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The growth in the concept of sustainable development threw up a number of new economic, political, environmental and social dimensions at the end of the 1980s, hard on the heels of forecasts on the exhaustion of natural resources and climate change. European construction professionals had to integrate these new ideas into the way they designed and built². In France, the growth in environmental concerns led to the emergence of new ideas and practices around this issue which, in a fairly unique way, gave rise to the HQE (high environmental quality) movement.

In this chapter entitled “New professional leadership in France”, the idea is to analyse the concepts of this unusual notion using as a reference the perceptions, positions, thought patterns and know-how of the professionals directly concerned. The French case stands apart somewhat, in the sense that it reveals a particular type of actor (unlike the case of England where the approach seems less unified), referred to as the “Founders” of a movement whose starting point lies in the pioneering work of the ATEQUE workshop (workshop on the assessment of environmental quality in buildings, 1992)³.

1 – The “founders” of the movement towards increasing sustainability: the emergence of a conviction that environmental quality matters

In France, at the beginning of the 1990s, under the political influence of the minister delegated to housing, Marie-Noëlle Lienemann, the first works on environmental assessment in buildings began. This work was primarily co-ordinated by the PCA⁴ and ATEQUE. Professionals, industrialists, researchers and personalities such as Olivier PIRON, Gilles OLIVE, Bruno Peuportier, Roland Fauconnier, Pierre Troadec, Sylviane Nibel and Hubert Penicaud found themselves adopting a common environmental approach which came about, amongst other things, through

¹ Translation, Neil Draper (neil@gocommservices.com)

² Cf. chapters contained in part 2

³ Initiative supported and financed by the State which gave rise to the creation and validation of a reference set registered with the trademark “HQE” ®. Because our work is to do with expertise, skills and collaboration between professionals and our research concerned more with the implementation of environmental quality in a sustainable development sense rather than a practical one, we will use the term “HQE” as a concept and an approach, in reference to interviews we have had with various people.

⁴ PCA: the construction and architecture plan which subsequently became the PUCA: the planning, construction and architecture plan.

government-sponsored experimental solar energy programmes⁵. This was the beginnings of a group of pioneers that we deliberately choose to call the “founders”. The name “founder” was used in our research⁶ to designate pioneers⁷ involved in the professional construction sector and part of a movement interested in sustainable development in the same field. Our hypothesis on the coherence of this group is that beyond the sharing of a certain number of environmental concerns, these “founders” represent the beginnings of a movement which has helped new modes and forms of collaboration to emerge. The name “founders” seems less suitable to Great Britain to the extent that actions linked to “sustainable building” were few and far between and were little or not at all encouraged by the Thatcher government at the beginning of the 1990s. The “founders”, as we call them in our survey, can thus be part of different professional groups (architects, engineers, researchers, industrialists, etc...) and share a specific vision of environmental quality in connection with their respective professional identities.

Table 1 – List of French « Founder » interviewees having undergone a « semi-directive » interview

<i>Interview n°</i>	<i>Name</i>	<i>Body and status</i>	<i>Interview date</i>
END01	Olive Gilles	Founding chairman of D2C, former peer of ATEQUE and HQE.	01.05
END02	Piron Olivier	Infrastructure ministry, former Secretary-General of PUCA, civil engineering	01.05
END03	Schnaidt Alain	Architect, HQE AMO, partner in 2DKS	14.06.05
END04	Bidou Dominique	Secretary-General of HQE association, civil engineering	14.01.05
END05	Peuportier Bruno	Researcher at Ecole des Mines, Paris	04.05
END06	Charbonnier Sylvie	Isover Saint Gobin	03.05
END07	Fauconnier Roland	FFB	01.05
END08	Bousseyn Daniel	Syntec ingenierie	06.05
END09	Chautard Guy	Secretary-General of HQE association	01.05
END10	Nibel Sylviane	CSTB researcher, Marne la Vallée	01.05
END11	Rigassi Vincent	Grenoble architecture school and Ecobatir, architect and engineer	02.05
END12	Troadec Pierre	AIMCC	03.05
END13	Amadon David	Head of PO1E AFNOR	03.05
END14	Patte Emmanuelle	ICEB	06.05
END15	Brindel Beth Sophie	CM3E, HQE GT rehabilitation association	03.05
END16	Poupin Daniel	CICF Secretary-General	05.05
END17	Gamba René	CICF environment manager	12.05
END18	Pénicaud Hubert	Architect-engineer, member of several environmental architecture groups, HQE AMO ⁸	03.05
END19	Sénior Gérard	UNSFA	03.05
END20	Nossent Patrick	CSTB certification	07.05
END21	Sidler Olivier	Enertech, Isolons la Terre group	12.05
END22	Gobin Christophe	GTM construction, former Secretary of the Bativille association	03.05

⁵ We are thinking, for example, of the “5,000 solar houses” competition launched by the Industry Ministry and the Infrastructure Ministry in 1980.

⁶ We surveyed a group of 22 “founders” who were willing to be interviewed as part of a university research study entitled “expertise, skills and management of sustainable construction projects”, jointly led by the CRISTO/PACTE laboratory of Grenoble and Bristol’s UWE in May 2006 under the supervision of Eric Henry and Martin SYMES. The results presented in this chapter are the fruit of that research.

