

1. R&D ORAGANIZATION

1. Organization:

Name: **Institut gradevinarstva Hrvatske d.d. (IGH)**
Civil engineering Institute of Croatia
Shareholding Company for research and development in civil engineering
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Director in charge:

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Description:

IGH is Shareholding Company for research and development in civil engineering, registered and headquartered in Zagreb, Croatia. Its employees own the majority of company shares.

Staff: The company's staff of approximately 700 consist of registered and highly educated professionals so that almost a half of the IGH staff are university graduates, with more than 20 doctors of science, while the number of master's degree holders exceeds 50.

Corporate Structure: The IGH headquarters are situated in Zagreb and it has regional units in other major cities of Croatia (Rijeka, Split and Osijek), while its presence in other cities is ensured through quality-control laboratories (Varaždin, Sisak, Karlovac, Pula, Zadar and Dubrovnik) According to the type of activities, the company is divided into 8 departments: Department for Concrete and Masonry Structures; Geotechnical Department; Water Management Department; Department of Environmental Engineering; Department for Steel Structures; Construction Management Department; Transportation Department and Building Design Department.

Equipment: IGH has its own laboratories that are fully capable of performing practically all types of standard and non-standard testing in construction industry, including also a measuring section for calibration of force-measuring device. In addition to laboratory facilities, the company also has state-of-the-art equipment for in situ investigations and sampling.

Information Technology: IGH makes extensive use of the latest e-technology. Implementation of the View Wise and e-work, represents a milestone in company ability to do business with other industry players around the globe. By e-technology and leverage software, company is able to communicate on a single system and have real-time access all data relating to operational projects, plans, etc. The company provides its professional staff with a unified system of PC based stations, that not only connected to regional units with the head office via IGH servers, but also provides full-time access to INTERNET via CARNet (Croatian Academic and research Network).

The Organization: IGH was set up by local authorities in 1949 to offer testing services and technical advice to various operators in construction industry. Since then we have grown into one of the leading and most widely experienced consultancies in this field, firmly established in all regions of Croatia, while also participating in major international projects. After fifty years of continuous operation, the company is now moving through its period of maturity, determined to stay young and dynamic so as to be able to respond with due attention to the growing needs in this complex and varied field. IGH has the resources and experience to complete with success all task, ranging from the smallest assignments to the largest and most complex engineering and development projects. At the same time, its flexible approach ensures that projects of all sizes are handled with equal enthusiasm and commitment. In the end of this brief introduction, we would like to point out that IGH owes its success to its wise long-term development policies, focusing primarily on the synthesis of knowledge from all areas of civil engineering, while placing a particular emphasis on research work and activities related to quality control of building materials.

For more information, please see web site on: www.igh.hr

2. Organization:

Name: University of Zagreb - **Sveučilište u Zagrebu**
Faculty of Civil Engineering - **Gradevinski fakultet**
Address: Fra Andrije Kacica Miošica 26, 10 000 Zagreb, Croatia
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Dean in charge:

Name: Željko Korlaet, PhD.MSc.BSc.C.Eng.
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Description:

Faculty History: Civil engineering studies were initiated with the establishment of the Technical College in Zagreb on 1st October 1919. In 1926 the Technical College integrated into the University of Zagreb as the Technical Faculty. In 1956 the Technical Faculty branched into several faculties, among which was the Faculty of Architecture-Civil Engineering-Surveying, which in 1962 became three separate faculties, and thus the independent Faculty of Civil Engineering, University of Zagreb, was established. In 1977 the Faculty of Civil Engineering merged with the Civil Engineering Institute of Croatia. In the same year the two existing colleges of civil engineering joined the Faculty and continued to provide civil engineering courses, thus offering their undergraduates adequate vocational qualifications after 5 semesters. On 1st July 1991 the Faculty of Civil Engineering once again became an independent institution within the University of Zagreb. In 1948 new courses were introduced such as structures, transportation engineering and hydraulic engineering, and in 1970 an

organisational-technological course. Since 1977 a construction management course has been available, providing the opportunity for students with completed high school vocational qualifications (after 5 semesters) to continue their education at university level. However, in 1988 this was gradually phased out. The first civil engineering undergraduates took their degrees in 1923, since when almost 5 000 have graduated. Nearly 400 candidates have completed postgraduate studies in civil engineering, which have been held continuously since 1963. The first dissertation was defended as early as 1922, since when more than 130 candidates have acquired their doctoral degrees (Ph.D.).

Teaching, Education: The Faculty provides courses leading to the following educational degrees: Undergraduate studies; Diploma Engineer in Civil Engineering; Engineer in Civil Engineering; Postgraduate studies; Master of Technical Sciences (M.Sc.) and Doctor of Technical Sciences (Ph.D.). About 2000 students are attending each year various undergraduate courses while about 50 students attend postgraduate studies. Out of 113 academic teaching staff, 23 are professors, 16 associate professors, 8 assistant professors, 17 lecturers and 49 assistants.

Faculty Structure: The Faculty consists of nine divisions which provide teaching, scientific and vocational knowledge-based activities: Mathematics; Engineering; Mechanics; Geotechnical Engineering Materials; Structures Hydraulic Engineering Transportation Engineering Construction Management Buildings. Departments for Engineering Mechanics, Geotechnical Engineering, Materials and Hydraulic Engineering have well equipped laboratories. The Faculty library comprises approximately 40 000 books and regularly receives approximately 120 journals, predominantly foreign. The Faculty has all facilities for providing up-to-date multimedial teaching. A local computer network with over 150 links has been installed. Through the Croatian Academic and Research Network (CARNet) the Faculty is connected to the world computer network Internet. The computer-instruction room is equipped with more than 40 up to date computers, which are directly connected to Internet and are available to students at any time. The Faculty encourages multi-disciplinary sport activities. Civil engineering students are multiple champions in numerous sports competitions within the University of Zagreb.

