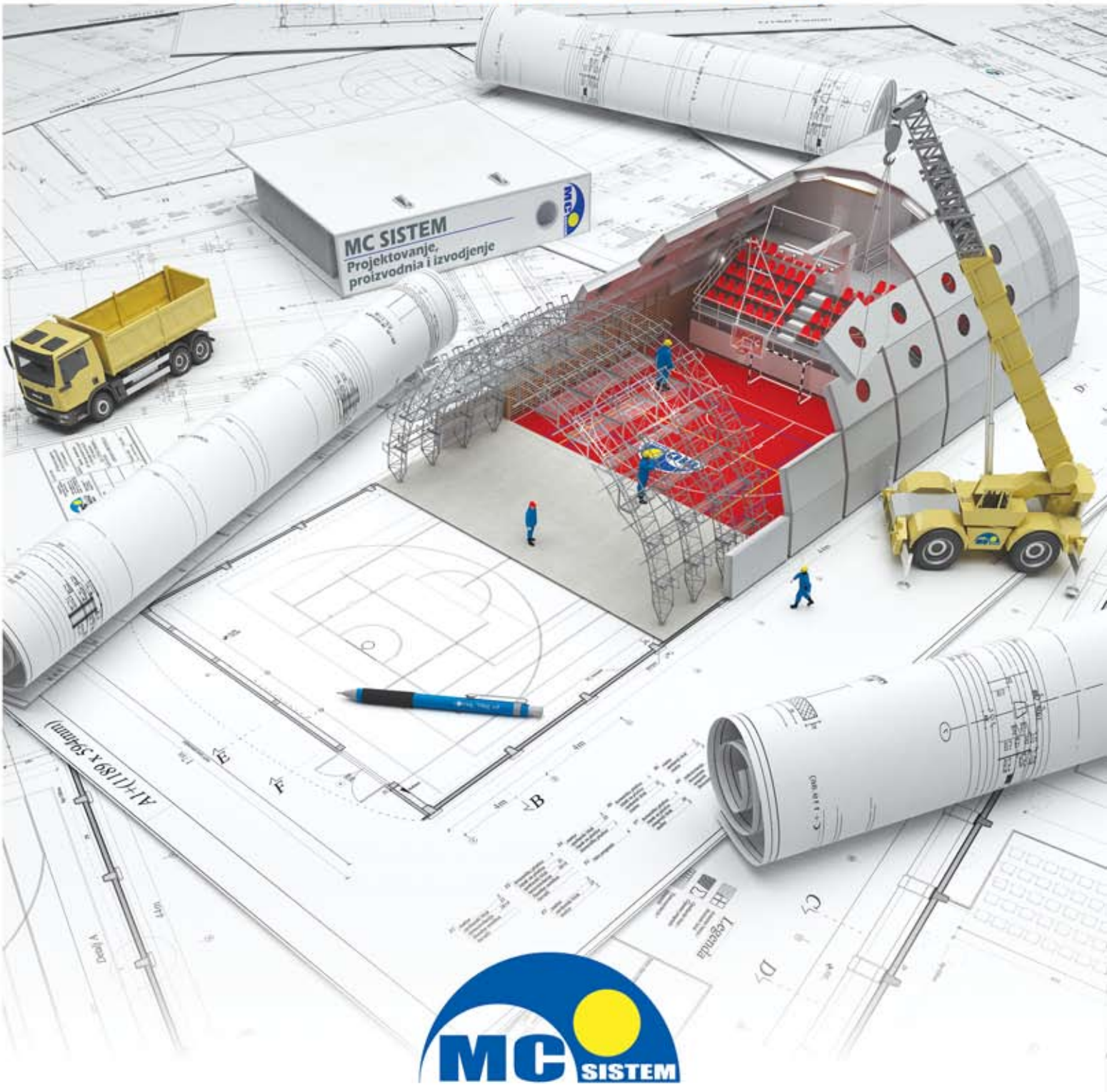
MILINKOVIĆ COMPANY

DESIGNING PRODUCTION CONSTRUCTION



MC SISTEM

Milinković Company l.t.d. , Braće Gavrajić 79, 11275 Boljevci - Belgrade, Serbia

tel/fax: +381 11 318 0 700 , www.milinkovicco.com , e-mail: milinkovicco@gmail.com