⁷ Cf. table 1 – list of “founders” surveyed in France.

⁸ *Translator’s note:* AMO = support / assistant to the contracting authority

First of all, it is worth noting the combination of several levels of discussion: the profession, the line the development is taking and professional choices (individually) are all operating in conjunction in the light of strong, fairly generalised citizens' concerns about the environment (collectively).

When the French founders described their professional activity, they justified their initiative on the basis of the urgency of the environmental issue. Consequently, the scope under consideration goes beyond the construction sector and includes a broader reflection on all phenomena relating to the planet's environmental balance. Global warming, pollution, nuclear power, waste and policies are all common themes which made those surveyed feel that they belonged to a "movement" with an environmental conscience in France. The actors of construction, beyond their own specific technical skills, feel they represent a form of reasoning based on the desire not to be left behind on what is an international issue. Shared convictions around a sort of environmental credo brings them to the conclusion that "*nobody can be against the environment*". On that basis, the promotion of their professional activity is found in references to individual experiences, meetings and personal motivations that are not always directly linked with the building sector: "*when I got involved with HQE, it was with Gilles Olive in 1999. We were sure that it was not a new profession: I am an architect and for me, it is quite normal to be interested in the environment. You can't do anything in architecture if you don't take some interest in the environment. I felt that the environment held everything together: sociology, space, resistance of materials. (...) whether in Venezuela, in Africa or on a boat, with an environmental approach you address a problem and your approach will be just as good as mine. (...). On boats, there is real passion and I find the same thing in environmental projects.*"

In this respect, we observe a fairly humanist set of representations and values which are shared by those surveyed who gravitate, get know each other and live as if they belong to the same ideological, professional "community", in connection with the environment. The phenomenon of leadership "*à la française*" is part of the shared notion of a conscience which goes beyond the professional scope, with a wider mission encompassing the environment.

"Environmental quality is an ideological basis for compromise, for dialogue... nobody can be against it... clients want it..."

"It is a spatial and temporal convergence of people who meet and who believe in something at a given time and who want to give it to the public. The HQE approach and sustainable development have to be collective... it can't be any other way..."

"The idea we had over there was to say that sustainable development is something which concerns us in our everyday lives, and the objective was to see that each of us could represent and embody sustainable development in *our* everyday lives..."

"It is because at the outset, we said that environmental quality is deployed around man... it is a little bit that: ecology starts with man".

"I am not defending something personal, I am defending something which will help us get a better world, something that is in the public interest".

“The objective is to say: “at the end of the day, climate change will lead us, whether we like it or not, by force or by consent, 40 years down the line i.e. tomorrow... to design buildings which with zero consumption in terms of environmental impact and in terms of the extinction of resources, materials and greenhouse gas production”. If we don't create a set of laws for the next 40 years to address 3 billion m² which generate 100 million tons of CO₂ a year, at the rate we were at last year (we have already created 4% more emissions) - this year we are breaking all records with the 20 days of cold weather - we are not going to be able to survive at these levels of CO₂ concentrations, health-wise”.

In this “movement of founders”, reflection crystallises around these people's ability to group together and to invest in tools, methodology and the skills of their professions to face up to new environmental issues. “*At the outset, we need a common thrust, we need to find the answers to the questions: “how is sustainable development methodology developed? What will it change for us? How do we apply it? What are the skills that are needed?”*. It means moving from discussion to action. In order to do this, the discussion must open up internationally and allow us to compare the approaches of other countries, in Europe in particular (HQE, LEEDS, BREAAAM, etc...). The “founders” describe what is done abroad, compare their experiences with the experiences of others and analyse the situations described. They talk about their relations with other professionals and emphasise what, in their view, works better elsewhere. We note that they are very keen on what happens abroad (Germany, UK, Canada, United States, etc...) and give the impression that France may be falling behind.

“Internationally, the environment is all about innovation. Today with HQE, at GBC (Green Building Challenge), the HQE gives us a knowledge transfer platform to compare with LEEDS and BREAAAM. In HQE, rainwater recovery is now part and parcel, but the technology comes from Germany. In reality, it comes in the form of transfers: how do you do it? What are your performance levels like? We are going to have to have different approaches”.

“We go to trade shows to see what's going on... we go to trade shows in Germany. We work with Otto Wak, with engineers with 15 years' experience in this field. The Nordic countries are 15 years ahead of us and in the United States, architects have been taking about it for ages. It is developing rapidly in the private sector, in big companies. There are a whole lot of people who are really committed to the environment in the US.”

“The Anglo-Saxon system is a pure assessment system with thresholds... We use an association which manages the system with whatever they want... and we work on a consensus basis... and if there is a really big obstacle... we stop... to sum it all up, just look at the Paris bid for the Olympic Games, “what did they promise?” Well, LID (Low Impact Development)... the American system!”

However, at the same time, for example, those surveyed seemed to be reasonably satisfied with the way that the HQE approach works: unlike others, the French seem to think that they are setting up a proper environmental quality initiative through the

HQE tools. Even though they are not perfect, the approach seems valid. Thanks to this approach, discussions, reflection and workgroups arrive at negotiated positions which are not forced through without consultation.

