CV

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Date of brith: 02.03.1959

- Associate professor at the Civil engineering faculty in Subotica – University of Novi Sad, year 2016, professor of the next classes:

- Building materials I
- Concrete technology
- Building structures
- Sustainable energy architecture
- Concrete rheology

- Achieved doctorate degree at the Civil engineering faculty in Belgrade – University of Belgrade, 1998

- Achieved master degree at the Civil engineering faculty in Belgrade – University of Belgrade, 1993

- Assistant at the Civil engineering faculty in Subotica – University of Novi Sad, from 1992 to 1998
- "Projektant doo" – "GIK Požega", Slavonska Pozega, Independent responsible designer – constructor, from 1984 to 1991

- Achieved graduate degree at the Civil engineering faculty in Zagreb – University of Zagreb, Croatia, constructive course, 1982

Published textbooks

- Skenderović B, Kekanović M. (2011). *Civil engineering materials – structure, features, technology, corrosion*. Belgrade, AGM knjiga

Textbooks in preparation

- Concrete technology with a workbook – New method of designing concrete mixtures (Side note: This method is already in practical application)
- Masonry and concrete wall structures – New method of calculating the physics of unsymmetrical, torsionally burdened buildings (Side note: This method is already in practical application)
- New aspect of designing and calculating the physics of energy efficient objects – approach obtained through thermodynamics (Side note: This method is already in practical application)

Expert papers

- Designing and static calculations of multiple objects made of reinforced concrete, steel, wood and laminated wood: living and work facilities; football stadiums; industrial objects – halls, wheat driers; silos; bridges

Scientific papers – published work

- Kekanović M., University of Novi Sad, Serbia, *Ceramic concrete vision and experience*; TSUS - Building Testing and Research Institute – Republic of Slovakia, ISBN 978-80-971912-2-1
- Kekanović M.**,** Kukaras D., Čeh A., Karaman G.: *Lightweight concrete with recycled grinded expanded polystyrene aggregate*, Tehnički vjesnik-Tehnical Gazette, (ISSN 1330-3651), Vol. 21 No. 2
- Kekanović M., Šumarac D., Gligović D., Ćorić S., Kljajić Z.: *Problems of the design and construction of slab between floors*, Tehnički vjesnik-Tehnical Gazette, (ISSN 1330-3651), Vol. 21 No. 3
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- Kekanović M., Hegediš I., Čeh A .: *Građenje stambeno poslovnih objekata visoke energetske efikasnosti*, Zbornik radova Građevinskog fakulteta u Subotici, Subotica, 2009, ISSN 0352-6852, COBISS. SR.ID 14404098, str. 101-108.

- Lj. Tadić, M. Kekanović: *Utjecaj mikroorganizama na koroziju betona*, Zbornik radova Građevinskog fakulteta u Subotici, Subotica 2011, ISSN 0352-6852, COBISS. SR.ID 14404098, Br. 20, Str. 229-244

- Kekanović M., Čeha., Karaman G .: *Betoni od prirodno pečenim gline*, Požarevac, Zbornik radova po pozivu na savjetovanju: Održivi razvoj grada Požarevca i energetskog kompleksa Kostolac, Kostolac, 03. Mart 2011, ISBN 978-86-912625 -2-5, Str. 39-47.

- M. Kekanović, Lj. Dašić: *Projektiranje i građenje potpuno adaptabilnih stambeno-poslovnih objekata garantirane energetske efikasnosti - A klase*, Predavanje-prezentacija i panel diskusija, Inženjerska komora Srbije www.ingkomora.org.rs, 2010., -Beograd - Dana 15.01.2010., -Novi Sad - dana 18.02.2010., -Niš - dana 25.02.2010.

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- Malešević E., Kekanović M., Čeh A. *Primjena Lob metode u procesu planiranja građevinskog materijala.* (2007). Subotica: Međunarodna konferencija 2007 - Multidisciplinarno modeliranje i projektiranje građevinskih materijala i konstrukcija

- Kekanović M., Kermeci P. (2001). *Aspekti primjene jednog novog šupljeg keramičkog bloka za zidanje* Beograd: Savjetovanje: Zidane konstrukcije u suvremenoj građevinskoj prakksi

- Milan Kekanović, Karolj Kasaš. (1998). *Polumontažne konstrukcije velikih raspona po sustavu građenja "Potisje - MK"*. Vrnjačka banja: Deseti Kongres JDGK

- Milan Kekanović, Karolj Kasaš. (1998). *Pogreške u projektiranju*. Vrnjačka banja: Deseti Kongres JDGK

- Kekanović M., Kasaš K., Kozarić Lj. (2002). *Djelovanje mikroorganizama na mjestima okna drvenih konstrukcija*. Niš: Simpozijum JUDIMK

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- Kekanović M. (1997). *Polumontažne konstrukcije velikih raspona kod javnih i stambenih objekata*. Subotica: Monografija, Građevinski fakultet Subotica

- Kekanović M. (1997). *Tehničko tehnološke mogućnosti korištenja lakih betona na bazi polistirena, pozdera i fino mlevene keramike u građevinarstvu*. Subotica: Monografija, Građevinski fakultet Subotica

- Pakvor A., Kasaš K., Kekanović M. (1999). *Betoni na bazi keramično loma i reciklirane opeke.* Beograd: Monografija "Specijalni betoni i žbuke" povodom 50 godina Građevinskog fakulteta u Beogradu

Specializations and cooperating endeavors abroad

- Cooperation in creating new technologies of concrete and cement production at Považska cementaren, a.s., Ladce, Republic of Slovakia (several months a year from 2012 to 2016)

International level references - patents

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(WO/1999/005371) A GREAT-SPAN INTERMEDIATE FLOOR CONSTRUCTION, PARTICULARLY FOR BUILDING OF PUBLIC AND RESIDENCE STRUCTURES

Biblio. Data | Description | Claims | National Phase | Notices | Documents

Latest bibliographic data on file with the International Bureau

Pub. No.: WO/1999/005371 **International Application No.:** PCT/YU1998/000017
Publication Date: 04.02.1999 **International Filing Date:** 22.07.1998
Chapter 2 Demand Filed: 23.02.1999

IPC: ***E04B 5/43*** (2006.01), ***E04C 5/065*** (2006.01)

Applicants: **KEKANOVIC, Milan** [YU/YU]; Zetska 15/18 YU-24000 Subotica (YU).
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Inventors: **KEKANOVIC, Milan** [YU/YU]; Zetska 15/18 YU-24000 Subotica (YU).
KASAS^¿, Karolj [YU/YU]; Tvornic^¿ka B.B. YU-24420 Kanjiz^¿a (YU).

Agent: **KEKANOVIC, Milan**; Zetska 15/18 YU-24000 Subotica (YU).

Priority Data: P-322/97 25.07.1997 YU

Title: A GREAT-SPAN INTERMEDIATE FLOOR CONSTRUCTION, PARTICULARLY FOR BUILDING OF PUBLIC AND RESIDENCE STRUCTURES

Abstract: This invention refers to Great Span Intermediate Floor Construction particularly designed for construction of public and residential buildings. This is a solution for construction of light-carrying floors based on the static system of a single span beam or continual beam, where the length of the field can be more or less than 10 meters, using semi prefabricated system of construction, that results in complete adaptability of space. The essence of the invention is in prefabrication of longitudinal girders (5) fixed to the supports (2 and 3) of the intermediate floor (1) and to the intermediate column (4a) of the continual intermediate floor (1a). The girder (5) consists of diagonal and triangular and spiral steel reinforcement filling which has in its corners flat steel profiles that are 'welded' by fine grain concrete inside of the upper hollow tile (10) and lower hollow tile (11). Girders (5) may be not not only straight but also horizontally or vertically curved, ring shaped or twisted. Between girders (5) that are evenly moved apart, on the lower hollow tiles, are placed the lower hollow tile blocks (6) and above them are placed at least two rows of light upper non-carrying hollow tile blocks (7). The hollow tile blocks (6 and 7) are made of burned ceramics. In the case of continaual intermediate floor (1a), close to the intermediate columns (4a) instead of the blocks (6) between girders (5) are twice as short lower hollow tile blocks (20) enabling concrete to fill above (20) and into hollow tile blocks (19), forming this way, the lower pressurized zone.

Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW.
African Regional Intellectual Property Org. (ARIPO) (GH, GM, KE, LS, MW, SD, SZ, UG, ZW)
Eurasian Patent Organization (EAPO) (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM)
European Patent Office (EPO) (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE)
African Intellectual Property Organization (OAPI) (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Publication Language: English (EN)

Filing Language: English (EN)

(WO/2006/138746) A GREAT SPAN INTERMEDIATE FLOOR CONSTRUCTION WITH SPECIAL REINFORCED SEMI PREFABRICATED SMALL BEAMS AND UNIVERSAL FILLER BLOCKS

Latest bibliographic data on file with the International Bureau

Pub. No.: WO/2006/138746 **International Application No.:** PCT/YU2006/000014
Publication Date: 28.12.2006 **International Filing Date:** 20.06.2006

IPC: ***E04B 5/26*** (2006.01)

Applicant: **KEKANOVIC, Milan** [YU/YU]; Zetska 15/18, YU-24000 Subotica (YU).

