

# Sectoral Human Capital Study

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## Construction Industry

Results of the second  
edition of the research

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## Project information

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### Project name:

Sectoral Human Capital Study – Construction Industry



### The aim of the project:

To increase awareness of current and future demand for competencies and qualifications in the construction industry



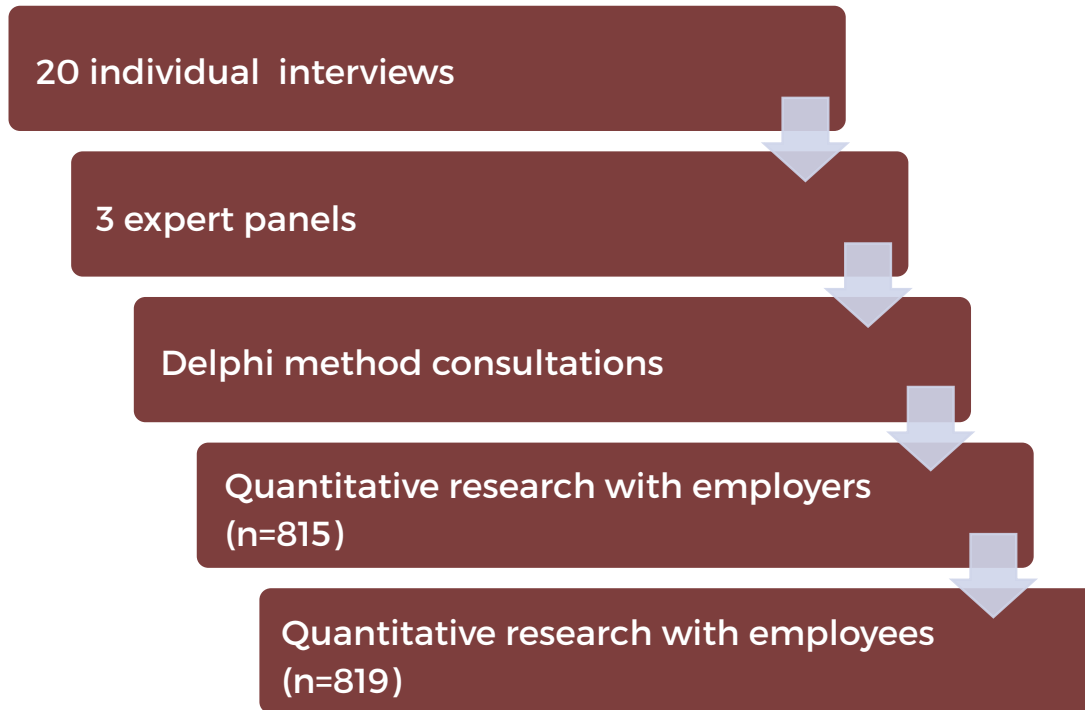
### Dates:

August 2021 to June 2023,  
including quantitative research: October 2022 to  
December 2022

The first edition of the study was carried out from January 2020 to April 2021

The report from the first edition of the research is available on the PARP website

# Research methodology



## Involved in the research process:

- » industry experts
- » analysts of labour market trends
- » members of the Sectoral Skills Council in Construction
- » industry employers and employees





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# Main business processes

## Key positions

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**Preparation of a construction project, building design, administrative and legal activities**

- » Designer/constructor
- » Market analyst
- » Lawyer

**Construction and assembly process, commissioning of buildings**

- » Construction foreman/chargehand
- » Bricklayer-plasterer
- » Site engineer
- » Building construction fitter
- » Steel fixer-concrete placer
- » Drywall installer and finisher
- » Site manager
- » Carpenter
- » Sanitary systems and equipment fitter
- » Construction manager

**Maintaining building integrity**

**Demolition of a building**

- » Building demolition worker

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# Challenges for the industry

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**69%** of companies are already struggling with rising commodity prices



