European diversity: a building site experience

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"The language of Europe is translation"

Umberto Eco

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About the project:
the renovation and partial rebuilding of the *Palais de Justice de Strasbourg*

Figure 1: building site picture and render of the frontside of the Palais de Justice
left: (c) archiweb; right: (c)Garcés - de Seta - Bonet

The *Palais de Justice* de Strasbourg was built in 1897 by Danish architect Skjold Neckelmann. An 'old school' court showing neo-ranaissance aspects on its imposing facades, and decorative neo-egyptian elements such as sphinxes in the interior. It is part of the *Neustadt*, a back-then German urbanistic expansion started in 1880 to the north of the *grande île*. Governments have switched three times in 1918, 1940 and 1945 but the building always kept its function as highest justice court in Alsace. A floor addition with similar materials was realized in 1978 by Roger Lamoise.

It is still being used by the French ministry of justice which has reflected on a renovation since the early 2000s. A first architecture competition took place in 2002 but was aborted due to budget problems. The second competition took place in 2012 and was won by Catalan office *Garcés – de Seta – Bonet* and places the building in an interesting European continuity.

Figure 2: render of the main hall
top: (c)Garcés - de Seta - Bonet; bottom: (c) bati-actu

Hosting 244 employees and 9 courtrooms including one conference room on 13600 m^2, the building will offer an up-to date environment hosting the “cour d’assises”, the “tribunal de grande instance” and the local companies registry. Part of the renovation is the demolition of the 1978 floor addition and the replacement by a new monument-respecting one. Another part situated between the backside and the inner court has been removed too (the outer elevation has been kept). This strong modification is the flexible core of the project and will host the modern courtrooms as well as the 5700m^2 additional floor space. Another impressive intervention takes place in the entrance hall where the back-wall is removed to provide additional daylight and a connection to the inner yard.

After installing a provisional court of justice in front of the existing one, construction works started with scrapping in summer 2014. The project is to be delivered in September 2016 and was thus halfway when my internship took place in July 2015. 80% of the new structure was completed while works of the secondary shell just started.

Figure 3: building site situation and render of the backside of the Palais de Justice
left: (c) archiweb; right: (c)Garcés - de Seta - Bonet

My internship took place within the Barcelona-based office Garcés- de Seta - Bonet. My internship tutor, Mister Maxime Lang is a project-based employee who works full-time on the building site in Strasbourg. For the head architect Jordi Garcés it is the very first project abroad, exporting his talent in renovations. Major works include the *Picasso museum* (1986 and extension in 2010) and the *Olympic Pavillion Valle de Hebrón* (1991).

Figure 4:
Major projects of Jordi Garcés. From left to right: the picasso museum, its recent extension and the Valle de Hebrón olympic pavillion part of the 1992 olympic games.
all (c)Garcés - de Seta - Bonet

Part I: General Background

I.1) Comparison of past, current and future construction law in France and the Netherlands

a) A common history

It might be surprising but the Dutch and French legislation used to be very similar. At the beginning of 19th century Napoleon ruled over big parts of Europe for approximately 15 years. Aiming a wide standardisation, he introduced similar laws, the so-called 'code civil' in several countries (1804 in France, 1811 in the Netherlands). The regulations concerning the construction industry were defined in the 'contrats de louage d'ouvrage', book III.VIII.III in France and book 7.12 in the Netherlands.

This 'burgerlijk wetboek', the official name in the Netherlands, stayed in force for a long period. New codes were only promulgated in 1838, with small modifications, and in 1992 with substantive modifications. However, the construction law was barely changed in both cases (Asser, van den Berg, 2007, p.9-10). Therefore the Dutch laws which apply here (Articles 750-769 of BW 7.12) are still very similar to the Napoleonian ones.

The French 'code civil' is still in force too and has not undergone any substantive re-promulgation. However, it is regularly modified and updated by laws which are the daily business of the legislative. While some laws of 1804 are still valid, others have been modified, removed or added more recently.

The common history of both jurisdictions can be illustrated by a simple example: the protection of the contracting party towards hidden failures. Article 1641 of the French Code Civil states that the selling party is responsible for such failures. Article 762 of the Dutch BW 7.12 states that the contractor is responsible for hidden failures which he has concealed. In both cases a maximum liability period is defined (10 years in France; article 1792-4-3 code civil and 20 years in the Netherlands; article 761-2) and applies to these hidden failures too. A strong similarity which can still be observed nowadays.

b) Different strategies in the second part of the 20th century

As the contracts and procedure used are various in and sometimes within the private market, we will focus on the public market only. This one is unique in each country and can more easily be compared.

Though the legal background looks similar on a first point of view, both countries show real differences in the usage of this one in construction practice. In fact, the Articles 750-769 of BW 7.12 being barely modified between the promulgations, another mean is used to regulate the industry: the Netherlands are not afraid of using standard contracts instead of laws (Maturin, 1989, p.349). This phenomenon can be explained by the working of the market. It seems necessary to define the term 'poldermodel': "a distinctively Dutch style of policy making in the social and economic sphere: consultation-intensive and consensus-seeking." (Jonker, 2014, p. 88). According to Bremer and Kok (2010, p.99) this is illustrated by a combination of corporatism and competition in the construction field. Thus, the government should stimulate cooperation while keeping competition in order to achieve the best performances.

This vision was first introduced in 1968 with the Uniforme Administratieve Voorwaarden (English: UAC), after 20 years of intense cooperation of several parties to the process (client, contractor, architects and other consultants). This document which was updated in 1989 provides a standard document which is mandatory for public agreements with contractors and replaced the diversity used by several institutions (van Wijngaarden, 1986, p.14-15). Considered as a "crown jewel" by van den Berg (2009), it is a real reference contract: very precise in the distribution of responsibilities it was updated twice, in 1989 and 2012. The clear advantage of not using a law is that it stimulates regular changes: the private market uses the UAC as much as the public sector does, inducing a strong need to adapt to the new trends too. Variants such as the UAC-IC for turnkey contracts illustrate these trends.

Other standard contracts have been established by the engineer and architect unions for their respective professions. The fusion of these documents in 2005 shows a consensus and an aim for a good cooperation of both parties (BNA, NLingenieurs, 2013, p.5).

France's construction law corpus is considerably bigger than the 20 modest Dutch articles of the BW. Some French laws such as the loi sur l'architecture of 1977, which made architects mandatory for building permits, show 45 articles solely.

The French government does not leave the choice between the 'professional' (vertical integration of design and execution) and the 'industrial model' (clear phasing, splitting of both tasks) to its sectoral institutions (Campagnac, 2000, p.10). The industrial model is clearly favoured since the Loi Maitrise d'Ouvrage Publique (LMOP) came in force in 1993 (Campagnac, 2000, p. 137). This one clearly limits the usage of integrated contracts to situations where complexity creates a necessity ("Ordonnance 2004-559 du 17 juin 2004"). The strength of the traditional model is reflected in the terms "maître d'ouvrage" and "maître d'oeuvre" which respectively define the roles of the client and the designer. A look back to the decade 1980-1990 is necessary to understand the context in which this law was created.

The period of recession 1981-1986 showed a growth of construction corporations. This one was not only an expansion in size (companies such as Bouygues bought smaller ones) but also an upstream and even downstream process integration. During the boom period in 1986-1991 this went as far as early forms of DBFMO contracts (Marché d'Entreprises Travaux Public) being used.

This led to the LMOP being voted in 1985 (and the application decrees published 8 years later), a law which regulated this conflict between these two professional models and protected the architect. Architects' tasks were redefined (mission de base), fee-scales introduced and integrated contracts seriously limited (Campagnac, 2000, p. 135). From then on, institutions might only differ from the traditional industrial model if the complexity requires it, and might only work with consortia in that case. Interestingly, this law aimed the same goal as the Dutch UAC: motivating the partners by clarifying the tasks and responsibilities (Campagnac, 2000, p. 134 & Asser, van den Berg, 2007 p. 9-10).

Both countries therefore faced a challenge in improving construction quality and costs in the second half of the 20th century. Interestingly different solutions were found in a similar legislation: while the Netherlands applied what one might call the "poldermodel", France showed a stronger need to regulate. While the different parties of the Dutch building process satisfy each-other by consensus-making policy, the French government plays a bigger role in regulating and protecting the different parties implicated. This is also reflected in the relationship architect-engineer-contractor: while in the Netherlands integration is seen as a positive potential (BNA et al., 2013, p.5), a French petition (UNSFA, 2015) shows that architects are afraid for their independence.

While the architect's design process is similar in both countries, legal differences can be observed in the construction practice. On the field of liability for instance, two big differences can be noticed.

- in France, according to the law of 4 january 1978 (loi Spinetta), a "contrôleur technique" is mandatory from a given building size. A private inspecting party which is certified by the government has thus to be contracted for some building sites. The tasks vary depending on the type of project but always include the structural work. In the Netherlands, the borough ("gemeente") is responsible for this task (Maturin, 1989, p. 357).

- The liability of architects is much smaller in the Netherlands, van den Berg even calls it a "complex of exoneration". Due to the restricted law corpus, the architect and engineer unions have strongly limited these liabilities in their standard contracts (van den Berg, 2009, p. 67). While the Dutch architects are only liable up to the consultancy costs, the liability of French architects is not limited (Ordre des architectes, 2009).
Big differences can be observed in the duration of the liability as well. In the Netherlands all architects are liable for a period of 5 years after completion of their task (DNR 2011, article 16-1). A different situation is to be found in the France: architects are subject to three warranties: perfect completion (1 year), good operation (2 years) and construction (10-year warranty). The last one applies to other parties involved in the design and construction process (including the "contrôleur technique" but excepting subcontractors) and is subject to a mandatory insurance (Huet, Blandin, 2010, p. 298). For the client this protection is double as at least an architect and a contractor are implied.

c) Common challenges in the 21st century?

Some aspects which have been introduced and regulated in France are being discussed in the Netherlands. There is a lot of criticism on the limited liability of architects and engineers. But restricting aspects of the French regulation have also been identified (i.e. the high costs of the mandatory insurance). An option elaborated by Chao-Duivis would be a project-specific liability. Depending of the size, type of project and costumer different liabilities and insurances would apply (Chao-Duivis, 2006, p.666-668).

Another aspect which is becoming interesting in the Netherlands is the establishment of mandatory private building site control. It is aimed to outsource this task which is now part of the boroughs to certified offices by 2017 (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2012, p.4).

The modern trend towards integrated contracts is concerning both countries' contracts. France already experienced such a trend in 1980-1990 and reacted by a strong regulation, protecting the independence of the different parties and enforcing mutual control (décret n° 93-1268 du 29 novembre 1993). Nevertheless, complex French projects such as highways have been subject to DBFMO contracts from the era of privatisation on. The Dutch counterpart is Part 9 within the UAV-IC. The latter one puts much more responsibility on the contractor - the client is not obliged but free to verify the works. Nevertheless, it is common to set up a verification plan which might include step by step acceptance. A clear vertical integration trend can be observed in both countries, notable projects making usage of such integrated contracts are:

- national military museum in Soest (NL)
- renovation ministry of finances (NL)
- the viaduct of Millau (FR)
- ING headquarters in Amsterdam-Zuidas (NL)
- the Allianz-riviera stadium in Nice (FR)

These projects which often include a public-private partnership are controversial nowadays too. In the last example it is unclear why this type of contract was used and the financial volume seems too big. French justice seized documents of the public authorities and the contractor on 23 June 2015 (Le moniteur, 2015).

A bigger constraint which might nevertheless favor these types of contracts is the most recent European directive 2014/24/EU which has to be implemented by April 2016. This document implies the harmonization of most type of public tenders in the European Union, a trend which started in the first decade of the 20th century and is going deeper and deeper since. In the long term, public building contracts will be affected and might affect private ones too as standard contracts are often shared. The goal of this directive is the simplification and modernization of the existing (partially harmonized) procedures. A difference with previous directives is that it goes much deeper in the details and will introduce rules for the comparison and choice of competitors (e.g. minimum turnover) (Le Moniteur, 2015).

This directive will be a challenge for both countries as internal government policy will be impacted. We have seen that both countries have developed different strategies for the building industry. It is questionable if there is a room for these national specificities within this and future directives. One might note that architect unions of both countries criticize this directive (UNSFA, 2015 & BNA, 2015). While France might have to liberalise the choice of contract (UNSFA, 2015), the Dutch governments will have to regulate choices which were previously left to the sectional level (Blaisse-Verkooyen, François, Verweij, 2014, p. 741).

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I.2) Project phasing in France

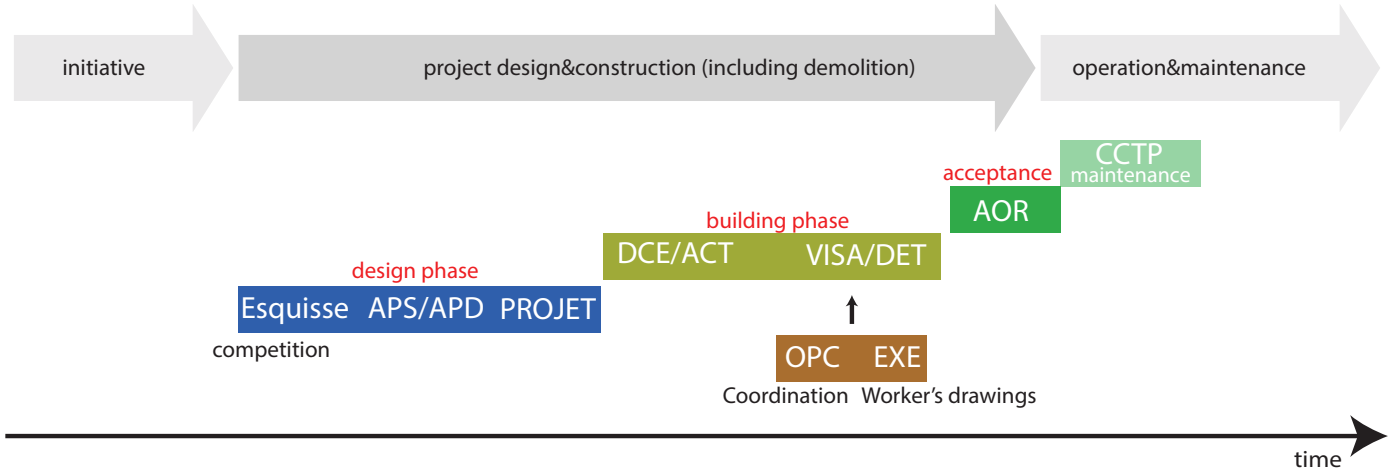


Figure 5: timeline and division of French architecture projects - model used in Strasbourg (own work)

List of abbreviations (as in the "décret n° 93-1268 du 29 novembre 1993"):

APS: "avant projet sommaire" - brief pre-design
APD: "avant projet définitif" - final pre-design
PROJET: final detailed design plans
DCE: "dossier de consultation des entreprises" - tender documents
ACT: "assistance à la consultation pour la passation des marchés de travaux"- contracting assistance
EXE: study of contruction works, worker's drawings
OPC: "ordonnancement, pilotage et coordination" - phasing, management and coordination
VISA: validation of EXE documents
DET: "direction de l'exécution des travaux" - building site monitoring
AOR: "assistance aux opérations de reception" - assisting the acceptance of the works
CCTP Maintenance: writing the maintenance contract for the operation phase

The very start of any architectural project, the design phase, is nearly identical in all countries. Whether we divide it in 3 or 4 parts is not the question. In any case it is aiming at a final, definitive project for which companies tender to build it. Another international standard is the preliminary sketch which is widely used in the second round of architectural competitions.