PRODUCTION OF ELEMENTS

- **FAST**
- **QUALITY**
- **SAFE**
- **DURABLE (SEVERAL CENTURIES)**
- **FLEXIBILE**
- **ENERGY EFFICIENT**
- **ENVIRONMENTAL**
- **PROFITABLE**

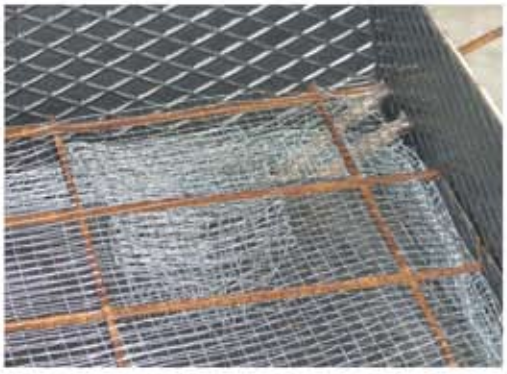
New, patented, fast and simple construction system of high quality, durable, energy efficient and profitable objects of different sizes suitable for various purposes.

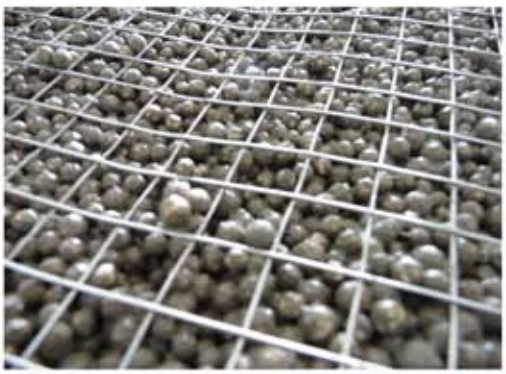
Objects are resistant to earthquakes, storm winds, and fire - with positive aspect to nature and ecology.

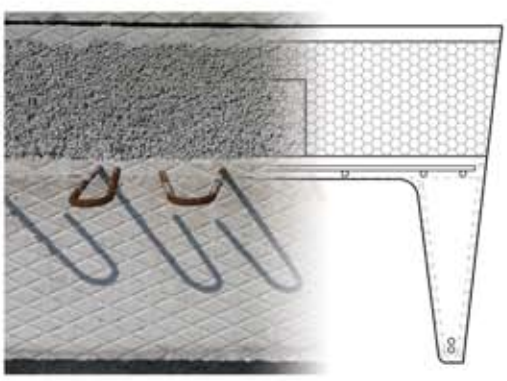
One of the top features of objects is high level of energy efficiency. Through the three-year monitoring of electricity consumption in the building of the school sports hall in Boljevci (CBA 954.9m2) measurement shows the average consumption of 53kWh/m2 annually for all needs, HVAC (heating, cooling, ventilation and air conditioning), lights, sanitary water heating, air ionization...,

For the comparison, average measured energy consumption in several similar halls in Great Britain is 448kWh/m2 per year according to "Energy Consumption Guide 78: Energy use in sports and recreation buildings". From the above it can be concluded that the electricity bills are several times lower.

Objects do not require any maintenance except periodical coating of the building (there are no any roof coverings, flashings, gutters, sheet metal, etc.. needed to be replaced). Coating is easily performed using the sliding scaffold that is an integral part of the hall with no additional cost for scaffolding.