**52%** of companies are noticing a negative impact of the number of environmental protection regulations



**47%** of companies indicate a lack of interest among young people in undertaking physical work



**30%** of companies feel that work in the construction industry lacks sufficient prestige



**69%** of companies believe that attracting people with competencies in IT, VR, and BIM will be a challenge





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# War in Ukraine

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Russia's invasion of Ukraine is disrupting supply chains and limiting access to building materials

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**49%**

of employers assess the impact of the war in Ukraine as harmful to company operations (66% in large companies)

**55%**

of companies need to find new suppliers due to the disruptions in the supply chains

**37%**

of companies are facing a significant challenge due to the outflow of a large number of employees from Ukraine

# Industry trends

## Migrations to large urban centres



- » most construction investments are located in large cities
- » the greatest demand for workers in the industry will be in large cities

## Hiring employees from abroad



- » employing foreign workers due to staff shortages among employees from Poland

## Ecology



- » introducing ecological issues into construction: using ecological or alternative materials



# Scenarios of industry development



## Degradation scenario

- » no increase in the number of projects companies are carrying out
- » young people will not be attracted to this sector for a career, eventually leading to a shortage of contractors
- » collaboration will not grow between education and business
- » the standard and scope of knowledge taught in schools will not be tailored to market needs



## Stability scenario

- » although growth will be visible, it will not be noticeable in all aspects of companies' activities
- » collaboration between education and business will develop, resulting in new staff being better prepared for work in the sector
- » measures aimed at increasing the prestige of the industry will not be taken
- » team growth will be possible mainly thanks to the employment of foreign workers, mainly from outside Europe
- » advanced training programmes will be essential due to the hiring of non-Polish workers



## Progress scenario

- » the industry will cope with the growing demand for services
- » in the short term, mainly foreign workers will be hired
- » gradually, thanks to the restoration of the prestige of the sector, more and more young people educated in Poland will begin entering the sector
- » thanks to the enhanced collaboration between education and business, employees will have the competencies required



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# Forms of employee skill development

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**39%**

Health and safety at work, fire regulations



**22%**

Instruction in e.g. using new equipment, machinery, software



**7%**

Observation of another employee's work (job shadowing)



**5%**

Job rotation – scheduled transfer to another job for training purposes



**4%**

Coaching, mentoring



# Professional development activity indicator

Employers and employees in key positions rate their professional skills highly

66%

of employers offered at least one form of competency development for employees

of employees benefited from at least one form of competency development

60%

90%

of employees claim that the methods of occupational development offered in their companies are sufficient

61%

of employers deal with competency gaps through training

52%

of employers are of the opinion that their employees' skills are fully satisfactory

51%

of employers and employees declare that their companies verify the skills needed by employees

# Recruitment processes

In the last 12 months, every fifth company (20%) was looking for employees. This was most common in medium-sized (43%) and large (60%) companies

The following positions proved the most difficult to fill:

Bricklayer-plasterer

Sanitary  
systems and  
equipment  
fitter



Carpenter

Drywall installer and finisher



# Expected change in the number of employees

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## In the next 12 months

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5% anticipate an increase in employment



82% expect to maintain the current level of employment



4% anticipate a reduction in employment

## Longer time horizon

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15% anticipate an increase in employment



60% expect to maintain the current level of employment



2% anticipate a reduction in employment

# Motivating employees

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The main ways to motivate employees are financial

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- 94%** Bonuses and rewards
- 70%** Good atmosphere
- 57%** Supporting the exchange of knowledge
- 53%** Work-life balance
- 30%** Co-financing of training and courses
- 20%** Co-financing of medical services
- 18%** Subsidised meals



# Future positions: new jobs in the industry



- » Specialist in the use of ecological materials/ technologies
- » Specialist in the use of alternative materials/ technologies
- » Environmental protection inspector (control and implementation of regulations during construction works)



- » Design specialist in BIM/BIM designer
- » IT security specialist for construction companies
- » Programmer

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# Competencies of the future: the next 5 years

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Employers indicated the following new  
employee competencies

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**49%** the ability to use new materials in  
construction work

**48%** knowledge in environmental protection

**48%** the ability to take ecological solutions into  
account in projects





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# Balance of skills

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**Skills balance** – a compilation of assessments of key competencies for particular positions in the industry from the perspective of employers and employees, in order to better balance the labour market in terms of the supply of workers with relevant competencies and employers' demand for them.

