ARCHITECTS SURVEY ON FIRE SAFETY COMPETENCY

Survey of 835 architects from eight European countries about the involvement of fire experts in their projects

MODERN BUILDING ALLIANCE

Safe and sustainable construction with plastics

November 2020

In June 2020, the Modern Building Alliance commissioned USP Marketing Consultancy to launch a survey targeted at architects from eight European countries (Belgium, France, Germany, Italy, The Netherlands, Poland, Spain and the UK). The survey aimed to discover how fire safety competencies are considered during the building design phase. A sample of 835 architects, working in offices composed of at least two architects excluding smaller projects, responded. The majority are primarily focused on residential buildings and engaged in both new builds and renovations.

INTRODUCTION

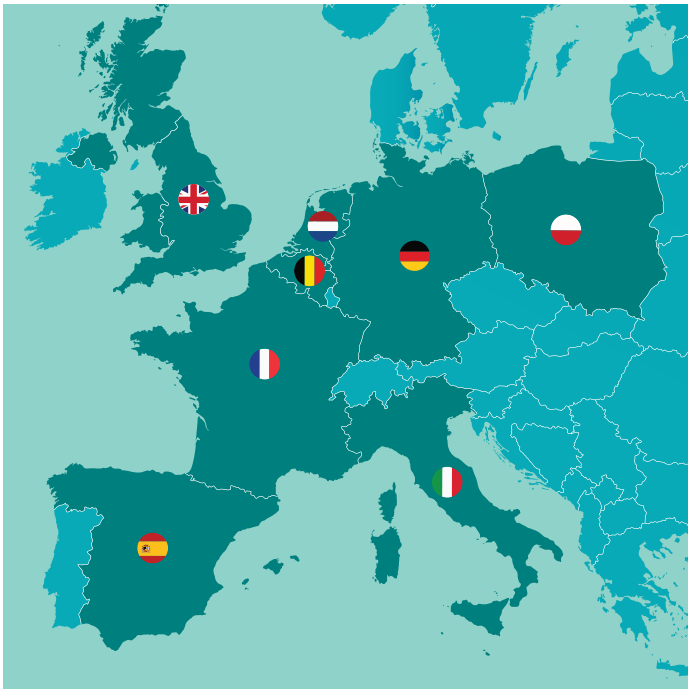
Building design is a complex undertaking that must combine various expertise. As such, architects can request the involvement of specific experts, such as fire engineers, energy experts or sustainability experts, in their project.

Fire safety in particular is a complex issue requiring competent professionals with clear roles and responsibilities to be involved during a building's design, construction and maintenance phases. Recent tragic events have highlighted how a lack of consideration for fire safety or a lack of compliance with fire safety regulations can have dire consequences.

Academic analysis has emphasised the need to improve fire safety competency and increase the involvement of fire safety expertise in building design and inspection. Moreover, studies have underscored the need to improve the definition of competencies, enhance education and accreditation and establish a legal framework for the involvement of accredited fire safety professionals in building design and inspections (more information and references available here: www.modernbuildingalliance.eu/fire-safety-skills-competency).

OBJECTIVES

The survey primarily investigated three areas. First, it asked architects across eight countries if they are supported during the design phases by other building professionals. Additionally, it compared the importance of fire expertise to other key areas of expertise, such as structural engineering, energy and sustainability. Second, it investigated the main reasons to involve or not to involve a fire expert. Finally, architects were asked whether they felt responsible for fire safety and who else is responsible. Where relevant, distinct analysis was conducted dependent on the size of the architect office (it can be assumed that bigger offices are running bigger projects), the main segment of activity (housing or non-residential) and the type of projects (new build or renovation).



USP Marketing Consultancy interviewed 835 architects from eight European countries (Belgium, France, Germany, Italy, The Netherlands, Poland, Spain and the UK). The survey aimed to discover how fire safety competencies are considered during the building design phase.

