Proposal Submission Forms

EUROPEAN COMMISSION

6th Framework Programme on Research, Technological Development and Demonstration

Marie Curie Mobility Actions
Marie Curie Host Fellowships for Early Stage Research Training (EST)

A1

Proposal Number		Proposal Acronym	USO-POSTDOC

General Information on the Proposal			
Proposal Title	Joint Post-doctorate Training in Sustainable Design, Production and Management of User-oriented Built Environments		
Marie Curie action-code	EST	Scientific Panel	ENG
Total duration in months	48	Call identifier	FP6-2002-Mobility-2
Keyword code 1	06.01.00.00.00.00.00 Architecture		
Keyword code 2	05.06.30.20.01.00.00 Technologies for the Built Environment		
Keyword code 3	05.11.04.11.02.00.00 Urban Quality of Life		
Free keywords (up to 200 characters)	User-orientation, multidisciplinary design; knowledge management; built environment; information design; sustainability		

Abstract (up to 2000 characters)

The proposed USO-POSTDOC project is an advanced training program for early-stage researchers in the interdisciplinary domain of study on consumer orientation in design, construction, maintenance, and management of built environments at a higher level of complexity as compared to doctor students.

Executor of the project is USO-Built, a Joint European Research School established in May 2001 under the CLUSTER umbrella and led by the Technische Universiteit Eindhoven. USO-Built contains 33 academic institutions from 10 EU Member countries, 7 Associated States, and 2 other countries. A taskforce 'Industrial Interface' is associated with USO-Built to strengthen Academia-Industria cooperation.

The USO-Postdoc Core group of 5 universities from member and associated states directs the general and individual advancement of the fellows in this program. The proposed 2-year post-doc fellowships are integrated in the research school to improve dissemination of results and transmission of knowledge.

Implicit sustainability, that is sustainability as a normal quality of design, production, maintenance and management of consumer-oriented built environments, and well balanced for competing claims, is the focal point. The USO-postdoc projects will engage themselves in-between consolidated research fields, to improve conjunctions in the USO-Built research area. In particular they will address the integration and harmonisation of research results from the 4 dimensions of understanding: structural, functional, intentional and instrumental.

Training of Early-Stage Researchers include: (i) Increasing methodological and dissemination competence; (iii) Increasing sensitivity for societal change affecting consumer needs, and (iv) Elaborating the concept of balancing sustainabilities as a starting point for planning, design and policy making.

To attract an equal number of women candidates from the research positions, care has been taken to have a sizable percentage of females in the teaching staff. USO-Built will use the experience collected in the USO-POSTDOC project to further develop the Joint European Research School into a world force in research and training of Early-Stage Researchers in the field of building and built environment.

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A2

Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	1

Information on Organisations

Participating organization					
Organisation legal name	Technische Universiteit Eindhoven				
Organisation short name	TUE				
Legal address					
PO Box	513	Postal Code	5600 MB	Cedex	
Street name and number					
Town	Eindhoven	Country	Netherlands		
Internet homepage	http://www.tue.nl				

Activity Type	HE / RES / IND / OTH	HE
Legal	GOV/INO/JRC/PUC/PRC/EEIG/PNP	GOV
If "PRC" please specify		
Is the organisation a Small or Medium-Sized Enterprise (SME)? **YES/NO**		NO
Is the organisation situated in a Less-Favoured Region within the EU? **YES/NO**		NO
Name of Less-Favoured Region		

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Van Bronswijk	First name(s)	Johanna E.M.H.		
Title	Prof.dr.	Sex Female(=F)/Male(=M)	F		
Department/Faculty/Institute/Laboratory name	Department of Architecture, Building and Planning				
Address (if different from above)					
PO Box		Postal Code		Cedex	
Street name and number					
Town		Country			
Phone 1	31 40 247 2008	Phone 2	31 40 2475040	Fax	+31 40 2438595
e-mail	j.e.m.h.v.bronswijk@tue.nl				
Internet home-page	http://www.tue.nl				

Previously submitted similar proposals or signed contracts? YES/NO	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

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Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	2

Information on Organisations

Participating organisation					
Organisation legal name	Hogeschool voor Wetenschap & Kunst Departement Architectuur Sint – Lucas				
Organisation short name	WenK				
Legal address					
PO Box		Postal Code	1030	Cedex	
Street name and number	Koningsstraat 328				
Town	Brussels	Country	Belgium		
Internet homepage	http://www.wenk.be				

Activity Type	HE / RES / IND / OTH	HE
Legal status	GOV/INO/JRC/PUC/PRC/EEIG/PNP	GOV
If "PRC" please specify		
Is the organisation a Small or Medium-Sized Enterprise (SME)? **YES/NO**		NO
Is the organisation situated in a Less-Favoured Region within the EU? **YES/NO**		NO
Name of Less-Favoured Region		

Are there dependencies between the organisation and (an)other participant(s) ?				No
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Verbeke	First name(s)	Johan		
Title	Dr	Sex Female(=F)/Male(=M)		M	
Department/Faculty/Institute/Laboratory name	Department of Architecture Sint- Lucas				
Address (if different from above)					
PO Box		Postal Code	1030	Cedex	
Street name and number	Paleizenstraat 65-67				
Town	Brussels	Country	Belgium		
Phone 1	32 (0)2 242 00 00	Phone 2		Fax	32 (0)2 245 14 04
e-mail	Johan.verbeke@archb.sintlucas.wenk.be				
Internet home-page	http://www.sintlucas.be/				

Previously submitted similar proposals or signed contracts? YES/NO	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

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Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	3

Information on Organisations

Participating organisation					
Organisation legal name	University of Strathclyde				
Organisation short name	USG-ESRU				
Legal address					
PO Box		Postal Code	G1 1XQ	Cedex	
Street name and number	16 Richmond Street				
Town	Glasgow	Country	United Kingdom		
Internet homepage	http://www.strath.ac.uk				

Activity Type	HE / RES / IND / OTH		HE
Legal status	GOV/INO/JRC/PUC/PRC/EEIG/PNP		GOV
If "PRC" please specify			
Is the organisation a Small or Medium-Sized Enterprise (SME)?		**YES/NO**	NO
Is the organisation situated in a Less-Favoured Region within the EU?		**YES/NO**	NO
Name of Less-Favoured Region			

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	YES
If yes, participant number	11	If yes, participant short name	USG-ABAC	
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Clarke	First name(s)	Joseph		
Title	Prof	Sex Female(=F)/Male(=M)	M		
Department/Faculty/Institute/Laboratory name	ESRU Department of Mechanical Engineering				
Address (if different from above)					
PO Box		Postal Code	G1 1XJ	Cedex	
Street name and number	75, Montrose Street				
Town	Glasgow	Country	United Kingdom		
Phone 1	+44 (0)141 548 3986	Phone 2	+44 (0)141 548 3747	Fax	+44 (0)141 552 5105
e-mail	esru@strath.ac.uk				
Internet home-page	http://www.mecheng.strath.ac.uk				

Previously submitted similar proposals or signed contracts? YES/NO	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

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A2

Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	4

INFORMATION ON ORGANISATIONS

Participating organisation					
Organisation legal name	Middle East Technical University				
Organisation short name	METU				
Legal address					
PO Box		*Postal Code*	06531	*Cedex*	
Street name and number	Inönü Bulvarı				
Town	Ankara	*Country*	Turkey		
Internet homepage	www.metu.edu.tr				

Activity Type	*HE / RES / IND / OTH*	*HE*
Legal status	*GOV/INO/JRC/PUC/PRC/EEIG/PNP*	*GOV*
If "PRC" please specify		
Is the organisation a Small or Medium-Sized Enterprise (SME)?	**YES/NO**	*NO*
Is the organisation situated in a Less-Favoured Region within the EU?	**YES/NO**	*NO*
Name of Less-Favoured Region		

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		*If yes, participant short name*		
Character of dependence SG, CLS, CLB				
If yes, participant number		*If yes, participant short name*		
Character of dependence SG, CLS, CLB				
If yes, participant number		*If yes, participant short name*		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Selahattin	*First name(s)*	Önür		
Title	Assoc.Prof.Dr.	*Sex Female(=F)/Male(=M)*	M		
Department/Faculty/Institute/Laboratory name	METU Department of Architecture				
Address (if different from above)					
PO Box		*Postal Code*		*Cedex*	
Street name and number					
Town		*Country*			
Phone 1	+90 (312) 210 2203	*Phone 2*	+90 (312) 210 4215	*Fax*	+90 (312) 2101249
e-mail	onur@arch.metu.edu.tr				
Internet home-page					

Previously submitted similar proposals or signed contracts? **YES/NO**	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

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Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	5

Information on Organisations

Participating organisation					
Organisation legal name	Politechnika Warszawska				
Organisation short name	PW				
Legal address					
PO Box		Postal Code	00-659	Cedex	
Street name and number	Ul. Koszykowa 55				
Town	Warsaw	Country	Poland		
Internet homepage	http://www.arch.pw.edu.pl				

Activity Type	HE / RES / IND / OTH	HE
Legal status	GOV/INO/JRC/PUC/PRC/EEIG/PNP	GOV
If "PRC" please specify		
Is the organisation a Small or Medium-Sized Enterprise (SME)?	**YES/NO**	NO
Is the organisation situated in a Less-Favoured Region within the EU?	**YES/NO**	NO
Name of Less-Favoured Region		

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Szparkowski	First name(s)	Zygmunt		
Title	PhD	Sex Female(=F)/Male(=M)		M	
Department/Faculty/Institute/Laboratory name	Faculty of Architecture				
Address (if different from above)					
PO Box		Postal Code		Cedex	
Street name and number					
Town		Country			
Phone 1		Phone 2		Fax	
e-mail	z.szparkowski@arch.pw.edu.pl				
Internet home-page					

Previously submitted similar proposals or signed contracts? YES/NO	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

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Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	6

Information on Organisations

Participating organisation					
Organisation legal name	Faculdade de Engenharia da Universidade do Porto				
Organisation short name	FEUP				
Legal address					
PO Box		Postal Code	4200-465	Cedex	
Street name and number	R. Dr. Roberto Frias s/n				
Town	Porto	Country	Portugal		
Internet homepage					

Activity Type	HE / RES / IND / OTH	HE
Legal status	GOV/INO/JRC/PUC/PRC/EEIG/PNP	GOV
If "PRC" please specify		
Is the organisation a Small or Medium-Sized Enterprise (SME)?	**YES/NO**	NO
Is the organisation situated in a Less-Favoured Region within the EU?	**YES/NO**	YES
Name of Less-Favoured Region	NORTH REGION OF PORTUGAL	

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	De Oliveira Fernandes	First name(s)	Eduardo		
Title	Prof.	Sex Female(=F)/Male(=M)	M		
Department/Faculty/Institute/Laboratory name	Faculdade de Engenharia do Porto				
Address (if different from above)					
PO Box		Postal Code		Cedex	
Street name and number					
Town		Country			
Phone 1	351225081763	Phone 2	351225081709	Fax	351225082153
e-mail	eof@fe.up.pt				
Internet home-page					

Previously submitted similar proposals or signed contracts? YES/NO	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

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Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	7

Information on Organisations

Participating organisation					
Organisation legal name	Kungl Tekniska Högskolan				
Organisation short name	KTH				
Legal address					
PO Box		Postal Code	SE-100 44	Cedex	
Street name and number	Visiting address: Valhallavägen 79				
Town	STOCKHOLM	Country	Sweden		
Internet homepage	www.kth.se				

Activity Type	HE		HE
Legal status	GOV		GOV
If "PRC" please specify			
Is the organisation a Small or Medium-Sized Enterprise (SME)?		**NO**	NO
Is the organisation situated in a Less-Favoured Region within the EU?		**YES/NO**	NO
Name of Less-Favoured Region			

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Cars	First name(s)	Göran		
Title	Dr.	Sex Female(=F)/Male(=M)	M		
Department/Faculty/Institute/Laboratory name	School of Industrial Economics and Management, Surveying and Civil Engineering; Department of Infrastructure; Division of Urban Studies				
Address (if different from above)					
PO Box		Postal Code		Cedex	
Street name and number	Visiting address: Drottning Kristinaväg 30				
Town	Stockholm	Country	Sweden		
Phone 1	+46-8-790 7938	Phone 2		Fax	+46-8-790 6761
e-mail	cars@infra.kth.se				
Internet home-page	www.infra.kth.se/SB				

Previously submitted similar proposals or signed contracts? YES/NO	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

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Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	8

Information on Organisations

Participating organisation					
Organisation legal name	National and Kapodistrian University of Athens				
Organisation short name	NKUA				
Legal address					
PO Box		Postal Code	157 84	Cedex	
Street name and number	6 Chr. Lada str.				
Town	Athens	Country	Greece		
Internet homepage	www.uoa.gr				

Activity Type	HE / RES / IND / OTH	HE
Legal status	GOV/INO/JRC/PUC/PRC/EEIG/PNP	PUC
If "PRC" please specify		
Is the organisation a Small or Medium-Sized Enterprise (SME)?	**YES/NO**	NO
Is the organisation situated in a Less-Favoured Region within the EU?	**YES/NO**	NO
Name of Less-Favoured Region		

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Santamouris	First name(s)	Matheos		
Title	Assoc. Prof.	Sex Female(=F)/Male(=M)	M		
Department/Faculty/Institute/Laboratory name	Department of Applied Physics- Laboratory of Meteorology				
Address (if different from above)					
PO Box		Postal Code	157 84	Cedex	
Street name and number	University Campus – Build Phys 5				
Town	Athens	Country	Greece		
Phone 1	30 210 7276847	Phone 2	30 210 7276934	Fax	30 210 7295282
e-mail	msantam@cc.uoa.gr				
Internet home-page					

Previously submitted similar proposals or signed contracts? YES/NO	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

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Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	9

Information on Organisations

Participating organisation					
Organisation legal name	Norwegian University of Science and Technology				
Organisation short name	NTNU				
Legal address					
PO Box		Postal Code		Cedex	
Street name and number					
Town	Trondheim	Country	Norway		
Internet homepage					

Activity Type	HE / RES / IND / OTH	HE
Legal status	GOV/INO/JRC/PUC/PRC/EEIG/PNP	GOV
If "PRC" please specify		
Is the organisation a Small or Medium-Sized Enterprise (SME)?	**YES/NO**	NO
Is the organisation situated in a Less-Favoured Region within the EU?	**YES/NO**	NO
Name of Less-Favoured Region		

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Hestnes	First name(s)	Anne Grete		
Title	Prof.	Sex Female(=F)/Male(=M)	F		
Department/Faculty/Institute/Laboratory name					
Address (if different from above)					
PO Box		Postal Code		Cedex	
Street name and number					
Town		Country			
Phone 1	+47 73 59 50 37	Phone 2		Fax	(+47) 73 59 50 94
e-mail	*Annegrete.hestnes@ark.ntnu.no*				
Internet home-page					

Previously submitted similar proposals or signed contracts? YES/NO	No
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

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Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	10

Information on Organisations

Participating organisation					
Organisation legal name	Politecnico di Torino, Prima facoltà di Architettura				
Organisation short name	PdT				
Legal address					
PO Box		Postal Code	10125	Cedex	
Street name and number	Viale Mattioli 39				
Town	Torino	Country	Italy		
Internet homepage	www.archi.polito.it				

Activity Type		HE
Legal status		GOV
If "PRC" please specify		
Is the organisation a Small or Medium-Sized Enterprise (SME)?		NO
Is the organisation situated in a Less-Favoured Region within the EU?		NO
Name of Less-Favoured Region		

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Robiglio	First name(s)	Matteo		
Title	Assoc. Prof.	Sex Female(=F)/Male(=M)	M		
Department/Faculty/Institute/Laboratory name	Dipartimento di Progettazione Architettonica				
Address (if different from above)					
PO Box		Postal Code	10125	Cedex	
Street name and number	Viale Mattioli 39				
Town	Torino	Country	Italia		
Phone 1	+39.011.5646501	Phone 2		Fax	+39.011.5646599
e-mail	matteo.robiglio@polito.it				
Internet home-page	www.polito.it/dip/dipra				

Previously submitted similar proposals or signed contracts?	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

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Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	11

Information on Organisations

Participating organisation					
Organisation legal name	The Chancellor, Masters and Scholars of the University of Cambridge				
Organisation short name	UCAM				
Legal address					
PO Box		Postal Code	CB2 1TN	Cedex	
Street name and number	The Old Schools, Trinity Lane				
Town	Cambridge	Country	United Kingdom		
Internet homepage	www.cam.ac.uk				

Activity Type	HE / RES / IND / OTH	HE
Legal status	GOV/INO/JRC/PUC/PRC/EEIG/PNP	GOV
If "PRC" please specify		
Is the organisation a Small or Medium-Sized Enterprise (SME)?	**YES/NO**	NO
Is the organisation situated in a Less-Favoured Region within the EU?	**YES/NO**	NO
Name of Less-Favoured Region		

