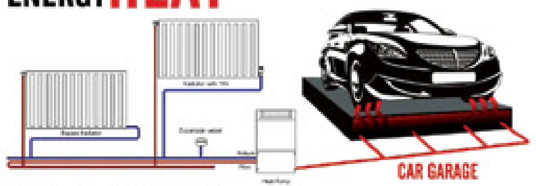
STEEL MOUNTING PLATE - a panel of prefabricated steel beams / girders with a reinforced concrete pressure plate.

CHIEF FACADE SUPPORT - main carriers of the facade with a square-section steel profile.

SECONDARY FACADE SUPPORT - Side facade rails with a square-section steel profile.

FRICTION CREATES HEAT / FRICTION CREATES ENERGY

FRICTION IS THE INTERACTION OF OPPOSED MATTER AND ORBITAL ELECTRON ENERGY CAUSED TO DISPLACE OR VIBRATE THEREBY TRANSFERRING SOUND ENERGY THROUGH THE MATTER STRUCTURE DUE TO KINETIC ENERGY BEING DISPLACED IN INTERACTING ATOMIC STRUCTURES. WHEN FRICT.ION IS APPLIED, THE ENERGY BETWEEN THE OBJECTS INCREASES. IT CAN CREATE THERMAL ENERGY (HEAT). DEPENDING ON THE OBJECTS WITH FRICTION APPLIED, THE TYPES OF ENERGY CREATED CAN DIFFER.



CONCRETE (dry) / RUBBER

THE BIGGEST COEFFICIENT OF FRICTION IS BETWEEN RUBBER AND DRY CONCRETE, THEREFORE A LOT OF HEAT LOSS IS OCCURING DUGING THE PROCESS. INSTEAD WE TRANSFER THE HEAT PROVIDED BY FRICTION IN THE GARAGES TO POWER THE HEAT PUMP USED FOR WATER HEATING.
THE HEAT ACCUMULATED IN THE PANNELS INSIDE THE GARAGE FLOOR IS TRANSFERED TO POWER THE HEAT OUMP USED FOR HEATING WATER AND AIR INSIDE THE SKYSCRAPER.

URBANISM

STREETS GREEN CONNECTION WITH BATTERY PARK
METRO LINE EASY ACCESS GARAGE

METRO LINE

THE BASE OF THE SKYSCRAPER IS OPENED UP TOWARDS THE METRO STATION SO IT ATTRACTS PEDESTRIANS.

GARAGE

THE GARAGE RAMP IS ON THE SOUTH AND PROVIDES EASY ACCESS.

GREEN CONNECTION

THE STRONG "GREEN LINE" CONNECTING BATTERY PARK DEFINES THE BASE OF THE BUILDING BY INTERVENING WITH ITS FRONT CREATING A CAVE-LIKE FACADE.

STREET

THE WAY THE NEARBY STREETS AFFECTED THE THOUGHT PROCESS OF THE DESIGN IS BEST SEEN IN THE WAY THE MAIN (SPIRAL) CONSTRUCTION IS CONNECTED TO THE BATTERY TUNNEL STREET AND THE STRONG GREEN LINE OF BATTERY PARK.

SOLAR ENERGY/CITY BEACON

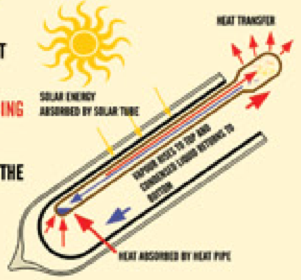
SOLAR ENERGY, NEW YORK?

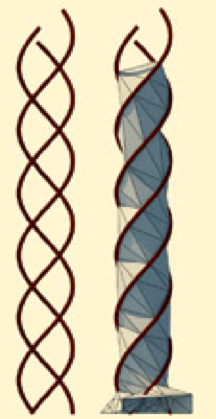
IT MIGHT INTEREST YOU TO KNOW THAT NEW YORK RECEIVES ALMOST AS MUCH SUN AS FLORIDA, DEFINITELY MORE THAN ENOUGH TO PROVIDE ENOUGH SOLAR ENERGY WITHOUT HAVING TO RELY ON CITY-PROVIDED ELECTRICITY.

SOLAR PANELS ARE INSTALLED ON THE FACADE OF THE OFFICE BULIDING. THE SOLAR PANELS ARE COMPRISED OF SOLAR CELLS KNOWN AS SOLAR PHOTOVOLAICSM OR SOLAR PV. THESE SILICON SEMICONDUCTORS CONVERT SUNLIGHT INTO DIRECT ELECTRICITY.

THE INDENTED MINERAL SHAPE FACADE OF THE BUILDING FAVORS THE SUNS ANGLE OF ARRIVAL

THE TUBE RECIEVES ENERGY FROM THE SUN HEATING THE WATER ACCUMULATED FROM PRECIPITATION THE TUBE SERVES AS A CITY BEACON MAKING ITS MARK IN THE NEW YORK CITY LANDSCAPE.





ISOLATION & FIRE PROTECTION

METAL DUCTS AND CLIMAVER

SUCH DUCTS ARE MADE FROM SHEET METAL (GALVANIZED OR STAINLESS STEEL, COPPER, ALUMINIUM), CUT AND SHAPED TO THE REQUIRED GEOMETRY FOR THE AIR DISTRIBUTION SYSTEM.
SINCE METAL IS A GOOD THERMAL CONDUCTOR, SUCH DUCTS REQUIRE THERMAL INSULATION, THE COMMONEST MATERIAL FOR WHICH IS GLASS WOOL, USUALLY IN ROLL FORM (KNOWN AS 'WRAPS' OR 'WRAPPED INSULATION'). WRAPPED AROUND THE OUTER DUCT WALL WRAPS INCORPORATE AN ALUMINIUM FOIL FACING THAT ACTS AS A VAPOUR BARRIER.

THERMAL INSULATION OF DUCTS WITH ISOVER PRODUCTS

HEAT TRANSFERRED THROUGH THE DUCT NETWORK REPRESENTS A LOSS OF ENERGY, AND IN TURN INCREASED OPERATING COSTS. MOREOVER, THERMAL LOSSES CAN LEAD TO FLUCTUATIONS IN THE DESIRED AIR-CONDITIONED TEMPERATURE OF THE BUILDING. THEREFORE, IT IS NECESSARY TO KNOW THE RELATIONSHIP BETWEEN CALORIFIC TRANSFER AND AIR VARIATION FOR THE GEOMETRIC CHARACTERISTICS OF THE DUCT NETWORK AND INTERNAL AIR FLOW.

THERMAL TRANSMITTANCE BETWEEN TWO ENVIRONMENTS IS DEFINED AS THE AMOUNT OF HEAT THAT PASSES FROM ONE TO THE OTHER PER UNIT OF AREA, DIVIDED BY THE TEMPERATURE DIFFERENCE. THE TRANSMITTANCE, U, IS THE INVERSE OF THE TOTAL THERMAL RESISTANCE OF THE SYSTEM, INCLUDING SURFACE RESISTANCES R.
IN FLAT WALLS (DUCTS WITH RECTANGULAR CROSS-SECTION), TRANSMITTANCE U IS EXPRESSED PER UNIT SURFACE AREA.

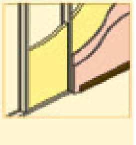
FIRE PERFORMANCE

MADE FROM INHERENTLY NON-COMBUSTIBLE MATERIALS, APR 1200 IS COMPLETELY FIRE SAFE, ACHIEVING A EUROCLASS A1 FIRE RATING WHEN CLASSIFIED IN ACCORDANCE WITH BS EN 13501-1. THE FOLLOWING CONSTRUCTIONS SHOW THE FIRE RESISTANCE FOR IMPERFORATED PARTITIONS USING GYPROC METAL PARTITIONING WITH APR 1200 IN THE CAVITY.

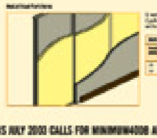
INTERNAL PARTITIONS

120 MINUTES
TWO LAYERS OF GYPROC FIRELINE BOARD (2X12.5MM) E. SIDE OF 146MM GYPROC STUDS AT 600MM CENTRES PLI 50MM APR 1200 IN THE CAVITY.

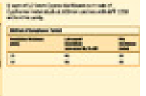
INSULATION THICKNESS (MM) = 50
FIRE RESISTANCE (MINS) = 120
LAB SOUND INSULATION 100-3150 HZ = 51



THERMAL PERFORMANCE
THICKNESS (MM) = 50
R-VALUE (M2K/W) = 1.22



ACOUSTIC PERFORMANCE
INTERNAL PARTITIONS
PART E BUILDING REGULATIONS JULY 2003 CALLS FOR MINIMUM40DB AIRBORNE SOUND INSULATION IN IMPERFORATE INTERNAL PARTITION WALLS. THE FOLLOWING CONSTRUCTIONS INCORPORATING APR 1200 WILL COMPLY WITH THIS REQUIREMENT.



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MARINO
DUJMOVIĆ

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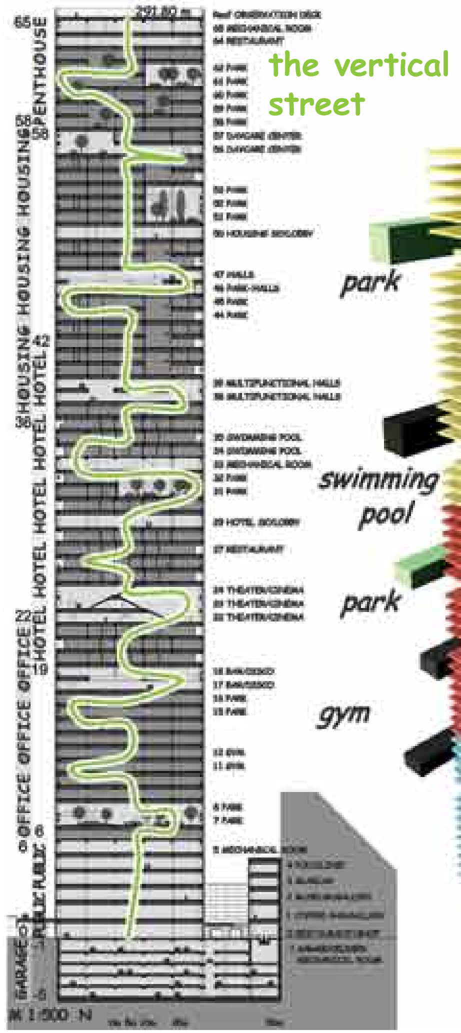
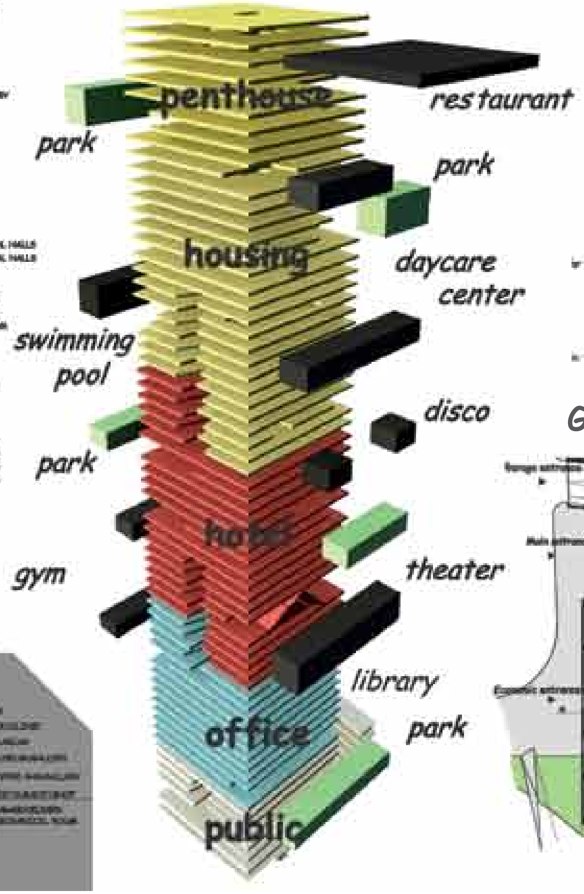
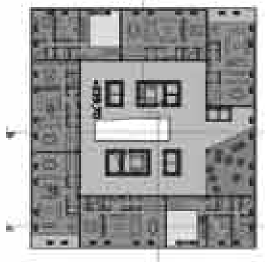
"VERTICAL STREET TOWER"

GREENWICH SOUTH, MANHATTAN, NY





HOUSING 56th FLOOR

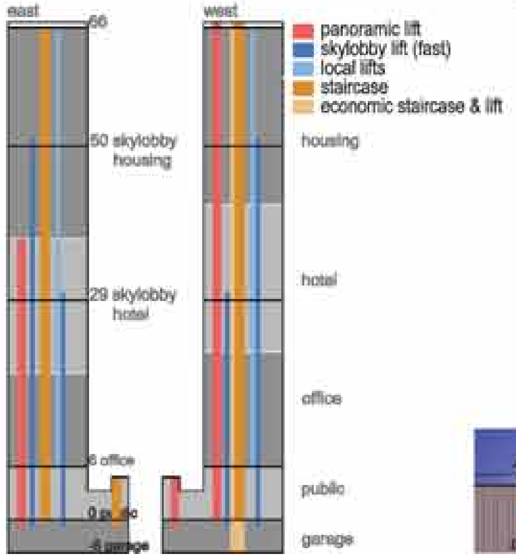


GROUND FLOOR

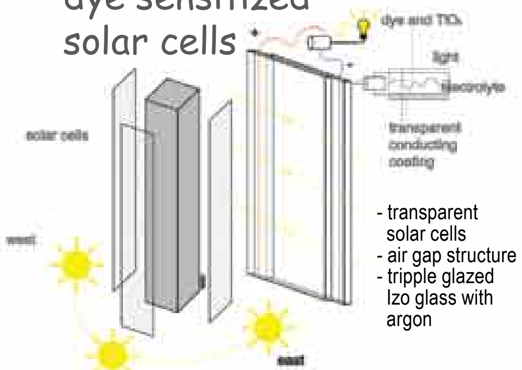
Vertical Street Tower is a skyscraper which is imagined as a vertical street with contents scattered throughout the vertical section of the building. In the center of the building there's a gap that serves as a street which connects all vertical communications, visual and non visual, and all public contents throughout. It also serves as an important element of the energy efficiency of the building (natural ventilation). VST is according to that directly designed for people, with a link with the city in a different way then they are today.

rainwater collecting

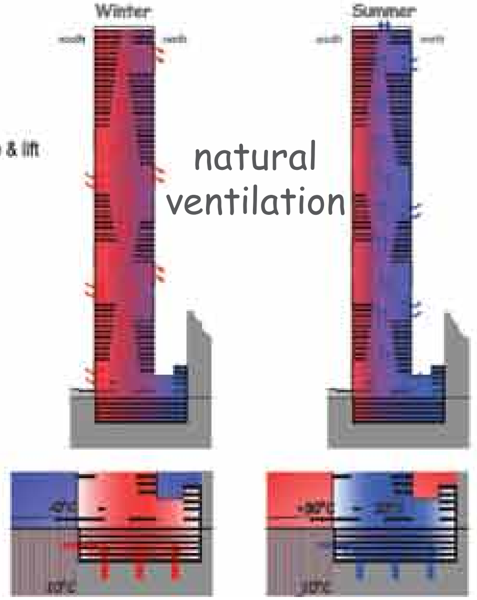
lift system

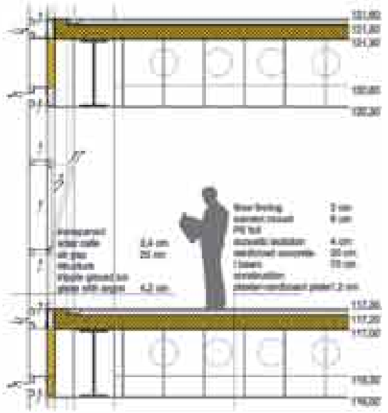


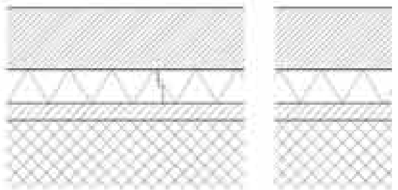
dye sensitized solar cells



natural ventilation

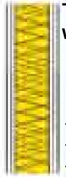






Industrial floor U=0,36 W/m²K

steel fibre reinforced concrete	18 cm
floating layer	1 cm
Styrodur 4000 CS	10 cm
protective concrete	5 cm
reinforced concrete base	150 cm
round gravel	

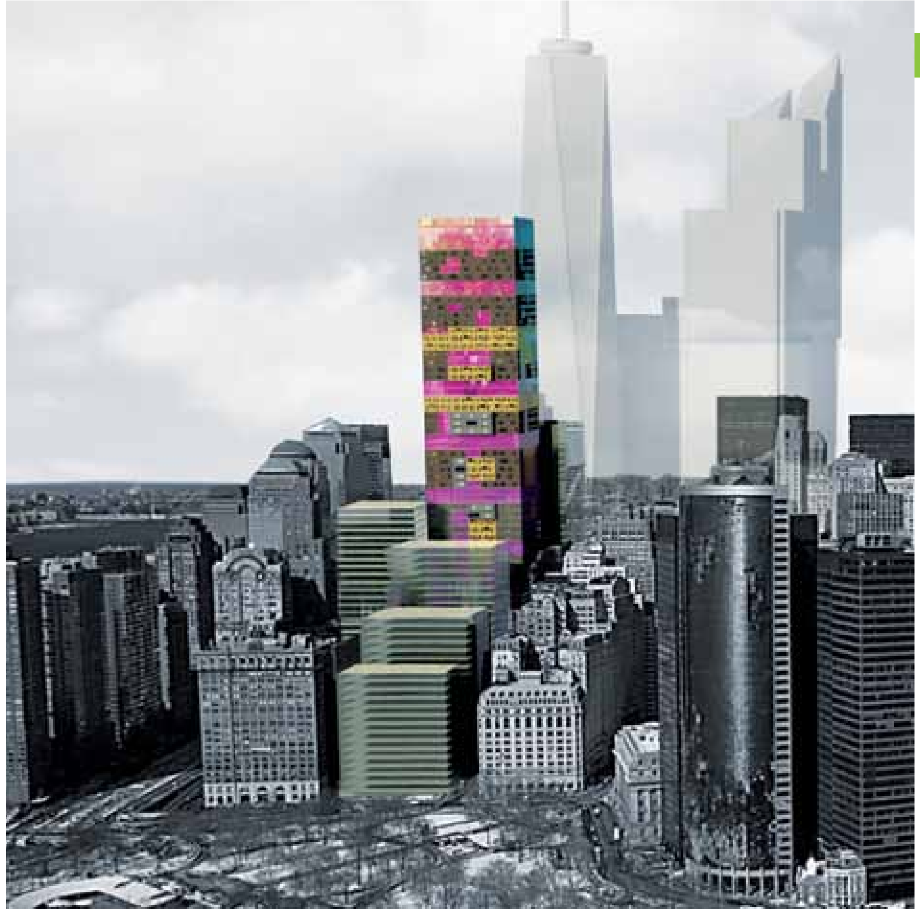


Two-tier sheathed wall with metal construction

U=0,36 W/m2K
Rw= 59 Db

- fireproof plaster-cardboard plates
- Isover - Piano 100 between C profil 100
- fireproof plaster-cardboard plates

GREENWICH TOWER IN NEW YORK CITY
7th ISOVER Multi-Comfort House Students Contest 2011



JURY SPECIAL AWARD

ISOVER Multi-Comfort House
Students Contest

International stage, Prague 2011

ISOVER SAINT-GOBAIN

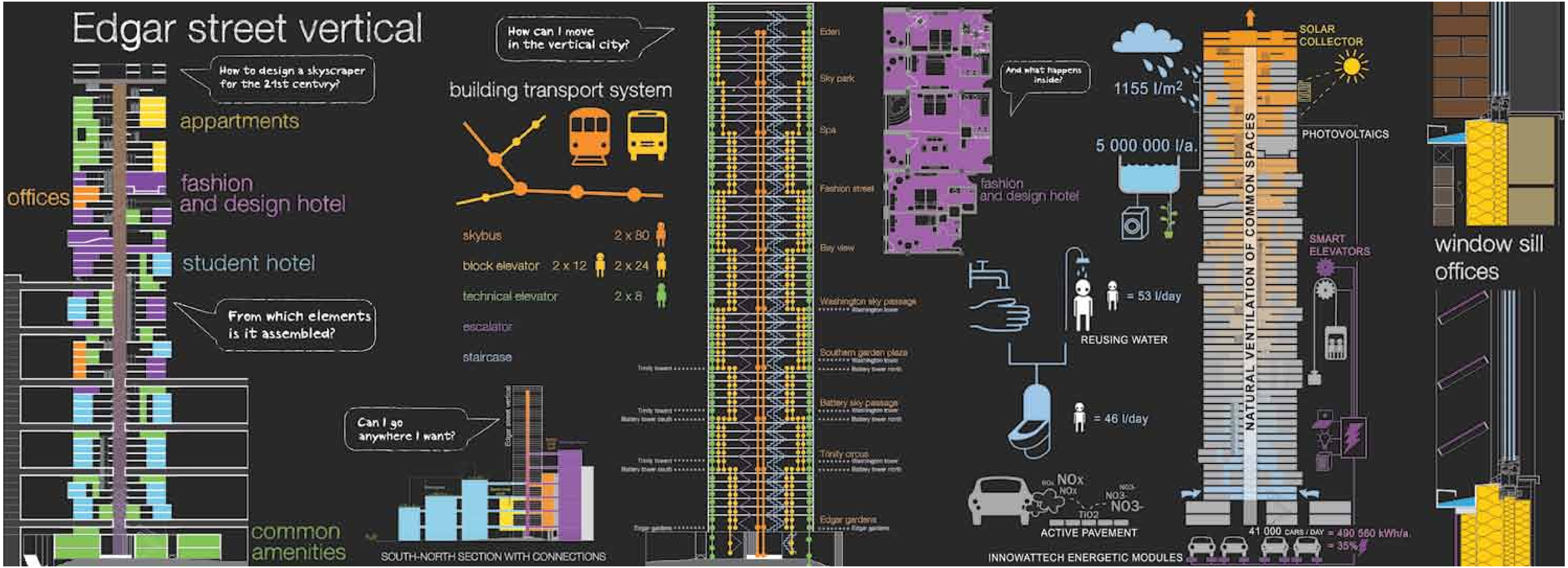
KATEŘINA
BLAHUTOVÁ

VERONIKA
KOMMOVÁ

CZECH REPUBLIC
Czech Technical University, Faculty of Architecture

I PRIZE
ISOVER Multi-Comfort House Students Contest
Czech Republic national stage 2011

more information on
www.isover-students.com



Edgar street vertical
How to design a skyscraper for the 21st century?
appartments
offices
fashion and design hotel
student hotel
From which elements is it assembled?
common amenities
How can I move in the vertical city?
building transport system
skybus
2 x 80
block elevator
2 x 12
2 x 24
technical elevator
2 x 8
escalator
staircase
Can I go anywhere I want?
SOUTH-NORTH SECTION WITH CONNECTIONS
Eden
Sky park
Spa
Fashion street
Bay view
Washington sky passage
Southern garden plaza
Battery sky passage
Trinity circus
Edgar gardens
And what happens inside?
fashion and design hotel
1155 l/m2
5 000 000 l/a.
= 53 l/day
REUSING WATER
= 46 l/day
NOx
NO3-
TiO2
ACTIVE PAVEMENT
INNOWATTECH ENERGETIC MODULES
NATURAL VENTILATION OF COMMON SPACES
SOLAR COLLECTOR
PHOTOVOLTAICS
SMART ELEVATORS
41 000 CARS / DAY = 490 560 kWh/a.
= 35%
window sill offices

Multi-Comfort House

GREENWICH TOWER IN NEW YORK CITY

7^{th} ISOVER Multi-Comfort House Students Contest 2011

ISOVER SAINT-GOBAIN

MAREK KOLÁŘ

MICHAL MATIKA

CZECH REPUBLIC
Czech Technical University, Faculty of Civil Engineering

II PRIZE
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Czech Republic national stage 2011

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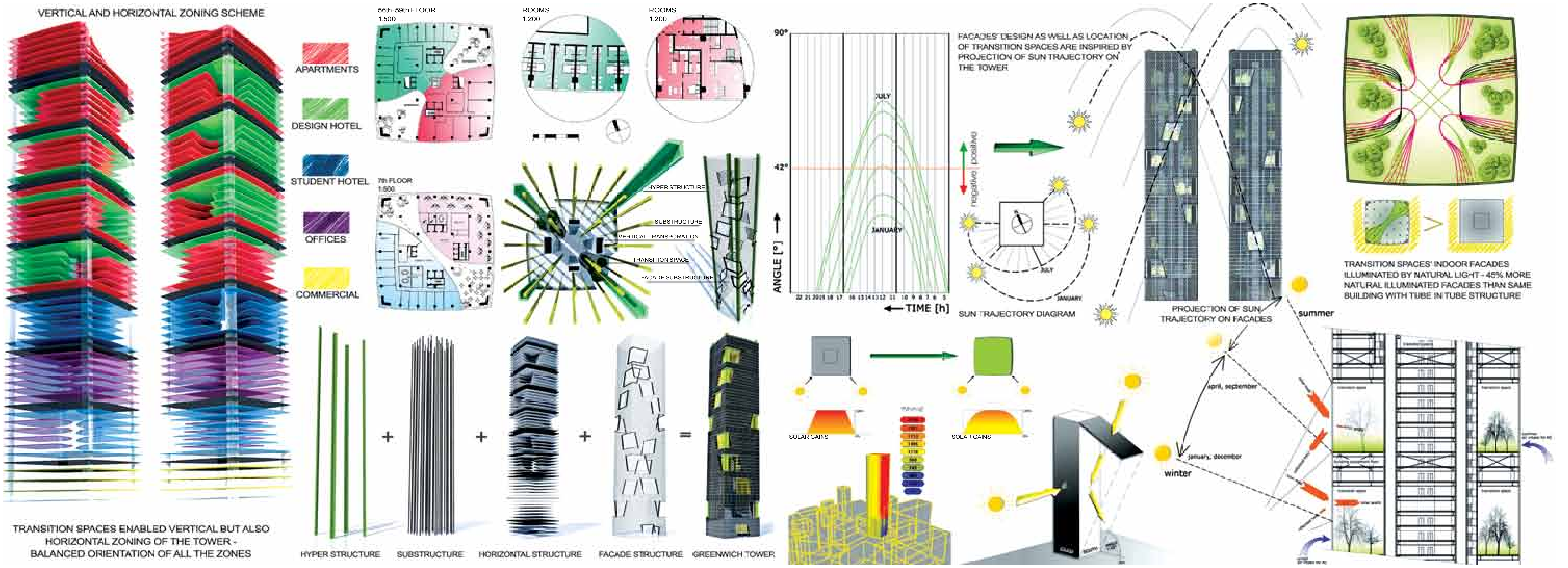
VERTICAL AND HORIZONTAL ZONING SCHEME
APARTMENTS
DESIGN HOTEL
STUDENT HOTEL
OFFICES
COMMERCIAL
TRANSITION SPACES ENABLED VERTICAL BUT ALSO HORIZONTAL ZONING OF THE TOWER - BALANCED ORIENTATION OF ALL THE ZONES
56th-59th FLOOR
1:500
7th FLOOR
1:500
ROOMS
1:200
ROOMS
1:200
HYPER STRUCTURE
SUBSTRUCTURE
VERTICAL TRANSPORATION
TRANSITION SPACE
FACADE SUBSTRUCTURE
+
+
+
=
HYPER STRUCTURE
SUBSTRUCTURE
HORIZONTAL STRUCTURE
FACADE STRUCTURE
GREENWICH TOWER
90°
42°
JULY
JANUARY
ANGLE [°]
TIME [h]
positive
negative
FACADES' DESIGN AS WELL AS LOCATION OF TRANSITION SPACES ARE INSPIRED BY PROJECTION OF SUN TRAJECTORY ON THE TOWER
JULY
JANUARY
SUN TRAJECTORY DIAGRAM
PROJECTION OF SUN TRAJECTORY ON FACADES
TRANSITION SPACES' INDOOR FACADES ILLUMINATED BY NATURAL LIGHT - 45% MORE NATURAL ILLUMINATED FACADES THAN SAME BUILDING WITH TUBE IN TUBE STRUCTURE
SOLAR GAINS
SOLAR GAINS
summer
april, september
january, december
winter

GREENWICH TOWER IN NEW YORK CITY

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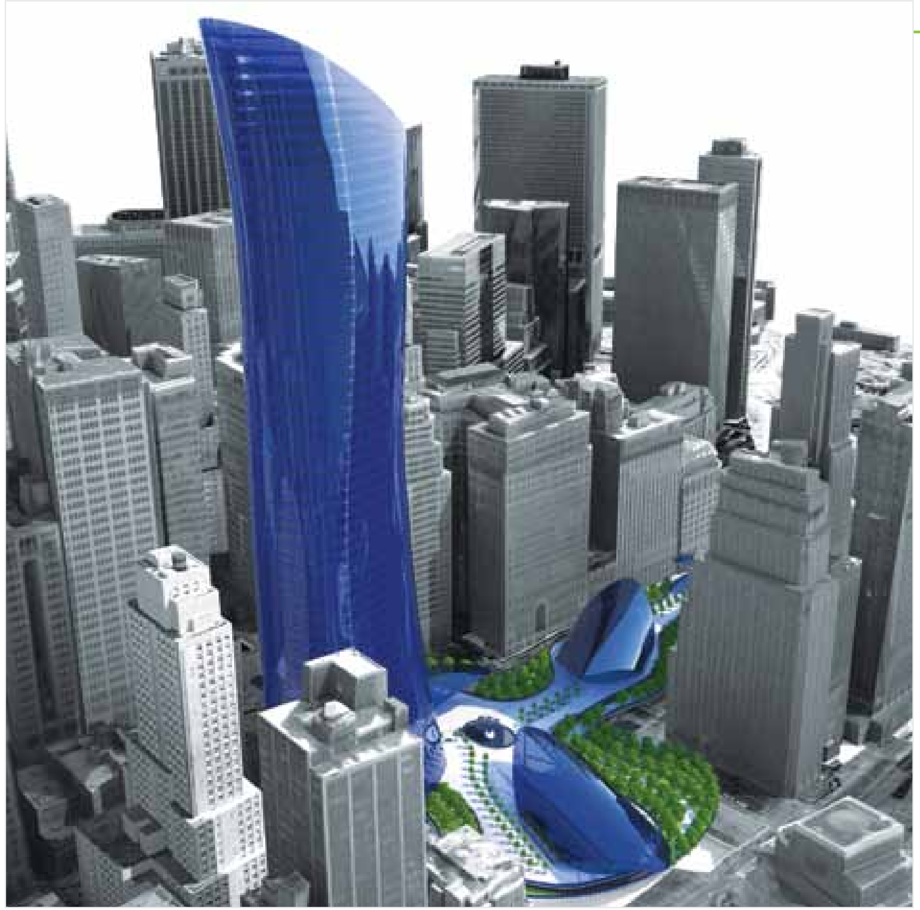

MICHAL
BABÁK

LENKA
ALIGEROVÁ

PAVLÍNA
ŠVIRÁKOVÁ

CZECH REPUBLIC
Czech Technical University, Faculty of Civil Engineering

III PRIZE
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Czech Republic national stage 2011

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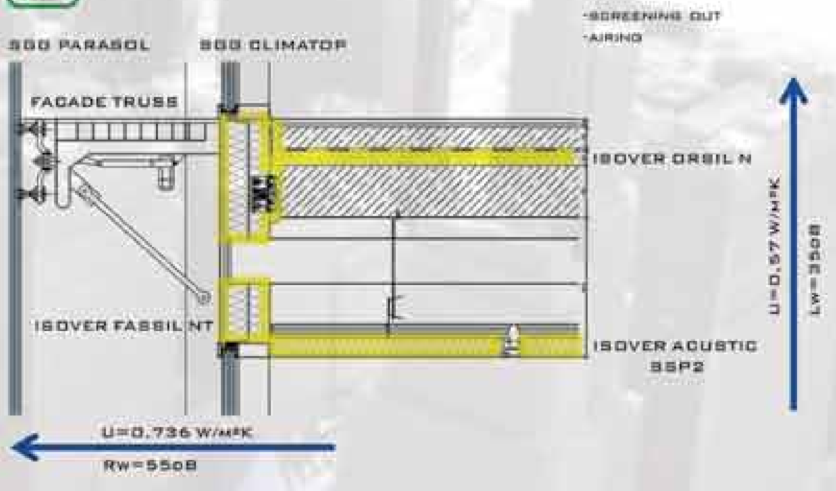
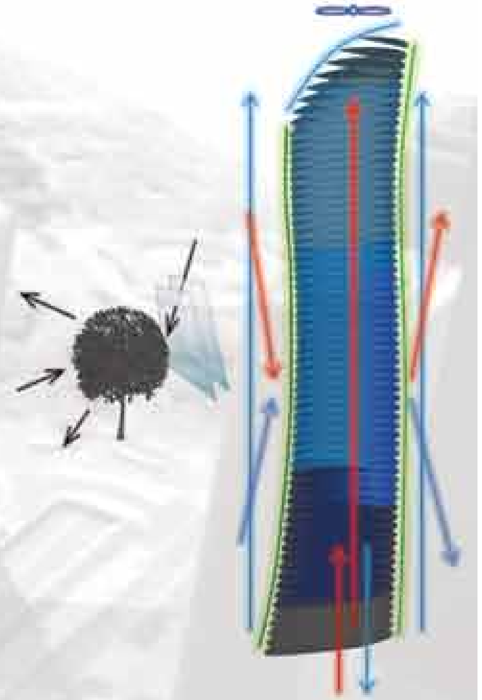
EVOLUTION TOWER

CONSTRUCTION



SUSTAINABLE ENERGY SOURCES



CONNECTIONS TO NEIGHBOURHOOD

DESIGN IDEAS

TOWER

IDEA NO. 1
DYNAMIC SHAPE FOR DYNAMIC CITY

IDEA NO. 2
NEW DOMINANT BUILDING ON SKYLINE

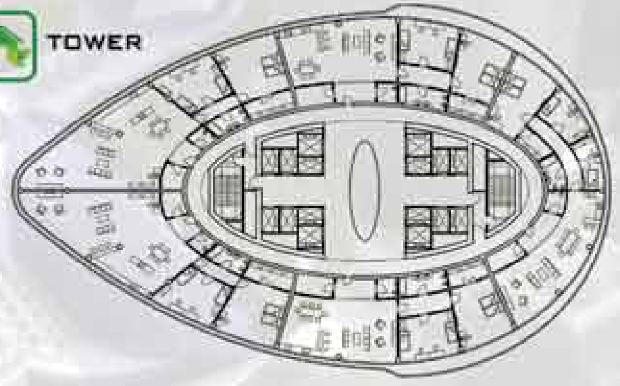
IDEA NO. 3
GREAT VIEW ON WHOLE CITY

IDEA NO. 4
SUSTAINABLE ENERGY SOURCES

IDEA NO. 5
‚GREEN' INTERIOR

PARTERRE

TOWER



EVOLUTION TOWER

ISOVER SAINT-GOBAIN

GREENWICH TOWER IN NEW YORK CITY

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ANNA TEMMO

INDREK PALM

ESTONIA
University of Applied Sciences, Tallinn

I PRIZE
ISOVER Multi-Comfort House Students Contest
Estonia national stage 2011

ISOVER SAINT-GOBAIN

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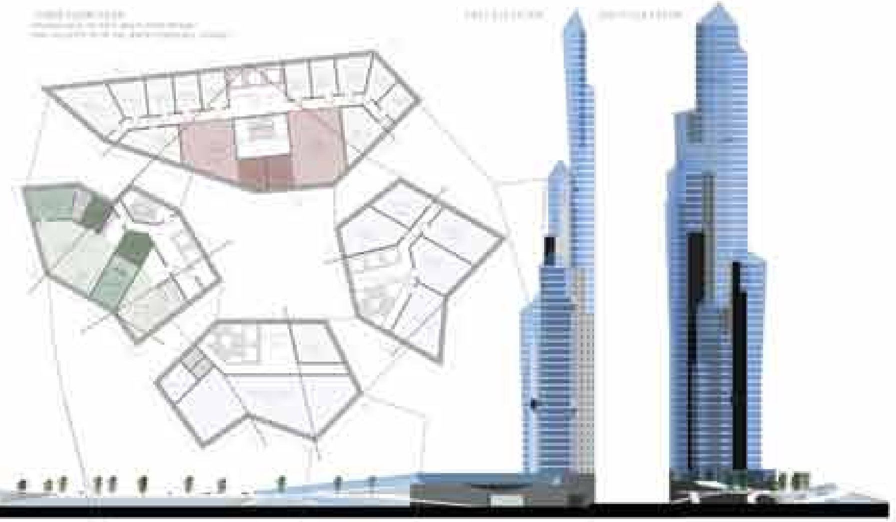
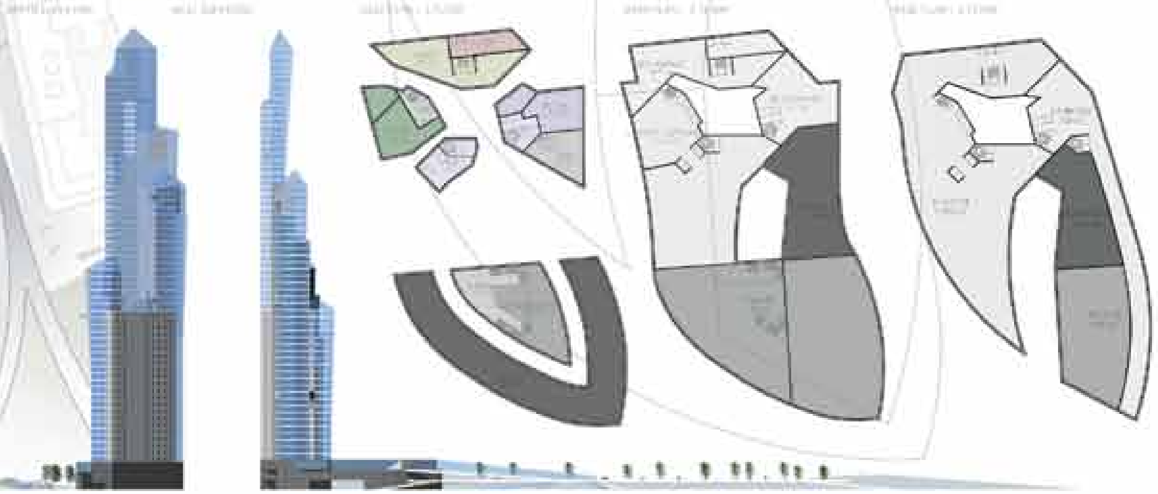
CONCEPT OF FORM

THE FORMS OF THE NEW HIGH-RISE AND PEDESTRIAN PLATEAU CONNECTING THE BASE OF THE HIGH-RISE TO THE BATTERY PARK ARE INSPIRED BY THE NATURE.