ASSEMBLY AND CONSTRUCTION















BASIC TYPES OF HALLS

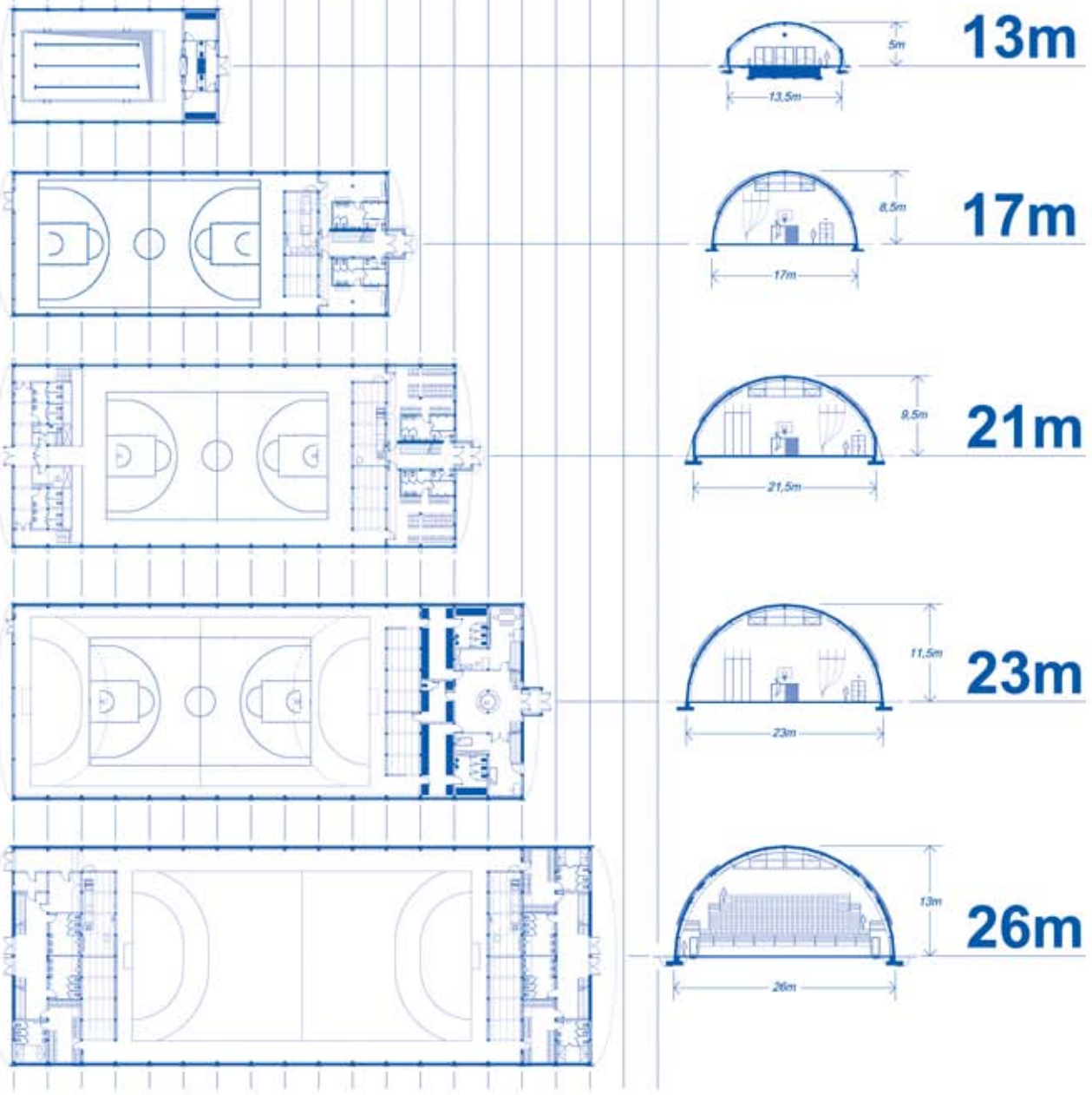
REQUIRED LENGTH OF OBJECTS (m)