After the design phase, the countries' policies diverge. Several variants can sometimes be found within the same country. In France, the architect keeps the responsibility of the realization of his plan until the acceptance of the final building. The first step after the draw/design phase is the tender. This is the first test which the documents of the architect undergo (DCE). If the phase is successful, the architect helps the client in the redaction and signature of the contracts (ACT). For the project of the *Palais de Justice*, a first competition took place in 2002. After the tender, the project appeared to be out of budget and was canceled. A second competition took place in 2012 and has led to a start of the construction works in July 2014.

From a public law point of view, the client is the owner of the building site and has a civil liability for this one. However, the client outsources his responsibilities to the parties and mainly the architect: the consulting task of the architect is extended to a quality insurance one. The quality of what is made of his plans is his responsibility. To fulfill this, the client gives him a few mandates such as the one of authorising worker's drawings (VISA: examination of the EXE plans) and the one to monitor the building site (DET: direction de l'execution des travaux). This explains why architects often have an own office on the building site itself.
Tasks of the contractor go further than the construction works itself. The coordination, phasing and management of all building site activities can be attributed to him or to an external, specialist party (OPC: "ordonnancement, pilotage et coordination"). The EXE task is the last drawing step before these ones being executed. This is mostly done by the contractor and the plans are always part of the VISA procedure.

During the delivery of the building, the architect is essential to the client. After monitoring the building site for an extended period, he should know which critical points need to be checked. While the project is finished once all observations of the delivery have been corrected, the architect stays in contact as he is liable for up to 10 years. In some cases a last task is included: establishing an operation and maintenance plan for the period after the building site (this one concerns the 3 years after delivery for the case of Strasbourg).

I.3) French building site jargon

French architects and contractors master a developed and impressing jargon that testifies a strong tradition. Numerous old-fashioned but elegant words which get a second, often metaphoric meaning in the construction world. Combined with the various modern technical abbreviations, a quite unique mix appears. For instance, the word “garde-corps” would literally be translated as body-guard but actually signifies for “railing” (while “garde du corps” indeed signifies for body-guard). A similar image is used for the word “cantonnement”: while a “canton” is a quarter, a subdivision of a city, a “cantonnement” is a subdivision of smoke exhausting (and once used to describe a small piece of land too).

However, the aim of this part is not to describe all small subtleties of the architect’s language. Despite certainly being an interesting task, the best way of learning it is definitely to practice it.

Therefore only a few essential terms that should be known before arriving on a building site will be explained here. The words of the list mainly concern contracts, regulations and procedures – and their precision is crucial in discussions with other parties:

Short	**French Term**	**Definition**
AE	Acte d'engagement	Notarial statement which makes the contract enter in force
-	Arrêts de chantier	Interruption of the construction works. The reasons can be various but should normally be climatic only
ATEX	Avis technique expérimental	If the material/object has no certification (pv technique) it needs to be approved with this expensive procedure that takes approximately 6 months
-	Attestation	French word for certificate. Can be used in different contexts: insurance, completion,...
-	Avance(s)	Payment advances
-	Avenant	Amendment, modification of the initial contract
CC	Cahier des clauses	Text form of the construction contract – exists in 4 variants:
CCAG	...administratives générales	Standard legal conditions of the contract
CCTG	...techniques générales	Standard technical conditions that apply to all construction works.
CCAP	...administratives particulières	Particular legal conditions of the contract – including regulations about deadlines, payment, liability,.... It includes any derogation to the standard legal conditions
CCTP	...techniques particulières	Detailed technical specifications (text): materials, DTU/ norms, testing,...
-	Devis	A bill, a cost estimation
DPGF	Décomposition prix global et forfaitaire	Detailing of the global offer of the contractor. This one is made part by part (“par lot”) and material by material
DTU	Documents techniques unifiés	A set of French norms that apply to the technical aspects of buildings (including a lot of details). They are mandatory for public works
-	État d’acompte	Financial balance that is established monthly. It includes the calculation of deposits and costs due
FTM	Fiche technique modificative	Documents used to request the contractor to make a price estimation for modifying works
-	Garantie biennale	Two-year warranty. Applies to all elements that can be dissociated from the main structure (floor and wall finishings, visible pipes, ...)

-	Garantie décennale	10-year warranty. Applies to all elements inside the main structure (cables, pipes, windows,...)
GPA	Garantie de parfait achèvement	One-year warranty on the perfect operation of the building. This is particularly important for technical installations
-	Lot	Subdivision of the construction activities (for instance: roof windows; wrong ceilings, ...). One subcontractor is generally responsible for one lot
MOE	Maîtrise/Maître d'œuvre	French term for the architect and by extension his "team" (engineers, ...)
MDO/ MOA	Maîtrise/Maître d'ouvrage	French term for the client.
-	Marché	Market - all documents that are part of the construction contract
MOP	Maîtrisé d'œuvre publique	French term for the public client. Several standard procedures apply to this one
-	Notes de calcul	Calculations of the engineers
PMR	Personne à mobilité réduite	Person with reduced mobility
PAC	Plans d'atelier et de chantier	Building site layout plans (task of the contractor)
-	PV technique	French mandatory technical certification for all building materials/elements. If not available, an APEX is needed
-	Réserve	Proviso that is expressed if partial dissatisfaction applies to a building element
-	Retenue de garantie	Money that is retained for eventual breach of warranty
-	Situation de travaux	Fulfillment of the works, established every month before payment
-	Synthèse	Procedure that is made to transform the architectural plans into technical ones

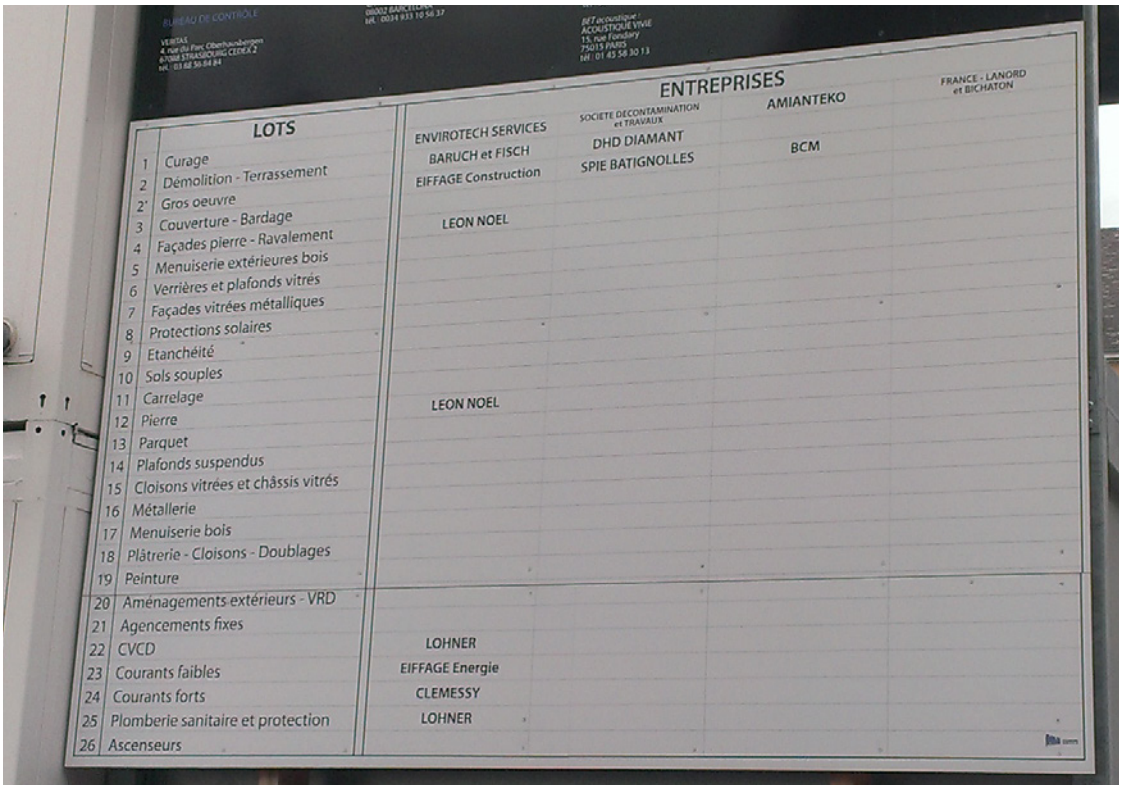


Figure 6: Division of the construction activities in "lots" with their respective subcontractors. As seen on the public display of the building site in Strasbourg. (Own picture)

Part II: a day to day practice of French architects - building site obseravations

II.1) a clear distribution of powers

a) organizational scheme and possible variants (p.9)

For the building site of the *Palais de Justice* it was chosen to make a unique and general tender for all construction activities ("lots non-separés"). The OPC (management, phasing and coordination) is automatically included, allowing only general contractors to take part in the tender. Recruiting the subcontractors (in yellow) becomes the task of the general contractor, hereby considerably reducing the workload of the client/ architect (but inducing higher costs).

The main alternative to name here would have been to indeed split the project in parts ("lots séparés"). Each part is subject to a separate tender by which the subcontractor is directly chosen. Each subcontractor is in contact with the architect who might be assisted by an external OPC manager.

The EXE plans are drawn by the contractor: the contract only includes the specifications (for instance the number of power-plugs per room) but the contractor has to translate them into technical drawings. This includes a lot of coordination work to avoid problems and optimize shared aspects. Though it is a regional specificity of Alsace, this task has not been attributed to the architect here.

Independently of the variant chosen, the architect always occupies a central role. In fact, he is part of the central initiative (light blue) and planning (brown) processes. He serves as a mediator between the contractor (orange) and the client (light blue) and both normally do not participate in a same meeting. The interest of the client is to take the right decision to achieve functional and budget accuracy while his need is expertise. Contractor's interest such as profit and feasibility are in conflict with this. This is why the expertise is provided by the architect who is committed to act in the interest of the client.

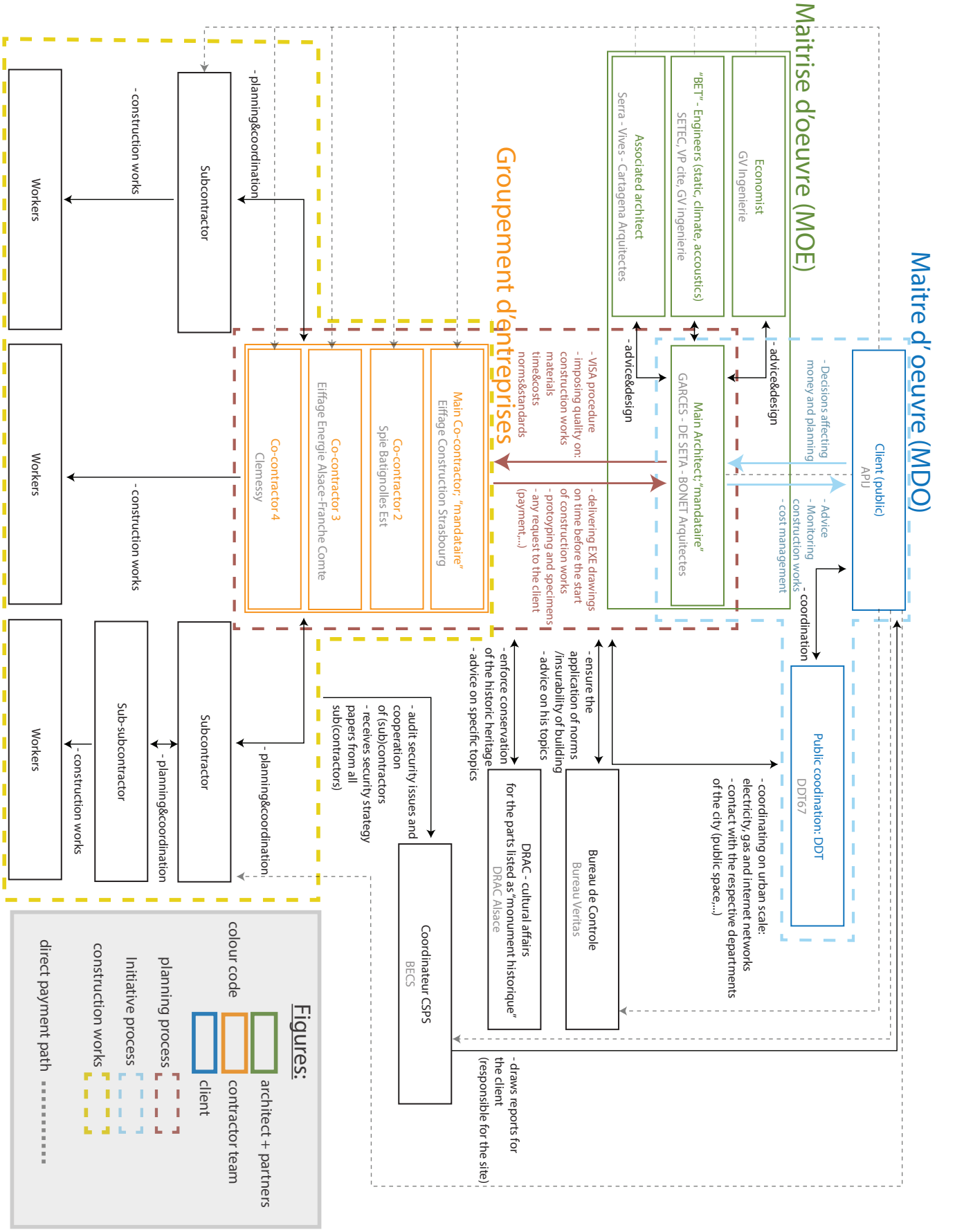
In the next part it will be discussed that several roles can be occupied by a consortium of different companies. These exist in two types: "conjoint" (without risk-sharing) and "solidaire" (with risk-sharing, most frequent), the latter being the case in Strasbourg.

b)description of the different actors

The client (maître d'ouvrage):

He can be public or private. From the point of view of public law, he owns the building site and can be kept liable for any consequences of the building activity (inside and outside of the site). Most of these risks are "outsourced" by obliging parties to monitor and report precise aspects (the architect, "coordinateur csps" and "bureau de contrôle"). Their role on a building site is not optional - they are mandatory by law.
Some specificities apply to public clients such as the APIJ (Government Agency for Justice Real Estate) in Strasbourg and are worth naming here. First of all, the financial pressure can be higher as they have to report to the ministry of budget. If France is a country that undergoes a stagnation but no debt crisis it is partly because the government finances are working correctly. To ensure this, several standard and mandatory procedures are used on the technical and administrative level. A second aspect is that some of the tasks can be outsourced to other, local parts of the government. This is the case with the DDT in Strasbourg: the task of organizing administrative procedures such as the connection to gas, electric and internet networks is outsourced to a local authority.