HIGH-RISE ITSELF SYMBOLIZES A CLIFF OR CRYSTAL THAT GROWS OUT OF THE TYPICAL STRUCTURE OF TRADITIONAL MANHATTAN ARCHITECTURE WITH STRAIGHT VICTORIAN-LIKE LINES. IT CONNECTS DIFFERENT LAYERS OF CITY FABRIC INTO ONE LOCAL CENTER WITH ITS SOLID FORCE. THE BASE OF THE HIGH-RISE HAS FLOWING RIVER LIKE FORM AS A CONTRAST TO THE SOLID FORM OF THE HIGH-RISE. THE PEDESTRIAN AREA RISES IN FRONT OF IT, COVERING THE ENTRANCE TO THE BATTERY TUNNEL AND PROVIDING A OPPORTUNITY TO SPREAD THE CONNECTING FORCE OF THE HIGH-RISE ON A LARGER AREA. THE GREEN AREAS ON THE PEDESTRIAN WALKWAY CONTINUE THE PARK FURTHER INTO THE HIGH DENSITY CITY AREA, PROVIDING A SMOOTHER TRANSFORMATION BETWEEN NATURE AND URBAN ENVIRONMENT.





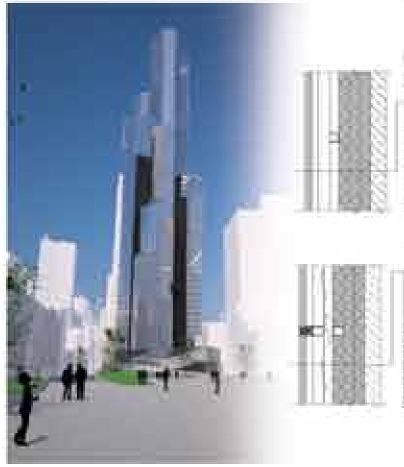
PRINCIPLES OF EFFICIENCY

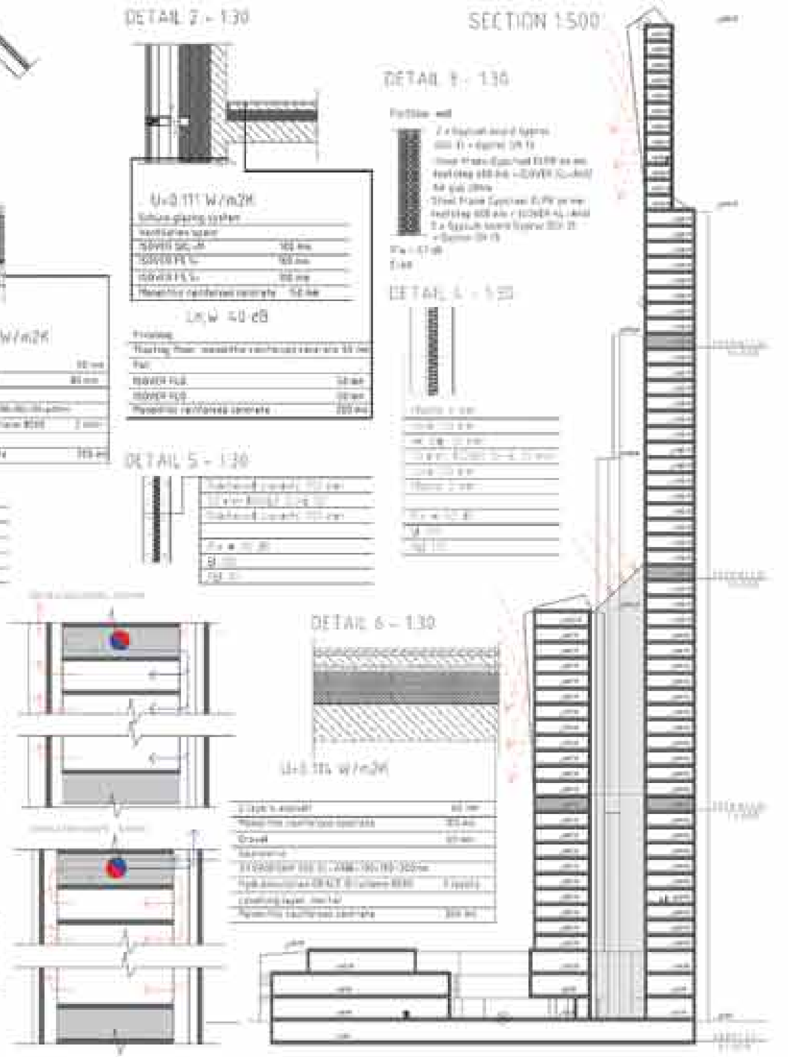
LOWER NORTHERN SIDES OF THE HIGH-RISE HAVE VERY EFFICIENTLY INSULATED WALLS WITH RELATIVELY SMALL WINDOW AREA TO REDUCE HEAT-LOSSES. HIGHER FACADE AREAS AND MOST OF THE EAST-, WEST- AND SOUTH FACADE HAS DOUBLE-LAYER GLASS FACADE SYSTEM. THE OUTER LAYER OF THE HIGHER PART OF THE DOUBLE FACADE IS TILTED TO REFLECT MORE SUNLIGHT AWAY FROM THE BUILDING AND REDUCE OVERHEATING IN SUMMER. VENTILATION SYSTEM OPERATES DIFFERENTLY IN SUMMERTIME AND IN WINTER. IN SUMMER THE LOW PRESSURE IN FACADE CAVITY IS USED FOR NATURAL VENTILATION AND COOLING OF THE BUILDING. IN WINTER THE DOUBLE LAYERED FACADE ACTS AS EXTRA INSULATION AND THE USED AIR IS VENTILATED THROUGH HEAT EXCHANGE/AIR COOLING SYSTEMS THAT ARE SITUATED ON THE TECHNICAL FLOORS.

THE SOUTHERN SIDE OF THE HIGH-RISE ALSO HAS HEAT HARVESTING- AND CONSERVING MASSIVE WALLS. THAT KIND OF LOW- AND HIGH-TECH COMBINATION OF SOLAR HARVESTING TECHNOLOGIES ALLOWS 24H USAGE OF SOLAR ENERGY FOR WATER-HEATING.

IN ADDITION TO THE MASSIVE HEAT-CONSERVING WALLS THERE ARE SOLAR PANELS INTEGRATED INTO THE FACADE SYSTEM AND ROOF AREAS TO ACHIEVE MAXIMUM EFFICIENCY IN SOLAR ENERGY HARVESTING.

THE PEDESTRIAN AREA IN FRONT OF THE BUILDING AND UNDER THE HIGH-RISE IS COVERED WITH PRESSURE SENSITIVE PLATES THAT GENERATE ELECTRICITY. THE TECHNOLOGY IS BASED ON THE PIEZO-ELECTRIC EFFECT BUT AS NEW SOLUTIONS BECOME AVAILABLE MORE EFFICIENT WAYS OF TRANSFORMING PEDESTRIAN TRAFFIC GENERATED PRESSURE INTO ELECTRICITY COULD BE IMPLEMENTED.





GREENWICH TOWER IN NEW YORK CITY

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JURY SPECIAL AWARD

ISOVER Multi-Comfort House
Students Contest

International stage, Prague 2011

NIKO MÄHÖNEN

FINLAND
University of Oulu

I PRIZE
ISOVER Multi-Comfort House Students Contest
Finland national stage 2011

ISOVER SAINT-GOBAIN

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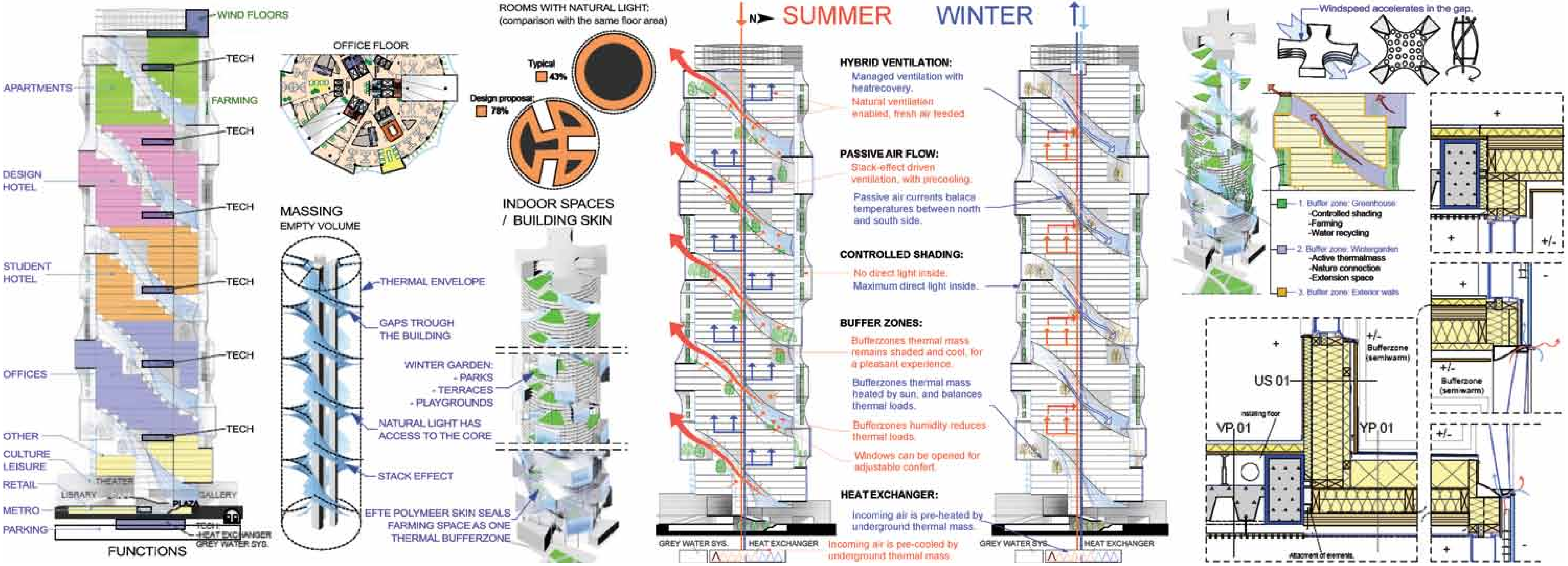
WIND FLOORS
TECH
APARTMENTS
FARMING
TECH
DESIGN
HOTEL
TECH
STUDENT
HOTEL
TECH
OFFICES
TECH
OTHER
TECH
CULTURE
LEISURE
THEATER
RETAIL
LIBRARY
GALLERY
PLAZA
METRO
PARKING
TECH
HEAT EXCHANGER
GREY WATER SYS.
FUNCTIONS
OFFICE FLOOR
MASSING
EMPTY VOLUME
THERMAL ENVELOPE
GAPS TROUGH
THE BUILDING
WINTER GARDEN:
- PARKS
- TERRACES
- PLAYGROUNDS
NATURAL LIGHT HAS
ACCESS TO THE CORE
STACK EFFECT
EFTE POLYMEER SKIN SEALS
FARMING SPACE AS ONE
THERMAL BUFFERZONE
ROOMS WITH NATURAL LIGHT:
(comparison with the same floor area)
Typical
43%
Design proposal:
78%
INDOOR SPACES
/ BUILDING SKIN
N
SUMMER
WINTER
HYBRID VENTILATION:
Managed ventilation with
heatrecovery.
Natural ventilation
enabled, fresh air feeded
PASSIVE AIR FLOW:
Stack-effect driven
ventilation, with precooling.
Passive air currents balace
temperatures between north
and south side.
CONTROLLED SHADING:
No direct light inside.
Maximum direct light inside.
BUFFER ZONES:
Bufferzones thermal mass
remains shaded and cool, for
a pleasant experience.
Bufferzones thermal mass
heated by sun, and balances
thermal loads.
Bufferzones humidity reduces
thermal loads.
Windows can be opened for
adjustable confort.
HEAT EXCHANGER:
Incoming air is pre-heated by
underground thermal mass.
Incoming air is pre-cooled by
underground thermal mass.
GREY WATER SYS.
HEAT EXCHANGER
GREY WATER SYS.
HEAT EXCHANGER
Windspeed accelerates in the gap.
1. Buffer zone: Greenhouse
-Controlled shading
-Farming
-Water recycling
2. Buffer zone: Wintergarden
-Active thermalmass
-Nature connection
-Extension space
3. Buffer zone: Exterior walls
+/-
Bufferzone
(semiwarm)
US 01
VP 01
YP 01
Attachment of elements
+/-
Bufferzone
(semiwarm)

GREENWICH TOWER IN NEW YORK CITY

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ANTTI KINNUNEN

HEIKKI POLSO

FINLAND
University of Oulu

II PRIZE
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Finland national stage 2011

ISOVER SAINT-GOBAIN

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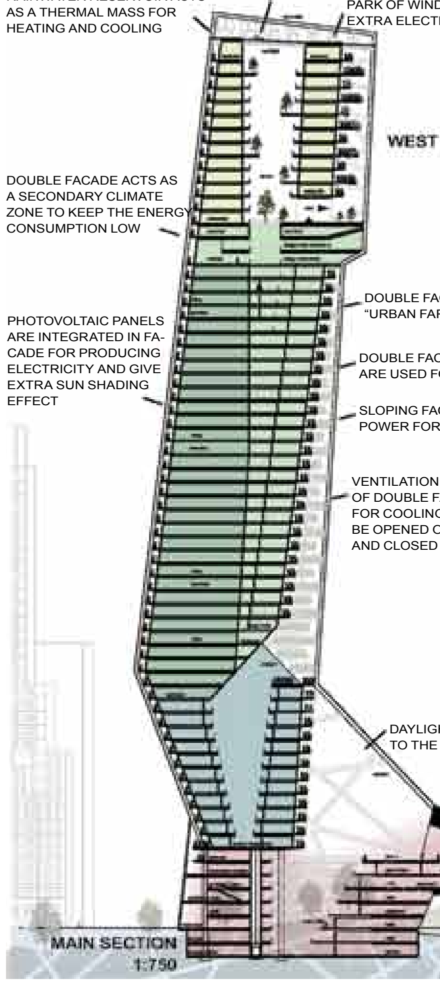


New urban focus at Lower Manhattan

The new green tower plays well on its role as a part of densely populated urban city environment. Building consists of a mix of activities on multiplie levels above and below the street to provide many interests for people to walk in eg. live, work, recover, and play (retail, cultural and community functions).

Base is strategically designed for public use. Upper parts of the building have their own use as hotel, and “top of the green rock” appartments. Very powerful iconic form of the building makes is well recognizable from a distance and gives new guidelines for the evolution of the whole area. The green facade associates as new green movement. Its function as an “urban farm” is connected on soft values. This new concept gives a unique character of the whole place.

The lower base level, green ramp and tower will create monolthic and simple mass to the building. Bending the mass froms a sun shading shelter to the south side and helps to maximize the efficient amount of light to the darker noth side of the building. Bended form lightens the wind pressure to the surface.

Green ramp covers the existing battery tunnel and gives a new way for pedestrians to walk in, not only on street level. As a green it lets the Battery Park immediately South of the site to come in. Green ramp acts as a public park and recreational area for the local community and other citizens. It is linked with southern Battery Park so that the park can be extended to the new tower and create green lungs and a pleasant, safe passway to the light traffic. The new ramp also gives a connection for cars between east and west. That’s why there’s opening for Moris Street inside the ramp.

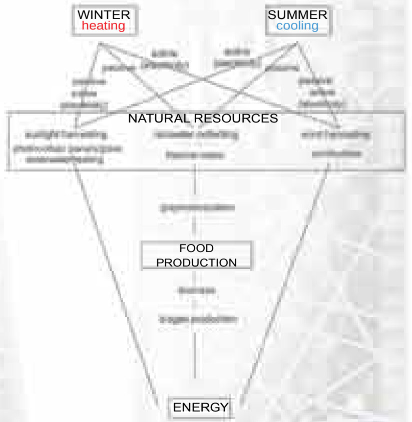
Green ramp structure works also as a sound pollution barrier wall which reduces traffic noise created by cars.

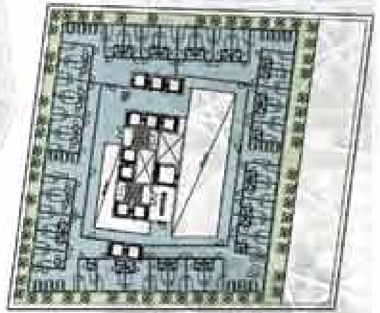
The concept is created by using mass that reminds the stump of tree and its roots. Green ramp, the roots, are reaching south towards the Battery Park and to the ocean. Nature is brought back to the heart of the district for the purpose of revitalizing the whole community.

Technically, the building is 60-storey structure that embraces sustainable features like photovoltaic panels, passive ventilation methods, a biogas generation plant to convert sewage into alternate energy and fertilizer. Wrapped in an organic envelope of local vegetation that acts as an insulator. The contemporary design also features a grey-water recycling system to irrigate its green balconies. Publicly accessible green ramp will connect upper floors to the street level lined in shops, restaurants and plant life. The building will collect rainwater and integrate a grey-water system for both plant irrigation and toilet flushing. A centralized recycling system will be accessible from each floor.

The structure is surrounded by green balconies that are used to grow food, vegetables and fruits. This layer will form a semi-warm space that will be used in natural ventilation. NIcked form gives protection from the sun So do the green balconies inside the facade. 50% of the facade is plated with photovoltaic panels and the roof is surrounded with wind turbines.

These qualities make the building a leading project to achieve new levels of sustainability in Lower Manhattan. As a new style of building it gives a new impulse in the existing urban area.

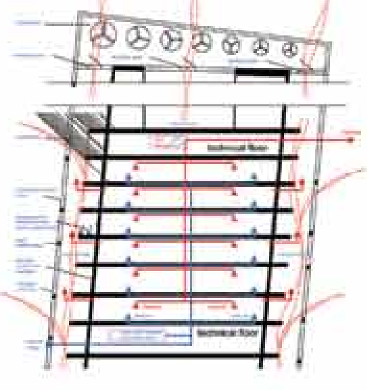




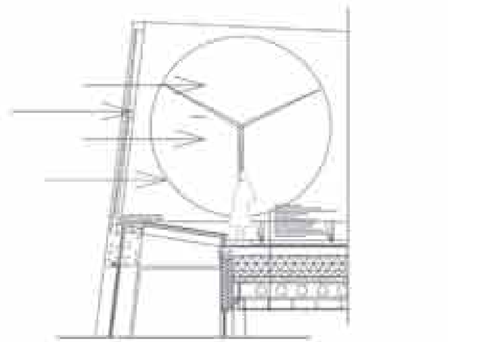
student design hotel, typical plan 1:1000

SUMMER

PASSIVE VENTILATION FRESH AIR IS COOLED BY USING THERMAL MASS ELECTRICITY FROM WINDTURBINES, PHOTOVOLTAIC PANELS AND BIOGAS GENERATOR CAN BE ALSO USED

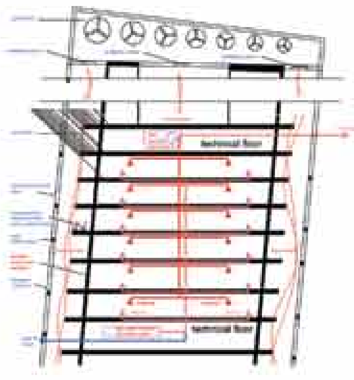


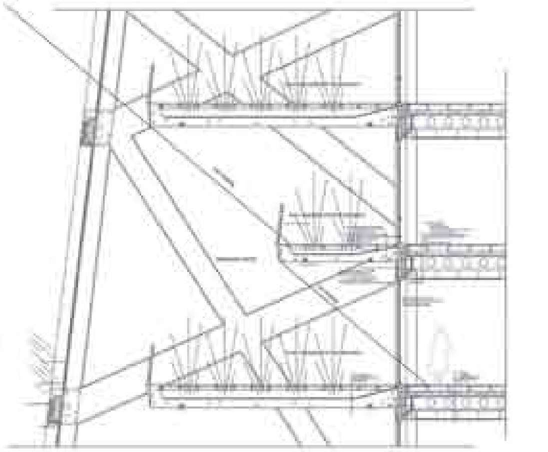
THE STRUCTURE IS SURROUNDED BY GREEN BALCONYS THAT ARE USED TO GROW FOOD, VEGETABLES AND FRUITS. THIS LAYER WILL FORM A SEMI WARM SPACE THAT WILL BE USED IN NATURAL VENTILATION. NICKED FORM GIVES PRO-TECTION FROM THE SUN. SO DOES THE GREEN BALCONIES INSIDE THE FACADE. 50% OF THE FACADE IS PLATED WITH PHOTOVOLTAIC PANELS AND THE ROOF IS SURROUNDED WITH WIND TURBINES



WINTER

RECOVERED HEAT IS RESTORED TO THERMAL MASS WHICH PREHEATS THE INCOMING AIR ELECTRICITY FROM WIND TURBINES, PHOTOVOLTAIC PANELS AND BIOGAS GENERATOR CAN BE ALSO USED





ISOVER SAINT-GOBAIN

ISOVER SAINT-GOBAIN

Multi-Comfort House

GREENWICH TOWER IN NEW YORK CITY

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ISOVER SAINT-GOBAIN

KERTTU
LOUKUSA

OLGA
AIRAKSINEN

FINLAND
University of Oulu

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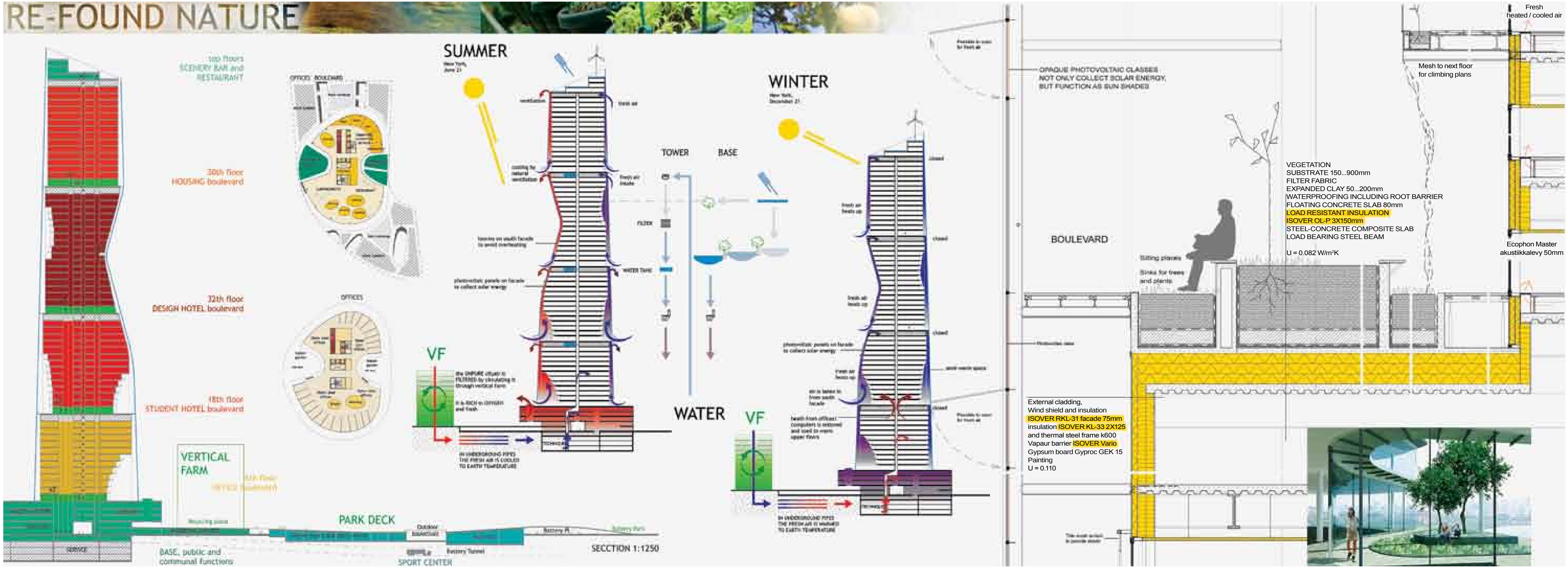
RE-FOUND NATURE
top floors
SCENERY BAR and
RESTAURANT
30th floor
HOUSING boulevard
32th floor
DESIGN HOTEL boulevard
18th floor
STUDENT HOTEL boulevard
VERTICAL
FARM
PARK DECK
BASE, public and
communal functions
SPORT CENTER
SECCTION 1:1250
OFFICES
SUMMER
WINTER
TOWER
BASE
WATER
VF
VF
OPAQUE PHOTOVOLTAIC GLASSES
NOT ONLY COLLECT SOLAR ENERGY,
BUT FUNCTION AS SUN SHADES
BOULEVARD
Sitting places
Sinks for trees
and plants
VEGETATION
SUBSTRATE 150...900mm
FILTER FABRIC
EXPANDED CLAY 50...200mm
WATERPROOFING INCLUDING ROOT BARRIER
FLOATING CONCRETE SLAB 80mm
LOAD RESISTANT INSULATION
ISOVER OL-P 3X150mm
STEEL-CONCRETE COMPOSITE SLAB
LOAD BEARING STEEL BEAM
U = 0.082 W/m²K
Fresh
heated / cooled air
Mesh to next floor
for climbing plans
Ecophon Master
akustiikkalevy 50mm
External cladding,
Wind shield and insulation
ISOVER RKL-31 facade 75mm
insulation ISOVER KL-33 2X125
and thermal steel frame k600
Vapaur barrier ISOVER Vario
Gypsum board Gyproc GEK 15
Painting
U = 0.110

GREENWICH TOWER IN NEW YORK CITY
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ISOVER SAINT-GOBAIN

MARKUS
BEER

BORIS
BECKER

MATHIAS
GARTHE

GERMANY
FH Erfurt University

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Germany national stage 2011

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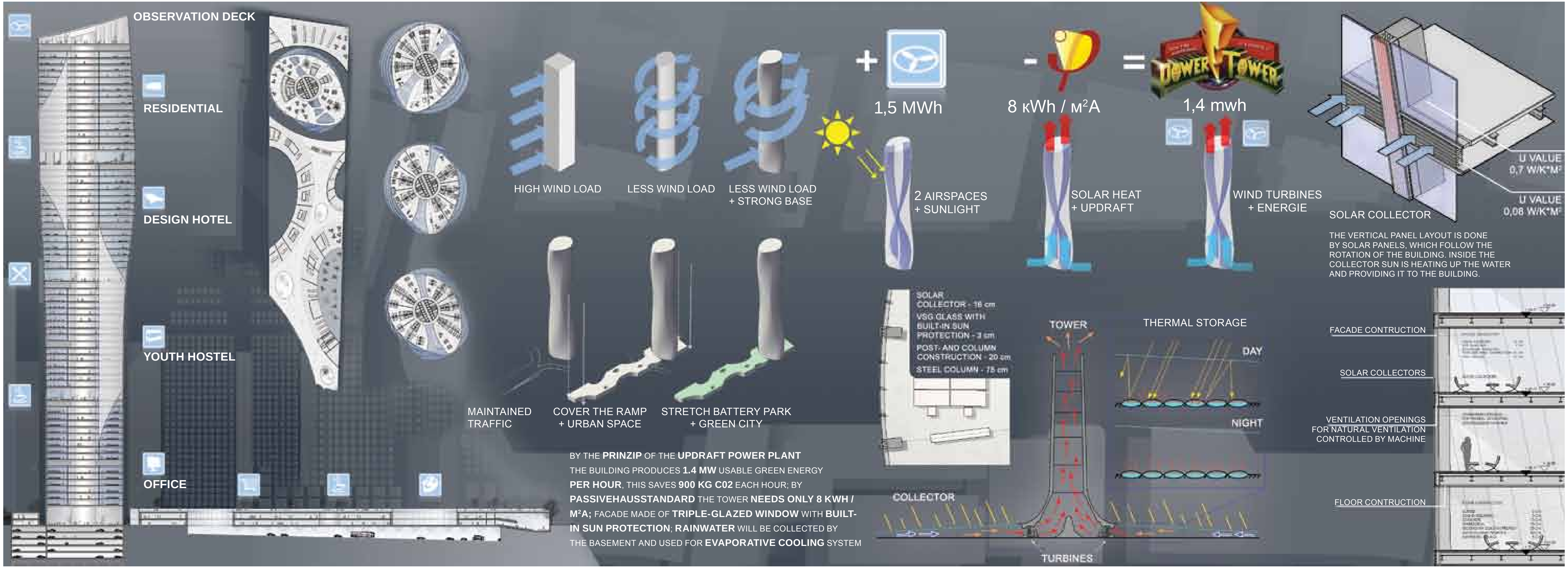

ISOVER SAINT-GOBAIN

GREENWICH TOWER IN NEW YORK CITY

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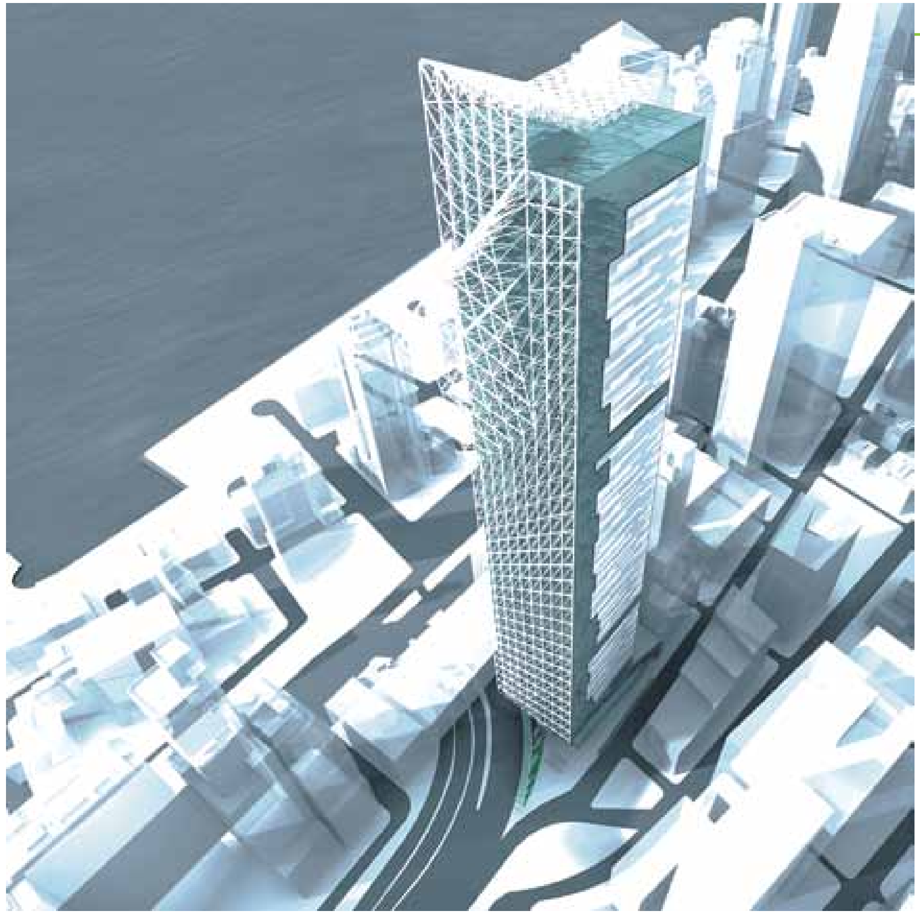

DOROTHEA WEBER

STEVEN NEUKIRCH

GERMANY
FH Erfurt University

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Germany national stage 2011

ISOVER SAINT-GOBAIN

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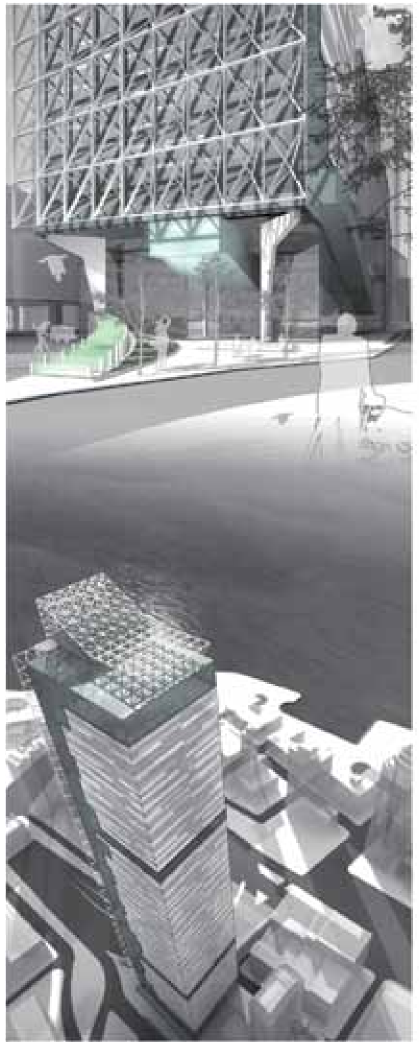
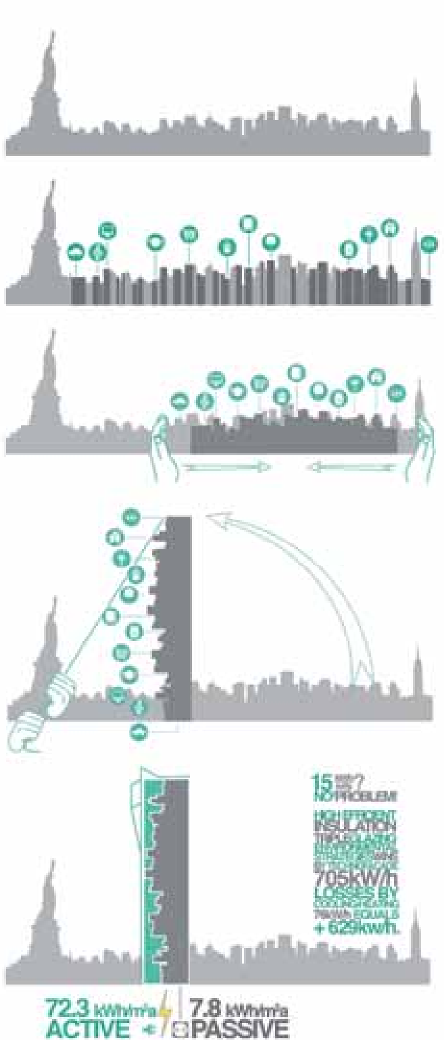
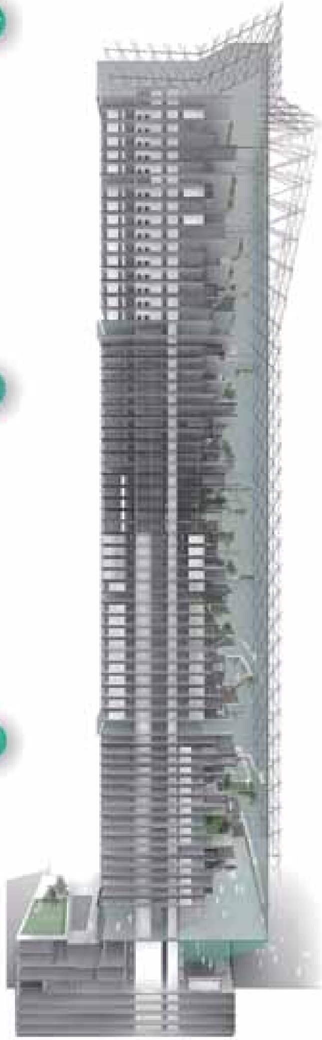
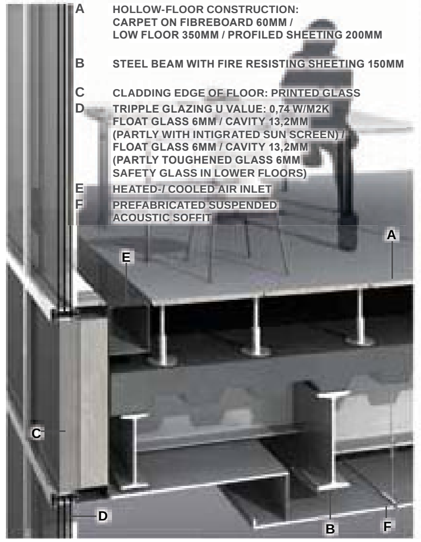




NO PROBLEM!
INSULATION
705kW/h
LOSSES BY
+ 629kw/h.
72.3 kWh/m²a
ACTIVE
7.8 kWh/m²a
PASSIVE



THE ORDINARY BILLBOARD
VS.
THE NEW TECHNO BILLBOARD
MORE MONEY!
MORE FUTURE!