## **The audit was carried out based on:**

- » employers' assessment of the importance of competencies
- » difficulties in hiring employees with specific competencies
- » forecasts for the importance of competencies over the next 12 months and the next 5 years
- » employees' self-assessment of their specific competencies



# Hot skills

Competencies whose importance is growing and will continue to grow over the next 12 months

|  |  |
|--|--|
| Construction foreman/<br>chargehand      | <ul style="list-style-type: none"><li>• the ability to plan requirements for construction materials at specific project stages</li></ul>                                     |
| Building construction fitter             | <ul style="list-style-type: none"><li>• knowledge of ways of using construction technology</li></ul>   |
| Sanitary systems<br>and equipment fitter | <ul style="list-style-type: none"><li>• the ability to perform construction works related to water supply, sewage and gas networks, and heating networks and nodes</li></ul> |
| Drywall installer and finisher           | <ul style="list-style-type: none"><li>• the ability to install drywall systems (such as plasterboard walls and suspended ceilings)</li></ul>                                 |
| Building demolition worker               | <ul style="list-style-type: none"><li>• the ability to tidy up and level the demolition site</li></ul>   |
| Bricklayer-plasterer                     | <ul style="list-style-type: none"><li>• the ability to carry out internal and external plaster repairs</li></ul>   |
| Steel fixer-concrete placer              | <ul style="list-style-type: none"><li>• the ability to make and lay reinforcement in formwork or moulds</li></ul>  |
| Carpenter                                | <ul style="list-style-type: none"><li>• knowledge of basic technology and the range of possibilities for the use of wood</li></ul>   |





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# Balance of skills: Designer/constructor

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## **Competencies important and difficult to find (employers)**

- » the ability to use design software (e.g. AutoCad, ZWCad, Revit)
- » knowledge of design standards (calculation standards, Eurocodes)
- » knowledge of current building regulations (legal requirements regarding buildings' technical parameters)

## **Competencies of growing importance – 5 years (employers)**

- » the ability to develop 3D and 2D construction documentation (hot skill – 12 months)
- » knowledge of administrative procedures resulting from the provisions of the construction law
- » the ability to use design software (hot skill)
- » knowledge of issues in the field of materials science
- » the ability to perform design work with due accuracy, precision and safety

## **Highest self-assessment of competencies (employees)**

- » knowledge of materials science
- » readiness to find information on technological solutions by themselves
- » the ability to do the technical drafting
- » the ability of analytical, cause-and-effect thinking
- » knowledge of current building regulations

## **Greatest interest in enhancing competencies (employees)**

- » knowledge of current building regulations
- » the ability to do the technical drafting
- » knowledge of materials science
- » readiness to submit creative solutions to construction problems
- » the ability to use design software

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# Balance of skills: Site engineer

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## Competencies important and difficult to find (employers)

- » the ability to use a design program (e.g. AutoCad, Zwcad, BricsCAD)
- » knowledge of the characteristics of building materials and their generic features
- » willingness to support the construction manager in managing the construction project

## Competencies of growing importance – 5 years (employers)

- » the ability to use design software (hot skill)
- » knowledge of current building regulations (hot skill)
- » the ability of analytical, cause-and-effect thinking
- » the ability to plan the requirements for construction materials at specific stages of project implementation
- » knowledge of issues in the field of technology and organisation of construction works
- » knowledge of the characteristics of building materials and their generic features

