“Comparative analysis of the duties and responsibilities of interveners in matter of health and safety in construction sites within the countries forming “Europe’s 15”

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ABSTRACT

Spain is among the European countries with highest rate of accidents in the construction sector, but in a contradictory way, it has relatively new and very broad laws.

In the European field, this activity is also considered as a high-risked one, in fact, the Council of the European Communities, in its resolution of December 21st, 1987, chose construction among three of greatest risk and instructed the Commission to develop a directive which culminated in the one identified as 92/57/CEE, June 24th, 1992, related to construction activity, while the conversion into our legal system was carried out by RD 1627-97, October 24th.

The study of the different conversions from 92/57/CEE Directive to the legal system of every country comprised in the European Union through the information provided by several European organizations such as the European Agency for Safety and Health at Work or CEN - the European Committee for Standardisation, has given us through its analysis, contrast and discussion of such documentation, information on how to carry out the different obligations of agents involved in the construction process emanating from the 92/57/CEE directive, knowing the legal pros and cons of each one and reflecting on the suitability of the current methodology development in the construction sites in Spain.

In the same way, it has been tried to establish a series of organizational improvements in the field of Preventive Planning, which by now is scarce and poor, and has emerged as one of the main causes of accidents in the construction sector. Already in 1991, Lorent’s report stated that over 70% of accidents involving construction workers were caused by failures in the project.

This work has within its targets to improve planning and management tools that we have on safety and health at work proposing alternatives to the present.

INTRODUCTION

Preventive Planning
The scarce and faulty planning of prevention has been thought as one of the causes that originate the biggest number of accidents in construction. By 1991, Pierre Lorent’s report [1], already established that more than 70% of the accidents suffered by building workers were due to project shortcomings.

Also INSHT in several annual reports, obtains among its more important conclusions the following:

1. **The accidents rate in the sector seems to take root in a faulty organization of the work**, materialized in the absence or inadequacy of the working methods, some confused instructions, some deficiencies in the communication system, the interference between the different workstations and the lack of professional training.

2. **The faulty management of prevention contributes also to the maintenance of the accidental rate in the sector**. The results frame a series of outstanding points to solve: training and information about risks,
actions in matter of detection and evaluation of risks, preventive maintenance of the work elements and readiness of individual protection kits.

It is also necessary to keep in mind the main conclusions obtained in the IV National Survey on Working Conditions [2], as far as building sector is concerned:

- The data reflect some working conditions that are worse in the construction sector than the existent ones in the whole group of the economic activities. However, the data related to the mental load evidence lower exhibition percentages than the registered ones among the hard-working population’s group.

- Regarding the preventive resources, they contrast the data relative to the existence of these resources in the main contractors companies, which present higher percentages than the national average with a scarce presence of the same ones at works. In these, the Works Safety Coordinator and the Technical Direction are the most frequent figures in matter of prevention, although with rather few visits.

- With regard to the specific preventive tools, 100% of works by more than 200 million pesetas of budget have a Safety and Health Project. But only the 52,4% include an Incidents Book.

As it can be observed, the faulty management and preventive planning is a very common cause of all the mentioned reports. Among their objectives the present job has the propose of improving the management tools and the planning available in matter of Safety and Health by proposing several alternatives if it was the case.
Actual Situation (fig.1)

Lorent’s Report


Causes of the fatal accidents had the following distribution:

- Design Phase and Planning: 56% of them has their origin in the Project Phase: conception of the work, conception of the architecture, material selection, materials and location of the work.
- Execution Phase: 34% of the fatal accidents are due to the scarce workers training or to the own working conditions.

Investigation Sources

The investigation sources that serve as base of the present work, can be divided in three parts:

Formal Sources

These are those sources of information that are published and it is possible to be consulted. Among the different kind of database consulted, are:


Non-formal Sources


(Fig.1. "Schedule of the Actual Situation")
**Statistical Sources**

These are those sources from where it has been extracted the statistical data of the present investigation. Such sources like the statistics published by the Ministry of Work and Social Matters (MTAS), Ministry of Development (MFOM), National Association of Construction Companies (SEOPAN, EUROSTAT), National Institute of Health and Safety at Work (INSHT), III, IV, V and VI Survey of Working Conditions, IV European Survey about working conditions, Cyclical Survey of the Construction Industry (ECIC), among others.

**The different conversions of the Directive 92/57/CEE as well as complementary legislation in matter of safety at work in the Europe’s 15.**

In the present study, several legal texts have been located. They are related to the different conversions of the Directive 92/57/CEE in each of the Europe’s 15.

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<th>Directive 92/57/CEE</th>
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<th>Greece</th>
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As an example, the texts relative to Germany [3]. (fig.2) have been extracted here.

**Code of colors:**

2. Complementary Normative related with construction safety.
Analysis of the various obligations and responsibilities of actors involved in the construction process in every country of Europe’s 15.