A HOLLOW-FLOOR CONSTRUCTION:
CARPET ON FIBREBOARD 60MM /
LOW FLOOR 350MM / PROFILED SHEETING 200MM
B STEEL BEAM WITH FIRE RESISTING SHEETING 150MM
C CLADDING EDGE OF FLOOR: PRINTED GLASS
D TRIPPLE GLAZING U VALUE: 0,74 W/M2K
FLOAT GLASS 6MM / CAVITY 13,2MM
(PARTLY WITH INTIGRATED SUN SCREEN) /
FLOAT GLASS 6MM / CAVITY 13,2MM
(PARTLY TOUGHENED GLASS 6MM
SAFETY GLASS IN LOWER FLOORS)
E HEATED-/ COOLED AIR INLET
F PREFABRICATED SUSPENDED
ACOUSTIC SOFFIT
A
E
C
D
B
F

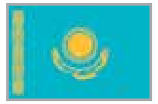
POSSIBLE TECHNOLOGIES
RAIN WATER HARVESTING
ALGAE POWER PLANT
OSCILLATING WIND WINGS

GREENWICH TOWER IN NEW YORK CITY

7th ISOVER Multi-Comfort House Students Contest 2011

JULIA
KRYLOVA

KAZAKHSTAN
Kazakh Leading Academy of Architecture and Civil Engineering



I PRIZE
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Kazakhstan national stage 2011

ISOVER SAINT-GOBAIN

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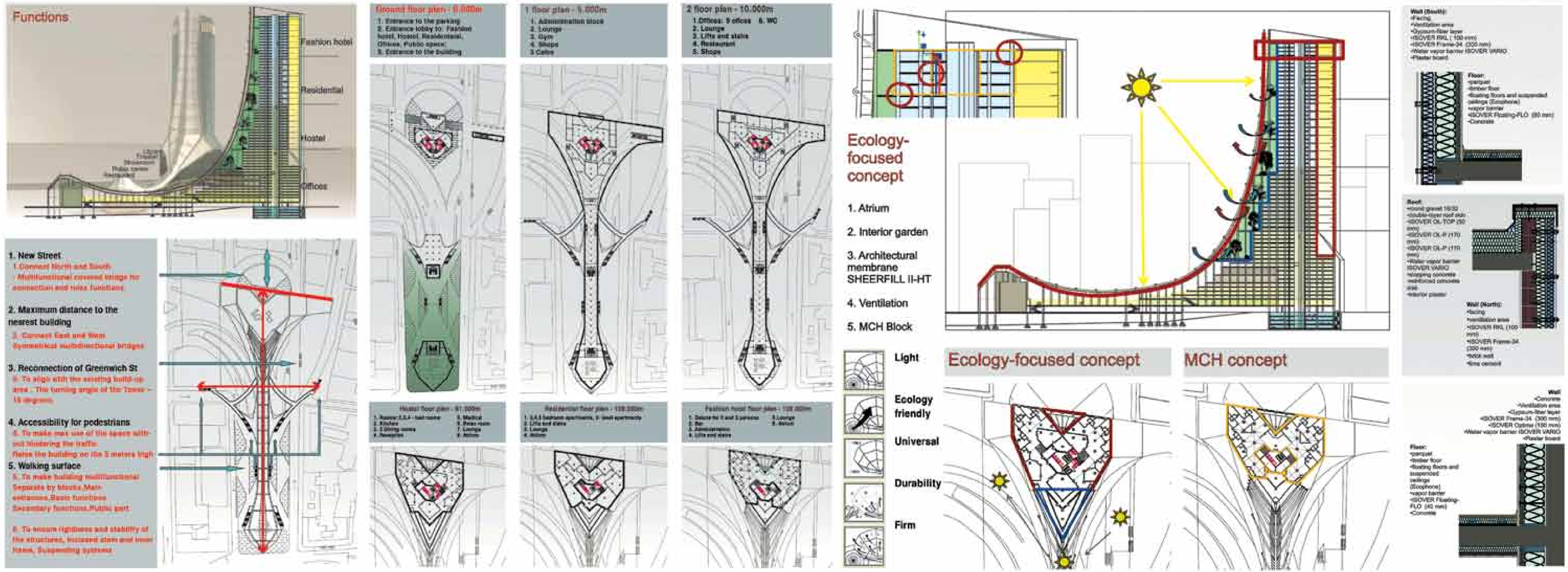
www.isover-students.com


Functions
Fashion hotel
Residential
Hostel
Offices
1. New Street
2. Maximum distance to the nearest building
3. Reconnection of Greenwich St
4. Accessibility for pedestrians
5. Walking surface
Ground floor plan - 0.000m
1. Entrance to the parking
1 floor plan - 5.000m
1. Administration block
2. Lounge
3. Gym
4. Shops
2 floor plan - 10.000m
1.Offices: 9 offices 6. WC
2. Lounge
3. Lifts and stairs
4. Restaurant
5. Shops
Ecology-focused concept
1. Atrium
2. Interior garden
3. Architectural membrane SHEERFILL II-HT
4. Ventilation
5. MCH Block
Light
Ecology friendly
Universal
Durability
Firm
Ecology-focused concept
MCH concept

GREENWICH TOWER IN NEW YORK CITY

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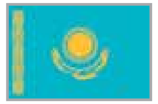
ISOVER SAINT-GOBAIN

ELENA PUZAKOVA

MARIYA GALUSCHAK

ELENA ZADOROZHNAYA

KAZAKHSTAN
Kazakh National Technical University, Almaty



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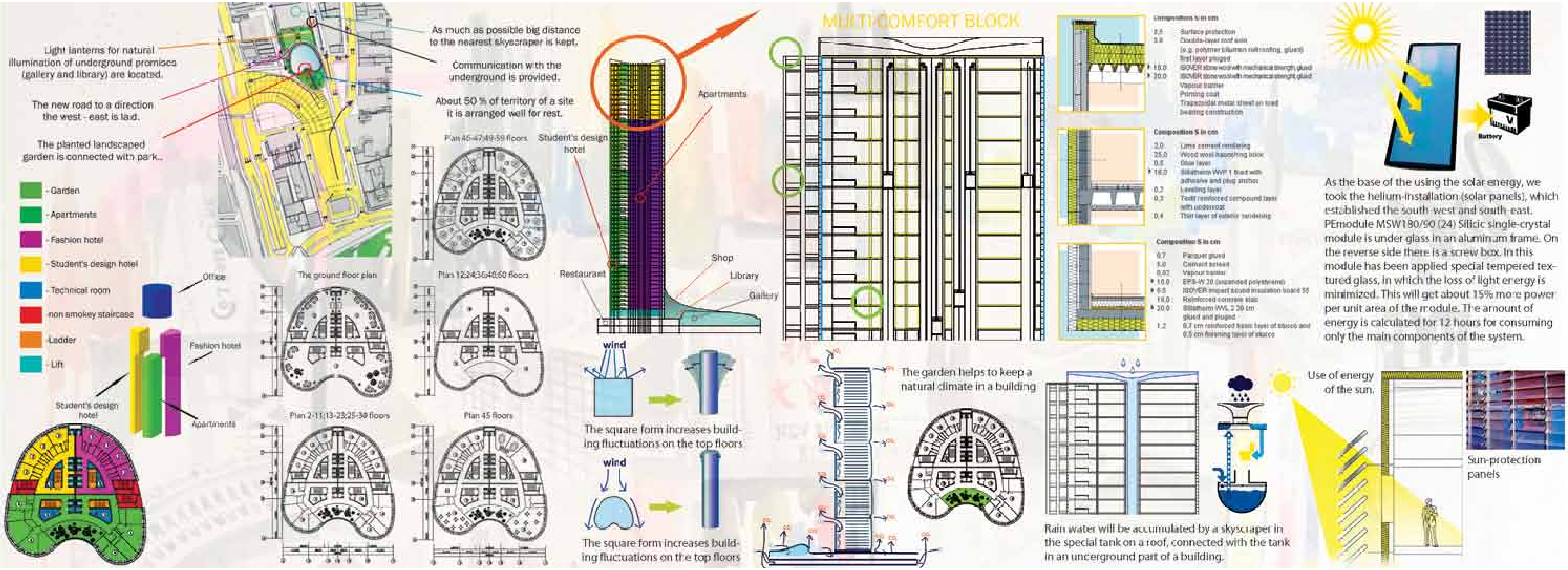
Light lanterns for natural illumination of underground premises (gallery and library) are located.
The new road to a direction the west - east is laid.
The planted landscaped garden is connected with park.
As much as possible big distance to the nearest skyscraper is kept.
Communication with the underground is provided.
About 50 % of territory of a site it is arranged well for rest.
Garden
Apartments
Fashion hotel
Student's design hotel
Technical room
non smokey staircase
Ladder
Lift
Office
Fashion hotel
Student's design hotel
Apartments
Plan 45-47,49-59 floors
The ground floor plan
Plan 12,24,36,48,60 floors
Plan 2-11,13-23,25-30 floors
Plan 45 floors
Apartments
Student's design hotel
Restaurant
Shop
Library
Gallery
wind
The square form increases building fluctuations on the top floors
wind
The square form increases building fluctuations on the top floors
MULTI-COMFORT BLOCK
Composition S in cm
Composition S in cm
Composition S in cm
Battery
As the base of the using the solar energy, we took the helium-installation (solar panels), which established the south-west and south-east. PEmodule MSW180/90 (24) Silicic single-crystal module is under glass in an aluminum frame. On the reverse side there is a screw box. In this module has been applied special tempered textured glass, in which the loss of light energy is minimized. This will get about 15% more power per unit area of the module. The amount of energy is calculated for 12 hours for consuming only the main components of the system.
The garden helps to keep a natural climate in a building
Rain water will be accumulated by a skyscraper in the special tank on a roof, connected with the tank in an underground part of a building.
Use of energy of the sun.
Sun-protection panels

GREENWICH TOWER IN NEW YORK CITY

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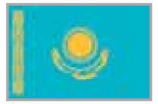
KIRILL ROMANOV

KAZAKHSTAN
KazGASA, Almaty



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Kazakhstan national stage 2011

ISOVER SAINT-GOBAIN

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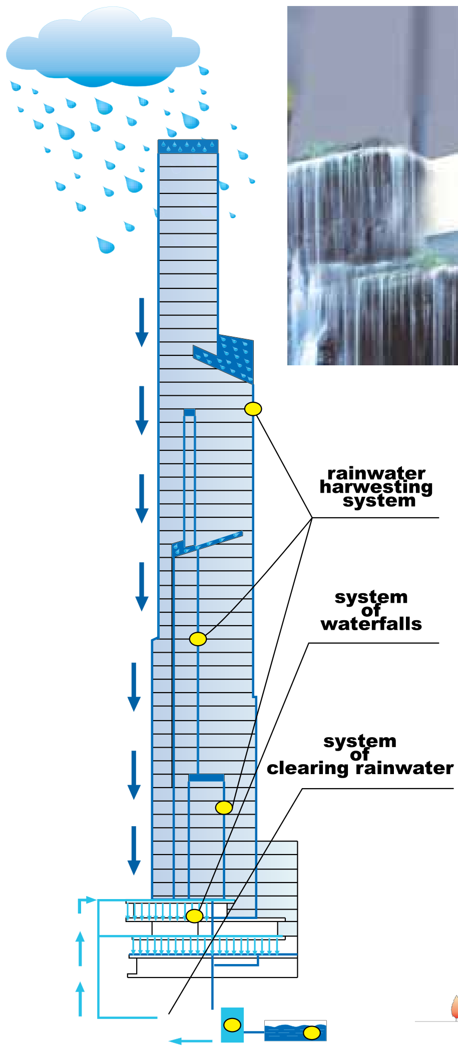
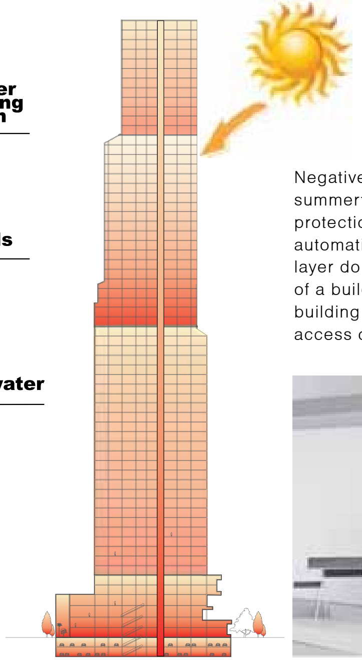
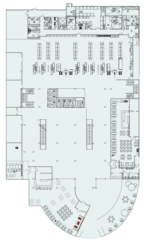


To realize my idea I decided to create not just a building looks like the waterfalls. I decided to create waterfalls indeed! For this purpose I created design of the basis of the building - its first four floors - with the manner that allows streams of water to break downwards from console floors as from ledges, creating artificial waterfalls. Water will circulate in the closed system on principal of a fountain. Also for these and other technical purposes it had been stipulated system of gathering and clearing of rain waters as you can see on this slide. Water will be gathered from horizontal and inclined surfaces of the building and collected in the tank under the building, then pass from the tank through system of clearing and got in the system of waterfalls.

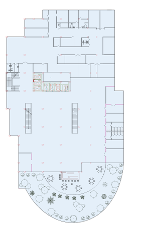


A soliod glassing has both positive and negative features. Positive – is the energy access due to solar insulation. Negative –is an overheating of the building in summertime. To solve this problem I provided protection ageinst solar rays. This is system of automatic jalousie situated in between three-layer double pane unit and a ventilated facade of a building. At a threat of overtheating of the building the jalousie automatically fall, limiting access of solar rays in premises.

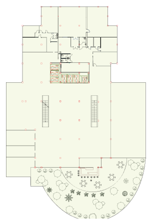
First Floor



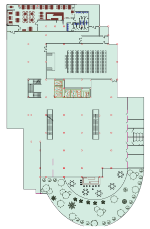
Second Floor



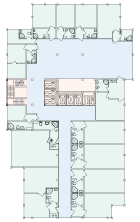
Third Floor



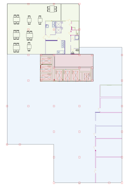
Fourth Floor

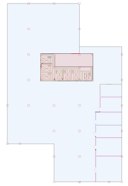


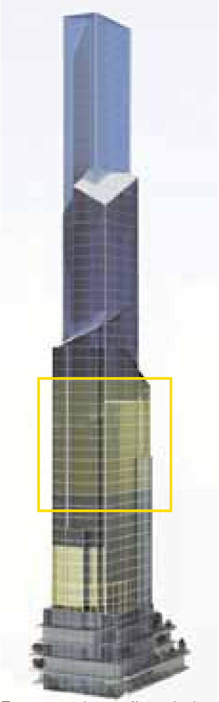
5-25 Floors



26-48 Floors







For warming a floor I chose SOLIMATE 300. It is to be is put directly on the leveled concrete basis.

For warming of vertical walls I used two layers of isolation.

1 ISOVER RKL 30 replresents a semi-firm plate of fiber glass, covered from the one side by glassed canvas..

2 The second layer is ISOVER KL-37 - That is heat insulation itself in a form of soft fiber glass in plates to be applied in frame walls constructions.

MATERIALS USED

Wall: windscreen RKL-30

basic insulation

vert, wall ISOVER KL-37.

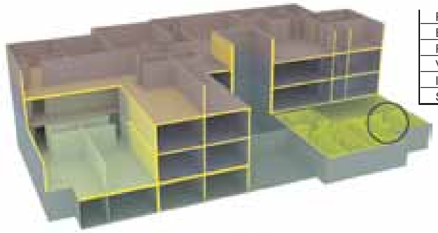
inclined KT-40-TWIN

For the foundation, the floor on the ground and the green roof:

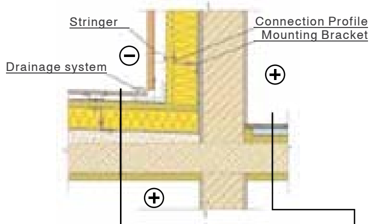
SOLIMATE 300 Roof:

DACHOTERM G10 + S

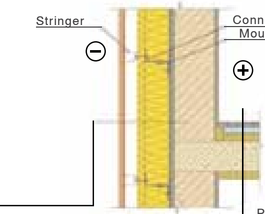
Roof covering
Waterproofing
Rigid ard slab of stone fiber ISOVER Dachoterm G - 40
Rigid ard slab of stone fiber IS0VER Dachoterm S
Vapor barrier
A layer of lightweight concrete
to create a bias
Bearing concrete plate
ISOVER float «Ecophon master»



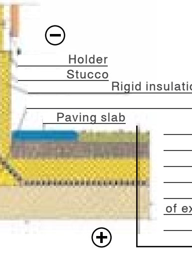
THE DEVICE OF PASSAGE

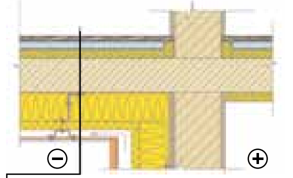


THE DEVICE OF VENTILATED OUTER WALL

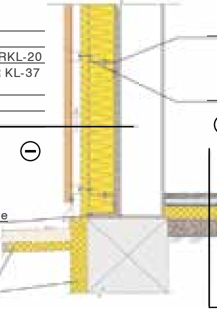


THE DEVICE OF "GREEN ROOF"





THE DEVICE OF THE FOUNDATION.



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JEVGENIJS
BUŠINS

ANTONS
GONDA

IVO
DZENIS

LATVIA
Riga Technical University

I PRIZE
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Latvia national stage 2011

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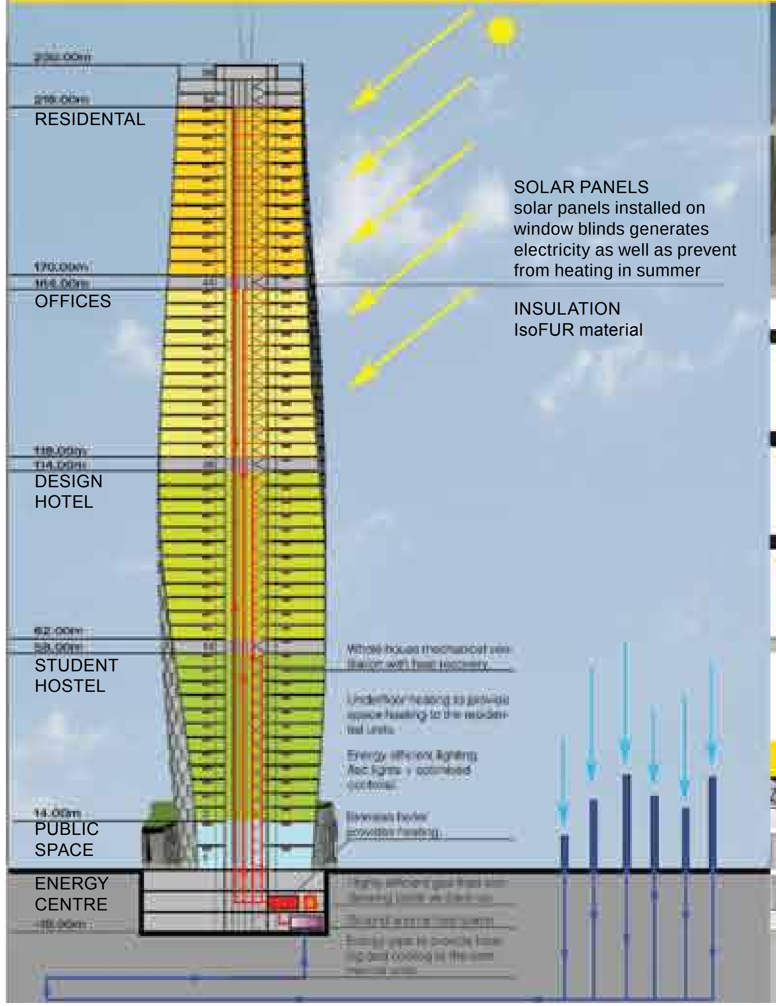
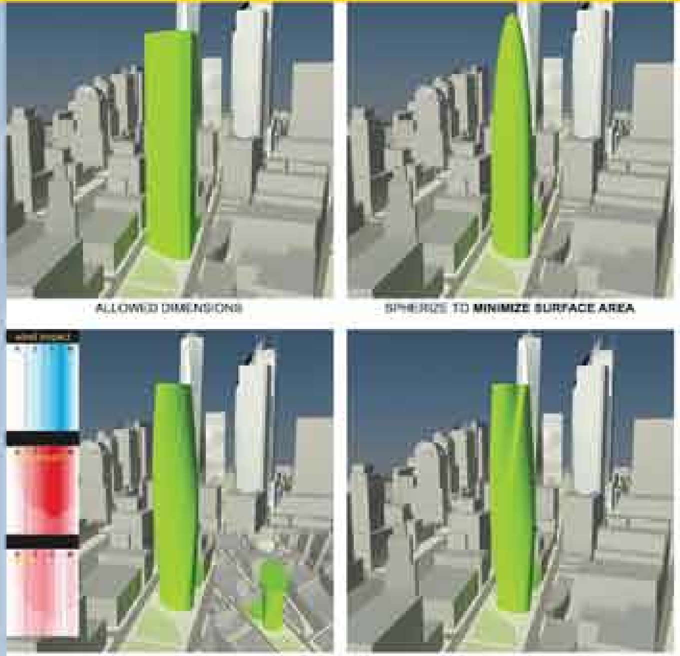
SECTIONS + OVERALL SUSTAINABLE CONCEPT



PASSIVE FORM



ALLOWED DIMENSIONS

SPHERIZE TO MINIMIZE SURFACE AREA

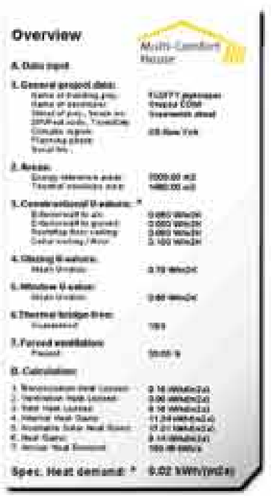
TWIST TO MINIMIZE WIND AND SUN NEGATIVE IMPACT (minimize north facade area, put with angle to the SW wind)

WRINKLE TO PLACE EVACUATION STAIRS ON A FACADE

CALCULATIONS

● Setting U-values for window frames and outer doors

You can calculate the U-values for the complete set of window frames or separately for windows with east, south, west and north orientation. Start with the classification in the window / outdoors library. The U-values for outer doors you determine by making selections in this library.

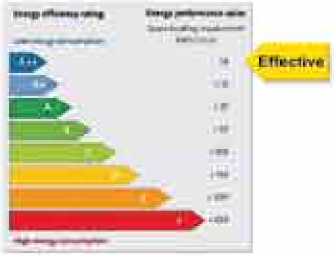


Heat Losses:
1. Transmission Heat Losses per m² and year: 9.16kWh/(m²a)
2. Ventilation Heat Losses per M² and year: 0.00
3. Total heat Losses per m² and year: 9.16
Heat Gains:

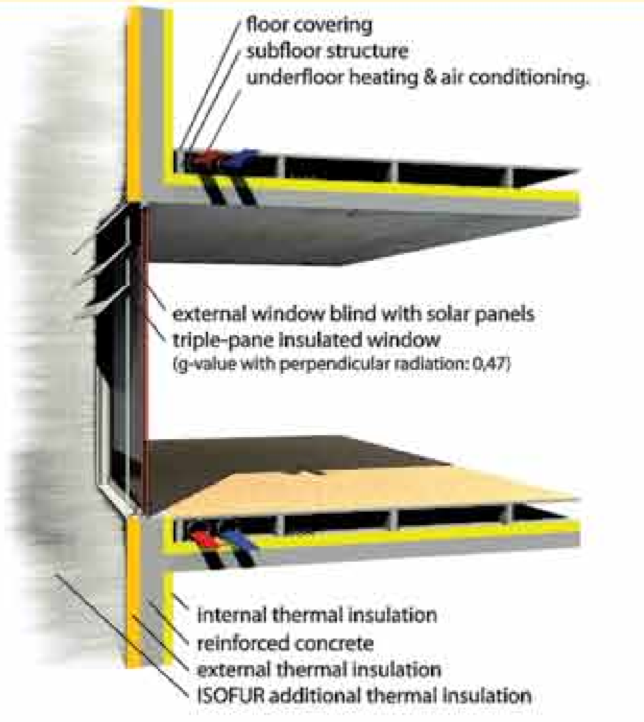
4. Internal Heat Gains per m² and year: 11.34 kWh/(m²a)
5. Available Solar Heat Gains per m² and year: 17.01
6. Total Heat Gains (Free Heat) per m² and year: 9.14
Annual Heat Demand (kWh/m²): 158.44

Specific Annual Heat Demand (kWh/m²): 0.02

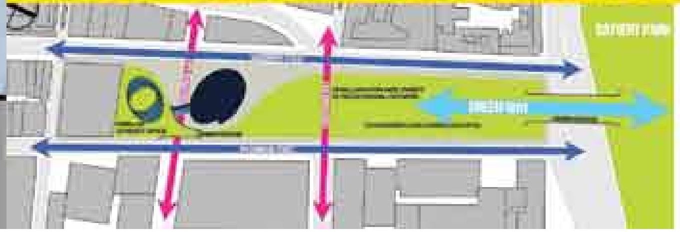
Specific Annual Heat Hemand < 15 kWh/(m²a) achieved: YES



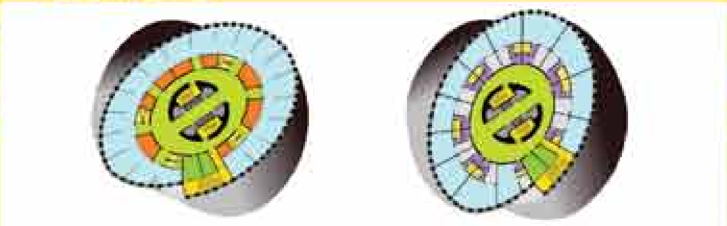
CROSS SECTION



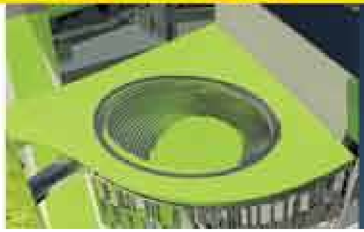
SITE PLAN + PUBLIC INFRASTRUCTURE SOLUTION



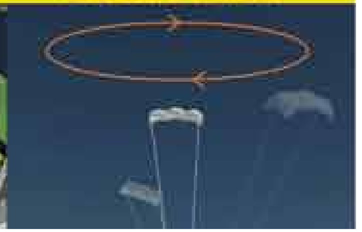
FLOOR PLANS



OPEN-AIR THEATRE



KITE GENERATOR



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MĀRTIŅŠ
RIKARDS

NILS
SAPROVSKIS

LIENA
IEVIŅA

LATVIA
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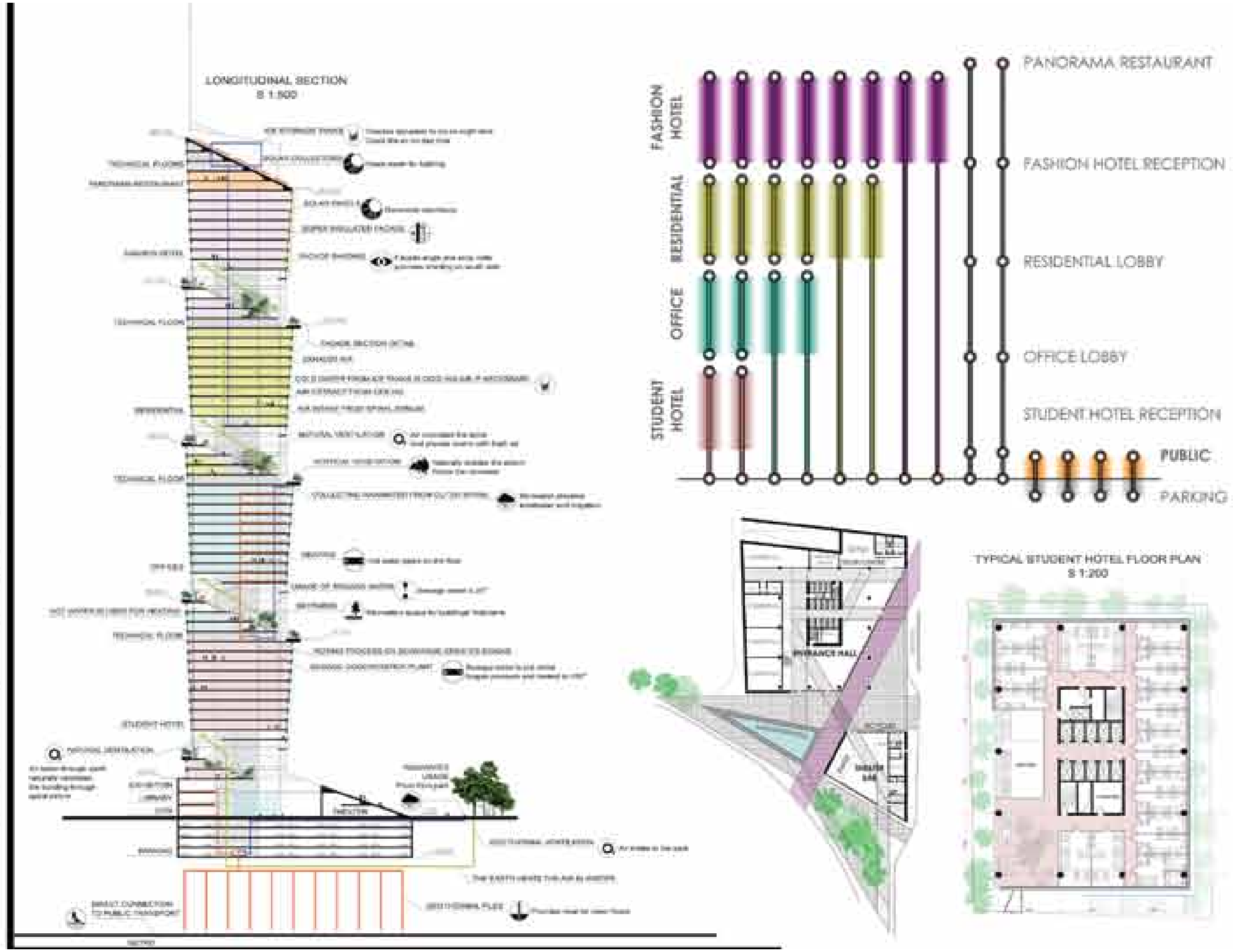
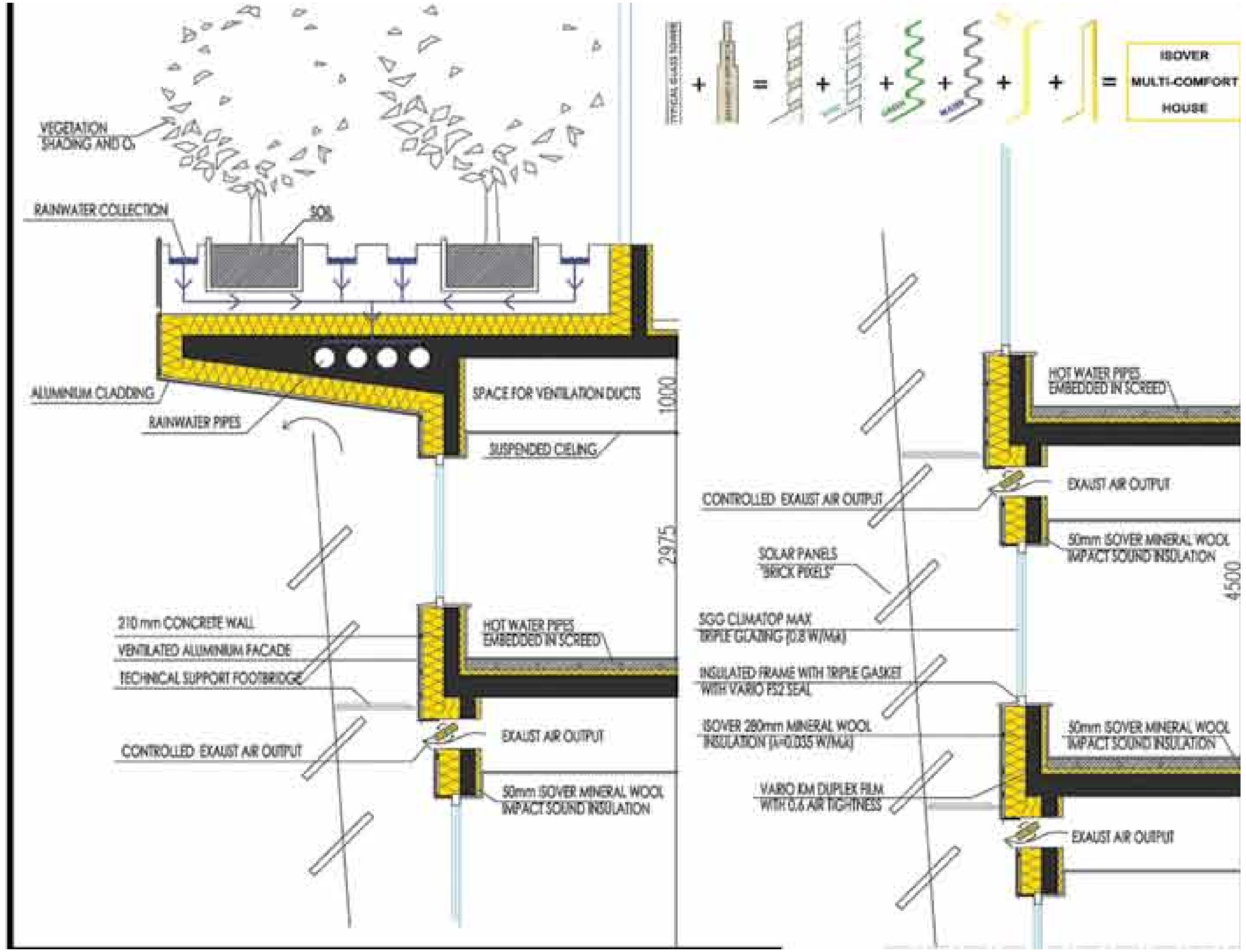
SUSTAINABILITY & ZONING



INSULATION



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LEONARDS
KALNIŅŠ

MADARA
VILLERE

LATVIA
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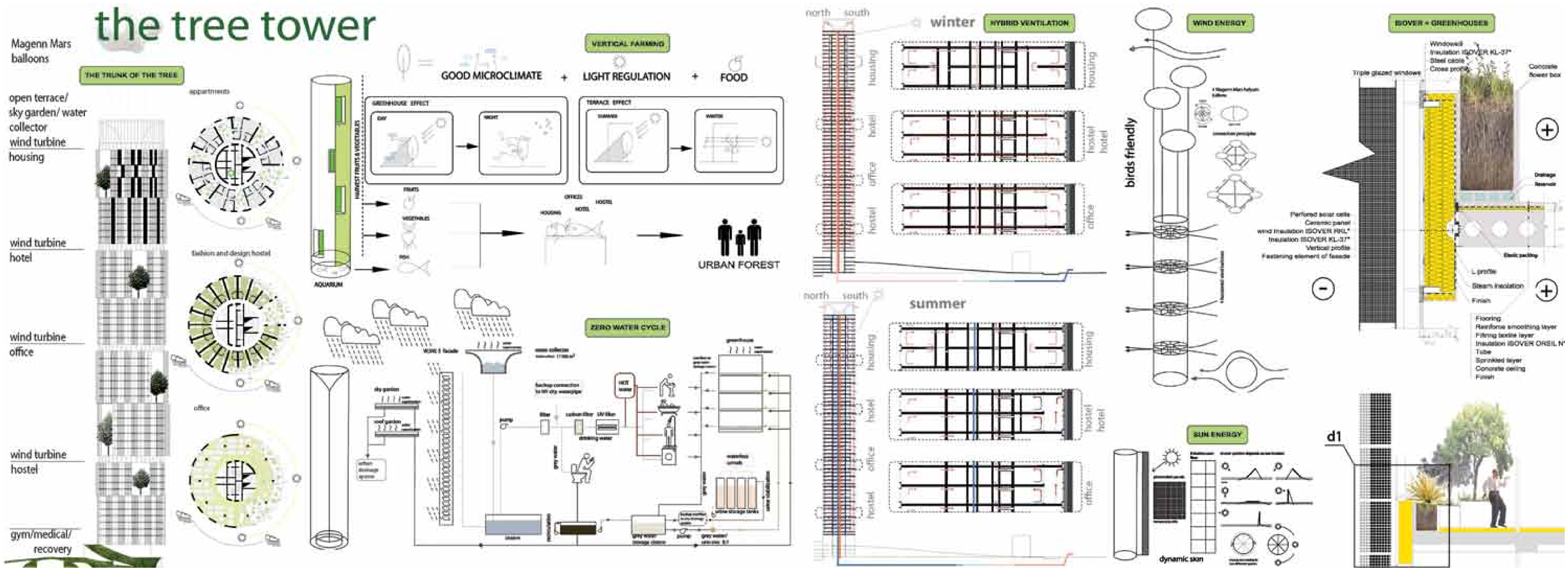
the tree tower
Magenn Mars balloons
THE TRUNK OF THE TREE
open terrace/ sky garden/ water collector
wind turbine
housing
wind turbine
hotel
wind turbine
office
wind turbine
hostel
gym/medical/ recovery
appartments
fashion and design hostel
office
VERTICAL FARMING
GOOD MICROCLIMATE
+
LIGHT REGULATION
+
FOOD
GREENHOUSE EFFECT
TERRACE EFFECT
AQUARIUM
URBAN FOREST
ZERO WATER CYCLE
north
south
winter
HYBRID VENTILATION
housing
hotel
office
hostel
summer
birds friendly
WIND ENERGY
SUN ENERGY
dynamic skin
ISOVER + GREENHOUSES
Triple glazed windows
Perfored solar cells
Ceramic panel
Fastening element of facade
L profile
Steam insulation
Finish
d1

GREENWICH TOWER IN NEW YORK CITY

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MARTYNAS
LEŠČIŠINAS

ŠARŪNAS
NEKROŠIUS

LITHUANIA
Vilnius Academy of Fine Arts, Kaunas Faculty Department of Architecture

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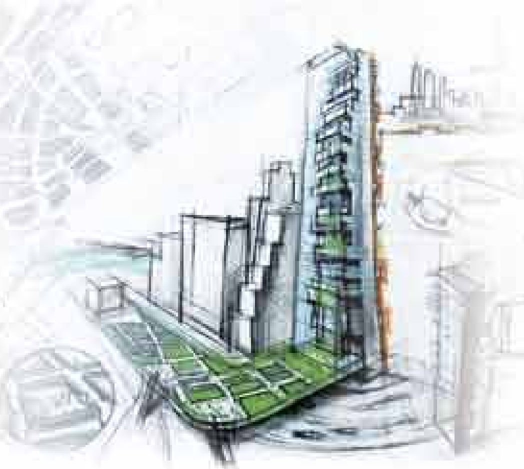
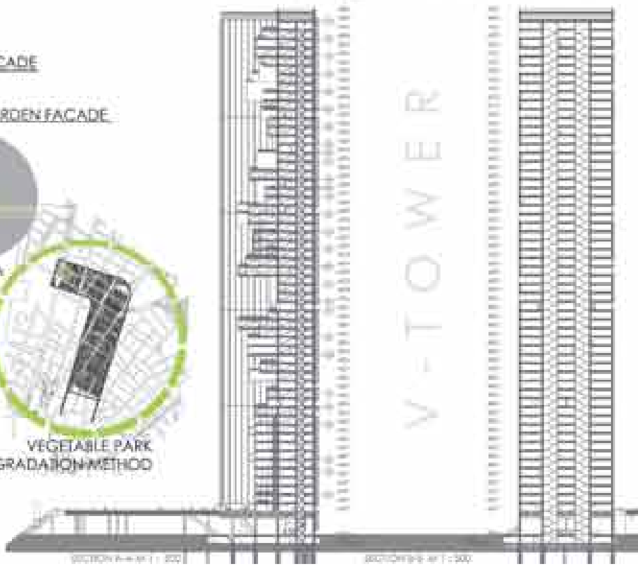
THE MAIN CONCEPT

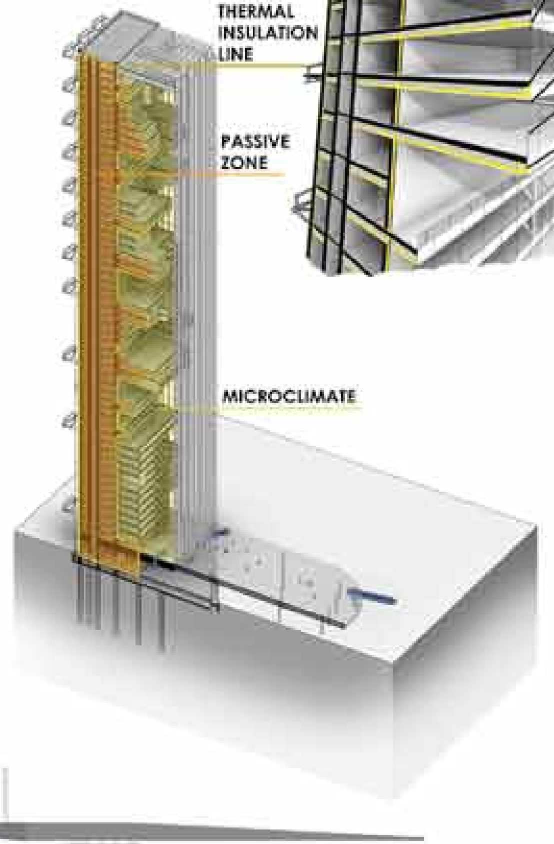
V-TOWER

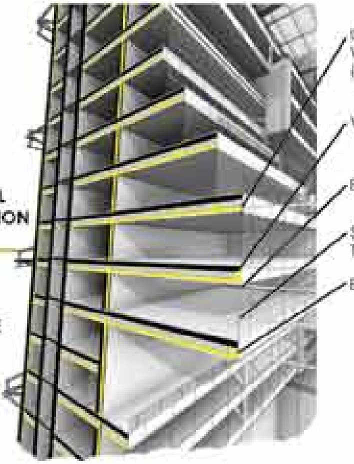
The main idea of this project - vegetable park. It is public area, that ending the greenhouse tower. Everyone can go here to relax and get closer with nature. Vegetable park is extension of Battery park. It covers the Brooklyn tunnel and connects neighboutrhood areas. Vegetables are growing all through the tower.