## Highest self-assessment of competencies (employees)

- » knowledge of current building regulations
- » knowledge of health and safety regulations, fire regulations and environmental protection regulations
- » knowledge of issues in the field of technology and organisation of construction works
- » knowledge of the characteristics of building materials and their generic features
- » the ability of analytical, cause-and-effect thinking

## Greatest interest in enhancing competencies (employees)

- » the ability to use design software
- » willingness to support the construction manager in managing the construction project
- » knowledge of the basic principles of construction project management
- » knowledge of issues in the field of technology and organisation of construction works
- » knowledge of current building regulations





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# Balance of skills: Site manager

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## **Competencies important and difficult to find (employers)**

- » readiness to mitigate conflicts in construction teams
- » the ability to open a project in the BIM system
- » the ability to use design software
- » knowledge of the principles of managing construction projects
- » willingness to independently manage construction projects

## **Competencies of growing importance – 5 years (employers)**

- » knowledge of the principles of managing construction projects
- » knowledge of the characteristics of building materials and their generic features
- » the ability to read various types of documentation
- » the ability to use design software
- » knowledge of foreign languages (especially English)

## **Highest self-assessment of competencies (employees)**

- » knowledge of the characteristics of building materials and their generic features
- » knowledge of current building regulations
- » willingness to independently manage construction projects
- » readiness to bear the consequences of one's decisions responsibly

## **Greatest interest in enhancing competencies (employees)**

- » knowledge of the principles of organising construction works
- » knowledge of health and safety regulations, fire regulations and environmental protection regulations
- » readiness to mitigate conflicts in construction teams
- » the ability to open projects in the BIM system
- » knowledge of foreign languages
- » the ability to use design software

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# Balance of skills: Construction manager

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## Competencies important and difficult to find (employers)

- » knowledge of the characteristics of building materials and their generic features
- » knowledge of the principles of managing construction projects
- » knowledge of the principles of organising construction works

## Competencies of growing importance – 5 years (employers)

- » knowledge of the characteristics of building materials and their generic features (hot skill)
- » the ability to use design programs (hot skill)
- » the ability to read technical and design drawings
- » knowledge of current building regulations

## Highest self-assessment of competencies (employees)

- » knowledge of the principles of managing construction projects
- » knowledge of health and safety regulations, fire regulations and environmental protection regulations
- » knowledge of current building regulations

## Greatest interest in enhancing competencies (employees)

- » knowledge of current building regulations
- » readiness to motivate teams when working under time pressure
- » the ability to read technical and design drawings
- » the ability to draw up technical drawings
- » the ability to use design software





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# Balance of skills: Construction foreman/ chargehand

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## Competencies important and difficult to find (employers)

- » the ability to select the tasks of subordinate employees based on their experience
- » knowledge of methods of using materials and construction chemistry
- » the ability to plan the requirements for construction materials at specific stages of project implementation
- » readiness to coordinate and supervise the work of subordinate teams

## Competencies of growing importance – 5 years (employers)

- » knowledge of methods of using materials and construction chemistry
- » knowledge of the characteristics of building materials and their generic features
- » knowledge of industry specifics

## Highest self-assessment of competencies (employees)

- » knowledge of the ways of using construction technologies
- » readiness to coordinate and supervise the work of subordinate teams
- » knowledge of industry specifics

## Greatest interest in enhancing competencies (employees)

- » knowledge of methods of using materials and construction chemistry
- » readiness to build one's authority among subordinate teams
- » the ability to manage one or more work teams
- » knowledge of the characteristics of building materials and their generic features
- » the ability to use the latest equipment available on the market

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# Balance of skills: Building construction fitter

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## Competencies important and difficult to find (employers)

- » the ability to assemble construction elements
- » knowledge of the specificity of industry issues (order of successive activities/tasks)
- » the ability to carry out works related to the renovation and disassembly of building structures

## Competencies of growing importance – 5 years (employers)

- » the ability to perform works related to the renovation and disassembly of building structures (hot skill)
- » readiness to engage in the performance of entrusted tasks
- » knowledge of how to use construction technologies (hot skill)
- » the ability to assemble construction elements