Figure 7: Organizational scheme of the building site in Strabourg. This is only one out of more variants of how to organize construction works. Many different actors are involved - this changes depending of the building site too. (own work)



The architect's team (maître d'oeuvre):

The architect always forms a team ("maîtrise d'oeuvre") before participating in the final round of the competition and is the only one allowed to be the head of this one (this is mandatory to get a building permit). His team always includes static and climatic engineers as well as an economist. Furthermore, associated architects, landscape architects and other engineers (acoustic, ...) can be part of this one.

The architect is not only the mediator between the central processes (light blue and brown) but also coordinates his own team. If he stays "mandataire" during the building phase, he is the closest confronted to this one. He chairs the weekly meetings and informs all parties with the minutes of this one. It is his responsibility to make the engineers contribute to the team's expertise. This expertise is used to monitor and control the contractor and to advise the client.

Contractor:

A phenomenon often seen on bigger projects is that contractors associate to each other as a consortium. Similarly to the architect's team ("maîtrise d'oeuvre"), one head ("mandataire") represents the whole consortium without being hierarchically higher. In reality, the human resources of all co-contractors are mixed during the project. Moreover, each co-contractor is specialized in some type of works and a stronger expertize is often the result.

In the case of Strasbourg, the contractor is responsible for all construction works and their coordination. He is free to choose the sub-contractors he wants as he is not forced to make public tenders. Though not a purely liberal practice (the contractor might choose subcontractors of the same holding), this can be seen as a positive aspect as quality and reputation have a primary role here. The contractor contributes with his experience from previous projects.

Subcontractors:

As a general rule, each "lot" is attributed to one subcontractor. It regularly happens that a subcontractor chooses to employ a second level subcontractor. In any cases, all subcontractors have to be validated by the client and the architect before starting works. The client has to know who is working on his building site as he is liable. Furthermore, it is also the chance to refuse non-adapted subcontractors. The client will have a look at the financial situation and a public one more particularly at the fiscal situation. The proportionality of available means and previous works will be inspected by the architect.

Direct payment of the subcontractors is mandatory if the client is public. Private clients might choose to do so as well.

Independent external parties:

Bureau de Contrôle:

The task of the "bureau de contrôle" is to make sure that all norms and regulations are correctly applied. His duty can be limited to one aspect (statics&security is always part of it) or the client can choose to extend it to other ones (such as disability mobility norms, fire engineering,...).

This party is mandatory for any building site bigger than a single-family house. While he is defined and imposed by law, the interests defended are these of the insurances. It is his task to certify that the building is fulfilling all required regulations.

His task always includes the solidity of the building (Statics). Furthermore, depending on the size and the wishes of the client, his tasks can include more aspects such as correct working of installations or thermal insulation. In the case of Strasbourg he was for instance also responsible for the tasks HAND (disability norms) and SEI (fire engineering for a public building).

Any office operating in this field has to be aggregated by the government. Project selection often takes place through an open tender.

Coordinateur CSPS:

His task is to coordinate safety on the building site to avoid incidents. As there are several subcontractors involved at the same time, it is important to prevent safety conflicts. Sensible ctivities of one company might put unprotected workers of another one in danger. General security issues such as railings and safety nets are also part of the task. This coordinator reports its observations to the responsible of the building site: the client.

DRAC- Direction Régionale des affaires culturelles:

This institution is in charge of the listed monument buildings in France. Each region has an own office. On a building site such as in Strasbourg, their presence is effective from the architectural competition on. As the plans gets more and more detailed when construction works take place (choice of colors, stones, etc.), their task is quite important in that phase too. In practice, it is an additional control of the architect's aesthetic choices. Any modification needs to be validated by the DRAC.

In France, often only parts of a building are protected as Monument (in Strasbourg, for instance, only the elevations, the entrance hall and minor elements were protected). In that case the task of the DRAC is restricted to these specific ones. The other parts remain unaffected and offer architects as much freedom as any non-listed building.

c) the role of the architect - checking as a necessity

Given the context of reciprocal interests between the architect and the contractor, making detailed checks on the building sites are daily business. In fact, the architect needs to prove that he will look at everything and cares about each detail.

The VISA process (p.14) gives the architect a considerable authority. Together with the practice of prototyping, they permit to make clear agreements on what and how to do. The translation of the written contract specifications undergoes a check before going big scale. Each step is important and it is recommended to the architect to keep an eye on all of them.

These checks can for instance be conducted on the placement of insulation at parts that will later be locked away. But more basic elements such as the placement of the light switch cables on the right side of the door are just as essential from a functional point of view.

"Minor" errors such as wrongly placed elements can never be entirely avoided. By discovering and notifying these ones to the contractor, the architect will have a positive contribution to the collaboration. A lot of restrictions during the delivery can be avoided - the contractor will naturally appreciate! Finally, the quality of a building site cooperation is often related the number of restrictions. As the architect is responsible towards the client, his reputation can be affected by the delivery of the building.

A bigger impact will nevertheless be that it forces the contractor to make construction work in accordance with the agreements. Each "minor" error is still extra work and extra costs for the contractor; if they are discovered. If the architect does a good job, the contractor will proactively contact the architect to discuss unclear situations. By checking the construction works, the architect finally strengthens his own position.

Monitoring the complete execution of his works, from worker's drawings until final product, is an inherent task to the architect. He has to know the building site just as well as the contractor.

d) matrix of responsabilities and obligations

Figure 8: Analysis of the responsibilities and interest of the different parties involved in a building site (own work)

Actor	Obligations	Reporting to	Main interest
Client (Maître d'ouvrage)	- Civil liability for the building site activities (external and internal damage) - All decisions affecting time and/or money - Clearly formulating his needs, modify the project after the start of building activity if needed - Paying the architect, contractors and subcontractor within the agreed deadlines	- if public: ministry of budget & other institutions	- get the product with the agreed specifications
Architect (Maître d'oeuvre)	- Delivering a building within the fixed budget and time frame - Controlling the building process through the VISA process - Coordinating his own team of engineers, economists, associated offices	- the client - bureau de contrôle - DRAC	- make sure that the quality is optimal
Contractor (Groupement) (possibly a consortium)	- delivering a given building in a given time - making profit on the price agreed during the tender - coordinating all construction activity, including the VISA process	- to the architect (for validation and subcontractors) - bureau de contrôle	- make profit while matching to the contract - finish the project in time (time=money)
Subcontractor	- creation of EXE drawings together with the contractor (synthesis) - correct construction of discussed layout drawings	- contractor - coordinateur SPS	- similar to the contractor
Bureau de Contrôle	- make sure that the building delivered is insurable - his assessment on specific topics has to be taken into account - note any technical irregularities during the construction process	- to the client (technical certification of the building)	- prevent any exceptions to the regulations
DRAC	- protect buildings or parts listed as monuments - give advice and validate choices affecting these parts	- reports to the government hierarchy (ministry of culture)	- preserve the historic aspects
Coordinateur CSPS	- prevent accidents - coordinate the construction activities of different parties	- reports to the client (liable for the building site)	- ensure the safety of the workers

II.2) Major procedures

a) weekly building site meeting

The building site meeting is always chaired by the architect. He elaborates the agenda and leads the discussion. The urgent and general matters are discussed first. They are followed by the more specific points which only concern one subcontractor.
In a situations with a general contractor such as in Strasbourg, the architect is meeting with the head of the consortium. In other cases he is meeting with the OPC coordinator. In both cases, subcontractors might be present during the part of the meeting concerning them.
It is also the architect's responsibility to write the minutes of this meeting ("compte-rendu"). The document starts with the general points. The specific parts are classified in the order of the subparts ("lots") and the minutes are closed with the FTMs and OSs (see p. 28). For practical matters, the content is generally inserted into a table such as below:

issuer	description/announcement	party aimed at	clear instruction
Architect	completion of the concrete structure is ...%	Contractor	for information
Contractor	Lead diagnostic	To all	waiting for final results
DRAC	Color RAL... validated	Contractor	to be taken into account

Figure 9: Short model of a table that might be used for weekly building site reports. The minutes of the last week are generally the basis for the agenda of the next meeting.

The use of a color code makes such a document much clearer. One color (blue for instance) should be used for new entries. Another one (red for instance) should be used to highlight the most important points.

Several documents are attached to each meeting minutes:
- list of sent documents and VISAs (excel sheet with details about the process of each drawing)
- list of modifying works requested by the contractor(s)
- list of modifying works, OSs and acceptance restrictions ("réserves") requested by the architect or the client
- list of approved/refused subcontractors
- overview of formal questions & answers documents

b) VISA&prototyping

The EXE plans are the plans used by the workers. In English these ones might be called “layout-plans”. These plans are generally drawn by the “entreprise” (the contractor or the subcontractor) who is responsible for ensuring the global project coherence before. They can include general information such as concrete elements’ measures or very detailed ones such as the positioning of lighting spots.

All EXE plans have to be validated by the maître d’oeuvre (architect) before being used on the building site. If non-certified plans are used, the architect is entitled to stop and correct construction work that begun (at the costs of the contractor). Architects should impose their discipline as their entitled to the VISA procedure by the standard building contracts.

The VISA procedure starts once the contractor sends the drawings to the architect. He has a maximum of 14 days to provide a motivated decision concerning the drawings. He can either refuse them, accept them with or without observations (for instance a modification of the). Accepting them makes the EXE plans, with eventual observations, final working plans (BPE: “bon pour execution”) which might be used during construction works. The conformity of these works can then be checked with these final working plans. The same procedure will take place with the Bureau de Contrôle if aspects covered by his tasks are affected.

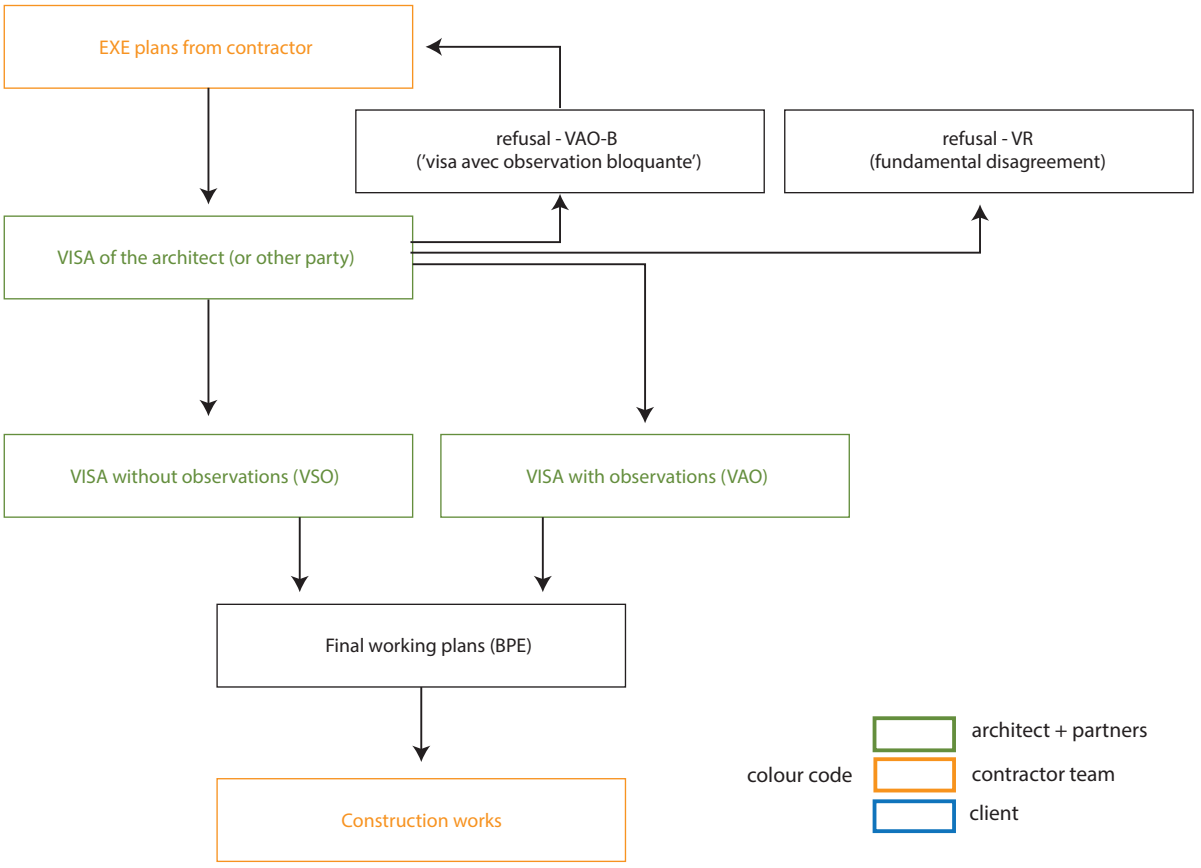


Figure 10: Schema of the VISA process used to control working plans used on the building site. This is the architect’s main tool on building sites.

For complex building elements, a more detailed VISA procedure is useful. This is the case for parts which are often repeated and include a given complexity (invisible elements have a strong impact on visible elements). In that case a first version is built. Several parties can then give their feedback and this one will be adjusted until everyone approves. Once all parties have approved the prototype, this one becomes a 1:1 final working plan. All similar objects then have to be built as similar as possible.

This process gives the architect a considerable chance too. He can decide about or modify last details in a 1:1 situation. Facing the final, real-scale and real-material product, makes it much easier to take decisions. For instance, a wash-basin that might have seemed correct on the plans might finally appear to bee too small. The architect will then simply ask for a bigger wash-basin.

Figure 11: Roof addition mockup (own picture)

Figure 12: Color paint tests (own picture)

Figure 13: Cenia stone floor test (own picture)

Figure 14: Office prototype (own picture)

Roof addition and patio facade prototype:

As one of the few entirely "new" parts of the building, the interior facade and the roof extension can be optimized with a mock-up.

Working on a 1:1 object makes it easier for the architect and the contractor to express their wishes. For parts such as windows security norms are particularly important. Therefore, the "bureau de contrôle" is giving advice on such a piece too. An example are the facade flaps which can be opened (see left).

Main hall paint shades test:

The precise color is chosen by making tests such as seen on the left. The small difference that can be spotted in the catalogues generall seems much bigger when using big surfaces. Furthermore, working in the real and final setting makes the choice easier and more accurate. A difficulty persists as the lighting conditions during the building site are not identical to the ones once finished.