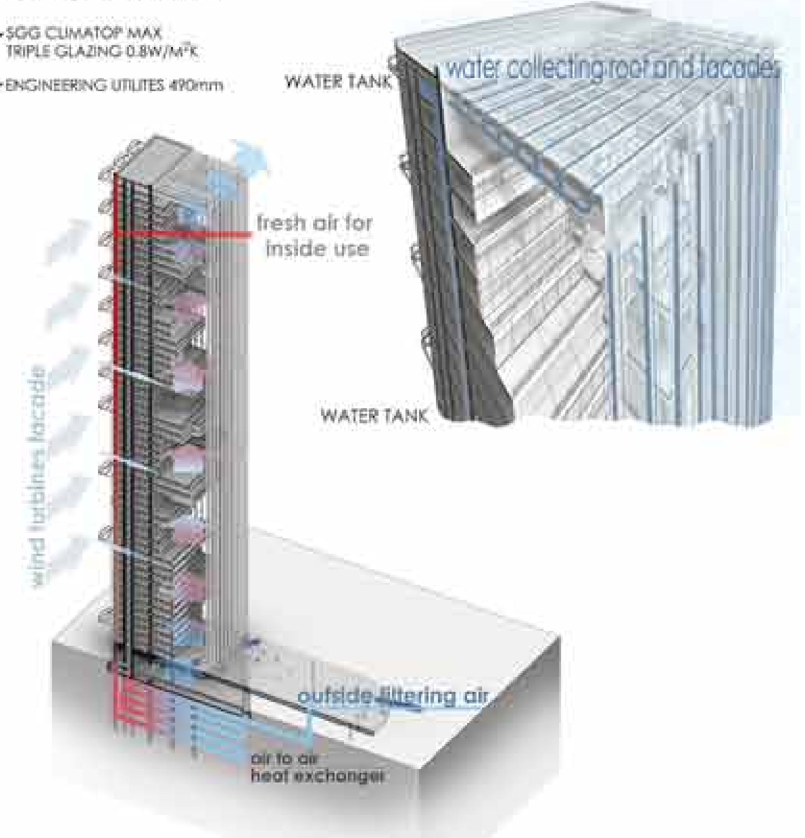




The park and Tower have two sides. Ecological and energetic. Energetic side generates energy for all needs and can share with active bui ldings. The main energy source is wind power. We use wind turbines. Under the ramp cars help to make energy with. The tower specific for his own structure, it has glass facade which creates micro climate. It helps to save termal energy.







ISOVER SAINT-GOBAIN

GREENWICH TOWER IN NEW YORK CITY

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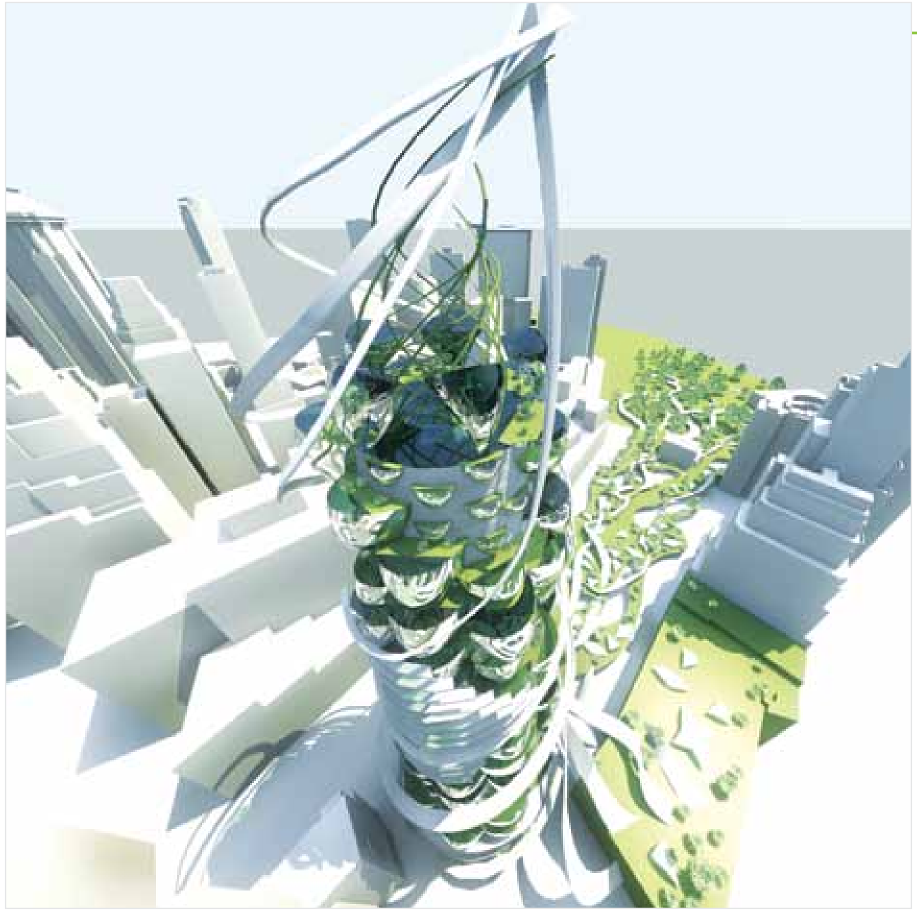

ISOVER SAINT-GOBAIN

AISTĖ ARANSKYTĖ

EGIDIJUS MOZŪRAS

UGNĖ JUDICKAITĖ

LITHUANIA
Vilnius Gediminas Technical University

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Lower Residential Floor
Wind turbine
The structure is opened in a way, that helps to concentrate wind towards the generator
Upper Residential Floor
Roof detail
Water gathering
Construction details
ISOVER Insulations:
Double Skin Facade
Tenth Floor
Office Floor
Window Farm
The simplest window farm system is a column of upside-down water bottles connected to one another. Window farms use recycled 1.5 liter water bottles, clay pellets, plastic tubing and inexpensive fish tank air pumps to create their indoor gardens.
Aeroponics
The principle of true aeroponics works by creating a fine mist of nutrients sprayed inside a tube or container in which the roots of the plants are suspended.
Geothermal heating
Third Floor
Second Floor
First Floor
Vertical gardens
Carbon nanotubes

GREENWICH TOWER IN NEW YORK CITY

7th ISOVER Multi-Comfort House Students Contest 2011

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III PRIZE
ISOVER Multi-Comfort House Students Contest
Lithuania national stage 2011

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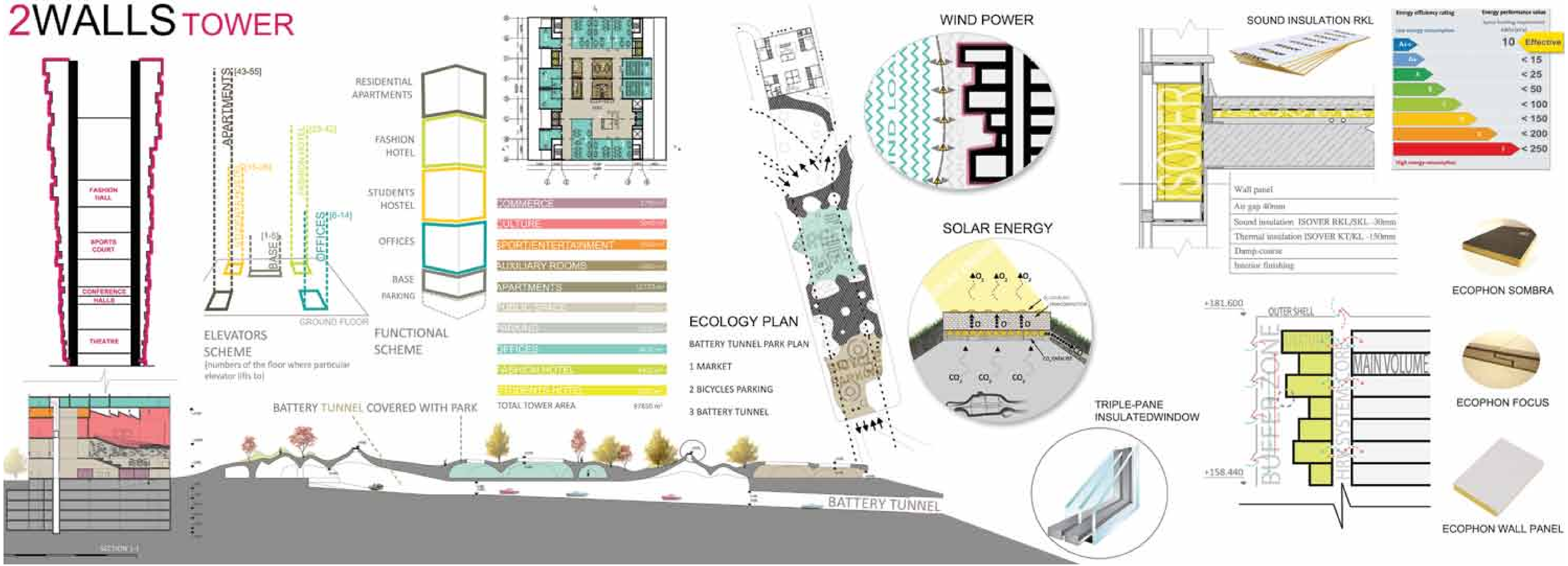

ISOVER SAINT-GOBAIN

GREENWICH TOWER IN NEW YORK CITY

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CALIN
OTILIA

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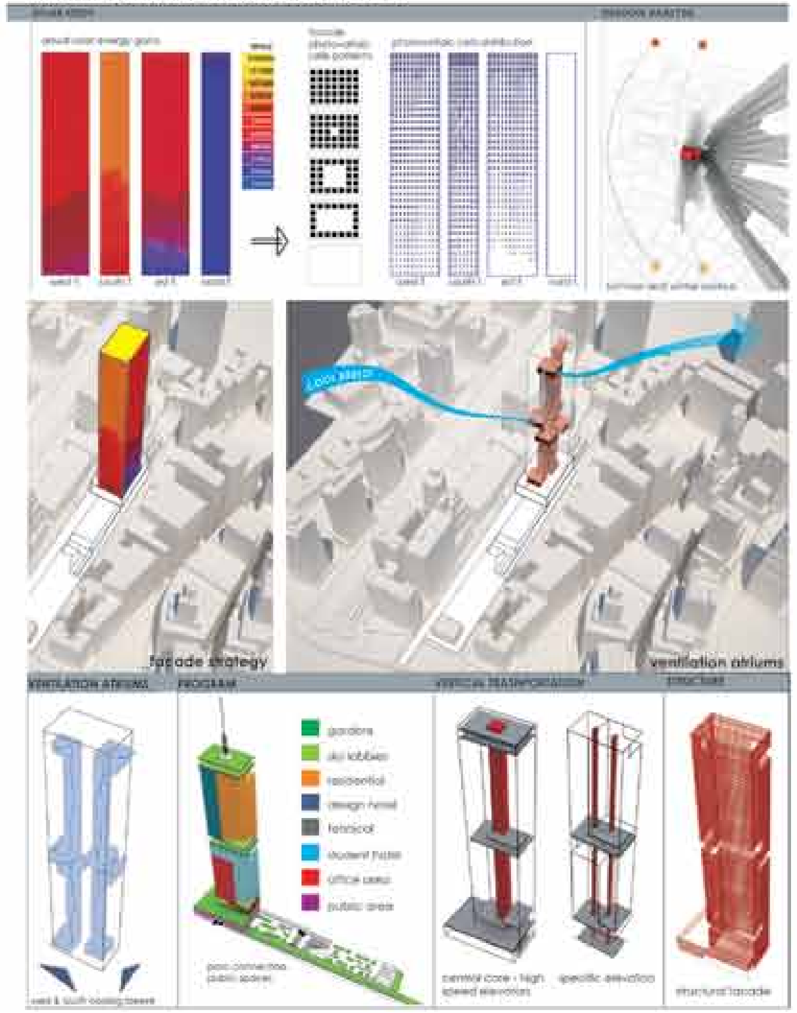
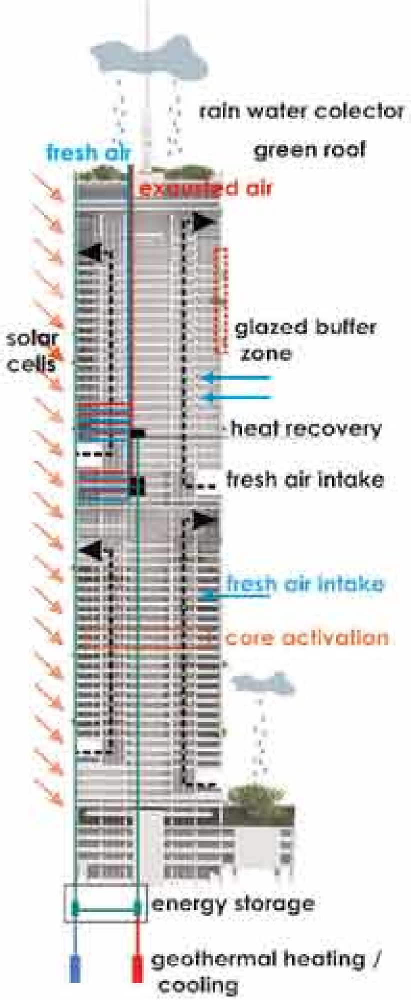
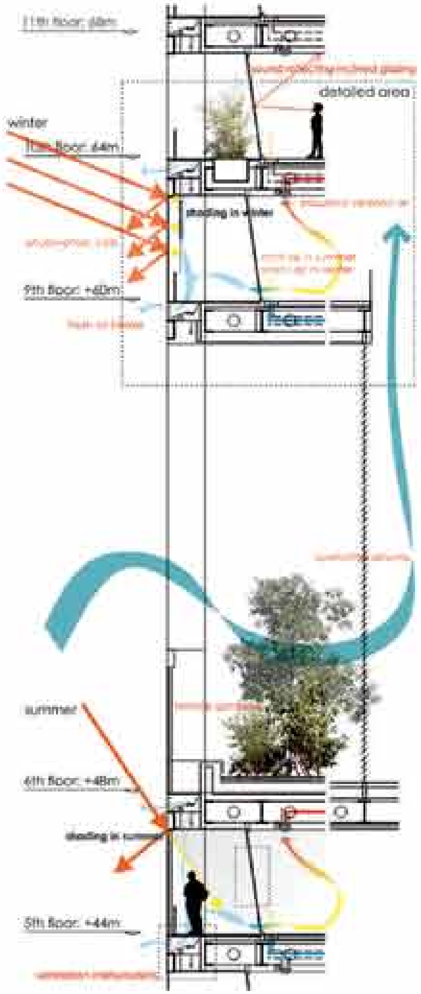
Air is sucked in via the roof. In winter, cold external air is heated to a temperature of 0-10 C by means of the solar storage unit. When no solar heating of the air intake occurs, this function is performed by a gas heater. In the ventilating appliances in the dwellings, the fresh-air intake is heated to 16-20 C by heat extracted from exhaust air. In this process, 80 per cent of the thermal energy from the exhaust air (20-20 C) is recovered, without any contamination with vitiated air. In the event of no heating being necessary as a result of heat gains from people, lighting or insolation, the fresh air intake is fed into the rooms without being preheated. When heating is required, the fresh air intake is heated to roughly 30-40 C by a minimum-sized heat pump. Fresh air is conveyed to the ventilation inlets via thermally insulated ducts. Vitiated air is removed from the kitchens, bathrooms, WCs, rooms, offices by suction. The air from the living room and other spaces flows out through slits beneath the doors. Cooking fumes are extracted separately via activated carbon filters. Exhaust air passes through a heat-recovery plant in the ventilation installation before being emitted at roof level.

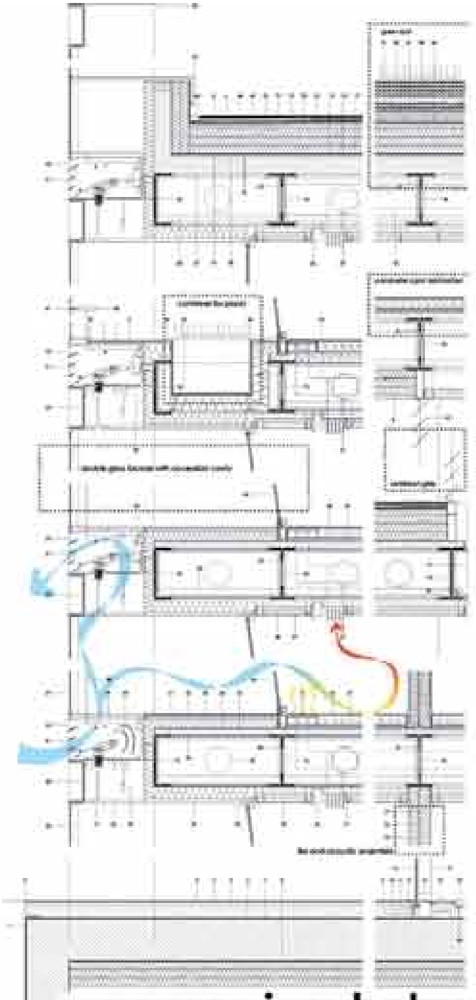
Solar heating of the hot water supply occurs by means of solar collectors and central solar storage elements: When insolation occurs, the solar collectors yield their heat to the central solar storage elements. In summer, the requisite hot water is heated in storage elements to a temperature of 40-60 C and then fed into hot-water tanks in the dwellings, where it can be reheated by the heat pump. In winter, solar heat is used to warm the air supply. At this time of year, the storage temperature can sink to 5-15 C. With temperatures around 20 C, the collectors can yield solar heat.

ARCHITECTURAL AND SOLAR CONCEPTS









_energy incubator

GREENWICH TOWER IN NEW YORK CITY

7th ISOVER Multi-Comfort House Students Contest 2011

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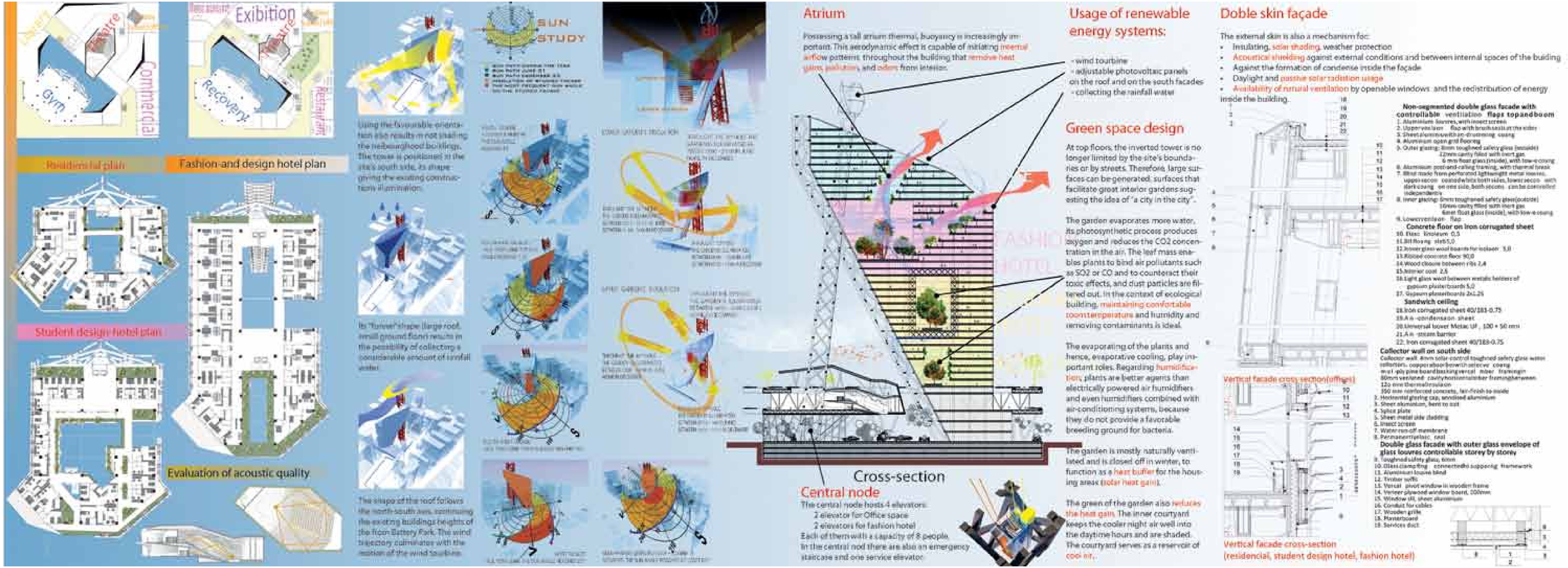
Library
Theatre
Gym
Commercial
Exibition
Theatre
Recovery
Restaurant
Residential plan
Fashion-and design hotel plan
Student design hotel plan
Evaluation of acoustic quality
SUN
STUDY
Atrium
Possessing a tall atrium thermal, buoyancy is increasingly important. This aerodynamic effect is capable of initiating internal airflow patterns throughout the building that remove heat gains, pollution, and odors from interior.
Usage of renewable energy systems:
- wind tourbine
- adjustable photovoltaic panels on the roof and on the south facades
- collecting the rainfall water
Green space design
At top floors, the inverted tower is no longer limited by the site's boundaries or by streets. Therefore, large surfaces can be generated, surfaces that facilitate great interior gardens suggesting the idea of "a city in the city".
The garden evaporates more water, its photosynthetic process produces oxygen and reduces the CO2 concentration in the air. The leaf mass enables plants to bind air pollutants such as SO2 or CO and to counteract their toxic effects, and dust particles are filtered out. In the context of ecological building, maintaining comfortable room temperature and humidity and removing contaminants is ideal.
The evaporating of the plants and hence, evaporative cooling, play important roles. Regarding humidification, plants are better agents than electrically powered air humidifiers and even humidifiers combined with air-conditioning systems, because they do not provide a favorable breeding ground for bacteria.
The garden is mostly naturally ventilated and is closed off in winter, to function as a heat buffer for the housing areas (solar heat gain).
The green of the garden also reduces the heat gain. The inner courtyard keeps the cooler night air well into the daytime hours and are shaded. The courtyard serves as a reservoir of cool air.
Doble skin façade
The external skin is also a mechanism for:
• Insulating, solar shading, weather protection
• Acoustical shielding against external conditions and between internal spaces of the buiding
• Against the formation of condense inside the façade
• Daylight and passive solar radiation usage
• Availability of natural ventilation by openable windows and the redistribution of energy inside the building.
Non-segmented double glass facade with controllable ventilation flaps top and boom
Concrete floor on iron corrugated sheet
Sandwich ceiling
Collector wall on south side
Double glass facade with outer glass envelope of glass louvres controllable storey by storey
Vertical facade cross section(offices)
Vertical facade cross-section
(residencial, student design hotel, fashion hotel)
Cross-section
Central node
The central node hosts 4 elevators:
2 elevator for Office space
2 elevators for fashion hotel
Each of them with a capacity of 8 people.
In the central nod there are also an emergency staircase and one service elevator.

GREENWICH TOWER IN NEW YORK CITY

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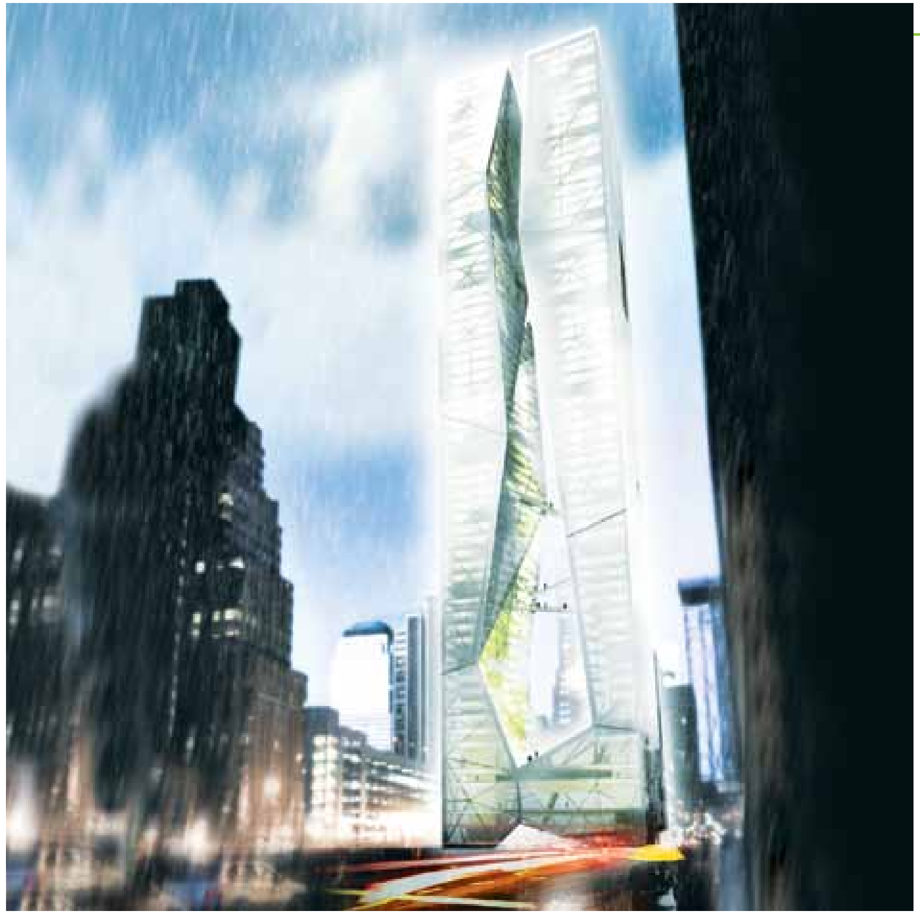

ISOVER SAINT-GOBAIN

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ISOVER Multi-Comfort House Students Contest
Serbia national stage 2011

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GROUND FLOOR

RETAIL, ENTRANCE LOBBY
FASHION HOTEL ENTRANCE
LOBBY STUDENT HOTEL
ENTRANCE LOBBY
RESIDENTIAL CAFFE

FLOOR PLANS 6-20
OF TYPICAL FUNCTIONS

OFFICES

FLOOR PLANS 21-35
OF TYPICAL FUNCTIONS
FASHION AND DESIGN

HOTEL

ROOMS, SHOWROOM,
DRESSING ROOMS,
CONFERENCE ROOMS,
KITCHEN, DINING ROOMS

FLOOR PLANS 36-50
OF TYPICAL FUNCTIONS

STUDENT DESIGN - HOTEL:

BLDRM. BEDS, COMMON KITCHEN
FOR EACH 6 BEDROOMS,
COMMON DINING ROOMS

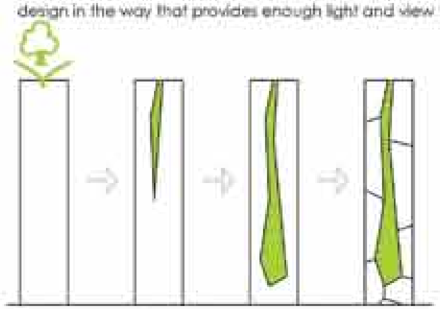
FLOOR PLANS 51-65
OF TYPICAL FUNCTIONS

RESIDENTIAL

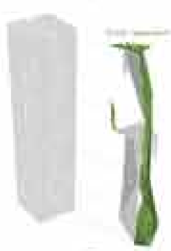
NY Canyon Tower

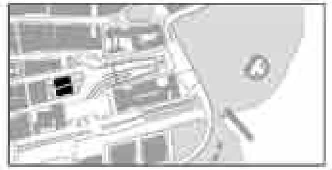
Design concept

We wanted to challenge the stereotypical corporate tower block form, and to give him a new spatial exeperience. By inserting nature into it (nature, trees are being apstracted into triangular based form witch acts like an atrium of the building), tipical tower becomes cracked and gives a new quality to surrounding. One of the benefits of the "crack" is it was design in the way that provides enough light and view for the neighbour buildings.

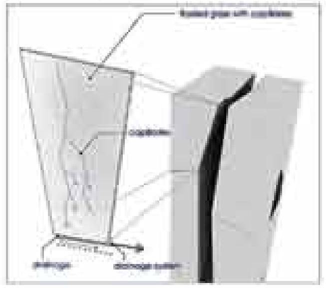


Function organization

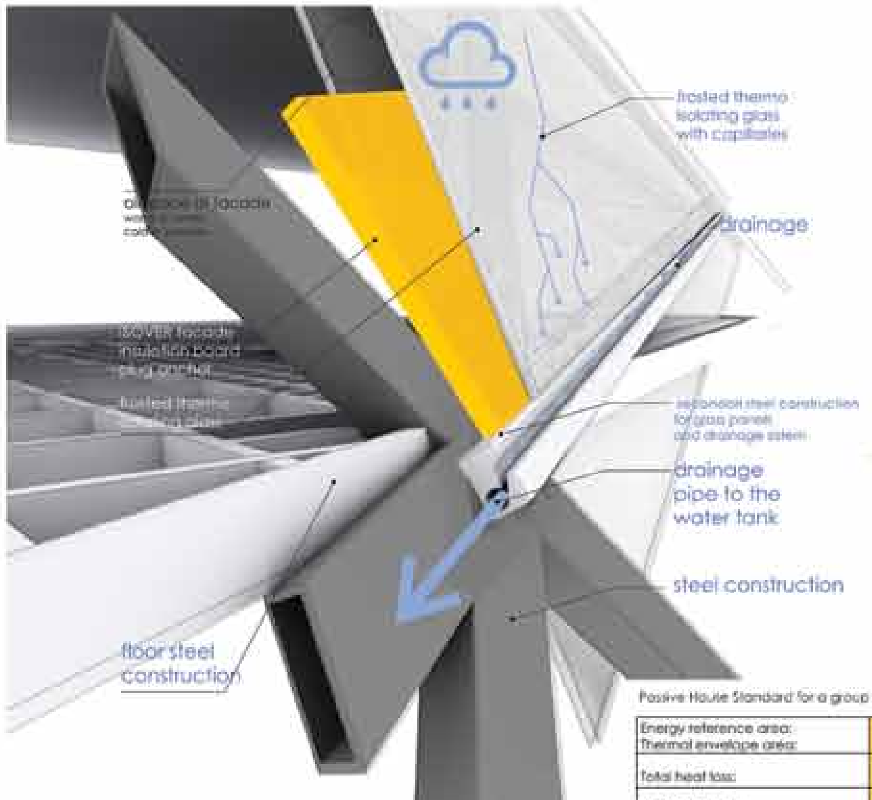


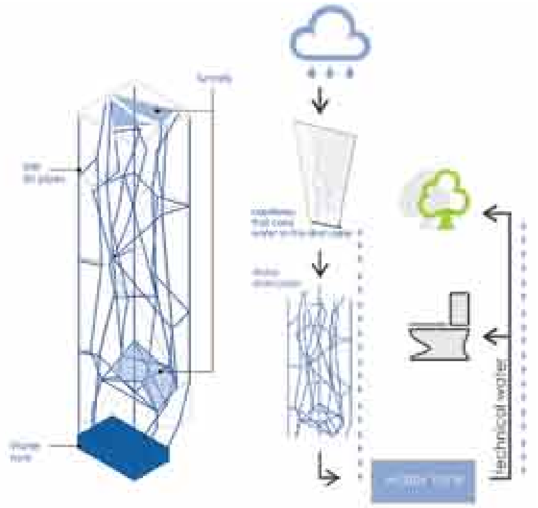


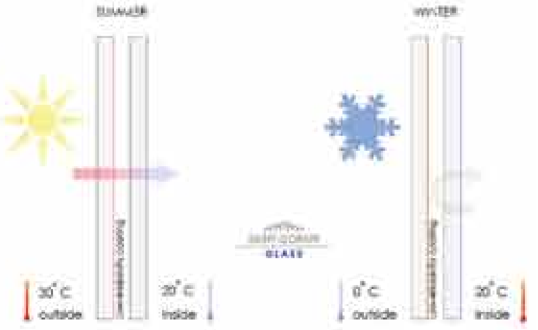
Structure components



Sustainable drainage is an approach to surface water drainage that aims to make use of rainwater as a water supply, reduce the volume and surface velocity of run-off and control pollution, with the overall intention of reducing a site's contribution to rainfall discharge.







Passive House Standard for a group of 4 coherent upper floors

Energy reference area: Thermal envelope area:	6200 m2 5510 m2	Heat requirement:	72979.18 kWh/a
Total heat loss:	50.04 kWh/(m2a)	Annual specific heat energy requirement:	11.77 kWh/(m2a)
Total heat gains:	38.27 kWh/(m2a)	Annual specific heat energy requirement: ≤15kWh/(m2a)) achived:	YES

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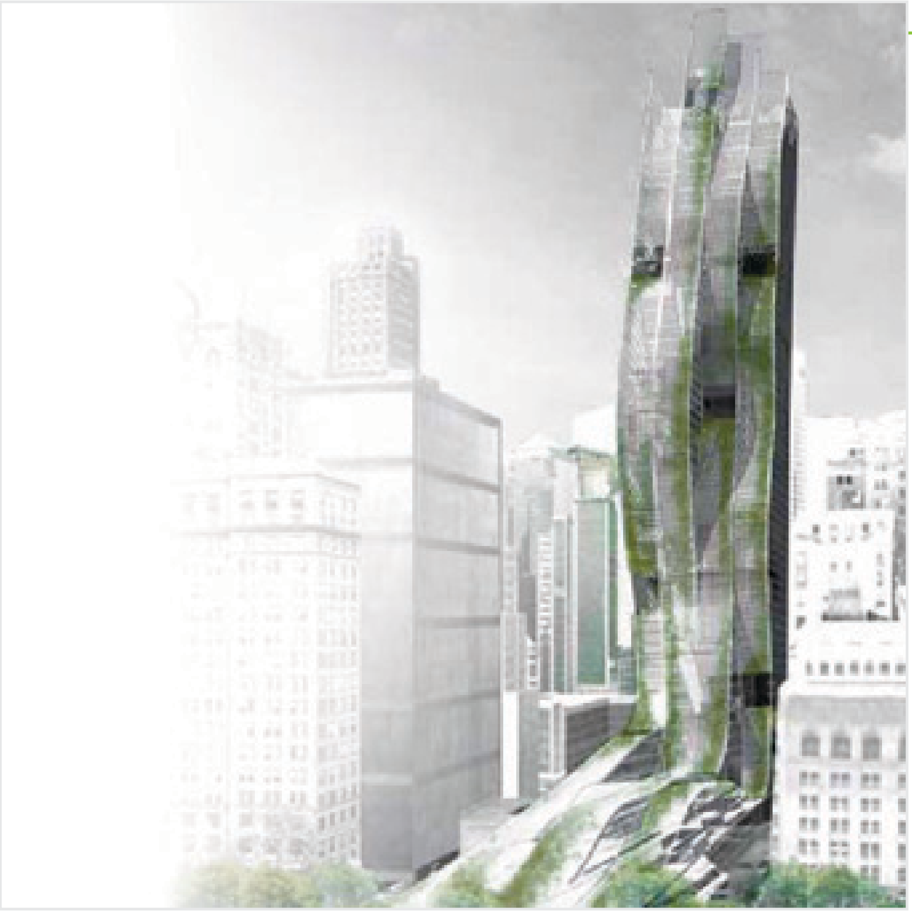

ISOVER SAINT-GOBAIN

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NEW YORK GREEN STRIPS

CONCEPT

Our proposal New York Green Strips Tower intends to use technology for the best possible adaption of nature on the building. Using modern agricultural techniques in the construction of the building we allow nature to flourish with the help of plants that already exist around the location. Green façade is a natural method for shadowing the building during summer and a double façade in wither which reduces the amount of energy to maintain internal ventilation and temperature. The tower thus becomes a natural manufacturing plant for reusable material.

