

# EUROPASS DIPLOMA SUPPLEMENT

## TITLE OF THE DIPLOMA (ES)

*Técnico Superior en Proyectos de Edificación*

## TRANSLATED TITLE OF THE DIPLOMA (EN)<sup>(1)</sup>

*Higher Technician in Construction Projects*

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(1) This translation has no legal status.

## DIPLOMA DESCRIPTION

**The holder of this diploma will have acquired the General Competence with regard to:**

Preparing technical documentation of construction projects, carrying out construction work setting out processes and managing documentation control for their execution, complying with current legislation and established quality, safety and environmental conditions.

**Within this framework, the PROFESSIONAL MODULES and their respective LEARNING OUTCOMES acquired by the holder are listed below:**

### “Construction Structures”

The holder:

- Makes calculations for the pre-dimension of construction elements solving problems of statics and applying composition, decomposition and equilibrium of forces and their moments.
- Prepares internal forces diagrams, analysing structural elements of construction and determining the effects produced by the action of loads.
- Proposes construction solutions for construction structures, relating their typology with the properties of materials used and building process.
- Measures elements and simple structural reinforced concrete, steel, wood or mortar systems, applying regulations and using calculation procedures.
- Recognises methods and operating processes for land survey, relating them with the establishment of soil properties, its classification as regards foundation and geotechnical information drawn from the study.
- Characterises earth movement operations, analysing associated execution processes and relating them with used machinery.
- Proposes constructive solutions for foundations and holding elements, relating their characteristics with the execution processes and tasks.

### “Construction Representations”

The holder:

- Represents construction elements, drawing floor plans, elevations and cross sections using drawing tools on drawing boards.
- Makes construction representations, making freehand drawings of plans and construction details.
- Writes graphical documentation of construction projects, drawing plans through computer-aided design programs.
- Presents construction projects, showing views and perspectives through the use of computer applications and phototypesetting techniques.
- Makes scale models for the study of construction projects, applying basic techniques of model building.
- Manages graphical documentation of construction projects, reproducing, organising and filing plans in paper or electronic format.

### “Construction Measurements and Assessments”

The holder:

- Prepares lists of construction work units, analysing construction projects and organising the information obtained in chapters.
- Prepares prices tables of construction work units, selecting resources and yield.
- Measures construction units, applying criteria, calculating quantities and showing results in normalised documents.
- Prepares construction work estimates relating the measurements of work units with their price.
- Carries out cost controls preparing comparative studies of offers, certificates and technical documentation.
- Takes measurements, makes estimates and establishes cost control processes using specific computer tools.

### **“Construction Work Setting out”**

The holder:

- Collects information in order to make sketches and setting out plans, selecting relevant data obtained from the analysis of project documentation, land survey and work site location.
- Makes sketches and setting out plans, selecting setting out methods and noting down relevant data.
- Schedules setting out tasks, establishing the work sequence and specifying necessary resources.
- Completes technical information for the setting out, incorporating the calculation results of coordinates, distances, angles, height, inclinations and other complementary parameters to sketches, plans and «planning».
- Lays out construction work points and elements materialising their location on the field and/or work site.

### **“Construction Scheduling”**

The holder:

- Identifies project activities and construction works execution, relating them with the stages of the process and scheduling procedures.
- Prepares the sequence of project activities and construction works execution, establishing times and resources for execution.
- Prepares programmes for the design, procurement and control of construction works, establishing goals and identifying participants and formalities.
- Monitors execution plans of construction works, applying scheduling techniques and proposing corrections for detected deviations.
- Manages the quality of the project documents, analysing documentation systems and applying control techniques.
- Prepares plans for labour risks prevention in construction, relating specific risks with the stages of the construction process and establishing measures for prevention and protection.

### **“Design and Building Construction”**

The holder:

- Prepares implementation proposals and general organisations of buildings, relating their typology and applicable regulations with established requirements and building site characteristics.
- Prepares proposals for space distribution in buildings relating needs programmes and applicable regulations with the established design requirements.
- Defines elements of vertical communication and singular elements, identifying their design and regulatory constraints, measuring their elements and proposing constructive solutions.
- Defines vertical closings of buildings, identifying their design and regulatory constraints and proposing the composition of elevations, the dimensions of their elements and constructive solutions.
- Defines building roofs, identifying typology, design constraints and regulations, establishing the arrangement of elements and proposing constructive solutions.
- Defines interior partitions, coatings and finishes of buildings, establishing arrangement and dimensions of their components and proposing construction solutions.
- Defines the structure of buildings, identifying typology, regulations and design constraints, establishing arrangement and pre-dimension of their elements, participating in the preparation of calculations and proposing constructive solutions.
- Sets graphical and written documentation to develop construction projects, establishing its relationship, content and characteristics.

