

PROFESSION AND BUSINESS IN CONSTRUCTION PRACTICE – Questions for discussion, Part 2/3¹

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Summary: *"Business has ruined the construction industry and destroyed the profession". Does it happen only in civil engineering or also in other areas? Does it happen with profession or its ethics only? How did it happen and is that the case only in the societies that undergo transition? Could this happen without conscious abuse of the profession and the absence of professional moral? What was the role of higher education in all of this? With which assets, with what kind of background and with which flows did business buy and neutralized profession in the construction industry? What is actually management and "money making", something that business boasts about the most today but the industry timidly contests? Are the businessmen and managers actually middlemen and resellers who with the help of bankers dictate the terms of construction? Why is it that money origin and cash flow are crucial features defining each major construction project today, while specialized disputes and expert opinions often appear to be its secondary characteristics? Is it essentially the problem referring to a lack of moral and public ethical standards, characteristic for the time of crisis, or is it the consequence of business and its trait to use people of low moral standards in order to gain profit? Why are the top experts in developed countries in most cases also successful businessman? Why can this not be applied to experts in undeveloped countries? Should the state stimulate that kind of relationship or should it be their regulator? Why is the profession permanent and stable, bounded by tradition and sustainable projects, and business is fast, unstable, irrespective in case of the tradition but only to the business opportunities? Through the numerous examples of modern construction practice with many comments about the place and role of the profession in business and their mutual relationship, this research paper which is simultaneously a feasibility study, presents a modest contribution to this very significant, and at the same time a little-known and rarely mentioned subject within construction circles. With that in mind, some consciously left out data is less this paper's deficiency, and more lack of achieved level of professional experience, although it should not be forgotten that "understanding a question is half an answer" (Socrates).*

Keywords: *Construction practice, business and profession, management, trade, ethics*

¹ The paper represents an excerpt from the author's studies, dedicated in memory of Danilo Rašković, a respectable engineer, mathematician, mechanic and useful professor at several engineering and natural science faculties in the country and abroad. Excluding an extensive article of *Serbian Academy of Science and Arts (SANU)* it's paradoxical that Danilo Rašković, after his professional knowledge, sharp wit, publicly manifested patriotism and high moral values, is still mentioned more abroad than in Serbia.

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1. INSTEAD OF AN INTRODUCTION: A QUESTION

The paper dedicated to the relations in the modern construction practice started with a number of questions and wonderings of the man who is also known as a great conqueror and supposedly as a builder of several ancient Alexandria and towers.

At the same time the presented illustrations and some answers closely associated with personal ethics and social morality.

It continues with exactly the same question and wondering: if Alexander, and later the Romans lived and built on the basis of robbery, therefore, on the basis of what kids should not learn in school, is modern construction based on the same principles with the only difference that now we should teach children this in schools?

If it is based on who robs who and in which manner? Especially where it is being built and the local economy is not making money for construction.

2. SOME EXAMPLES VS. METHODS AND RESULTS

Part 2/3 of the paper represents the author's review of the relevant issues observed more in terms of absence of system support and state regulations as well as the inadequate role of the profession. Often, such a role is the result of a lack of professional ethics and social morality, i.e., the lack of those values that are getting less attention in the societies that undergo transition and underdeveloped countries, but in most modern, transactional projects, they create all other relations.

Through numerous examples of projects from practice on which the author has been working that is being confirmed³ - but also challenged, depending on the point of view and achieved level of professional experience through which the problem is observed.

This is not a theoretical debate but a very rare and in many ways unique review on the substance of practical management and control of projects with associated anomalies - from feasibility study to handover.⁴

2-1. Business without the support of the profession. As a result of inadequate professional support to the construction⁵ of the directorate building one of the largest state companies in Krasnodar territory, an 80-meter high building started to settle and crack (Figure 1e). In 2012 the handover of the building, which followed after the change of the

³ The exception is the "Belgrade Waterfront", which besides being a little insulting at tone and good taste, nothing new and the unknown does not bring (For mor details see Part 3/3).