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Steemers	First name(s)	Koen		
Title	Dr	Sex Female(=F)/Male(=M)	Male		
Department/Faculty/Institute/Laboratory name	The Martin Centre for Architectural and Urban Studies Department of Architecture				
Address (if different from above)					
PO Box		Postal Code	CB2 2EB	Cedex	
Street name and number	6 Chaucer Road				
Town	Cambridge	Country	United Kingdom		
Phone 1	0044 1223 31700	Phone 2	0044 1223 331712	Fax	0044 1223 331701
e-mail	Kas11@cam.ac.uk				
Internet home-page					

Previously submitted similar proposals or signed contracts? YES/NO	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

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Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	12

Information on Organisations

Participating organisation					
Organisation legal name	University of Strathclyde				
Organisation short name	USG-ABAC				
Legal address					
PO Box		Postal Code	G1 1XQ	Cedex	
Street name and number	16 Richmond Street				
Town	Glasgow	Country	United Kingdom		
Internet homepage	http://www.strath.ac.uk				

Activity Type	HE / RES / IND / OTH		HE
Legal status	GOV/INO/JRC/PUC/PRC/EEIG/PNP		GOV
If "PRC" please specify			
Is the organisation a Small or Medium-Sized Enterprise (SME)?		**YES/NO**	NO
Is the organisation situated in a Less-Favoured Region within the EU?		**YES/NO**	NO
Name of Less-Favoured Region			

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	YES
If yes, participant number	13	If yes, participant short name	USG-ESRU	
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Bridges	First name(s)	Alan		
Title	Prof	Sex Female(=F)/Male(=M)		M	
Department/Faculty/Institute/Laboratory name	ABACUS Department of Architecture and Building Science				
Address (if different from above)					
PO Box		Postal Code	G4 0NG	Cedex	
Street name and number	Rottenrow, 131				
Town	Glasgow	Country	UK		
Phone 1	44-141-548-3021	Phone 2		Fax	44-141-552-3996
e-mail	Abacus@strathy.ac.uk				
Internet home-page	http://www.strath.ac.uk/departments/architecture				

Previously submitted similar proposals or signed contracts? YES/NO	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

Proposal Submission Forms

EUROPEAN COMMISSION

6th Framework Programme on Research, Technological Development and Demonstration

Marie Curie Mobility Actions
Marie Curie Host Fellowships for Early Stage Research Training (EST)

A2

Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	13

INFORMATION ON ORGANISATIONS

Participating organisation					
Organisation legal name	*Center for People and Buildings*				
Organisation short name	*CFPB*				
Legal address					
PO Box		*Postal Code*	*2628 CR*	*Cedex*	
Street name and number	*Berlageweg 1*				
Town	*Delft*	*Country*	*The Netherlands*		
Internet homepage	*http://www.cfpb.nl*				

Activity Type	*HE / RES / IND / OTH*	*RES*
Legal status	*GOV/INO/JRC/PUC/PRC/EEIG/PNP*	*PNP*
If "PRC" please specify		
Is the organisation a Small or Medium-Sized Enterprise (SME)?	**YES/NO**	*YES*
Is the organisation situated in a Less-Favoured Region within the EU?	**YES/NO**	*NO*
Name of Less-Favoured Region		

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		*If yes, participant short name*		
Character of dependence SG, CLS, CLB				
If yes, participant number		*If yes, participant short name*		
Character of dependence SG, CLS, CLB				
If yes, participant number		*If yes, participant short name*		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	*Pullen*		*First name(s)*	*Wim*	
Title	*Ir.*		*Sex Female(=F)/Male(=M)*	*M*	
Department/Faculty/Institute/Laboratory name					
Address (if different from above)					
PO Box		*Postal Code*		*Cedex*	
Street name and number					
Town		*Country*			
Phone 1	+31 15 278 1271	*Phone 2*	*+31 15 279 1114*	*Fax*	*+31 15 278 3171*
e-mail	info@cfpb.nl				
Internet home-page					

Previously submitted similar proposals or signed contracts? **YES/NO**	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

Proposal Submission Forms

EUROPEAN COMMISSION

6th Framework Programme on Research, Technological Development and Demonstration

Marie Curie Mobility Actions
Marie Curie Host Fellowships for Early Stage Research Training (EST)

A2

Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	14

Information on Organisations

Participating organisation					
Organisation legal name	University of Belgrade				
Organisation short name	UBB				
Legal address					
PO Box		Postal Code	11000	Cedex	
Street name and number	Milovana Marinkovica 35				
Town	Belgrade	Country	Serbia & Montenegro		
Internet homepage					

Activity Type	HE / RES / IND / OTH	HE
Legal status	GOV/INO/JRC/PUC/PRC/EEIG/PNP	GOV
If "PRC" please specify		
Is the organisation a Small or Medium-Sized Enterprise (SME)?	**YES/NO**	NO
Is the organisation situated in a Less-Favoured Region within the EU?	**YES/NO**	NO
Name of Less-Favoured Region		

Are there dependencies between the organisation and (an)other participant(s) ?		**YES/NO**	NO
If yes, participant number		If yes, participant short name	
Character of dependence SG, CLS, CLB			
If yes, participant number		If yes, participant short name	
Character of dependence SG, CLS, CLB			
If yes, participant number		If yes, participant short name	
Character of dependence SG, CLS, CLB			

Scientist in charge					
Name	Todorovic	First name(s)	Marija		
Title	Prof.	Sex Female(=F)/Male(=M)	F		
Department/Faculty/Institute/Laboratory name	Faculty of Agriculture, Laboratory for Thermodynamics and Thermotechnics, DERES - Division for Energy Efficiency and Renewable Energy Sources				
Address (if different from above)					
PO Box		Postal Code		Cedex	
Street name and number					
Town		Country			
Phone 1	381 11 309 6100	Phone 2		Fax	381 11 309 6100
e-mail	deresmt@eunet.yu				
Internet home-page	www.rcub.bg.ac.yu/~todorom				

Previously submitted similar proposals or signed contracts? YES/NO	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

Proposal Submission Forms

EUROPEAN COMMISSION

6th Framework Programme on Research, Technological Development and Demonstration

Marie Curie Mobility Actions
Marie Curie Host Fellowships for Early Stage Research Training (EST)

A2

Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	15

INFORMATION ON ORGANISATIONS

Participating organisation					
Organisation legal name	Universiteit Utrecht				
Organisation short name	UU				
Legal address					
PO Box		*Postal Code*	3584 CS	*Cedex*	
Street name and number	Heidelberglaan 8				
Town	Utrecht	*Country*	The Netherlands		
Internet homepage	http://www.uu.nl				

Activity Type	*HE / RES / IND / OTH*		HE
Legal status	*GOV/INO/JRC/PUC/PRC/EEIG/PNP*		GOV
If "PRC" please specify			
Is the organisation a Small or Medium-Sized Enterprise (SME)?		**YES/NO**	NO
Is the organisation situated in a Less-Favoured Region within the EU?		**YES/NO**	NO
Name of Less-Favoured Region			

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		*If yes, participant short name*		
Character of dependence SG, CLS, CLB				
If yes, participant number		*If yes, participant short name*		
Character of dependence SG, CLS, CLB				
If yes, participant number		*If yes, participant short name*		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	*van Knapen*		*First name(s)*	*Frans*	
Title	*Prof. dr.*	*Sex Female(=F)/Male(=M)*		*M*	
Department/Faculty/Institute/Laboratory name	Department of Public Health and Food Safety, Faculty of Veterinary Medicine				
Address (if different from above)					
PO Box	*80.175*	*Postal Code*	*3508 TD*	*Cedex*	
Street name and number					
Town		*Country*			
Phone 1	+31 302535367	*Phone 2*		*Fax*	+31 302532365
e-mail	vvdo@vvdo.vet.uu.nl				
Internet home-page	http://www.vet.uu.nl/english/faculty/departments/public_health				

Previously submitted similar proposals or signed contracts? **YES/NO**	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

Proposal Submission Forms

EUROPEAN COMMISSION

6th Framework Programme on Research, Technological Development and Demonstration

Marie Curie Mobility Actions
Marie Curie Host Fellowships for Early Stage Research Training (EST)

A2

Proposal Nr		Proposal Acronym	USO-POSTDOC	Participant Nr	16

Information on Organisations

Participating organisation					
Organisation legal name	Czech Technical University in Prague				
Organisation short name	CTU				
Legal address					
PO Box		Postal Code	166 36	Cedex	
Street name and number	Zikova 4				
Town	Prague 6	Country	Czech Republic		
Internet homepage	http://www.cvut.cz/en				

Activity Type	HE / RES / IND / OTH		HE
Legal status	GOV/INO/JRC/PUC/PRC/EEIG/PNP		GOV
If "PRC" please specify			
Is the organisation a Small or Medium-Sized Enterprise (SME)?		**YES/NO**	NO
Is the organisation situated in a Less-Favoured Region within the EU?		**YES/NO**	NO
Name of Less-Favoured Region			

Are there dependencies between the organisation and (an)other participant(s) ?			**YES/NO**	NO
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				
If yes, participant number		If yes, participant short name		
Character of dependence SG, CLS, CLB				

Scientist in charge					
Name	Kabele	First name(s)	Karel		
Title	Assoc. Prof.	Sex Female(=F)/Male(=M)	M		
Department/Faculty/Institute/Laboratory name	Faculty of Civil Engineering, Department of Microenvironmental and Building Services Engineering				
Address (if different from above)					
PO Box		Postal Code	166 29	Cedex	
Street name and number	Thákurova 7				
Town	Prague 6	Country	Czech Republic		
Phone 1	+420 224 354 570	Phone 2	+420 224 354 439	Fax	+420 224 354 570
e-mail	kabele@fsv.cvut.cz				
Internet home-page	http://tzb.fsv.cvut.cz/				

Previously submitted similar proposals or signed contracts? YES/NO	NO
If yes, programme name(s) and year	
If yes, proposal or contract number(s)	

Proposal Submission Forms

EUROPEAN COMMISSION

6th Framework Programme on Research, Technological Development and Demonstration

Marie Curie Mobility Actions
Marie Curie Host Fellowships for Early Stage Research Training (EST)

A4

Proposal Number		Proposal Acronym	USO-POSTDOC

Requested Fellows- Early Stage Training / Transfer of Knowledge

Participant number	REQUESTED FELLOWS							REQUESTED PERSON MONTHS	
	Indicative number of fellows for stays of:			Number of fellows planned to be recruited in each of the project years				TOK only: Expected % of Fellow Months For Researchers with experience >10	EST Total number of fellow months
	<12 months	12-24 months	EST only 24-36 months	1	2	3	4		TOTAL
1	1	3		1	1	1			42
2	1	2		1	1				30
3	1	2		1	1				30
4	1	2		1	1				30
5	1	2		1	1				30
6	2								12
7	1								6
8	2								12
9	1								6
10	2								12
11	1								6
12	2								12
13	1								6
14	2								12
15	1								6
16	2								12
	22	11		5	5	1			264

STARTPAGE

HUMAN RESOURCES AND MOBILITY (HRM)
ACTIVITY

MARIE CURIE ACTIONS

Host fellowships for Early Stage Research Training (EST)

PART B

USO-POSTDOC

B1 SCIENTIFIC QUALITY OF THE PROJECT OR RESEARCH TRAINING AREA

The proposed project USO-POSTDOC is a is a research training program for early-stage researchers in the interdisciplinary domain of study identified as research on end-user orientation in design, construction, maintenance, and management of built environments to obtain a well-balanced sustainability.

Originality

Sustainable development has become a rhetorical concept that is interpreted differently depending on the research framework one operates in. This has led to competing claims depending on the mono-disciplinary research on specific forms of 'sustainability' one is involved in. Think of healthy indoor air through a high level of ventilation versus diminishing ventilation to decrease energy use; or: having easily operable doors and windows to increase access by the fire squad in case of fire, versus locking all entrances to improve the level of burglar-proofness; or: increasing oil use to gear up economic activity versus reducing oil use to conserve energy.

An important aspect of the built environments and their inhabitants are the transformations in time. From the Industrial City originating of the 19th century towards the Post-Industrial City of the 20th and 21st century; meanwhile society being transformed from agricultural through industrial and technological towards a Knowledge-Based Society.

The scientific originality of the proposed post-doctorate program lies in the integration and harmonization of cultural, social and natural sciences and engineering in a 4-dimensional research space with functional, structural, intentional and instrumental dimensions, in which the different scientists and professionals meet to implement effective end-user orientation while creating a new common paradigm on a philosophical level that brings the different academic domains together in a well ordered framework.

The methodology is geared towards a new paradigm, as has been stated above. A paradigm can be typified as a disciplinary matrix of 4 layers, each layer being 1 to n dimensional.

- ***Layer 1***: The highest layer encompasses the theories, ideas or concepts; in case of USO-POSTDOC this is the multidisciplinary approach, the cooperation of disciplines and their different approaches, as embodied in the Network Teams or IRU's (see above), and the notions embodied by the different types of sustainability, making the matrix an n-dimensional entity (See also Table 1 for those sustainability approaches included in the 1st wave of post-doc projects);
- ***Layer 2***: The 2nd layer of the matrix contains the assumptions, presuppositions and points of departure of research and design; that's is the constraints of the 4 fundamental dimensions, intentional, structural, functional and instrumental, connecting the different disciplines and approaches, resulting in the methodological idea of the research project; this layer is also addressed in the 1st wave of post-doc fellowships when the short-term and long-term consequences of the different sustainability approaches are elucidated;
- ***Layer 3***: The 3rd layer systematically introduces a set of values, especially the societal, scientific and professional values relevant to sustainability, forming the perspective of the integrative research projects; this layer may be considered in part as the result of the 1st wave of post-doc projects, as well as the starting point of the 2nd wave of integrative projects on *Integrated Urban Sustainability*, *Urbanisation and Sustainable Development*, *Sustainable Vitality and Primary Needs*, and *Virtual Reality in the Service of User Participation in Building Design*, which together should culminate in the n-dimensional BASUS-paradigm;
- ***Layer 4***: The lowest layer is the most researched one; it concerns the cases, best practices, experimental and descriptive work executed in different cultural and climatic regions on *Integrated Urban Sustainability*, *Urbanisation and Sustainable Development*, *Sustainable Vitality and Primary Needs*, and *Virtual Reality in the Service of User Participation in Building Design* to test, validate, update, and implement the newly constructed paradigm on balancing sustainabilities.

Although this approach to sustainability may look new and untested at first glance, it is built on time-tested experimental, statistical and descriptive methods, and therefore the quest for a new integrative paradigm is likely to succeed. Also the different post-doc positions and experienced-researcher person months for which funding is requested will, due to their mobility and their participation in workshops and half-yearly conferences, constantly be exposed to the different cultural and sectoral approaches, so that the overall methodology may be easily adapted to unforeseen results and problems.

USO-Postdoc

Scientific executor

Executor of the project is USO-Built, a Joint European Research School and Doctorate Network established in May 2001[1] under the CLUSTER umbrella[2] and led by the Technische Universiteit Eindhoven. USO-Built contains 33 academic institutions from 10 EU Member countries, 7 Associated Countries, and 2 other countries (Table 1), and dwells on the objectives of the Bologna Declaration. The president of CLUSTER, currently prof.dr. André de Herde, is also the president of USO-Built. The Technische Universiteit Eindhoven, The Netherlands, coordinates the school. Prof.dr. Johanna E.M.H. van Bronswijk and dr.ir. Cornelis H. Doevendans, as representatives of the Cluster-departments Environmental Engineering and Civil Engineering and Architecture, function as respectively Director and Secretary General of the school.

Table 1: Academic Institutions taking part in USO-Built	
1. In EU Member Countries	
Belgium	◉ Hogeschool voor Wetenschap & Kunst, Departement Architectuur Sint-Lucas, Brussels
	Katholieke Universiteit Leuven, Leuven
	Université catholique de Louvain, Louvain-la-Neuve
France	Ecole d'Architecture de Lille, Villeneuve d'Ascq
	Ecole d'Architecture de Marseille, St. Etienne
Germany	University of Heidelberg, Heidelberg
	Universität Karlsruhe, Karlsruhe
	Technische Universität, Darmstadt
Greece	○ National and Kapodistrian University of Athens, Athens
Italy	○ Politecnico di Torino, Prima facoltà di Architettura, Turin
Netherlands	◉ Technische Universiteit Eindhoven, Eindhoven
	○ Universiteit Utrecht, Utrecht
	○ Center for People and Buildings, Delft
Portugal	○ Facultade de Engenharia da Universidade do Porto, Porto
Spain	Universitat Politècnica de Catalunya, Barcelona
Sweden	○ Kungl Tekniska Högskolan, Stockholm
United Kingdom	○ University of Cambridge, Cambridge
	Imperial College, London
	University of Durham, Durham
	◉ University of Strathclyde, Glasgow
	University of the West of England, Bristol
	Robert Gordon University, Aberdeen
2. In Associated States	
Croatia	University of Zagreb, Zagreb
Czech Republic	○ Czech Technical University, Prague
Norway	○ Norges Teknisk Naturvitenskapelige Universitet, Trondheim
Poland	◉ Politecnika Warszawska, Warsaw
	Politechnika Wrocławska, Wroclaw
	Uniwersitet Zielonogórski, Zielona Gora
Rumania	Ion Mincu University of Architecture and Urbanism, Bucharest
Switzerland	Ecole Polytechnique Fédérale de Lausanne, Lausanne
Turkey	◉ Middle East Technical University, Ankara
3. In Other Countries	
Serbia	○ University of Belgrade, Belgrade
South Africa	University of the Free State, Bloemfontein

○ Participating in USO-POSTDOC; ◉ Member of the USO-POSTDOC Core group

A Memorandum of Understanding forms the basis of cooperation. It mentions rights and duties of the coordinator (TU/e), the other Core Group members and the additional participants.