MAIN CONCLUSIONS

- In all cases, **structural engineers are the most used experts** (involved in 65% of projects), followed by energy experts (45%), fire experts (36%) and sustainability experts (23%). There are significant differences between countries.
- **Energy experts are generally more involved than fire experts**, particularly for housing and renovations. However, fire safety experts are more involved in new constructions of non-residential buildings than energy experts.
- **The primary reason architects choose not to involve an external fire expert, stated by 43% of participants, is when they consider the in-house expertise to be enough.** The absence of customer or legal requirement to include an external expert is considered significant by 36% and 34% of the architects, respectively. Moreover, 21% of architects consider a lack of competent fire experts as a reason they do not seek their involvement.
- When asked, **69% of architects agreed that a legal requirement is the main reason to involve a fire expert.** Additionally, 60% of the architects listed meeting the requested design more competently as a compelling motivation to include fire experts.
- With the exception of the Italian architects, **the majority (86%) of the replying architects considered themselves fully or partly responsible for the fire safety of the buildings they design.**
- Most architects consider themselves mutually responsible for fire safety along with several other parties. However, **in some countries, one party seems to have a clear responsibility, while in other countries the responsibility is less clear and more dispersed.**

OUR ANALYSIS

We assume the involvement of a dedicated fire expert during the design phase of a construction or renovation project is indicative of the consideration paid to fire safety. Fire safety experts help architects ensure the necessary level of fire safety, along with all other safety and performance aspects, required in a project. With this in mind, we see room for improvement in the level of involvement of dedicated fire experts, particularly in housing renovations, as they are currently less involved than energy experts. This is crucial in light of the fact that most fire fatalities happen in residential buildings and that the EU planned renovation wave will particularly tackle housing.

The significant national differences suggest that analysis of the situation in each country regarding the legal requirements, the level of architects' fire safety knowledge and the availability or recognition of fire experts would produce intriguing results. There is a need for further analysis and discussion on what type of projects fire experts should be involved and what level of competency fire experts and architects need.

This should be in tandem with fire safety responsibility. While allowing for EU countries to have various models of fire safety, fire safety responsibility should be clearly designated, which seems currently not the case in some countries.

"Fire safety must neither lag behind, nor impede the renovation wave. It must accompany it. That's why we must define clear role and responsibilities for fire safety during projects and ensure the involvement of the adequate level of fire expertise. Our architects survey shows that there is room for improvement and that an EU wide analysis would be useful"

Quentin de Hults, Executive Chair of Modern Building Alliance

ABOUT MODERN BUILDING ALLIANCE

We are an alliance of trade associations and companies representing the plastics industry in the construction sector. Plastics are increasingly used in building and construction applications to make our buildings more sustainable, from window frames and durable pipes to state-of-the-art insulation solutions. An essential pillar of our cause is the ambition for greater fire safety across the construction industry. It is a key driver of our product design and manufacturing: improving the fire safety in buildings is a joint responsibility of the whole value chain involved in building and construction. That's why, by engaging with policy makers and stakeholders, we are committed to supporting the EU in ensuring safe and sustainable construction for people across Europe.