⁴ Most of the mentioned cases have their own pandam also in Serbia, as a society with a developed construction industry but with change of ownership modelled on original accumulation of the capital.(Part 3/3)

⁵ We are talking about transactions of different origins, compositions and flows with the inability to centralise and synchronise operational plans of financing and construction due to the amateur way of managing the project. At the same time with the full freedom of manifesting many human weaknesses in the part of the transaction costs and thus confirming the gesture of one influential man on the reality of Serbia and the well-known businessman in the field of construction, media, educational institutes and banking, who gave up professional services for business needs The manner of making a network, the use of data banks, recommendations and dossiers, biographies, the hiring of expert anonymous, individuals with dubious biographies, a beginners knowledge, cyber-engineers along with a handful of degrees, professional and scientific titles etc. were only following characteristics of this and other similar projects today.

management board and president of the company, during the drafting of the overview launched questions about spent resources.



Figure 1. Glamorous beginnings and inglorious endings in construction practice

That led to a dispute :-) in which the parties of the dispute were ex-business partners, one of which is with the majority state capital. Bearing that in mind and as well as the characteristics of the project itself⁶, the problem can not be solved with conventional methods from the field of business with the help of a dedicated and controlled profession. The absence of a solution makes it difficult for a new influx of money, and business partners not only do not want to but can not, without additional income, return the stream of money, it is operationally unrealisable along with any other solution. At the same time, every lasting engineering solution to the problem which is justified by the profession, is not justified from the aspect of business because it leads to the initiation of personal responsibility, and thus to changes or suspension of cash flows in the existing network. Because such changes or terminations mostly financially affect new entrants, this leads to the postponement of solutions for the problem of settling and the masking of cracks. In this way the authors inventive solution, which can applied to any similar problem in the

⁶ These projects do not define the practical engineering solutions nor the formal authority (since they do not have to be real nor permanent, e.g., props company, responsible persons, the person who executes the acts and others.), but property relations and support i.e., ownership structure and methods of making decisions, and even closer, the features and flows of money (type, origin, shape, way of providing guarantees, letters of credit, etc.). Accordingly what is not in the final and in the handover law can legally not exist - which is not uncommon with the names of Serbian constructors and designers. In this way all of the disposable and legally not taken money, because of the non-existent state support, is called into question. Although business through its' transactions brings every professional job to illegal flows, the state administration is the one that regulates relations in the least painful manner and protects the profession so that it remains safe in these kinds of jobs. (see Example 3.) This significantly increases the performance of ending each job, and the necessary control and management mechanisms are given back to the profession.

world, coupling part of the floor to the foundation and the corresponding feasibility study are not taken into consideration. In summary, inadequate professional support, caused by the insufficient experience of the business partners, especially the main contractor and designer, apart from personal benefits from transaction expenses, enabled the realisation of necessary social benefits from the project.

2-2. Business without centralized control. In essence, a similar problem is characterized by a large and complex project worth over 300.000.000, 00 USD, the joint venture management, foreign main contractor and designer, greater professional challenges, additional inflows but also independent and unsynchronized control of cash flows (Figure 1d). In the beginning that hampered with the centralised way of managing the project and enabled the same which was directed by more individual and personal requirements of those who has taken on the appropriate role in the transaction part of the project. Consequently, it was not possible to provide such a funding that would ensure the continuity of work, the planning and cost control. At the same time, the participation of state-owned companies dictated the application of state regulations and therefore dictated the appropriate monitoring. This additionally burdened certain participants in the transactional part of the project who were unaccustomed to this kind of work. As a result of all this, the project was interrupted, only to be continued in an environment with cash flows of low intensity and inadequate needs for the project.