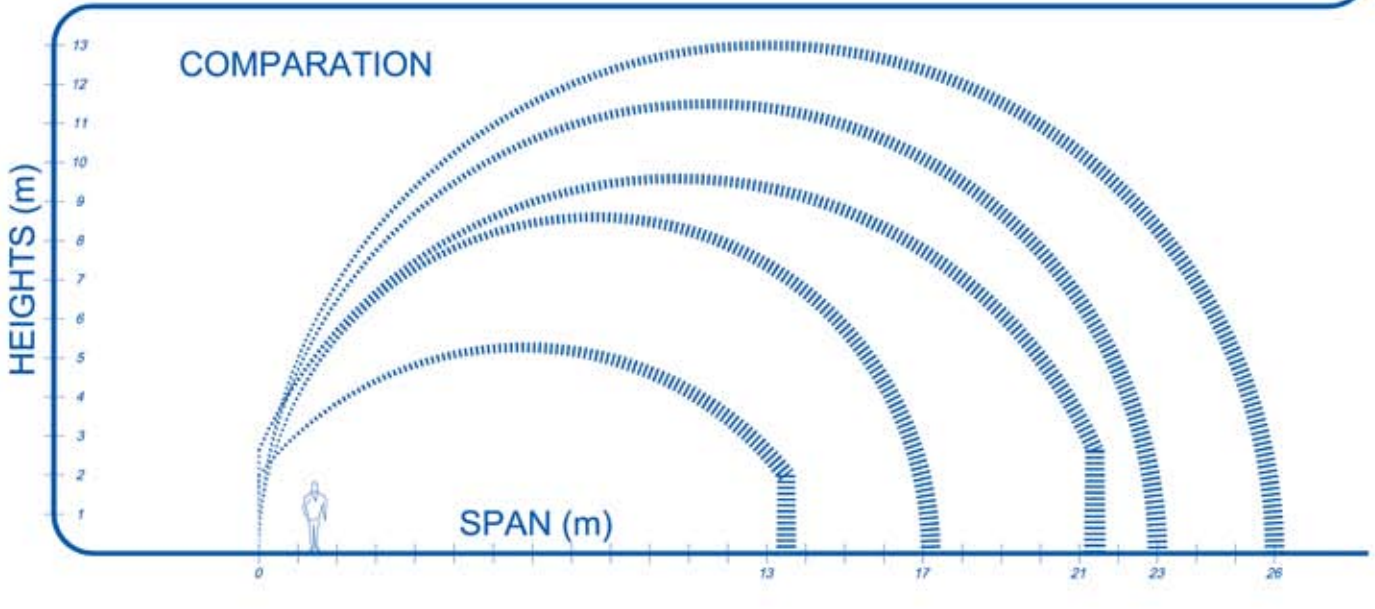
CROSS-SECTION

TYPE

0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 ...

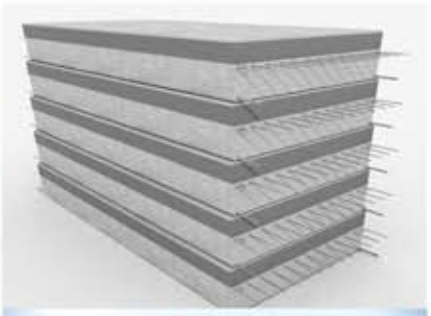
Example of interior design





MC SYSTEM - SUSTAINABLE CONSTRUCTION

THE ESSENCE OF MC CONSTRUCTION SYSTEM It represents quick, easy and simple construction system for building of energy efficient, high quality and safe objects with a positive impact on nature and ecology. Constructed objects are earthquake and fire resistant.



"BIG BRICK" WITH MANY ADVANTAGES Prefabricated elements, "big bricks" are three layered elements without thermal bridges. The base of element is ribbed plate made of ferrocement, second layer is fireproof insulating layer made of Styrofoam boards dipped in lightweight concrete and third, final layer is thin fibro-ferrocement layer which serves as a mechanical protection and also protects carrying construction from influence of sulfates, nitrates and aggressive environment what prolongs the objects lifetime. Dimensions of the elements are 1.8 x 3.8m, standard thickness 20cm (or higher depending of the thickness of the isolation layer by the wish of the investor and desired energy efficiency level) and weight 1400 kg. Elements are tough and resistant to all weather conditions."Big bricks" are making MC system very simple for implementation. Only one type of elements is needed for construction of the entire object while transport is in standard overall dimensions.

QUICK AND HIGH QUALITY CONSTRUCTION Prefabrication allows the "big brick" to be made with same uniformed quality which reduces finishing works to a minimum. Dimensions of the elements are carefully picked up to enable significantly faster constructions of the objects. On completed floor plate and the foundations, by MC system it is possible to construct hall of 1000m2 of surface, 6000m3 of enclosed space respectively in only 15 working days.

NEW CONSTRUCTION PHILOSOPHY All constructions systems of concrete high-rise buildings, first forms main supporting structure (columns, beams, floor panels....) and then by coating of such structure (walls, panels, glass....) space is being closed were all the elements are forming unique static system. MC system of construction is first closing desired space. Constructed structure provides all the requirements of static, thermal, hydro isolation and high level of stability, security and durability. Entire structure constructed using this technology doesn't possess not even one thermal bridge

After enclosing of the such desired space, inside, in controlled environmental conditions all storey's and walls construction is performed by any technology as a separate static system. Due to organization of construction phases, MC System dramatically prolongs construction season and provide flexible space that lives, develops and changes in accordance with the wishes of user.