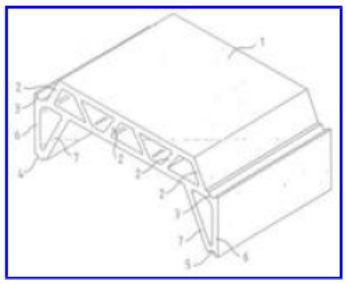
Inventor: **KEKANOVIC, Milan** [YU/YU]; Zetska 15/18, YU-24000 Subotica (YU).

Agent: **VLAHOVIC, Slobodan - ZMP**; Takovska 58/14/V, P.O.B. 526, YU - 11000 Beograd (YU).

Priority Data: P-20050492 22.06.2005 YU

Title: A GREAT SPAN INTERMEDIATE FLOOR CONSTRUCTION WITH SPECIAL REINFORCED SEMI PREFABRICATED SMALL BEAMS AND UNIVERSAL FILLER BLOCKS

Abstract: The invention is about producing bearing semi prefabricated beams (14) strengthened so that they can be put on the shorts at bigger distance, at least 2,5 m. Inside one steel space truss (15) we can put at least another more steel space truss (16), which enables the increase of rigidity of bearing semi prefabricated beams (14). The distance between bearings beams are filled with hollow filler blocks-plates (1), constructed to enables the increase of height, rigidity and bearing capacity of intermediate floor construction. Hollow filler blocks are constructed to decrease transportation cost by even 50%. Hollow tiles (8) have an oval swell (11) on their vertical, shorter side (10) and oval groove (12), which is perfectly joined with groove (5) and swell (4) of hollow filler blocks (1).



Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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Eurasian Patent Organization (EAPO) (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM)
European Patent Office (EPO) (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR)
African Intellectual Property Organization (OAPI) (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Publication Language: English (EN)

Filing Language: English (EN)

(WO/2007/059538) THE POSSIBILITY OF SPECIAL LIGHTENING, INSULATING AND REINFORCING INTERMEDIATE FLOOR CONSTRUCTIONS

Biblio. Data | Description | Claims | National Phase | Notices | Documents

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Publication Date: 24.05.2007 **International Filing Date:** 10.11.2006

IPC: ***E04B 5/18*** (2006.01), ***E04B 5/21*** (2006.01)

Applicant: **KEKANOVIC, Milan** [RS/RS]; Palicka 7, RS-24000 Subotica (RS).

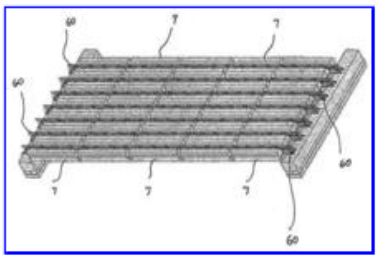
Inventor: **KEKANOVIC, Milan** [RS/RS]; Palicka 7, RS-24000 Subotica (RS).

Agent: **VLAHOVIC, Slobodan**; ZMP, Takovska 58/V/14, RS-11000 Beograd (RS).

Priority Data: P-855/05 15.11.2005 YU

Title: THE POSSIBILITY OF SPECIAL LIGHTENING, INSULATING AND REINFORCING INTERMEDIATE FLOOR CONSTRUCTIONS

Abstract: The possibility of special lightening, insulating and reinforcing intermediate floor constructions enables fast building of semi-prefibraceted and prefabricated floor with complete insulation, bearing capacity and smaller price. Floor elements (1) and (15) are constructed to that already present steel space trusses can be placed in their channels, so that are hastened the building of intermediate floor constructions and makes them cheaper, too. They are minimum shorting at the ends and at the middle of beams, so the works below can be proceeding and the required working time is shorter. The intermediate floor construction is already insulating, so they are no need for insulating, which makes the construction cheaper and the required working time shorter. The plates (17) are enabling the increase of the height of the floor constructions, by tying two beams in the construction. Usage of distance elements (23) (35) and (48) protects the reinforcement in floor construction, so they are no need for corrosion protection.



Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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African Intellectual Property Organization (OAPI) (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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(WO/2001/059794) HEAT EXCHANGER FOR GEOTHERMAL HEAT-OR COLD STORAGE

Latest bibliographic data on file with the International Bureau

Pub. No.: WO/2001/059794 **International Application No.:** PCT/YU2001/000001
Publication Date: 16.08.2001 **International Filing Date:** 07.02.2001

IPC: ***F24D 11/00*** (2006.01), ***F24J 2/07*** (2006.01), ***F28D 20/00*** (2006.01), *F24D 3/12* (2006.01)

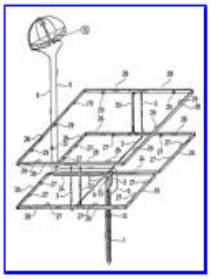
Applicant: **KEKANOVIC, Milan** [YU/YU]; Zetska 15/18 YU-24000 Subotica (YU).

Inventor: **KEKANOVIC, Milan** [YU/YU]; Zetska 15/18 YU-24000 Subotica (YU).

Priority Data: P-68/00 10.02.2000 YU

Title: HEAT EXCHANGER FOR GEOTHERMAL HEAT-OR COLD STORAGE

Abstract: The invention is about production of depth vertical accumulative-cooling sonde (1) for heating and cooling walls and rooms by solar energy with solar collector-concentrators (16), so the heat is by thermal oil in copper pipes (5) transported into the ground around depth vertical sonde (1). Ventilator (10) placed in depth vertical sonde (1) is used for throwing the accumulated heat into lower system of pipes (26) placed through special ceramic burned modular blocks (25). Using those blocks, walls became a heating surface in the winter and there is a possibility to cooling the walls in the summer. Through upper system of pipes (28) and pipes (3) used warm air is transported back to depth vertical sonde (1). Said sonde (1) can be used for cooling, too. Ventilator (10) sucks out the warm air from the walls and the rooms and through the upper system of pipes (28) and through ventilating wholes (29) the air is transported into depth vertical sonde where it is cooled of and finally it is transported back to lower system of pipes (26) and than this air is cooling of the walls and the rooms.



Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
African Regional Intellectual Property Org. (ARIPO) (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW)
Eurasian Patent Organization (EAPO) (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM)
European Patent Office (EPO) (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR)
African Intellectual Property Organization (OAPI) (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Publication Language: English (EN)

Filing Language: English (EN)

1. (WO2000069787) FINE GROUNDED CERAMIC AS PUZZUOLANIC ADDITIVE IN PRODUCTION OF CEMENT AND CONCRETE

Pub. No.: WO/2000/069787 **International Application No.:** PCT/YU2000/000013
Publication Date: 23.11.2000 **International Filing Date:** 11.05.2000
Chapter 2 Demand Filed: 04.12.2000
IPC: ***C04B 14/30*** (2006.01), ***C04B 18/02*** (2006.01)

Applicants: **KEKANOVIC, Milan** [YU/YU]; (YU)
Inventors: **KEKANOVIC, Milan**; (YU)

Priority Data: P-222/99 13.05.1999 YU

Title
(EN) FINE GROUNDED CERAMIC AS PUZZUOLANIC ADDITIVE IN PRODUCTION OF CEMENT AND CONCRETE
(FR) CERAMIQUE A FINE MOUTURE EN TANT QU'ADDITIF POUZZOLANIQUE DANS LA FABRICATION DE CIMENT ET DE BETON

Abstract:
(EN) Fine-grounded burned ceramic (1) as puzzuolanic additive (2) in production of cement, or concrete, according to figure 1, is produced by burning clay chips (15) in rotating furnace (9, 10 and 11), so we got burned ceramic (1). Said ceramic is milled into fractions less than 0,09 mm in mills with bawls (12), so we got ceramic puzzuolanic additive (2) with condition that puzzuolanic activity should be 5 MPa (±1,5 MPa). The produced burned ceramic can be measured by two methods. The first method, according to figure 2, of measuring is that in the mixers (13) ceramic puzzuolanic additive (2) is homogenized in quantity of 10-15 % (as one of the main conditions) with pure Portland cement (14). The produced cement (3) is packed in to the bags or it is batched bulk. The second method, according to figure 3, of measuring is consisting of the following steps. The ceramic puzzuolanic additive (2) is measured into concrete mixer in quantity of 10-15 % (as one of the main conditions) of the whole mass of cement (3). Using said cement, consisting of 10-15 % of ceramic puzzuolanic additive (2) with small puzzuolanic activity of 5 MPa (±1,5 MPa) (as one of the conditions) and of 85-90 % of pure Portland cement (14), we can produce highly resistant and durable concrete.
(FR)L'invention concerne de la céramique cuite à fine mouture, utilisée comme additif pouzzolanique (2) dans la fabrication du ciment ou du béton. La céramique cuite s'obtient par cuisson de copeaux d'argile (15) dans un four tournant (9, 10, 11). La céramique est ensuite moulue en fractions inférieures à 0,09 mm dans un moulin à meule (12), de façon à obtenir un additif pouzzolanique céramique (2) dans lequel l'activité pouzzolanique devrait être de 5 MPa (±1,5 MPa). La céramique cuite ainsi obtenue peut s'additionner selon deux procédés. Le premier procédé d'addition consiste à homogénéiser l'additif pouzzolanique céramique (2) dans les mélangeurs dans des quantités de 10 à 15 % (une condition principale) avec le ciment Portland pur (14). Le ciment ainsi produit est ensaché ou mis en lots en vrac. Le second procédé d'addition consiste à verser l'additif pouzzolanique céramique (2) dans le mélangeur, de façon à représenter 10 à 15 % (une des conditions principales) du poids total de ciment (3). Ce ciment, consistant de 10 à 15 % d'additif pouzzolanique céramique (2) ayant une faible activité pouzzolanique de 5 MPa (±1,5 MPa) (une des conditions) et de 85 à 90 % de ciment Portland pur (14), permet de produire un béton résistant et durable.

Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
African Regional Intellectual Property Organization (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW)
Eurasian Patent Organization (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM)
European Patent Office (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE)
African Intellectual Property Organization (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Publication Language: English (EN)
Filing Language: English (EN)

1. (WO2000019032) THE PROCESS OF PRODUCTION OF CONCRETE CERAMIC, INSULATING, MODULAR, FACADE TYPE, ECOLOGICAL BEARING WALL ELEMENTS

Pub. No.: WO/2000/019032 **International Application No.:** PCT/YU1999/000007
Publication Date: 06.04.2000 **International Filing Date:** 27.09.1999
Chapter 2 Demand Filed: 26.04.2000

IPC: ***E04B 2/18*** (2006.01), ***E04B 2/24*** (2006.01), ***E04C 1/41*** (2006.01), *E04B 2/02* (2006.01)

Applicants: **KEKANOVIĆ, Milan** [YU/YU]; (YU)
Inventors: **KEKANOVIĆ, Milan**; (YU)

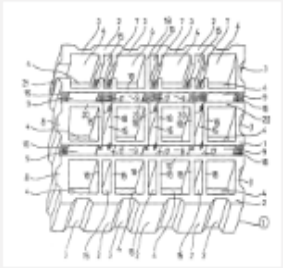
Priority Data: P-430/98 30.09.1998 YU

Title

(EN) THE PROCESS OF PRODUCTION OF CONCRETE CERAMIC, INSULATING, MODULAR, FACADE TYPE, ECOLOGICAL BEARING WALL ELEMENTS

(FR) PROCEDE DE PRODUCTION D'ELEMENTS DE MURS PORTEURS ECOLOGIQUES, DE FAÇADE, MODULAIRES, ISOLANTS EN BETON CERAMIQUE

Abstract:



(EN) The invention is the process of producing concrete, ceramic, insulating, modular, façade type, ecologically proved bearing elements-blocks with increased durability and resistance, which satisfies ecological conditions and have good insulating characteristics and regular shape. The concrete ceramic elements-blocks (1, 12, 13, 14, 24, 25 and 26) are constructed to enable excellent interconnection and joining, building flat and curved walls and to provide forced ventilation, a possibility of cooling the walls and premises during the summer or mixing or extracting the warm air into walls during the winter. Said elements are made of concrete, but we are recommending that it should be highly durable and resistant fine-grounded ceramic concrete made of ceramic aggregate, cement and water. The cavities (4, 15, 27 and 29) of the elements (1, 12, 13, 14, 24, 25 and 26) would be filled with insulating polystyrene or pozder concrete, as one of the variations.

(FR) La présente invention concerne un procédé de production d'éléments-blocs porteurs respectant l'environnement, du type façade, modulaires, isolants, en céramique et en béton qui présentent une durabilité et une résistance accrues, qui respectent l'environnement et qui possèdent de bonnes caractéristiques d'isolation et une forme régulière. Les éléments-blocs en béton céramique (1, 12, 13, 14, 24, 25 et 26) sont construits de manière à assurer une excellente interconnexion et un excellent assemblage, la construction de murs droits et cintrés et pour assurer une ventilation forcée, la possibilité de refroidir les murs et les locaux pendant l'été ou bien de mélanger ou d'extraire l'air chaud situé dans les murs pendant l'hiver. Ces éléments sont fabriqués en béton mais il est toutefois recommandé, pour qu'ils soient plus durables et résistants, qu'ils soient constitués de béton céramique broyé fin formé d'un mélange de granulat céramique, de ciment et d'eau. Les cavités (4, 15, 27 et 29) des éléments (1, 12, 13, 14, 24, 25 et 26) pourront être remplies de polystyrène isolant ou de béton isolant en granulats, comme c'est le cas dans certaines variantes de la forme de réalisation.

Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ZA, ZW.
African Regional Intellectual Property Organization (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW)
Eurasian Patent Organization (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM)
European Patent Office (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE)
African Intellectual Property Organization (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Publication Language: English (EN)
Filing Language: English (EN)

69. (WO2013019134) BUILDING STRUCTURE OF PRE-CAST MONOLITHIC WALLS AND INTERFLOOR SLABS

Latest bibliographic data on file with the International Bureau

PermaLink

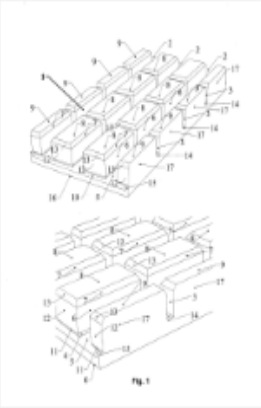
Pub. No.: WO/2013/019134 **International Application No.:** PCT/RS2011/000013
Publication Date: 07.02.2013 **International Filing Date:** 01.09.2011
IPC: ***E04B 2/18*** (2006.01), ***E04B 2/24*** (2006.01), ***E04B 2/86*** (2006.01), ***E04B 5/19*** (2006.01), ***E04B 5/21*** (2006.01), ***E04B 5/38*** (2006.01), ***E04C 2/288*** (2006.01)

Applicants: **KEKANOVIC, Milan** [RS/RS]; (RS)
Inventors: **KEKANOVIC, Milan**; (RS)
Agent: **VLAHOVIC, Slobodan**; Radoja Dakica 35/32 Novi Beograd, 11070 (RS)

Priority Data: P - 2011/350 03.08.2011 RS

Title
(EN) BUILDING STRUCTURE OF PRE-CAST MONOLITHIC WALLS AND INTERFLOOR SLABS
(FR) STRUCTURE DE CONSTRUCTION DE PAROIS MONOLITHIQUES PRÉ-COULÉES ET DE DALLES ENTRE ÉTAGES

Abstract:
(EN) The invention relates to a building structure comprising composite floor slabs and pre-cast wall panels. The floor slabs comprise a styrofoam block (1) having longitudinal (2) and transverse channels (3) cut into an upper surface, the channels are provided with reinforcement and spacers therefor and are filled to first depth with concrete. Such a pre-cast slab may be transported to a building site and the floor structure finished by applying a reinforcing mesh and additional concrete. The pre-cast wall panels comprising a plurality of insulating formwork building blocks made of light concrete provided with cavities and channels, some of which are cast with vertical and horizontal reinforced concrete.
(FR)L'invention porte sur une structure de construction, laquelle structure comprend des dalles d'étage composite et des panneaux de paroi pré-coulés. Les dalles de plancher comprennent un bloc de mousse de polystyrène (1) ayant des canaux longitudinaux (2) et transversaux (3) découpés dans une surface supérieure, les canaux comportant un renfort et des éléments d'espacement pour ceux-ci et étant remplis de béton jusqu'à une première profondeur. Cette dalle pré-coulée peut être transportée sur un site de construction, et la structure de plancher peut être finie par l'application d'un treillis de renfort et de béton additionnel. Les panneaux de paroi pré-coulés comprennent une pluralité de blocs de construction d'ossature isolants réalisés en béton léger comportant des cavités et des canaux, dont certains sont coulés par du béton armé de façon verticale et horizontale.



Designated States: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
African Regional Intellectual Property Organization (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW)
Eurasian Patent Organization (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM)
European Patent Office (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR)
African Intellectual Property Organization (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Publication Language: English (EN)
Filing Language: English (EN)

Attendance of international showrooms and fairs – received awards and accolades

- WIPO Medal for Inventors: Winner in the category of inventor of a patent. The text describing the award for innovations, for a product which is internationally patented, attested and applied under the commercial name **"StiroFert - inter-floor energy-saving structures",** received in 2016 is downloaded from the official website of the Offices for Intellectual properties of the Republic of Serbia (www.zis.gov.rs). The product is registered in following patents: RS50224 (B); EP2102426 (B1); EA015878 (B1); US8122660 (B2); PT2102426 (E); AT526464 (T) i ES2372582 (T3).