[1] www.uso.tue.nl
[2] www.cluster.org

Scientific Dimensions

Work in USO-Built has been structured in 4 themes that are researched by 4 International Research Units (IRU) encompassing doctorate students, post-docs and their supervisors originating from at least 5 different countries in each IRU, and coordinated by an international board of coordinators (deputy directors). The end-user is clearly visible in the methodology of each research project.

The IRU are homogenous for their methodology and have all chosen one of 4 explanatory dimensions[3] as their lead:

1. SUSTAINABLE URBAN TRANSFORMATION exists in the context of the intentional dimension in professional activities of designers; This IRU mainly employs the methodology of the humanities and practices 'Research by Design';

2. CLIENTS, MANAGERS AND PRODUCERS encompasses user, managers and producers in the context of the structural dimension of built environments; This IRU mainly employs the methodology of the social sciences and has a strong link with building industry and housing associations;

3. BUILT-IN QUALITY OF LIFE researches in the context of the functional dimension of needs and wishes of individual end-users; This IRU mainly employs the methodology of the natural sciences in development and evaluation of the design of building and urban services;

4. INFORMATION DESIGN is active in the context of the instrumental dimension of knowledge; This IRU mainly employs the methodology of the information sciences in relation to knowledge management and participatory design.

Currently the average number of research projects per theme is about 25, to be enlarged to around 75 by 2006.

The multidisciplinary approach of USO-Built is unusual within building research and management of built environments. Elaboration of a common framework for research is necessary in order to get a comprehensive approach of the built environment. An essential aspect of user-orientation in USO-Built is a direct relationship with the user (consumer) of the built environment in research and design. This refers in fact to any end-user's role: visitor, commuter, inhabitant, citizen, worker, dweller, tourist, etc. User-orientation is quantified in the degree to which actual or virtual users of the built environment are represented in the research layout of the project, or figure as co-designers or as a touchstone in the design process and evaluation. Only research that is highly relevant to the emerging knowledge-based society is included in the school.

Built environments

Built Environments have a large complexity. Many actors, decision makers, and stakeholders are involved. Relevant disciplines include natural sciences, social sciences, humanities, and engineering. In addition buildings have a longer service life than other artefacts, and rather should be seen as systems with components of different service life, than as single products. This complicates the providing of future generations with a building stock.

Furthermore, all phases in the life span of a building or built environment normally involve more than one stakeholder. In production, for instance, developer, planner, consultant, contractor, material supplier, authorities, financer and the end-user need a good cooperation to arrive at suitable structures. The main part of a building's life-span is the usage phase that normally involves 2 stakeholders: the user, and the owner or facility manager.

Finally, in order to supply the services expected by the end-user, buildings and built environments need large amounts of resources (energy, daily goods, fresh water, clean air) from the surrounding society, and are also dependent on society to handle their waste.

Buildings and built environments appear as dynamic systems: infra-structural nodes transforming material resources into services to the end-users, while producing waste to be handled or re-used. As a

[3] The intentional, structural and functional dimension of explanation have been proposed by: M. Jones 1988. Land-tenure and landscape change in fishing communities on the outer coast of central Norway, c 1880 to the present. Geografiska Annaler 70B:197-204; we added the instrumental dimension

consequence planning, design, production and maintenance of built environments are multidisciplinary processes, necessarily supported by decision support models, information and communication technologies, and teamwork strategies.

Built environments are framed by architecture, building technology, building services, civil engineering, urban planning: an intersectoral endeavour. In their turn, built environments frame the life world of man, of inhabitants, residents, workers, and tourists for life takes place within the cluster of rooms, buildings, streets and cities that we inhabit. Finally, built environments are dynamic; they change because of changing societal and economical conditions. Production of built environments therefore is a process of transformation, of production and re-production. This aspect meets the condition of sustainable development.

Justification of the scientific and technological quality

Currently researchers learn sustainability research primarily from a close association with senior scientists and each other. As a consequence these researchers of sustainable, user-oriented, built environments obtain a sub-optimal overview and insight as to current problems and future needs. In addition research groups at individual departments of architecture, building or urban planning are too small to offer a complete program. Commonly only one aspect of sustainability, e.g. energy use is taken into account and competing claims are seldom addressed. A European program of post-docs, such as USO-POSTDOC, would fill this serious gap in knowledge.

The post-doctorate fellows will be working in a multi-disciplinary environment. Different from doctorate student projects that are placed in one of the IRU's, the USO-Postdoc projects will typically be characterized in-between IRU themes. These areas are the gaps where professionals and scientists of opposing disciplines tend to fail to understand each other, or work in a different way (figure 1).

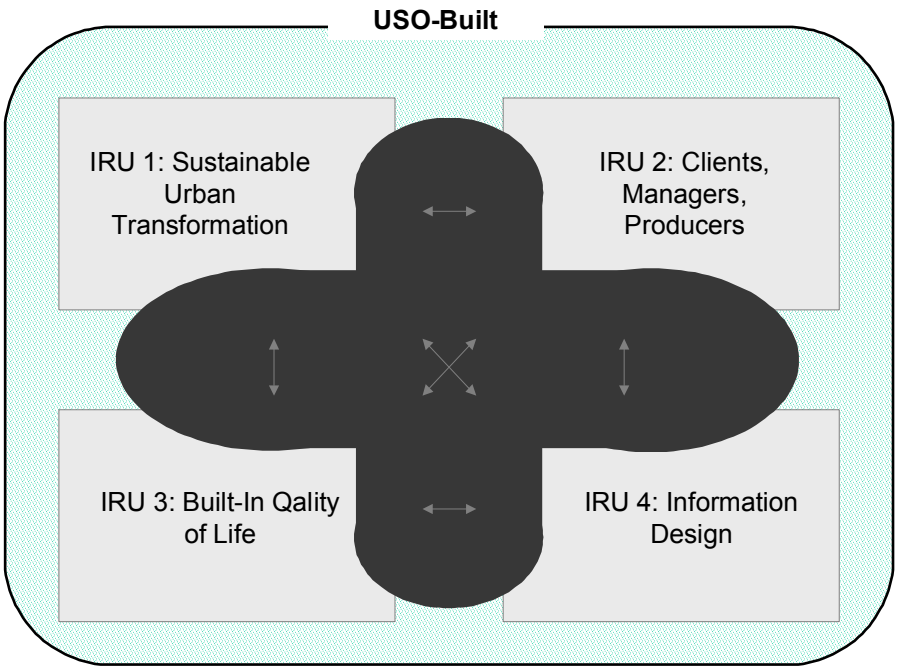


Figure 1. Research field of USO-Postdoc in the USO-Built area IRU in grey lobed area

In general terms, encounters between alpha and beta science, alpha and gamma science, or beta and gamma science are expected and wanted. Post-doctoral research that extends the limited scientific range of individual research groups will increase the coherence of research in building and the built environment in Europe, and pose opportunities for architectural and other building-related post-docs to pursue a research career by building a more divers and interntional individual network. Balancing sustainabilities as general research theme grasps a wide range of topics of all research units in USO-Built.

Project objectives

USO-POSTDOC focuses at:

i) Elucidating the relationships of the short-term and long-term objectives of the main mono-disciplinary and mono-sectoral research projects on sustainability;
ii) Formulating a flexible and n-dimensional model of the different sustainability aspects that may be used in planning, design, production, maintenance and management of built environments, especially urban built environments;
iii) Incorporating European cultural diversity in the n-dimensional model;
iv) Validation of the model in a number of urban cases and building studies well spread over Europe;
v) Updating the model and disseminating it as a paradigm into the relevant professional communities for routine use.

Program Outline

Communication between the various disciplines within the field asks for an interdisciplinary framework for research, design and education activities in the field of environmental, urban and architectural studies. Also when this field is already narrowed by a choice for user-orientation and sustainability, there remains a need for a common paradigm on a philosophical level that brings all these activities and fields in a well-ordered framework of the n-dimensional model. Support is asked for the USO-POSTDOC project that intends to solve the communication problems step-by-step.

The project as a whole will consist of three aspects: (1) training of researchers in both the broad and the deep of balancing sustainabilities, (2) establishing a research framework on this globally important theme, and (3) dissemination of knowledge to peers and professionals in the larger Europe.

All 2-year research training projects will (i) pertain to built environments, (ii) be end-user oriented, and (iii) be highly relevant to the emerging knowledge based society. Each network team has identified some, more or less mono-disciplinary or mono-sectoral, sustainability approaches to analyse as a 2-year research-training project in the first year (1st wave of projects: activities 1.1 to1.7) to lay the basis for the n-dimensional approach (Table 1). These training projects are expected to fulfill the aims of elucidation of relationships of actual short-term and long-term objectives of sustainability approaches, and also describe their cultural diversity.

To structure the training, evaluate its result and transfer results to partner universities a portfolio or personal file is started and updated regularly. It contains the regularly updated, individual, training plan; research protocols; presented posters; summaries of oral presentations; contributions to peer-reviewed international journals; followed workshops etcetera.

The individual training plan forms the guideline for the training. It is constructed before the start of training and will have to be accepted by the internal scientific committee. The training consists of individual research work and for 15-25% of international workshops and presentations, including the preparation of scientific publications.

Supervisor and fellow evaluate the portfolio regularly together; at the end of the two years at least 3 manuscripts accepted in peer-reviewed international journals or peer-reviewed international conferences should be delivered. The internal Scientific Committee of USO-Built assesses twice a year the portfolio, and once a year a selection is presented to the external Scientific Advisory Board for comment and appraisal.

Individual training consists of supervision (tutoring and guidance of research), courses as offered by USO-Built or one of the universities taking part in it, tutorials, visits and secondments to other partners.

Training measures that will be undertaken on a network-wide basis include moderated work on e-mail discussion lists, topical courses, Half-yearly international Conferences, and 1-week Workshops.

Researchers will have to participate in the half-yearly international conferences to present their research plans and results in dedicated sessions and in workshops. These half-yearly conferences always have a section ‘Meet the Industry’ where researchers are expected to further broaden their view.

Training in complementary skills, such as communication, awareness of ethical issues, intellectual property issues, enterprise and project management skills is taught in an active way by giving the Early-Stage Researchers funded in USO-Postdoc a limited tutoring duty for one or more doctorate students in USO-Built.

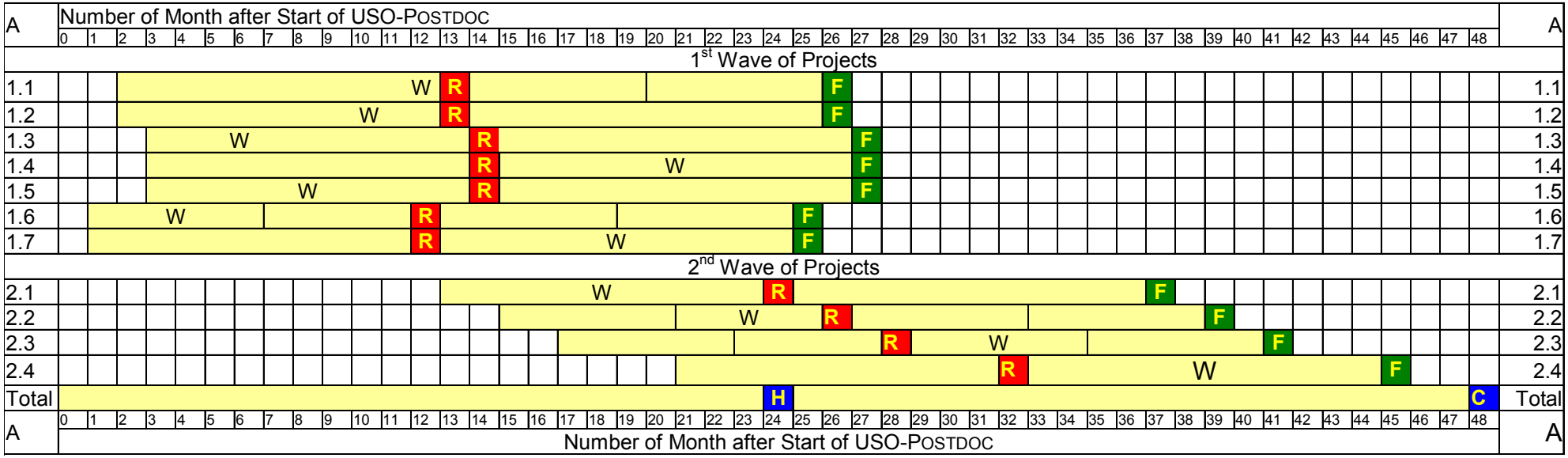
With 1-year overlap, in the 2nd and 3rd year the realisation of the n-dimensional framework should start that will be structured and validated by 4 Young Researchers in close cooperation (2nd wave of projects: activities 21. to 2.4). Their topics are: (i) ***Integrated Urban Sustainability***, (ii) ***Urbanisation and Sustainable Development***, (iii) ***Sustainable Vitality and Primary Needs***, and (iv) ***Virtual Reality in the Service of User Participation in Building Design***. Here the research aims should be fulfilled of formulating, expanding, validating and updating of the n-dimensional framework BASUS for managing the balancing of sustainabilities, leading to a breakthrough in handling sustainability in relation to built (urban) environments.

Disseminating the resulting n-dimensional sustainability approach into the relevant professional community is foreseen within both the educational doctorate program of USO-Built as well as through the educational programs of the 33 academic institutions making up USO-Built (Table 1).

After completing the program, the fellow will receive a certificate stating the content of the training and signed by the president of USO-Built and the supervisors involved.

USO-POSTDOC is a program with a particularly clear sustainability philosophy. The combined forces of Network Teams anticipate a major breakthrough in solving competing claims of sustainability, thus opening up new ways for the development of products and services for the knowledge-based society of the 21st century. Examples could be application and development of new software, and electronically developed informatics systems, or large accessible databases filled with knowledge, but even more important: innovative design and management concepts.

Table 4. Overall timetable for USO-POSTDOC. IN ADDITION INDIVIDUAL PORTFOLIO EXIST FOR EACH FELLOW



A = Activity Number

W = Dedicated Workshop of 1-week duration pertaining to the sustainability approach addressed

R = Midterm Report, reviewed first by the internal Scientific Committee (complete report) and the Scientific Advisory Board (Abstract only)

F = Final Report of Early-Stage Researcher project

H = Midterm Report of USO-POSTDOC

C = Final Report on USO-POSTDOC

The timetable shows the months in which the different Early-Stage Researcher projects are running, as well as the months their mid-term report and final report will be ready for evaluation, and their mobility each 6-12 months. Also indicated are the month in which the dedicated workshops are given for all researchers in the project as as other interested researchers in USO-Built or in the emerging Industria-Academia Consortium to be intertwined with USO-Built. In addition the running of total USO-POSTDOC is shown. The project work will be assessed by (i) midterm and final reports, (ii) evaluation of workshops given, (iii) presentations of the researchers at interna and external conferences, and (iv) manuscripts accepted by international journals.
Not shown on the time table are the months in which the internal half-yearly conferences are held, since they are given jointly with the remaining USO-Built Network in March-April and October-November, and it is not known yet in which month of the year USO-POSTDOC will start.

Outline of Early-Stage Research Projects by Focus

IN USO-POSTDOC a training program of 2 years has been defined consisting of a research project to be followed at institutions of higher learning in at least 2 different countries, an international workshop program, and Joint Juries for research protocols[4]. Training at a commercial site will commonly be included when feasible.

The training and transfer of knowledge objectives of USO-POSTDOC include:
Enlarging the personal researchers approach on sustainability both from a content and a cultural viewpoint;
Increase the methodological competence of the researchers, giving them an outlook not only on the accepted methodologies of his own domain, but also on those of the other domains of academic enquiry;
Increase the sensitivity of the researchers for societal and social change, from modernity to post-modernity, from the industrial to the knowledge-based European society
Elaborating the concept of balancing sustainabilities as a starting point for planning, design, and policy making.

These aims cannot be met by each of the single research organisations because of their small size. In fact a research attitude is far from self-evident in many Architecture, Planning and Building departments in European universities, who commonly restrict themselves to the design part of the discipline. On a national level the critical mass needed for an integrative approach may be present as far as content is concerned, but countries tend to be much too mono-cultural and at a certain economic level, to encompass the whole diversity of a balancing sustainability concept. Therefore an endeavour on a European scale is needed.