STRIPS

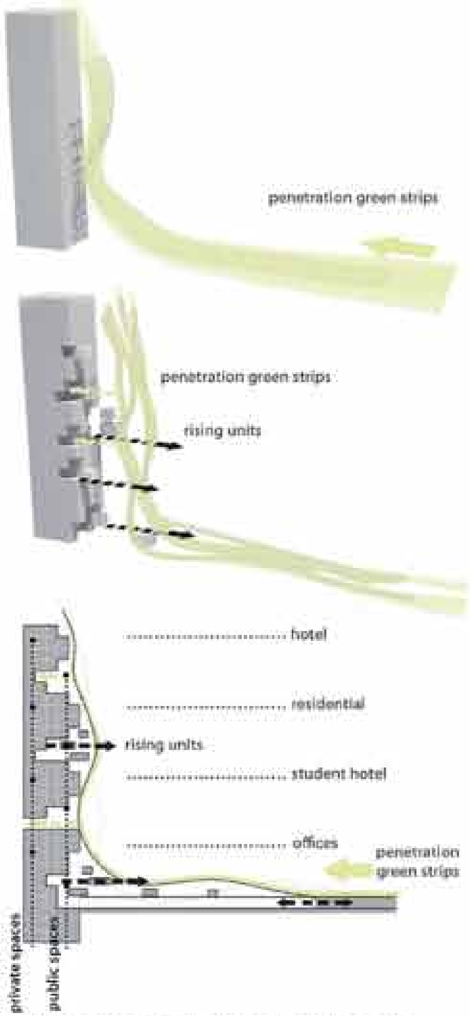
The formation of the proposed facade projects the horizontal city grid of the surrounding area onto the vertical expression of the building linking the structure to its context and creating a form familiar to the inhabitants of the area. The park is continued from the ground plane and becomes the connecting thread linking the entire tower. The park reacts to sunlight, wind, as it sometimes widens for commercial activity, an open green space, or to provide visual and circulatory freedom. A variety of plantation and vegetation are distributed through the length of the tower.

PROGRAM

The tower is mixed use: public areas at ground level, offices, student hotel, living, design hotel in upper levels, and green terrace on the top with penetration of the park between each program. Also, the program of the facade varies through its vertical expression. Much of the tower is open to the public, which allows visual accessibility to the processes that make this possible. Even elevators provide visibility into the vegetable husbandry as it happens. Tower offers multi-level indoor/outdoor terraces with an extensive mix of planned program and leisure facilities. Six observation levels facilitate this openness. The top level overlooks the sea and park.

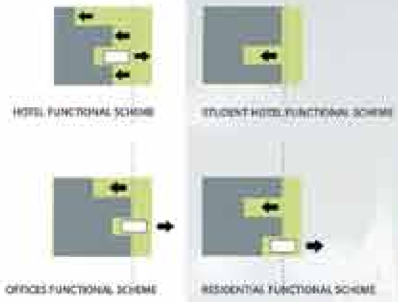
STRUCTURE

The strip structure is a series of steel meshes that lean on the concrete elevator cores, columns and beams. The tower, if not literally, then is conceptually transparent, allowing visitors and users to view the natural processes of energy saving by plant life and experience their natural uses in the built environment.

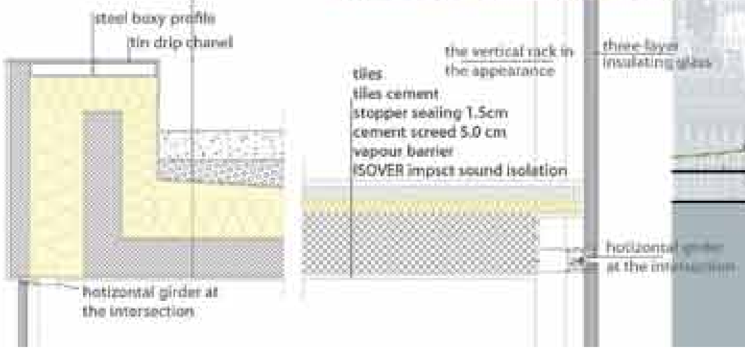


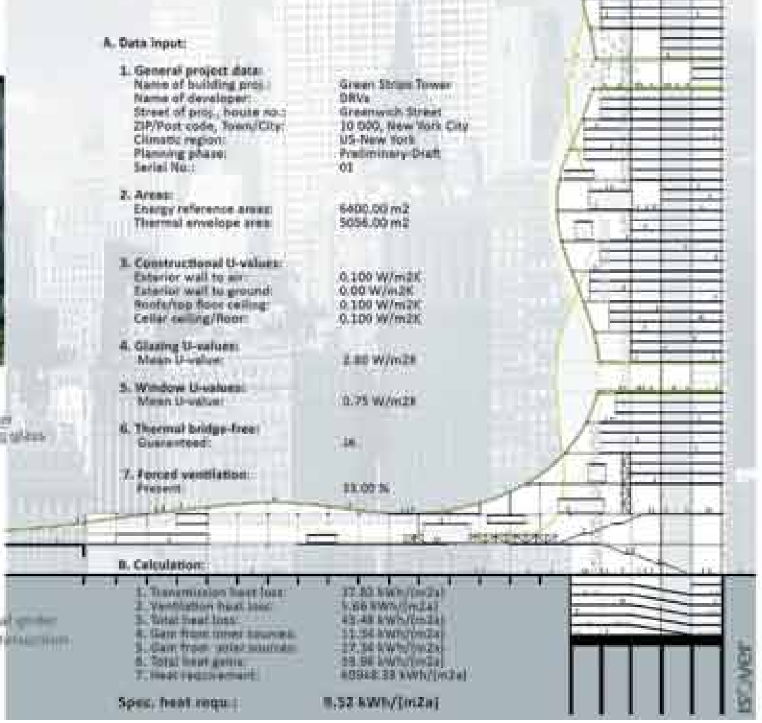
PENETRATION GREEN STRIPS AND RISING UNITS SCHEME


HOTEL FLOOR PLAN 1:250



- clinker on flexfugen
  epoxy glue 1.0 cm
- cement screed reinforced
  seperating layer 7.0 cm
- drainage layer
  double separating layer 7.0 cm
- double-layer roof skin 0.8 cm
- ISOVER stone wool with mechanical
  strenght, glued 20.0 cm
- reinforced concrete,
  min 2 gradient (sloping) 18.0 cm
- interior plaster 1.5 cm





GREENWICH TOWER IN NEW YORK CITY

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I PRIZE

ISOVER Multi-Comfort House Students Contest

International stage, Prague 2011

MARIÁN LUCKÝ

SLOVAKIA

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I PRIZE

ISOVER Multi-Comfort House Students Contest
Slovakia national stage 2011

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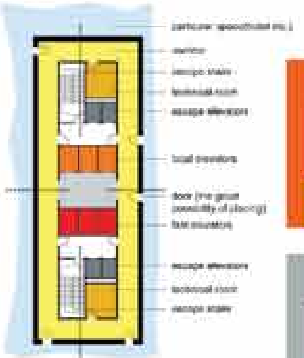
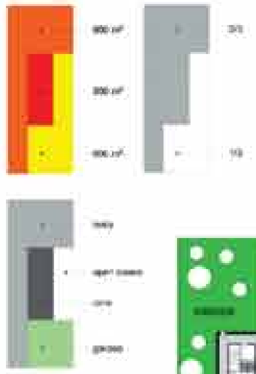
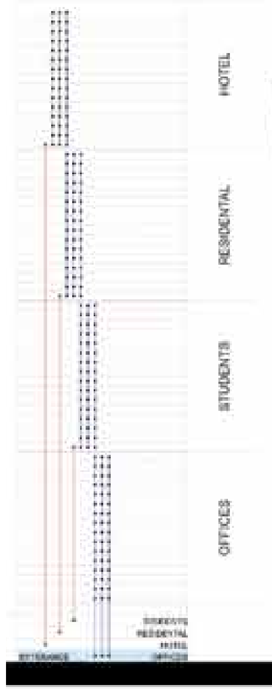
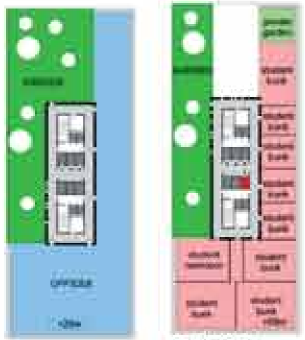


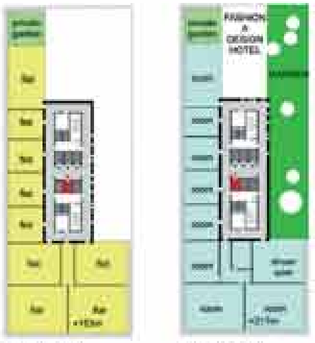






6. FLOOR

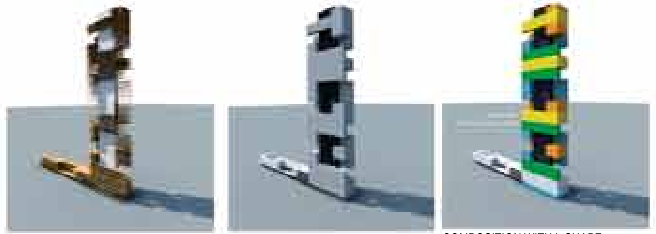
22. FLOOR



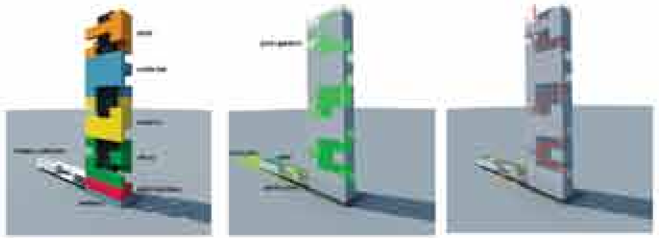
38. FLOOR

54. FLOOR

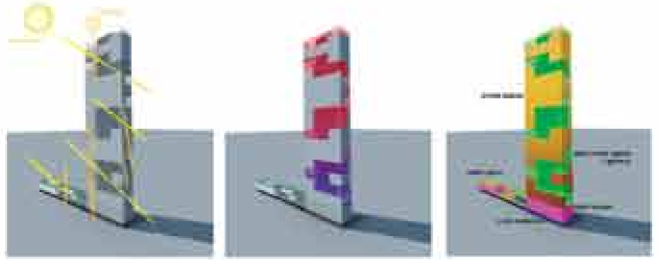
TOWER - BLINDS ARE PULLED UP | TOWER - RANDOM CLOUDY BLINDS | TOWER - BLINDS ARE PULL DOWN | THE CORE



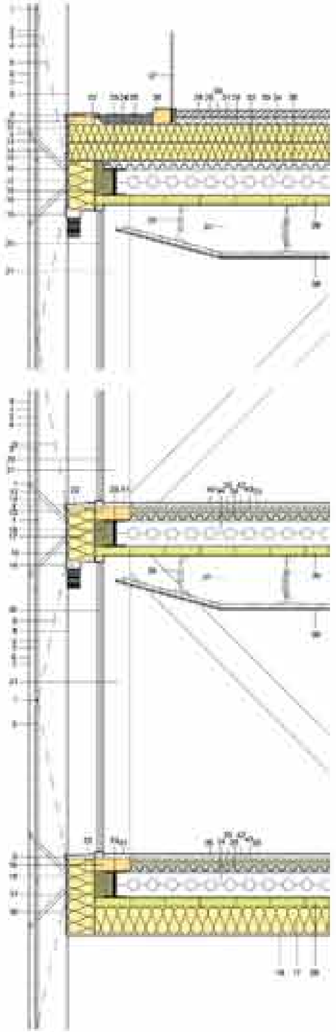
SLABS | BASIC MASS | COMPOSITION WITH L-SHAPE



FUNCTIONS | GREENERY | NATURAL VENTILATIONS

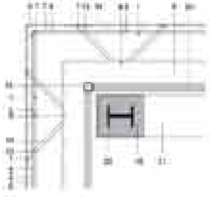


SOLAR PENETRATIONS | TEMPERATURES | ACCESSIBILITY



LEGEND:

1 - Vertical and horizontal ropes for fixing exterior light facade
2 - Simple lightweight glass panel
3 - Spider grips for lightweight glass panels
4 - Loadbearing aluminium construction for simple glass facade
5 - Horizontal ropes for fixing construction for simple glass facade
6 - White aluminium perforated facade
7 - Steel ropes for mounting perforated aluminium facade
8 - Vertical steel ropes for fixing all exterior facade
9 - Aluminium sheeting
10 - Wooden block
11 - ISOVER lightweight glass wool, 200 mm
12 - Vertical aluminium facade column
13 - Steel joint point for loadbearing aluminium construction
14 - Aluminium construction for exterior facade
15 - Vapour barrier
16 - Aluminium white panels
17 - ISOVER lightweight glass wool, 350 mm
18 - ISOVER insulation
19 - Aluminium white horizontal lightweight blinds
20 - Triple glazing facade
21 - Column - steel I-shape with insulation and interior coating
22 - Wooden pad
23 - Main loadbearing steel frame in I-shape from bridge segment
24 - Damp proof course
25 - Gravel
26 - Wooden block for gripping glass handrail
27 - Safety glass handrail
28 - Growing medium for grass
29 - Filter layer - geotextile
30 - Underlying layer
31 - Plastic fittings
32 - Vapour barrier
33 - Slope concrete
34 - Paned steel slab frame
35 - Trapezoidal sheet
36 - Suspender of lower ceiling
37 - Ventilation pipe
38 - Lower ceiling, plaster board - fire protection board
39 - Insulation loadbering panels for gripping lower ceiling
40 - Wooden parquet
41 - Inside sill
42 - ISOVER impact sound insulation board, 50 mm
43 - Cardboard A 400



HORIZONTAL DETAIL 1:20

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MICHAL GANOBJAK

VLADIMÍR HAIN

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II PRIZE

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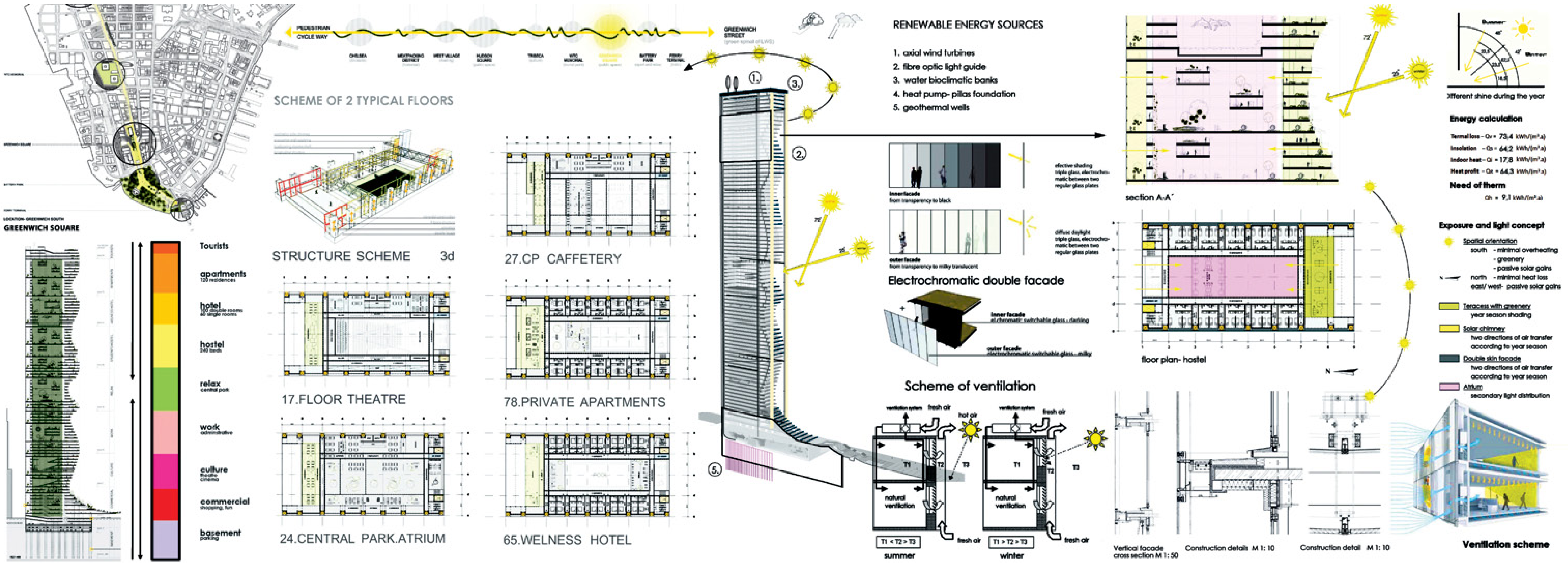

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Multi-Comfort House

GREENWICH TOWER IN NEW YORK CITY

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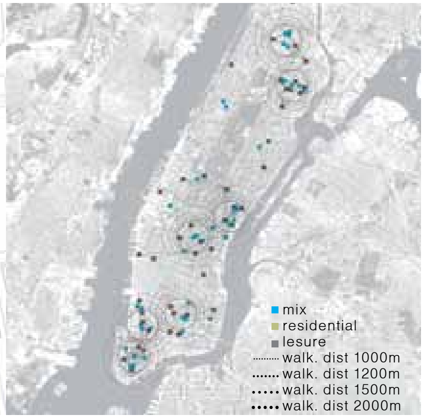
skyscraper/new york



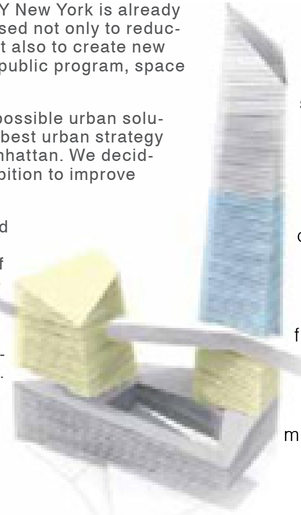
- NY has most used public transport in USA
- Fresh water in NY is one of the best in USA
- Only 1% of USA Co2 is reduced in NY
- First hybrid taxi was launched in NY New York is already sustainable, therefore we have focused not only to reducing building energy consumption, but also to create new communication layer, to encourage public program, space sharing and social interactions

The beginning of the process were possible urban solutions, which were compared, to find best urban strategy for site and wider area of Lower Manhattan. We decided for urban solution, which has ambition to improve relationships in urban structure.

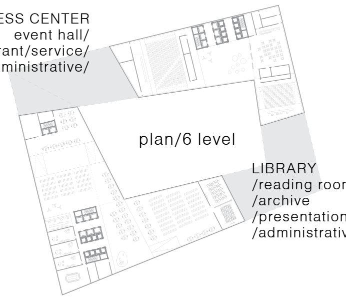
Revitalization of abandoned elevated railway track in Manhattancreates Highline effect, urban phenomena of bringing additional public space into dense city structure.

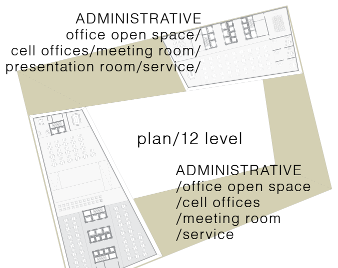
Our urban strategy expect creating new layer of communication, opposition to rigid urban grid of Manhattan. Creating skyscraper as knot, or crossing in this new network.

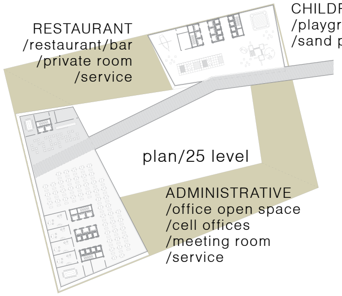
Fly lines is connecting sky lobbies and roofs of existing skyscraper makeswith underground and streets third layer, with shorter connections,without collisions of traffic and full of public program.

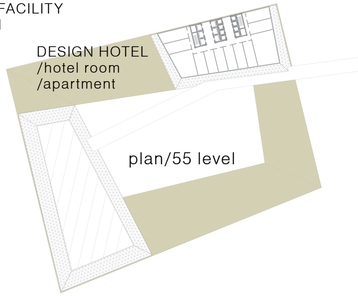


scheme/program







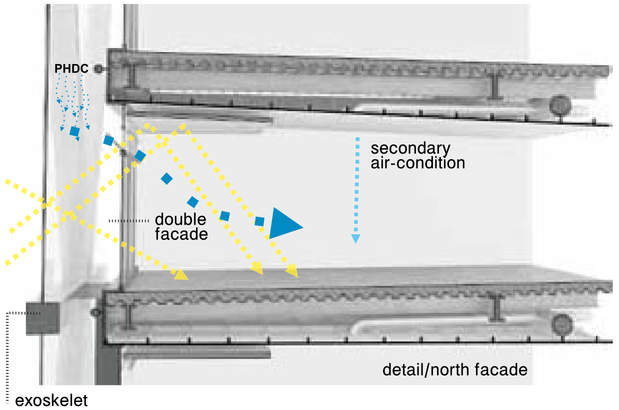


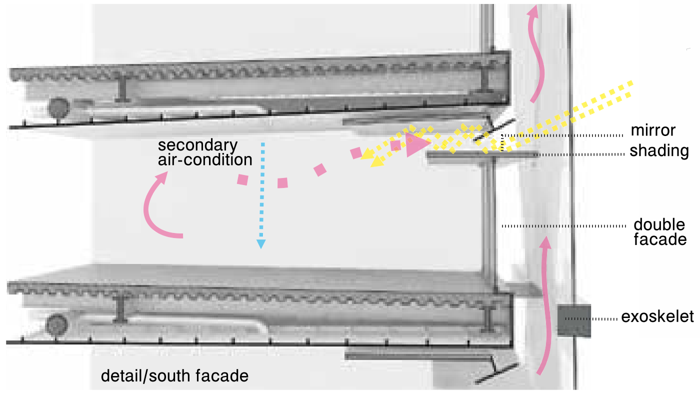
PHDC

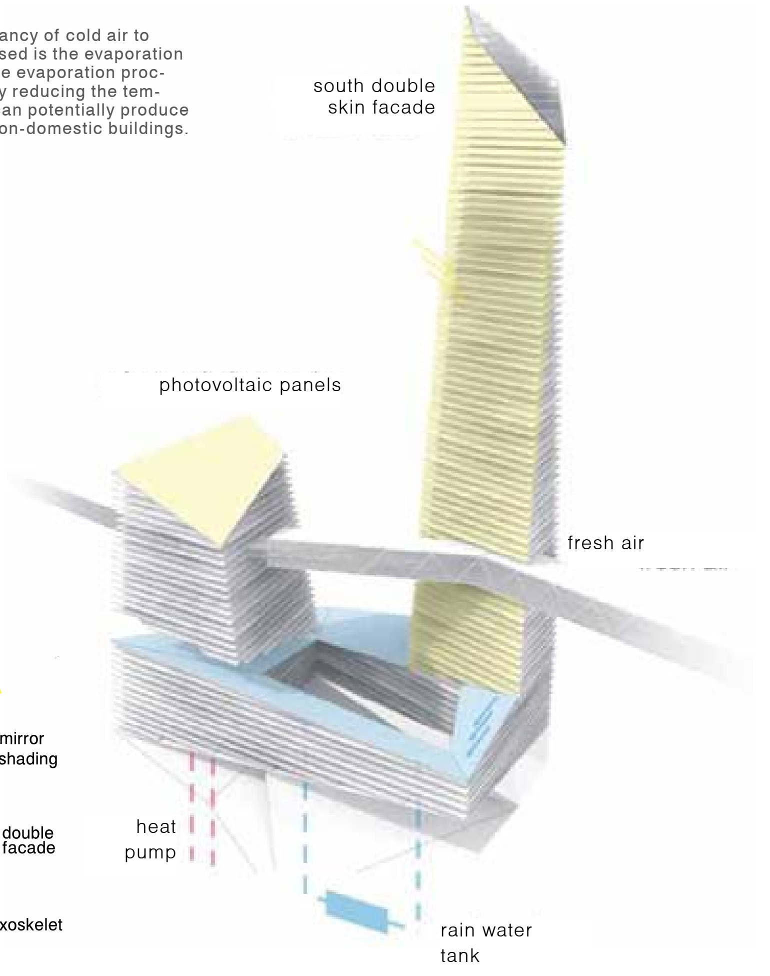
Technology

Passive and hybrid downdraught cooling systems use the negative buoyancy of cold air to drive the airflow through the building. One of the primary mechanisms used is the evaporation of water. To change from liquid to vapour, water needs energy. During the evaporation process, the water takes this energy, in the form of heat, from the air, thereby reducing the temperature of the air and causing it to flow downwards. The use of PHDC can potentially produce substantial energy and CO2 savings in existing and new domestic and non-domestic buildings.

http://www.phdc.eu/index.php?id=8







scheme/program

Multi-Comfort House

GREENWICH TOWER IN NEW YORK CITY

7th ISOVER Multi-Comfort House Students Contest 2011

JERNEJ
FRANGEŽ

MATEJA
LIČER

SLOVENIA
University of Ljubljana, Faculty of Architecture, Ljubljana

I PRIZE
ISOVER Multi-Comfort House Students Contest
Slovenia national stage 2011

ISOVER SAINT-GOBAIN

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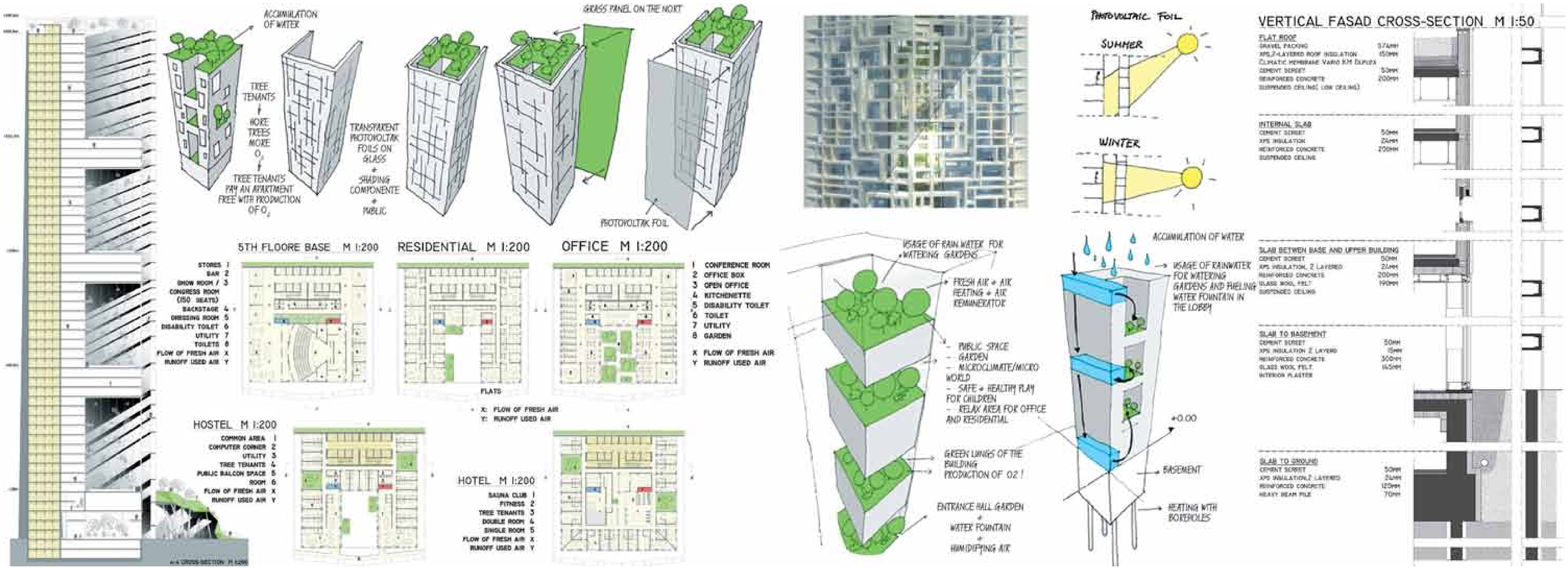

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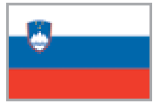
EVA
ŠEGATIN

NEJC
LENČEK

SLOVENIA
University of Ljubljana, Faculty of Architecture, Ljubljana



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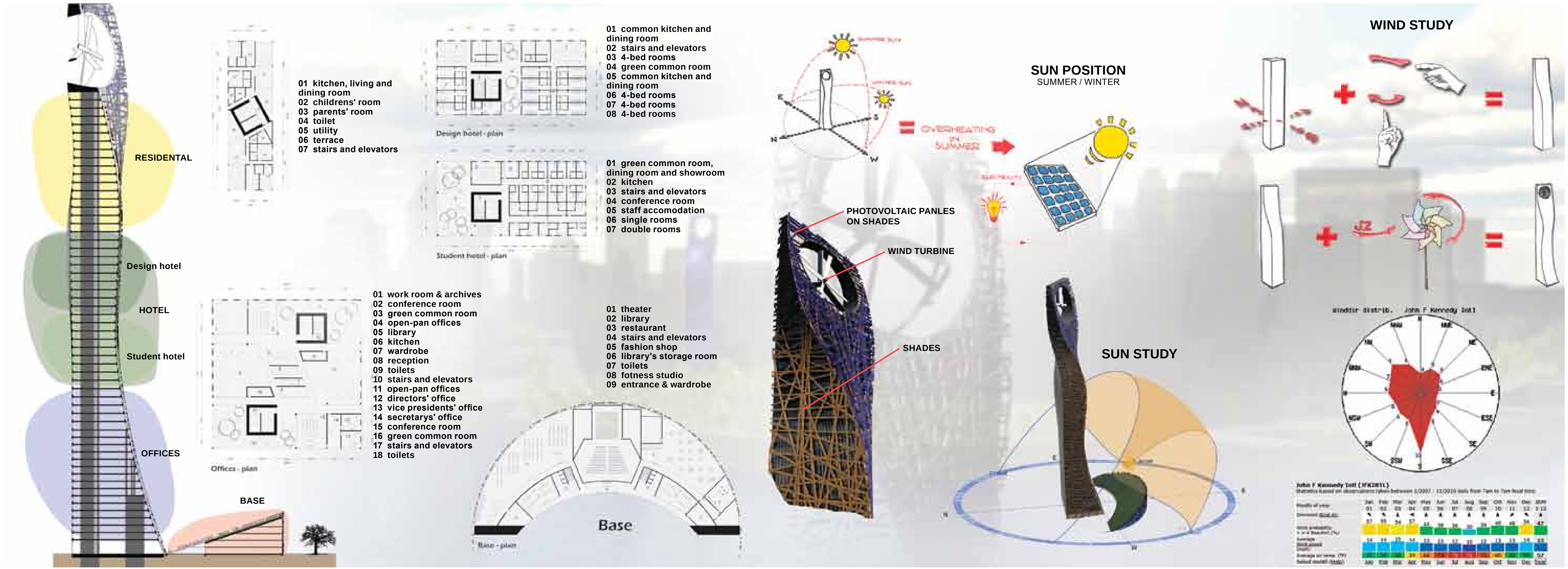

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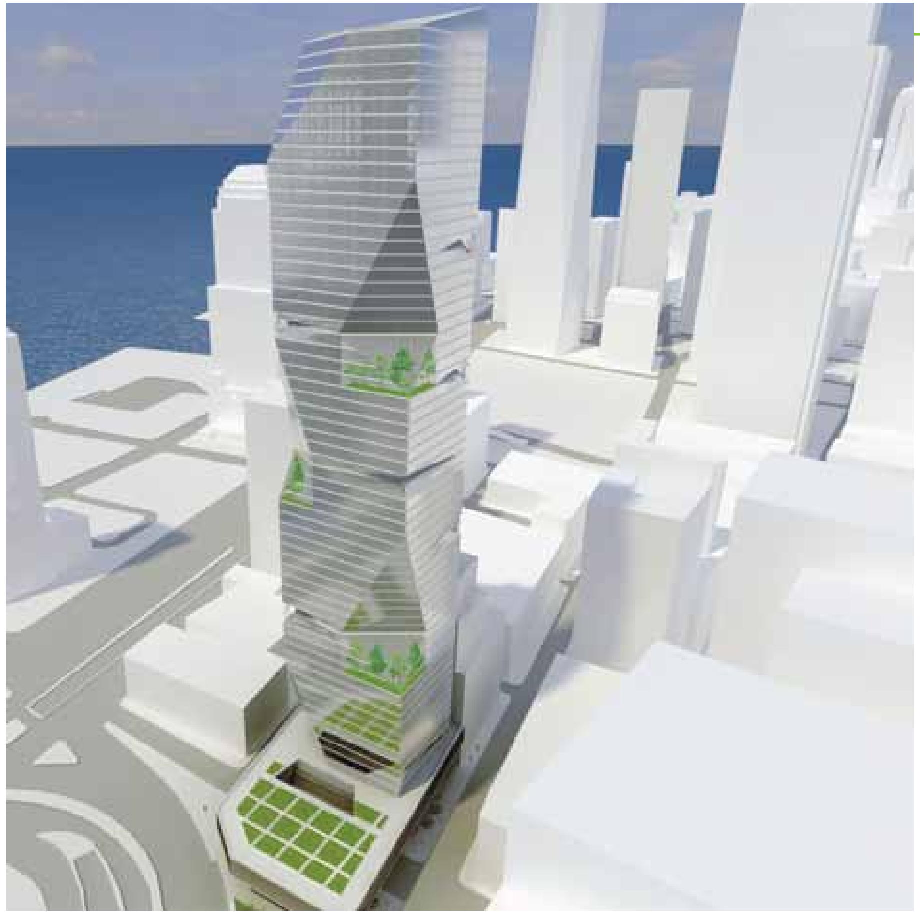


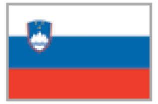
ISOVER SAINT-GOBAIN

ANA DESTOVNIK

ALEŠ ISKRA

SLOVENIA

University of Ljubljana, Faculty of Architecture, Ljubljana



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Slovenia national stage 2011

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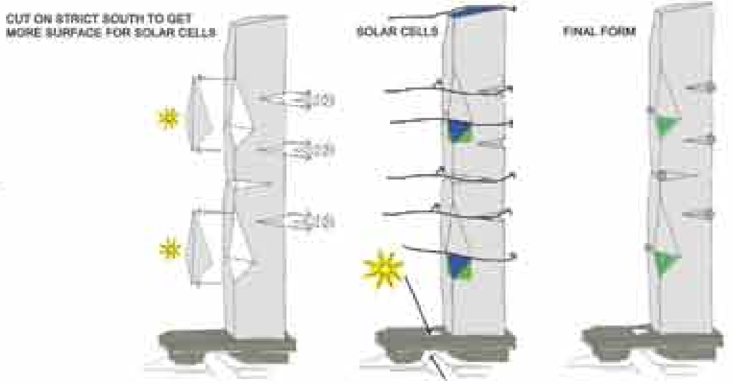