Otherwise, because of the need for the handover an expertise was performed that was done by respecting the rules of the profession. Although these overviews and handovers are rarely done by independent experts this time the rules were bent. The reason for this was the non-centralized management, which reduced the quality of control of partner relations. Outside of the cash flows which ceased, that could have been established only through a real overview of the situation in which the commission of experts should have had the necessary freedom

2-3. Business without code of practice and government regulation- highwaymen. *High-class tourist resort "Chernomorets"(now Chernomorie) with a 10-floor-SPA-hotel with 5 stars (system Kempinski), two residential buildings, each with 5 star and 4-8 floors, a park and accompanying facilities (swimming pools, bungalows, parking and others), the total area of 90 / 120.000m² and value over 200,000,000.00 USD.* This example is indicative because it not only points to the intricate relationships in modern construction practice due to the origin of cash flows, but also on the behaviour outside the professional and ethical codes. At the same time it also points to the need for government regulation i.e., system supports :-) for the profession when trying to obtain and bill the tasks with as few intermediaries.⁷ Otherwise, all parts of the construction industry are encouraged and forced to engage in illegal business.

⁷ .The problem of appropriate paperwork, the application of regulations, unit price formation, overviews and payments, which lead to disputes, indicate the importance of system support and regulation, as well as the consequences of their absence (Example 1). That is one of the reasons why in modern construction industry, there are rarely any Serbian companies which are organisers, creators and affair mangers but they are mostly executors of others ideas and visions. Of no lesser significance are the problems of securing the appropriate permits, letter of credit, bank guarantees etc.

This is the reason why more details are stated.⁸

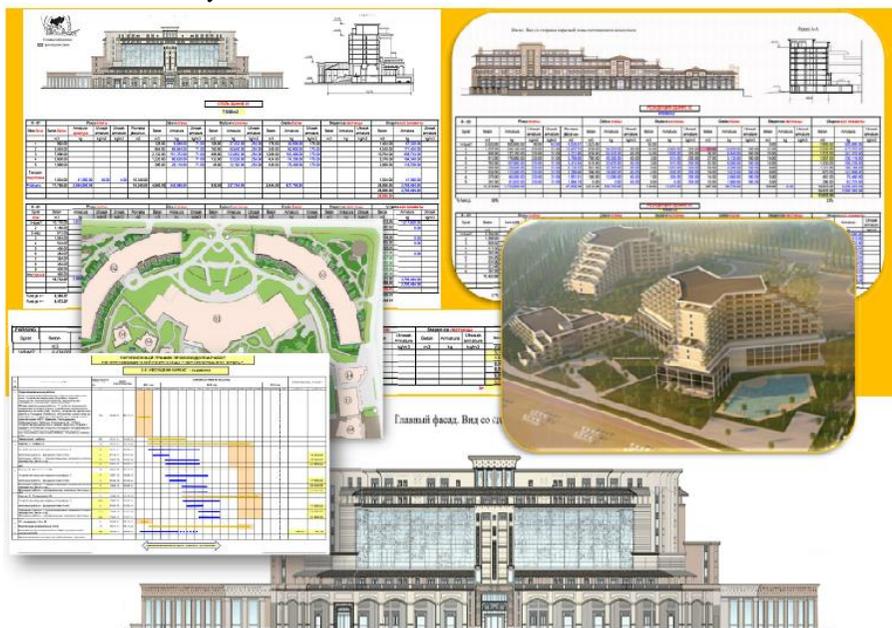


Figure 2. High-class tourist resort "Chernomore" 5stars: An excerpt from the author's preparation of tender documents with a model of the project from an investment forum