DETAILED OUTCOME

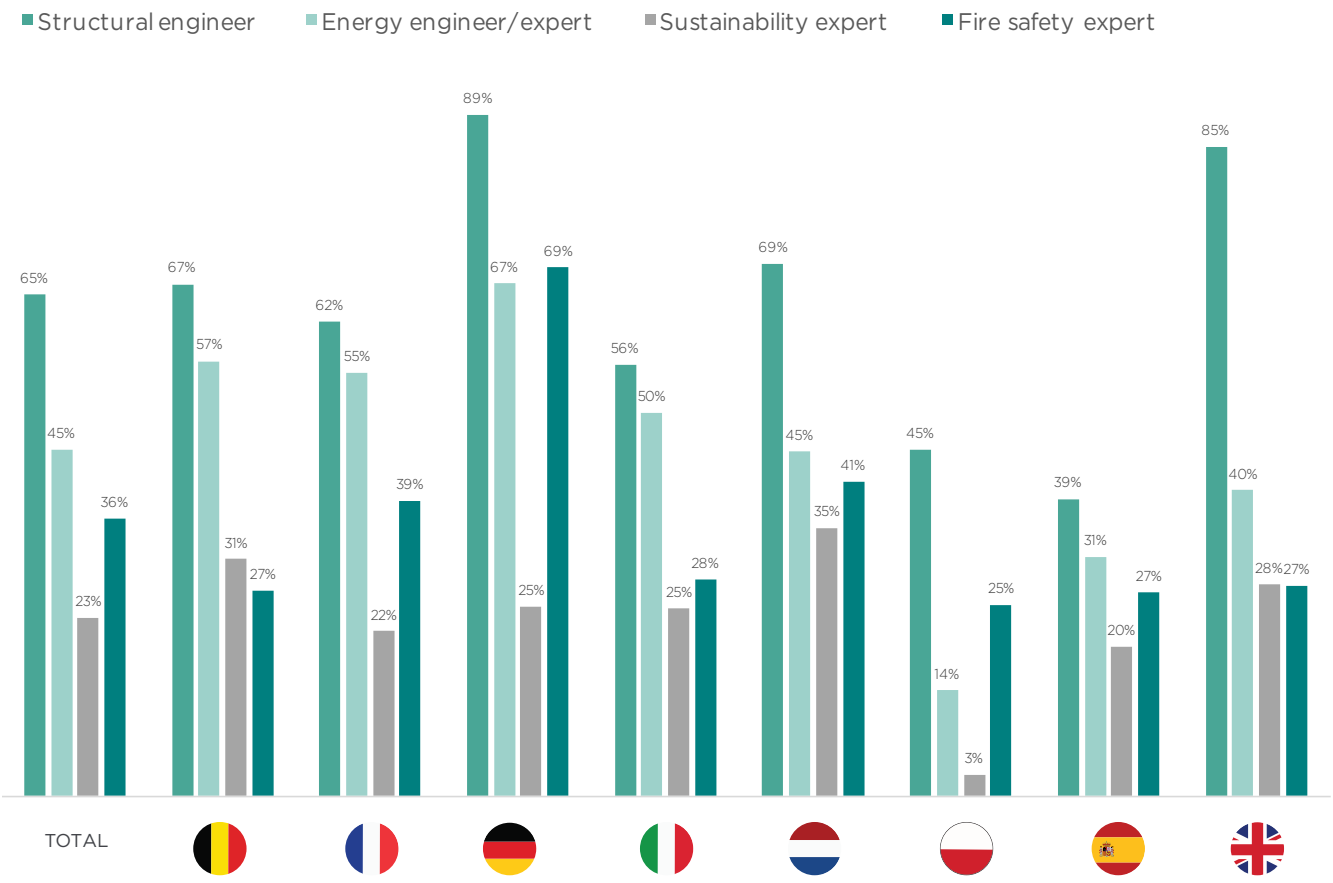
PART 1: HOW OFTEN DO ARCHITECTS INVOLVE SPECIFIC EXPERTS DURING THE DESIGN OF THEIR PROJECT?

External expertise involvement in general: The results indicate that German architects are most inclined to involve external expertise in their project (above average for all type of experts), while Polish and Spanish architects are the least inclined to involve external experts (below average for all type of experts). In all targeted countries, the requested external expertise is most often for structural engineers (involved in 65.4% of projects). In contrast, sustainability experts are on average the least required (23.4%) in most of the targeted countries.

Fire safety expertise: Fire safety experts are involved in 36% of the projects but with a variation from 25% (Poland) to 69% (Germany). On average, it is slightly less than energy experts (45% of projects). However, there are significant national differences in this comparison:

- In Belgium, France, Italy and the UK, external fire safety experts are less involved than external energy experts.
- In Germany, The Netherlands and Spain, external fire safety experts are as equally involved as external energy experts.
- In Poland, external fire safety experts are much more involved than external energy experts.