The Team '**Sustainable Urban Transformation**' will elucidate two different approaches on sustainability: Sustainable Governance (activity 1.1), and Social, Societal and Urban Sustainability (activity 1.2), asking for 2 different Early-Stage Researchers of 24 months each. In the 2nd wave 1 fellowship of 24 months for an Early Stage Researcher will suffice to contribute a 'Humanities and Technology' view to the integrative endeavour (activity 2.1: Integrated Urban Sustainability).

The Team '**Clients, Managers and Producers'** will elucidate three different approaches on sustainability: Economic Sustainability (activity 1.3), Environmental Sustainability (activity 1.4) and Mechanical and Constructional Sustainability (activity 1.5), asking for 3 different Early-Stage Researchers of 24 months each. In the 2nd wave 1 fellowship of 24 months for an Early Stage Researcher will suffice to contribute the 'Social Sciences and Technology' view to the integrative endeavour (activity 2.2: Urbanisation and Sustainable Development).

The Team '**BUILT-IN QUALITY OF LIFE**' will elucidate one approach on sustainability: Sustainable Health, Vitality and Productivity(activity 1.6), asking for 1 Early-Stage Researcher of 24 months. In the 2nd wave 1 fellowship of 24 months for an Early Stage Researcher will suffice to contribute a 'Sciences and Technology' view to the integrative endeavour (activity 2.3: Sustainable Vitality and Primary Needs).

The Team '**INFORMATION DESIGN**' will elucidate one approach on sustainability: Sustainable Digital Structures (activity 1.7), asking for 1 Early-Stage Researcher of 24 months. In the 2nd wave 1 fellowship of 24 months for an Early Stage Researcher will suffice to contribute an 'Instrumental Information Sciences' view to the integrative endeavour (activity 2.4: Virtual Reality in the Service of the User Participation in Building Design).

The mixture of researchers follows out of our 4-dimensional approach with intentional, structural, functional and instrumental dimensions. We believe that by first giving these 4 approaches the possibility to enlarge their views and then combining these views in an n-dimensional model, we have the highest probability of complete success. The different researchers have been and will be chosen with these principles in mind.

Since USO-POSTDOC has been set up and will be implemented by the Joint Research School USO-Built in collaboration with its emerging Industria-Academia Taskforce, the researchers have extended possibilities to design their own research career at academic institutions (doctorate student – postdoc – lecturer – assistant professor – associate professor – full professor) or in industry (researcher, project leader, program leader, director of research and development). In fact as far as Early-Stage Researchers are concerned, such an individual Career Development Plan will be drawn up and discussed with the coordinators of the Team to make sure that the training will be supportive of this plan. These researchers will also be requested to

[4] As agreed by the USO-Built members (October 2001) and the CLUSTER mother organisation (May 2001); see: (i) JEMH van Bronswijk, CH Doevendans, JAM Graafmans 2001 (May). USO-Built. A European Graduate School within the CLUSTER Networks. Available at: www.uso.tue.nl/Archives/Documents/USO-CLUSTER-May2001.PDF, and (ii) JEMH van Bronswijk, CH Doevendans, JAM Graafmans 2001 (October). USO-Built. End Report of the Eindhoven meeting. Available at: www.uso.tue.nl/Archives/Documents/new-uso-built.pdf.

present their personal Career Development Plan in the 'Junior Only' section of the Half-Yearly Research Conferences of USO-Built.

A Memorandum of Understanding has been drafted and will be signed by the partners of the Industrial – Academia Consortium and USO-Built. USO-POSTDOC intends to further address the industrial collaboration in short training placements in company premises, assistance in training by industry staff, and modules for common training on subjects of entrepreneurial relevance.

In the Network team 'Clients, Managers and Producers' one approach includes research towards the Energy Performance Directive (EPD) and its implementation in EU and newly associated states (NAS). Transfer of knowledge between EU and NAS countries, and practical stages of the research fellow(s) at industry partner workplaces are intended. Industrial partners will be extracted from the network of Kyoto Buildings (contact: M. Santamouris) and/or the Scottish Energy Systems Group (contact: L. B. McElroy, director).

In the Network Team 'Information Design' similar academia-industria cooperation in the field of EPD research is projected involving modelling of EPD calculation methods in reference to the different cultural and societal climates of EU and NAS countries and the need to meet the Kyoto Protocol targets.

In case the personal Career Development Plan of a researcher calls for courses or workshops not present within USO-POSTDOC, care will be taken to find them elsewhere in or outside USO-Built. These educational events could address the scientific and technical aspects of sustainability research, and the multidisciplinary and intersectorial nature of the specific problem studied

B3 QUALITY / CAPACITY OF THE HOSTS

Additional value of the partnership
The proposed partnership will make an in-depth foundational knowledge readily available to post-doctorate fellows, who are active in a European-Wide Graduate School called USO-BUILT and including universities in Belgium, Germany, Greece, Sweden, Switzerland, Italy, the Netherlands, Norway, Portugal, Serbia, Spain, South-Africa, United Kingdom, although also other young scientists may attend. Coaching hosts are leading experts in architecture, civil- and environmental engineering, the different scientific methodologies, and European issues. This combination of skill and expertise is not available on any of the individual academic institutions.

Participant 1: Technische Universiteit Eindhoven (TUE)
The Technische Universiteit Eindhoven (TU/e) was established in 1956. It encompasses 9 scientific departments. The TUE provides 10 academic Bachelor programmes, 19 Master programmes, 10 postgraduate design programmes, 3 first degree teacher-training programmes in mathematics, physics and chemistry, as well as various other postgraduate courses and programmes.

The TUE supervises 9 research schools recognised by the Royal Netherlands Academy of Arts and Sciences (KNAW) and two of the six tops research schools and one of the four leading technological institutes. The TUE has approximately 220 professors, 6800 students, 200 postgraduate students, 450 PhD students, 20.000 graduate engineers and 1000 graduate design engineers. The TUE has awarded about 2000 PhD's.

The Technische Universiteit Eindhoven (TU/e) provides engineering, postgraduate design and teacher-training programmes and post-academic courses. Education is based on the universities own research activities with a focus on design. Lectures and project make use of modern information and communication means (all students are provided with a notebook when they enter the university). The faculty of architecture, building and planning offers master-studies in the field of structural engineering, building physics, building technology, construction and real estate manegement, architecture, urbanism and design systems.

The aim of the graduate specialisation in architecture, urban design and theory is to provide both of the craft of design, and of the conceptual and management aspect of the designer's profession. All graduate specialisation is sustained by the cooperation of disciplines. Workshops serve to extend and deepen course knowledge as well as to advance design and research themes. A couple of these these are multidisciplinary, calling for cooperation between specialities of urban design, architecture, and real estate management. Courses on regional planning and spatial planning are connected to GIS based spatial planning research (Design Decision Support Systems).

Final projects in the Master-phase of study are embedded in the research programme Architecture, Urbanism and Management, a substantial part of the PhD-Graduate and Research school USO-Built (see

below). The faculty of Architecture, Buildling and Planning is initiator of the META-University, an infrastructure to organize and regulate student mobility within Europe (http://www.metauniversity.tue.nl), a project adopted by the European Association for Architectural Education (EAAE).

A European project that the research group is currently involved in is the following:
"HOPE - HEALTH OPTIMISATION PROTOCOL FOR ENERGY-EFFICIENT BUILDINGS*",* EESD Programme (E.C. 5th FWP); *(2002-2004)*. HOPE's main objectives are to define a set of qualitative (prescriptive) and quantitative (measurable) performance criteria for healthy and energy efficient buildings in different European climatic conditions for direct input in CEN activities; To provide a protocol for testing the qualitative and quantitative set of performance criteria; To develop guidelines for improving a building that is not energy-efficient and unhealthy, into a healthy and energy-efficient building, from the north to the south of Europe, and from the east to west.

Scientist in charge: *Prof. dr. J.E.M.H. van Bronswijk, Professor, Public Health Engineering for the Built Environment*
Career and positions:
2001-present Initiator and director of USO-Built, International PhD-Graduate and Research school
2001-present Chief editor GERONTECHNOLOGY Journal
1991-present Professor, Technische Universiteit Eindhoven
1990-2000 Professor, Universiteit Utrecht
1972-1990 Lecturer at Universiteit Utrecht
1972 PhD in Biology at the Catholic University Nijmegen .

Key publications:
- MCL Snijders, LGH Koren, HSM Kort, JEMH van Bronswijk. 2001. Clean indoor air increases physical independence. A pilot study. Gerontechnology 1(2):124-127 [http://www.gerontechjournal.net]
- JEMH van Bronswijk, E Hasselaar, LGH Koren. Legionella Risk shows the Need for Guideline Innovation; An Example from the Netherlands. Gerontechnology 2001;1(1):65-67 [www.gerontechjournal.net]
- H Bouma, DG Bouwhuis, JEMH van Bronswijk. Gerontechnology unfolding. Pp. 187-205 in: TL Harrington, MK Harrington (eds), Gerontechnology. Why and How. Shaker, Maastricht 2000; ISBN 90-423-0107-4

Other supervisors
dr.ir. Henri H. Achten, Assistant-Professor, Domain: CAAD and design
- B de Vries, HH Achten. DDDoolz - designing with modular masses. Design Studies 2002; 23(6):515-531

dr.ir. Kees (C.H.) Doevendans, Associate-Professor, Domain: Urban Planning and Urban Design
Chairman of the working group 'Curriculum' (Ba-MA-Doctorates) of the European Association of Architectural Education (EAAE) and the European Network of Heads of Schools of Architecture (ENHSA).
- I Besteliu, K Doevendans. 2002. Planning, design and the postmodernity of Cities. Design Studies 23(3):233 -244

Prof.ir. Wim Zeiler, Professor Building Services Technology
- W Zeiler. 2001. Methodical Design Support for Life Cycle Assessment-Design. International J Applied Thermodynamics 4(2):77-83

Between 1999 and 2003 the Department of Arcitecture, Building and Planning produced about 30 PhD degrees. Besides normal facilities for education. staff, etc., individual workplaces including personal computer, software, etc. will be supplied. Students have also access to laboratory facilities.in Building Physics, Microbiology, Structural Engineering, Material Sciences, and laboratories for GIS, Virtual Reality and Information Design.

Participant 2 : Hogeschool voor Wetenschap & Kunst (WenK)
The School of Architecture Sint-Lucas is well known for its international focus and activities. Moreover, the most important Flemish architects are part of the School's staff. These aspects together create a very fruitful environment for early stage research training as it will confront the research student with the context and needs in practise, with international visiting staff and important designers, stimulating an increased understanding for the participating student.
The School has been coordinating many international projects in which the most important universities in the field of CAAD have been participating: {ACCOLADE} and MATOMIUM (both in the 5th Framework of Research) and AVOCAAD and AVOCAAD-MULTI (under Leonardo da Vinci). Moreover the School is coordinator of an Alfa-network in Architecture and is participating in EC-funded collaborations with North America and Japan. The projects {ACCOLADE} and MATOMIUM both brought together a mixed group of senior and junior staff to develop research agendas in the respective research domains. Especially the young researchers reported a stimulating and useful experience.

Scientist in charge: *Johan Verbeke, Head of School of Architecture St. Lucas*
He obtained his PhD in Sciences from the Katholieke Universiteit Leuven in 1991. Since then he has coordinated international projects in the field of CAAD: EC funded in the 5th Framework, or as Leonardo da Vinci projects. From 1st of March 2003 he is appointed as head of the School of Architecture Sint-Lucas. He has been expert for the European Commission for the 5th Framework of Research as well as for Leonardo da Vinci, for assessing as well as for reviewing. Recently he has been working on research processes, especially in the field of Architecture and Design. He is trying to develop design research in Architecture.

Key publications
- Verbeke J 2002. Gerard de Zeeuw and Architectural Research. System Research and Behavioral Science 19(2):159-166
- Verbeke J, Stellingwerff M. 2002. Relating to the 'real', Theories for and Experiences with Educational Database Systems. Koszewski K, Wrona S (eds). Design e-ducation, Connecting the Real and the Virtual. Proceedings of the 20th Conference on Education in Computer Aided Architectural Design in Europe. Warsaw. Pp 80-87.
- Verbeke J, Stellingwerff M (eds). 2001. {ACCOLADE}, Architecture – Collaboration – Design, European Workshop, August 2000, Brussels, Belgium. Delft: TUDelft Press

Other supervisors
Yves Schoonjans, chairing Theory and History
- Schoonjans Y. 2002. An enlightened freedom - The architectural magazines 'revue Générale' and 'L'Emulation' as a scientific framework for an eclectic designer-practice. ADDITIONS to architectural History: The 19th annual conference of the Society of Architectural Historians Australia and New Zealand', Brisbane 4 -7 October 2002

Marc Dujardin, in charge of research developments and is still practising architectural design
- Dujardin M. 2002. Architectural copying as a cultural practice: the case of Bhutan (architecture approached as a mimetic discipline). Architectural imitations from East to West. The Research Centre for culture, Utrecht

At the moment the group has 5 PhD studies running. The School will provide the infrastructure of its campuses in Brussels and in Ghent.

Participant 3: University of Strathclyde (USG-ESRU)
ESRU is a multidisciplinary group that was awarded 5 in the 2001 UK Research Assessment Exercise. The Unit, which is located within the Faculty of Engineering, deploys advanced ICT to address the following engineering challenges: energy systems as a holistic issue, environmental and social issues in the assessment of the cost/ performance of energy technologies, and interdisciplinary working. ESRU is a major contributor to Strathclyde University's successful Faculty-wide Masters course in Sustainable Engineering. In the belief that the fragmentation of the design and construction industry may best be overcome by embedding integrated modelling within energy sector companies; and that this, in turn, may best be achieved by targeting the teaching and learning needs of the student body, ESRU brings to the consortium its expertise in integrated building performance modelling and IT support for sustainable decision-making. The group already has a vast amount of teaching & learning material on this subject that could form the basis of common courseware and, of course, our software products (e.g. ESP-r) are available under open source licence.

Through the Scottish Energy Systems Group (see below), ESRU also has extensive industry links which will be used to provide realistic case study material for students or facilitate industry attachments. ESRU is also heavily committed to the Faculty of Engineering's Postgraduate Training Programme in Sustainable Engineering (Ms McElroy is the overall manager and Professor Clarke directs the Energy Systems and the Environment theme). This provides an apt structure to accommodate the needs of postgraduate exchange students - within the taught, team project or research components of the programme.

Scientist in charge: *Prof J A Clarke, BSc, PhD*, Director of ESRU.
Professor Clarke is Past President of the International Building Performance Simulation Association (IBPSA) and Past Chairman of the Building Environmental Performance Assessment Club (BEPAC). He is responsible for the university's Enviro-Mechanical and Energy Systems and the Environment programmes and has managed an extensive portfolio of research.

Key publications:
- Clarke JA. 2001. Energy Simulation in Building Design (2nd Edn): Butterworth-Heinemann, Oxford.
- Stefani L, Clarke JA, Littlejohn AH. 2002. Developing a Student Centered Approach to Reflective Learning. Journal of Innovations in Education and Training International 37(2).

Other supervisors:

Ms Lori McElroy, BSc, MSc is Director of the Scottish Energy Systems Group, an initiative set up by ESRU with the aim of transferring new technologies to business in order to fulfill the aims and objectives outlined above. She is also Programme Manager for the Faculty of Engineering's Sustainable Engineering postgraduate programme and as Chairman of CIBSE Scotland is a member of CIBSE Council.

- McElroy LB, Clarke JA, Hand JW, Macdonald IA. 2001. Delivering Simulation to the Profession: The Next Stage? Lamberts R, et al. (eds). Proceedings Building Simulation 2001, 7th International IBPSA Conference, Rio de Janeiro. Pp. 831-836

Participant 4: Middle East Technical University (METU)

The METU Department of Architecture (see: www.archweb.metu.edu.tr) is situated in the University Campus of METU which has the faculties of Architecture, Engineering, Administrative Sciences, Arts and Sciences, and Educational Sciences. The Campus has all kinds of facilities (including lodging) which support academic life.

The Department has three doctorate programs: Architectural Design, Building Science, Restoration and Conservation. There are 10 full-time professors, 14 full-time associate professors, and 7 assistant professors, all with Ph.D. degrees. Of the 20 instructors, 12 have Ph.D. degrees.

The Department had international collaboration in the form of workshop, symposium, hosting exhibitions, and field study (EAAE Workshop on Neo-Vernacular Architecture **(1982)**; IAPS Conference **(1987)**; exhibition of urban design – for 5 Greek cities – by of NTUA, Athens, and Milan Polytechnique and joint symposium (2000); exhibition and panel on 20th Century Greek Architecture by the Hellenic Institute of Architecture (2002); joint fieldwork with Columbia University, U.S., in southwestern Turkey on local traditional architecture and changing up life-styles (1974); C.I.B. Symposium prepared for September 2003; collaboration with the Bari Polytechnique, Italy, with the participation of some staff in a project on the City of Urfa, southeastern Turkey.