The official investor of the project was the final beneficiary of his *PO Chernomorets*, the authors of the project and of the architectural solutions were a dedicated formed company of financiers *Tanmiya Management & Development Limited*, and the *British company Wimberly Allison Tong & Goo Limited (WATG)*, and the project manager Jordanian *Ma'Moun Al Hunaid*. Along with *Rory Hopkins* and *Matthew Lamb* was the same author of the architectural design, while *John Goldwyn* and *Mark Kowalski* from the *WATG's* were the authors of landscape architecture. The project management is entrusted to the company *Klever Asset Management* (or *Klever Grupp Ltd*) in partnership with *Attelborough Holdings Ltd*. The newly formed company *IMAN* with the Russians as the chief engineers was the main designer, while the elaboration of the project was entrusted to *ARUP (Ove Arup & Partners International Ltd.)* directed by *A. Hart* and with *Yu V. Ilyin* as chief structure engineer. After encountering and getting an insight into the organization and the manner of work which he directed, a request was submitted to the author by the *Klever Asset Management*, that the offer⁹ for the supporting concrete structure be sent. The *ARUP's* preliminary design without the feasibility study served as the starting document for the preparation. The preparation was carried out at a high

⁸ This is the reason why the recent initiative for the unification of all the resources of the former YU-area, with the goal to form a joint appearance, failed. Another inception, also from a more personal and less social interest, is the project *Belgrade Waterfront* in which the ruling group appears as a guarantor and as a business partner in the construction industry with a dedicated and controlled use of the profession, as well as an external mechanism of project management.

⁹ At the time of the visitation of the Olympic complex in Adler and on Caucasus, invited by the largest Russian companies in Sochi: *Olimstroy (Олимпстрой)*, *Monarch (Монарх)* and *Transkomstroy (Транскомстрой)*.

professional level with the correction quantity and unforeseen works and a very detailed elaboration of this part of the project (schedule of construction, financing plan, site organization, price analysis of domestic and foreign labour, mini-max of human and material resources, specification type and the amount of work, labour cost of potential local contractors, the price of concrete, the coefficient of labour flux, risk factor, etc. with the elaboration of variants of stable funding and the unstable delivery of construction materials). At the same time the inflection points with jumps in the curvatures for optimization were determined¹⁰. The total amount of mass concrete for that part of the project was over 67.000m³, with more than 11.500.000kg of reinforcement and a target completion date of 6.5 (9) months. The optimal price with the speed of placing concrete of around 10,000m³/ month¹¹ was around 50,000,000.00 USD, with a period of 8 months whereby 2 months were for preparations. The deadline under 8 months significantly enlarged the cost of work because of the increase of fixed costs and a decrease in the specific efficiency, while the deadline of over 9 months posed a risk due to the greatly reduced possibility of control by the contractor. In order to get a greater number of subjects from Serbia involved in the realisation of the project the author had not bypassed by *Serbian Chamber of Commerce, the Ministry of Foreign Affairs, Energoprojekt, Civil engineering faculties in Belgrade and Niš*, individuals from *Genex, Arup, Mostproject* and numerous Russian and Serbian contractor companies from the USA, RF and Serbia. He also refused the offer of the Turkish *Renaissance Construction* to, under appropriate conditions; help them with taking on projects for the construction of the complex. The problem that appeared outside of the transactions was difficulties with providing advance payment guarantee for a 20% advance in the amount of 10,000,000.00 USD, i.e., delivery of proper letters of credit and bank guarantees. *EvroAxis Bank* as the only bank in Moscow with the Serbian state capital, and which was already a participant in the construction of the project site showed no interest in participating in the job (later due to the unperformed recapitalization and the unrealized strategic partnerships the banks' licenses were confiscated by the *Central Bank of Russia*). Apart from a few aimless meetings, and even strange conversations the state institutions in Serbia showed a similar lack of interest and unwillingness for practical work. The entrance of the Swiss company *PGP Engineering SA* (NM), based in Lausanne and with a branch in Moscow or *PGP Engineering Ltd.* with headquarters in Belgrade¹² and a former sales companies of *Genex*, based in London (SDJ) only magnified the problem. In the end, it was finally finished with the organised sale of information to two Serbian companies by the newcomers. Although this is probably the best ever preparation of plans and cost estimates for such jobs in the RF, however the lack of regulation and system support provided by the state, which stimulate legal affairs and

¹⁰ The same principle of the curvatures of optimization was applied by the author more than 30 years ago during the handover of works of the factory to the NPK-fertilisers (RTB Bor, Serbia), in response to the question of when and how to, in the accounting lists and in applying the sliding scale, calculate the masses and developed surfaces of the steel construction.