### **“Installations in Construction”**

The holder:

- Configures plumbing and sanitation installations representing schemes, measuring their elements and applying specific regulations.
- Configures electricity and telecommunications installations, representing schemes and measuring their elements.
- Configures ventilation installations representing schemes and measuring their elements.
- Configures gas and heating installations representing schemes and measuring their elements.
- Configures air-conditioning installations, representing schemes and using normalised symbols.
- Configures fire detection and extinction, representing schemes and measuring their elements.
- Represents special installations (lifts, domotics, lighting conductor, photovoltaic solar energy and central air intake, among others), using the appropriate symbols and applying current legislation.

### **“Energy Efficiency in Construction”**

The holder:

- Assesses insulation provided by building closings, relating the properties of their components with the «hygrothermal» evolution of buildings.
- Verifies the characteristics of the building envelope and the performance of building installations, comparing them with the bioclimatic parameters and the established «sustainable» behaviour.
- Establishes the limitation of energy demand of buildings, checking that the constituting elements of the envelope comply with regulations.

- Calculates the necessary energy demand to guarantee living conditions in buildings, checking that complies with limitations imposed by applicable regulations, through computer applications labelled as Recognised Document.
- Describes buildings as regards energy, identifying their envelope, characterising facilities and calculating the thermal balance through computer applications classified as Recognised Document.

#### **“Development of Residential Construction Projects”**

The holder:

- Organises the development of residential construction projects, planning activities and collecting necessary information.
- Prepares proposals on general space distribution, selecting information and regulation for the development of residential construction projects and analysing needs programmes.
- Writes documents of multi-storey and multi-family housing construction projects, preparing reports, supplements, measurements, estimates, tender specifications and other required studies.
- Prepares the graphical documentation of multi-storey and multi-family housing construction projects, drawing required plans through computer applications of computer-aided design and building modelling.
- Represents basic facilities of residential construction projects, making schemes and plans through computer applications of computer-aided design and building modelling.
- Manages the documentation of residential construction projects, reproducing, filing and preparing its distribution, supplements, plans, tender specifications and estimates.

#### **“Development of Non-Residential Construction Projects”**

The holder:

- Organises the development of non-residential construction projects, planning activities and collecting necessary information.
- Develops facilities projects, identifying the specifications established by regulations, adapting required spaces and establishing materials and their dimensions.
- Draws initial plans and schemes of facilities that make up the project, using specific and computer-aided applications.
- Draws detail plans of facilities, identifying interferences among them and constructive elements and proposing alternative solutions.
- Writes documents of facilities projects, preparing reports, supplements, tender specifications and other required studies.
- Prepares estimates for facilities projects, obtaining construction work units, taking measurements and applying prices.
- Manages the documentation of non-residential construction projects, reproducing, filing and preparing graphical and written documentation for its distribution.

#### **“Project on Construction”**

The holder:

- Identifies the needs of the production sector, relating them with the standard projects that may satisfy them.
- Designs projects related to the competences described in the diploma, including and developing their constituting stages.
- Plans the project implementation, determining the intervention plan and associated documentation.
- Defines the procedures for the monitoring and control of the project implementation, justifying the selection of variables and instruments used.

#### **“Professional Training and Guidance”**

The holder:

- Selects job opportunities, identifying the different possibilities of labour integration, and the alternatives of lifelong learning.
- Applies teamwork strategies, assessing their effectiveness and efficiency on the achievement of the company's goals.
- Exercises rights and complies with the duties derived from labour relationships, recognising them in the different job contracts.
- Determines the protection action of the Spanish Health Service in view of the different covered eventualities, identifying the different types of assistance.
- Assesses risks derived from his/her activity, analysing job conditions and risk factors present in his/her labour setting.
- Participates in the development of a risk prevention plan in a small enterprise, identifying the responsibilities of all agents involved.
- Applies protection and prevention measures, analysing risk situations in the labour setting of the Higher Technician in Construction Projects.