Picture 1: *WIPO Medal for Inventors*

WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

WIPO MEDAL FOR INVENTORS

CERTIFICATE

We hereby certify that

MILAN KEKANOVIĆ

is awarded the WIPO MEDAL FOR INVENTORS

For his invention: "StiroFert – inter-floor energy-saving structures"

Presented at the
95th anniversary of the Intellectual Property Office of the Republic of Serbia

Organized by the
Intellectual Property Office of the Republic of Serbia

Belgrade
November 2015

Francis Gurry
Director General
WIPO

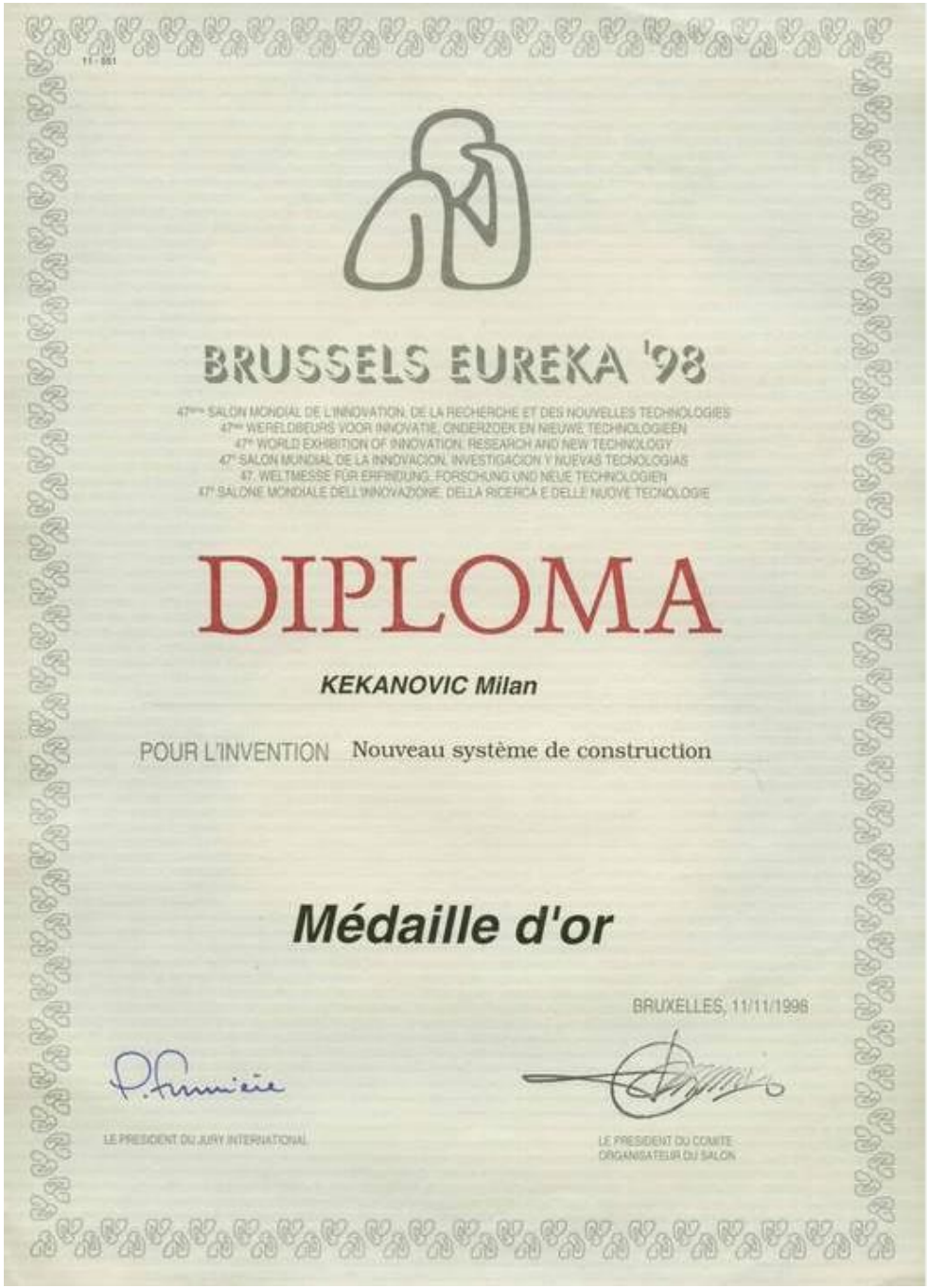
Picture 2: *Certificate WIPO Medal for Inventors*

- 1st Olympics in innovations – "GENIUS 1998" in Budapest: Golden medal in the field of civil engineering (Co-author with Karolj Kasaš, Ph.D)

Picture 3: *Medal received at the "GENIUS 1998"*

Picture 4: *Certificate received at the "GENIUS 1998"*

- World exhibition of innovations – “EUREKA ‘98“ in Brussels: Golden medal



BRUSSELS EUREKA '98

47ème SALON MONDIAL DE L'INNOVATION, DE LA RECHERCHE ET DES NOUVELLES TECHNOLOGIES
47ste WERELDBEURS VOOR INNOVATIE, ONDERZOEK EN NIEUWE TECHNOLOGIEËN
47th WORLD EXHIBITION OF INNOVATION, RESEARCH AND NEW TECHNOLOGY
47° SALON MUNDIAL DE LA INNOVACION, INVESTIGACION Y NUEVAS TECNOLOGIAS
47. WELTMESSE FÜR ERFINDUNG, FORSCHUNG UND NEUE TECHNOLOGIEN
47° SALONE MONDIALE DELL'INNOVAZIONE, DELLA RICERCA E DELLE NUOVE TECNOLOGIE

DIPLOMA

KEKANOVIC Milan

POUR L'INVENTION Nouveau système de construction

Médaille d'or

BRUXELLES, 11/11/1998

LE PRESIDENT DU JURY INTERNATIONAL

LE PRESIDENT DU COMITE ORGANISATEUR DU SALON

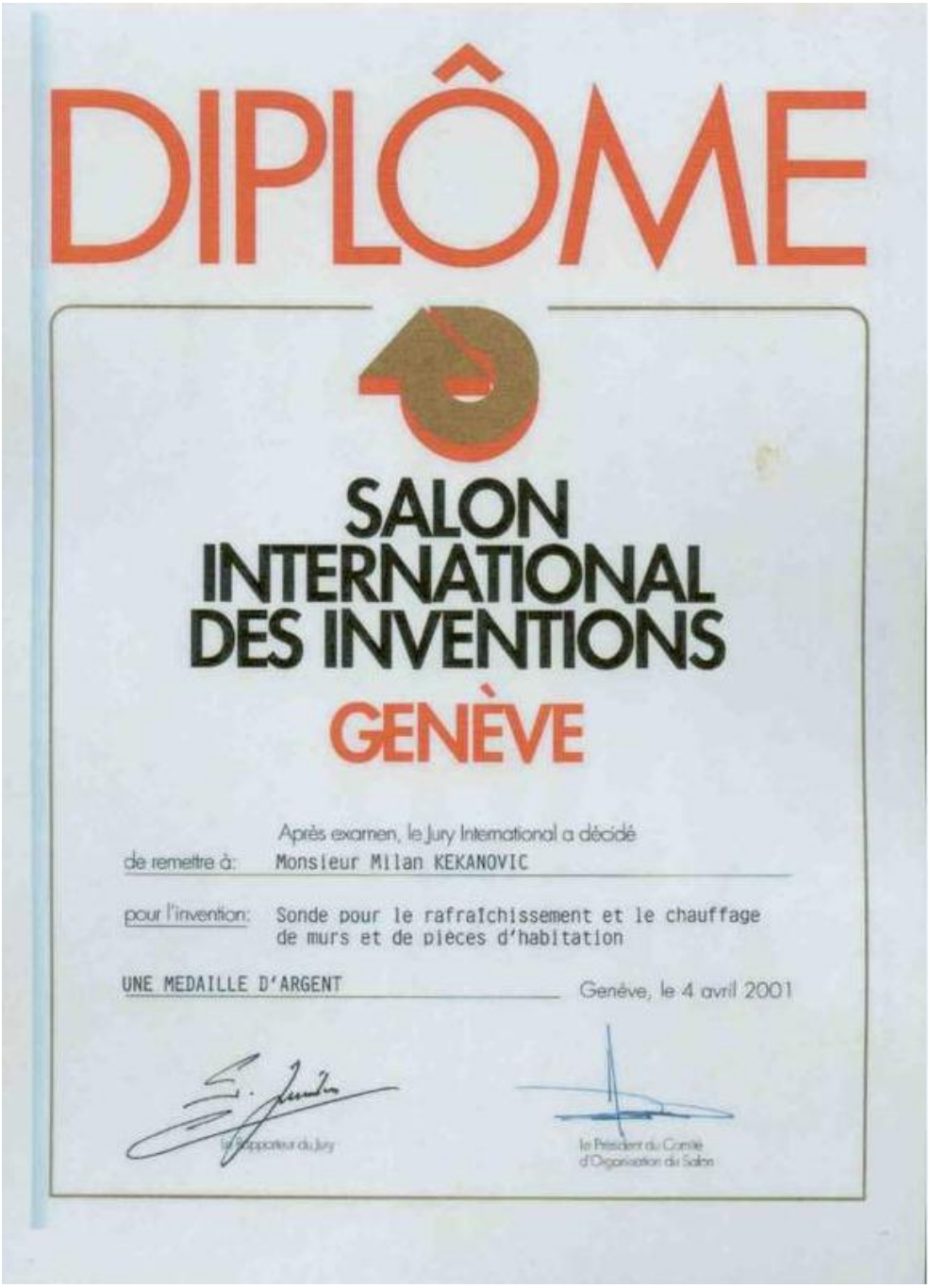
Picture 5: *Diploma received at the "EUREKA '98"*

- 2nd Olympics in innovations – “GENIUS 2000“ in Budapest: Golden medal in the field of civil engineering

Picture 6: ***Medal received at the "GENIUS 2000"***

Picture 7: *Certificate received at the "GENIUS 2000"*

- International salon of innovations – Geneva, 2001: Silver medal



DIPLÔME

SALON INTERNATIONAL DES INVENTIONS

GENÈVE

Après examen, le Jury International a décidé

de remettre à: Monsieur Milan KEKANOVIC

pour l'invention: Sonde pour le rafraîchissement et le chauffage de murs et de pièces d'habitation