¹¹ The amount corresponds the most efficient Serbian company from this field in Moscow is 17% lower than the maximum speed achieved by Serbian builders when building 5 star buildings (6-12.000m³ with 4,100 m² / month, according to the turn-key system

¹² With good glamour, portfolio and references on designing and constructing facilities in Russia, Switzerland, Italy, Bulgaria, Libya, Iraq, Japan, the USA and the former Yugoslavia, the chief designer and artist licenses, as well as the possibilities of financing projects through Swiss banks. The manager was an engineer, in addition to being and academic with numerous contacts and modest professional knowledge. It is similarly referred to the representative company from London.

define the way they are carried out i.e. rules and thus the absence of morality and professional ethics, prevented the author to continue his work on the project. After the exclusion of *Harwinter* (SO) from the project, a formal decision of the board of shareholders¹³ stated that the construction of the SPA-hotels and the residential property no. 2 will be appointed to the company *AO Putevi Uzice* (VM), and the no. 1 will be appointed to the company *OOO Svatstroy* (*ООО Сватстрой*). The guarantee mechanisms that individual companies outside of Serbia provide with ease and without specialists and without its own operative¹⁴, this time was provided by one Russian trading company. Shortly after that, the company *OlimPlus* (*ОлимпПлюс*) took over the role of the investor and *Olimpstroy* (*Олимпстрой*) took over the role of the real estate developer and responsible contractor, whereby the earlier investor left the job and without sanctions handed over the right of building. :-) In accordance with the new influence of the new investor the capacity of the hotel increased by 25%, with a total cost of over 200,000,000.00 USD and the completion deadline of 18 months. After the bankruptcy of the main contractor, with the help of a *Renaissance*-Turkish company *EMT Erimtan Müşavirlik TAAHHÛT Ticaret A.Ş.* took over that role and the designer of the development of the project was also a Turkish architectural company *ÖNCÜOĞLU + ACP Mimarlık*. Everything else that characterizes the previous examples also characterises this one, except this one is also characterized by the proximity of large flows of money which after many changes led to the completion of the job.

Regarding the participation of the Serbian builders, apart from the unpaid wages and on that basis, the project in Serbia didn't bring any benefits to the additional personal benefits of individuals. In relation to the hotel *SPA Splendid in Becici 5* * the project *Chernomorets SPA 5* * offered more, and because of the manner of getting and keeping a job it achieved less - with significantly more funds spent. Despite advertisements, pre-sold and leased space complexes it is not sustainable without those same flows and the needs which led to its construction.

2-4. Business and nobles - An instructive example and a didactic comment. :-) *The diversion hydropower plant "Ponte de Pedra", on the river Sucuruina in the state of Mato Grosso – Brazil with the power of 30MW and starting values of around 33.000.000,00USD*, represents a complex consists of dam, derivational pipelines, two water tanks, turbine pipelines and a machine building with an exhaust channel. In order to prepare for its concessional construction, with the participation of domestic and Russian industry, the author of the paper and the mechanical and electrical engineers from the *Energoprojekt* and the *Faculty of Mechanical Engineering Belgrade*, conducted a detailed analysis of the existing feasibility study and then made the appropriate changes on parts of the whole system. In order to minimize eventualities and reduce risk in the construction of complex the whole project was elaborated to the level of end economic parameters. In

¹³ As a part of many unknown individuals, the Moscow telephone companies and Russian off shores in Cyprus.