Obligations and responsibilities of actors involved in the construction process in every country of Europe’s 15 (Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, United Kingdom and Sweden).

The schedule used obeys the following epigraphs:

- Promoter obligations.
- Safety and Health Coordinator obligations.
- Companies (Contractors and Subcontractors) obligations.

And within each, we will separate Project Phase and Implementation Phase.

For instance, the texts relative to the comparative between the Directive 92/57 and its conversion in France and Spain (fig.3) have been extracted here:
The culmination of the actual situation, has taken us to the conclusions quoted next:

- The prevention of risks is not an isolated fact born in the last years. Its appearance has come out throughout different historical contexts, usually related to the social evolution of the countries.
- From the Treaty of Rome - 1957 until our days, the social evolution of European Union has established the later legislative development in matter of prevention of risks at work.
- The edition of the Directive 92/57/CEE of 24th June of 1992 referred to the minimum dispositions in matter of safety and health that should be settled down in the temporary or mobile construction works, implied the intention of organizing and unifying the approaches for as working safety, for all the States members. That is considered as a specific Directive arranged to the section 1 of...
the article 16 of the Directive 89/391/CEE of the Council, 12th June of 1989, related to the application of measures to promote the improvement of workers' safety and health culture at work.

- The conversions of the Directive 92/57/CEE to their own juridical classifications, carried out by every country that conform the Europe's 15, have been irregular and, in some points, far from the "spirit" of the quoted Directive. Spain is one of these countries.

- In the report promoted in 1989 by the European Commission on prevention of risks in the construction sector ("Impact of the proposal of Directive "temporary works or mobile works" about training in Safety." 1989. Dublin Foundation), well-known as the "Lorent's Report", it was settled down that construction sector employs 7% of the total of workers, it accumulates 15% of the total of industrial accidents and it supports 30% of the total of fatal accidents of the whole EU. When analyzing the causes of the fatal accidents, the report concludes that 35% of the same ones are originated in the Conception phase or Project phase. If the staff who is responsible for the Project, kept in mind the implied risks in the building process, these would be diminished. The 25% of the fatal accidents had its origin in an inadequate schedule previous to the Working Phase. That verifies that only in the Working Phase, 37% of the fatal accidents is attributable to the scarce workers training or to the own work conditions, and that more than 60% of the fatal accidents in the works have been caused by inadequate decisions taken before the beginning of the Working Phase.

- Construction is a dynamic sector in the economy of the country and as it comprises a bigger percentage of workers, as well as the massive presence of the sub-recruiting, the diversity of techniques, the impermanence and the lack of specialized manpower make him to be more exposed to bigger risks and dangers than other sectors.

- In Spain from 1999, it took place a deceleration in the increasing rates in number of accidents and it became into negative starting from 2001. According to data of INSHT the accidents rate in the sector of construction supposes 27% of the total accidents rate caused by occupational accident in Spain in 2006. If this figure is compared with the same for employment, it’s important to conclude that construction is the productive sector with more probability of accidents, since it contributes 13% of occupied people in Spain. A second fact that shows the high rate of accidents in this sector is that 31% of the deaths caused by occupational accidents were on it in 2006."

- It is necessary to highlight the nonexistent investigation carried out in the environment of the organization and management of the prevention of occupational risks in relation to the construction works in order to establish a proposal of improvement in the organizational current systems of the works.

**OBJECTIVES OF THE INVESTIGATION**

**General objective**

To propose a series of measures from the organizational and preventive management point of view both in the project phase and in the working phase, which could help to improve the high accidents rate figures in the construction sector in Spain.

**Specific objectives**

- To know duties and responsibilities that the interveners have in matter of safety in the building process in Europe’s 15.
- To identify the existent deviations among
- The different normalized texts of every country in the Europe’s 15 regarding the Directive 92/57/CEE.
- The Real Ordinance 1627/97 regarding every country in the Europe’s 15.
- To identify the errors in the Conversion of the Directive 92/57/CEE to RO 1627/97 in the things related to the management of prevention.
- To analyze the management implanted in matter of safety by promoter companies, contractors and subcontractors in the works.

**METHODOLOGY**

For the present investigation two methods have been considered:

- A **quantitative method** order [4] as the survey is, for its objective character, and that reflects the results with numeric expressions, data that be visualized easily, for taking action.
- A **qualitative method** order [4] as comparative analysis is, because allows us to know in a simple way, the deviations while conversion from the Directive 92/57/CEE to our juridical classification as well as to be able to obtain possible proposals of improvement in function of the existent current deviations among RO 1627/97 and the other conversions made by the rest of countries that conform the Europe’s 15.