2 – New skills and improved forms of collaboration are needed, bringing together existing and emerging actors in the construction segment

When we look to analyse the impact of growing environmental demands in construction on professions involved in QE (environmental quality) projects, various phenomena of professional redefinition and reorganisation emerge. On the one hand, the traditional professions – surrounding the contracting authority and principal contractor respectively – are adapting to a more complex world, requiring greater integration of qualification, expertise and skills from all and sundry. With QE, not only do architects, engineers and contractors need to acquire a specific type of knowledge in respect of the environment, but also to use a new skill which can be identified in the forms of collaboration and compromise needed to work with such projects. The development of QE seems to question each of these fields on their own professional and inter-professional capacities.

Also, in something of a satellite situation and as an interface between these traditional professions⁹, new professions are taking an increasingly strategic role in the emerging market of environmental quality in construction. This primarily concerns two categories of professions: AMOs (support to the contracting authority) and environmental consultants. The progressive emergence of these professions within HQE projects is closely linked to the contracting authority's growing needs given the new project elements that have to be included and the pressure placed upon the principal contractor to complete highly demanding construction programmes. The use of AMOs and/or environment consultants is due to the need for technical assistance and QE legitimacy. This results in the addition and juxtaposition – sometimes in a single project – of skills that are required of people who do not all have the same training, the same representation or the same level of knowledge in the environmental field.

In graph 1, three professional groupings represent the actors involved directly in the construction process in France. Two other groupings gravitate around this issue of sustainability: political regulation and industry practice. The professional groupings are responsible respectively for the order, design, implementation and construction of the building. Within each of these circles are the traditional professions who are involved in the different phases of a project. Peripherally – sometimes more integrated, sometimes on the margins of these zones, with the emerging “HQE” professions in grey – we show the emerging professions in the face of rapid development of sustainable development demands. The multiplicity of links which join them together reflect the density of the new forms of collaboration which are

⁹ It should be noted that we were not able to take the professions and actors linked to certification audits into account because auditors were not authorised to take part in the survey because of the confidential nature of audits requested by the CSTB.

being set up in this polarised network. On the basis of this model, several remarks – in connection with the general issue of QE development – can be formulated.

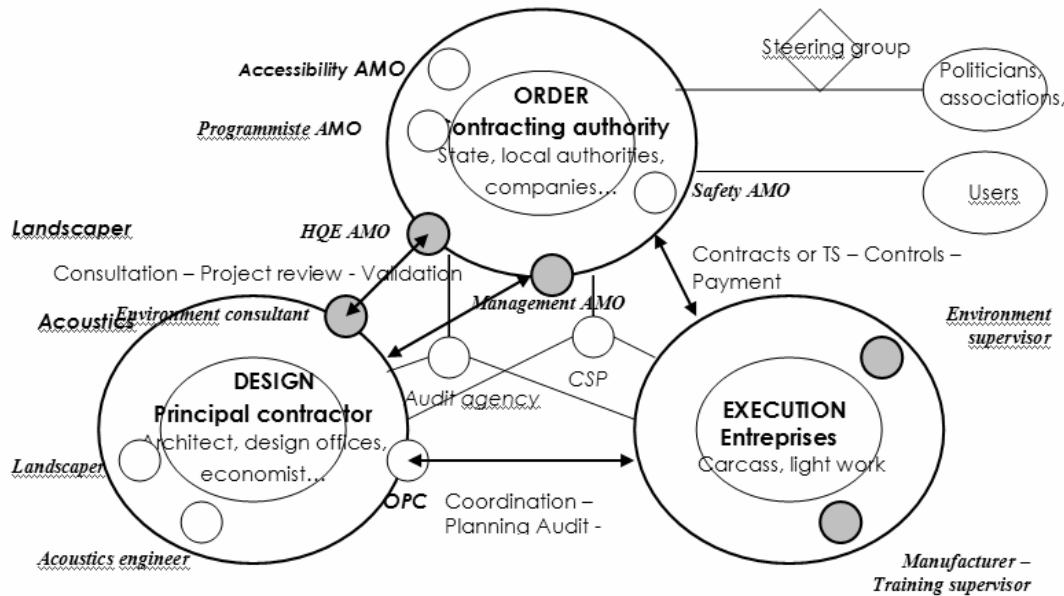


Figure 1 – Old and new construction actors involved in environmental management in France

The repositioning of the contracting authority in its relationship with the purchase order

On the subject of orders for buildings, public contracting authorities – as today exist in France – seem to have to adapt themselves to some very real pressures due to the increase in the socio-political desirability of environmental issues and sustainable development, and a clear lack of skills in terms of the manner in which such projects can move forward. Announcing the construction of an HQE town hall or secondary school gives the commune or the region placing the order a strong image, an identity which it thirsts after because of its communications value¹⁰. The challenge for the contracting authority therefore becomes more complicated. It is not a traditional construction project, but one that integrates environmental and sustainable development dimensions, perhaps without the necessarily skills being available. As we will see further on, in more detail, this issue of the balance between the desire at

¹⁰ For example, the visibility afforded to the HQE approach in Echirolles' (38) town hall construction project, if the municipality's website is anything to go by. It is striking to see the extent to which the construction of a new building gives rise to explanations, worksite photos, a chronological slide-show, a description of the materials used and a specific section on what the HQE approach is. We note the importance of the "shop-window" effect and the impact of communications (a theme we will address further on) for a project of this scale as soon as the environmental dimension is present. <http://www.ville-echirolles.fr/rubrique51.html>.

the outset and the resources available also goes hand-in-hand with the financial and managerial resources allocated to the project. In general terms however, the HQE approach at the starting point implies a repositioning of the contracting authority's role in terms of its skills and its relationship with its political masters and those who will use the building. The "fashion" effect, which make it more or less part of the public conscience, will generate a varying level of commitment and involvement on the part of the contracting authority in its leadership role and in the definition of forms of collaborations employed.