¹⁴ An example of this is the Austrian *Strabag AG* with a branch in Sochi, which in 2011/12 easily got jobs, and then at a low price gave them over to others to do. Although, like the one in Moscow, it is registered as a Serbian firm, apart from the doers there were almost no Serbian officials and experts. Even experts at all, which is the reason why the author, on request of the new office from Austria in 2012, submitted and did the organization of the construction site. In all of this, the paradox is that in Serbia a century ago, the system of state support with guarantees and letters of credit was more efficiently.

doing so, the amount of work, materials and related equipment were completely defined¹⁵, and their advantage with appropriate tolerances and good energy and economic performances was established¹⁶.

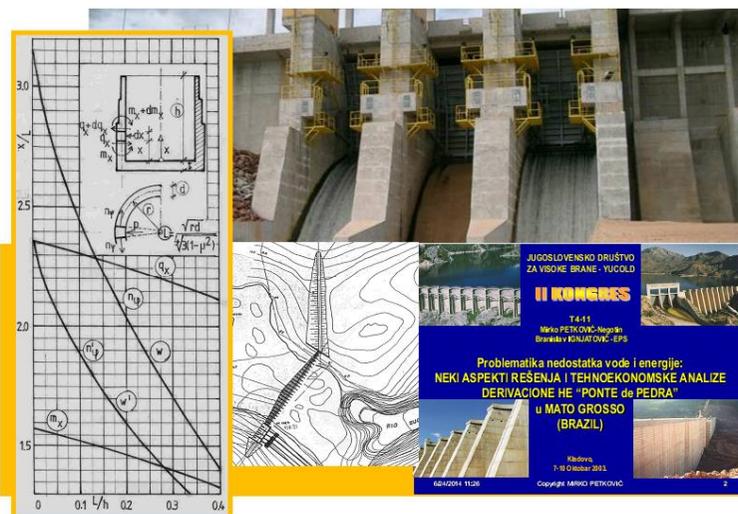


Figure 4. HE Ponte de Pedra: The appearance of the object with an excerpt from the author's preparation of plans and cost estimates

In contrast to the previous projects, this example shows how from the project involving a relatively small hydropower plant and small business, a big business is made if the project is managed by a firm with tradition in this and has full respect for the profession. A value of the project which was proposed several times (over 100,000,000.00 USD) with the appropriate magnification of the installed strength was not a hindrance to the company *Impregilo* which got the job and finished it in 2004, while respecting the rules of civil engineering as a profession, as well as business in the least bad sense of the word¹⁷.:-) Unlike the previous case the wider benefits achieved through practical experience of participants, fair play and high inputs, i.e., the risk free "project pumping." is here of more significance. The project launched and developed the profession a long time ago, business recognized it as a "business opportunity" and the state with the help of its profession allowed for it to be used under the terms which it legally arranged. In other words the state has allowed to the business to enter the game, and then play with its' own money not allowing it to pump money from local taxpayers and the money that is earned by the

¹⁵ As a part of that, for the purpose of calculating the total amount of concrete reinforcement in both directions, a special, very fast process of analytical and graphical calculating of the surge tank was developed (Figure 4.).

¹⁶ The total value of construction in the period of up to 3 years of construction was 1.093USD / kW.

¹⁷ While in business, transactions are more important than the construction of the facility, poor management of the project in which the budget is changed can lead to a halt in cash flow or the suspension of work which is typical for undeveloped companies without a profession and tradition. In this case it was about the participation of the leader in the construction of the dams, hydroelectric power stations and a large scale of operations in the construction industry with the majority of the ownership belonging to Fiat, whereby the power of the hydroelectric power plant increased to 176 MW, with 130 km of work length and an accumulation which requires 14.5 km². This also similarly applies to Bechtel and many other famous world's companies.

profession i.e. not allowing it to put state properties in the project and so increase its stake in the business and in the same time to get all transactions costs without any expenditure¹⁸. Thus, the government enables the business to manage the construction of project in accordance with the needs of the profession, which it clearly defined. So, the state is the one that should regulate relations, and not be the ringleader of illegal cash flows :-).