### **“Business and Entrepreneurial Initiative”**

The holder:

- Recognises skills related to entrepreneurial initiative, analysing the requirements derived from job positions and business activities.
- Defines the opportunity of creating a small enterprise, assessing the impact on the performance setting and incorporating ethic values.
- Carries out the activities for the setting-up and implementation of a company, choosing the legal structure and identifying the associated legal obligations.
- Carries out basic administrative and financial management activities of an SME, identifying the main accounting and tax obligations and filling in documentation.

### **“On the Job Training”**

The holder:

- Identifies the company’s structure and organization relating the same with the type of service provided.
- Applies labour and ethic habits in his/her professional activity according to the characteristics of the job position and the procedures established by the company.
- Obtains information for the development of construction projects and works, analysing technical information and gathering data in order to locate, configure and describe significant elements.
- Develops construction projects, proposing solutions and preparing the graphical and written documentation.
- Configures facilities of construction projects, pre-dimensioning their elements and representing schemes and plans.
- Assesses projects and construction works taking measurements of work units and preparing estimates and certificates.
- Collaborates in the planning of construction projects and works, preparing, adapting or updating plans and programmes.
- Manages documentation of construction projects and works, reproducing it and filing it in accordance with the established quality criteria.

## **RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE DIPLOMA**

The Higher Technician in Construction Projects works as an employee or self-employed person in offices related to architecture or engineering, drafting, consultancy, real estate development, construction companies and Public Administrations. His/her work is regulated by law.

The most relevant occupations or jobs are the following:

- Construction design draughtsperson
- Construction draughtsperson
- Installations draughtsperson
- Construction model-maker
- Assistant to technical office manager
- Scheduler assistant
- Assistant to cost control technician
- Documentation control technician
- Construction work setting out expert
- Assistant to processes of energy certification of buildings
- Building energy efficiency technician
- Fluids distribution systems and networks design draughtsperson

## **AWARD, ACCREDITATION AND LEVEL OF THE DIPLOMA**

**Name of the body awarding the diploma on behalf of the King of Spain:** Spanish Ministry of Education or the different Autonomous Communities according to their areas of competence. The title has academic and professional validity throughout Spain.

**Official duration of the education/ training leading to the diploma:** 2000 hours.

### **Level of the diploma (national or international)**

- NATIONAL: Non-University Higher Education
- INTERNATIONAL:
  - Level 5 of the International Standard Classification of Education (ISCED5).
  - Level 5 of the European Qualifications Framework (EQF5).

**Entry requirements:** Holding the Certificate in Post-Compulsory Secondary Education (Bachillerato) or holding the corresponding access test.

**Access to next level of education/training:** This diploma provides access to University studies.

**Legal basis.** Basic regulation according to which the diploma is established:

- Minimum teaching requirements established by the State: Royal Decree 690/2010, of 20 May, according to which the diploma of Higher Technician in Construction Projects and its corresponding minimum teaching requirements are established.

**Explanatory note:** This document is designed to provide additional information about the specified diploma and does not have any legal status in itself.

### **COURSE STRUCTURE OF THE OFFICIALLY RECOGNISED DIPLOMA**

<b>PROFESSIONAL MODULES IN THE DIPLOMA ROYAL DECREE</b>	<b>CREDITS ECTS</b>
<b>Construction Structures.</b>	6
<b>Construction Representations.</b>	18
<b>Construction Measurements and Assessments.</b>	6
<b>Construction Work Setting out.</b>	7
<b>Construction Scheduling.</b>	6
<b>Design and Building Construction.</b>	9
<b>Installations in Construction.</b>	8
<b>Energy Efficiency in Construction.</b>	4
<b>Development of Residential Construction Projects.</b>	11
<b>Development of Non-Residential Construction Projects.</b>	9
<b>Project on Construction.</b>	5
<b>Vocational Training and Guidance.</b>	5
<b>Business and Entrepreneurial Initiative.</b>	4
<b>On the Job Training.</b>	22
	TOTAL CREDITS
	<b>120</b>
OFFICIAL DURATION (HOURS)	<b>2000</b>

\* The minimum teaching requirements shown in the table above comprise 55% official credit points valid throughout Spain. The remaining 45% corresponds to each Autonomous Community and can be described in the **Annex I** of this supplement.

## INFORMATION ON THE EDUCATION SYSTEM