Scientific and Professional Work: Scientific-research work is being carried out within the framework of numerous scientific projects. The Ministry of Sciences and Technology finance most of them and the rest by the public enterprises, such as Croatian Water Resources Management, Croatian Roads, etc. In the majority of these projects applied research is carried out. Around thirty young scientific researchers also work on these projects, and are at the same time completing their postgraduate studies. The project results have been published in numerous domestic and foreign journals and conference proceedings. Good co-operation with the civil engineering industry in various professional and developmental projects has been a long tradition of the Faculty of Civil Engineering. These activities cover practically all branches of civil engineering.

International Co-operation: For many years the Faculty of Civil Engineering has co-operated with several related institutions/establishments in Europe, USA and Japan, while several of their scientists are either principal investigators or participants in several international scientific-research projects. The Faculty is a member of numerous international organisations (CEEPUS, AECEF, IAESTE, etc.), while some employees are members of many foreign and international professional societies and working bodies.

3. Organization:

Name: University of Split - **Sveučilište u Splitu**
Faculty of Civil Engineering - **Gradevinski fakultet**
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Dean in charge:

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Description: Description of this Organization is similar to main description of the Faculty of Civil Engineering in Zagreb, but there is a smaller possibility of labs and smaller number of researches.

4. Organization:

Name: University of Osijek - **Sveučilište u Osijeku**
Faculty of Civil Engineering - **Gradevinski fakultet**
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Dean in charge:

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Description: Description of this Organization is similar to description of the Faculty of Civil Engineering in Split, but this Organization has significant smaller possibilities in R&D.

5. Organization:

Name: University of Rijeka - **Sveučilište u Rijeci**
Faculty of Civil Engineering - **Gradevinski fakultet**
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Dean in charge:

Name: Ivica Kožar, PhD.MSc.BSc.C.Eng.
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Description: Description of this Organization is similar to description of the Faculty of Civil Engineering in Split, but this Organization has significant smaller possibilities in R&D.

2. NATIONAL R&D PROGRAMMES

a) National Programmes and Projects running by Ministry of Science and Technology

The Ministry of Science and Technology carries out administrative and other professional tasks in the area of scientific research, technological development, higher education, development of activities related to information technology, as well as international scientific and technological cooperation. List of National Programmes and Projects can be finding on the web site: www.mzt.hr

b) International Programmes and Projects

Organizations, mentioned above, co-operate with related institutions/establishments outside of Croatia (Europe, USA and Japan) and participate in international scientific congresses and seminars. They are members of numerous international organisations, while some employees are members of many foreign and international professional societies and working bodies.

According to our information, running international R&D projects is:

Title: **e-maintenance**, EUREKA Project E!2714
Contact person: Smiljan Juric, MSc.BSc.C.Eng
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Description:

Internet business system for building maintenance, energetic savings and environmental protection (e-building maintenance) enables smart maintenance of buildings. It is interdisciplinary task where various experts from different areas, i.e. geotechnics, geodesy, stability, urbanism, architecture, cultural heritage protection, engineering, climatisation, heating, water and sewage system, electrical engineering, telecommunications, etc., are met. It is of vital importance for every town to have systematisation and typisation of all parameters involved for individual types of buildings. e-building maintenance system involves three services: a/ service for establishment of buildings state; b/ service for decision support system and c/ service for partners network development for on-site activities.

There are another projects, which is to be accepted (already accepted and recommended by Croatian Government whose participate in finance), such as following project:

Title: **Zagreb Noise Mapping
Evaluation And Reduction of Noise in an urban area**
Beneficiary: Ministry of Environmental Protection and Physical Planning
Contact person: Hrvoje Glavac, MSc.
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Description:

Objectives:

To produce maps of the City of Zagreb (850.000 inhabitants, 240 km² area) in order to:

- 1) Introduce Directive 468 (Assessment and Management of Environmental noise) into Croatian regulation and practice.
- 2) Evaluate environmental noise.
- 3) Produce noise map according.
- 4) Relate number of inhabitants to a certain noise level.
- 5) Produce Action plan.
- 6) Provide information to the public, politicians and noise and urban planner professionals on the scale of the noise problem.

Actions and means involved:

Actions are divided in following steps:

1. Acquisition of data: traffic data (road, tram, rail and air), industry (measured data), digitised geographical, validation measurements.
2. Data manipulation: calculation of noise source reference position (road, tram, rail and air), manual digitalisation (some road centre lines e.g. elevated structures, all rail centre lines, some buildings), calculation of the sound power levels of industrial noise sources.
3. Calculation of sound immission levels with the aid of LIMA calculation software.
4. Production of noise maps including conflict noise maps to identify “hot spots”. Relating number and percentage of population exposed to excessive noise.
5. Preparation of data.

Expected results:

1. Gain experience in noise mapping.
2. Produce noise maps.
3. Get deeper insight in term “a relatively quiet facade” on the basis of different urban structure.
4. Gain information on number of people exposed to excessive noise.
5. Introduce Directive 468 (Assessment and Management of Environmental noise) to Croatian regulation and practice.
6. Define action plans.
7. Inform public, politicians, urban planner and noise professionals on extension of noise problems in Zagreb.
8. Disseminate results and experience in the region.