## Highest self-assessment of competencies (employees)

- » the ability to use the correct tools and power tools
- » knowledge of the specificity of industry issues (sequence of activities/tasks)
- » the ability to prepare construction elements for assembly

## Greatest interest in enhancing competencies (employees)

- » knowledge of the ways of using construction technologies
- » the ability to assemble construction elements
- » readiness to respect the equipment and materials entrusted to him





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# Balance of skills:

## Sanitary systems and equipment fitter

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### Competencies important and difficult to find (employers)

- » the ability to install water, sewage, gas, heating, ventilation and air-conditioning systems
- » the ability to perform works related to the construction of water supply, sewage and gas networks as well as heating networks and nodes
- » knowledge of industry specifics
- » readiness to engage in the performance of entrusted tasks

### Competencies of growing importance – 5 years (employers)

- » the ability to perform works related to the construction of water supply, sewage and gas networks as well as heating networks and nodes (hot skill)
- » the ability to install water, sewage, gas, heating, ventilation and air-conditioning systems (hot skill)
- » knowledge of the ways of using construction technologies

### Highest self-assessment of competencies (employees)

- » readiness to engage in the performance of entrusted tasks
- » readiness to respect entrusted equipment and materials
- » the ability to use the correct tools and power tools

### Greatest interest in enhancing competencies (employees)

- » the ability to install water, sewage, gas, heating, ventilation and air-conditioning systems
- » the ability to perform works related to the construction of water supply, sewage and gas networks as well as heating networks and nodes
- » knowledge of the ways of using construction technologies
- » the ability to read technical drawings



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# Balance of skills: Drywall installer and finisher

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## Competencies important and difficult to find (employers)

- » the ability to read technical drawings
- » knowledge of industry specifics
- » knowledge of the ways of using construction technologies
- » readiness to accurately/precisely perform the assigned tasks

## Competencies of growing importance – 5 years (employers)

- » the ability to perform floor and cladding works along with the preparation and organisation of the workplace
- » readiness to accurately/precisely perform the assigned tasks
- » knowledge of the ways of using construction technologies
- » the ability to perform painting and wallpaper works along with the preparation and organisation of the workplace (hot skill)

## Highest self-assessment of competencies (employees)

- » readiness to accurately/precisely perform the assigned tasks
- » readiness to engage in the performance of the entrusted tasks
- » using the correct tools and power tools

## Greatest interest in enhancing competencies (employees)

- » knowledge of the specificity of industry issues (order of activities/tasks)
- » knowledge of health and safety regulations, fire regulations, environmental protection regulations
- » the ability to install drywall systems
- » the ability to perform painting and wallpapering works along with the preparation and organisation of the workplace





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# Balance of skills: Building demolition worker

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## Competencies important and difficult to find (employers)

- » readiness to engage in the performance of entrusted tasks
- » readiness to respect entrusted equipment and materials
- » the ability to dismantle installations, devices and subsequent structural elements (systems)
- » the ability to check that a building being demolished has been disconnected from power supply
- » the ability to secure the demolition site and buildings adjacent to the demolition site or building
- » the ability to read technical drawings

## Competencies of growing importance – 5 years (employers)

- » readiness to engage in the performance of entrusted tasks
- » the ability to check that a building being demolished has been disconnected from power supply (hot skill)
- » the ability to organise and level the demolition site (hot skill)

## Highest self-assessment of competencies (employees)

- » the ability to check that a building being demolished has been disconnected from power supply
- » the ability to carry out demolition works in accordance with their schedule
- » respecting entrusted equipment and materials

## Greatest interest in enhancing competencies (employees)

- » the ability to check that a building being demolished has been disconnected from power supply
- » knowledge of health and safety regulations, knowledge of fire protection, knowledge of environmental protection
- » readiness to engage in the performance of entrusted tasks
- » readiness for team cooperation