UNE MEDAILLE D'ARGENT

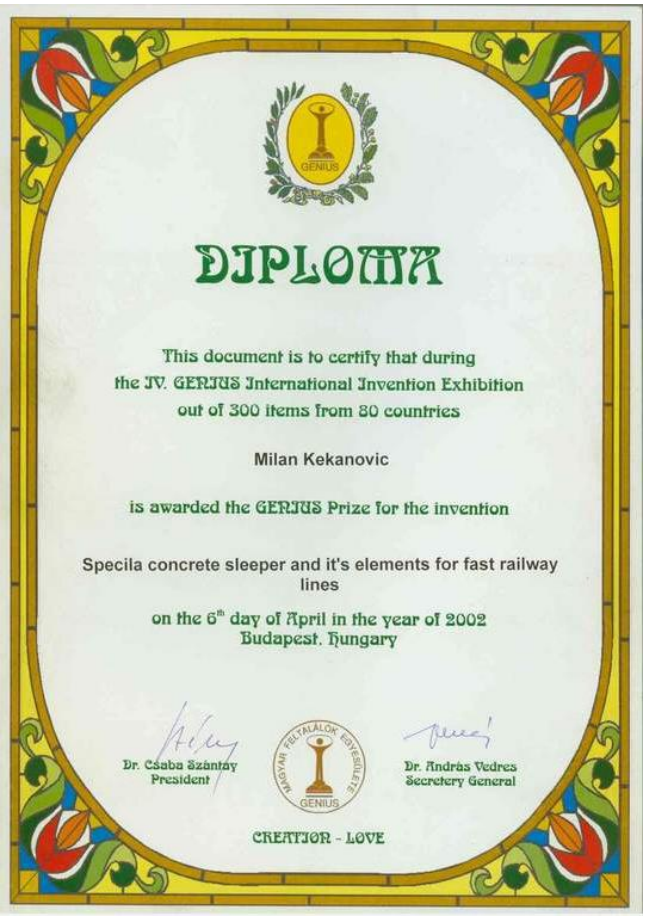
Genève, le 4 avril 2001

le Rapporteur du Jury

le Président du Comité d'Organisation du Salon

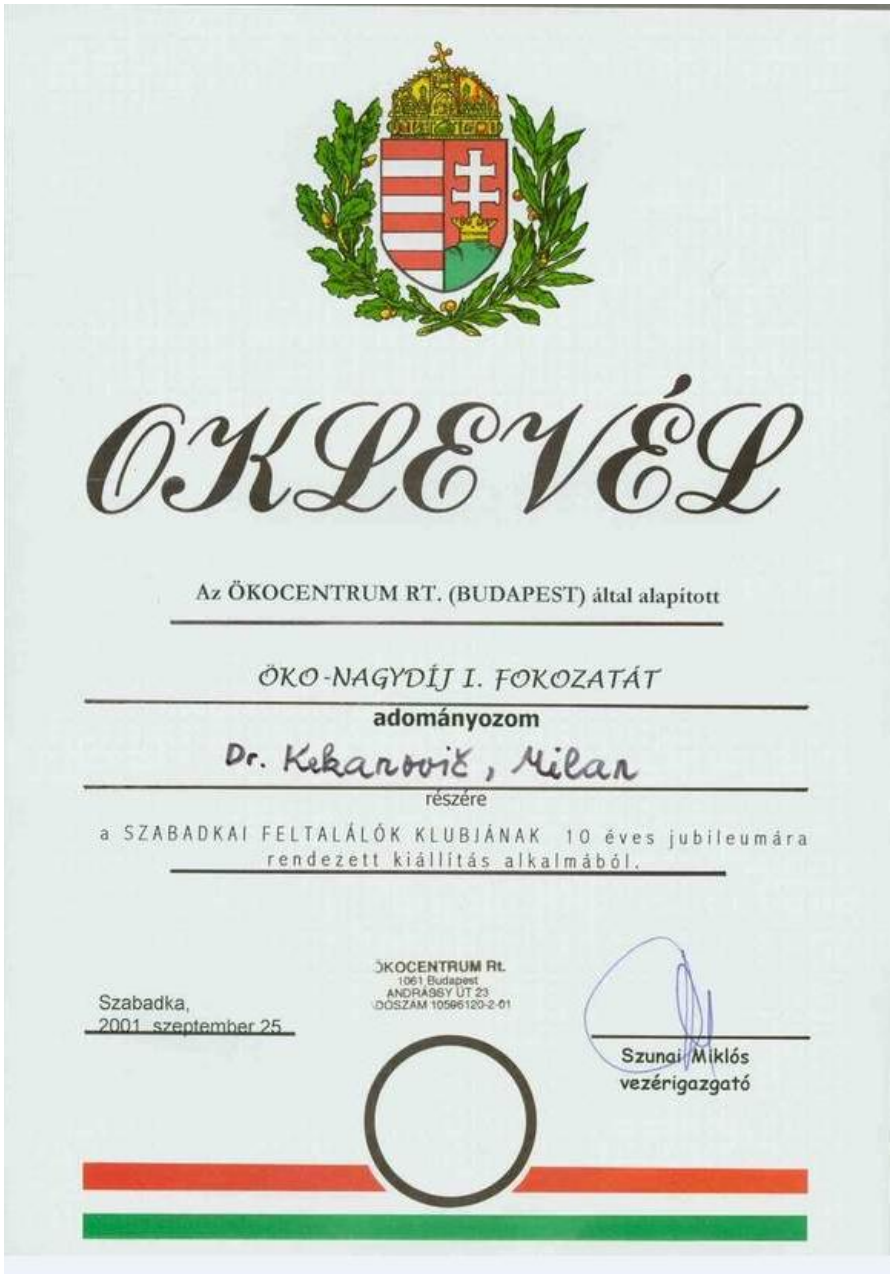
Picture 8: *Silver medal received at the salon of inventions in Geneva*

- 3rd Olympics in innovations – "GENIUS 2002" in Budapest: Golden medal in the field of civil engineering



Picture 9: *Diploma received at the "Genius 2002"*

- Exhibition of innovations – Belgrade, 1998: “Nikola Tesla” gold medal
- 6th International exhibit of innovations "YU Invent" – Subotica, 2001: Grand Prize of the 1st degree received from the Ecocenter in Budapest



OKLEVÉL

Az ÖKOCENTRUM RT. (BUDAPEST) által alapított

ÖKO-NAGYDÍJ I. FOKOZATÁT

adományozom

Dr. Kekanović, Milan

részére

a SZABADKAI FELTALÁLÓK KLUBJÁNAK 10 éves jubileumára rendezett kiállítás alkalmából.

Szabadka,
2001. szeptember 25.

ÖKOCENTRUM Rt.
1061 Budapest
ANDRÁSSY ÚT 23
ADÓSZÁM 10596120-2-01

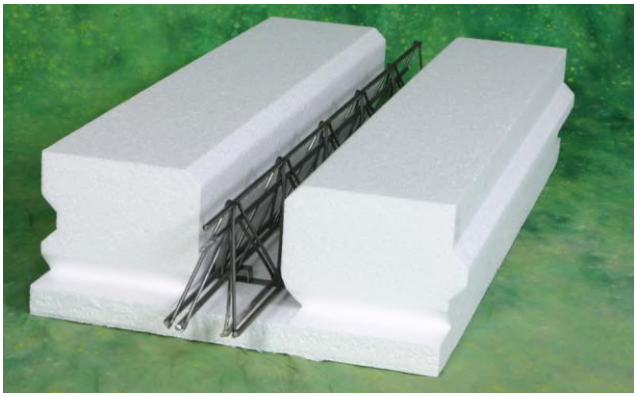
Szunai Miklós
vezérigazgató

Picture 10: *Diploma received from Ecocenter*

- International fair of civil engineering – Belgrade, 1998: "Potisje - Kanjiža" stand - Exhibit of a new product – Semimountable structure of large ranges according to „Potisje M&K“ system (co-author with Karolj Kasaš, Ph.D)

- International fair of civil engineering – Belgrade, 2001: "Udarnik Komerc" stand - Exhibit of a new product – Semimountable structure of large ranges according to „Potisje M&K“ system (co-author with Karolj Kasaš, Ph.D)

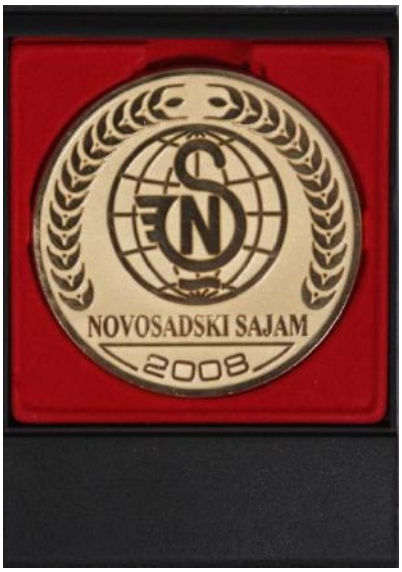
- International fair of civil engineering – Belgrade, 2007: "Europolis" stand - Exhibit of a new product for building interfloor structures