**INVESTIGATION**

Schematically different investigation phases are analyzed in the following graphic (fig.4):

(Fig.4. "Investigation phases")
CONCLUSIONS OF THE INVESTIGATION, PROPOSAL OF IMPROVEMENT AND FINAL RECOMMENDATIONS

Next, the obtained conclusions of the investigation are shown up as well as the series of improvement proposals and recommendations to be implanted in the organizational current system of prevention at work, in order to collaborate in the reduction of the current accident indexes in construction sector.

Prior Notice

As verified, this document is very common in all countries object of this investigation. As it is possible to appreciate, the Prior Notice, is a common document for all the countries, not only in its administrative management but, what is more important, in its content. This, added to different problems obtained in the present investigation, makes this document able to be shown up as a potential registration to analyze certain circumstances that, so far today's date, are being admitted by the society, judges, work inspectors, etc... as certain and irrefutable when neither statistic or official data that it demonstrates it, exist. On the other hand, we could obtain certain information that could affect to the accidents rate at work and from which there is not any kind of data to this respect in these moments.

Health and Safety Plan

<table>
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<tr>
<th>Directiva 92/57/CEE</th>
<th>Plan de Seguridad y Salud (Health &amp; Safety Plan)</th>
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<tr>
<td>España RD 1627/97</td>
<td>Estudio / Estudio Básico</td>
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(Fig.5. "Demand of the Safety Plan in the Directive one 92/57/CEE regarding the requirements of RD 1627/97 in Spain)

There're another countries in similar situation to Spain according the development individual document respect Health and Safety Plan of Directive 92/577CEE

- **Italy** Health and Safety Plan Coordination- PSC / POS Operational Health and Safety Plan
- **Portugal** - Health and Safety Plan in design phase / Health and Safety Plan in execution phase.
- **France** - General Coordination Plan / Individual Health and Safety Plan

Conclusions

- Elimination of the obligation of writing a Basic Safety Study.
- Elimination of the obligation of writing the Health and Safety Plan by every different contractors companies. This document should be substituted by the due Plan of Prevention to be carried out by the companies, contractors and subcontractors.
- Re-configuration of the Safety Study.
Designers

Let us remember that the report: "Impact of the proposal of Directive “temporary works or mobile works” about training in Safety." Publication in 1989. Dublin Foundation, also well-known as the "Lorent’s report", established that the causes of the fatal accidents had the following distribution:

- Design Phase and Planning :  
  - 35% of them has their origin in the Design Phase: conception of the work, conception of the architecture, material, election of materials and location of the work.  
  - 28% in an inadequate previous organization of Working Phase.

In total 63% of the fatal accidents has its origin in decisions that are taken before beginning the work.

- Execution Phase  
  - 37% of the fatal accidents is due to the scarce workers training or to the own working conditions.

The Directive sought the prevention to be integrated from the conceptual beginning until the finalization of the project. It is obvious to say that the role of Designers is essential to take this approach successfully. In fact, they are forced to keep in mind the general principles of prevention in matter of safety and health which are mentioned in the Directive 89/391/CEE (art.6)

At the present time, in Spain, there is a disconnection between what is developed in the Project Phase and what is done in the Working Phase. The data obtained in the present investigation corroborate such an end.

Conclusions

- To integrate the training in matter of prevention inside the syllabuses of different university courses that give authority in writing Projects.  
- To define more clearly the obligation of integrating the general principles of prevention by the Planners in their Projects. (for example like in Denmark, Ireland, Portugal and the UK)  
- Complementary training in matter of prevention specialized in integrating the prevention into Project Phase. This training would be different from the established one for the Safety and Health Coordinators in the Project Phase or in the Working Phase.

Health and Safety Coordinators

We will establish three blocks of conclusions and proposals indexed to:

- Common to both figures (Project Phase and Working Phase)  
- Coordination of Health and Safety in the Project Phase.  
- Coordination of Health and Safety in the Working Phase.

Common to both figures (Design Phase and Working Phase)

It is necessary to have a qualification and professional experience to be able to develop the work. (France, Greece, Austria, Denmark, Luxembourg, Italy and Belgium). The current situation in Spain with the only requirement of having a technical degree is not enough to develop the work, not only because of the guarantees pursued by the Directive 92/57/CEE but also the necessary ones so that
the technician could work efficiently. For that it would be essential to take a series of measures:

As a proposal for the case of Spain, in relation to complementary postgraduate training and professional experience the following outline is intended:

- Creation of a registration of national health and safety coordinators in order to establish unified approaches in the whole territory.
- Procedure of approval of entities that can train health and safety coordinators.
- Continuing education requirement.
- Project and working levels establishment - levels of experience

Establishment of Health and Safety Coordinator's incompatibility with another type of technical control functions, in the Project Phase and in the Working Phase. *(France)*

In order to guarantee the correct information transfer from the project phase to the working phase, the obligation of designating the same technician to carry out the functions of safety coordination both in project phase and in working phase, should be settled down.