CONSTRUSTION AND ASSEMBLY Assembly is done with simple stacking of the elements on the special steel arched scaffold (like bricks), the joints among arched segments of the elements (on every 4 meters along the length of the object) are being reinforced and closed with shutters. After casting of the concrete in the space between segments, reinforced concrete arch stays formed; he is representing the main bearing construction. After hardening the concrete in the arches, steel construction is being dissembled and used to support the next segment. Reinforced concrete arch is thermo isolated from the outside and joined with isolation in the elements. By doing this the whole construction process of the object has been completed (roof and facade walls). It is not necessary to plaster the walls due to the high quality of the elements which represent the finishing surface. It is only necessary to paint interior and apply waterproof coating on the exterior of the object. According to the length of "big bricks" (4m), length of the object is determined in longitudinal direction which means that object can be length of for example 40,44,48....meters.

ARCH SHAPE Arch shaped halls achieve significant advantages compare to rectangular shaped objects. Extraordinary static system enables resistance on seismic influence and thanks to its shape influence of wind and any other form of dynamic load is drastically reduced. Wind is just sliding over the object which doesn't have tiles or metal roofs that can be separated from the structure. Favorable ratio of volume and surface of the floor allows savings in cooling and heating while smaller surface of exterior walls additionally reduces heating losses and undesired heating during the summer. Widows which are considerably smaller dimensions with their position (on the slope surfaces) are providing same illumination of the interior as it would be with larger windows on the horizontal surfaces. With reduction of the glass surfaces heating losses are additionally reduced.

FLEXIBILITY Possibility of free partitioning of interior allows big flexibility. Architects have full freedom for interior design. Due to the separate static systems of interior and exterior construction it is possible to completely redecorate and change the purpose of the existing object providing that space lives in accordance to the actual needs of the owner. The purpose of such objects is broad: business and residential objects, public (health centers and nursing homes), educational purposes (schools and kindergartens), manufacturing and industrial halls (factories, workshops), warehouses (especially for storage of high flammable goods and cold storages due to thermal capabilities and fire resistance), special place is taken by the recreational facilities (sports halls, pools etc).

ENERGY EFFICIENCY AND ENVIRONMENTAL IMPACT MC system allows savings in all stages of the life cycle. Saving of the material in the production of "big bricks", easy transportation, simple and fast construction, considerable savings of energy in exploitation, it is not necessary to maintain investment. All of this is minimizing negative impact on the environment. Use of modern HVAC equipment is very simple. All types of solar panels can be simply assembled on the slopes of the hall without sub constructions, internal installations can be placed directly on the construction of the hall and central system for air conditioning is designed without the limiting factor of internal organization.

Example:
Extraction from Energy Efficiency Project

SPORTS HALLS

SPORTS HALLS

POOLS OF DIFFERENT SIZES

OBJECTS CAN BE MULTIFUNCTIONAL WITH VARIOUS CONTENTS

FARMS

13m x 100m

POSSIBLE APPLICATIONS

WAREHOUSES

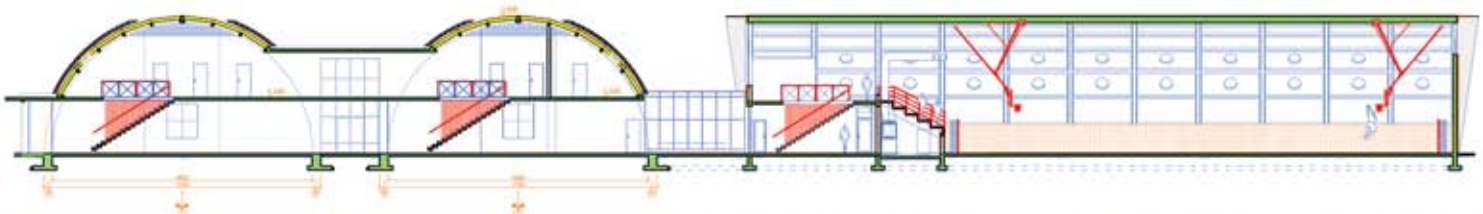
PRODUCTION HALLS

HANGARS

KINDERGARTEN

OFFICE BUILDINGS

SCHOOLS



These are just a few of our suggestions for the possible use of the such halls. Number of applications is unlimited giving you complete freedom in creating your future space.