In what percentage of your projects are the following experts involved during the design?



Details according to the number of employees in the office: Larger offices rely more on external expertise, but the general trend remains accurate, with structural engineers being the most called upon, followed by energy experts, fire experts and, finally, sustainability experts.

Housing or non-residential: Fire safety experts are more frequently involved in non-residential buildings compared to housing. This is in contrast to other experts that are equally involved in housing and non-residential projects.

New build or renovation: There was only one area of expertise for which the type of project made a difference. Fire experts are more often involved in new build projects rather than in renovations.

In what percentage of your projects are the following experts involved during the design?								
	TOTAL	Split by Number of employees		Split by Dominant Segment		Split New Built vs Renovation		
		2 to 4	>4	Housing	Non-residential building	New build	Reno-vation	Both as much
Sample Size	**817**	*516*	*301*	*608*	*209*	*236*	*201*	*380*
Structural engineer	**65%**	62%	72%	66%	65%	66%	66%	65%
Energy engineer/ expert	**45%**	41%	52%	45%	45%	47%	44%	45%
Sustainability expert	**23%**	20%	30%	23%	25%	25%	22%	23%
Fire safety expert	**36%**	30%	48%	33%	47%	40%	30%	37%

Energy experts are 68% more involved than fire expert in housing renovation projects.

It is only for new constructions of non-residential buildings that fire experts are more involved than energy experts.

In what percentage of your projects are the following experts involved during the design?

	TOTAL	New build				Renovation			
		Housing		Non-residential building		Housing		Non-residential building	
		2 to 4	> 4	2 to 4	> 4	2 to 4	> 4	2 to 4	> 4
		👤	👤	👤	👤	👤	👤	👤	👤
Sample Size	**817**	*96*	*87*	*17*	*36*	*115*	*30*	*39*	*17*
Structural engineer	**65%**	57%	76%	61%	71%	65%	75%	62%	71%
Energy engineer/ expert	**45%**	44%	52%	30%	49%	41%	53%	42%	52%
Sustainability expert	**23%**	19%	31%	20%	29%	20%	37%	14%	29%
Fire safety expert	**36%**	30%	44%	34%	61%	24%	31%	40%	47%

👤 = *Employee*

PART 2: THE MAIN REASONS TO INVOLVE OR NOT TO INVOLVE A FIRE EXPERT DURING THE DESIGN PHASE

Why are architects not involving a fire expert in 64% of their projects?

The survey presented architects with several proposals on which they gave their opinion, with the possibility of having multiple answers.

In general, the most common reason for architects not to involve an external fire expert is when they believe there is enough in-house expertise. This is especially the case in Spain, where 74% agreed with this proposal. It is, nevertheless, not the main reason in Italy, where the absence of legal requirement is the main justification, and Poland where the absence of legal or customer obligation is the main reason. This lack of customer requirement or legal requirement is considered important reasons by 36% and 34% of the architects, respectively.

Moreover, 21% of architects consider a lack of competent fire experts as a reason why they do not involve them. This is less of an argument in France (with only 13% agreeing) compared to Belgium (29% agree) and Italy (27% agree).

What are the reasons NOT to involve a fire expert during building design?

	TOTAL								
Expertise is available in house	43%	55%	42%	38%	26%	49%	25%	74%	42%
Customers do not want to pay for it	36%	51%	30%	28%	19%	32%	38%	48%	43%
Not required by law	34%	47%	22%	29%	39%	26%	38%	41%	37%
There is a lack of competent fire experts	21%	29%	13%	21%	17%	21%	24%	27%	21%

Why are architects involving fire experts in 36% of their projects? They gave their opinion on several proposals (multiple answers possible).

A legal requirement is the main reason to involve a fire expert, claimed 69% of architects. Similarly, better meeting the requested design is also an important motivation for 60% of the architects. Indeed, it was cited as being even more important than the legal requirement for architects from Belgium, France and The Netherlands. German architects are an exception with only 16% considering better meeting the requested design as a reason to involve a fire expert.