Scientist in charge: Selahattin Önür PhD, Associate Professor, Department of Architecture
Graduate of M.E.T.U. Department of Architecture (B.Arch) and Essex University, England (M.A.); academic member of M.E.T.U., since 1972; visiting lecturer for two years in Jordan, Yarmouk University (1983); Ph.D from M.E.T.U. with the thesis titled “Architectural Experiences and Experiments in the Public Sphere since W.W.2”; main area of academic research in architectural theories of form and architecture in the public sphere; academic teaching related with principles of design and historical study of the phenomenon of architecture with its variables and constants; Head of Architectural Design Division (1994-8); carrying out administrative duty as Chairperson of the M.E.T.U. Department of Architecture since 1998.

Key publications:

- Önür, S., “An Inner-City Resource for Regenerating the Public Domain”. IAPS 14 Conference on Evolving Environmental Ideals: Changing Ways of Life, Values and Design Practices, July 30 – August 3, 1996, Stockholm.

Other supervisors:

Güven Sargın Assistant professor, domain: Cultural studies

- Sargin, G.A. “Nature of Resistance and Counter-hegemony in Post-industrial Society,” in Nature as Space: (re) Understanding Nature and the Natural Environments, 2000-December, ed. Sargın, G. A., METU MfY Press, Ankara, pp. 59-79.

Dr. Gül Asatekin, Associate professor, domain Theory of restoration/conservation, Middle East Technical University; expertise: traditional residential architecture in Anatolia, conservation education

- Asatekin, G. “User/Space Relationships and the Use of Furniture in the Traditional Residential Architecture in Anatolia”, *Housing Cultures: Convergence and Diversity*, 2002, international congress, ENHR European Network for Housing Research / Europaforum, Vienna, pp. 221-230.

Dr. Ali İhsan Ünay, Assoc.Prof.Dr. Domain: Structural analysis of historical structures, Structural system solutions in architectural design, Earthquake resistant building design in architecture, Structural morphology, Finite element analysis of structures.

- Unay, A. I., Atimtay, E., “Developing Earthquake Consciousness in the Architect”, Architecture and Engineering The teaching of Architecture for Multidisciplinary Practice, Ed. by M. Voyatzaki, pp 267-270, Thessaloniki, 1999 (ISBN: 2-930301-00-7)

A*li Cengizkan***,** PhD, Domain: housing design and history; history of planning of Ankara; Hittite settlements and housing; emergency housing in Turkey after the World War I.

- Cengizkan, A. "Amasya: Transformation of An Ancient Anatolian Town", in ISUF Conference 1999: Transformations of Urban Form: From Interpretations to Methodologies in Practice, (1999), ed. by Roberto Corona and Gian Luigi Maffei, Florence, Italy; July 1999; L 8 - L 11.

F. Cânâ Bilsel, Asst.Prof.Dr. Domain: Architecture of public realm and urban design, history of cities and urbanism: 19th century Ottoman city and republican urbanism in Turkey in particular, urban morphology and architectural design in historical context.

- Bilsel, Cânâ, "Three recent settlements in Ankara: Batıkent, Eryaman and Bilkent, questions on quality and sustainability of the built environment", IAPS 16, Metropolis 2000, Paris July 4th-7th, Proceedings, Which perspectives? Cities, Social Life, G. Moser, E. Pol, Y. Bernard, M. Bonnes, J. Corraliza, M.V. Giulianni, Paris, 2000

Gönül A. Evyapan , Prof.Dr., Domain: Architecture and Landscape Design and History of Landscape Design.

- G.A. Evyapan, "The Use and Elements of Water Turkish Anatolian Tradition Landscapes of Water, Proceedings of the International Conference, Monopoli, 26-29 September, 2002.

During the last three years 9 PhD. theses were completed. The Ph.D. programs were initiated in 1976. Since then the Department has been dealing with the training of early stage researchers in the programs mentioned.
At present there are 37 Ph.D. students in the Architectural Design Program, 13 in Building Science, and 2 in Restoration and Conservation (52 in all). Considering the staff who have been presented, with an average of 2-3 per member, about 35 students can be given training at the same time, for the necessary mentoring regarding the proposed doctorate 3-5 student can be hosted.
The Department has sufficient infrastructure in connection with the University facilities (Computer and library functions, with ease of access). The official language of education is English, which makes it convenient for foreign students and researchers.

Participant 5: Politechnika Warszawska - Warsaw University of Technology (PW)
The Faculty of Architecture is one of the 17 faculties of Warsaw University of Technology, with a total student enrolment of about 1250 and an academic staff of 130, including 25 professors, many of whom are nationally recognised architects with considerable creative achievements. This is also one of the largest schools of architecture in the country, established in 1915.

The Faculty of Architecture's facilities and resources include a computer laboratories (34 terminals for students) and drawing, painting, sculpture and modelling rooms; a large faculty library (45 000 volumes) networked with the general university library computer system and the Internet. A new Virtual Environment Laboratory is being prepared with additional 15 terminals for students and high performance computing.

The Faculty is a member of the European Association for Architectural Education (EAAE), European Conference on Education in Computer Aided Architectural Design (ECAADE), Association of European Schools of Planning (AESOP), as well as in the USA - Association of Collegiate Schools of Architecture (ACSA) and Association for Computer Aided Design in Architecture (ACADIA).

The Faculty of Architecture, apart from undergraduate and graduate studies in Architecture and Urban Design, offers a 4-year advanced-level studies leading towards „doctor nauk technicznych" (equivalent to PhD). Also, the Faculty offers 2-year part-time postgraduate studies in the Preservation of Historical Buildings and Monuments and Urban Design and Physical Planning, for practising professionals.

Students are offered an individual supervision of the tutor, facultative program of chosen courses and monthly review of the progress made, during doctorate seminars. Students of architecture have opportunities of studying, for a year or a semester, at various architectural schools with which the Faculty cooperates. Students exchange within SOCRATES scheme are carried with 19 European universities. Also, the student exchange program between the Faculty of Architecture, WUT and the School of Architecture, University of Detroit Mercy, USA has been carried since 1980. Annually, ten students plus one teacher from both schools have the opportunity to study and to teach for a semester at the partner university.

Staff members of the Faculty have been granted, carried and successfully completed two Tempus project: one on development of international student exchange and the Joint European project 12221/97 on development of undergraduate studies and curriculum development. The international conference ECAADE 2002 – "DesignE-ducation: connecting the Real and the Virtual" with over 120 participants from 31 countries was organised by the Faculty in September 2002.

The scientific research policy includes the following fields: ***sustainable development*** in architecture and urban design along with its ecological issues; the adaptation of architectural/urban space for disabled people; housing management, economics of housing construction, revalorization and modernisation of architecture and urban planning; new structures, construction technologies and building services, CAD systems and techniques in architectural and urban design.

Scientist in charge: *Prof.Ph.D.Arch. Zygmunt C.Szparkowski*; *Full Professor of Faculty of Architecture*

Zygmunt Szparkowski is presently Director of the doctorate studies at the Faculty of Architecture and has conferred 7 doctors' degrees. He is initiator of several seminaries for doctorate students at the Faculty. He is initiator and director of The Ecological Industrial Design Laboratory. His work reflects the link between scientific education, scientific research and industrial utilization.

Key publications:

- The modern factory architecture (2000) Warsaw University of Technology Publication (book, 220 pages, 127 illustrations, A4 format)
- Architectural problems of double glazed facades based on the examples of newly accomplished buildings in Warsaw (2001) - Conference proceedings, Sustainable Building 2001 – Maastricht Holland, 10 pages
- Standard models as the sustained response on industrial buildings pathology impact in the work environment (2003) – 2nd CIB/W 086 International Symposium Building Pathology, Durability and Rehabilitation. Publications on CD & Symposium Book 10 pages. Lisbon Portugal

***Other supervisors**:*

Prof.Ph.D. Arch. (Full Prof.) Jan M. Chmielewski, chair City and Urban Planning.

- The Urban Theory (2000) – book, pages 332, illustrations 332, Warsaw University of Technology Publishing.

Prof.Ph.D. Arch. (Full Prof.) Jadwiga Roguska, chair History of Architecture, Modernisation of Historical Architecture

- The Warsaw Inhabitant Buildings plans and form evolution in the second half of XIX c. and in the beginnings of XX c. (2001-2002) – The scientific works of Faculty of Architecture the Warsaw University of Technology part III. pages 65 – 80.

Prof.Ph.D.Arch. (Full Prof.) – Wiktor Werner, chair Economy of Architectural Design.
Lectures, Seminaries, Laboratories at the Post Graduate Studies.

- The Management in the Investment Process (2000) – book, pages 192 – Warsaw University of Technology Publishing.

Participant 6: Faculdade de Engenharia da Universidade do Porto (FEUP)

FEUP is the second largest school of engineering in Portugal. It has over 5500 Degree and Master students, 358 active doctorate students and 426 Teachers. The Department of Mechanical Engineering with roughly one fourth of those figures has, among others, a tradition of interacting with civil engineering, architecture and urban planning to address interdisciplinary issues at the building and urban level starting from the energy and comfort perspectives.. The IAQ and Sustainable Built Environment research group focus its activities on two major areas: (i) Indoor Air Quality (IAQ) assessment in buildings, clean products development, and energy use implications of different strategies; and (ii) Defining and identifying indicators and criteria for sustainable built environments, and modeling urban systems to enhance their energy/environment performance.

The Department of Mechanical Engineering is currently involved in 4 EU funded European networks, and has recently completed 2 others successfully. Starting with efficient energy networks and energy-efficient buildings, the emphasis in the latest developments has been put in the definition of indicators and related criteria and targets for what could be a sustainable environment and, more specifically, a sustainable urban environment. As energy is definitely the major environmental pressure factor at all levels (local, regional and global), most of our activity has been focused on what could be called energy-related environmental issues. Due to the fact of our work has been connected to actual urban case studies, our publications have been mostly reports, some of which published in Portuguese or English, and conference key-notes. However, contributions at a more theoretical / academic level in refereed journals have only recently be aimed at.

***Scientist in Charge:** Eduardo de Oliveira Fernandes PhD, Full Professor, Mechanical Engineering*

1975 – present	Professor - Department of Mechanical Engineering - Faculty of Engineering - University of Porto;
1974 – 1980	Visiting Professor - Department of Environmental Engineering - University of Aveiro
1974	Assistant-Professor - University of Lourenço Marques - Mozambique

Key-publications

- Bluyssen PM, Fernandes EO. 2003. Why, when and how do HVAC-systems pollute the indoor environment and what to do about it. Indoor Air 38(2) (in press).
- Oliveira Fernandes E de. 2000. Energy Use and Links with Air Quality. Kephalopoulos S, Jantunen M, Kotzias D (ed). Workshop on Urban Air, Indoor Environment and Human Exposure. Thessaloniki: EUR 19646 EN; April 2000. Pp 146-150.
- Bluyssen PM, Fernandes EO, Groes L., Clausen G, Fanger PO, Valbjorn O, Bernhard CA, Roulet CA. 1996. European Indoor Air Quality audit project in 56 Office Buildings. Indoor Air 6:221-238.

Other Supervisors

Armando Manuel da Silva Santos, PhD, Associate Professor

- Silva GVA, Vasconcelos MTSD, Santos AM, Fernandes EO. 2002. Volatile organic compound emission from a latex paint - influence of the substrate. Environmental Science and Pollution Research 3:166-167

Between 1999 and 2002 Prof. Oliveira Fernandes supervised 2 doctorate degrees. Facilities available for doctorate students in the USO-Built context include access to the information network (computer, library) and proper office kind of facilities, as well as workspace in laboratories on IAQ and Building Energy Systems.

Participant 7: Kungl Tekniska Högskolan (KTH)
The Royal Institute of Technology, KTH, is Sweden's largest technical university, with over 11,000 architectural, Master or Bachelor of Science students, 1,500 active doctorate students and a staff of 3,100 people. KTH conducts education and research in the sciences and technology, architecture, industrial economics, urban planning, work science and environmental technology. In 2002, KTH produced 202 PhD's, published 972 refereed international articles and had a turnover of 290 million EUR.
KTH has research and educational exchange with Europe, the USA, Australia and Southeast Asia. The ambition is to play an even stronger role in the EU research programs than today. Joint efforts with the Swedish International Development Agency and others are also part of the international program. At present, KTH has 200 Erasmus agreements with European institutions, and furthermore a large number of bilateral agreements with universities all over the world.
Summarizing, KTH is both a challenging and a multidisciplinary environment for early-stage research training.

The core competence for doctorate education within the USO-Built theme is found at the Department of Infrastructure, including its research school. Its Division of Urban Studies is focused on Governance and People-Environment Studies, providing supervisors, regular seminars, courses etc. Related research competence can also be found at the Departments of Civil and Architectural Engineering, Industrial Economics and Management and Land and Water Resources Engineering.

Scientist in charge*: Folke Snickars, Professor, Regional Planning*

2001- present	Dean of the School of Industrial Economics and Management, Surveying and Civil Engineering, KTH
1995	Holder of Belle van Zuylen Chair, University of Utrecht.
1993-present	Managing editor, Springer book series Advances in Spatial Science.

Key-publications
- Snickars F, Persson L-O & Olerup B (eds). 2002. Reshaping Regional Planning. Aldershot: Ashgate;
- Fischer M, Revilla Diez J, Snickars F. 2001. Metropolitan Innovation Systems – Theory and Evidence from Three Metropolitan Regions in Europe. Heidelberg: Springer
- Beckmann M, Johansson B, Snickars F, Thord R (eds). 1999. The economics of networks and knowledge. Heidelberg: Springer

Other supervisors
Göran Cars, Associate Professor, Regional Planning
- Cars G, Healey P, Madanipour A, de Magalhaes C. 2002. Urban Governance, Institutional Capacity and Social Milieux. Aldershot: Ashgate

Dick Urban Vestbro, Professor, Built Environment Analysis
- Vestbro DU. 2002. Architecture as Politics. The Role of Design and Planning for Peace and Sustainable Development, ARC•PEACE International Architects Designers Planners for Social Responsibility in collaboration with the Div. of Urban Studies/Built Environment Analysis, The Royal Institute of Technology, Stockholm (editor and author of two chapters).

Gudni Jóhannesson, Professor, Building Technology
- Jóhannesson G. 1998. Thermal Modelling of buildings - From Theory to Practical Engineering. Bauphysik - Berichte aus Forschung und Praxis - Festschrift zum 60. Geburtstag von Karl Gertis. Stuttgart: Fraunhofer IRB

Between 1999 and 2003, the four departments produced about 120 PhD degrees, 40 of which at the Department of Infrastructure. At present, the School of Industrial Economics and Management, Surveying and Civil Engineering has 395 active Ph.D. students, of which 130 within the Department of Infrastructure. Within the units so far contacted, at least 4-5 more students could be supervised. Besides normal facilities for education, staff etc., individual workplaces including personal computer, software etc will be supplied.

Participant 8: National and Kapodistrian University of Athens (NKUA)
The NKUA and in particular the Group of Building Environmental Studies is active on the field of solar energy, energy efficiency and energy conservation in buildings. The group is carrying out research, specialized studies, application projects, education, and dissemination on the above field as well as on topics related to renewable energy sources. The Group has co-ordinated some of the more important European research projects on the field of energy rehabilitation of buildings like PASCOOL and OFFICE. It has also participated in many specialised research projects on this field as well as on the field of intelligent control of buildings, day-lighting and advanced glazing like, BUILTECH, GENESYS, DAYLIGHT EUROPE, WIS, etc. In parallel

the group has carried out specialized projects, in the frame of the SAVE project, aiming to reduce energy consumption due to lighting in the building sector. Studies involve intelligent control, artificial lighting, advanced materials, etc. The group has undertaken specific educational activities and through international and national projects has developed specialized educational packages published by international publishers, (Passive Cooling of Buildings, Natural Ventilation, Energy in the Urban Environment). Finally, the group in collaboration with the Central Institution for Energy Efficiency Education has undertaken specific dissemination actions addressed to energy experts, managers and engineers.

Scientist in charge: *Matthew Santamouris, Associate Professor in Physics*
2000 – present Associate Professor, Physics Department, University of Athens
1998 –present Visiting Professor to the School of Architecture, Low Energy Unit, University of North London, UK
1994-2000 Assistant Professor, Physics Department, University of Athens. Lecturer Physics Department, University of Athens
1986-1990 Director of the Society for Appropriate Technologies Ltd; Project Manager of many energy conservation and renewable energies projects in Europe and elsewhere
1985-1990 Participation and Expert to Various Renewable Energies Related Projects. Professor of Energy Systems and Renewable Energies. Technical Educational Institute of Pireas. Greece

Key-publications
- Santamouris M (ed). Energy in the Urban Environment. London: James and James; 2001
- Santamouris M. Building Urban Climatology. Gaston: BRE Publishers; 1999
- Santamouris M. Energy Rehabilitation of Offices. London: James and James; 1999

Other supervisors:
Demosthenes Asimakopoulos, Professor and Chairman of the Physics Department, University of Athens
- Asimakopoulos DN. 2000. Potential for energy conservation in apartment buildings. Energy and Buildings 31:143-154.