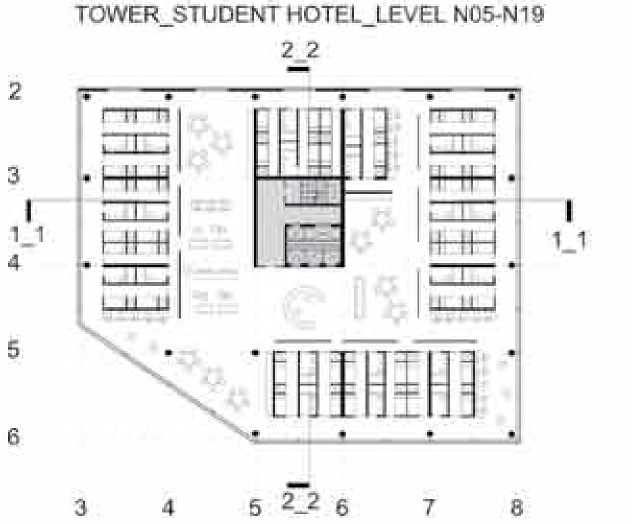

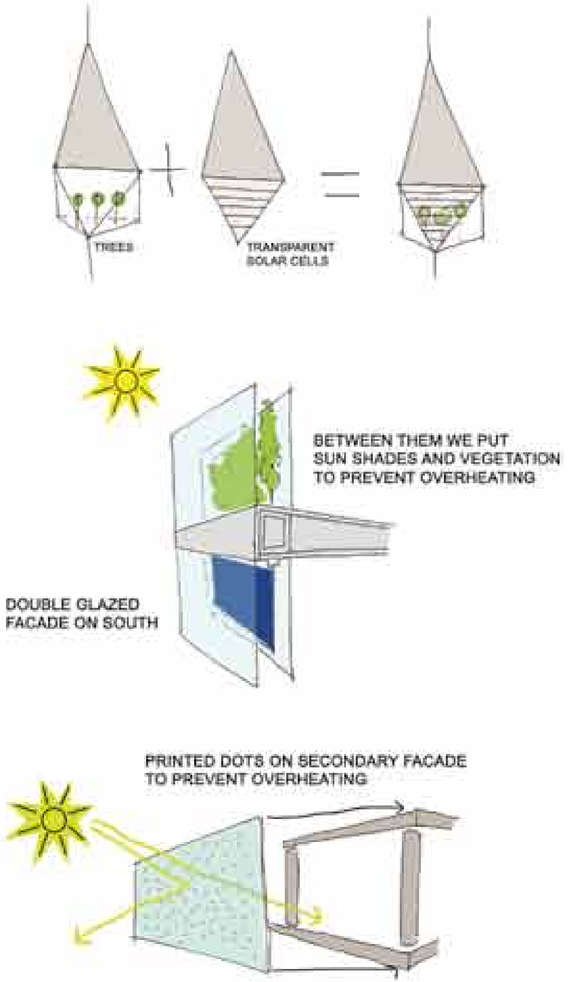

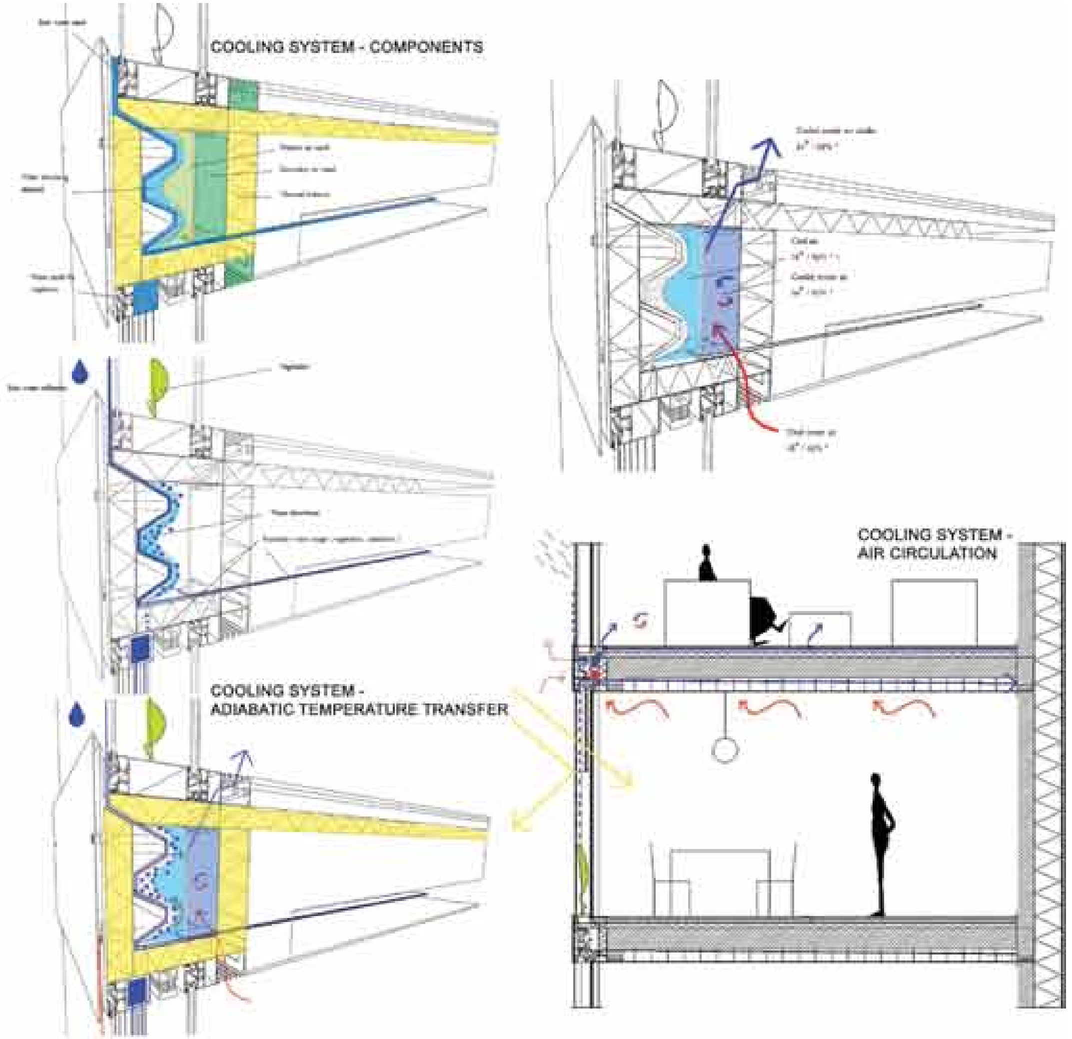

ISOVER SAINT-GOBAIN

GREENWICH TOWER IN NEW YORK CITY

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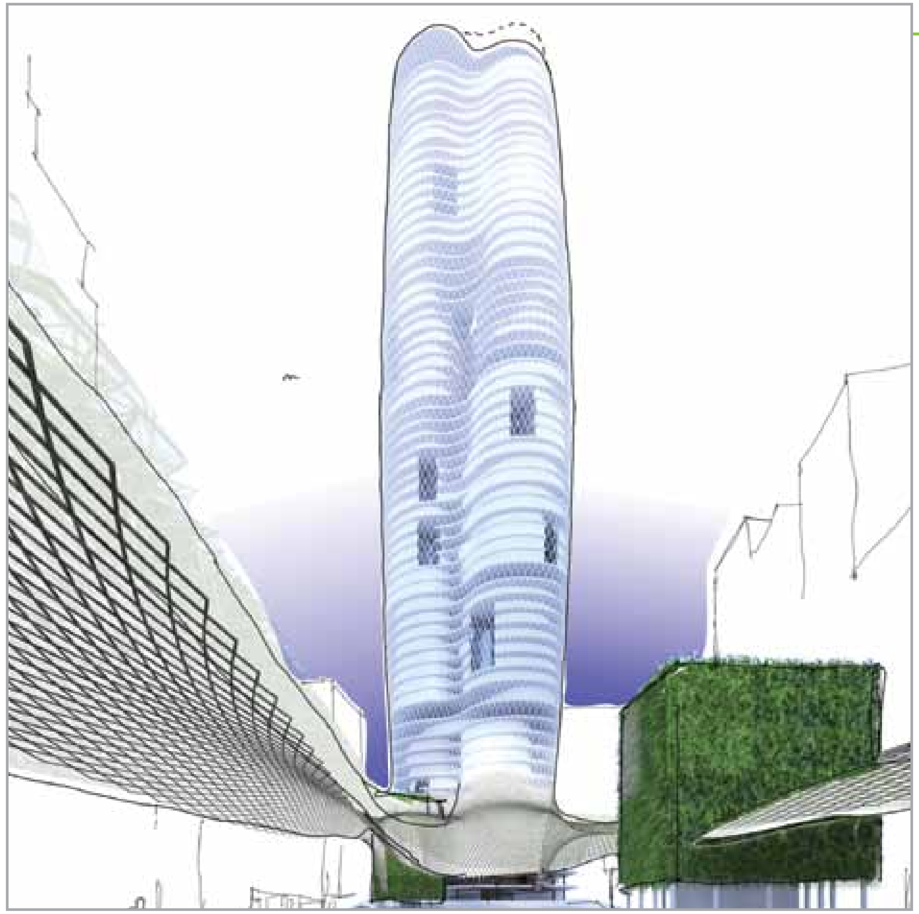

CARLOS GOSENDE SALVADO

LIA ISABEL SÁNCHEZ RODRÍGUEZ

MARTIN ANDREAS TAGE HEDIN

SPAIN
Universidad de Las Palmas de Gran Canaria

I PRIZE
ISOVER Multi-Comfort House Students Contest
Spain national stage 2011

ISOVER SAINT-GOBAIN

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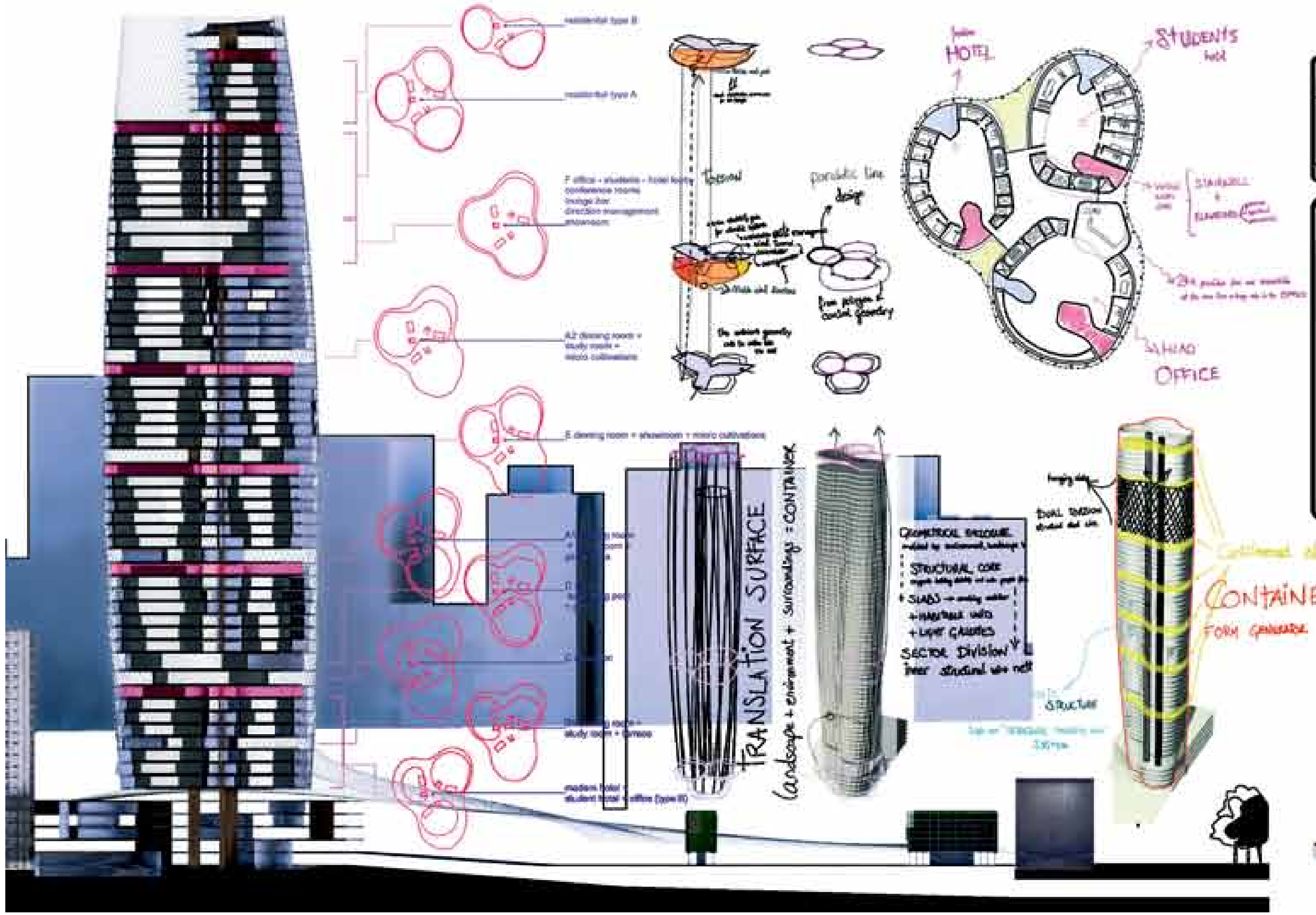

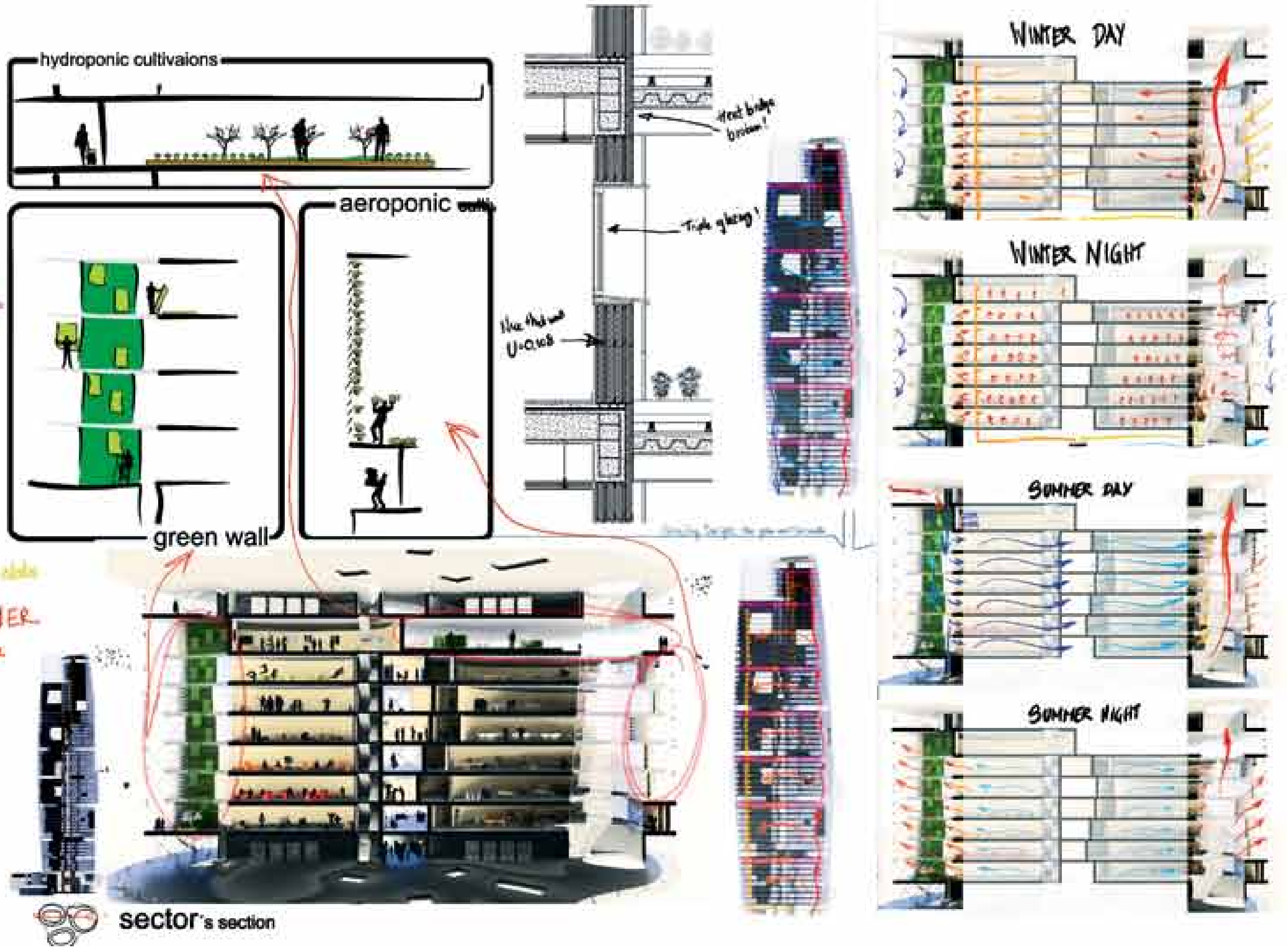

ISOVER SAINT-GOBAIN

Multi-Comfort House

GREENWICH TOWER IN NEW YORK CITY

7th ISOVER Multi-Comfort House Students Contest 2011

III PRIZE

ISOVER Multi-Comfort House Students Contest

International stage, Prague 2011

ERICK
FERNÁNDEZ ÁVALOS

NARA
MARTINS TELLES

SPAIN

School of Architecture, Technical University of Madrid

II PRIZE

ISOVER Multi-Comfort House Students Contest

Spain national stage 2011

ISOVER SAINT-GOBAIN

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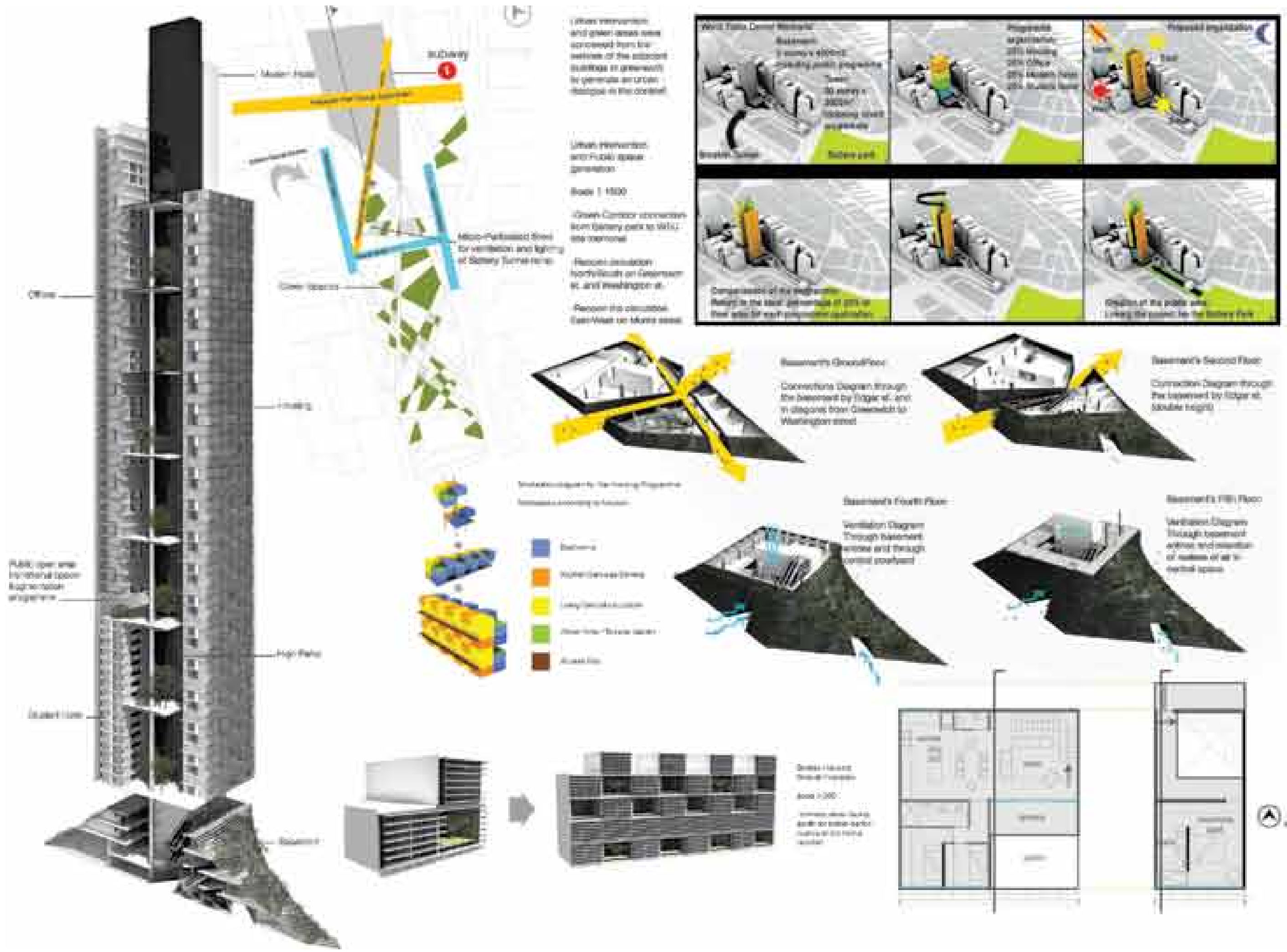

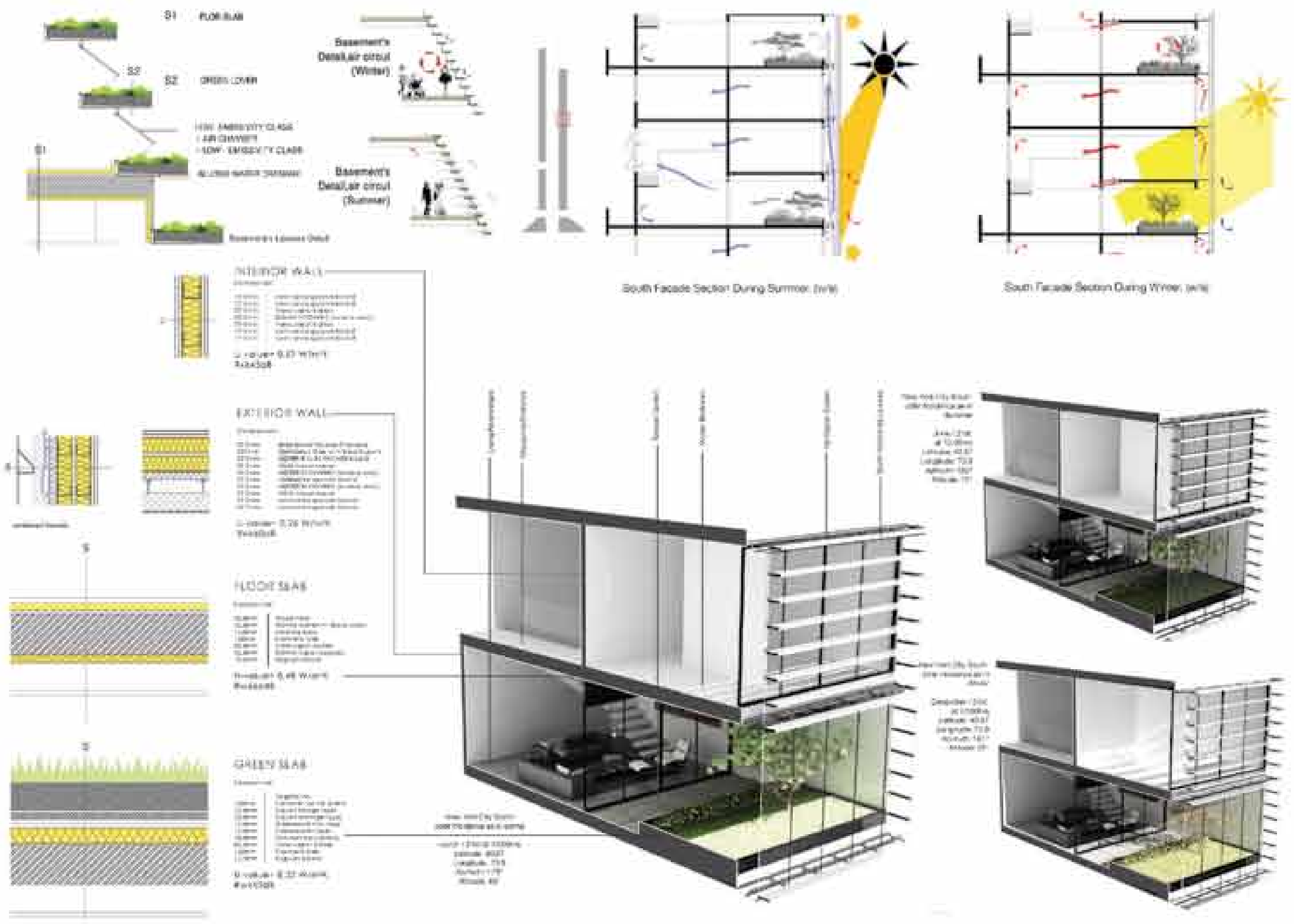

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Multi-Comfort House

GREENWICH TOWER IN NEW YORK CITY

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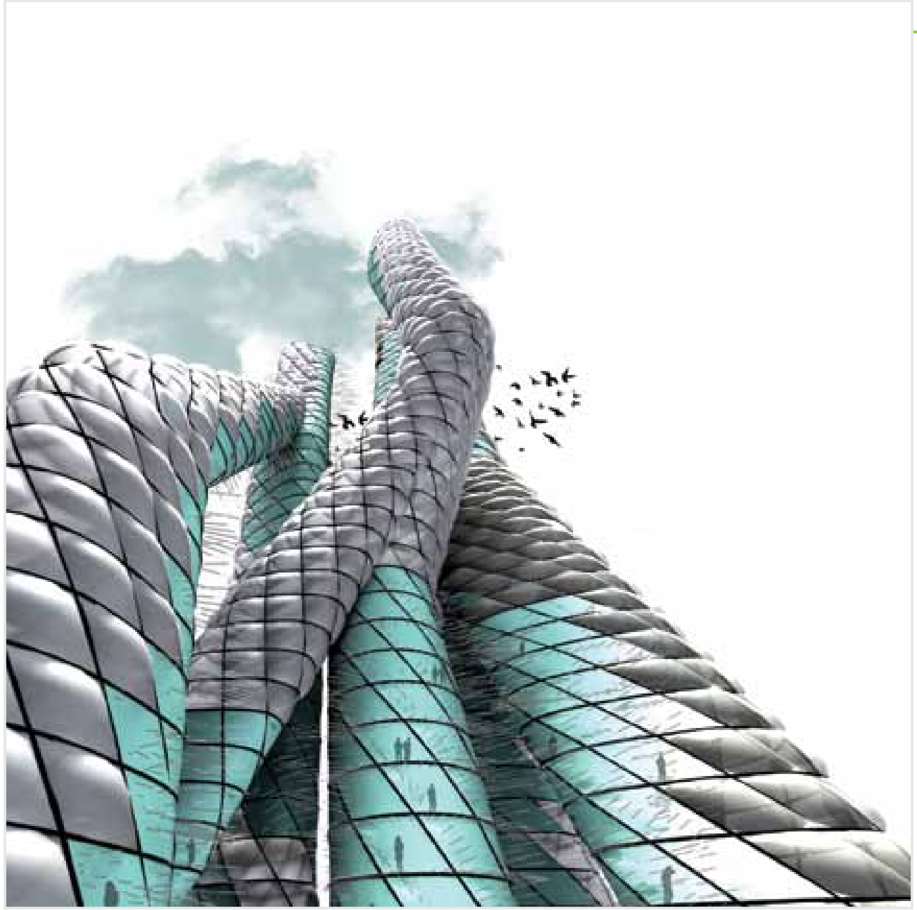

FRANCISCO MUÑOZ CORTÉS

IRENE AYALA CASTRO

IGNACIO ÁLVAREZ GARCÍA

SPAIN
Universidad Europea de Madrid

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Spain national stage 2011

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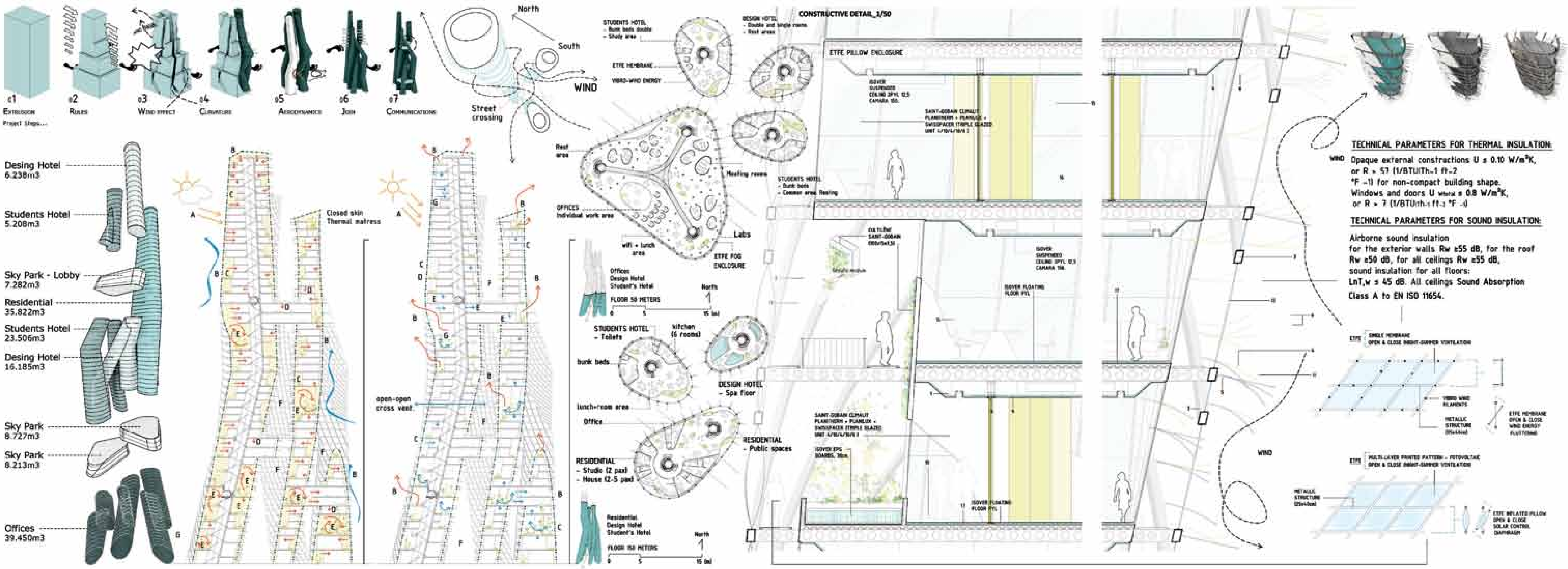

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ESRA
CAN

ONURCAN
ÇAKIR

TURKEY
Istanbul Technical University

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Turkey national stage 2011

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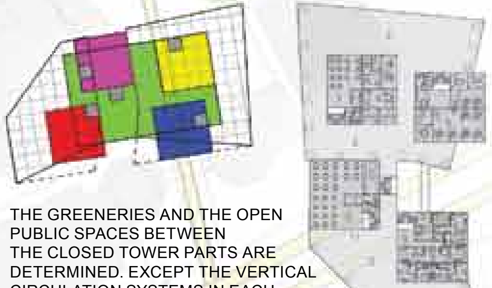
GREENWICH GREENTOWER

is an ecological and sustainable skyscraper project which also includes urban design approaches on Greenwich Street (south) in New York, USA. Being next to the area of World Trade Center and the main transportation lines, the building and the surrounding area has a great potential to become an important part of the city.

FOUR MAIN FUNCTIONS ARE PLACED CONSIDERING DIRECTIONS AND THEIR RELATIONSHIPS

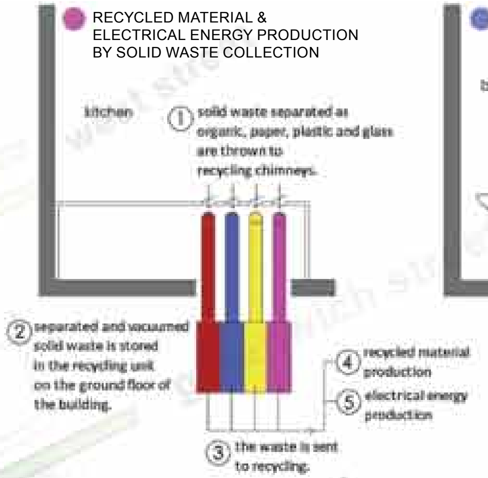
green wich tower

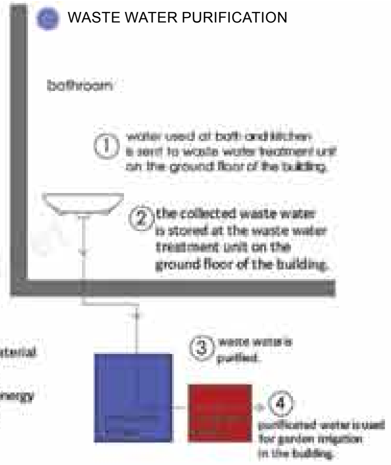


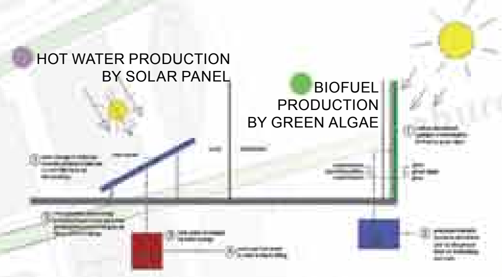
THE GREENERIES AND THE OPEN PUBLIC SPACES BETWEEN THE CLOSED TOWER PARTS ARE DETERMINED. EXCEPT THE VERTICAL CIRCULATION SYSTEMS IN EACH TOWER OF FUNCTION, THERE IS ALSO A PUBLIC VERTICAL CIRCULATION TUBE WHICH ALLOWS TO ACCESS THE VERTICAL GARDENS ON GREENWICH GREENTOWER.

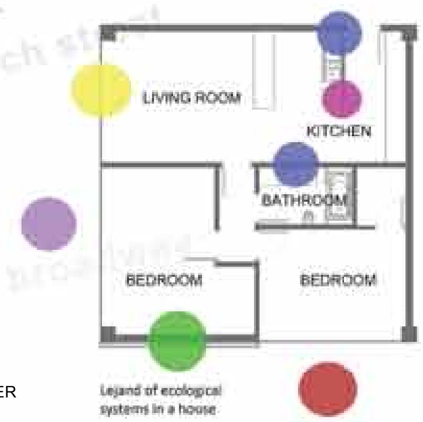
EACH FLOOR OF THE TOWER IS SHIFTED IN DIFFERENT DIRECTIONS SO THAT TERRACES IN FRONT OF THE CLOSED AREAS CAN BE CREATED

THE ENTRANCE PART IS DIVIDED INTO TWO PARTS THAT IT CREATES A NEW PASSAGE / STREET AS AN EXTENSION OF THE EXISTING STREETS

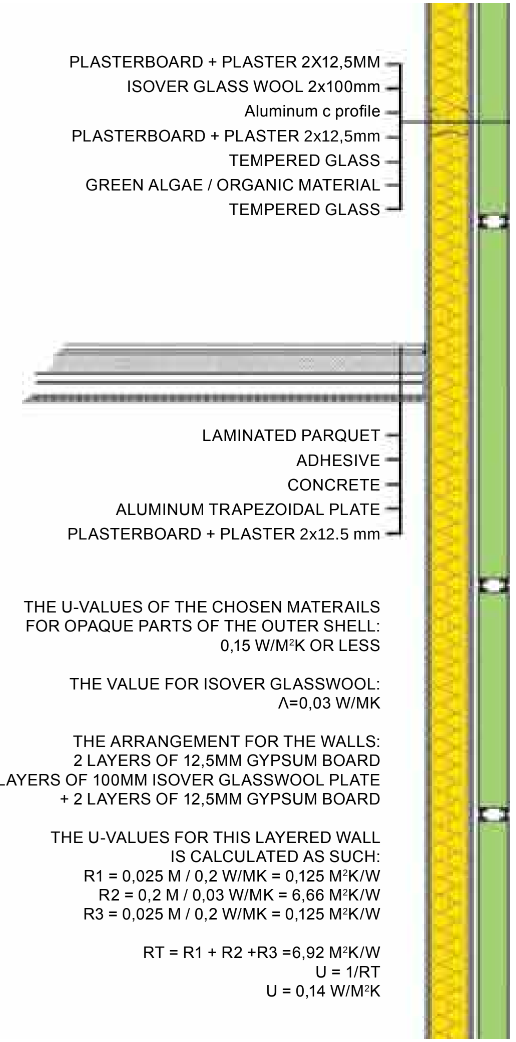








THE SOUTH FACADE OF THE TOWER IS COVERED WITH TRANSPARENT PHOTOVOLTAIC UNITS WHICH WILL PROVIDE ELECTRICITY FOR THE BUILDING. EXCESS ELECTRICITY ENERGY COULD BE SOLD THROUGH A NETWORK TO ENERGY COMPANIES AND BE USED IN OTHER BUILDINGS, TOO.