The absence of in-house expertise is also a rationalisation for 54% of architects, while customer demand is considered a significant reason by 44%.

What are the reasons to involve a fire expert during building design?

	TOTAL								
Required by law	69%	48%	71%	65%	74%	62%	82%	55%	84%
To better meet the requested design	60%	65%	77%	19%	69%	78%	49%	47%	83%
Expertise is not available in house	54%	45%	59%	54%	57%	58%	39%	32%	78%
Customers demand it	44%	48%	64%	33%	37%	52%	20%	29%	66%

PART 3: RESPONSIBILITY

To what extent are architects responsible for the fire safety of the building they design?

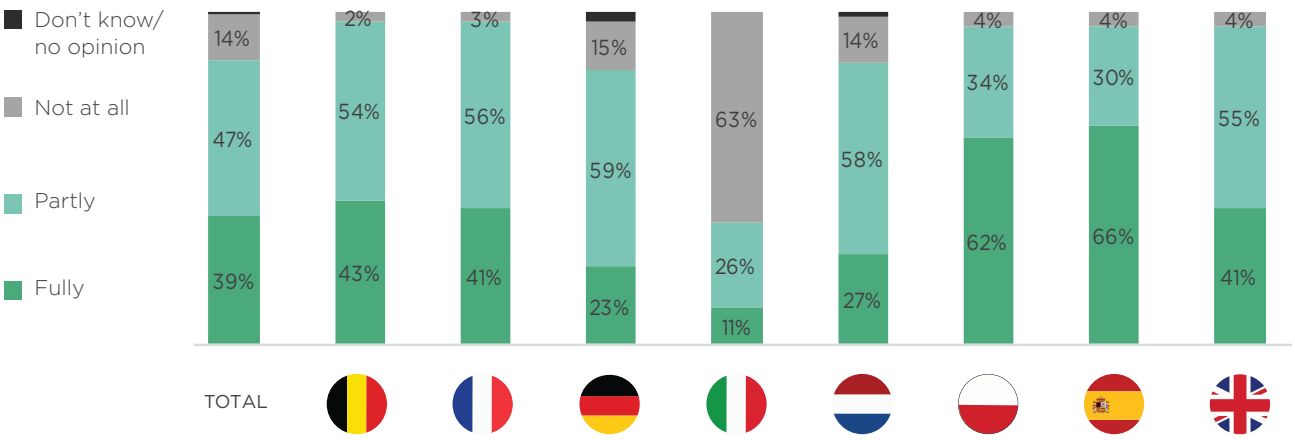
Except for the Italian architects, the majority (86%) of architects consider themselves responsible for the fire safety of the buildings they design. Only 39% claimed to be fully responsible, while 47% claimed to be only partly responsible.

Poland and Spain are the only countries where the majority of architects consider themselves fully responsible for fire safety. In Belgium, France, Germany, The Netherlands and the UK, the majority of architects consider it to be a shared responsibility.

In contrast, most Italian architects (63%) did not feel responsible for fire safety at all. Similarly 15% of German architects and 14% of Dutch architects did not feel responsible either. This number drops to 4% or less in all other surveyed countries.

The size of the office and the type of activity did not make a significant difference to the responses to this question.

To what extent are you responsible for the fire safety of the building you design?



Which other parties – besides the architect – has any responsibility for the fire safety of the final building?

In the figures below, we see the categories of functions identified by at least 10% of architects as having responsibility for the fire safety of buildings.

The question of who is responsible for the fire safety of buildings seems clear in some countries: 72% of French architects cite **building control authorities** whereas 76% of German and 69% of Italian architects name **fire safety engineers**. In Germany, the high involvement of fire safety experts (69% of projects) can be correlated to the legal requirement for 65% of participants. In Italy, the level of involvement of fire experts during the design was much lower, with only 28% of projects involving experts.