"HQEs today are a real mixed bunch. It's true that the first HQE projects involved people who were really committed, but today half of the contracting authorities who talk about HQE couldn't care less. Fashion comes into it, but they have their obligations to the politicians. There will always be a green party member who will say "but why don't we do HQE?" because of the image they want to give themselves. It just looks good to look green. Of course, it's clear that in every other HQE project today, the contracting authorities are pulling in their horns."

"Today, what I notice is that the contracting authorities want HQE assistance and that our design offices have a big card to play if they can provide it..."

"There is also the question of technical complexity – in a meeting with VAD, I met a contracting authority from a small commune in the Rhône area who tried to get through the first tertiary certification process but gave up because it was much too heavy for them to handle ... not financially, but with the questions they were asked, the system of management that it required and so forth."

"Because, to my mind, the main part of the work is with the contracting authority. To get through most of the work - because having people who can follow this sort of dossier within their teams doesn't mean a secretary or someone hidden away in a corner, or an engineer who can do all that on his own. Indeed – you need a motivated team which can put the resources in place to achieve it."

The problem of the levels of training of contracting authorities goes beyond the simple question of environmental awareness. *"The most important thing is steering the project. You have to know that the contracting authority always has the last word"*, said a founder we surveyed. To lead a construction project which meets environmental quality requirements, as several people questioned have said, the decision-maker has to be able to make the most appropriate choices to the political request formulated, to the use to which the building is to be put and to the technical possibilities of actually building it. Observations made in our survey are pretty conclusive: the way contracting authorities are organised today, does not make them particularly competent in the start-up and supervision of HQE projects. The lack of knowledge and skills on methods of design, materials or indeed HQE-approach techniques is at odds with the decision-making power the contracting authority has. This is what some people surveyed mean by "new challenges":

“Those who think about environmental quality honestly, and there are no more than 20 of them... 20 no more.... and contracting authority people are traditionally not properly trained...”

“You have to train the contracting authorities because there are no qualifications, nothing at all”

“What we know is that the more you cut it up into different phases, with different actors, the more you need highly competent contracting authority management...”

“Nowadays, decision-makers ask sustainable development questions...it's a technical thing they don't quite understand.”

“I think mostly about contracting authorities on public projects who are often considered as people who don't really know much but have loads of power... they delegate without putting what's needed into it”.

“In my view, the contracting authorities really need the skills, or to be able to get them from outside”.

There also seem to be difficulties in the forms of collaboration that prevail in sustainable design and HQE. This change operates around two main dimensions: on the one hand, the contracting authority seems to find it difficult to remain managerially independent in terms of the definition and leadership of the project. On the other, it seems to have to be part of a much more complex negotiation process both internally, with the programme development phase, and externally in its relationship with the designers.

On the first point, the environmental and sustainable approach leads the contracting authority increasingly to look for guarantees from experts who are not necessarily experts in construction. Non-experts are, as often as not, users. This means listening, taking expectations and comments of inhabitants, citizens and consumers into account, because they are the best-placed to talk about the uses of a building. It is of course they who, once the building is finished, will judge the result. In the repositioning of its skills, the contracting authority must therefore be able to integrate this type of external entity and make a place for him through the specification process. The quality of their leadership throughout all the stages of the project seems relatively dependent on the contracting authority's ability to interpret the expectations of end-users. The challenge is combining local expectations with consultation processes applied. A contracting authority faced with an HQE approach is one who succeeds in translating the non-expert message to experts, without necessarily being involved in the assessment itself. As a result, the legitimacy of an HQE project is no longer simply based on the traditional arbitration of the contracting authority but on the meeting and exchanges between users and experts. The “hierarchical” paradigm is being replaced by a “negotiated” paradigm.

The use of experts – as a support to the contracting authority's team – changes the dynamics when the brief is being put together. The decision-making body faces difficulties when faced with environmental and sustainability demands because it must find some of the skills required outside, if not available internally. To put the

project together, you need to call on outside expertise, in the form of HQE AMOs¹¹ and environmental consultants. This is where there is a change in the way of operating and the way leadership of the project is delegated. This separation undoubtedly makes some issues such as the choice of reference set and selection of targets even more visible, but also applies to going for certification or not. With growing environmental demands, there is an additional requirement: not to make a mistake with the “combination” of professionals involved in the project. The choice of the number, complementarity and even compatibility of these QE specialists is a decisive stage in the balance between functional programming and HQE programming.