Once the architect has chosen the paint shades these ones have still to be validated by the DRAC (as the main hall is a protected part).

Main hall stone floor test:

The same procedure is used for the natural stone floors. Small scale pattern appear differently depending on the size of the prototype. Putting a dozen of stone tiles in the room they are planned in allows to better imagine the final situation. The stone used here is the "cenia" and became the final choice. Technical aspects such as the resistance and aging were considered with the subcontractor too.

Nevertheless, an aspect that can hardly be simulated are the joints between the stones, which exist in variable measures and colors and have an impact on the visual result too.

Office prototype:

Duplicable rooms such as the toilets or the offices are prototyped before being repeated. A total prototype is realised by the contractor so that all visible and invisible details can be discussed.

For the contractors and subcontractors it is a team and material feasibility test too. Renovating the existing, 100 year old parquet floor is such a situation where the outcome needs to be verified first.

From plan to construction: the case of the lavatories

Similar to the offices, the toilets are protoyped too. This permits to correct some choices. For instance, the wash basins have been changed as the initial model of the market was at least visually too small. The prototype permits to define the aesthetic goal of the works too. This is *the place* where all aspects can be discussed. For the contractor it is the possibility to test the cooperation of the different workers implied.

While it seems quite simple when finished, a lot of technical elements are “hidden” above the walls and wrong ceiling. These ones are of different matters: smoke exhausts, electrical cables, ventilation, etc. As working in an existing building it is quite a challenge to integrate them correctly: the ceiling has to be lowered and is sometimes conflicting with the windows. In that case, a soffit is made to allow the daylight to enter and the window to open.

Nearly all lavatories are in a different state of completion. While the prototype is nearly finished, the upper rooms were not much more than the nude structure. This makes it very easy to draw links between what you see and how it is made.

Figure 15: Lavatory prototype (own picture)

Figure 16: Networks behind the wrong ceiling (own picture)

Figure 17: Changing wash basins (own picture)

Figure 18: Soffit to adapt to existing windows (own picture)

Figure 19: Before closing the soffit (own picture)

Figure 20: Woker's drawing for one of the ground floor lavatories
(c) Garcés - de Seta - Bonet

One of tasks I was entrusted with are the wrong ceiling layout drawings of all the lavatories. Basing on the prototype, the same principle was applied to place ventilations, light spots, smoke and light detectors and fire evacuation installations. Working on an existing building necessarily leads to small adaptations of the prototype as all rooms are slightly different.
Making this type of drawings has taught me the importance of adding measures on drawings. These ones charcterise layout drawings and are the only way to precisely transmit the information where elements have to be placed.

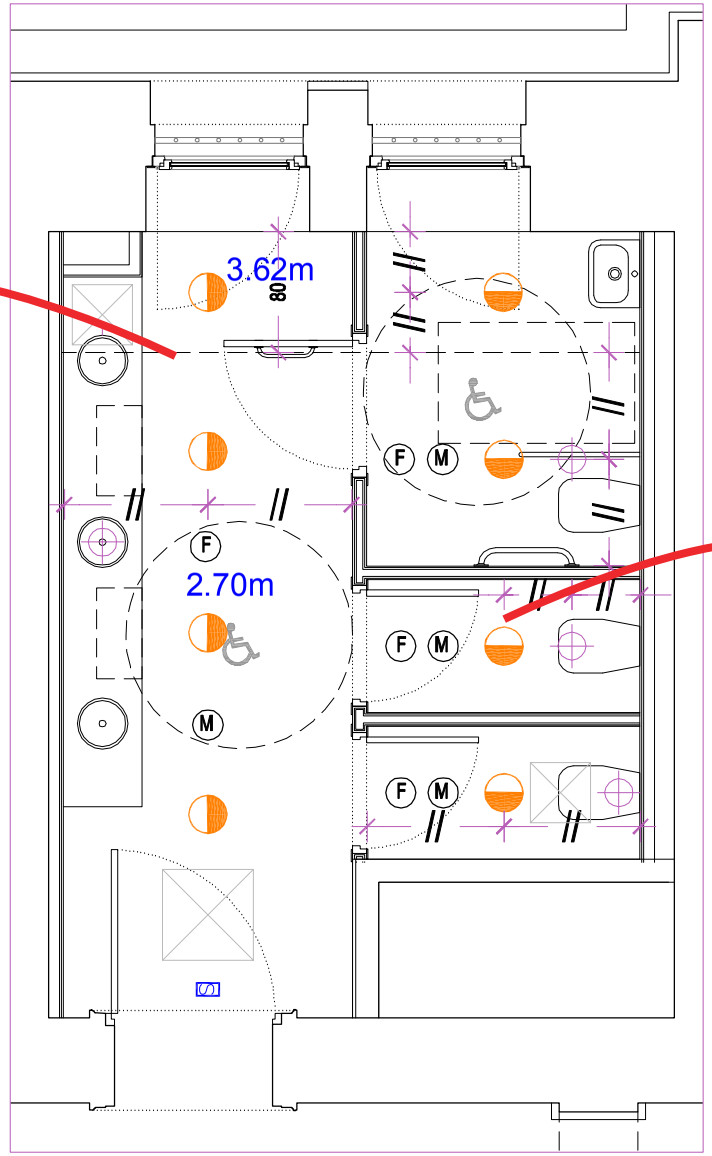
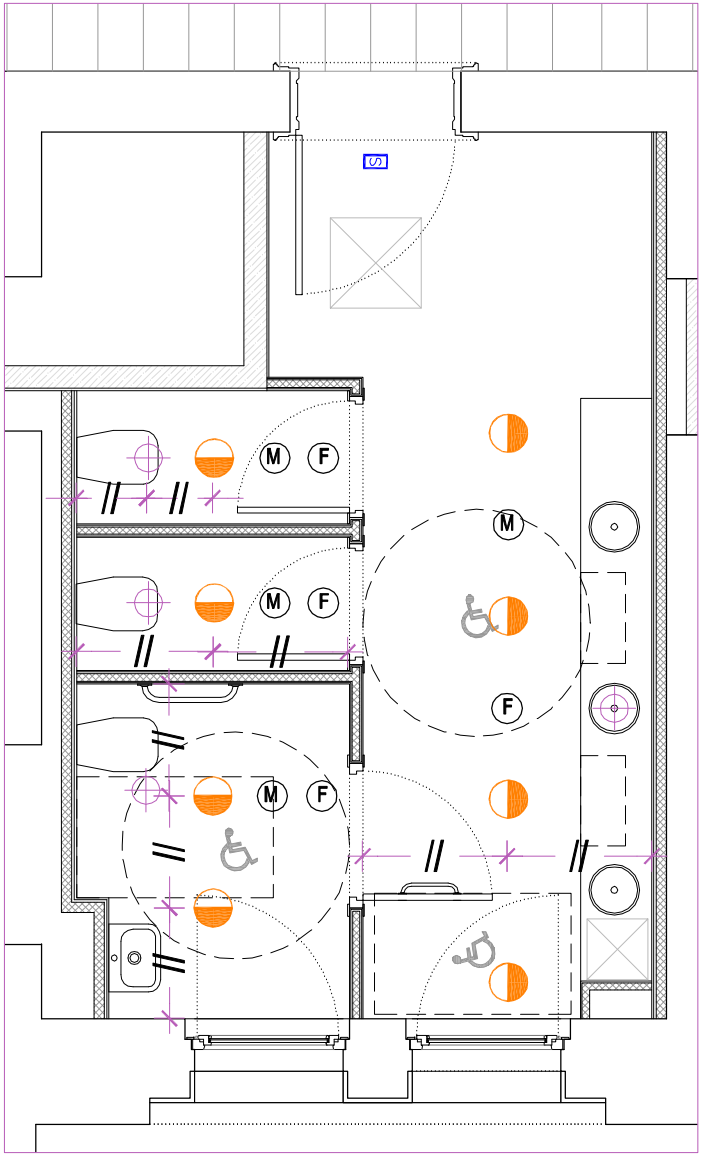


Figure 21: Woker's drawing for one of the second floor lavatories
(c) Garcés - de Seta - Bonet



Légende
- BAES
- Flash
- Luminaire
- Détecteur
- Ventilation

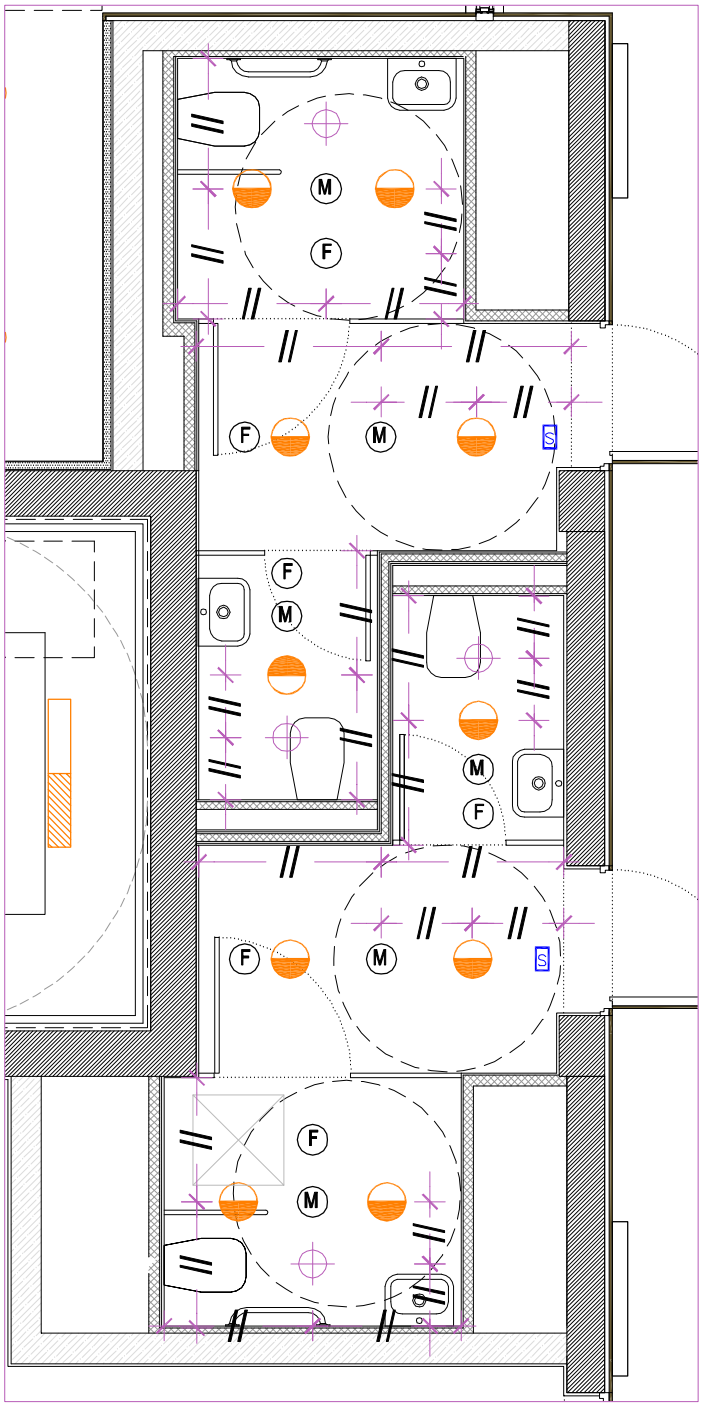


Figure 22: Woker's drawing for one of the third floor lavatories in the rebuilt part
(c) Garcés - de Seta - Bonet

Plan Sanitaires - R+3 Centraux
Date: 27/07/2015

Echelle 1:50

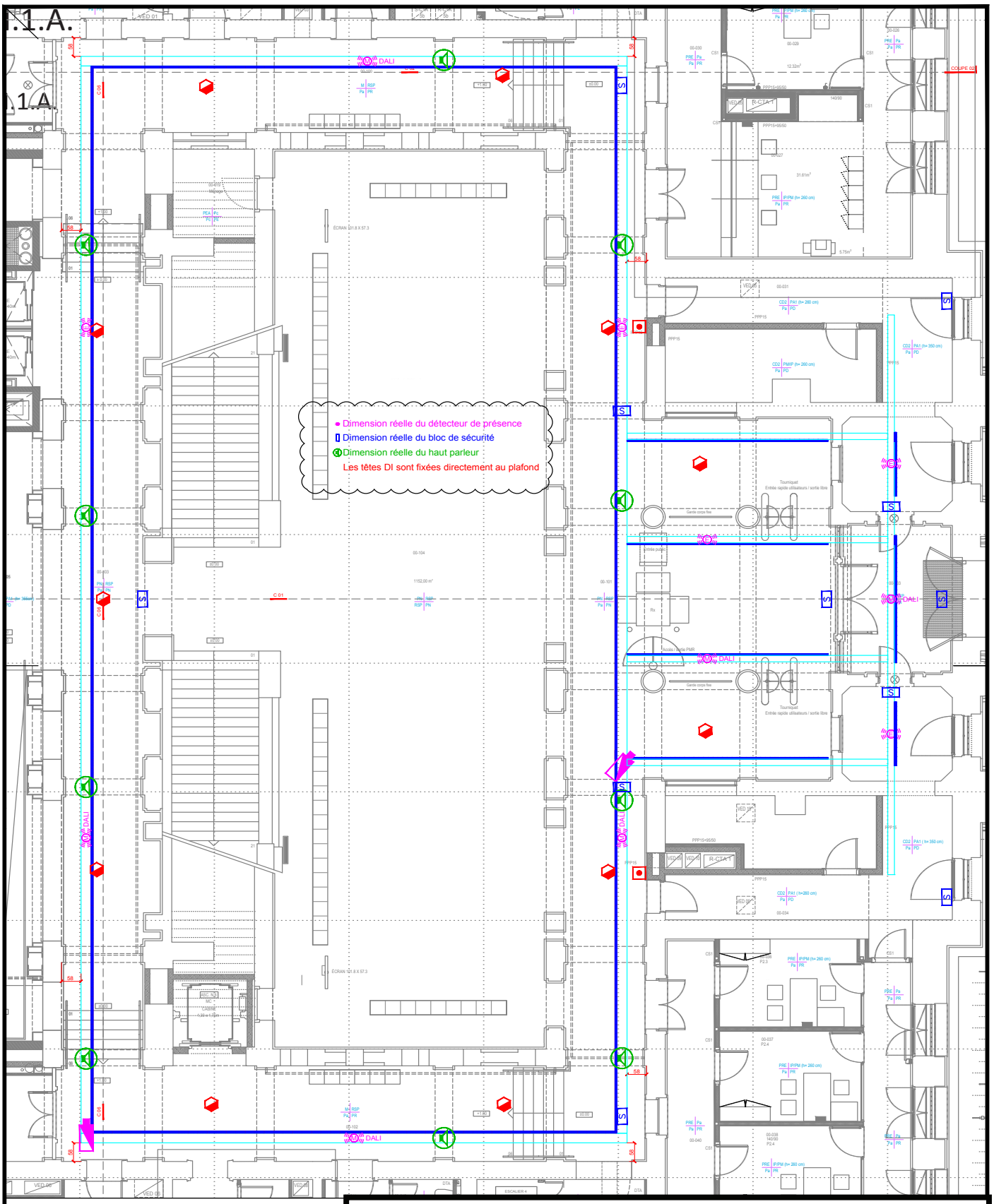
From plan to construction: the case of the cable rail in the main hall

Another task I was entrusted with is the design of the cable rail in the main entrance hall. A visible aluminum rail with a continuous LED strip will be fixed on the ceiling. The connections with the ceiling will be visible and are thus just as important. The main problematic of this intervention in a highly monumental context is respecting the existing rhythm.
This aesthetical element needs to be combined with several technical elements fixed on the rail or above and which will follow the same rhythmic rules. Attached elements include highly visible ones such as fire exit signs but also more subtle speakers and light detectors.