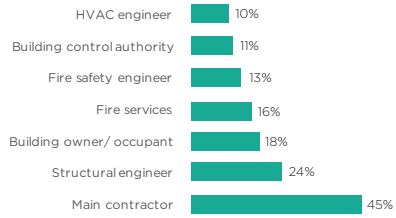
In other countries (Belgium, Netherlands, Poland, Spain and the UK), architects had more diverging opinions, with no clear category named as the responsible party.

The **main contractor** is often cited in Belgium (45%), The Netherlands (36%) and the UK (34%) as being one of the responsible parties but not so much in other countries.

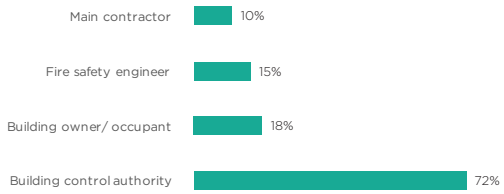
The **building owner or occupant** is cited by 15% of architects overall, with the exception of Italian architects. Similarly, the **structural engineer** is cited by 15% of architects as well.

16% of the Belgian architects also named the **fire services** but not so much in other countries. The size of the office and the type of activity did not cause significant differences in this question.

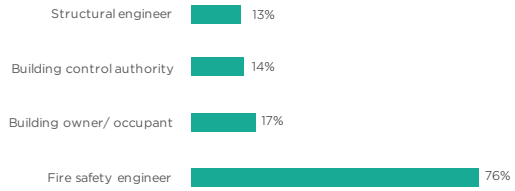
BELGIUM



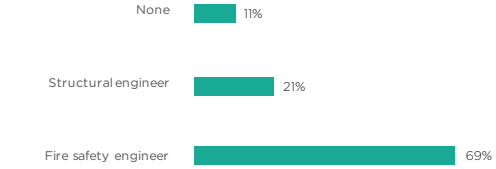
FRANCE



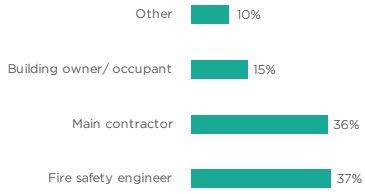
GERMANY



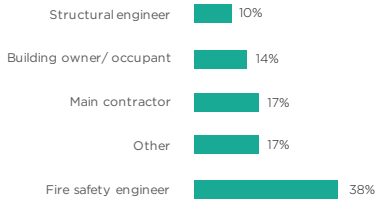
ITALY



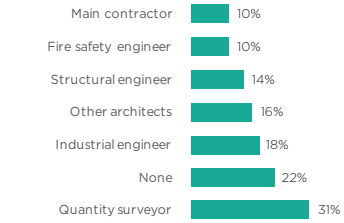
THE NETHERLANDS



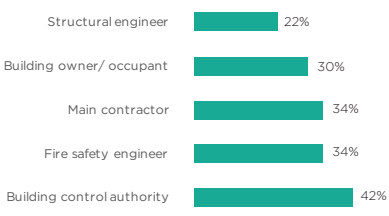
POLAND



SPAIN



UK



Which other parties besides yourself has any responsibility for the fire safety of the final building?