THE U-VALUES OF THE CHOSEN MATERAILS FOR OPAQUE PARTS OF THE OUTER SHELL: 0,15 W/M²K OR LESS

THE VALUE FOR ISOVER GLASSWOOL: Λ=0,03 W/MK

THE ARRANGEMENT FOR THE WALLS:
2 LAYERS OF 12,5MM GYPSUM BOARD
+ 2 LAYERS OF 100MM ISOVER GLASSWOOL PLATE
+ 2 LAYERS OF 12,5MM GYPSUM BOARD

THE U-VALUES FOR THIS LAYERED WALL IS CALCULATED AS SUCH:
R1 = 0,025 M / 0,2 W/MK = 0,125 M²K/W
R2 = 0,2 M / 0,03 W/MK = 6,66 M²K/W
R3 = 0,025 M / 0,2 W/MK = 0,125 M²K/W

RT = R1 + R2 +R3 =6,92 M²K/W
U = 1/RT
U = 0,14 W/M²K

GREENWICH TOWER IN NEW YORK CITY

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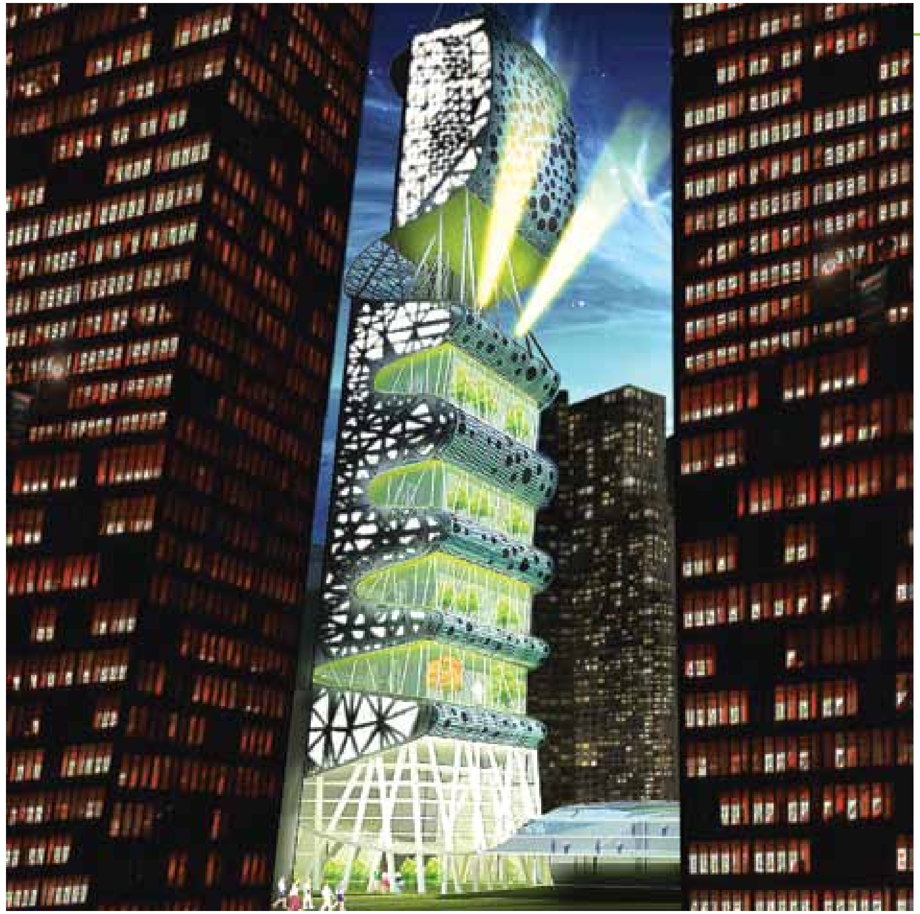

IZOCAM

NACIYE SENA KELES

MEHMET TURKOGLU

BILAL GOKGUN

TURKEY
Yildiz Technical University

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Turkey national stage 2011

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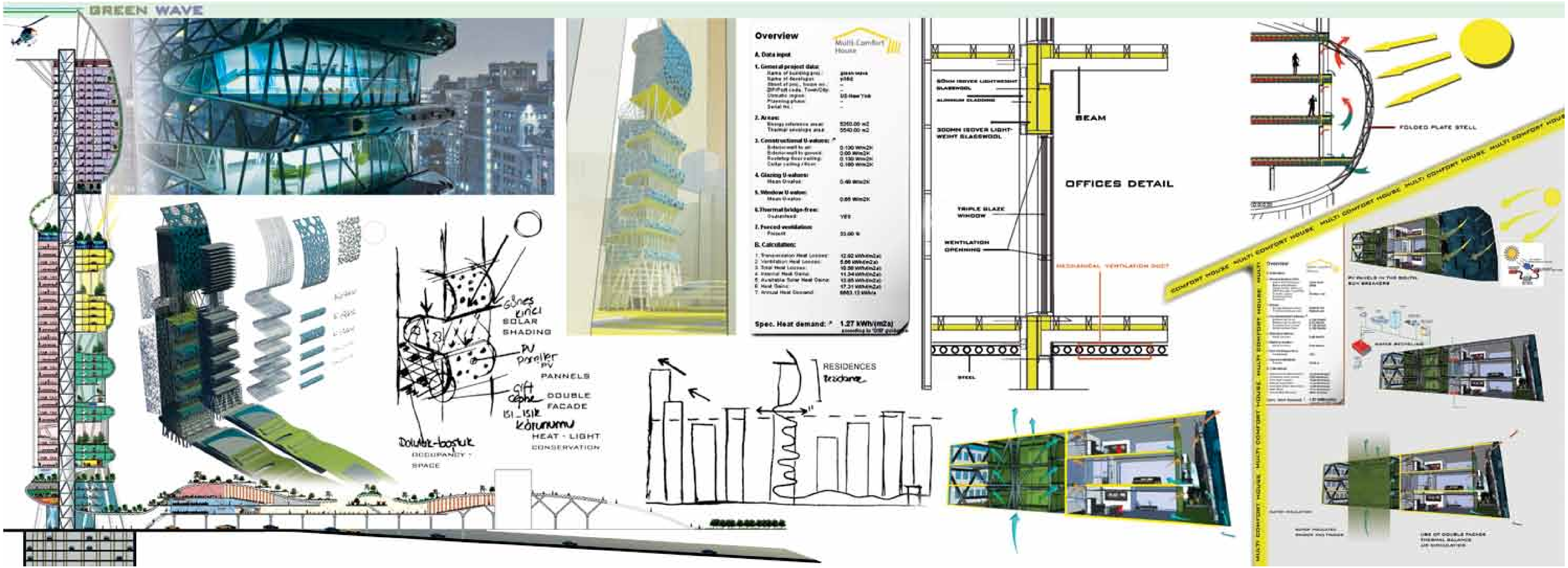
GREEN WAVE
Overview
A. Data input
1. General project data:
2. Areas:
3. Constructional U-values:
4. Glazing U-values:
5. Window U-value:
6. Thermal bridge-free:
7. Forced ventilation:
B. Calculation:
Spec. Heat demand:
1.27 kWh/(m2a)
BEAM
OFFICES DETAIL
TRIPLE GLAZE WINDOW
VENTILATION OPENNING
MECHANICAL VENTILATION DUCT
STEEL
FOLDED PLATE STELL
MULTI COMFORT HOUSE
SOLAR SHADING
PV PANNELS
DOUBLE FACADE
HEAT - LIGHT CONSERVATION
OCCUPANCY - SPACE
RESIDENCES

GREENWICH TOWER IN NEW YORK CITY

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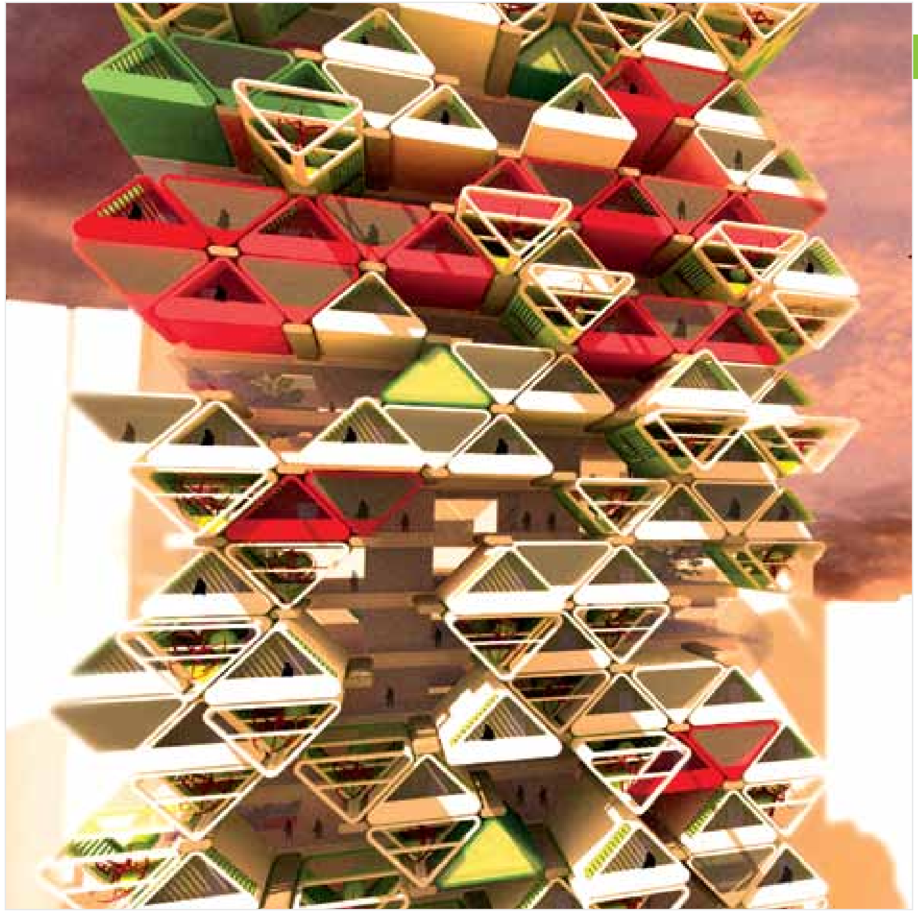

JURY SPECIAL AWARD

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International stage, Prague 2011

VOLKAN DALAĞAN

TURKEY
Istanbul Technical University

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Turkey national stage 2011

IZOCAM

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ECOLOGIC APPROACHES

FOTO-BIOREACTOR TUBES

These tubes convert carbondiokside to oxygen with algaes inside the glass cylindric tubes. At the same time they have a role of brise soleil.

WIND TURBINES

Helix formed wind turbines catch the weakest wind that blow between other skyscrapers and start to turn for producing electric energy.

PHOTOVOLTAIC PANELS + PASSIVE AIR CONDITIONING

Photovoltaic panels produce electric energy and placed vertically
to the east-west side of the God's House. They also preserve circulation spaces from overheating.

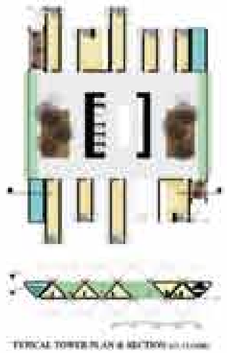
Natural ventilation is done by the mechanical system of vertical moving windows. By moving of the facade window vertically down used air exhausted to outside. Fresh air will come from the windows of the modules.

WATER WALL

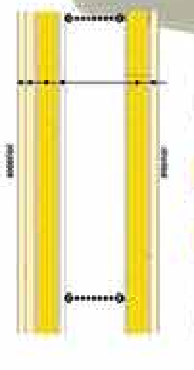
Water wall enables passive heat gain in winter. With low cost and without any using of energy (pumbing, control room) in God's House they play a role of creating of a microclimate of skyscraper.

GREY WATER RECYCLING

A system of purifying used water from [laundry/washing + sinks + bath] and sending back to the toilets. While tower using is 70% of water from grey water the total water retrieval will reach 40% per year.



INSULATION



Exterior cladding [coloured, pressed cardboard, strenght by chemicals, 2 levels], [4 cm]

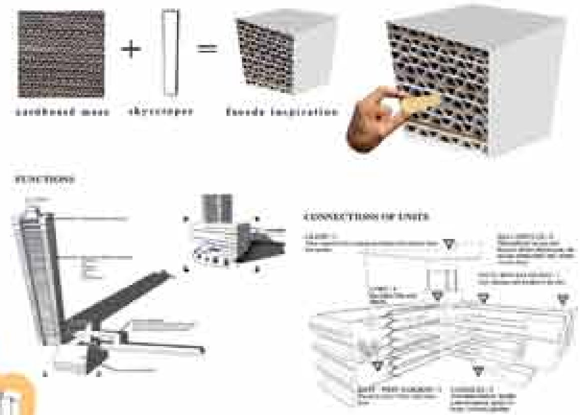
IZOCAM Exterior insulation [16 cm] cardboard for mid-component

IZOCAM Interior insulation [16 cm]

Interior cladding [white, pressed cardboard, strenght by chemicals], [1,5 cm]

GLASS U-VALUE: 0,49 W/m^{2}K (triple)
DOOR / WINDOW U-VALUE: 0,65 W/m^{2}K

MODULE WALL U-VALUE: 0,1 W/m^{2}K



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International stage, Prague 2011

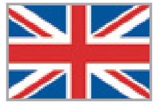
ISOVER SAINT-GOBAIN

ANKUR MODI

SURUCHI MODI

CHUYU QIU

UNITED KINGDOM
University of Nottingham



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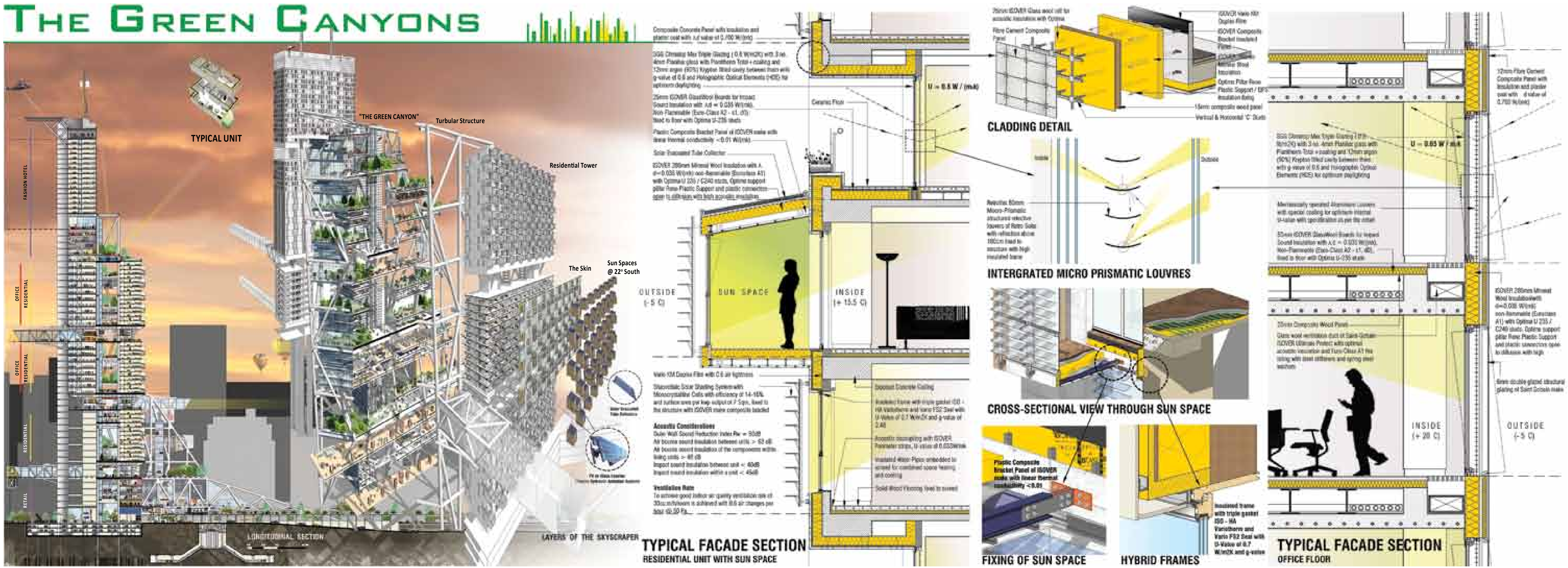

THE GREEN CANYONS
TYPICAL UNIT
"THE GREEN CANYON"
Turbular Structure
Residential Tower
The Skin
Sun Spaces @ 22° South
FASHION HOTEL
OFFICE RESIDENTIAL
OFFICE RESIDENTIAL
RESIDENTIAL
RETAIL
LONGITUDINAL SECTION
LAYERS OF THE SKYSCRAPER
OUTSIDE (-5 C)
SUN SPACE
INSIDE (+ 15.5 C)
TYPICAL FACADE SECTION
RESIDENTIAL UNIT WITH SUN SPACE
CLADDING DETAIL
INTERGRATED MICRO PRISMATIC LOUVRES
CROSS-SECTIONAL VIEW THROUGH SUN SPACE
FIXING OF SUN SPACE
HYBRID FRAMES
INSIDE (+ 20 C)
OUTSIDE (-5 C)
TYPICAL FACADE SECTION
OFFICE FLOOR

GREENWICH TOWER IN NEW YORK CITY

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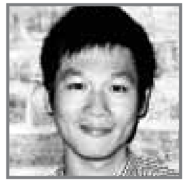
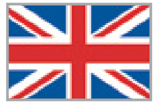


JIANHUI CHEN

YEUK HEI WONG

UNITED KINGDOM
University of Nottingham



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United Kingdom national stage 2011

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SOCIAL TOWER EXPERIMENT

AN EXPERIMENT THAT BREAKS THROUGH THE SOCIAL ISOLATION OF TYPICAL SKYSCRAPERS, PROPOSING A NEW-VERTICAL STREET LIFESTYLE.............

PRIMARY DESIGN AIMS:

- TO DESIGN A MIXED-USE TALL BUILDING THAT MEETS ISOVER MULTI-COMFORT HOUSE AND PASSIVE HOUSE REQUIREMENTS.
- TO ACHIEVE THIS THROUGH THE USE OF TRIPLE-GLAZED WINDOWS AND SUPER-INSULATION IN THE BUILDING ENVELOPE, MINIMISING THERMAL BRIDGES, USING MECHANICAL HEAT RECOVERY AND STORAGE SYSTEMS AND OTHER STRATEGIES.
- TO ORIENTATE THE BUILDING FUNCTIONS ACCORDING TO THEIR UNIQUE PASSIVE HOUSE AND MULTI-COMFORT HOUSE REQUIREMENTS – OFFICE SPACES TO THE NORTH AND RESIDENTIAL AND HOTEL FLOORS TO THE SOUTH FOR MAXIMUM SOLAR GAIN AND EXCELLENT VIEWS OF BATTERY PARK.
- TO CREATE A SERIES OF STACKED VERTICAL STREETS TO PROMOTE SOCIAL INTERACTION AND COMMUNITY AMONGST THE BUILDING OCCUPANTS
- TO CHALLENGE THE ISOLATIONIST ELEVATOR-ONLY CIRCULATION INHERENT IN TALL BUILDINGS, AND PROPOSE LOCAL CIRCULATION VIA STAIRS, RAMPS AND ESCALATORS - TO FURTHER ENHANCE THE SENSE OF BUILDING COMMUNITY
- TO CREATE A NEW URBAN AXIS AT GROUND LEVEL THROUGH THE SITE, CONNECTING BROADWAY AND WEST STREET.

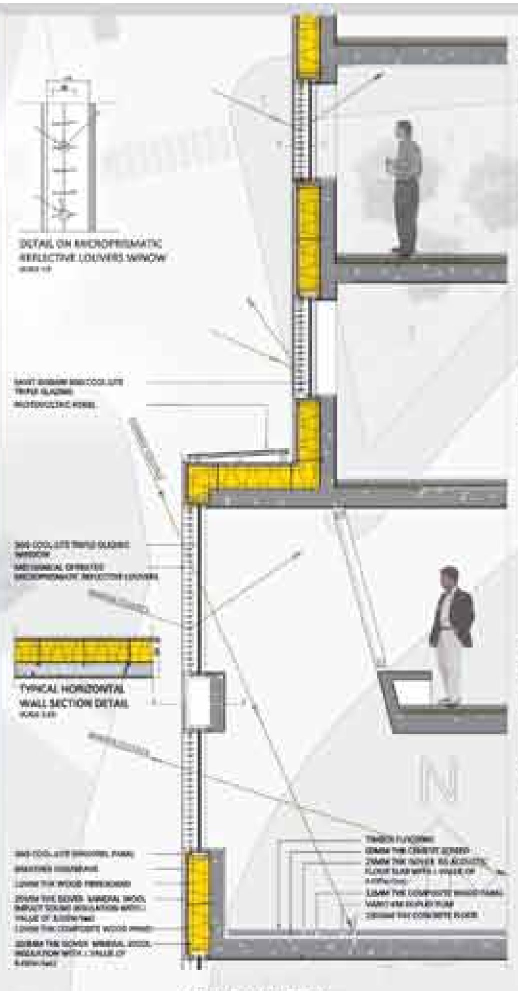
DESIGN CONCEPT:

THE DESIGN CONSISTS OF A SERIES OF STACKED VERTICAL VILLAGES EACH WITH ITS OWN LINEAR ATRIA ACTING AS THE VILLAGE 'STREET'. ELEVATORS STOP ONLY AT EACH STREET LEVEL, FROM WHERE OCCUPANTS CIRCULATE TO THEIR FLOOR OF CHOICE VIA NO MORE THAN 2 FLIGHTS OF STAIRS, RAMPS OR ESCALATORS WITHIN THE ATRIA. THIS ALTERNATIVE VERTICAL CIRCULATION PROVIDES THE FORUM FOR OCCUPANTS TO MEET AND INTERACT, MUCH AS IN THE STREETS OF NEW YORK BELOW. EACH STREET ALSO ACCOMMODATES A SERIES OF COMMUNITY SPACES SUCH AS BASKETBALL COURTS, GYMS, SKYGARDENS, CAFES, SHOPS AND MORE, GIVING EACH VILLAGE A DISTINCT CHARACTER AND IDENTITY. AT GROUND LEVEL THE STREET TAKES ON AN ADDITIONAL FUNCTION IN CREATING A NEW EAST-WEST AXIS THROUGH THE SITE, CONNECTING BROADWAY AND WEST STREET AND INTEGRATING THE SITE WITHIN THE SURROUNDING URBAN FABRIC.

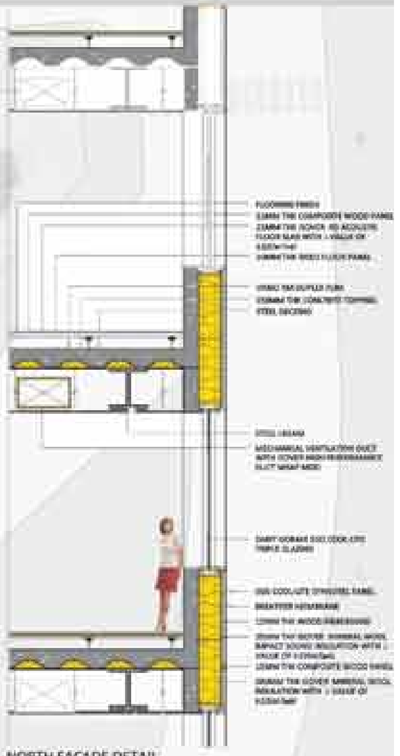
LOCATED EITHER SIDE OF THE STREETS ARE COMPACT, SUPER-INSULATED ACCOMMODATION SPACES – OFFICE FLOORS TO THE NORTH, WITH RESIDENTIAL AND HOTEL FUNCTIONS TO THE SOUTH TO BENEFIT FROM PASSIVE SOLAR GAIN. EXCESS HEAT CREATED FROM INTERNAL GAINS IN THE OFFICE SPACES ARE MECHANICALLY RECOVERED TO BE USED IN THE RESIDENTIAL AND HOTEL AREAS. PHOTOVOLTAIC PANELS AND SOLAR THERMAL COLLECTORS ARE INTEGRATED INTO THE SOUTH-FACING BUILDING FAÇADE TO PROVIDE SUMMER SHADING WHILST ALSO CAPTURING ADDITION HEAT AND ENERGY.

SECTIONAL PERSPECTIVE

ELEVATION OF SOUTH FACADE



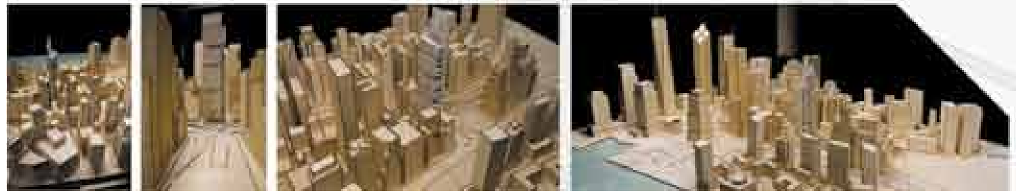
SOUTH FACADE DETAIL



NORTH FACADE DETAIL

MODEL OF TOWER IN GREENWICH, MANHATTAN

AERIAL VIEW FROM EAST VIEW FROM TUNNEL AERIAL VIEW FROM NORTH - WEST AERIAL VIEW FROM SOUTH - WEST OF MANHATTAN



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RANJIT CHANDRA SHEKHAR

AVINASH JOHN DAVIDSON

VENU MADHAV CHIPPA

UNITED KINGDOM
University of Nottingham

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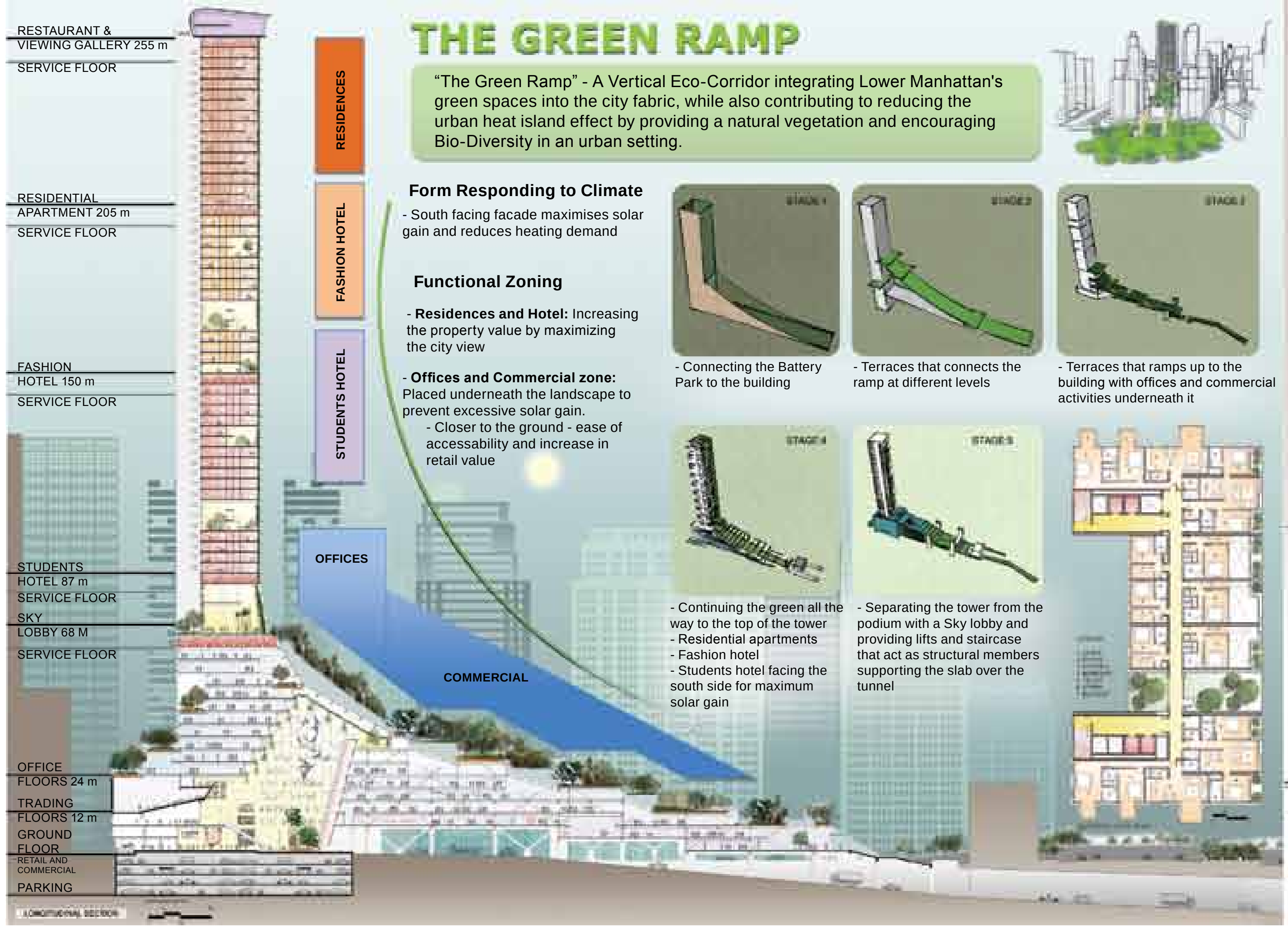
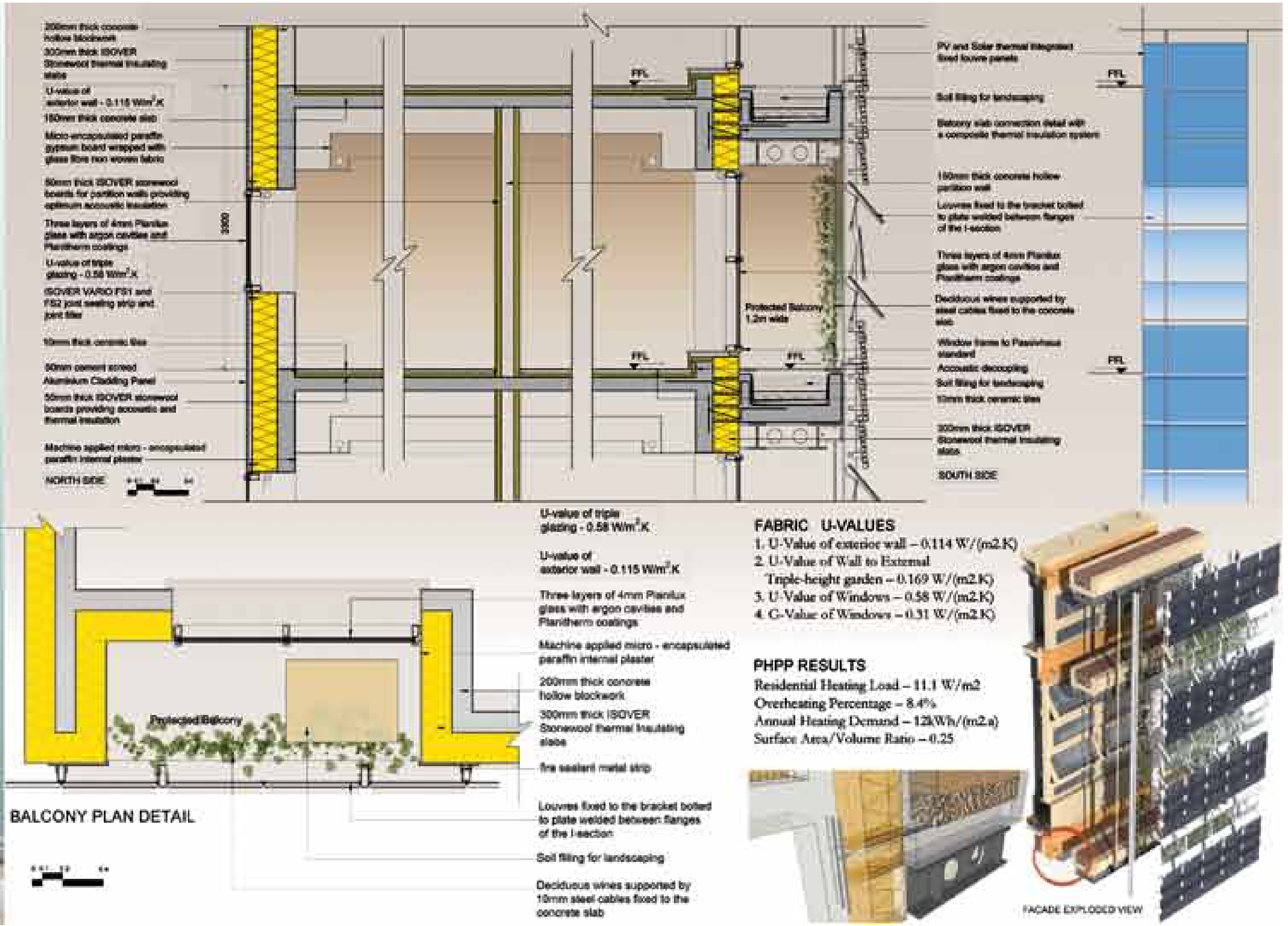




ISOVER SAINT-GOBAIN

ISOVER SAINT-GOBAIN

GREENWICH TOWER IN NEW YORK CITY

7th ISOVER Multi-Comfort House Students Contest 2011

JURY SPECIAL AWARD

ISOVER Multi-Comfort House Students Contest

International stage, Prague 2011

CertainTeed SAINT-GOBAIN

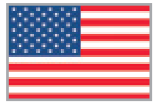
DANIEL HITCHKO

JASON BOTTONI

LAUREN PRINTZ

USA

Philadelphia University



I PRIZE

ISOVER Multi-Comfort House Students Contest

USA national stage 2011

more information on
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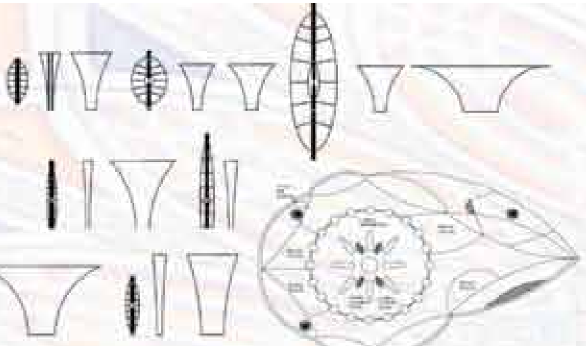
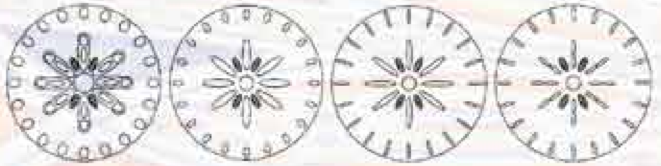
DESIGN CONCEPTS BASE

Multi-functional Design
Base-Functions
Open Ground Floor
Building flow through the base
The interior walls of the base will be insulated and the envelope will be supplemented by the exterior green spaces that are connected to the main floors.
Inner ring of dividing and insulating fins
Dual Skin system will serve as a buffer between the exterior of the building and the interior space of the pedestal.
Access to Edgar Street via ramp.
Outer Stair Case





COLUMNS

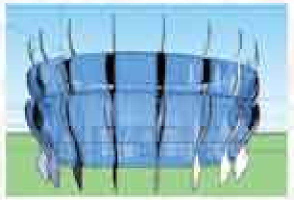
Piping/Utilities
Acoustic and thermal breaks
Aesthetic Design
Utility Panel,
Ease of maintenance

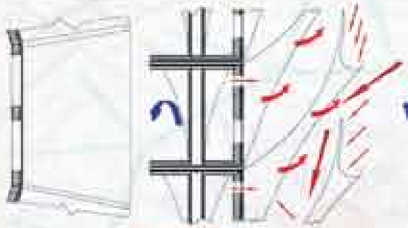
DESIGN CONCEPTS TOWER

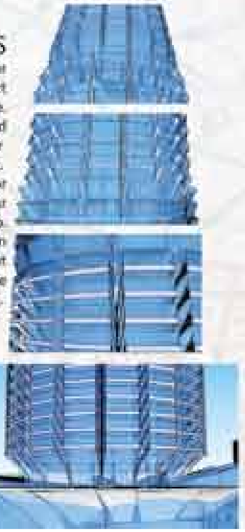
Multi-functional Design
Office Floors 6-19
Fashion Hotel Floors 20-34
Student Hotel Floors 35-49
Residential Floors 50-65
Floor height increases
Elevator system used to vent waste heat.
Insulating and sealing the elevator shaft is crucial to avoid potential deviant air flow.

SHPEG

Solar Heat Pump for Electricity Generation

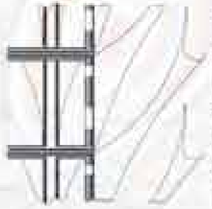






FINS

Fins on each floor serve a multi-part purpose.
Intended to catch and collect rain water
Provide shading.
Used as solar collector that supplies the solar heat pump.
drive the convection current of hot air that travels up the building.



BUILDING WATER SAVINGS

Rain Collector
Low Flow Shower Heads and Faucets
Low Flow Toilets
High efficiency appliances like dishwashers and washing machines

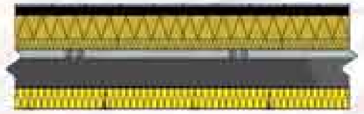
SHPEG SUMMER CYCLE

The central air shaft is the most critical aspect of the system, allowing for the proper air flow from top to bottom in the summer spinning the turbine creating electricity.