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# Balance of skills: Bricklayer-plasterer

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## Competencies important and difficult to find (employers)

- » the ability to read technical drawings (building design)
- » the ability to determine the usability and quality of specific types of materials and construction chemicals
- » readiness to engage in the performance of entrusted tasks

## Competencies of growing importance – 5 years (employers)

- » the ability to repair interior and exterior plaster (hot skill)
- » the ability to carry out repairs and the demolition of masonry building structures
- » knowledge of methods of using materials and construction chemistry
- » the ability to determine the usability and quality of specific types of materials and construction chemicals

## Highest self-assessment of competencies (employees)

- » the ability to perform internal and external plasters
- » the ability to perform construction works in accordance with applicable standards
- » the ability to perform internal and external plaster repairs

## Greatest interest in enhancing competencies (employees)

- » the ability to optimise construction works using construction equipment
- » knowledge of industry specifics
- » knowledge of health and safety regulations, fire regulations and environmental protection regulations
- » knowledge of methods of using materials and construction chemistry
- » the ability to read technical drawings





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# Balance of skills: Steel fixer-concrete placer

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## **Competencies important and difficult to find (employers)**

- » the ability to perform work related to the repair of concrete and reinforced concrete elements
- » the ability to read technical drawings
- » the ability to place and compact concrete mix in formwork or moulding and to care for fresh concrete

## **Competencies of growing importance – 5 years (employers)**

- » knowledge of industry specifics
- » the ability to perform work related to the repair of concrete and reinforced concrete elements
- » the ability to lay and compact the concrete mix in formwork or moulding and to care for fresh concrete (hot skill)
- » the ability to carry out construction works in accordance with their schedule

## **Highest self-assessment of competencies (employees)**

- » knowledge of the specificity of industry issues (order of subsequent activities/tasks)
- » readiness to respect entrusted equipment and materials
- » the ability to place and compact concrete mix in formwork or moulding and to care for fresh concrete

## **Greatest interest in enhancing competencies (employees)**

- » knowledge of the specificity of industry issues (order of subsequent activities/tasks)
- » the ability to place and compact concrete mix in formwork or moulding and to care for fresh concrete
- » the ability to make and lay reinforcement in formwork or moulding
- » carrying out work related to the repair of concrete and reinforced concrete elements

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# Balance of skills:

## Carpenter

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### Competencies important and difficult to find (employers)

- » the ability to prepare wooden elements and wood materials for assembly
- » the ability to make wooden structures
- » the ability to make moulds and formwork for concrete and reinforced concrete structures
- » industry-specific issues
- » the ability to read technical drawings

### Competencies of growing importance – 5 years (employers)

- » the ability to prepare wooden elements for assembly
- » the ability to make wooden structures
- » knowledge of methods of using materials and construction chemistry
- » knowledge of basic technologies and the scope of possibilities of using wood (hot skill)
- » the ability to make moulds and formwork for concrete and reinforced concrete structures (hot skill)
- » the ability to read technical drawings

### Highest self-assessment of competencies (employees)

- » knowledge of methods of using materials and construction chemistry
- » the ability to make moulds and formwork for concrete and reinforced concrete structures
- » carrying out construction works in accordance with applicable standards

### Greatest interest in enhancing competencies (employees)

- » the ability to make moulds and formwork for concrete and reinforced concrete structures
- » the ability to prepare wooden elements and wood materials for assembly
- » the ability to make wooden structures
- » knowledge of the basic technology and the range of possibilities of using wood
- » knowledge of industry specifics



A full discussion of the findings can be found in the report:

**Sectoral Human Capital Study**

**Construction Industry**

Report on the 2<sup>nd</sup> edition of the research  
(in Polish):

 [https://www.parp.gov.pl/  
component/site/site/bilans-kapitalu-  
ludzkiego#wynikibadanbranzowych](https://www.parp.gov.pl/component/site/site/bilans-kapitalu-ludzkiego#wynikibadanbranzowych)