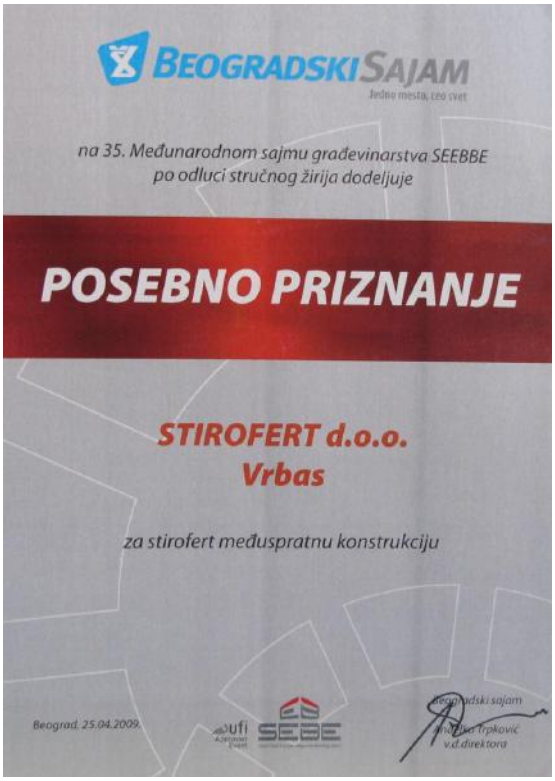
- International fair of civil engineering – Belgrade, 2008: "Prometal" stand - Exhibit of a new type of mixers for mixing concrete, cement, asphalt and other granular and powdery materials

- International fair of civil engineering – Belgrade, 2008: "TD GROUP" stand - Exhibit of a new type of fireproof doors with fire resistance of at least 120 minutes

- International fair – Novi Sad, 2008: Golden medal



- International fair – Belgrade, 2009: Special recognition


BEOGRADSKI SAJAM

Jedno mesto, ceo svet

na 35. Međunarodnom sajmu građevinarstva SEEBBE
po odluci stručnog žirija dodeljuje

POSEBNO PRIZNANJE

STIROFERT d.o.o.
Vrbas

za stirofert međuspratnu konstrukciju

Beograd, 25.04.2009.

Beogradski sajam
v.d.direktora

National level references - patents

- Patent number – P-322/97 YU: *Construction of interfloor ceiling of large ranges, especially in building public and living facilities and products acquired in this fashion.* (1997). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-311/97 YU: *Procedure of producing of polystyrene concrete and products acquired in this fashion.* (1997). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-312/97 YU: *Procedure of producing of ground hemp stems concrete and products acquired in this fashion.* (1997). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-315/98 YU: *Ceramic channel with application in construction of mountable, arch and ring bearers.* (1998). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-430/98 YU: *Procedure of acquiring concrete, ceramic, insulating, modular, facade, ecological and bearing elements.* (1998). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-222/99 YU: *Fine ground ceramic as pozzolanic addition in cement production.* (1999). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-369/99 YU: *Procedure of acquiring ceramic small grain concrete and products acquired in this fashion.* (1999). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-068/00 YU: *Vertical depth probe for heating and cooling of walls and rooms.* (2000). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-645/01 YU: *Special concrete threshold with elements for high speed railroads.* (2001). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-634/03 YU: *Artificially milled clay as pozzolanic addition in the prepping of mixtures for drill hole cements.* (2003). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-635/03 YU: *Procedure of producing drill hole mixtures without the need for cement.* (2003). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-636/03 YU: *Procedure of producing polystyrene – perlite concrete.* (2003). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent number - P-2005/0855 YU: *The possibility of special kind of relief, insulation and reinforcement of interfloor structures.* (2005). Intellectual Property Journal – Office for intellectual property of the Republic of Serbia

- Patent priznat br. 52156 i nalazi se u primjeni - višekomorni mješalice s vertikalnim cilindrima i prinudnim miješanja, 2012.

- Patent reported under patent number – 52156: *Multi – chamber mixers with vertical cylinders and forceful mixing*. (2012) (Side note: this patent is already in application)

Attendance of national showrooms and fairs – received awards and accolades

- "PRO URBE" – Subotica, 2000: A deserving citizen award for contribution in the fields of science and innovating

- Organizing of and taking part at the Educational fair – Novi Sad, 2004: Displayed pieces – new types of thresholds and bases for railroads; a new type of ceramic concrete roof tiles; models of a new type of electric posts; a depth probe for heating and cooling; a new type of building blocks

- Organizing of and taking part at the Educational fair – Novi Sad, 2006: Displayed pieces – a new type of ceiling and a new type of wall panels

- Taking part at the Educational fair – Novi Sad, 2007: Displayed pieces – a new type of “Vulcanus” fireproof doors with a fire resistance of over 120 minutes; a new type of universal countercurrent mixer of concrete and mortar; a new type of interfloor structure

- Taking part at the Educational fair – Subotica, 2008: Displayed piece – a new type of ceiling – “StifoFert”

New products as a result of scientifict and innovative work

- A new type of light interfloor semi - mountable, grill – cassette reinforced concrete structures of large ranges (up to 20 m), of large bearing capabilities and great resistance and safety in case of seismic movements. It is on the market under the name of “StiroFert – structures which preserve energy“. This structures is made of concrete trapped inside a styorofoam cutout which reduces the weight of the structure up to 45 % relative to the same type of structure made of concrete. It is placed on the ceiling in an intent to provide excellent thermal insulation and minimize the effects of thermal conduction which would be greatly emphasized in the case of concrete ceiling instead of “StiroFert“. The other use of this structure is that it provides lower portions of the rooms with hotter air because of constant circulation because hot air cannot escape through the ceiling. This innovation is recognized all over the world as a patent. It has been attested for bearing, fireproof and acoustic capabilities at an institute in EU in Spain; for bearing capability at the IMS Institute in Belgrade, in the Republic of Serbia. “StiroFert“ is applied on the markets in the Republic of Serbia, Montenegro, the Federation of Bosnia and Herzegovina and in the Republic of Slovenia

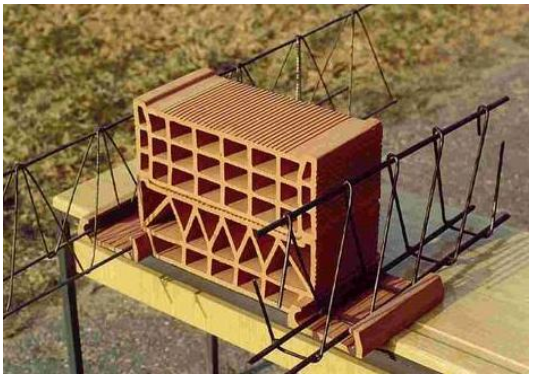
- Molding insulational blocks of light “Sustirol“ concrete for building walls, reinforcing and concreting of roads, the innovation under the name “EkoKeko“ blocks. System of building walls with these blocks does not require casting of pillars and transoms, all that is needed is supporting. These walls provide all the conditions of safe and comfortable stay in the case of: seismic activity, high (walls act as air-conditioners) and low temperatures (solar walls in the winter – walls have the ability of accepting solar energy). These walls are fireproof and allow vapor diffusion. They can be made monolithically or be mountable. Walls are exclusively rendered with light “Sustirol“ thermal mortar with the thickness of 4 cm and 3 cm for outter and inner layer, respectively. The blocks are patented and attested in the Republic of Serbia and the Republic of Slovenia.

- Construction of „“StiroFert“ walls and interfloor structures in the following systems of construction: monolith, semi – mountable and mountable

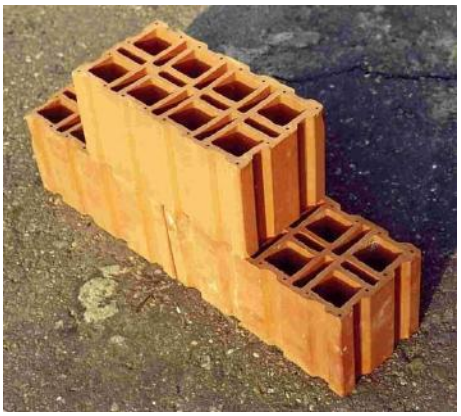
- A new type of molding insulating blocks of light “Sustirol“ concrete for building walls, reinforcement and concreting of roads as the “StiroFert“ system under the commercial name “Gigant blokovi“ with the next dimensions: width – 40 cm; length – 80 cm; height – 19 cm. They are installed with reinforcement and concrete inside vertical cavities and satisfy all the needs of walls with no need of rendering: Bearing capability, thermal insulation, sound proofing, vapor diffusion, fireproofing.