SPORTS COMPLEX

ARENA

ENERGY EFFICIENCY

Heat losses are taken to minimum by excellent thermal properties of elements and construction without any thermal bridges while smaller windows on the slope provide aplenty of lighting. It is easy to install all types of solar panels and modern thermo equipment at no additional cost. Buildings can be designed to provide all the energy needed for normal operation. **While others talk about sustainable buildings - we build them.**

AWARDS AND APPRECIATION

IFIA SCIENTIFIC GOLD MEDAL
6th international exhibition of inventions
Suzhou – China, 2008

New Vision, South East Europe Belgrade
Building Expo, international construction
fair (UFI).
Belgrade, Serbia, 2009

Grand Prix
for patented solutions,
22nd May 2009,
Belgrade, Serbia

Special recognition, Interna-
tional Fair of Technique and
Technical Achievements
Belgrade, Serbia, 2009

Gold Medal, international
exhibition of technology
improvements and
new products,
Skopje, Macedonia, 2009

Award "Aurea" for innovation
Belgrade, Serbia, 2009

Gold prize for innovation
Celje, Slovenia, 2009

Bronze medal for innovation
Zagreb, Croatia, 2009

Silver Medal on 5th International
fair of new technologies
Sevastopol, Ukraine, 2009

Chosen among 10 best projects in
Europe
Lyon, France, 2010

Gold Medal for
MC system of construction
Belgrade, Serbia, 2010

Leading innovation Award,
Tai Pei, Taiwan, 2011

Golden medal for invention of
Ferrocement noise barriers MC Lias,
Belgrade, Serbia, 2012

Certficate, Energy Globe
national award 2012.
Winner - Republic of Serbia
Traunkirhen, Austria, 2012

REFERENCE LIST

2008, Boljevci
Production hall 17x56m

2009, Boljevci (Surčin)
Multipurpose hall, 17x52m

2010, Boljevci (Surčin)
School sports hall, 17x44m

2011, Stalać (Ćićevac)
School sports hall, 17x32m

2011, Zlot (Bor)
School sports hall, 17x32m

2012, Baroševac (Lazarevac)
School sports hall, 17x44m

SINCE 1990.

MILINKOVIC COMPANY is fully equipped to meet all the demands of the most complex undertakings in all areas of civil engineering, construction, prefabrication of RC and ferrocement elements and construction of infrastructure network.

Registered Entity of innovation activity in Ministry of Science - R&D and Production Center

ISO9001 certified by "TUV SUD Management Service GmbH" in All areas of activity.

РЕПУБЛИКА СРБИЈА
Завод за интелектуалну својину

Београд, Кнегиње Љубице 5

ИСПРАВА О ПАТЕНТУ

Број 52330

Подносиоцима пријаве за признање патента
МИЛИНКОВИЋ, Миленку, Браће Гаврајић 79, 11275 Бољевци, RS;
МИЛИНКОВИЋ, Младену, Браће Гаврајић 79, 11275 Бољевци, RS
признат је патент под називом
„МОНТАЖНИ ГРАЂЕВИНСКИ ОБЈЕКАТ ГРАЂЕН ОД ПРЕФАБРИКОВАНИХ ФЕРОЦЕМЕНТНИХ ОРЕБРЕНИХ ЕЛЕМЕНАТА СЕНДВИЧ ТИПА ИЗЛИВЕНИХ У КАЛУПИМА"
по пријави П-2009/0078, поднетој 18.02.2009. године,
са правом првенства од RS 18.02.2009. P-2009/0078.

Патент је уписан у Регистар патената 22.08.2012. године,
и објављен у Гласнику интелектуалне својине бр. 6/2012, 31.12.2012. године.

Патент важи до 18.02.2029. године, под условом
да се годишње таксе за његово одржавање редовно плаћају.

Ова исправа издата је на основу члана 110. Закона о патентима,
("Службени гласник РС", бр. 99/11).

Београд, 03.01.2013. године.

Директор
Бранка Тотић

MC SISTEM
MILINKOVIĆ
COMPANY

Milinković Company l.t.d. , Braće Gavrajić 79, 11275 Boljevci - Belgrade, Serbia
tel/fax: +381 11 318 0 700 , www.milinkovicco.com , e-mail: milinkovicco@gmail.com