Reflecting and working in the most integrated way possible in construction project management

The second grouping shown in Graph 1 comprises the principal contractor’s team. We note that whilst there are big changes and real difficulties, the environmental issue has raised more important questions in practices that are part of the French construction tradition, marked by relatively hierarchical relationships.

On the principal contractor side, any **architect** dealing with an HQE project is first of all confronted with a situation which requires an additional skill for which he has not always been properly trained. The HQE approach is a major challenge because it specifies the expectations of the contracting authority – and often elected politicians – in the form of targets. *“We said to ourselves: “it’s very important for architects to put themselves in the frame, because, on the one hand, it’s part of their job and also because they have the best overall vision at the beginning and at the end of the project, and only the architect has that... and therefore, is the best-placed to manage all the teams. We are not saying he should do everything, but it is he who can coordinate everyone. So it’s just the architect’s normal mission plus an extra component”.* Whether he is trained or not – we will see that this is a recurrent problem – the architect has to take into account the fact that the construction market is defined with this environmental and sustainable angle in mind. One person questioned summed up this way of seeing things very clearly: *“if the architects weren’t involved, the project would work against them... they quickly understood working with regular clients that they had a card to play”.* Thus, the key impact of HQE on the profession is that they cannot ignore it.

“What is interesting from the point of view of our profession as architects, and I wonder how it will turn out, is that now architects have to get involved, because if they want to sign certain deals, they have to commit to the HQE approach requested by the contracting authority”.

“And now, we ask ourselves questions like: How can the HQE be an asset to French architects abroad? We need qualifications, things we can demonstrate with a method... and we don’t necessarily have to copy the method from Japan or elsewhere... but show that it is created new expertise

¹¹ Translator’s note: AMO = assistant / support to the contracting authority

amongst our architects and designers - ... we have to show that it has given rise to a culture that will help deal with environmental problems as they are raised in other countries".

"I find that it's a real pity that the Order of Architects has resigned from the HQE association nationally¹² because once again, we're cutting ourselves off from what could help us move forward and from a new emerging profession".

Whilst this reality cannot be ignored, it may nevertheless raise a number of reactions, and not ones of approval or compliance. Amongst the comments made during our survey, we know that concerns – and sometimes downright refusal – do exist in respect of the development of environmentally-responsible design. The arguments advanced revolve around three categories of fears: the HQE is a very complicated approach for professions who believe they are already working to respect the environment; the HQE shifts the relationship with design because it imposes a reference set, standards and the possibility of restrictive certification; finally, if the architect wants to get training or use HQE specialists, this means a phase which is costly in time and in money and therefore often seen a dissuasive.

On the first point, it seems that the environmental and sustainable approach as described through the HQE has led to difficulties in building design. The technical and detailed nature of the approach – those questioned talk about 14 targets – outlines a framework which is sometimes seen as restrictive and incompatible with the creative freedom of the designer. Whilst before, the architect saw himself as the professional best-placed to manage all phases of design (the architect is a generalist), we observe that today's approach focuses on actors with complementary missions and a distribution of the different work sequences. The hypothesis on "distributed" and "negotiated" design therefore becomes central. The use of environment experts (as shown in graph 1) means greater separation of know-how and skills. *"Where we're going to have to change is where before we used to say: "There are our constraints and, at a given point in time, we convert those input data into spatial composition". And from this spatial composition, we would say to the engineers: "There, I've finished the drawing, I've done my building, now you can do the thermal engineering, the acoustics and so forth". I think that that's all in the past: the HQE approach in general doesn't allow it, and by and large, it's not a good thing, because the environmental approach requires a number of skills during the design phase that we don't have, or at least don't have enough of...". This idea comes back in many answers.*

As a second point, we note that people's concerns are structured around constraints expressed in terms of norms and the relationship with certification. Architects, when they get into an HQE approach, have the impression that their approach and their work are going to be more strictly governed by standard- and regulation-related recommendations, imposed in particular by the contracting authority. With the

¹² A resignation linked to criticism of the HQE in the name of cultural development as a component of sustainable development.

development of QE, the question is: “to what extent do changes triggered by growing QE demands lead to creating skill gaps within the profession (trained architects and more traditional architects) and affect their ability to work with briefs (between more QE-specialist architectural firms and others)?”. The professional identity of the architect is changing because he now works in a project context which requires him to think in a more integrated manner faced with the issue of the environment. “*In France, architects have a fine arts background*”, explained one person questioned. Dealing with standards and certification reflects this change of paradigm. The profession is changing, requiring constant dialogue and negotiation with all those involved: the contracting authority, the AMOs and the contractors. All of a sudden, we seem to be finding ourselves in a slightly paradoxical situation with more demanding contracting authorities – in terms of targets and certification – and professions which are aware of it and seem to approve the approach but are not ready and/or willing to meet the contracting authorities’ demands.