Dr. Vasiliki D. Assimakopoulos.
- Assimakopoulos VD, Helmis CG. 2003. On the study of a sick building-The case of the Athens Air Traffic Control Tower. Accepted for publication, Journal of Energy and Buildings.

Between 1995 and 2000 The group on Building Environment Studies produced about 4 doctorate degrees. Facilities available for doctorate students include access to the information network (computer, library) and proper office kind of facilities, as well as workspace in laboratories on IAQ and Building Energy Systems.

Participant 9: Norwegian University of Science and Technology (NTNU)
The Norwegian University of Science and Technology (NTNU) is the only technical university in Norway, with 20 000 students and a staff of 3300. The Department of Architectural Design, History, and Technology, with a scientific staff of 12, is a part of the Faculty of Architecture and Fine Art. The department, with its affiliated research group at SINTEF (The Foundation for Scientific and Technical Research at the Norwegian Institute of Technology), has been doing research on energy conservation and the use of solar energy in buildings for more than 25 years, focusing on whole building design, with the architectural and building integration of the energy systems as key elements. They have been participating in a large number of research projects within the IEA and have had a leading role in several of these. They have also been participating in a number of EU projects, both on research and on dissemination to the building community.

Scientist in Charge: *Professor Anne Grete Hestnes*
Professor Hestnes has the chair of Building Technology and is presently also Dean of the Faculty of Architecture and Fine Art. She was educated at M.I.T. and UC Berkeley and has more than 25 years of experience in teaching, research, and development within the field.

Key publications
- Hestnes AG, Kofoed NU. Effective Retrofitting Scenarios for Energy Efficiency and Comfort: Results of the Design and Evaluation Activities within the OFFICE project. Building and Environment 2002; 37(6):569-574
- Winther BN, Hestnes AG. Solar vs Green: The Analysis of a Norwegian Row House. Solar Energy 1999; 66(6):387-393
- Hestnes AG. Building Integration of Solar Energy Systems. Solar Energy 1999; 67(4-6):181-189

***Other supervisors*:**
Professor Ø.Aschehoug, Professor of Building Physics
- Matusiak B, Aschehoug Ø. Daylighting Strategies for an Infinitely Long Atrium. Lighting Research and Technology 1999; 31(1): 23-34.

Professor H.Høyem, Professor of Architectural Design
- Høyem H, Erring BB, Vinsrygg S (eds). The Horizontal Skyscraper. Tapir Akademisk Forlag; Trondheim; 2002.

At present there are 12 PhD students at the department. The faculty as a whole has a number of PhD students also from other countries, including quite a few from developing countries, so many of the PhD courses are taught in English. The university in general has good experience also with Marie Curie training sites, as they have filled 14 such sites already.

All PhD students are supplied with individual workplaces, computers with standard software, internet connections, and library access.

Participant 10: Politecnico di Torino, Prima facoltà di Architettura (PdT)
The Politecnico di Torino is a public university devoted to technical-scientific and managerial education. The Politecnico di Torino has three Schools of Engineering, two Schools of Architecture, a School of Economics and Management, plus a Graduate School, and some fully equipped laboratories and computer centers.

With about 700 research-project contracts in collaboration with industries and government-funded institutions, special care is taken to ensure that basic research work, supported by the Ministry of University and of Scientific and Technological Research goes hand in hand with qualified applied research projects supported by numerous contracts stipulated with private firms and public bodies.

The core expertise for research training and doctorate education within the USO-Built program will be found in the Departments of Architectural Design (Dipartimento di Progettazione Architettonica - DIPRA) and Energetics (Dipartimento di Energetica – DIE), both participating with their doctorate courses in Architecture and Built Environment (DIPRA) – in which aspects issues as urban change, citizens' participation, communication and advanced VR for urban simulation are currently addressed – and Innovation and sustainability (DIE) – in which research is mainly focused on the sustainability and usability of innovative technologies for building and energy control. Related competence can be also found in the joint doctorate program of the Territory Department (Dipartimento Interateneo Territorio – DITER), concerning the fields of urban geography.

Since 2001, PdT has financed a joint advanced laboratory hosted by DIPRA in cooperation with DITER, with VR immersive CAVE technologies allowing research and experiments in urban simulation, VR of built environments and landscapes, responsive modeling etc. The laboratory is accessible to young researcher and provides an outstanding research infrastructure for advanced urban studies.
Since year 1999 DIE runs an advanced laboratory for energy management in building, that allows young researchers to lead tests and experiments on energy management and control, especially in the field of the use of natural lighting (an artificial full sky is available for model testing of design solutions).

Scientist in charge: *Prof. Arch. Matteo Robiglio*
Matteo Robiglio (1966) is from 1999 researcher at the Department of Architectural Design (DIPRA) of Turin Polytecnic. In June 2001 he qualified for associate professor.
He is member of the board of the Doctorate programme in Architecture of the Turin Polytecnic, where he is supervisor for research in the field of infrastructural, urban and landscape design. He promoted and co-ordinates from 1999 with Aimaro Isola the first Italian research network on infrastructure architecture (In.Fra). He also has doen studies about the impact of ICT technologies on urban landscapes and the possibilities of using new techniques for fostering citizen's participation and design quality in urban transformation processes. He has been member of the editorial staff of the *Dizionario dell'Architettura del XX secolo* (Allemandi 2001), is from 2001 editor in chief for the infrastructures section of *Architettura del Paesaggio*, official review of the Italian Association of Landscapers (EFLA, IFLA), and is editor of the monthly magazine "Il giornale dell'Architettura", published since 2002 by editor Umberto Allemandi.
He is co-founder and vice-president of *Avventura Urbana* first-born and leading Italian agency in community planning and architecture, in which he is responsible for urban design and mobility design, with consistent research and design experience on infrastructures and landscaping.

Key publications:
- Caneparo L, Robiglio M. 2001. Evolutionary Automata for Suburban Form Simulation. de Vries B, van Leeuwen J, Achten H. (eds). Proceedings of CAAD Futures. Dordrecht, Kluwer Academic Publishers. Pp. 767-780.
- Ambrosini G, Bazzanella L, De Rossi A, Durbiano G, Giammarco C, Isola A, Reinerio L, Rigamonti R, Robiglio M. 2003. *Forme Insediative e infrastrutture. Atlante.* Marsilio, Venezia.
- Sclavi M (ed.), Romano I, Guercio S, Pillon A, Robiglio M, Toussaint I. 2002. *Avventure Urbane. Progettare la città con gli abitanti.* Elèuthera, Milano.

Other supervisors
Prof. Ing. Marco Filippi
Graduated in Mechanical Engineering, he is full professor at the Polytechnic of Turin, where he teaches Fisica Tecnica Ambientale (Building Physics and Indoor Environment Engineering), he is a member of the

Academic Senate, vice-dean of the Faculty of Architecture I and coordinator of the PhD School "Technological Innovation in Architecture and Industrial design".
From 1993 to 1995 he was president of the AICARR (Associazione Italiana Condizionamento dell'Aria Riscaldamento Refrigerazione), president of the national standard committee for air conditioning and refrigeration and editor of the monthly magazine "Condizionamento dell'aria".
At present he is a member of CTI (Italian Thermotechnical Committee), member of the Commission "Air Conditioning" in the IRR (International Institute of Refrigeration).He is honorary member of AICARR and member of the ASHRAE (American Society of Heating Refrigeration and Air Conditioning Engineers).
-Filippi M., Serra V., Ruggeri B., Mana F. Moro A., Dotta S., Grosso M., Masoero M., Guidelines for sustainable Olympic Villages in Torino 2006, in Sustainable Building 2002, Proc. Intern. Conf., Oslo, Norway, September 23-25, 2002

Dr. Arch. Luca Caneparo
Luca Caneparo is researcher at the Department of Architectural Design, Politecnico di Torino, responsible for R&D of ICT for design in the managing board of the High Quality Laboratory - Territorial Integrated Project of the Politecnico di Torino, member of the reviewing committee of the CAAD Futures Conference, responsible of research groups in three European projects focused on ICT and design.
- De Grassi M, Giretti A, Bazzanella L, Caneparo L. 2003. The AEC Virtual University. Design Oriented Knowledge Transfer Methods and Technologies. Chiu M. et al. (eds). Digital Design, Proceedings of CAAD Futures. Dordrecht: Kluwer Academic Publishers. In print.

Participant 11: The Chancellor, Masters and Scholars of the University of Cambridge (UCAM)
University of Cambridge, Cambridge, UK, The Martin Centre
The Martin Centre for Architectural and Urban Studies, based at the Department of Architecture in the University of Cambridge, was established in 1967. It was the first group carrying out funded research in architecture in the UK, and has a well-established track-record in built-environment research in particular. The Centre also supports two Masters courses in the built environment, a research studio, the regional office for Continual Professional Development for architects, as well as research and teaching staff. It is ideally placed to support early stage research training, drawing on the in-house expertise in post-graduate teaching and research. it has an active programme of postgraduate studies leading to an MPhil degree, and accepts PhD students who wish to pursue individual research topics.

Three principles underpin the work of the Centre: a respect for architectural history and precedent, the use of advanced mathematical and computer models, and a profound sense of responsibility towards the environment, both natural and man-made.
Past topics include space planning, urban and regional dynamics, construction in the developing world, disaster mitigation, architectural acoustics, day-lighting and natural ventilation. Currently the broad area of Environmentally Responsible Building is a main theme. This includes making the best use of naturally available energy (sunlight, daylight and natural ventilation), and controlling the energy cost and environmental damage of construction itself. Another theme is research into architectural CAD, which seeks to bring the computer into play, not as a design automaton, but as an effective graphical medium for design, communication and simulation. Further themes are concerned with the recording, analysis and care of historic buildings, and the mitigation of the risk of disasters.

Scientist in charge: *Dr. Koen Steemers*
Dr Steemers is the Director of the Martin Centre for Architectural and Urban Studies at the University of Cambridge, a Senior Lecturer in the Department of Architecture, and a Director of Cambridge Architectural Research Limited. He is a registered architect, with experience of practice in the UK, Germany and the Netherlands. He has a PhD in Energy Efficient Urban Design, lectures in Environmental Design and consults on major international design projects with practices such as Richard Rogers Partnership and Ove Arup & Partners.
Projects include Berlin (Potsdamer Platz), Shanghai (new CBD), Sydney
(Olympic Stadium) and Zaanstad, NL (urban housing). His academic work
includes funded research projects (over £1 million in recent years) in the UK, Europe and the United States which focus primarily on climate change and the environmental performance of building and urban design. He is currently involved in three climate change research projects (incl. coordination of 'Sustainable Building Form'), four European projects (incl. 'Photovoltaics in Cities', 'EnerBuild' and 'Urban Comfort Research') and a joint Cambridge (UK)-MIT (USA) project on Energy Efficient Building Design.

The Martin Centre has collaborated internationally over many years, both in the EU, through European funded research projects, but also more widely with the US, Japan, China, Australia - on a series of industrially sponsored research projects. The particular experience of the Director in this context is mentioned above.

Key publications
- Steemers K. 2003. Energy and the City: Density, buildings and transport. Energy and Buildings 35(5):3-14.

- Parpairi K, Baker N, Steemers K, Compagnon R. 2002. The luminance
difference index: a new indicator of user preferences in daylit spaces. Lighting Research and Technology 34(1):53-68
- N Baker, K Steemers 2001. Daylighting Design of Buildings: A Handbook for Architects and Engineers. James+James. ISBN 1873936885

Participant 12: University of Strathclyde (USG-ABAC)
Research training will be within a Research Unit (ABACUS) located in one of the largest Engineering Faculties in the UK. ABACUS is a multidisciplinary research group which was awarded the top rating of 5* in the 2001 UK Research Assessment Exercise. The research themes currently active in ABACUS include: distributed design decision support, virtual reality in design, rapid prototyping, design for disability, user participation in design and virtual heritage. ABACUS offers a highly successful Msc/PGDip course in Computer Aided Building Design that attracts students from throughout Europe.

Both ABACUS and ESRU (see participant 15) have participated over the last 15 years in a wide range of EU Programs including ERASMUS, SOCRATES, COMET, LEONARDO, +++++. Between them, ABACUS and ESRU are currently training 12 PhD students.

Scientist in charge: Prof T W Maver, BSc, PhD, Hon FRIAS
Prof Maver has the Chair of Computer Aided Design in the Department of Architecture and Building Science in the Faculty of Engineering at the University of Strathclyde. He is Director of the Graduate School and until recently was Vice-Dean of the Faculty. He is Director of ABACUS, a research unit which achieved the maximum rating of 5* in the UK 2001 Research Assessment Exercise. Recent publications include:

Key publications
- Ucelli G, Conti G, Petric J, Maver T. 202. Real Esperiences of Virtual Worlds. Proceedings of International Design Conference – Design 2002, Dubovnik; ISBN 953-6313-46-4
- Petric J, Maver T, Conti G, Ucelli G, K Agger et al (ed). 2002. Virtual Reality in the Service of User Participation in Architecture. Distributing Knowledge in Building. Proceedings of CIB W78 Conference Aarhus 2002: ISBN 87-90078-34-9.
- Dimitrijevic B, Langford D, MacLeod I, Maver, T. 2002. An Assessment Tool for the Durability, Adaptability and Energy Conservation of Buildings. 9th International Conference on Durability of Buildings and Components (CD-Rom paper 140 (10 pages) Brisbane, (March) 2002

Other supervisors:
Dr. J. Petric, BSc, PhD is a member of ABACUS and has 20 years experience of research in the field of CAD.
- Petric J. 2002. Real Teaching and Learning Through VR : 2002. Proceedings of 20th ECAADE Conference 2002, Warsaw. ISBN 0954 118 308. Pp 72-79.

Staff and students have access to excellent Information Technologies including an immersive Virtual Environment Laboratory and a Rapid Prototype facility.

Participant 13: Center for People and Buildings, Delft
The Center for People and Buildings is an independent, not for profit knowledge foundation based in Delft, The Netherlands. The center concerns itself with the relation between people, their work and working environment and aims at the promotion of research, product development and the transfer of knowledge in this field.

People, work and environments - The Center for People and Buildings aims to acquire and transfer knowledge on the relation between people, their work and the work environment.
Border-crossing research - Within the research programme, the knowledge-center establishes occasional and structural forms of collaborations with various research disciplines and experts with practical experience.
Product development - The deliverables of the research programme are well-structured ideas for innovative methods, products and services. The Center for People and Buildings creates the contours, but is not the commercial supplier of methods, products of services.
Transfer of knowledge - The acquired knowledge from the research programme is distributed through conferences, scientific journals and magazines. The knowledge-center organises lectures, courses and internal workshops.
Science and practice - In the work of the Center for People and Buildings the basic deepening of knowledge and its practical applicability are equally important. Without proper knowledge of people in their work environments or practical experience neither a balanced housing policy nor the spreading and extension of this knowledge will be possible.
People - In order to generate knowledge, the Center for People and Buildings needs the support of people and organisations that are willing to help with the development of knowledge. The cooperative development and exchange of knowledge is one of the main objectives of the knowledge-center

The Center for People and Buildings brings experience and expertise from the following national and international projects:

- costs and benefits of innovative workplaces: a study on measures and measurability of satisfaction, productivity and facility costs of innovative workplaces and a study of the applicability of economic methods to workplace innovations (focus on productivity both macro and micro economic)
- development of a work environment diagnosis instrument in the public sector: help to discover which interventions are necessary to develop changes in the organisation, workprocesses, culture or technics and to verify and consolidate the effects of those interventions
- role of the workplace in human resource management: a study on trends in HRM and the role of the workplace in recruitment, culture change and image of the organisation
- behavior and workplace typology: describe behavior patterns in organisations with respect to functions and work environment demands
- decision support tool for innovative workplaces: research on tools that can be used to support the decision making process undertaken to develop innovative workplaces
- public and (work)place: understand the role of the workplace in recruitment, efficiency and quality of services (in mutual relation) in the public sector (e.g. healthcare, education, defence, government, …)
- definition study health and work environment: an overview of the effects of introduction of innovative workplace concepts on the health and well being of the employee (sustainable vitality)

Scientist in charge:

Wim Pullen, MSc (1956) studied Geodesy at Delft University of Technology. After his graduation he joined the Dutch Government Buildings Agency were he became research-director in 1994. Since 2001 he is director at the Center for People and Buildings and on the board of various international research consortia on real estate and facility management. His expertise is in workplace economics, HRM and knowledge management

Key publications:

- Pullen, W.R. (2001), *Flexibility in the workplace: instrumental or creative?* in Journal of Corporate Real Estate, Volume 3, Number 2, pp. 121-132.
- Pullen, W.R. *Knowledge society, workplace and sustainability,* Sustainable Accommodations for productive organizations, Proceedings of First BIDS Europe conference, London October 31,2002
- Wilson, C, Leckman, J, Cappucino, K. Pullen, W.R., *Towards Customer Delight: Added Value in Public Sector Real Estate*, Journal of Corporate Real Estate, vol 3 no 3 (2001).