Figure 23: The main entrance hall where the cable rail will be installed (own pictures)

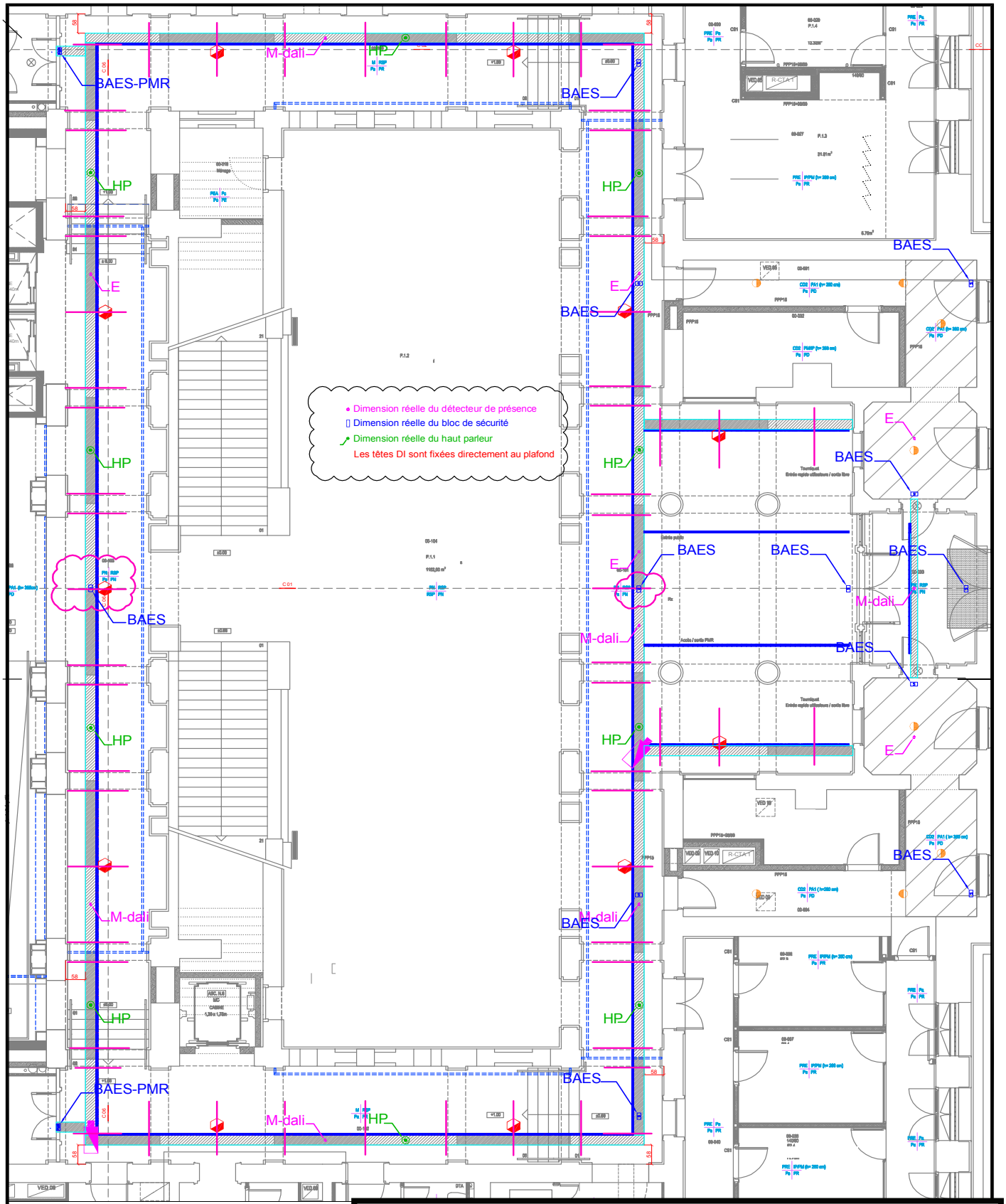
Figure 24: The cable rail prototype with two lighting rail variants and several installations including a smoke dectector on the ceiling. (own picture)

Figure 25: First version of the cable rail drawing as received from the contractor (c) Garcés - de Seta - Bonet



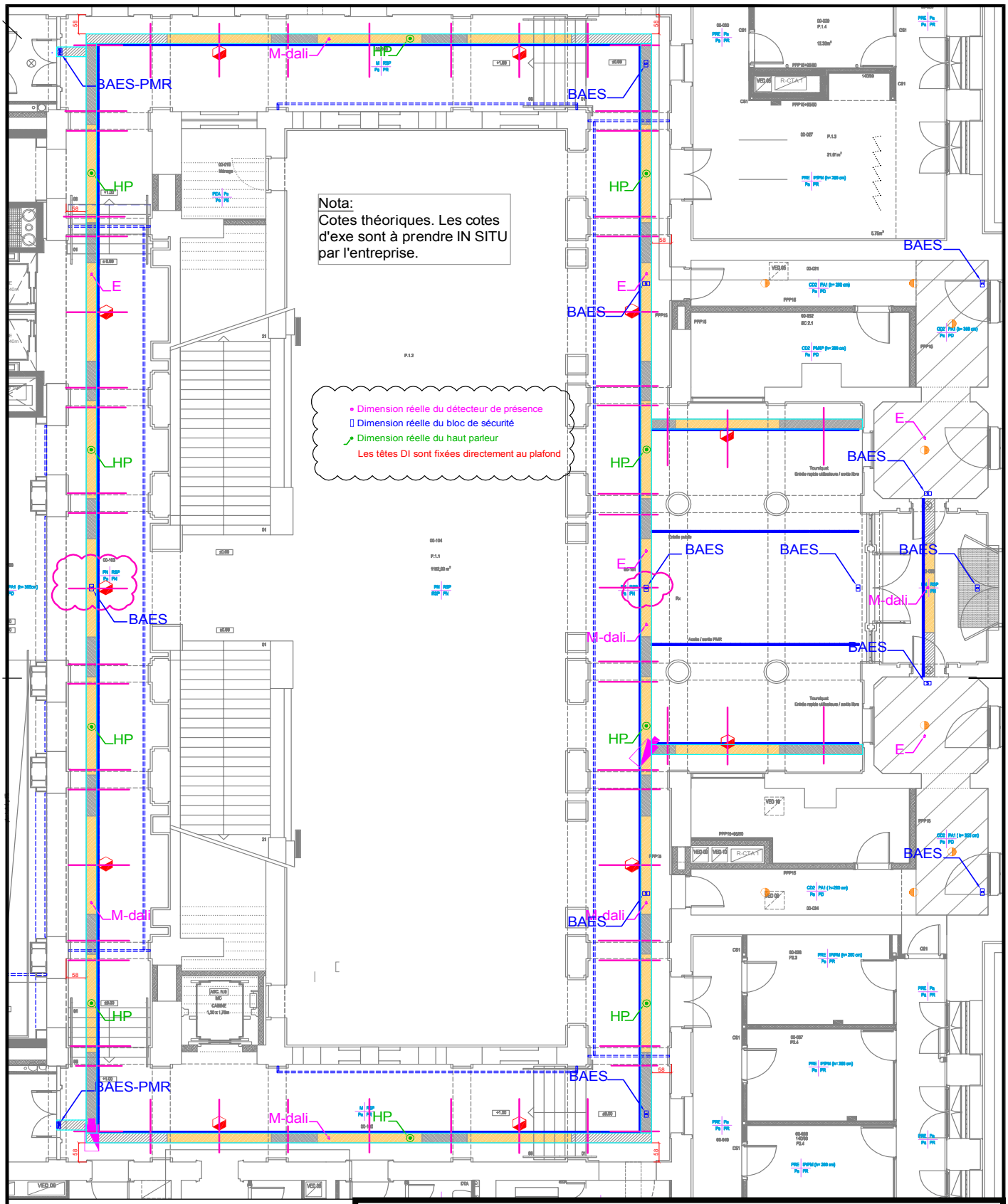
This is the first drawing such as it was sent in by the contractor when starting the VISA procedure. Different installations such as smoke and movement detectors, speakers or evacuation boards are placed. The LED strip can be seen in dark blue. However, the division of the cable rail (light blue) and the fixation elements of this one are not placed. As this is a highly aesthetic issue it was agreed that the architect will make a first design followed by a technical feasibility study by the contractor.

Figure 26: Second version of the cable rail drawing as sent to the contractor (c) Garcés - de Seta - Bonet



The first version made by the architect includes the divisions of the cable rail (dark and light gray parts) and the fixations of this one (pink strikes). A rhythmic concept was established basing on the existing columns of the room. Many of the installations have been moved and integrated in this concept (for instance: the smoke detectors are placed at the location of fixations). Note the changes in the entrance (on the right) where some cable rails have been removed. On the left, connection elements to the cable rails of the hallways have been added.

Figure 27: Third version of the cable rail drawing after discussion with the contractor (c) Garcés - de Seta - Bonet



After the technical analysis it appeared that the contractor was limited to a length of 3m for the cable rail. Also he preferred to work with as many parts of 3m so that he would need to shorten as few as possible. Therefore it was decided to change the rhythmic rule: now an element of 3m is always centered between the columns and the "gaps" are filled by shorter parts. The fixations were kept unchanged as these ones couldn't be placed at the transition between two elements. However, some of the installations had to be moved in order to avoid conflicts.

c) Payment procedure

French projects are generally paid on a monthly basis. This is the case for both the maître d'oeuvre and the contractor. However, the payment is not made in equal monthly rates but based on the real material project progression (the so called "situation de travaux")

For this sake, the contractor has to make a monthly declaration of costs. This declaration is as detailed as the market contracts are. For each sub-part (lot) an exact percentage is indicated. In a first step, eventual penalties which might impact the payment (delays or other reasons) are applied. Second, the architect compares the percentages with his knowledge of the site. If disagreements appear, he takes a closer look to the situation on the building site and discusses any disagreements with the contractor. In any case, he is the final person to decide about this. Third, the client decides whether to apply the penalties or not and makes the payment transactions. In many cases (and in all public cases), the client will transfer the money directly to the subcontractors.

In the case of a public client, the duration of this whole process might not exceed 50 days. On the building site in Strasbourg it was agreed to reduce this deadline to 30 days.

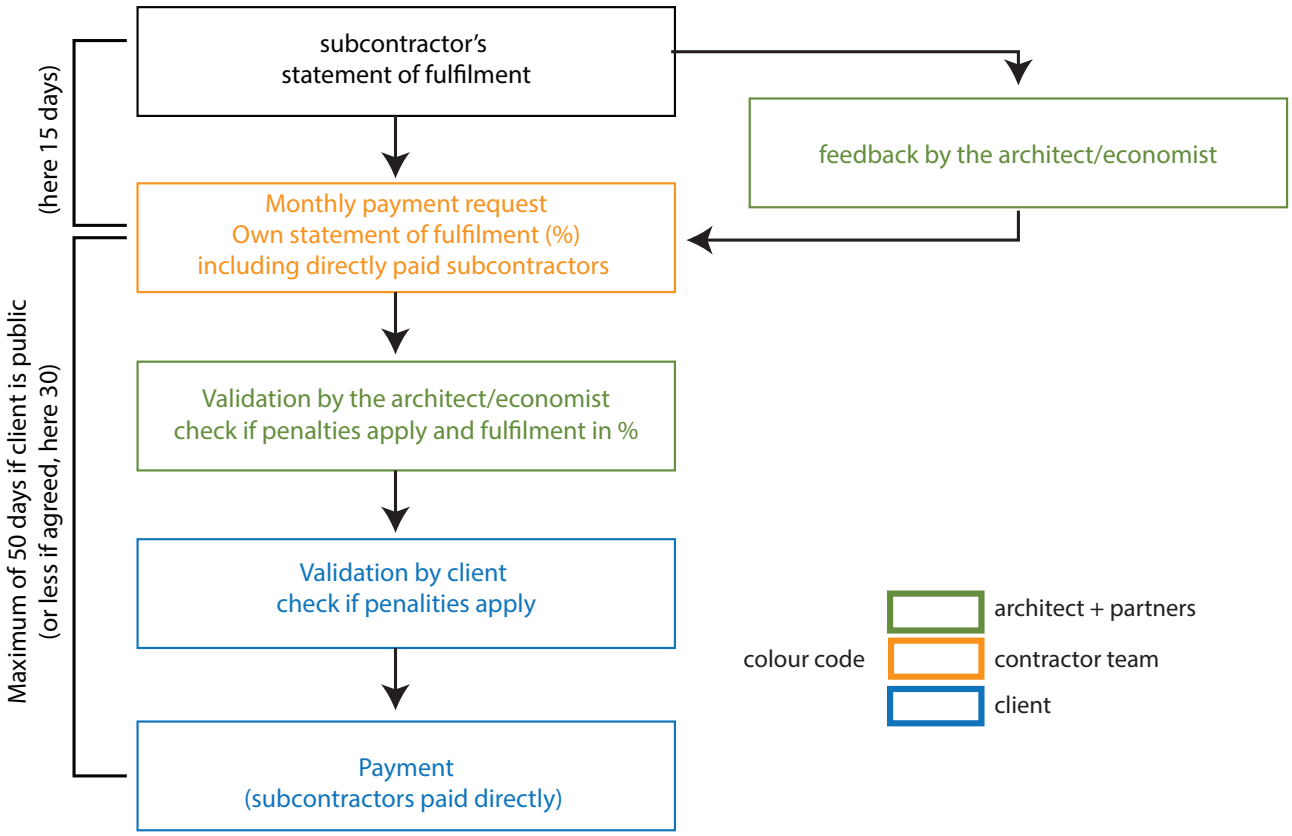
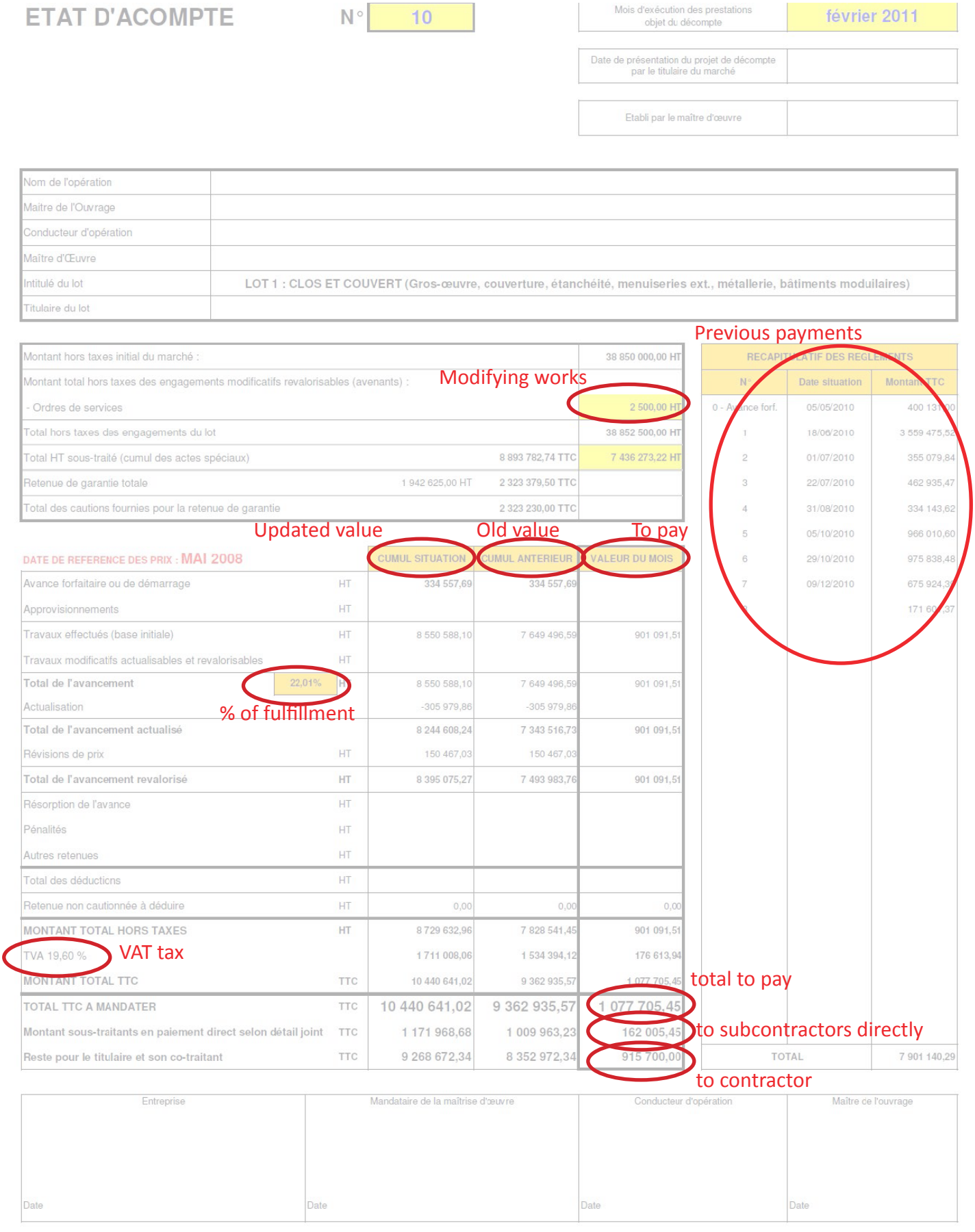