Faced with this situation, we note an adaptation which has led to French designers working in a less traditional manner. Architects and engineers, for example, have greater need to design together and consider the way they co-ordinate the different phases of the project. We observe that the work of the engineer and that of the architect is changing, requiring flexibility and adaptability as imposed upon them by the contracting authority in the day-to-day running of an HQE programme. Some points need addressing in relation to **engineers and design offices** in this context of growing environmental demands. The messages put across show that stereotypes are attributed to engineers, marking a stated cut-off between the creative design universe – the architect’s world – and that of calculation and technical feasibility. Representations are formed via a comparison suggesting the work of the different parties should not be mixed whilst, paradoxically, the need for better complementarity between the different phases of the project comes through strongly. This paradox is interesting because it clearly illustrates – and this applies too to message of the founders of the HQE movement – the culture shock resulting from the confrontation between a traditional, permanent model of construction and a more integrated vision which we see emerging from the environmental theme. Here, there is a real sticking point for construction in France.

“In the construction industry, we have this problem of the separation between the architect and the design office... having worked in England, I find that their design offices are much more involved in the early part of the design - in the sketch phase. When we tendered for jobs, we worked with the structural engineer and the fluids engineer on the form of the building. We would say: “this form is going to be very good for air circulation because the form that your were looking at...”, The engineers gave us input during the sketch phase when we were creating together, and the same applied to structures. Whilst in France, at least from what I’ve experienced in the agencies where I’ve worked, they are consulted late on in the process, making it less interesting for them and therefore for us and, what’s more, we’re calculating

after the event whilst everybody is allowing for a margin of error in their own bits of the process”.

Engineers are described by the founders as “people who thrive on energy”, who make “models” and “develop tools” without really worrying about the overall environmental design of the building and who have “a tendency to use software as a magic wand”. The relationship with calculations, measurements and technical aspects seems to be perceived as an obstacle to professional rapprochement and reinforces this dubious division of the various professions.

As for criticisms on the “level”, the “lack of creativity” and on the “tendency not to see each other” there are also some remarks about the degree of charisma of the engineer who is always compared with the architect: *“The leader is often the architect because engineers are not very good at presenting, speaking, etc...”*. In people’s answers, a distance is established and maintained through these differences in assessment which give a fairly instrumentalised character to the architect-design office relationship. Following this approach, engineers are perceived as having to be at the architect’s beck-and-call. At the same time, whilst these two universes are compared, we observe that value is given to what the engineer can bring to the environmental project. And again paradoxically, the engineer is stereotyped because of the traditional nature of his training and the social representations attached to him, but does enjoy recognition for his know-how and skill in the role he is perceived to play in the QE approach. This practical vision of a new level of complementarity required for successful HQE calls for tender, seems to override long-standing disagreements between the professions.

The struggles between design offices and architectural firms, in spite of this mix of individuals with different professional identities, seem to be part of a “before” period where a general model for construction equated to a rather rigid and partitioned type of relationship. This model continues to exist but we note that as the contracting authority’s processes become more professional, there is a more formalised demand for environmental quality and they are surrounding themselves with experts in the project planning phase. This change is being operated in the way the design process is organised. The principal contractor too must also adapt to these new rules. It must adopt an internal operational mode which is more highly integrated and impose a “common vocabulary”. Indeed, one of the conclusions of the survey is that this change is in progress. The outcome of the teaming up of architects and engineers is no longer simply dependent upon the need for identity affirmation by one group in relation to the other, but upon both parties’ changing relationship with the order specification.

Companies and manufacturers facing a whole set of new requirements

As the third skills grouping to be considered in the French construction process, industries and contractors are also having to deal with the development of QE and sustainable development. Two major aspects feature in people’s answers on the

subject: first of all, we discover high levels of acceptance of the environmental issue, based primarily on the desire to innovate and find a key place economically in a booming market; secondly, we note the progressive adaptation of companies to techniques and materials and their involvement in the management of HQE operations. This would include committing resources such as environment trainers and supervisors. Thus, contractors are an integral part of what is happening in the QE field. They too are making their own adjustments internally and externally in terms of know-how and forms of collaboration.

We note that professionals from the industrial sector are identified as stakeholders of the new environmental challenges because they have economic and political interests over the long term. These interests are reflected in products, innovation and the need to bridge the training gap between the major groups and their sub-contractors. They include the HQE reference set but do not stop there. On a pragmatic note, the theme of investment in this field including the AIMCC's (association of construction products industries) registration of the HQE trademark is indicative of its importance.

"In industry, it's fair to say that for high product performance, a good industrialist must limit energy consumption, offer the best performance for the lowest material/energy consumption possible... this is one theme.... if I were an industrialist I would manufacture in such a way to earn the best possible margins..."

The second point concerns resources that companies buy in to support their work in the sustainable development and construction sector. Here, we are talking about strategies implemented to meet environmental demands effectively. During interviews, these are primarily to do with two themes: being members of bodies which act directly upon standards and regulations; which means grassroots circulation of information - especially given the great difficulties faced by companies on the ground - and organising training for small companies and sub-contractors. This applies in particular to management, waste-sorting and the environmental quality of materials.

"It would be untrue to say that we the industrialists have nothing to do with it. Because for us, standards are tools which we have been using for a very long time. We are certainly going to be more involved than others who are put off by standards. For most architects it was a pretty scary thing, whilst for us, given that standards entail defining a common nomenclature, it's something we're comfortable with. But having said that, I wouldn't say that the AIMCC was the only one..."