Other supervisors:

Theo van der Voordt, PhD is Assistant Professor and senior researcher at the Faculty of Architecture of the Delft University of Technology and the Center for People and Buildings. His research interests focus on briefing and evaluation, particularly with reference to the interaction between consumer's preferences and behavior and characteristics of the built environment. He published many papers and reports on crime prevention through environmental design and universal design. Nowadays he is involved in corporate real estate issues, such as the new workplace.

Juriaan van Meel, PhD is Assistant Professor at the Department of Real Estate and Housing of Delft University of Technology. He specializes in the briefing and design of office buildings. He has written a number of articles and books on office design, among which 'The Office, the whole office and nothing but the office' (1999) and 'The European Office' (2000). Juriaan is also partner at ICOP a Dutch workplace consultancy firm. He often lectures while representing the Center for People and Buildings.

Hermen Jan van Ree, MSc, studied Architecture at Delft University of Technology. After his graduation he worked as a visiting researcher at the Center for Building Performance and Diagnostics at the Carnegie Mellon University in Pittsburgh, PA, United States of America. Currently he is working as junior researcher at the Center for People and Buildings

- Ree, H.J. van (2002), The added value of office accommodation to organisational performance in Workstudy, Volume 51, Numbers 6 and 7, pp. 357-363, ISSN 0043-8022.

Participant 14: University of Belgrade (UBB)

Departments of Agriculture and Architecture

Faculty of Agriculture. Since foundation: 15.600 B.Sc., 866 M.Sc., and 699 Ph.D. degree. Today: 4.000 students. Teaching and research activities are carried out by 51 Full time professors, 53 Asociate professors, 54 Assistant professors, 105 Assistants, 140 Technicians and 55 Tehnical services. There are eight institutes at the faculty: Institute for crop science, Institute for fruit science and viticulture, Institute for animal science, Institute for plant and food protection, Institute for soil management, Institute for agricultural engineering, Institute for food technology and biochemistry, Institute for agricultural economics, as well as department for foreign languages, experiment school estates and faculty's glasshouse.

Faculty of Architecture. Teaching and research activities are carried out by 57 teachers (professors and assistant professors) and 73 teaching collaborators (junior assistants, teaching assistants and lecturers). Among the teaching staff, there are 33 Doctors and 35 Masters of Science.
Teaching, scientific and research activities are organised and conducted by six Departments: Department for Architectural and Urban Design, Department for Town and Spatial Planning, Department for Building Structures, Construction Technology and Ecological Engineering, Department for Structural Design, Department for History and Theory of Architecture and Arts, Department for Visual Communications.

The UBB organizes research and educational workshops and conferences, including the series of Workshops 'Environmental technologies, renewable resources'. The 6th workshop with sub-theme 'Harmony and ethics for sustainable development' is being held from 1-6th September 2003 in Belgrade.

Scientist in charge: *Marija S. Todorovic,* Director of the International School on Renewable Energy Sources for Sustainable Agriculture, Food Chain and HFA, www.rcub.bg.ac.yu/~todorom
1989 – present Full Professor for Thermodynamics, University of Belgrade
1994 – 1995 Visiting Professor, University of Kansas, School of Engineering
1985 – 1986 Visiting Research Associate, University of California, Berkeley
1984 – 1989 Associate Professor for Thermodynamics, University of Belgrade
Key-publications
- Todorovic M, Kosi F., Simic L. 2002. Bioreactors for wastes fermentation and fuels production-relevant thermodynamic and process parameters, knowledge and engineering data. Recovering energy from waste – various aspects. Grover W, Grover VK, Hogland W, Eds. Sciene Publishers, Enfield NH. Pp. 75-94.
- Todorovic M , Todorovic B. 2002. The railroad air conditioning system behaviour in transitional thermal regimes. Mobile Air Conditioning – International IIR Workshop of IIR Commission E1 (Air Conditioning) – Proceedings, Wien.
- Todorovic M, Đajić N, Kosi F. 2002. Renewable energy sources for approaching sustainable development. 33th Congress on Air - Conditioning, Refrigeration and Heating Proceedings. KGH SMEITS, Belgrade, pp 92-98.

Other supervisors
Prof Dr Milica Jovanovic Popovic
- Popovic M, Radivojević A. 1999. Sustainability and vulnerability of contemporary cities, examples of Belgrade and Novi Sad. 3rd European Conference REBUILD the Cities of Tomorrow, Shaping our Cities for 21st Century. Barcelona: 4-6 October, 1999.

Prof.dr. Ivica T Radovic
- Savic I, Radovic I, Bjedov V, Jirovic D, Stamenkovic S. 1999. Remote sensing as a method of choice for the assessment, monitoring and management of landscape and biodiversity resources. Arch. Biol. Sci., **51** (**4**), 1-13, Beograd.

Prof.dr. Branislav Todorovic, Professor, Architectural Faculty
Expertise in HVAC&Refrigerating systems and equipment, building energy efficiency, Buildings cooling and heating loads audit/predictions, Housing/cities/municipalities energy demand and supply modeling and statistics, Building physics standardization; Conductor of National Building Energy Efficiency Program's designing and launching; more than 30 years of professional experience in the buildings heating, cooling and air-conditioning systems, district heating systems, building energy efficiency, legislation, standards and norms; Expertise in sectorial analysis/identification of priorities of intervention for energy efficiency improvement in designing, formulation and programs and actions for energy efficiency advance and renewable energies integration.
- Todorovic B. 1998. Verantwortung und Ethic in der Wissenschaft und Ingenieurswissen. Humboldt Berichte 1998:73-81.

Total number of doctorate students successfully supervised the last 3 years, at the three departments is 17 students. The Faculty capacity for doctorate studies shall be at each department 5-10 students. Currently are working on their PhD thesis 11 students.

The Faculty of Architecture is situated in Belgrade central area in the scope of the Technical Faculty complex, surrounded with several student housing buildings. In the same building are located the Faculty of Electrical Engineering, the Faculty of Civil Engineering and Architecture and Town Planning Institute of Serbia.

The Faculty realizes active collaboration with other faculties of architecture in Yugoslavia (Nis, Novi Sad, Podgorica, Kosovska Mitrovica) and other institutions linked professionally to the architectural/planning field. Students and staff have access to one large (250 places) and one smaller (70 places) amphitheatre, 12 classrooms for student studying and practicing, a computing classroom (20 computers) and a library with 20.000 titles and periodicals. Professional offices include: Student Office with Graduate Study Office, Information and Documentation Centre, Staff Office and Finance Office.

Participant 15: Universiteit Utrecht (UU)
Department of veterinary health of food and environment

Scientist in charge:
Frans van Knapen
Key publications:
- van Knapen F., Veterinary public health: past, present, and future. Vet Q. 2000 Apr;22(2):61-2.
Ned Tijdschr Geneeskd. 1999 Dec 11;143(50):2544-5. Links
- Koren LGH, van Knapen F, van Bronswijk JEMH van. Comment on: [Return of endemic malaria in the Netherlands is highly unlikely]. Ned Tijdschr Geneeskd. 1999 Apr 17;143(16):836-8.
- Overgaauw PA, van Knapen F. [No effects of the educational campaign among family physicians on Toxocara infections in humans] Ned Tijdschr Geneeskd. 1996 Nov 16;140(46):2282-5.

Participant 16: Czech Technical University
Czech Technical University (CTU) in Prague was established in 1707 and harbours more than 21000 students in six Faculties: Civil Engineering, Mechanical Engineering, Electrical Engineering, Nuclear Sciences and Physical Engineering, Architecture and Transportation Sciences. CTU provides bachelor, master and doctorate programs with more than 1400 academic staff. In this project staff from the Faculty of Civil Engineering - Department of Microenvironmental and Building Services Systems Engineering participates. The department provides courses in building services systems for Building Engineering, Business and Management in Civil Engineering and Water Engineering and Water Structures.

The department focuses on various professions in the theory of indoor environment, including sanitary systems, heating and air-conditioning, artificial lighting, simulation of building energy performance, and electrical installations. In the core subjects, students acquaint themselves with the basics of civil engineering professions. In the professional module, the acquired knowledge is deepened and students can specialize. The department is equipped with computer lab, focused on building energy performance and CFD research. Scientific research, publishing, consulting and expert activities are concentrated on solving special problems in practical applications and on IT applications in individual disciplines. Staff: 1 Professor, 3 Associate Professors, 9 Assistant Professors, 12 doctoral students, 1 technician.

Scientist in charge: Doc.Ing.Karel Kabele CSc.
Karel Kabele is associate professor at the Department of Microenvironment and Building Services Engineering at the Faculty of Civil engineering CTU Praha. In 1998 he finished his CSc (Czech equivalent of PhD in 1998) dissertation with theme Optimisation of indoor environment. He is professionally focused on building energy systems , interaction of heating systems with the building, modelling and simulation of energy and environmental building performance and energy auditing. He is member of editorial board of the journal Topenářství instalace, president of the Society for Environmental Technology, member of examining committee of Czech Chamber of authorised engineers and technicians for environmental engineering and energy auditing, founding member of IBPSA-CZ (International building performance simulation association), member of IBPSA-world board and ASHRAE member. In the 1997 he was member of organising committee of international conference Building Simulation 97, in the year 1999 he was member of organising committee of international conference Advanced Engineering Design. Since 1995 he was carrier of 3 internal CTU grants, 1 TEMPUS individual grant and in the year 2000 he is carrier of Universities Development Fund of Czech ministry of Education. He is co-ordinator of two international 5.FP EU projects – Smarthomes (2001-2003) and SUNTool (2003-2005).

Key publications:
- Kabele,K.,Kabrhel,M.: Low-energy building heating system modeling. Proceedings of Eight international IBPSA Conference Building Simulation 2003, Vol.2,pp.599-604,11.-14.8.2003 Eindhoven, Netherlands, ISBN90-386-1566-3
- Kabele,K.,Veverková,Z.: Modeling of thermal comfort in spaces with radiant heating. Proceedings of 7th international Conference Healthy Buildings 2003, Vol.2,pp.73-78,7.-11.12.2003 Singapore, ISBN981-04-9974-4
- Kabele,K.,Kadlecová,M.,Krtková,Z.,2000:,,Application of the computer simulation in warm-air heating system design in low-energy buildings“, Proceedings of the 4th international conference Energy for Buildings , 21.9-22.9.2000,pp 271-287, Vilnjus, Lithuania.,ISBN 9955-401-54-0

Other supervisors
Michal Kabrhel, Assistant professor, Department of Microenvironmental and Building services Engineering FCE CTU.
- Kabele,K., Kabrhel M. „Study of the Earth Heat exchanger in Low Energy Building Ventilating System “, Proceedings of the International conference Sustainable Building and Solar Energy 2001, pp 154-156, Brno, Czech Republic

B4 MANAGEMENT AND FEASIBILITY

The organisational management

Coordination of the overall training scheme and monitoring of results lies in one hand: Eindhoven University of Technology. This insures that both practical and scientific issues can be handled efficiently. These issues are interrelated in case of training programs and monitoring of its results.

The ***practical organization*** will be exercised within the Graduate School USO-Built, established in May 2001 by CLUSTER, and using its longstanding experience, organisation and infrastructure. Here the personal files (portfolio) of all candidates for fellowship in USO-POSTDOC will be kept and made available for quality control. The USO-Postdoc Core group of 5 universities from member and associated states directs the general and individual advancement of the joined universities in this program. This Core group is composed of the participating universities of Eindhoven, Glasgow, Brussels, Warsaw, and Ankara.

Experienced researchers will take responsibility for the hosting of individual Early-Stage Researchers, as well as drafting (together with the candidates) of the individual training plans. In addition the ***Scientific Committee (SC***), formed by the coordinators (deputy-directors) of all International Research Units within the school, will exercised quality control by regularly comparing planned and acquired results, and adapting the individual training program when needed. The SC will be devoted to individual training plans, research protocols, and monitor quality of progress.

To further ensure scientific quality and profit, good professionalism and an effective relationship with the industrial world, an external ***Scientific Advisory Board (SAB)*** has been formed. Both the content of the educational program of the Joint Research School USO-Built and its research policies are subject to scrutiny and comments of the SAB that consists of delegates sent by a number of European Organisations directly or indirectly devoted to Higher Education, or the commercial exploitation of knowledge. These are, in alphabetical order:

- -ACE / CEA, Council of European Architects: Prof. Juhani Katainen, president, Tampere University of Technology, Finland;
- -AESOP, Assocation of European Schools of Planning: Prof dr B. Needham, PhD-coordinator AESOP, Universiteit van Nijmegen;
- -CIB, International Council for Research and Innovation in Building and Construction: dr Wim Bakens, Secretary General;
- -EAAE European Association of Architectural Education: Prof Dr ir H. Neuckermans, president, KU Leuven; Prof. James Horan, vice-president, Dublin University of Technology, Ireland;
- -ECCREDI – European Council for Construction Research, Development and Innovation, Mr. Jan Venstermans, BBRI, Eccredi secretariat
- -European Network of Heads of Schools of Architecture: Dr. Constantin Spiridonidis, president, Aristotle University of Thessaloniki, Greece;
- -REHVA - Federation Of European Heating And Air-Conditioning Associations[5]: Olli Seppänen, vice-president
- -CIBSE - The Chartered Institution of Building Services Engineers[6]:

The financial management

The final responsibility of the project lies with the Technische Universiteit Eindhoven (TUE), Department Architecture, Building and Planning. The TUE administration has an extensive experience with EU funded projects: in the 5th Framework Programme TUE is involved in 90 projects. The project is considered an external project, brought as such into the project and financial administration of the Department.

The costs estimated in this proposal are based upon the expense tables and the taking part of in total 12 post-doctorate fellowships each for a funded time period of 2 years. EU funded post-doctorate fellowships are needed to increase and bind the fragmented knowledge now available in the participating research groups of 16 universities. Local focusing of universities on research spear points and international research networks make these needs even larger. Since each of the 4 themes in USO-Built has defined 3 sub-themes, we decided to propose a total of 12 post-doctorate fellowships.

In management terms, each post-doctorate fellow is considered to be an individual project with its own budget. Costs are pre-calculated by the local hosts, in collaboration with the Scientific Committee of USO-Built, and will be presented to the overall project leader. The USO-DOCTORATE organization starts when approval is obtained. Payment is at half-yearly instalments, only after actual participation of the fellow, and within the prescribed limits. This is also the case for management-related expenses

[5] http://www.rehva.com/
[6] http://www.cibse.org/

The TUE as project leader takes care for short follow-up reports the be printed in the USO-Built Report Series (ISSN 1571-3121), as well as placed on the website of USO-Built for public access. The Scientific Committee (internal) and the Scientific Advisory Board (external) perform evaluation, suggest improvements and other aspects of quality control. Quality Control Reports will be distributed to all partners and the EU representative.

The project administration generates financial overviews during the years. Once each year this overview is distributed to all partners, as well as the EU authorities.

Intellectual property rights will be handled according to the rules of the cooperating universities, with the rules of the coordinating university, Technische Universiteit Eindhoven, taking priority when any conflicting rules might appear.

Recruitment

Each of the participating universities will gather candidates for the USO-POSTDOC program from the widest circle possible. In addition, available positions will also be posted on the web-site of USO-Built, as well as on relevant web-sites of the European Commission and the different relevant professional organisations. Care will be taken to post the positions on websites visited regularly by female young scientists, and advanced candidates in the Associated Countries and the Less-Favourable Regions of EU-Members States.

Attractiveness of education and research for female Early-Stage researchers is further increased by the role model of female experienced scientists, being 9 of the 45 tutorers in this program, one of whom is the coordinator of USO-Postdoc herself. Two of the 4 International Research Units have a female member in their board of networkcoordinators (deputy directors), the other 2 agreed to try to recruit one during the project in case USO-Postdoc acquires funding by the European Commission.

Applications for a post-doctorate fellowship in the USO-POSTDOC project will first be received by the project leader, the Technische Universiteit Eindhoven, who will then open a file for the candidate and send the file to the 2 universities cooperating in this individual case, as well as to the Scientific Committee. Candidates

Acceptance or refusal of a candidate is communicated to the proposed supervisors, the Scientific Committee and the Scientific Advisory Board before the candidate is informed. In this case the SAB should especially judge the fairness and consistency of decisions made.

Practical measures to implement the training

The pilot itself will run under a 'Memorandum of Understanding' signed by the participants. In this Memorandum both the nature of the cooperation and the obligations and rights of the member-universities will be stated to make sure and clear what is expected of all concerned. As to the cooperation of commercial entities contract will be signed in relevant individual cases.

Beneficiaries of the USO-POSTDOC program will be fully integrated in the USO-Built Joint Research School and are expected to take part in discussions on the e-mail lists, the half-yearly international conferences of the School and the workshops. At the half-yearly conferences the senior scientists and professionals taking part in USO-POSTDOC will have scheduled meetings to monitor progress and solve any existing problem.

Care will be taken to find the common grounds in order to work towards a practical harmonisation of those regulations while respecting cultural diversity within Europe. In fact, after the completion of the pilot project USO-POSTDOC, the Joint Research School expects to be well prepared to start harmonisation projects in the interdisciplinary domain of design and management of end-user oriented built environments.