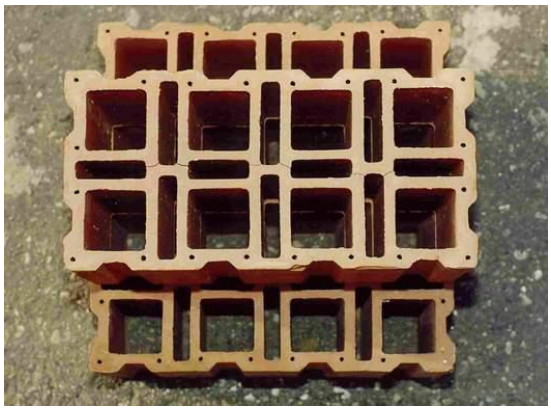
- Light molding insulational blocks for building made of “Sustirol“ concrete with vertical cylindrical cavities – test built at the shopping mall “Idea“ in Belgrade

- Semi – mountable structure of large ranges made according to the „Potisje M&K“ system. This structure is patented, attested and applied

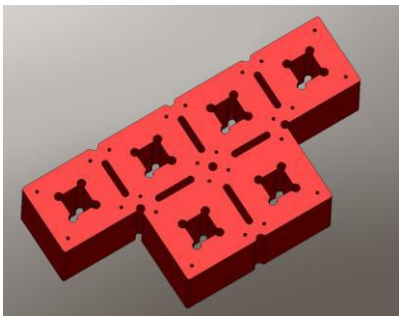


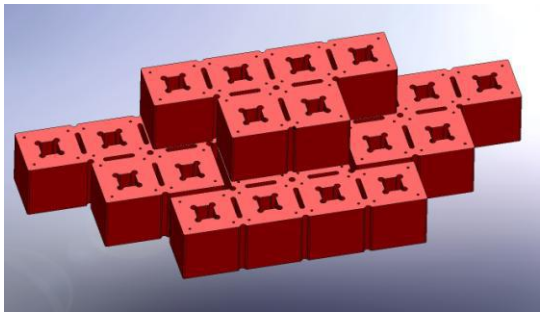
- Baked clay blocks for building – test built at “Potisje Kanjiža“ in Kanjiža

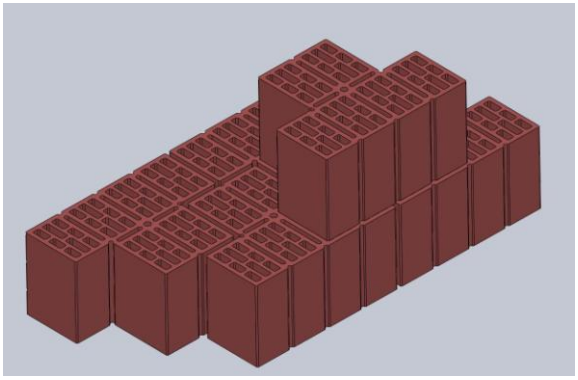


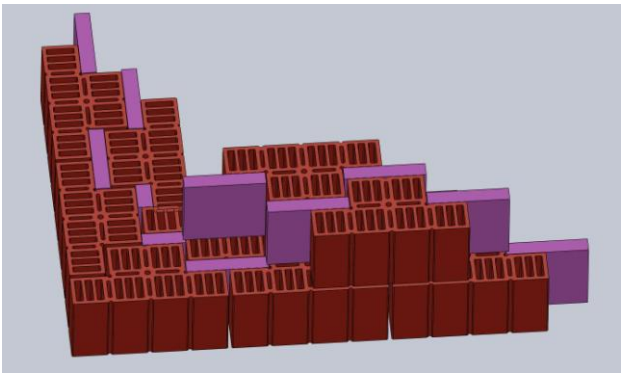


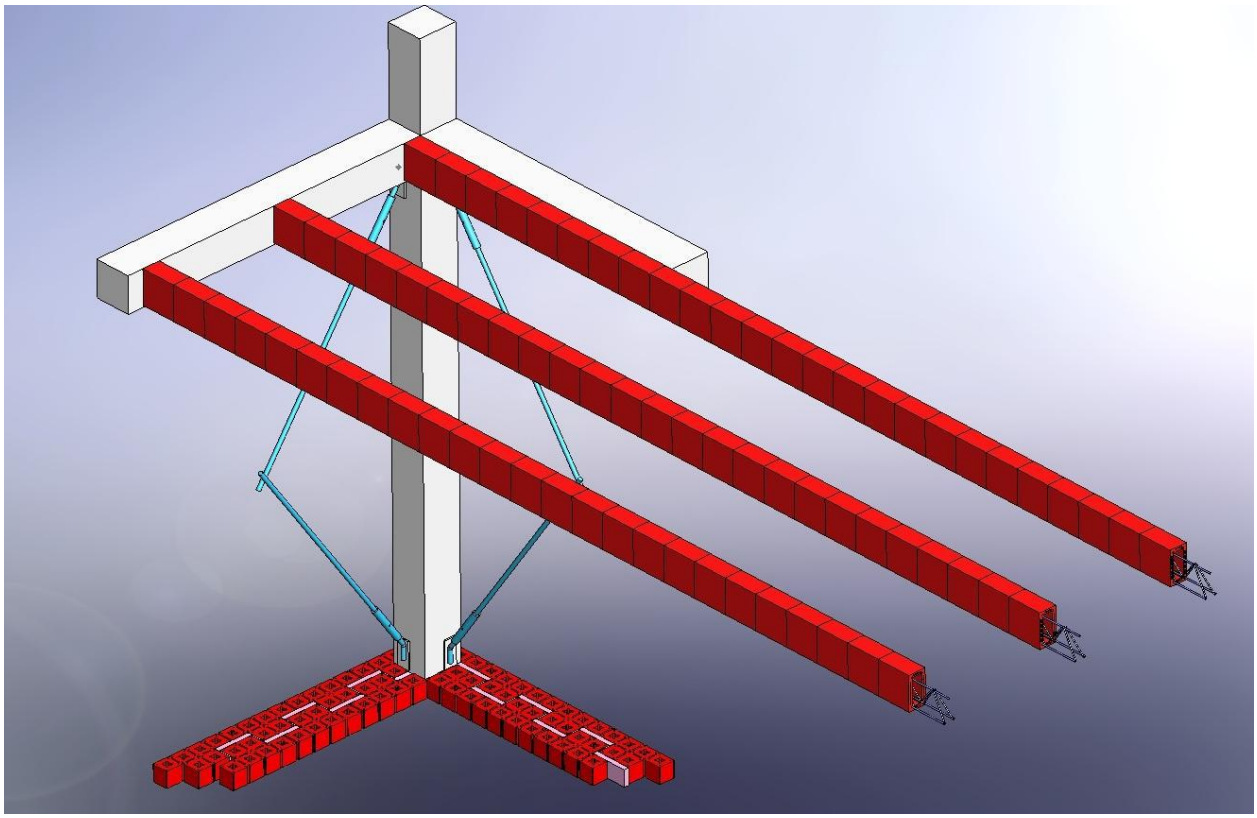
- New type of blocks for building walls with vertical bracings, especially in seismically active areas. These walls are sound and fireproof. Blocks are patented but not in production







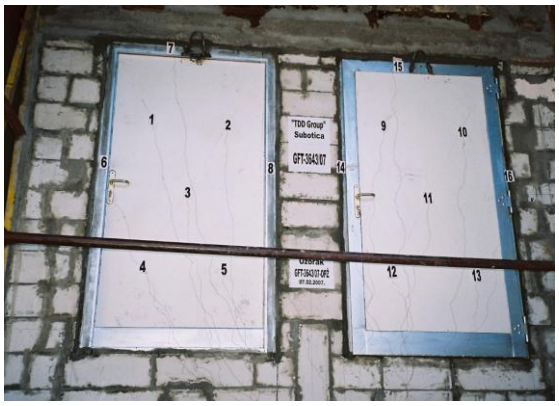




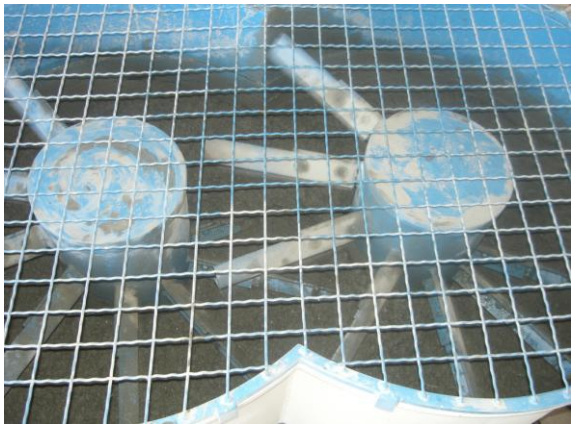
- New type of roof and wall panels in the following combination: lamenated (aluminum) sheet and light “Sustirol” concrete. It is applicable as a building method for halls, business offices and markets. These panels are fire and sound proof, thermally insulating and with a high capability of absorption of sound waves which is especially suitable in heavy industry production with high noise levels. Panels are applied at the “TD GROUP” industrial hall

- “Sustirol“ light mortar based on polystyrene, milled stalk of hemp, sawdust and milled straw for rendering of the walls. This mortar has excellent thermal and sound insulation, ability of sound absorption, fireproof resistance and vapor diffusion. The innovation is patented

- Fireproof doors of high resistance to fire (up to 120 minutes). The doors are in application

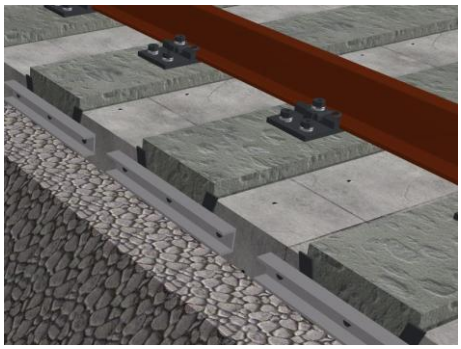


- New generation of mixers for concrete, mortar, asphalt and every other powdery and grainy material. The mixing is completely uniform in the whole volume. It is test produced at “Prometal“, Sopot. The innovation is patented in the Republic of Serbia.

