



# Lazar Lazic

MANAGER

MIDIC

## BILATERAL MEETINGS

Wednesday 10:00 - 16:00

**DESCRIPTION** company for making details from plastic

### **The using of innovative methods in civil engineering**

Company "MIDIC" was established in 2016. The mains activity of company is production of innovative plastic details.

"MIDIC" has chosen development and production of three new innovations methods of production works that's fall within the scope of construction. All the working process, from the design development of innovative details, right protection, to the production, was made by the company.

These three methods are:

- 1) Installation reinforcement spacer in to the concrete slab
- 2) Installation of supporting elements for raise floor in to the slab
- 3) Dry method of installation ceramic tiles on the wall.

Most people have a positive attitude to innovation, but only when it completely clear and because of that I will describe briefly all three methods.

#### **1. Installation reinforcement spacer in to the concrete slab**

When we prepare slab for concrete filling, we have the following sequence of work execution:

- First, the installation of the formwork
- Settings of the rebar steel – lower belt
- Settings of the rebar steel – upper belt

- Filling concrete in the slab and aligning
  - After necessary time the formwork will be uploaded
- The rule is that rebar steel should not touch the surface of slab needs a protecting concrete area when formwork is removed. This problem is solved in such a way, that we put a small detail from plastic (reinforcement spacer) on the framework, and on that details we setting the rebar steel. The detail from plastic hold the distance between the rebar and the surface of slab, and it called reinforcement spacer.

After concrete filling in to the slab, the reinforcement spacer remains in the concrete and therefore, we consider them like consumption material. Such is the state of technology today. Thus, the question is – Can we use this detail for something else? The answer is – YES – we can. We add to reinforcement spacer one more function, in addition to that one it already has. That second function eliminates the need for drilling the holes in concrete slab.

The sense of innovation is the fact that after dismantling formworks we should not drill holes in the concrete slab to install dowel.

We make it in this way: the shape of the classic reinforcement spacer is a little bit changed, and we have added two standard details – dowel and screw. To classic reinforcement spacer, we have added for each side two extension (foot), which is lower than reinforcement spacer. On that foot we put the dowel, and through reinforcement spacer passes the screw and goes in to the dowel.

We put the reinforcement spacer (together with dowel and screw) on sheet form and – on reinforcement spacer put the rebar. After that we fill the concrete. When we remove the formwork sheets the head of screw remains available on surface of the slab, and the worker can immediately begin installation of detail which must be fixed.

As we can see; fitters, carpenters and concrete workers performed the same works as before, just they leave something which is need to all, namely – the POSSIBILITY OF

RAPID ERECTION UNDER ANY DESIGN, WITHOUT ADDITIONAL DRILLING HOLES and INSTALLING DOWELS and SCREWS.

This innovative method has advantages compared to today`s existing methods, namely:

- Big save working hours
- Big save electric energy
- Save of borers, which are not used at all
- Save on depreciation hammer drilling machine, which are not used at all
- Save of construction equipment (scaffolding, staircases, portable el. cable ....)
- To reduce construction time.

## **2. Installation of supporting elements for the raised floor**

Raised floors appeared first in the premises for server. Their main advantage is that we constantly have easy access to installations, which are located between the concrete slab and panels raised floor.

But, raised floor also has its drawbacks. Firstly, it is more expensive than classic floor, and secondly – it has bigger height than classic floors.

When the raised floor has an option, which has the same price like classic floors and also has smaller height – then in that case, it would be much more used.

A new, innovative method has such characteristics. To achieve in such a way that it used fewer details than the classic raised floor.

Innovation is in the fact that, when using a classic raised floor we have a supporting structure on the concrete slab, and when we use “new” method we have supporting structure inside of a concrete slab.

This new innovative method has advantages, if we compared it to today`s existing types of technical solutions, namely:

- Save of working hours
- Save of electrical energy

- The received places to the height of the room
- Much cheaper details
- Shorter period of performance work
- Quicker and more accurately mounted

The “new” method is described like we working only on new building, but we can use “new” method also when we make reparation old buildings. The different is that, than we must first drill holes into the “old” floor and, then we put the supporting details in these holes. To drill these holes, we using a special tool.

### **3. Dry method of installation ceramic tiles on the wall**

When we performing standard procedure of installing ceramic tiles on the walls, the production process looks like this:

- On already erected wall, pounces cement grout
- Every two meters are vertical beacons
- Rough plaster
- Fine plaster
- Need to wait for a while to dry wall
- On dry wall a fine layer of adhesive is applied
- On fresh adhesive set ceramic tiles, using the small plastic crosses
- Fulfillment of hollows between tiles, and surface is cleaned.

Now, if we suppose that there is a new method of installing of ceramic tiles on the wall. The production process would looks like this:

- On already erected wall, we mount skeleton made from metal profiles
- On the skeleton we set ceramic tiles, using the “new innovative details”
- Fulfillment of hollows between tiles, and surface is cleaned.

It is obvious that there are fewer working operations in the new method of installing ceramic tiles. Each working operation demands time which means – money. This

innovative method has advantages compared to today`s existing methods, namely:

- Big save of working hours
- Big save in materials
- Ceramic tiles can be easily removed, and they do not break, and can be reused
- Installation under ceramic tiles easily available
- The working process can be carried out at minus temperatures
- To reduce construction time

This new innovative process is describe, that we used it only in new house, but it can be used during the reparation old buildings and premises.

These three innovative methods are new, nobody knows about their existence. It would be necessary for them to know to all those people who could be potential users, i.e. buyers. I believe that the presentation, display at exhibitions and publication of this booklet should contribute to their promotion.

Tools for production of innovative details are made, and production can begin immediately after receiving the order from customers.

**ORGANIZATION TYPE** Company

**PHONE** 381-24-537-529

**EMAIL** [lazar.lazich@gmail.com](mailto:lazar.lazich@gmail.com)

**COUNTRY** Serbia

**CITY** Subotica, Ivana Antunovica, 74 [Google map](#)

**AREAS OF ACTIVITIES** CONSTRUCTION

## Offer

# INNOVATIVE METHODS IN CIVIL ENGINEERING

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## COOPERATION OFFERED

1. Other
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