SHPEG WINTER

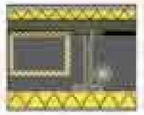
In the winter this system is reversed, releasing the stored energy to spin the turbine in the opposite direction

CONSTRUCTION DETAILS



GROUND FLOOR ABOVE OPEN SPACE

U = 0.10 W/m2*K
Ln,w,t = 41dB
Rw >= 64dB
ΔLw = 35 dB

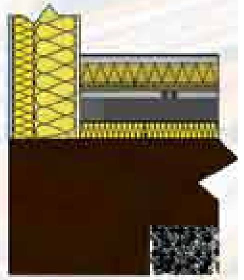


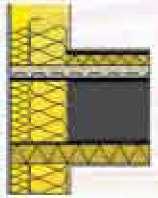
FLOOR AND CEILING - INTERIOR

U = 0.103 (W/m2*K)
Ltw <40dB

GROUND FLOOR AT EXTERIOR WALL

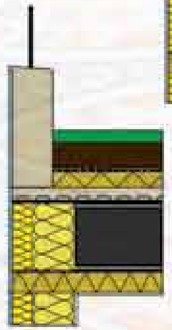
U = 0.10 W/m2*K
Ln,w,t = 43dB
Rw >= 63dB
ΔLw = 35 dB
ΔR~w = 7dB





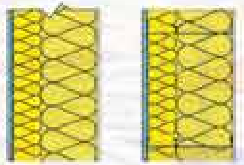
FLOOR AND CEILING - EXTERIOR

U = 0.103 (W/m2*K)
Ltw <40dB
Rw > 62dB
Lw = 30dB
F60 / (REI 60)



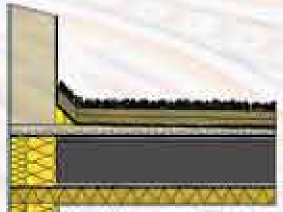
GREEN ROOF

U = 0.15 W/m2*K
Rw >= 64dB
F60/(REI60)



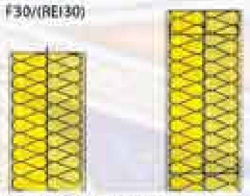
INTERIOR WALLS SECTION AND PLAN VIEW

U = .113 W/m2*K
Rw > 60dB
F30/(REI30)



STANDARD ROOF

U = 0.22 W/m2*K
Rw >= 64dB
F60/(REI60)



EXTERIOR WALLS SECTION AND PLAN VIEW

U = 0.089 W/m2*K
Rw > 45dB
F60/(REI60)

OVERALL SAVINGS

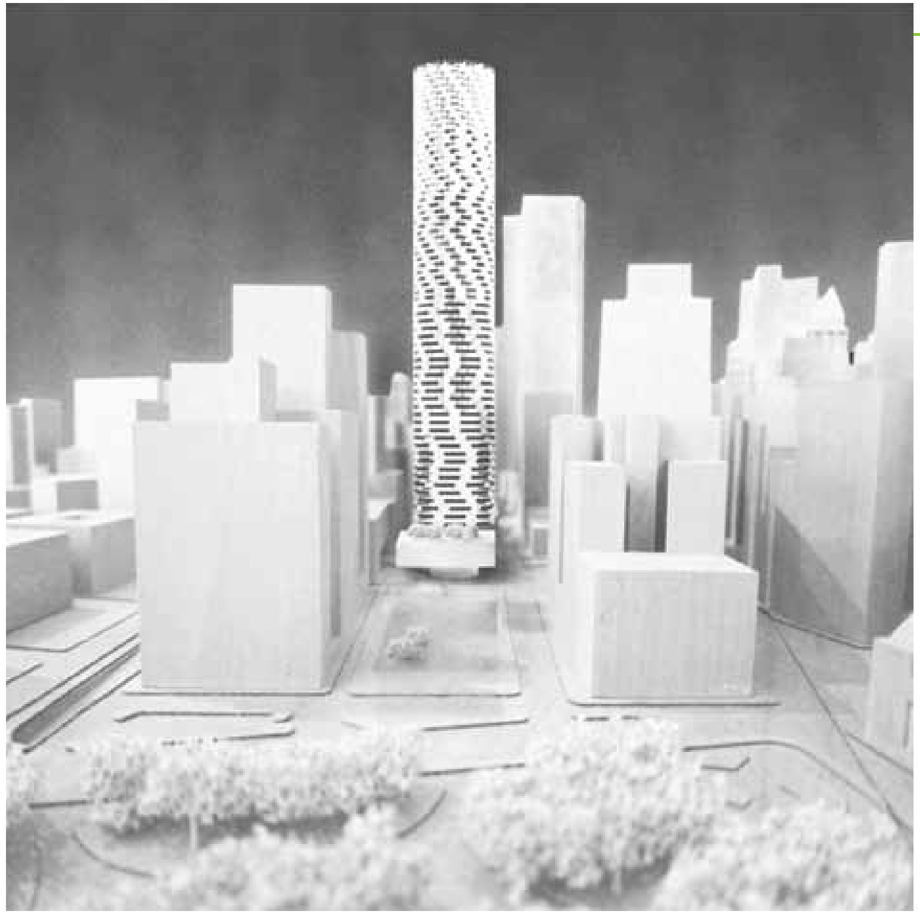
Savings Statistics from all systems
Passive House Savings Compared to Reference Case is nearly 50%
Geothermal System
$408,000 compared to heat pump system per year
CO2 Capture
95,000 lbs of CO2 Saved per day from the Tunnel per year
Solar collection
Provides nearly all hot water needs of the building per year
Gray Water Collection
64% of gray water needs met with rain collection per year
SHPEG
2.45 GWh per Year
$478,681.46 in savings per year
Accounts for 25% of the power needed to run the building

TOTAL SAVINGS

$ 886,000 in energy savings between SHEG and Geothermal Systems per year
Totals to nearly 50% in energy savings on top of passive house savings

GREENWICH TOWER IN NEW YORK CITY

7th ISOVER Multi-Comfort House Students Contest 2011



CertainTeed SAINT-GOBAIN

SANTIAGO HINOJOS REYES

USA
Rhode island School of Design

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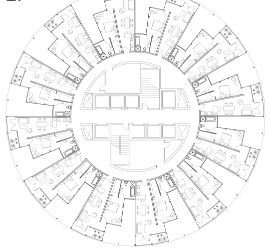
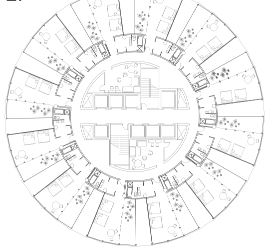
The building hopes to be an icon for the city of New York and an example of future green building. The main ambition of the tower is to reclaim open green space to a dense urban setting. The green features of the building emerge from the necessity to accentuate the experiential benefits of nature. The building complex connects with Battery Park by covering the unpleasant highway entrance with an enjoyable deck which will encourage social engagement.

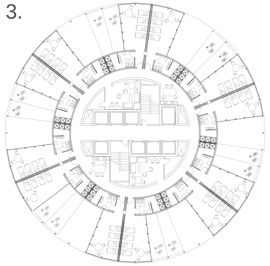
1.



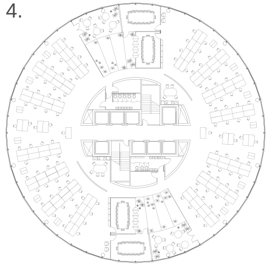
2.



3.

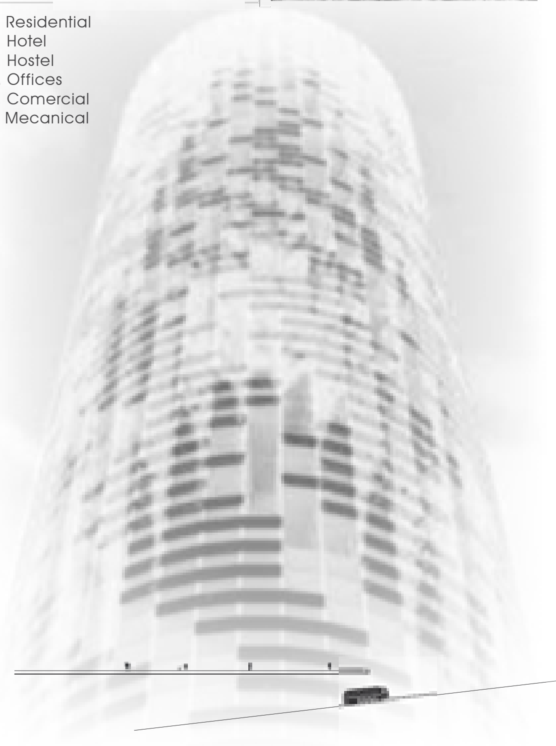


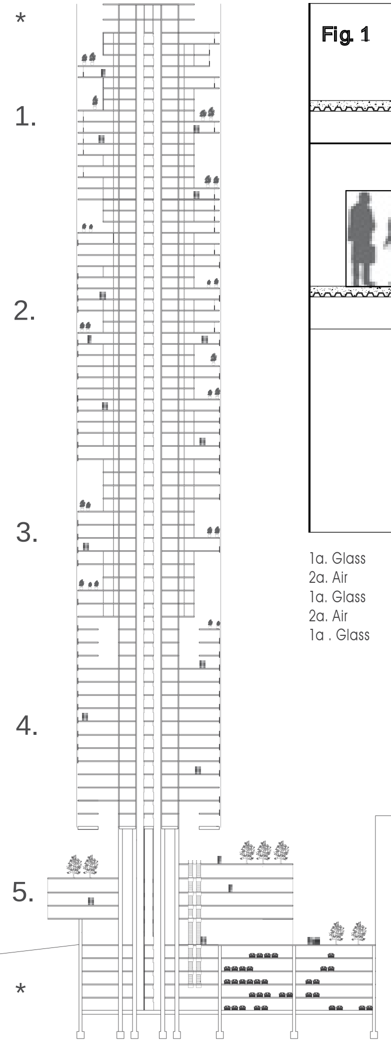
4.

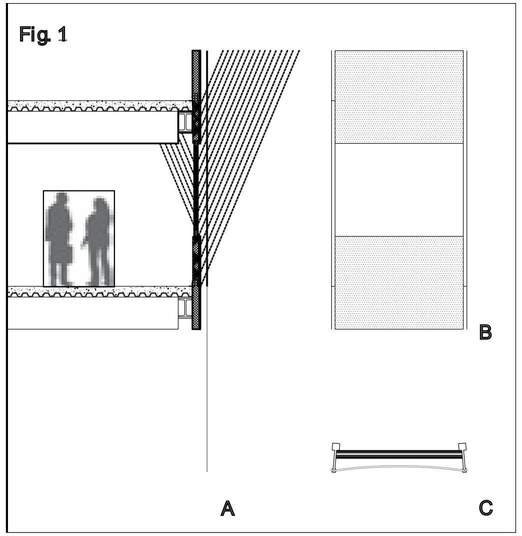


5.

1. Residential
2. Hotel
3. Hostel
4. Offices
5. Comercial
*. Mecanical



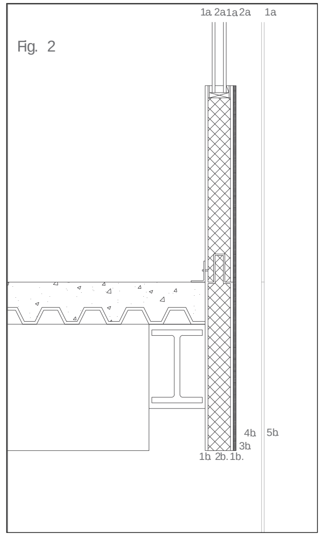




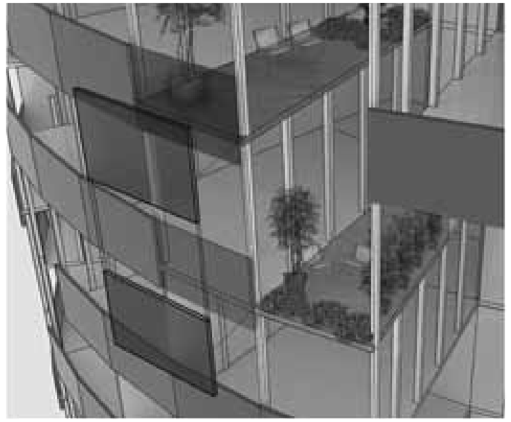
1a. Glass
2a. Air
1a. Glass
2a. Air
1a . Glass

1b. Alum.
2b. Therma Fiber (Rockwool)
1b. Aluminum

4b. Solar Panel
5b. Air
6b. Glass



Total Floor Area : 46 616 sq. ft.
Grossed Enclosed Volume: 751 816 cu. ft.
Specific Heat Demand: 4.25 KBtu/ sq. ft. yr
Air Change per Hour: 0.60
Solar Heat Coefficient: 0.47

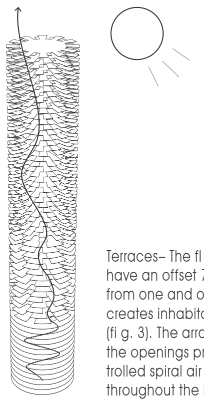


Area Section 1	R per inch	Total Width Thikness [in]
Alum.	0.001	0.5000
Therma Fiber (Rock Wool)	4.200	4.000
Alum.	0.001	0.500
Solar Panel	0.140	0.500
Air	0.105	6.000
Glass	4.000	1.000

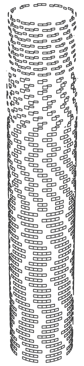
R - Value: 22.5 (hr sq. ft.F/BTU)
U - Value: 0.04 (BTU/hr sq. ft. F)

Area Section 2	R per inch	Total Width Thikness [in]
Glass	4.000	1.000
Air	0.105	2.000
Glass	4.000	1.000
Air	0.105	6.250
Glass	4.000	1.000

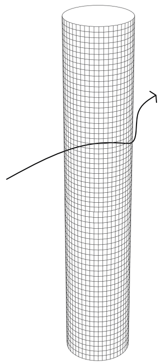
R - Value: 22.5 (hr sq. ft.F/BTU)
U - Value: 0.04 (BTU/hr sq. ft. F)

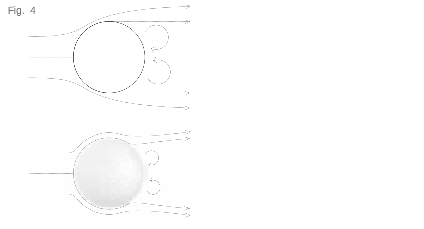


Terraces– The fl oor plates have an offset 7.5 degrees from one and other, which creates inhabitable terraces (fi g. 3). The arrangement of the openings promotes controlled spiral air circulation throughout the building.



Multi Purpose Panels- A prefabricated building unit (fi g.1) that controls the temperature and lighting of the interior spaces. Photovoltaic panels are integrated on the exterior surfaces of the highly insulated panels to generate energy (fi g. 2). The panels have a direct relation with the program and are crucial design elements because they enhance the gestural upward torque and dematerialization of the building.





Dimpled Exterior Skin- The building's envelop reduces the exposed surfaces and stabilizes the temperature of the terraces. To minimize the wind load and vortex created by a cylinder, the building has a dimpled skin, similar to a GOLF BALL (fi g. 4), consisting of highly transparent undulated glass (fi g 1C).

GREENWICH TOWER IN NEW YORK CITY

7th ISOVER Multi-Comfort House Students Contest 2011

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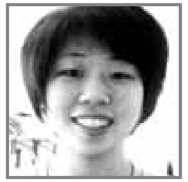


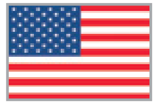
BLESS YEE

HIROSHI TERAMAE

KEN AMOAH

USA

Parsons The New School for Design



III PRIZE

ISOVER Multi-Comfort House Students Contest
USA national stage 2011

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Tower Form

[illegible]

Urban Context

Approaching the city for work, as millions do everyday, we can see much activity flourishing on a new bridge connecting Battery Park to lower Greenwich village.

The site is currently difficult to navigate as a pedestrian, and the new proposal resolves this access and connects the building to existing subways and pedestrian routes. As a way of taking the old city up to the new city, the bridge knits the new tower into the existing urban fabric, sorting out what once was a difficult to navigate. The tower allows the building to become a physical part of the neighborhood and to contribute to the urban life of the neighborhood.

Tidal Energy

[illegible]

Integrating Environmental and Social Well-being

Orientation

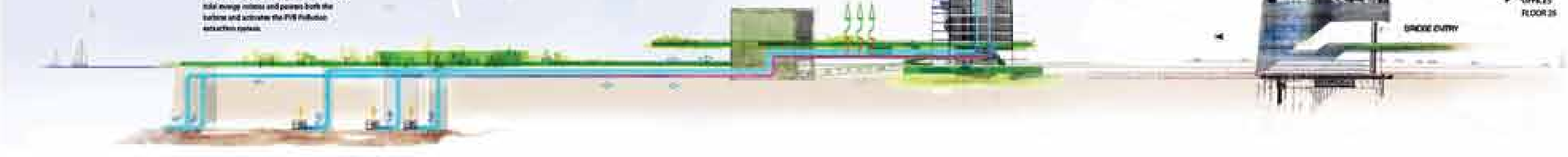
The tower bellies out towards the sun increasing the surface area of the southern façade. Photovoltaic panels are on top of the brise soleils and rotated at the best angle to absorb the most solar radiation.

Hydroelectricty

The piped water is then brought into the city under Battery Park, up into the Battery park fortress, under the bridge, then into the Tower Hydroelectric system. In the tower, the water is filtered, pumped up into the tower, and then left to fall through the tower spinning the tower water turbines and generating more electricity.

Sustainability

The pollution and heat created from the vehicular traffic of the Brooklyn Battery tunnel and subway rises to and through the new pedestrian landscaped bridge and is then filtered and cooled by the planting in the new landscaped areas.



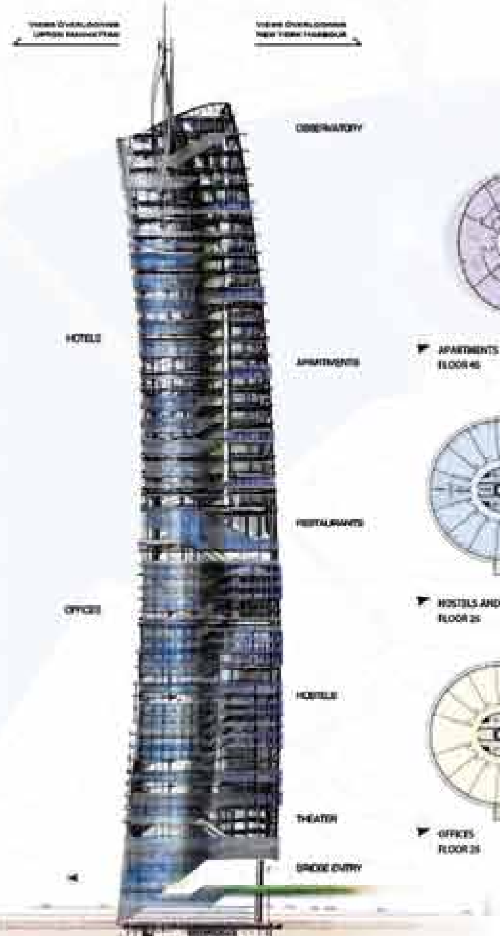
Sail

Mast

There is a split at the top of the northwest wall of the tower to reduce the wind force on the building and to capture the prevailing winds. The winds turn the vertical axis wind turbine mounted on the mast.

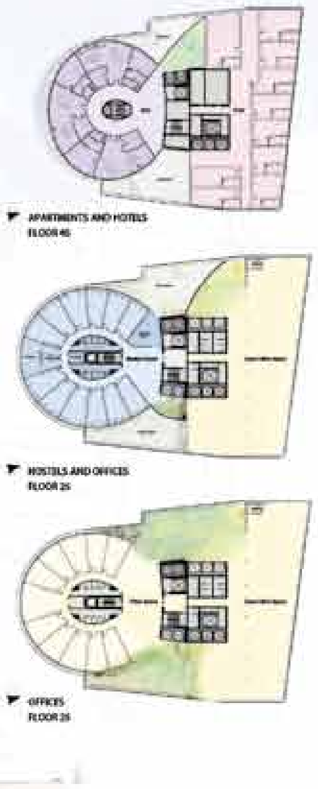
Green Atria

The Tower is organized around a series of green atria, 5-10 stories high, each shared by common programs. The atria are connected by a fresh water system fed from rainwater collection supplied from the roof of the building. The water irrigates the plants walls helping to increase air humidity and improve air quality.

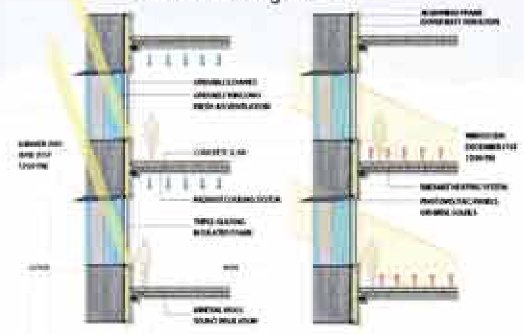


Program

The tower program is divided vertically. The bifurcation in form allows for both programmatic and energy advantages. Nearly all the offices are located facing north. Computers and other office machinery in offices create a lot of heat. By orienting the offices north, solar heat gains are decreased and heating in the winter is supplemented by the gains from the machinery. Also, there is no glare from sunlight on the computer screens as the spaces receive diffuse light. The Apartments and Hotels get the best views over the harbour and uptown Manhattan. The Apartments and Hostels are oriented south to maximize their solar gain in the winter. Key public areas are also located to maximize their vertical views into the city and their views out over the harbour.



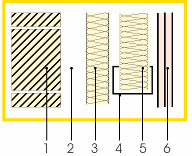
Section Through Hostel



THERMAL PERFORMANCE OF EXTERNAL WALLS

U-Value calculatiion based on the "combined method" of BS EN ISO 6946 and BRE Digest 465.

Brick clad wall construction



1. 103mm brick work
2. 50mm cavity
3. 50mm Isover Steel Frame Batts
4. 100mm steel stud
5. Isover Steel Frame Infill Batt
6. 2x 12.5mm Gyproc Wall Board

Thermal Conductivity
SF1 Isover Steel Frame Batt-lambda value 0.032 W/m²K
SF2 Isover Steel Frame Infill Batt-lambda value 0.036 W/m²K

Insulation outside stud	Insulation	U-Value
50mm Isover Steel Frame Batts	50mm Isover Steel Frame Infill Batts	0,29 W/m²K
50mm Isover Steel Frame Batts	75mm Isover Steel Frame Infill Batts	0,26 W/m²K
50mm Isover Steel Frame Batts	100mm Isover Steel Frame Infill Batts	0,25 W/m²K

Components	Materials	Thickness-d(m)	Thermal Conductivity K (W/m/K)	Thermal Resistance r=d/k(m2.K/W)	u-Value=1/x∑r (W/M2/K)
Wall	Internal Surface			0,13	
	Plaster	0,015	0,7	0,0214	
	Aluminium	0,0889	235	20,8915	
	Isover Insulation	0,075	0,032	0,0024	
	Gypsum Isulating plaster	0.015	0,18	0,0833	
Total				21,1286	0,04733
Windows	Glass	0,008	1,04	0,0077	
	Argon Gas	0,019	0,02	0,95	
	Glass	0,008	1,04	0,0077	
	Argon Gas	0,019	0,02	0,95	
	Glass	0,006	1,04	0,429	
Total				2,3444	0,427

CertainTeed SAINT-GOBAIN

The multiple dimensions of comfort

Dimensions of comfort:

- Thermal comfort
- Acoustic comfort
- Good indoor air quality
- Improved working and living conditions
- Safety (humidity and fire protection)
- Lower energy consumption
- Use of local and renewable energy sources
- Independence from external energy suppliers
- Active environmental protection
- Higher and stable value of the real estate

COMFORT COMES FIRST!

Although the ISOVER Multi-Comfort House concept stands for energy savings and environmental protection, we have not forgotten the most important issue: the well-being of the inhabitants!

NEITHER COLD FEET NOR SWEATY HANDS - THERMAL COMFORT

In the ISOVER Multi-Comfort House.

Invigorating coolness in summer and comfortable warmth in winter. No problem for an ISOVER Multi-Comfort House. You will enjoy agreeable room temperatures between 20 and 23 °C - all year round.

Cooling in summer. Jointless insulation without thermal bridges, airtight constructions and windows with outside shading are indispensable to keep the summer heat outside. Cooling can be achieved by consciously using natural ventilation during night. A small adjustable cooling device ensures optimum temperatures.

Heating in winter. On cold days, the built-in ventilation system ensures that the used outgoing air warms up the fresh incoming air. Jointless insulation without thermal bridges and excellent windows with insulated frames help keep the warmth inside. Even a small candle or an inhabitant can be an efficient heat source then.

A FIRE-SAFE HOME.

Always on the safe side: preventive fire protection with non-combustible mineral wool insulation made by ISOVER. Optimum protection of roof, walls and floors.

Enjoy the peace and quiet of your home - with acoustic comfort by ISOVER.

Noise from the outside and noise from the inside. Every sound can be annoying if you're not in the right mood or need to sleep. For this reason, the ISOVER Multi-Comfort House concept offers acoustic insulation that allows house owners and tenants to enjoy the peace and quiet of their homes. Whether you want to rest or do concentrated work - your noisy neighbour will not disturb you. This works, of course, both ways.

BUILD WITH ALL COMFORT. AND GAIN ENERGY AT THE SAME TIME.

The most inexpensive energy is the one that is not consumed in the first place. It does not need to be generated, imported or paid for. Naturally, this also doesn't have any harmful effects, neither on human beings nor the environment. This is the basic concept of the passive house. Since a sufficient amount of warmth remains in the house, any active heat supplied by traditional space heating is usually superfluous. This saves energy and costs. The more so in view of further increasing world market prices for limited resources such as oil and gas. Thanks to its uncomplicated technical equipment, the ISOVER Multi-Comfort House requires very little maintenance.

THE PASSIVE HOUSE STANDARD GIVES YOU ALL THE FREEDOM YOU WANT.

A passive house does not define itself by outer appearance but by its inner values. Therefore any type and size of building can be realized. Every year, a growing number of examples testify to that. Whether one-family house or industrial estate. Whether school or church or mountain shelter. And it is no longer only the new buildings which comply with this future-oriented building standard. There is an increasing number of existing, old and even historical buildings where the refurbishment is based on passive house principles. By using well-selected passive house components it is possible to achieve ecologically and economically sensible results.

Snugly warm with 10 tea lights

COUNT ON ENERGY SAVINGS OF UP TO 75 %.

Compared to conventionally built new houses, the space heating requirement of a passive house is lower by about 75 %. And in contrast to old buildings, savings amount to as much as 90 %. In cold winters, a room of 20 m² can be heated with just 10 tea lights or two bulbs of 100 watts each to keep it snugly warm. In terms of fuel consumption, a passive house needs less than 1.5 l heating oil or 1.5 m³ natural gas per square meter and year.

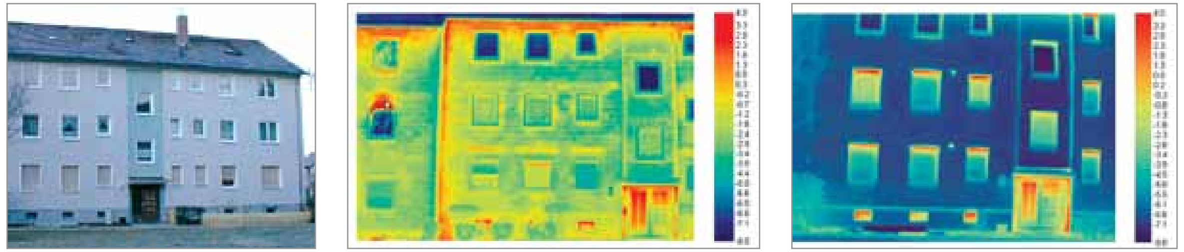
1. College of Physical Education Albstadt, Architect Prof. Schempp, Teubingen, Germany; 2. Office and residential building in Mosnang. Insulated with Flora natural hemp by ISOVER. Architect: Monika Mutti-Schaltegger; 3. WeberHaus, Reinau-Linx

THE MOTTO FOR ALL ROOMS: KEEP THE WARMTH INSIDE!

The thermal requirements for the ISOVER Multi-Comfort House are based on the passive house design principles. These include excellent thermal insulation of the building envelope including windows and doors, airtight constructions, ventilation system with heat recovery for permanent supply of fresh air and if needed small additional heating or cooling system – depending on the climate zone.

EVERY OCCUPANT IS A HEAT SOURCE.

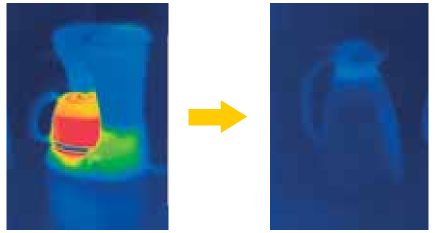
Unlike conventional buildings that suffer high losses of heat to the outside, the thermal discharge of humans, animals and household appliances is quite important for covering the required amount of heating energy. Every person contributes by a calorific value of approx. 80 watts to heating up the interior. Considerable heat gains are realized through the windows which in winter allow higher amounts of sun energy to enter the house than those lost to the outside. Add to this the heating energy recovered from the exit air and you can normally save yourself the expense incurred by a conventional heating system.



1. Multi-family house after energetic refurbishment
2. Thermographic pictures:
2.1 before refurbishment: The entire house is a thermal bridge.
2.2 after refurbishment: The external wall is thermally insulated, but heat still leaks through windows and doors.

Modern comfort: keeping warm without consuming energy.

FROM ACTIVE TO PASSIVE!



EVERYTHING WELL-INSULATED AND AIRTIGHT.

From the roof down to the foundation slab: a jointlessly sealed and airtight building envelope ensures thermal and acoustic insulation. And the ventilation system - complete with heat recovery - takes care of fresh air supply and heat distribution.

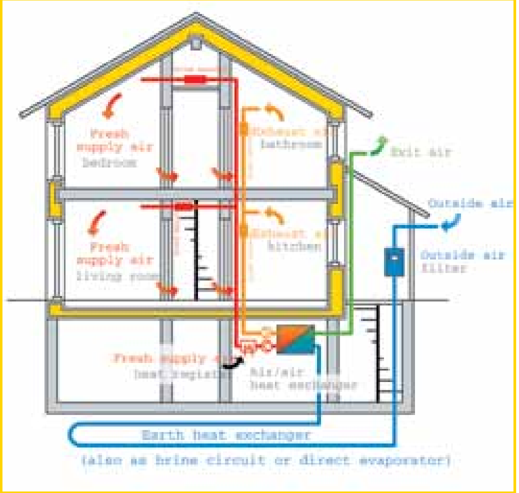
Live comfortably and make high savings

POINT BY POINT A PROFITABLE SYSTEM.

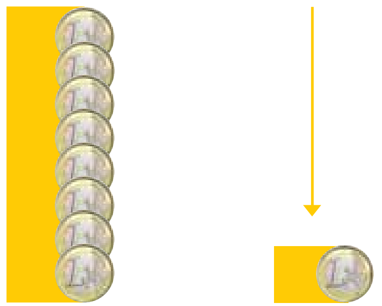
- Thermally insulated roof constructions
- Thermally insulated wall constructions
- Thermally insulated floor constructions
- Airtight building envelope
- Triple-glazed windows (for cold and moderate climate)
- Double-glazed windows (for warm climate)
- Insulated window frames
- Comfort ventilation System with heat recovery
- Optimum installation

AIR TEMPERATURE 20-23°C, RELATIVE AIR HUMIDITY 30-50 %.

In order to enjoy such agreeable living conditions, you have to dig deep into your pockets with conventionally built houses. Not with the ISOVER Multi-Comfort House where highest living comfort in all rooms helps you save a lot of cash. Even if the construction of such a house may incur extra cost, the total financial burden will be significantly lower compared to a conventionally built new house - thanks to extremely low energy costs over its useful life.



COSTS OF ENERGY CONSUMPTION



Standard house acc. to building regulations
8 Euro/m² per year

Multi-Comfort House
1 Euro/m² per year

IMPROVEMENT BY 8:1 COMPARED TO BUILDING REGULATIONS. THAT'S LIFE IN AN ISOVER MULTI-COMFORT HOUSE.

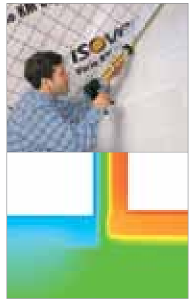
Compared to the passive house standard, not only conventionally built new houses but even more progressive types such as the low-energy house are comparatively expensive. Whenever possible, choose the passive house standard right from the start. After all, how often do you build a house? Just once in a lifetime.

ISOVER SAINT-GOBAIN

PLANNING AND INSTALLATION WITH MAXIMUM PRECISION AND RESPONSIBILITY.

Optimum house location, correct positioning of windows and doors, proper dimensioning of the ventilation system, very high insulation standard, tight building envelope - all these factors are considered before building an ISOVER Multi-Comfort House. Special attention must be paid to avoiding thermal bridges. Thermal bridges and leaks have serious consequences for every type of building. Technically as well as energetically.

Airtightness



Largely reduced thermal bridges

HEATING ENERGY DEMAND:
< 15 kWh/m²a

Max. 10	W/m²	Heating load calculated according to the Passive House Planning Package
Max. 15	kWh/(m²a)	Specific heating energy demand
40-60	kWh/(m²a)	Specific total[1] final energy demand
100-120	kWh/(m²a)	Specific total[1] primary energy demand
Reference area (m²) is the heated useful living space.		

[1] total = including all of the household's energy consumers (heating, hot water, ventilation, pumps, lighting, cooking and household appliances)

U-value 0.1 W/m²K

U-value 0.7 W/m²K

COSINESS.

When living in a passive house, the enclosing areas such as walls, floors and windows have very pleasant inner surface temperatures, even at very low outdoor temperatures. External walls as well as floors above the cellar are only by 0.5 to 1 degree cooler than the room air temperature. Passive house windows are by 2 to 3 degrees cooler than the room air temperature. In houses that do not comply with the energy standard of a passive house, such a high degree of cosiness can only be reached with considerably higher heating costs.

ISOVER SAINT-GOBAIN

BUILDINGS: TACKLING THE CHALLENGES OF THE 21ST CENTURY

The world is changing at a faster rate than ever before. Whilst advances in science and technology have improved our quality of life, they have also highlighted how balanced is our environment. Global warming is no longer a remote concept, but a real threat to the future of mankind.

The building sector must recognise its impacts on global warming and preservation of our valuable and finite energy resources.

To address these issues we must change the way we design new buildings and renovate existing buildings so that we reduce their negative impacts on the environment. Through its support to sustainable construction, ISOVER wants to take up the challenge.

The construction process must preserve unique ecosystems, biodiversity and local landscapes, whilst ensuring a better quality of life and guaranteeing the health and safety of building occupants and users. Sustainable construction provides solutions that balance these sometimes contradictory issues and objectives. Working together with all of the partners in the building chain, ISOVER intends to be at the very front of this challenging new venture.

Benoit Carpentier
CEO
Saint-Gobain Insulation

THE BUILDING SECTOR HAS A ROLE TO PLAY

Heating and air conditioning are the major causes of greenhouse gas emissions from buildings. In Europe, buildings alone are responsible for 30% of all emissions, equating to some 842 million tonnes of CO_2 each year – almost twice the Kyoto target.

But the building sector has a substantial potential. According to EURIMA (European Mineral Wool Manufacturers Association), by using advanced techniques and insulation systems to renovate or build better buildings, Europe could decrease its greenhouse gas emissions by 460 million tonnes – more than the total decrease commitment agreed in Kyoto!

To achieve this same level of saving by other means we would have to, for instance:

- Stop the 6 million cars currently running in London for 15 years, or
- Plant forests on a territory three times as large as France.

Climate with ISOVER glass wool

Thermal comfort: enhancing the performance of our insulation solutions

Thermal comfortis mainly associated with the maintenance and even distribution of interior room temperature and air quality.

It can be achieved by applying very high resistance thermal insulation to all room surfaces (including windows), combined with ventilation adapted to the season, doors and shutters, perfect air tightness to avoid unwanted air input and the building's good thermal inertia.

ISOVER's range of high performance insulation solutions is constantly being developed with new and innovative products and systems which take the science of insulation to a new level.

ISOVER's glass wool is the most efficient on the market with lambda 30 performance, and our global range of products includes lambda 32 products for glass wool and lambda 30 for polystyrene.

Acoustic comfort: enjoy the "comfort" class

Based on extensive studies of the very diverse types of noise, ISOVER has set a new insulation benchmark.

The new "ISOVER Acoustic Comfort Classes" define reliable acoustic comfort, going beyond the requirements set by the current European standards.

ISOVER Acoustic Comfort Classes help in selecting the most appropriate airborne and impact sound insulation, which is becoming increasingly important, especially in multi-occupancy buildings. ISOVER also offers various solutions for achieving these classes.

TECHNOSTAR is a complete commercial partition wall system for extended height applications requiring high levels of sound insulation performance as well as fire, thermal and structural performance. It is commonly used in cinemas to provide sound insulation between adjacent auditoria.

Exceptional energy savings

the ISOVER range of products and systems allows very high levels of energy efficiency to be achieved in buildings. Energy savings of up to 90% can be achieved over an equivalent uninsulated house.

In 2006, the renovation of this german building improved the thermal comfort for all residents of the building and enabled a 90% drop in the consumption of primary energy. The building's thermal envelope was significantly upgraded and the new total energy consumption of the building is now 14 kWh/m²/year.

ISOVER, a fire security specialist

Insulation plays a dual role in terms of fire protection through:

- its own inherentfire safety properties,
- its effecton the fire performance and stability of the structure in the case of fire.

Mineral wool insulation will not support combustion and has the highest possible Euro class A classification (A1 & A2 s1d0); neither will it produce toxic fumes in a fire situation.

The exceptional insulating properties of mineral wool means that it contributes to the fire resistance of walls and thus the overall stability of buildings, helping to provide valuable extra time for evacuation.

EPS also meets fire safety requirements. In almost all building applications, however, EPS is used in combination with another material, such as plasterboard or concrete, which provides additional protection. In specific applications where the EPS is exposed, fireproofed EPS is often recommended.

ULTIMATE has been specifically designed for improved safety. It is resistant to high temperatures (up to 650°C) and can serve as a fireproof barrier. It can also be used to make ducts airtight and watertight in airconditioning systems and industrial or domestic hot water piping systems.

Climate With ISOVER Glass Wool

Insulation solutions for an improved indoor environment

We want to help reduce the sources of pollution by selling solutions that comply with allexisting requirements for indoor air quality. Our insulation solutions do not contribute to indoor air pollution, and are safe to handle and install in the home or office.

Mineral wool is generally installed in such away that no release of dust and fibres occurs after application, and tests to determine possible exposure of building occupants have shown no significant generation of airborne mineral wool fibres.

ISOVER mineral wool and polystyrene products do not provide a medium for the growth of micro organisms. They do not rot, decay or sustain mould. ISOVER hemp wool products are treated with biocides and fungicides to prevent development of micro organisms.

Since moisture promotes mould growth, controlling the level of moisture is one of the best and easiest ways to improve indoor air and protect your health: that is why we have developed the ISOVER VARIO membrane.

Indoor air quality is closely related to ventilation. Fresh outdoor air replaces indoor air through ventilation, thus removing and diluting contaminants generated indoors. ISOVER encourages the development of high performance controlled ventilation to maintain adequate air quality while reducing energy consumption.

The VARIO system allows timber roof and wall structures to breathe and dry naturally.

In winter, when the inside air is warmer than the outside, water vapour is pushed into the structure where it remains with potentially long term damaging affects on timber.

The VARIO system impedes the ingress of this water vapour by automatically reacting to the climatic conditions and closing its pores.

In summer however, when the ambient temperature is increa-sed, the VARIO system has the reverse effect by opening its pores to allow trapped water vapour to escape inwards, thus ensuring that the structure can dry naturally.

From nature - for nature

Optimum thermal insulation produces the highest energy savings. But it must also meet the highest demands in terms of workability, quality and sustainability. ISOVER has committed itself to fulfil all these criteria and develop the right products. ISOVER glass wool is primarily produced from waste glass. With a share of up to 80 %, this material now substitutes the main raw material quartz sand.

Production goes easy on our environment. The natural raw materials are extracted in small open-cast mines where regreening starts immediately after finishing the mining activities. Modern manufacturing methods assure that also the next production steps are environmentally sound.

With ISOVER mineral wool products on the safe side of insulation.

When production is based on a natural raw material, the finished product will also qualify as natural and eco-friendly. Benefits of ISOVER glass wool that speak for themselves:

- safe application and use
- not carcinogenic and not a hazard to health in compliance with Directive 97/69/EC of the European Commission
- free of propellants and pesticides
- chemically neutral
- excellent thermal, sound and fire protection
- especially economical in high insulation thicknesses
- non-combustible
- free of flame-retardant, groundwater-polluting chemicals
- durable and rotproof
- capable of diffusion.

Ultimate, the new high-performance insulation material by ISOVER.

www.isover-students.com

All the relevant information since 2005: all participants and their projects, video recordings of the presentations and contest tasks, documentation, literature, photo gallery