Parties named by at least 10% of architects

Which other parties besides yourself has any responsibility for the fire safety of the final building?									
	TOTAL								
Sample size	*835*	83	100	125	101	100	101	100	125
Fire safety engineer	38%	13%	15%	76%	69%	37%	38%	10%	34%
Main contractor	19%	45%	10%	4%	4%	36%	17%	10%	34%
Building control authority	19%	11%	72%	14%	1%	2%	3%	0%	42%
Building owner/ occupant	15%	18%	18%	17%	0%	15%	14%	5%	30%
Structural engineer	15%	24%	9%	13%	21%	8%	10%	14%	22%
None	6%	1%	0%	0%	11%	3%	9%	22%	0%
Fire services	5%	16%	6%	4%	1%	4%	7%	0%	5%
HVAC engineer	4%	10%	1%	4%	0%	9%	2%	3%	6%
Quantity surveyor	4%	0%	0%	0%	1%	0%	0%	31%	0%
Other architects	3%	2%	0%	2%	1%	0%	2%	16%	1%
Industrial engineer	3%	1%	0%	0%	1%	0%	1%	18%	1%
Building Contractor	2%	2%	0%	0%	0%	2%	7%	2%	2%
The Client	2%	0%	4%	0%	2%	8%	0%	0%	1%
Installers	2%	0%	1%	0%	1%	3%	1%	8%	1%
Constructor	2%	0%	0%	0%	0%	7%	7%	0%	0%
Designers	1%	0%	2%	0%	2%	0%	5%	0%	2%
Suppliers of materials	1%	0%	0%	0%	0%	0%	0%	0%	4%
Architectural consultant	0%	1%	0%	0%	0%	3%	0%	0%	0%
Facility engineer	0%	0%	0%	0%	0%	0%	0%	1%	1%
Commissioning officers	0%	0%	0%	0%	0%	0%	0%	0%	2%
Other	5%	1%	0%		2%	10%	17%	3%	3%
Don't know/no opinion	2%	0%	0%		1%	3%	3%	4%	4%

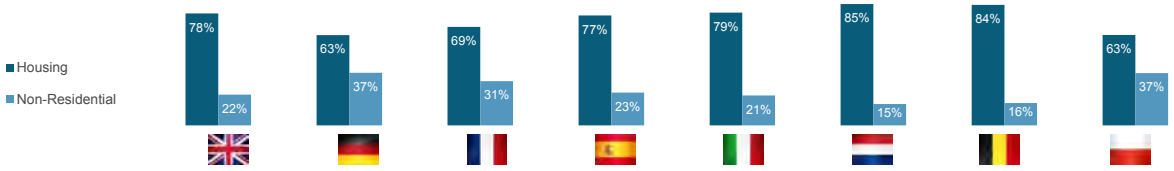
ABOUT THE SAMPLE:

Background of the architects

The table below shows the average number of employees of the architectural firms within the current quarter of this research, divided by country. The architectural firms with one employee were excluded from this research. The second table shows the segments in which architects within this research are mostly active.

Number of FTE								
Average	6,3	8,3	5,0	3,8	3,4	8,1	6,7	5,1
2 – 4 FTE	61%	44%	62%	84%	85%	48%	73%	56%
5 – 9 FTE	25%	24%	23%	12%	12%	24%	15%	30%
10 – 19 FTE	9%	21%	13%	2%	2%	20%	5%	12%
20 – 39 FTE	2%	9%	2%	2%	1%	5%	4%	2%
> 40 FTE	2%	2%	0%	0%	0%	2%	4%	0%

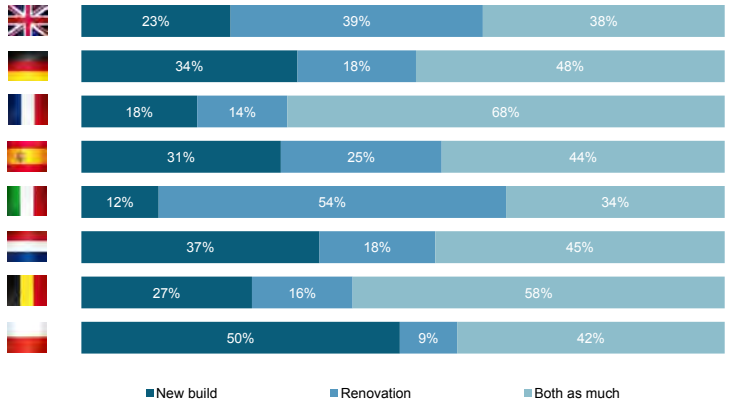
Segment mostly active



Background of the architects

The figure below shows the split in activities in new build and renovation. Italy has the smallest new build market with merely 12% claiming to be mainly active in new build. You can clearly see that most architects in France are equally active in both new build and renovation. Almost half of the Dutch and Polish architects do more new build, which is more than their colleagues from other European countries.

New development or renovation



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