Establishing the possibility to designate a legal person as coordinator for health and safety would be a question to be analyzed in a future. This is already contemplated in the French legislation. Loi 93-1418 Art. L. 235-4. *(Health and Safety Coordinator)* (...). The promoter designates a coordinator that can be a physical or legal person, for each one of these two phases or for their group. (...)

**Health and Safety Coordination in the Design Phase**

The following conclusions are settled down as well as improvement proposals:

- **Obligation of ever designating Health and Safety Coordinator in Design phase.**
- **Obligation** of the Health and Safety Coordinator in Design phase of taking a registration book where everything done by him/her and by the planner should appear. *(France, Ireland and Luxembourg)*
- **Elimination of the Basic Safety Study and the Plans of Health and Safety** (already exposed previously).
- **Protocol** to be followed to integrate the prevention in the design.

Once having done this investigation, it is evident the prevention's lack of integration in the aspects pertaining to the Project:

- Design
- Future planning of the works in the site
- Organization

Therefore, at the present time, with the object of trying to minimize this lack of integration of the prevention in this project phase, the following courses of action are intended:

- Modification of the current legislation. It would be necessary to redefine the obligations and the planners' responsibilities in this matter as well as nail down the obligations and rights of the health and safety coordinator in the project phase, so that this one really came on the scene and was effective.

- Elaboration of a Norma (similar to OHSAS 18001) that regulates the aspects pertaining to the integration of the prevention in the Project.

**Coordination of Health and Safety in the execution phase**
The following conclusions as well as proposals of improvement are settled down:

- **Inter-companies Organ. Safety Council (France, Denmark)**
  At the moment the agent who organizes as many meetings in the site is the health and safety coordinator in the Working Phase, where the contractor is moved to a lower grade (71%) and also the subcontractors companies with their own subcontractors, in a smaller measure (59%). Since the meetings are an essential tool to carry out the prevention, it becomes necessary that a legal establishment will be made so that the Promoter will create a Committee of Safety for each site.

- **Coordination’s Book for Registration (France, Ireland and Luxembourg)**
  Similarly to what quoted before about the health and safety coordinator in project phase.

- **Obligatory use of the Incidences Book for the rest of interveners.**

- **End of the Health and Safety Coordinator intervention in the execution Phase. (Belgium)**
  It becomes necessary to set down the conditions arose in the work in order to let the Promoter to warrant the work-ending of the Safety and Health Coordinator in the Working Phase.

- **Attached coordinators. (Belgium)**
  This possibility is sometimes given in projects of a great span or also, as a procedure implanted in certain companies specialized in these services to undertake the works done during the Safety Coordinator’s holidays. At this moment this possibility is not contemplated in Spain but its inclusion would be very handy.

**Contractors and Subcontractors**

We will establish the following conclusions and proposals of improvement:

- **Elimination** of the duty by which now all the contractors have to make the Health and Safety Plan.

- **Active presence of the Companies’ Prevention Services.**
  As verified in this investigation, the participation of the Companies’ prevention services that appears in all the building works is reduced fundamentally to some formative days and some sporadic visits.

(Fig.6. “Activities of the Prevention Services in work. CONTRACTORS (% on the affirmative cases)”)
Therefore the current obligations of writing the Health and Safety Plans, as well as the vigilance services for enforcing the safety conditions, and also the verification of the execution of what the Company’s Safety Plan says (Preventive Resources) are not being satisfied according to what LPRL and other normative that develops it (Law 54/2003 quoting changes in the normative mark about occupational risks), say.

- Sizing of human resources of contractors in the work, based on quantitative variables.

According to the data obtained from the investigation, fundamentally the vigilance services for enforcing the safety conditions to the contractors (99,44%) and subcontractors (88,2%) must be pushed through the figure of the work foreman.

(Fig.8. "Person of the CONTRACTOR that carries out Preventive Resource functions (% on the affirmative cases")

Training in prevention is more absent in case of subcontractors (73%) – Contractors (90%)

Hence it becomes interesting to settle down a new sizing of human resources based on quantitative and objective variables of work; For instance:

- Number of workers
- Duration of the works
- Nº of subcontractors associated to the company
- Nº of m2 of action surface.

FUTURE INVESTIGATION LINES

→ Analysis on the prevention’s effective integration in the Design Phase.
→ Development of a protocol to computerize the Prior Notice and its later data management.
→ The professional profile of the Health and Safety Coordinator in the Design Phase and in the execution phase. Technical and preventive formation and abilities. Professional experience.
→ Analysis of the functions and responsibilities of the interveners in the building process in matter of works’ safety in the Europe’s 15 regarding to what has been settled down in USA, Central America and South America.
→ (...)

Persona del CONTRATISTA que realiza las funciones de Recurso Preventivo (% sobre los casos afirmativos)

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