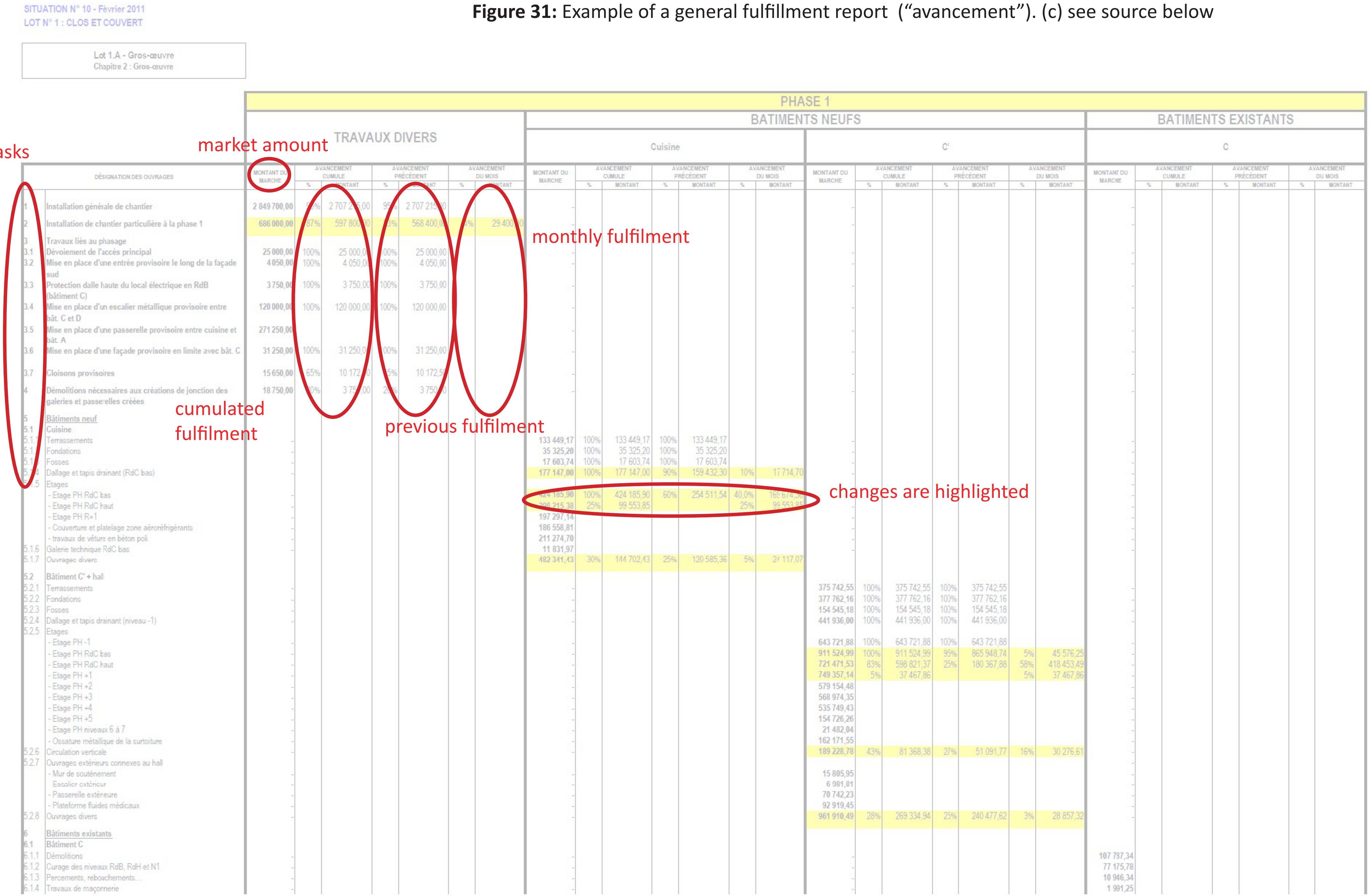
Figure 28: Scheme of the payment process with the fulfillment statement and check (own work)

Figure 29: Example of a monthly payment situation ("état d'accompte"). (c) see source below



Source: Lauret, G. (2012). Seminaires HMONP - Suivi de Chantier -Support de Cours. Paris: Ecole d'Architecture Paris Val de Seine

Figure 31: Example of a general fulfillment report ("avancement"). (c) see source below



Source: Lauret, G. (2012). Seminaires HMONP - Suivi de Chantier -Support de Cours. Paris: Ecole d'Architecture Paris Val de Seine

SITUATION N° 10 - Février 2011

LOT N° 1 : CLOS ET COUVERT — concerned "lot"

Figure 30: Example of a detailed payment situation with the balance of each separate subcontractor ("avancement des travaux sous-traités"). (c) see source below

RECAPITULATION DES TRAVAUX SOUS-TRAITES

market amounts: excl. and incl. VAT

RECAPITULATION DES TRAVAUX SOUS-TRAITES

N° ACTE SPECIAL	DESIGNATION DES OUVRAGES	ENTREPRISES SOUS-TRAITANTES	MONTANT DE L'ACTE SPECIAL HT	MONTANT DE L'ACTE SPECIAL TTC	AVANCEMENT CUMULE %	AVANCEMENT CUMULE MONTANT TTC	AVANCEMENT PRÉCÉDENT MONTANT TTC	AVANCEMENT DU MOIS MONTANT TTC
	SOUS-TRAITANT — concerned subcontractor					cumulated fulfilment	previous fulfilment	
1	Métallerie	A	19 782,90	23 660,34	100%	23 660,34	23 660,34	
2	Escalier métallique provisoire	B	112 500,00	134 550,00	100%	134 550,00	134 550,00	
3	Terrassements généraux et semelles	C	489 600,00	585 561,60	90%	528 934,59	440 830,05	88 104,54
4	Auvent sas d'entrée	D	8 800,00	10 524,80				
5	Démolition phases 1,2,3 - Désamiantage phases 2,3	E	252 000,00	301 392,00	6%	17 940,00	[illegible]	monthly fulfilment = to pay
6.A	Démontage et remontage de portes automatiques	F	20 685,32	24 739,64	9%	2 254,84	2 254,84	
7	Coulage - Dallage	G	98 818,40	118 186,80	29%	34 193,03	17 463,99	16 729,04
8	Armatures	H	723 932,80	865 823,62	43%	374 182,74	320 933,03	53 249,71
9	Menuiseries extérieures aluminium	I	2 872 000,00	3 434 912,00				
10	Maçonnerie et enduit	J	119 053,80	142 388,34	7%	9 671,33	6 362,72	3 308,61
11	Etanchéité provisoire	K	4 500,00	5 382,00	33%	1 768,89	1 155,34	613,55
12	Bet Béton	L	126 600,00	151 413,60	30%	44 812,92	44 812,92	
13	Couverture	M	444 000,00	531 024,00				
14	Etanchéité	N	700 000,00	837 200,00				
15	Brises soleil	O	280 000,00	334 880,00				
16	Charpente métallique	P	760 000,00	908 960,00				
17	Métallerie	Q	404 000,00	483 184,00				
	TOTAL DES TRAVAUX SOUS-TRAITES T.T.C		7 436 273,22	8 893 782,74		1 171 968,68	1 009 963,23	162 005,45 TTC
	Montant HT...		979 906,93	844 450,86				135 456,06 HT

Source: Lauret, G. (2012). Seminaires HMONP - Suivi de Chantier -Support de Cours. Paris: Ecole d'Architecture Paris Val de Seine

d) Modifying works (FTM and OS)

If the client wishes to modify something about the project (change the type of doors for instance), he will transmit this to the architect. The architect always serves as a mediator between the client and the contractor.

The architect can also ask for modifying works for own aesthetic reasons. In any case it is advised but not mandatory to make this demand in a written form. The contractor will then establish a cost estimate. The architect analyses this one with his economist. If he does not agree he corrects it and asks the construction company for confirmation. Other corrections might follow from the contractor. Once both parties agree, an "ordre de service" is made (note: this step is not necessarily a confirmation of a cost agreement. If no agreement was found, negotiations go on after the works being started/executed). This is the formal part of the procedure: if no written "ordre de service" was issued, there is nothing to claim.

For practical and legal matters an "ajournement" is made every 6 months. This one regroups all "ordre de service" and is made roughly every 6 months/each year.

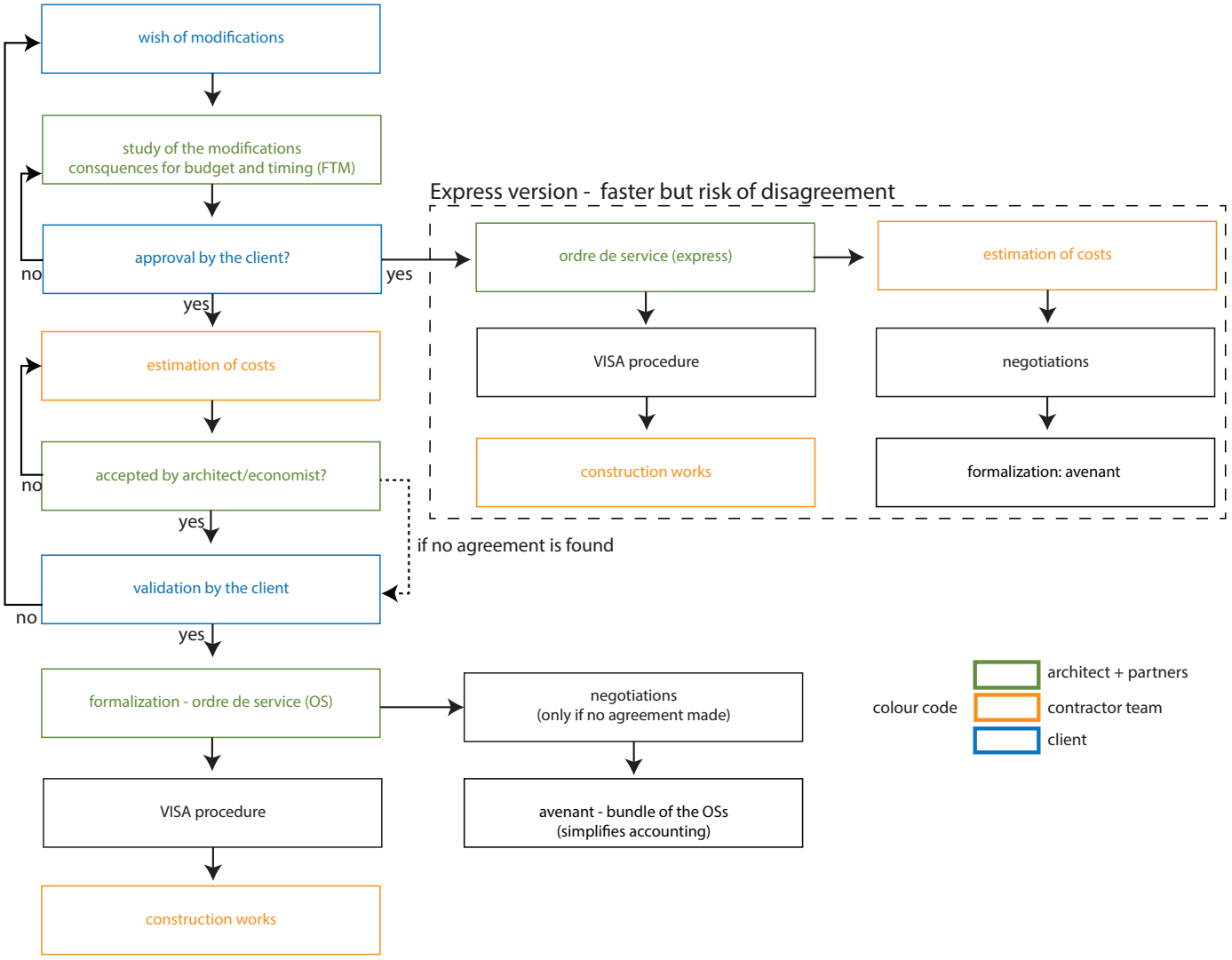


Figure 32: Contract modification scheme with different expertise and legal steps. Including a faster version with the challenge of negotiating once construction has started (own work)