"There is an review with contractors before starting the construction, but I think that's very important. I would say that in the HQE process, we are a bit less repetitive than we were. Clearly, companies are now more familiar with materials and techniques they didn't know before, as well as new working methods and environmental requirements. They need time to put new working methods in place".

On the subject of the use of new materials and introducing new types of worksite organisation, contractors need to adapt and they are doing so. Thus, we realise that companies have to reorganise internally and externally to address the new difficulties they face on the worksite. Several founders questioned explained that some of their professional mission is dedicated to the transfer of knowledge to companies.

"In general, we now have 20 or so technical training CD ROMs made by industrial partners, and the self-employed craftsmen come for an afternoon from time-to-time, whether or not there is a contract at hand, to explain and discuss the problems that they meet in their trade with framing and demands. We give them the possibility of meeting all GTM BATIMENT managers and reciprocally, we want to hear their difficulties. As we speak, there are over 20 technical training CDs available from suppliers. Of course, contractually, they are sub-contractors, but I think they have a broader vision than that nevertheless".

"Our role is to offer them stuff, run sessions for them... both awareness-raising and training on the new approaches... as much from a technical and technological point of view as from a management point of view. When we train people like that it's really a small step forward. We cannot oblige our companies to do it, we are there to raise awareness and it's up to them as to whether they choose to come and be trained or not. We offer the tools and the companies choose whether or not they use them".

Using the graph presenting the old and new actors in the construction sector involved in environmental management in France, and the analysis of the changes occurring in the three different professional groupings, we will now look at the more detailed points raised on the emerging HQE professions.

3 – From brief to design: non-conventional career pathways have been developed and personal implication in the newly-recognised goals established

On the subject of contracting authority support and environment consultancy, we note first of all a degree of confusion in names and definitions given to these professionals and their relationship with the environmental dimension: AMO, AMO HQE, *Programmiste*¹³, *HQE Programmiste*, environmental consultant, environmental supervisor... those questioned used the terms haphazardly and with combinations of names which shows that the identity contours of these professions are not properly established. We also notice some vagueness in the description of missions identified as being attached to those roles.

These difficulties in pinning them down come on top of concerns with the skills of those experts in their contribution to projects for which the contracting authority wants to be seen to be exemplary environmentally speaking and their skills in negotiations with other actors. This also applies to the visibility of their work at the

¹³ *Translator's note* : The French term, "*Programmiste*" refers to the brief specifier (the person detailing the content and schedule of a construction project)

interface of the three groupings of our construction model. On these three points, the messages we received indicate that major challenges are shadowing these emerging professions.

In the choice of a QE and sustainable development approach, the contracting authority will, in a different fashion for each new project, engage with a reflection on the integration of a new actor into the decision-making team. From the word go, questions are asked as to the legitimacy of this choice and the type of collaboration: is it worth using an HQE AMO? What financial resources are available to make it work? How will this environmental professional find his place in the development of the brief? Do there have to be separate functional and QE briefs? How is the AMO positioned during the project follow-up phase and in his relationship with the principal contractor? These questions are all part of a set of representations which put the HQE AMO in a situation where, even though he is from the outside, he has to show his worth within the contracting authority team and provide a successful interface with the project designers. This means that the onus is on the contracting authority to communicate on its environment-related needs to internalise the know-how gleaned outside (which has not always been the case). In the same way, the HQE AMO must as clearly as possible understand the content of the requirements stipulated on the one hand in order to successfully transform knowledge into skills and on the other, to adapt the level of his work to the way that the other professionals work.

The French “founders” emphasised firstly that the use of an HQE AMO meets an explicit requirement of the contracting authority which cannot fulfil the environmental requirements on its own. As one person questioned observed: *“the contracting authority favours these conditions because it’s reassuring to them”*. The idea of “reassurance” is interesting because it returns to a theme previously addressed: the need to call in an expert to lend legitimacy to the approach. In this context, the missions allocated cover a whole range of activities whose common denominator is communication and teaching targeting the decision makers: defining project orientations together, formalising needs through the production of documents, explaining targets and the impact of their choices, making their networks and previous experiences available to the client and maintaining people’s interest in the HQE approach.

“We work on the definition of the project, the setting up of the project, its orientations and the passive aspect... as it’s a competitive call for tenders, we talk a little bit about energy and we prepare illustrative documents which explain how the building works, presents the building as a biotope... this is very easy for people to understand. We prepare a little document... the contracting authority asks for it... we organise ourselves to be able to answer his demands. We keep ahead of the game because we only work with HQE project reference sets. In terms of demands, we draw up an environmental profile by proposing CSTB performance levels. We think that by promoting this reference set we will move things forward. You have to keep close to HQE I think”.

The issue of brief and the involvement of the HQE AMO in the scheduling phase is, undoubtedly, one of the most important and most controversial aspects of these interviews. On the basis of the brief, the project can be brought to life: “*On these operations, the brief has to be very precise, we cannot do an HQE operation without a brief*”, specifies one founder. From that point on, reflection is based on the degree of participation of the HQE AMO in the preparation of the functional schedule. It seems that at that stage, for the contracting authority, it is important to clarify the positioning of the different parties in respect of this collaborative approach. Without it, there is a risk of what one person questioned describes: “*You have some HQE AMOs who fall out with the AMO and say “If we are asked to do HQE, we don’t need to have an HQE specialist” and others say: “why are they doing our job when they haven’t got the skills to do it?”*”. This kind of situation is by no means isolated. It reflects a real difficulty in exercising the mission of assistance to the contracting authority and in the conditions of the brief-specifying phase. The examples provided by the monographies of our survey complete this approach and show that several situations exist around these professional combinations.