- Railroad concrete thresholds for high speed trains of the new generation. The thresholds are flexible elastic plates with a minimal need for the upkeep of upper “machine“. This solution is patented in the Republic of Serbia

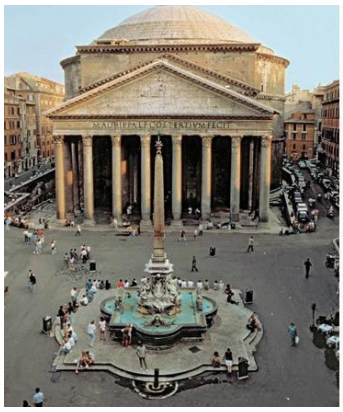


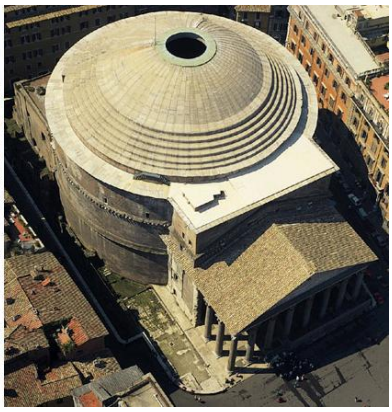



Some visionary projects and patents for „the new age“

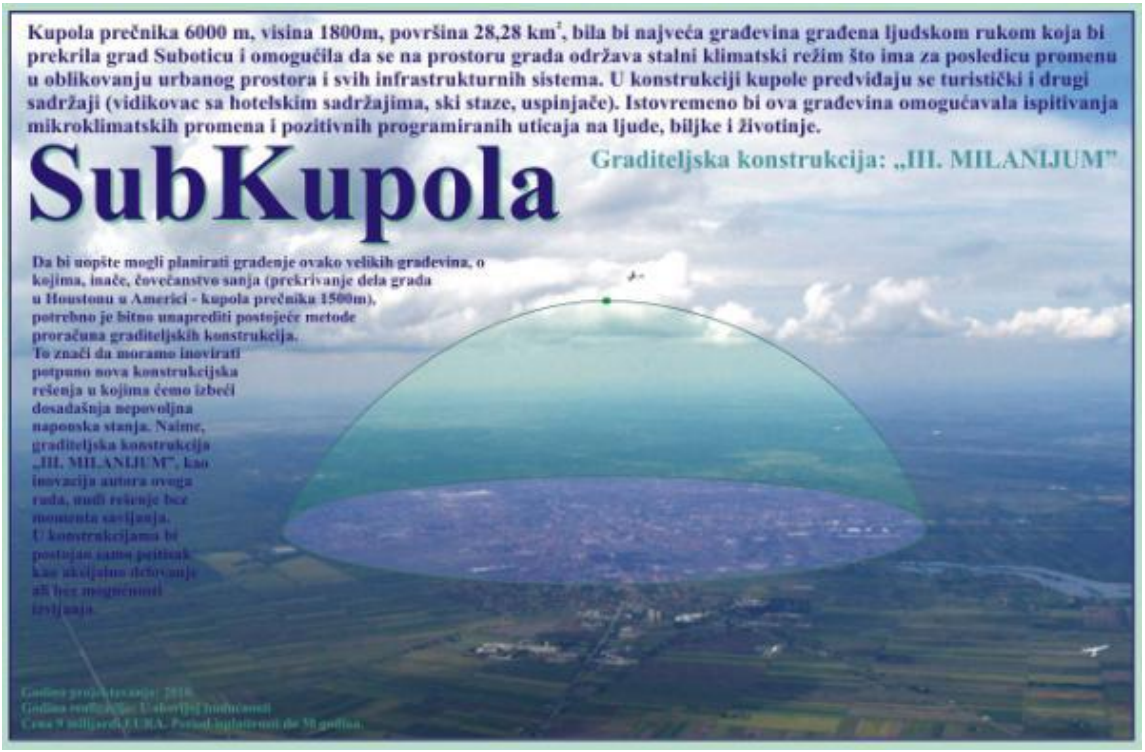
Side note: realization of these visionary solutions is already possible with the existing technology, fairly modest expenses and is especially needed in the world today because of immense limitations of existing solutions which may cause huge crisis in the world like the following ones: energy, ecological and economy crisis. Some of the visionary projects are listed and described below:

- A new type of hidraulic binder based on the models of historic binders with large hardness, resistance and durability of concrete even after a thousand years – Serbian Roman cement (SRC – hidraulic binder). New types of concretes would be made of a mixture of SRC – hidraulic binder, water and grainy aggregate acquired from natural rock. The application of SRC – hidraulic binder is limitless in regards to construction objects. An especially desirable application would involve the building of the biggest and most expensive structures because of the large need for high resistance and durability



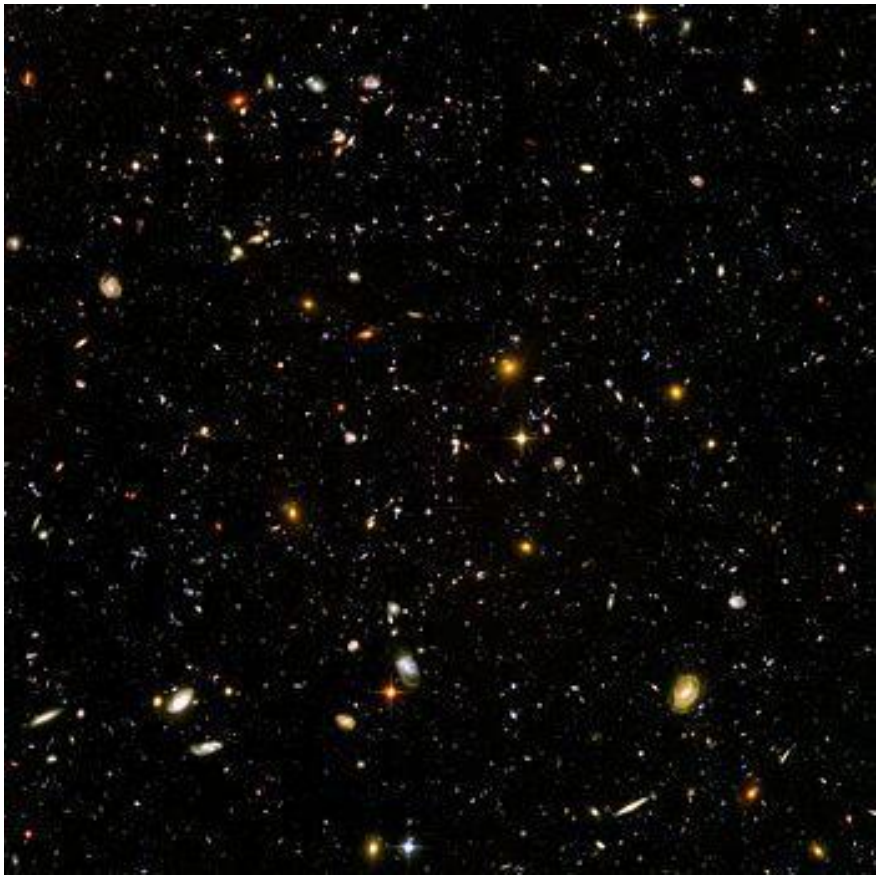


- A new solution of construction and building the largest and safest structures in the world with the ability of covering cities with a number of inhabitants of up to 500 000 using domes with radii of 6 km. This solution is a result of the observing of structures from our past. It would be completely mountable – demountable with flexible junctures with no need for welding, rivetting and pouring concrete over the junctures. The solution can be applied in everything and the capabilities are virtually limitless. A special ability appears in regards to the breaking force of straining. Namely, this force would be avoided in building structure according to the proposition regarding this solution. The second special ability is in regards to the appearance of the force of straining at the upper portion of the carrier in the “simple beam“ systems which is completely opposite to today’s way of construction. The solution is extremely needed in safe building like the covering of the cities for extreme climate control. Its application does not end there as it is possible in building the largest bridges and the highest buildings



- A new solution of heat pump with a utility coefficient COP > 1:15. Today's heat pumps do not go over the COP < 1:7. Side note: this kind of heat pumps would not recquire well drilling for depth probe installation in the ground. The solution is solely based on the force of friction created by the water pumping through the specially designed installation. The application of this kind of solution is in its very infancy

- A revolutionary way of space travel in speeds acquired through unlimitless acceleration. The acquired speeds higher than the speed of light would be real and involve real space objects with a crew of humans with no harmful side – effects to the crew or the spacecraft. Side note: this solution would obviously not oblige existing laws of physics. The solution actually stems from limitations of the laws of physics and is probably the most needed action in the prosperity of the world as it would supply a faster space exploration.



Citation

- No citation from domestic authors
- Citation from international authors, especially of the patents which were in the procedure of world PCT check and WIPO and EPO protection

Languages

- Native language: Serbian

Foreign language	Understanding	Speech	Writing
Russian	C2	C2	B1

Driver's licence

- B category