Figure 33: Example of a FTM used to request an estimation of costs to the contractor.
(c) Garcés - de Seta - Bonet

REHABILITATION – RECONSTRUCTION PARTIELLE DU PALAIS DE JUSTICE DE STRASBOURG

FICHE DE TRAVAUX MODIFICATIFS – FTM34

28 juillet 2015

Intervenants	Adresse	Emetteur demande

MAÎTRISE D'OUVRAGE :

Maître d'ouvrage **APIJ**	30, rue du Château des Rentiers 75013 PARIS	X
Conduite d'opération **DDT 67**	14, rue du Maréchal-Juin BP 61003 67070 STRASBOURG Cedex	-

MAÎTRISE D'OEUVRE :

Architecte **GARCES – DE SETA – BONET ARCHITECTES**	C/ d'en Quintana 4, 2n 1a 08002 BARCELONA (Espagne)	-
BET TCE **SETEC**	42-52, quai de la Râpée 75583 PARIS CEDEX 12	-
BET Environnemental **VP CITE**	6, Square de l'Opéra Louis Jouvet 75009 PARIS	-
Economiste **GV INGENIERIE**	4, allée des Ambalais BP 8 94420 LE PLESSIS TREVISE	-
Acousticien **ACOUSTIQUE VIVIÉ**	15, rue Fondary 75015 PARIS	-

Indicate who asks to modify the agreed works

N° - Objet de la demande :
FTM34 – ADAPTATIONS DES OCULUS

Emetteur de la demande :
APIJ

Describe the modifications in a clear and precise text

Description de l'ouvrage :

> Changements des natures d'oculus suite à demande MOA :

SOUS-SOL
→ porte 76/ Escalier 5 – ajout oculus dimensions 50*50 cm
→ porte 87/ Esp. fouilles + coffres (S1-058) – suppression oculus
→ Les portes des cellules de la zone détenus feront l'objet d'une FTM séparée

RDC
→ porte 204/ Escalier 5 - ajout oculus dimensions 50*50 cm
→ porte 207/ Couloir circulation zone détenus (00-084) – suppression oculus
→ porte 163/ Salle des pas perdus – suppression oculus
→ porte 164/ PC Sécurité (00-032)– suppression oculus
→ porte 169/ PC Sécurité (00-035) – suppression oculus
→ porte 170/ Salle des pas perdus – suppression oculus
→ porte 166/ Vestibule salle des pas perdus entrée (00-034) – changement nature vitrage : vitrage sans-teint à prévoir pour l'oculus
→ porte 168/ Vestibule salle des pas perdus entrée (00-031) – changement nature vitrage : vitrage sans-teint à prévoir pour l'oculus

R+1
→ porte 334/ Escalier 5 - ajout oculus dimensions 50*50 cm
→ porte 308/ Couloir façade sud (01-031/01-037) - ajout oculus dimensions 50*50 cm
→ porte 303/ Couloir façade sud (01-031/01-026) - ajout oculus dimensions 50*50 cm
→ porte 287/ B. consult. avocats (01-015(1)/Salle des pas perdus) - suppression oculus - *porte existante conservée*
→ porte 289/ Bureau magistrat juges de proximité (01-017/Salle des pas perdus) - ajout oculus dimensions 50*50 cm - *porte existante conservée*
→ porte 233/ B. consult. avocats (01-041/Salle des pas perdus) - ajout oculus dimensions 50*50 cm - *porte existante conservée*
→ porte 332/ Porte box accusés (01-077) - changement nature vitrage : vitrage sans-teint à prévoir pour l'oculus
→ porte 335/ Porte box accusés (01-092) - changement nature vitrage : vitrage sans-teint à prévoir pour l'oculus
→ porte 232/ CDAD Bureau passage (01-040/Salle des pas perdus) - *porte existante conservée*

Figure 34: Example of a FTM used to request an estimation of costs to the contractor (page 2)
(c) Garcés - de Seta - Bonet

REHABILITATION – RECONSTRUCTION PARTIELLE DU PALAIS DE JUSTICE DE STRASBOURG

FICHE DE TRAVAUX MODIFICATIFS – FTM30

28 juillet 2015

→ porte 389/ Box Consulation dossier (02-048/ 02-090) - suppression oculus
→ porte 420/ Box Consultation (02-013(1)/ 02-014(1)) - suppression oculus
→ porte 454/ Box accusés (02-062/02-082) - changement nature vitrage : vitrage sans-teint à prévoir pour l'oculus
→ porte 451/ Box accusés (02-070/02-066) - changement nature vitrage : vitrage sans-teint à prévoir pour l'oculus

R+3

→ porte 571/ Classement (03-055/ 03-078) - suppression oculus
→ porte 574/ Local scellés (03-060/ 03-058) - suppression oculus
→ porte 547/ Salle d'attente (03-027/ 03-082) - ajout oculus dimensions 50*50 cm
→ porte 556/ Box accusés (03-073/03-058) – changement nature vitrage : vitrage sans-teint à prévoir pour l'oculus

R+4

→ porte 604/ Box. Consult. (04-005/ 04-001) - ajout oculus dimensions 50*50 cm

Pièces graphiques jointes à la demande dans le document :

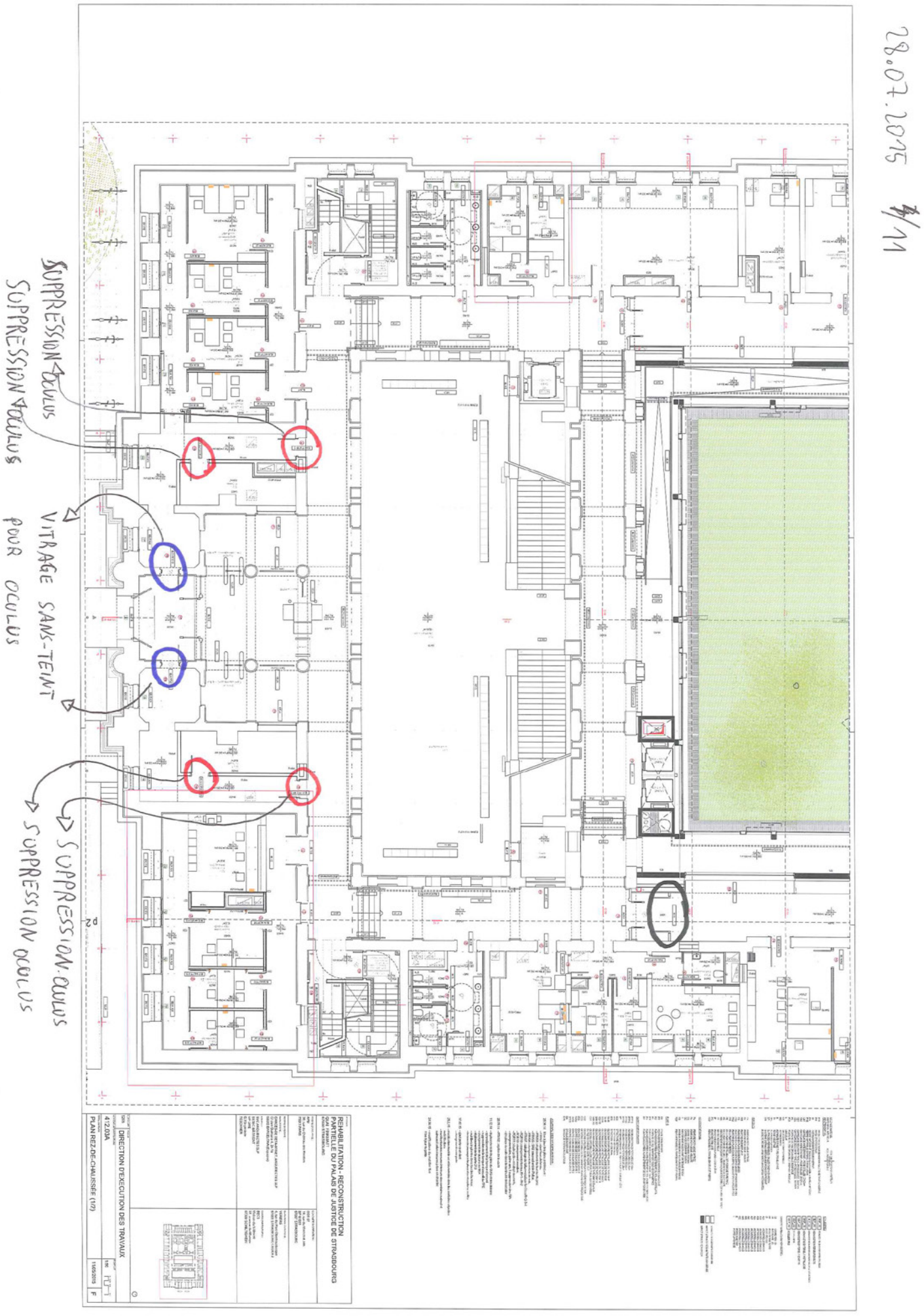
> Document de 11 pages, avec plans du Sous-Sol, RDC, R+1, R+2, R+3 ainsi que R+4, sur lesquelles sont anotées les portes non modifiées (noir), suppressions d'oculus avec éventuelle conservation porte existante (rouge), ajouts d'oculus (vert) et modifications nature d'oculus « sans-teinte » (bleu).

FIN DU PRESENT DOCUMENT

Name all graphical attachments and describe the figures

clearly state the end of the document

Figure 34: Extract of the graphic piece part of the previous FTM document.
(c) Garcés - de Seta - Bonet



Part III: The European Union and the architects

III.1) three countries, three perspectives, three interviews

Maxime Lang, French building site supervisor for Garcés - de Seta - Bonet Arquitectes architect diploma holder

Which advice would you give a foreign architect responsible of a building site in France?

Employ someone who knows quite well the – public or private - project and the different parties involved. Take in his rows someone who knows quite well the local market. The "DCE" phase being essential to define the services (graphic pieces, details and written pieces), it seems necessary to be advised by somebody organizing the cooperation of the different parties. This coordination can be different from region to region – specificities do exist. For instance, in Alsace, the "EXE" phase is often the task of the architect.

Are you in favor of an increase of the accessibility of architect's profession on the European level?

Such a project must be positive for each stakeholder. If we (the French architects) succeed to build abroad I would agree on harmonization. But this is not the case so far: there is no work in some countries of the EU (note of the author: according to the European Council of Architects, the highest unemployment ratios are to be found in Portugal, Spain and Greece - Mirza&Narcey Research Ltd, 2014, p. 1/12). For instance, relatively many architects practice in Germany (note of the author: 110 architects/1000 inhabitants, vs. 30 architects/1000 inhabitants in France - Mirza&Narcey Research Ltd, 2014, p. 1/9). It is quite difficult to build in this market.
This is why protectionism can to some extent be positive towards the architects of a country. If we liberalize all markets, will it really be better? A decrease in wages is not unrealistic. One shouldn't forget that unemployment fairly exists while we are still in a relatively national context. Before engaging into these projects on a European scale, a reform of French construction laws seems more appropriate to me. For instance, we might make architects mandatory for all building permits including the individual housing market (by lowering the 170 m² threshold).
Erasmus initiatives might make it easier to find a job abroad, as an employee. But it takes a lot more as an entrepreneur. Social networks are essential to find projects – and this is of course challenging in an unknown context. Finally, a European harmonization should include the harmonization of taxes. Depending on the country of registration and employment, the costs for an employee differ considerably. How is fair competition supposed to take place between companies from different countries?

Still, there are many architect offices that associate themselves with a foreign local office...

It is a great opportunity for small offices to participate in big projects with big names. A perspective to develop themselves and gain great references. Nevertheless, one has to be careful about the distribution of tasks. The local agencies are too often restricted to executing parties while the big ones keeps the more work-intensive part.

SOURCE

Mirza & Narcey Research Ltd. (2014). The architects profession in Europe 2014 – a sector study.
Brussels: The architects' council of Europe.
Retrieved on 26 April 2015 from:
http://www.acecae.eu/fileadmin/New_Upload/7._Publications/Sector_Study/2014/EN/2014_EN_FULL.pdf

Jordi Garcés, head architect of the Barcelona-based office

Did working on a project abroad influence your design process? If yes, from which phase on?

All projects are different, even if they take place within one same country. The program and the client, the site and its context are always different.
Moreover, national differences do of course exist (for instance between the Picasso Museum in Barcelona and the *Palais de Justice*). But these ones are very anecdotal (minor specificities, which you only deal with 10% of time). Each project is a new challenge. The architect is always confronted to a unique site and program!
For instance: I made an Olympic Pavilion, the extension of the Picasso museum and the IMAX cinema; all in Barcelona. Even if they are in the same city, the projects have all been very different.
There is no difference in the order of the design process. It seems evident that one has to comply with standards of each country. But this is not essential for the project.

Many architect offices choose to cooperate with a local office. Why did you decide to recruit someone who is thus part of your office? What are the advantages?

I didn't feel a necessity in cooperating with a local office in Strasbourg. I recruited Mr. Maxime Lang, a French architect who is on site in Strasbourg and is part of my office.
I only cooperate with other offices when these ones ask me. But cooperating is not as easy as one might think. I don't think it is necessary for the architectural concept. Nevertheless, all other members of the architect's consortium (engineers, etc.) have to be French.

Would you be in favor of a European harmonization? What would be useful to enhance projects' accessibility within the EU?

If we follow the guideline "we take the best and enhance it" to uniform technical aspects, then I am in favor. Indeed, it would be good to enhance accessibility.
But this is not that important to me as an architect. Maybe that it is more important to engineering offices. I don't look at regulations in the beginning of my design.

Eelco Dekker, associate director of Jade Architecten in Rotterdam

Note: several situations exist in the Netherlands, such as the “design&build”. In opposition to the traditional system, the worker’s drawings and technical details are made by the contractor. From a technical and aesthetic point of view, the architect has very limited influence compared to the traditional model described in this interview.

As an architect you go onto a Dutch building site. What do you do? Do you chair any meetings on the building site?