If you take the example of the construction of Echirolles town hall, we note that the contracting authority’s team – in this case, the municipal team – very rapidly voted for HQE targets. The decision to adopt a QE approach and to have an environmental approach in the brief was taken from the very start (in 2001). On the other hand, the issue of whether this HQE brief has to be distinguished from functional brief-specifying does not necessarily hold for everybody at that stage in the project. The fact of having two programmers is referred to. Arguments then began within the contracting authority’s team because of the additional cost incurred by this option. Very quickly, without actually questioning the choice of targets, a call for programme tenders was launched which specified the association in the same team of brief specifying, HQE and economist skills. The result was that two different teams came together. There will be a functional *programmiste* and an HQE AMO *programmiste*. We now understand the difficulty in formalising a single way of functioning in the initial stages and also of integrating actors who, each bringing their own skills, will play an individual and collective role. Finally, on the town hall project, the HQE brief is much more detailed than the functional brief because it provides information on the site, the environmental objectives and the targets.

To take another example, that of the town hall of Les Mureaux, we observe that the way the operation was put together and the idea of including outside support to the contracting authority were different. On this project, which is a renovation project (a town hall building already existed), a very light pre-brief (around 10 pages), was drafted by a *programmiste*. After that date, the town hall launched a call for definitions which served to establish the brief at the same time as the project was being designed. At first there were two *programmistes* (from the same company), one of whom had an HQE background. This situation is quite different from the previous one, since the project is finally dreamt up at the same time as the functional

brief and the HQE. The result of this is that the *programmiste* functions together with the architect, a solution which is highly favourable to shared, convergent design.

Through these two case studies, we know that there is no ready-to-schedule idea associated with the HQE approach and that each operation corresponds to a particular way of including the AMO. The challenge is both in the skills that each one brings to the project and also, and more particularly, in the knack of getting them all to work together.

Beyond this issue of the brief, we note that there is a difficulty of identification and visibility of those professions associated with support to the contracting authority. This uncertainty comes from the diversity of profiles and careers of those professionals. As the people questioned insisted, the HQE AMOs come from very different horizons and sometimes from worlds that don't always cross over: the AMO, a researcher, architect who is self-taught, militant... seems to have a wide range of careers which make it impossible to identify a typical profile, a professional identity defined by the strictures of diplomas or specific experiences. This complex identification process is further exacerbated by questions of understanding and identification of frontiers between HQE AMO and architect. Since it is an emerging profession – at the interface between the forces of control and of implementation – the HQE AMO is going through a process of adaptation to the professional sphere of the principal contractor, which does not always see such associations as positive sources of complementarity. There is also the challenge of the various responsibilities of the different parties.

“Without wishing to be cruel, there are loads of HQE AMOs who are contracting authorities who haven't made it, and it's interesting to see how architects receive AMOs... it doesn't generally go very well....”

*“Because, most of the time, what we see is assistance to the contracting authority “HQE” who does design, excludes certain things and so guides technical choices which are not the domain of the contracting authority. There, there is a pathology which appears, and of course there will be expertise, there will be disputes... that's quite normal. We're going to end up seeing contracting authority taking on HQE AMOs who are not insured for the mission. “Why isn't he insured? Because he's only covered for straightforward civil liability, not the 10 year guarantee; but as my projects feature elements to do with technical regulations, we are covered by the 10 year guarantee. Since these choices have been made by the contracting authority, liability will be with he who has advised: he will be liable and won't be insured. Such disputes are bound to happen... which is logical, since we are going to touch on questions of money, consumption, commitment to results which are not honoured, etc. Of course, they will go back up the ladder and they will say “hang on, we didn't recommend that, it was the support function to the contracting authority who said that...” It's a big danger. On the other hand, a *programmiste* and an AMO and HQE skills are crucial”.*

To complete this chapter, we return to our initial hypothesis that the French “founders” were at the origin of a “movement” which introduced skills, new directions and new ways of working together in pursuit of environmental quality. This professional reality is taken from the “negotiated” design model; it is real yet ambivalent. It is based on values (the need to commit to a project for the planet) shared by all actors but which at the same time, cause problems of identity repositioning. The architect arguing with the HQE can no longer think of his relationship with design as he did before. He no longer, or should we say, no longer only – embodies the image of the free creator. In the same way, the arrival of the HQE AMO and environmental advisors on the professional services market, turns the power struggle on its head in the sharing of responsibilities and the legitimacy of the project. As a result, traditional professional identities are thrown into question by the emergence of strong environmental concerns. In this context, the question of leadership “à la française” in construction is not the same: it is now for each activity area (contracting authority, principal contractor and industrialists) to take the part of the environmental pie that suits them best. Without that, and with operations on a certain scale, it will lose its power, both in carrying the project and its political statement of ambition.