2-5. Business and accidents – Hic Rhodus, hic saltus. High class touristic, recreational, commercial and sports facilities from our near and far environment, useful area of up to 100.000, 00m² and values of projects up to 500,000,000.00 USD They all point to some not so rare particularities and even those on the other side of the law, which business brought and introduced into modern building. Especially in societies in transition or with a autocratic regime. Due to the limited space only basic information about the projects is presented along with the authors' original photos, and in the third part of the paper (Part 3/3) a more detailed descriptions with comments are provided.



Figure 5. Accidents and ways to regulate some relationships in the construction practice

2-5.1. Conflict of interest between local authorities and businesses. The demolition of part of a high class tourist complex 5*¹⁹ and the cutting of the fundamental plate, foundation beams and support columns (Figure 5a, 7a). Although the formal reason for this was the contractors' contempt of the existing regulations, i.e., the continuation of the construction without the decisions of the competent authorities in the construction industry is at the same time also one of the ways of regulating mutual claims for modern transaction operations.

¹⁸ It is widely used in countries in transition that are ruthlessly being depleted. In addition to the entities involved in the construction industry this applies to banks, metallurgical complexes, chemical industries, agriculture and others.

¹⁹ With the value of the project from 1000 /1400 USD/m² (Chernomoretz ≈ 1,700 USD /m²)

2-5.2. Accident or insatiable desire for money and power. A fire on the 65th floor of Europe's highest skyscraper and its extinguishing with the help of four helicopters and 25 fire units (Figure 5c, 7c). It is unlikely that the fire originated from trivial reasons that were mentioned at the time, or the reasons stated in the official reports, considering that these same reasons create preconditions to cover new businesses and new cash flows and also the regulation of mutual claims :-).

2-5.3. "Amateurs in the profession, par excellence" .The damage on a modern sports complex (Figure 5.d.). The official reason is the profession, i.e., unprofessional solution whereby the inglorious role is played by individual engineers from Serbia and professors from the Faculty of Civil Engineering Belgrade and a fresh businessman²⁰. In essence, this is true even though it is the conscious consent of impoverished profession to such an illegal and submissive attitude. Figure 5.g. represents the reconstruction of the prestressed concrete girder in accordance with the decision and instructions of the author, as one of the dozens of his solutions as well as the authors' supervision over all works on the project.

2-5.4. "Amateurs in the business, par excellence"²¹. The planting of an explosion on the load bearing wall and columns of one of well known 5 stars building during the state control and proposed measures of the author (Figure 5f.). The accident did not compromise the building's structural integrity, it was quickly repaired, another bombing was prevented, and the building and transaction tasks were completed on time with record speed. Of course, thanks to the profession whereby a visible contribution was offered by team "southern railway" from Serbia. However extreme this innovation, which was brought by the business transaction and which is publicly manifested particularly in countries in transition, it also indicates that in such cases the profession still has a decisive role²². In short, without the help of the profession even the simplest of business jobs in construction practice, such as the demolition of buildings using explosives, can outside the law not be validly made.

PRILOG SAVREMENOM SRPSKOM NEIMARSTVU - 8/2 Biznis i struka u savremenoj izgradnji - prilozi za diskusiju

Rezime: Potpuno isti kao u Delu 8/1

²⁰ The owner and director of the newly formed design firm (MS) who was not architect but designer without any built building and with false references, such as, projects of stadiums *Red Star (Crvena zvezda)* and *Partisan (Partizan)* in Belgrade (newspaper interview, *Sport Express*, September 20, 2008, Moscow)

²¹ This is also the business that is not taught in civil engineering schools, nor is it in such a shape teaching at colleges in the field of business and management

²² It is paradoxical that that was done by people with experience in that field from which the first doctor of technical sciences for demolition by explosives came from. So, amateurs „par excellence“! Otherwise, the issue itself is very well known to our experienced engineers with the construction of dams i.e., the demolition of the cofferdams and embankments, for example in Zambia.