Publicity

As to dissemination of results, regularly updated abstracts of the research projects of individual young researchers will be posted publicly on USO-web (www.uso.tue.nl) to make them available to both participants and the general scientific community. In addition the main results will be presented to an international peer-reviewed scientific journal for publication. The following journals are selected: (i) Journal of Architectural Education, (ii) Design Studies, (iii) Urban Studies, (iv) Housing Studies, (v) Gerontechnology[7], (vi) Indoor Air[8], (vii) International Journal of Architectural Computing, (viii) Computer Aided Design.

[7] www.gerontechjournal.net
[8] www.munksgaard.dk/indoorair

The fellows will be stimulated to report both at the half-yearly USO-Built conferences and at external workshops and conferences dedicated to the subject of research. Summaries of USO-Built presentations will be posted on the web as well as published in the USO-Built Report Series (ISSN 1571-3121).

To raise awareness of Europe's quest for a European Higher Education Area and a European Research Area by 2010 and the role of Marie Curie actions in this endeavour, the participants agreed to make the widest relevant reference to these objectives on their websites and published material. USO-Built intends to add some dedicated pages to a conspicuous place of its website (www.uso.tue.nl) to give the program its fullest coverage.

B.5. RELEVANCE TO THE OBJECTIVES OF THE ACTIVITY

USO-Built will use the experience collected in the USO-POSTDOC project to increase the interest in Academia-Industria cooperation, and to further develop the Joint European Research School into a world force in research and training of Early-Stage Researchers. This way it intends to contribute both the European Higher Education Area and the European Research Area that are foreseen for 2010[9] and in which the Marie Curie program plays a prominent role.

USO-POSTDOC focuses on the acquisition of specific research skills in the cross-disciplinary domain of end-user orientation in built environments, also in relation to the success of relevant stakeholders. This includes the integration of relevant methodologies from the sciences, social sciences and humanities, and the development of technological competencies in the domains of architecture, urban structuring and management. Complementary skills taught include the multicultural outlook of Europe, expected future needs, relevant European and national legislation and policies, and publication and presentation skills in English. By making research to an exiting social as well as intellectual activity a long-term research career will become more attractive to bright young professionals

USO-POSTDOC will reinforce the training capability for Early-Stage Scientists embarking on a doctorate research program by jointly developing and offering a structured research training for professional designing, developing and maintaining or managing built environments, such as architects, urban planners, policy makers, facility managers, who should become career-researchers or remain inclined to research during their professional career, and will therefore be able to answer the rapidly changing needs and aspirations for both technology and governance of the emerging knowledge-based European society.

The jointly developed training program improves research and educational co-ordination among the partners. The whole process of teaching and evaluation will also stimulate the development of a high standard for the training program as a whole, taking the recognized specialities of each partner as the standard for all.

The integrated educational program with sharing of resources is expected to deliver the critical mass needed for scientific and technological advancement in the fragmented domain of architecture and urban planning, especially as it influences the European citizen with its general human needs, but divers cultural aspirations.

Need for a Joint Post-doctorate program

Training needs follow from the complexity of the chosen research object of the school and the diversity in culture and legislature trough Europe (see also section B1).

Traditionally design of built environments has been founded on time-tested technical norms and standard hygienic limits, as is the case with many traditional crafts and trades, and not on a careful assessment from different viewpoints.
However, nowadays, both society and the human populations see rapid changes that have caused a gap between actual user needs or aspirations and technological products or services available, especially in built environments used for dwelling and work.

To reach implicit sustainability of products and services, all 4 dimensions should be taken into account, but this is a complex process that is insufficiently taught in regular courses due to the low number of students in the domain at individual universities. USO-POSTDOC will fill the need of young researchers to increase their understanding of and insight in these multi-dimensional processes. Knowledge to be taught encompasses a number of disciplines within Architecture, Civil Engineering and Environmental Engineering, and their accessory cultural, social and life sciences, as well as information technology. More generally a need exists for a common paradigm on a philosophical level that brings all these activities and fields in a well-ordered framework. Support is asked for USO-DOCTORATE in which, under guidance of experts in that field, young researchers of the participating disciplines start –step-by-step- to develop such a paradigm. In this way the

[9] Commision of the European Communities 2003 (January 10). Investing efficiently in education and training: an imperative for Europe. COM (2002) 779 final

joint program is also an asset in the setting out of guidelines for future research plans of the young researchers, and for the further development of Joint Supervision of Doctorate Students, large Scale Joint Doctorate Programs and, on a smaller scale, dual Doctorate Degrees.

Importance of the Field for Early-Stage Research Training

The importance of the field for Early Stage Training includes the following aspects:

- The aging of society has led to a population more susceptible to infections and cancer diseases, and with an increased diversity as to needs and aspirations, ethics and aesthetics;
- Rising cultural difference and individuality has increased the bandwidth of needs and aspirations even further; a norm-person is no longer the cornerstone of design, but should be replaced by the correct and optimally sized adaptiveness of the design;
- Lessened distinction between living and working environments asks for new functionalities in and around dwellings;
- The quest for more healthy and vital years in a lifespan leads to new quality indicators for built environments;
- 'Universal Design' and 'Design for All', although common paper-innovations, were not able to attract a sizable market as yet;
- The industrial city has not yet ended, but a new layer has emerged: the post-industrial city; design of built environments are not yet adapted to the appreciated post-industrial landscape;
- Sustainable development meets the needs of present generations without compromising the ability of future generations to meet theirs. To be effective, sustainability should be implicit, meaning a 'normal' quality of design. Sustainability has lost its attractive innovation image; implicit sustainability should be thrived for;
- Good health is a necessary condition for sustainable development[10]. WHO has defined this health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity[11]. This definition includes a number of aspects pertaining to users, including meta-values such as quality, culture, ethics, aesthetics, semantics etc, and asks for a thorough user-orientation in engineering and design;
- Functional, structural and intentional dimensions of phenomena pertaining to users and to built environments have resulted in the development of quite different methodologies, hampering the needed cooperation of scientists;
- Professionals in the cultural, social and natural sciences and in technology, who together should develop, implement, adapt and manage built environments of the 21st century, lack common paradigms and language to efficiently cooperate;
- Knowledge arising from academic studies and from practical experience gathered in commercial activities should be intertwined to arrive at new products and services in the most efficient way.

To summarize, it can be concluded that design and management of suitable built environments for the 21st century needs new joint ventures of academic and industrial disciplines, and new paradigms for effective scientific and professional communication. It is important to teach this to Early-Stage Researchers to make them better suited to finding solutions for future needs of society.

International recognition of training

USO-POSTDOC will contribute to the international recognition of training and qualification in architecture, building and urban planning at different academic institutions in Europe in this pilot. From this pilot USO-Built will gain experience and skills to develop a more formal Joint European Post-doctoral Program in User-oriented Built Environments encompassing Academic Institutions devoted to Architecture, Building, Urban Planning and Environmental Engineering.

B.6. ADDED VALUE TO THE COMMUNITY

The project and its proposed topic will contribute to the objectives of the European Research Area by strengthening the role of European universities in the Europe of knowledge[12] through (i) supporting the production of new knowledge, (ii) transmission of knowledge through education and training, (iii) dissemination of knowledge through information and communication technologies, and (iv) use of knowledge through new industrial processes and services, and (v) a more efficient management of resources.

Production of New Knowledge

Production of new knowledge is especially supported through the promotion of co-operation of young scientists from both different disciplines and different countries. USO-POSTDOC will also help to overcome prejudices and cultural barriers, and will encourage closer personal contacts among young academics. Apart from the informal element in the project, where young researchers from European countries can exchange

[10] www.who.int/hpr/expo/futures02.html
[11] www.who.org/aboutwho/en/definition.html
[12] European Commission 2003 (February 2). The role of universities in the Europe of knowledge. COM (2003) 58 final

ideas and experiences on user-oriented built environments, and receive guidance from a select body of senior university staff, the young researchers participating will gain an overview of experiences from different cultural environments, and also learn about behavioral responses of both consumers and professionals.

USO-POSTDOC will help encourage synergy and structuring at a European level within the Joint Research School USO-Built to deliver a critical mass needed for scientific and technological advancement in the fragmented domain of architecture and urban planning, especially as it influences the European citizen with its general human needs, but divers cultural aspirations. It will furthermore promote European universities, degrees and research throughout the world.

A largely untapped resource of research and educational skill is formed by female professionals. In case of students in architecture, Building and Planning roughly 30% is of female gender, but participation in the ranks of university professors is less than 2% in some nations taking part in this proposal. USO-Built intends to make use of different local, national and European networks of female professionals (posted on http://europa.eu.int/comm/research/science-society/women-science/publications_en.html), such as the Netherlands Female University Professors Network, to obtain a minimum female participation of 3 out of 8 in the EU funded fellowships. As to teaching and executing research methodology care will be taken to include and explain the needs of both genders of consumers and professionals to further obtain gender balance.

Transmission of Knowledge
This project of USO-Built not only contributes to the European Research Area, but also to the European Higher Education Area where transmission of knowledge is paramount, since it is embedded in joint doctorate programs with ECTS[13] credits as a vehicle to transfer educational results (also of research) between the different academic institutions. In some cases (e.g. when the Technische Universiteit Eindhoven and the Katholieke Universiteit Leuven are concerned) dual degrees are possible. Early Stage Researchers not going for a doctorate degree or those who obtained one recently will be issues ECTS-certificates for the purpose of proof of life-long learning, as is required for some professions in some countries.

To increase co-ordination and synergy in research, the USO-DOCTORATE is integrated in or linked to –as far as possible- the national research plans, such as the Research School Plan of the Netherlands Koninklijke Nederlandse Academie van Wetenschappen of the Netherlands, Engineering and Physical Sciences Research Council (EPSRC) from the United Kingdom, and science, technology and development in the frame of the National Programme for Energy Efficiency and Renewable Energy Sources in Built Environment in Serbia. However, the international view is fairly new in National Research Planning and a number of obstacles are still to be overcome.

Dissemination of Knowledge
Participation in the project will be open to researchers from all countries. The location of work places rotate among the USO-BUILT member universities. Apart from posting the opportunities on the internet and within professional networks for women-professionals for public access, all members, especially the PhD and MPhil-level students and young *post-docs* of the Joint Graduate School USO-BUILT will be notified well in advance with the aid of the e-mail distribution list of the school (currently consisting of 130 members). This mailing will be expanded to include all CLUSTER Universities and associated institutes of higher learning and commercial research facilities. Keynote speakers for workshops are selected such that a good distribution across European countries is achieved.

New Industrial Processes and Services
This project will not only increase attractiveness of built-environment research in Europe, it should also increase European competitiveness through its innovative outlook on the end-users of living and working environments. In addition the synergies among the partner institutions will grow towards sharing resources and dual planning, thereby structuring European research on user-oriented Built Environments.

An industrial consortium is emerging that will intertwine its knowledge with that of the academic researches in order to arrive at new viewpoint from which to develop products and services. Since the academic and the industrial world ask for a different organisational structure, a taskforce 'Industrial Interface' has been established, led by ms. L. McElroy MSc of the Scottish Energy Systems Group[14], and K. Kabele CSc of the CTU, Prague, to organize the Industrial aspect of the Joint European Research School USO-Built. These include the, a cooperation of the Netherlands CUR and the Belgian BBRI, and possibly the World-Wide REHVA and CIBSE organization.

To further increase professional growth of the doctorate students, we propose that the Scientific Committee invites the universities conferring the degree to stimulate that part of the research training is realized in a

[13] European Credit Transfer System
[14] www.sesg.strath.ac.uk

commercial or industrial environment under the responsability of the university conferring the degree. Content and Extent of this commercial / industrial training will be described in the individual training plan to be assessed in the same way as the other elements of training.

Cohesion and Integration
The contribution to the Community's cohesion and integration policies is advanced by this project through the recruitment of students from the Less-Favoured Regions of EU and the Associated Countries (at least 6 of the 12 funded places will preferably be filled with candidates from these regions). Some partners from EU Member States, such as Politecnico di Torino have already a lasting tradition of attracting doctorate students from less favoured regions of Southern Italy, such as Basilicata, Calabria, Campania, Puglia, Sardegna, Sicilia. Furthermore, PdTs Department of Architecture has a wide and deep cooperation at doctorate level with the architecture faculties of Palermo (Sicily) and Naples (Campania).

Other Community policies and actions addressed in this project includes the Universal Design quest for educational institutions in Architecture, Building and Planning of February 15, 2001[15].

B.7. PREVIOUS PROPOSALS AND CONTRACTS
No similar proposals or contacts were financed previously within the frame of the FP5 Improving Human Potential or FP6 Human Resources and Mobility programs. Nor is this proposal a resubmission or continuation of a similar application rejected under those programs. However, most participants have experience with Socrates programs, also for students at the doctorate level.

Other sources of public or community support include the base funding of the academic institutions taking part in this proposal.

B.8. OTHER ISSUES

A summary of the ethical aspects of the research presented		
Does the research presented in this proposal raise sensitive ethical questions related to:	**YES**	**NO**
Human beings		X
Human biological samples		X
Personal data (whether identified by name or not)	X	
Genetic information		X
Animals		X

No medicinal products for human use will be tested. Relevant experiments mainly consist of questioning human subjects and of taking physical, chemical and biological measurements in the indoor and outdoor environment. Informed consent is the basis of each trial. The approval of relevant ethics committees will be sought depending on the national legislature of the country where the experiment is conducted. The latest version of the opinions of the European Group on Ethics in Science and New Technologies (as posted on http://europa.eu.int/comm/research/science-society/ethics/research-e-group_en.html) will also be taken into account.

Only a limited number of human biological samples is foreseen to be taken from skin, urine, exhaled air, etc, all with the aid of non-invasive techniques. Both the latest versions of Good Clinical Practice and of Good Laboratory Practice will be observed.

As to any personal data collected and processed in the different projects on user-orientation, researchers will take into account both Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, as well as the national implementations of this directive in the different countries where the research is performed or its results processed. In all cases databases will be split into separate parts for privacy-sensitive and not privacy-sensitive information. The privacy-sensitive part will be destroyed after completion of the research with a scientific publication.

Potential ethical aspects of the implementation of project results
It is the philosophy of USO-Built, as a joint research school, that research and education are intertwined. Research results and their possible societal implications will be used as teaching examples in ethics and methodology courses within the school. These courses are also open to students outside USO-Built.

[15] Council of Europe. Resolution ResAP(2001)1 on the introduction of the principles of universal design into the curriculum of all occupations working on the built environment. Adopted by the Committee of Ministers on 15 February 2001, at the 745th meeting of the Ministers Deputies.

Awareness of Knowledge
In each of the supervising committees of the doctorate programs at least one member will be invited from a relevant NGO or a commercial association, to ease the spread of knowledge to the community and to keep an eye on the wider societal implication of the specific research subject of the post-doctorate fellow.
If the USO-POSTDOC project is running, we expect an increased awareness of the European Academic Community as to the possibilities of this approach, which may then be transferred to other domains of research. USO-POSTDOC is a pilot research training program and has a dissemination and transfer possibility and aspect even outside the field of Built Environments.

Intellectual Property Rights
Intellectual property rights and confidentiality will be managed according to the rules of the academic institutions and national legislation addressed by each of the Early-Stage Researcher Training projects..

3rd Country Participants
In this multi-partner application, 2 participants are from 3rd countries: Serbia & Montenegro and South-Africa.

Free State University (Bloemfontein, South-Africa) introduces the smart use of indigenous or classical building technology from a very different cultural background to broaden the horizon of the Early-Stage Researchers. This exchange started in a Joint Project in the Sanpad-program[16]. The need of smart low-tech has resulted in research that is unusual but useful for the Eastern and Western European setting.

The University of Belgrade introduces in the project the unique combined technology of Environmental Technologies, Renewable Resources, Harmony and Ethics for Sustainable Development[17] that is not available among the partners from EU Member countries and associated States. The technology is promoting education and practical skills development in the most extended approach to sustainable development, applying and evaluating usage of Renewable Energy Sources and environmental technologies, and warning on risks of further pollution and destruction of life support systems. The multidisciplinary (operational as virtual expert center) examination of problems and topics related to this issue has been aimed to reflect issues as Air, Soil and Water Pollution/Control and Avoidance, Food insecurity, Health care and Durable Agriculture related to urban and rural sustainability of buildings - Buildings/Environment/Energy, trying to harmonize the technical, social and environmental sustainable parameters.
It is a program with particularly clear sustainability philosophy. Application and development of new software, and electronically developed informatics systems and features being joined to human power based lab and field experiments generated large database of information and results that have found application in many areas.

CONFIRMATION:
The research presented in this proposal does not involve any of the following activities:
- Research activity aimed at human cloning for reproductive purposes;
- Research activity intended to modify the genetic heritage of human beings which could make such changes heritable;
- Research activity intended to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer;
- Research involving the use of human embryos or embryonic stem cell.

[16] SANPAD: South Africa - Netherlands Research Programme on Alternatives in Development http://www.sanpad.org.za
[17] http://www.rcub.bg.ac.yu/~todorom