That depends on the team. Mostly I will prepare the agenda. I will prepare all the topics we will discuss and lead the weekly meeting. If it is a big project where we have external companies who do the building surveillance probably someone else will lead and I am just a participant around the table, for my specific topics.

Are you allowed to go there on your own whenever you want? Does the architect have an own office on the building site?

It depends of the size of the building. For private clients I will go anywhere, even in weekends I will just force myself in. That’s also allowed, the contractor knows it. He’s aware of it, just as the client. But if you have a bigger project you need to register first, they need to know when you are on a building site, for safety reasons. They’ll probably also check your boot and helmet, which I think is good.
Usually the architect has no own office on the site. This is only the case for a few very big projects.

What is the difference between an architect and a project manager (external) on a building site?

The biggest difference in this case is probably that the project manager steers towards the money and the agreements of the contracts. As an architect you try to get the best solutions ad-hoc on building site. If something doesn’t work you need to change it, and of course the role of money comes into course. And time! Time is also an issue. The project manager will probably want to get ahead faster while the architect wants the best quality. For instance, if something is not available, let’s say floor tiles, you might suggest to get different floor tiles which are available right away. That’s where we have to step in and slow it down.

What is your role towards the client and towards the contractor? Does this role change once construction works begin?

We are always paid by the client. So our role is always to advise the client for the best solution for the building. The contractor is paid by the client too. But we both need to get the best solution. We have to work together but we have different interests: the contractor might be the one who wants to speed up but we want them to get that targets in quality. We are monitoring mainly the aesthetic quality for the client. The biggest difference is that we have in our mind the end result and project managers and contractor see the end results when it is ended. Nine out of ten times I hear “oh that’s what you meant”.

Who makes the worker’s drawings where, for instance, each light spot is placed? Does the architect have an influence on these plans?

Yes architects have a lot of influence: in our office we draw it ourselves but we use the advice of third parties for topics such as lighting. We draw the precise location of elements and we monitor the result on the building site. If it is at the wrong position we ask to move it – the drawings are really important. But it is also important to have some kind of flexibility. Otherwise if something is wrong on your own drawing they will say “it’s on drawing, we build it”. It’s a game – how much can you get?!

What if the contractor disagrees with a plan of the architect? When does he have to express it?

He generally has to say this after the tender. Depending on the amount of details provided in the tender documents, disagreements could appear later in the project too. From the moment the contractor is chosen you work as a "building-team": you have an agreement on a certain amount of money and know more or less what you are going to build. It feels very free. But let's say there is a budget of 1 million – it can also be decided that the architect and the contractor are both responsible to cooperate and make the project within this frame. This type of building-team is something we offer quite a lot to private clients.

How many drawings are ready when the building site starts? Are all drawings made beforehand or during construction works too?

Of course the layout drawings for the tiles are only made later. We know the number of square meters and the type of tiles but the precise layout and the joints are something that you can do during constructions. But you need to get it on time on the building site otherwise it will go wrong anyway.

What if the contractor disagrees on such a drawing?

You have to discuss the drawing and why it is not possible for him to give the warranty on it. If a disagreement appears before construction works start he would say "I cannot make this. I don't agree with the detail" and our question would be "how would you make it?". This is generally the fastest way. But he will explain it from a technical side and I will consider it from an aesthetic point of view. If you both know what your end-result should be then it is much easier to get the right detail: maybe even technically and aesthetically perfect. Once more, communication on building sites and before is so important!

How does it look like? Do you work intensively together for two weeks?

No, you need more time, maybe six months. The worker drawings are not made at the moment of the tender. This will take several more months.

What if the architect wants another type of tiles colour than described in the contracts? Can the architect change his plans once the building site started?

In the end it is the one who pays who decides. Our task is to explain to the client why we would use other tiles. It is not only about the tile but about the whole space. If we can explain why we would choose these ones then he might understand that it is the best choice. Maybe he has his reasons too so sometimes we could be wrong. We are not perfect – maybe he has information which explains why we should go for his option.

If the client wants to change something, will he necessarily consult you? What is the cost estimation and validation mechanism in that case?

Yes, he will always consult us. Except if we have a really small role in the project. This is defined beforehand in the contracts: it all depends on how much you spend on our advice.
In this type of situation the contractor will always make an estimation of positive or negative costs basing on the description and the amount. It is also about planning. Indeed it needs to be signed by the client or by the architect if he chooses to delegate this task.

Do you happen to correct the estimation of costs?

Yes, we know a lot of numbers by heart. Maybe we even ask the supplier of the tile for additional information. If the tiles are much more expensive we will ask for explanation. If he has a good explanation such as delivery time we can say that he is right, otherwise he needs to change it!

Would you be in favour or against a European Harmonization of building practices? What chances and risks do you see for the Netherlands?

We started a project in Belgium and had to register at the Belgian architect's board. And we had to take an additional insurance resulting in additional costs. These are quite bureaucratic things you don't like to deal with: you just want to design and build the project. They also take a lot of costs. We have an insurance but no insurance in the Netherlands will cover you abroad because the risks, the liabilities are different. If this is more even, more global it makes it easier to go abroad.
I am also in favour to play a bigger role on a building site. Now we cannot say "we have to do this", we always have to negotiate because our role is too small. We cannot say "it's that way" - we don't have the power. If we would have the power, our role would be bigger and I believe we can get better results in the end. We need to be stronger facing the contractor to get the things done the way we want them to get done.

Wouldn't this require more workforce? Would architects become more expensive?

I think it will need time to get used to it. The costs are higher but the client gets helped as well. Just as an example, if the contractor puts a window from another building site into the building, the architect cannot order to remove it. You need to call the client to ask him to issue this instruction. But the client might have to move next week and prefers not to act against that interest. Sometimes the contractor simply says "you get 5000 euros back".
We have no power at all. If we can change it, it is additional work but we would be more appreciated on building sites. We are respected but giving us this power is better for the building, it is better for the end result.

Do you see risks of stronger concurrence by opening the markets to other countries where the economical situation is much worse? Are you afraid of having to drop salaries?

No because it can also go the other way around. For instance many Dutch architects work in China but only few Chinese ones work here. Just as a Spanish company who works in France – it is probably about the knowledge and not that much about the price.

You have started projects in Rwanda and Belgium. Were you confronted with the question "take an own local employee or associate with another office"?

Yes, in Rwanda we are struggling with this. An important issue is "who pays who"? This will affect the cooperation: if the client pays them – this company gets an independent power and might decide in favour of the client and not of us. For the case of Belgium many people work with a local office for the knowledge of the procedures. This is the same with foreign architects in the Netherlands.
I don't really have an answer as we didn't have to take a decision so far. But if we have to deal with it we will probably get some advice from another office that has more experience with this sort of constructions.

III.2) comparison of strengths and weaknesses of French and Dutch architects

The needs of the architect are surprisingly similar in both countries. Focussing on delivered product-quality seems to be inherent in both cases. The needs of the architect are similar and means of influence within the building-process are highly appreciated in both cases. Going on a building site is not only an essential task to understand how the plans are finally used but also a mean to enforce the best quality to the client.

To compare building practices in the Netherlands and France, it is relevant to analyze the distribution of roles and to illustrate the problematic of flexibility. While in France nearly all legal aspects are covered by law and most processes defined by standard contracts, Dutch standard contracts play a much bigger role than legislation and offer a higher potential of flexibility.

French projects are subject to strong legislative restrictions such as limiting the building permit requests to architects. This prohibits any form of vertical and contractor-lead process integration ("classic" design&build and DBFMO). There are indeed a few architect-lead projects ("architectes-bâtisseurs") but these ones are rather exceptions to the rule. Despite being imposed, the responsibility and role distribution of French legislation offers a strong protection to the client. He benefits from at least two insured parties (architect and contractor) controlling each other and liable for building quality purposes.

French standard contracts are inspired by the ones used by the governments. These ones are part of the government's internal legislation and used with small variations in various private projects too. A clear policy of role and liability distribution is achieved by establishing the architect's standard tasks ("missions de base"). This is also why French architects continue to play an essential role once construction works start. They do not only continue to represent the client but even get additional mandates to enforce the wished quality. Some decisions such as the acceptance of products or building parts make him a powerful person when facing the contractor. A drawback is that the architect has to manage risks which are outsourced by the client: he can be held liable for anything he had to supervise. The roles of the architect and the contractor are project-based: the phasing, management and coordination (OPC) task can be attributed either to an architect, a contractor or an external party. Furthermore, it is also possible to work with subcontractors only.

In The Netherlands legislation is minimal and a much higher diversity can be found within the design and build steps. Several models can be used: splitting of architect and contractor happens just as often as consortium-making. The architect drawing only the design plans while the contractor makes the technical detailing of these is a model that became more and more popular in the last decades. Also, the client can choose whether to outsource the coordination and quality insurance tasks to the architect or not.

Just as in France, Dutch standard contracts are mandatory for public clients and popular among private one. These ones define nearly everything that is necessary to protect the client and regulate the building process. Several variants have been developed through the years to adapt to market trends such as named in the previous paragraph. Interestingly, this situation leads to a strong separation of the architect's and the contractor's roles. The responsibilities and roles of both parties are clearly split - the client's main partner changes once the construction begins. While the architect stays in his advising role, he is not in the position to take project-relevant decisions himself anymore. He can not be liable for any construction quality issues either. If the goal is to reach an optimal quality, this requires the client to impose a strong authority on the contractor. It is questionable to which extent an outsider is capable to do so. The limited roles which architects play during the building site is not necessarily affecting the quality positively.

A limited answer to this situation has been developed by the architects. By cooperating with contractors within a "design-team", a vertical integration becomes possible and positively impacts the building quality: plans and instructions can be optimized by knowing the user's point of view. We can note that this is taking place in France too, but in the very formal way, the VISA process. Plans are discussed together and from different points of view. In the Dutch situation, the architect has no such power as an entitlement to refuse plans. In opposition to the architect, contractors focus much more on money as optimizing costs can deliver additional profit. Architect's financial interests are limited to a more "global" project scale and the real focus is on quality: the client has bought a service which is a given product quality for an agreed price. From an architect's point of view profit optimization is very limited. This makes the "design-team" answer a limited one: if, for instance, the contractor's tender is too low, the architect might have no other choice than reducing quality too.

To illustrate the contrast between these countries we might take any hidden quality issue once the building accepted (BW 7:758 in The Netherlands and article 1641 code civil in France). In France the architect has the obligation to monitor the contractor and might be liable. Most situations end up with the contractor paying for instance 80% and the architect 20% of the costs. This is different in the Netherlands as monitoring is no obligation but an option. Only a shortage in obligation to warn can make the client (or by mandate the architect) liable for hidden quality issues too. Nevertheless, the possibility to outsource the monitoring task exists, the extent and allocation of this one being left to the client (Smit, 2012). The external party can either be liable for not having executed the task correctly or for not having warned while being obliged to do so. However, this is only an option inducing additional costs and no contractual obligation protecting the client.

The Netherlands seem to have recognized that clients struggle with monitoring the contractor. The extent to which quality can be monitored by an outsider is very limited and nowadays there is no real warranty that a building has been built according to the plans and contracts. The only existing warranty, the one of hidden failures mainly protects the client on a functional level and not that much from being cheated on his contract.

The government aims to implement a quality certification within the building delivery in 2017 (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2012). Licensed parties among which architects will have to make a final assessment establishing whether the building fulfills the agreement or not. This position is in between the French one of the “contrôleur technique” and the “maîtrise d’oeuvre” (architect). While it is about quality in general and not only building insurance terms, it is limited to an acceptance certification.

Figure 35: Comparative matrix of French and Dutch architects’ strengths and weaknesses (own work)

	French architects	**Dutch architects**
Importance of legislation[1)]	+++	+
Usage of standard contracts	++	+++
Focus on product-based quality	+++	+++
Focus on building-speed	++	+
Presence on building sites	+++	++
Liability limitation	-	+++
Power on the contractor	+++	0/++[2)]
Influence on payment	++	0/++[2)]
Contractor seen as a partner	+	++
Human resources on building site	++	+

Notes:

[1)] only considering regulations imposed by law and not by standard contracts

[2)] if the architect’s task includes monitoring and coordinating the building site

Sources:

Ministerie van Binnenlandse Zaken en Koninkrijksrelaties (2012). Private kwaliteitsborging in het bouwtoezicht. Den Haag: Rijksoverheid

Smit, C. (2012). Directievoering van de architect. Amsterdam: Wieringa Advocaten
Retrieved on 26 November 2015 from:
http://www.wieringa-advocaten.nl/nl/weblog/

III.3) Reflection on the accessibility of the 'European' architecture market

The aim of this last part is to draw some conclusions from a more distanced and European perspective. This report has illustrated different European perspectives, the *Palais de Justice* itslelf being an example of nowadays' European mobility. Different national legislations create a challenging environment to mobility in the architects profession. Working abroad requires a lot of additional knowledge: technical rules and building site procedures are considerably different.

The architect's vocation shows some inherent and universal values. Just as all architects will show interest in visiting and observing their building sites, technical and aesthetical product-quality is the main criterion clients use to evaluate architects. It somehow reminds of this old image; the architect as an "overall-master". Architect's job is just as diverse as the field itself.

From a European point of view, mobility is nothing new to architects. Projects such as 1665 Bernini's design for the east part of the Louvre show that working abroad was just as possible as it is nowadays. The case of Strasbourg's *Palais de Justice* and its Danish architect Skjold Neckelmann is an illustrative example of the end of 19th century. Interestingly, this tradition is continued nowadays with Spanish office *Garcés - de Seta - Bonet.*

Recent initiatives such as the *Architects' Council of Europe* created in 1990, the *European Society for Construction Law* or *thefulcrum.eu* show clear ambitions towards a European architecture policy. The European Union itself has showed several intentions in policy making: harmonization of tender procedures (directive 2004/18/EC) and recognition of architect titles (directive 2005/36/CE) try to apply the single market policy to architects. However, only 5 % of architect's worked abroad in 2014 (including work in another EU member country; Mirza & Narcey Research Ltd., 2014, p.4/53), nearly a decade after the introduction of these reforms. In opposition to other fields such as informatics, finances or aviation, international mobility still seems a rather big challenge.

Considering the existence of a European architect market, four explanations can be drawn in order to design solutions:

First, architecture is a job which can't deal without social integration. Networks are an essential factor architects have to master. Europe is still ruled by national ways of identities which are linked to anthropological elements among which language is probably the strongest. We can neither expect networks nor architects to suddenly become international, but we can help them. Initiatives such as *Europan*, a European biennale for young architects, should be encouraged to do so. Architects do make usage of the harmonizations of the European Union. By doing so they necessarily integrate into and create new networks which are essential for further international practice. This process is a long-term one and we should be patient when evaluating results.

Second, it should not be omitted that disagreements exist about the need of harmonization. Conflicts such as the 1969 "butter mountain" crisis show that single market policies are complex and include winner and losers by nature. It is legitimate to be afraid of the own national market disappearing. Situations where people protect themselves by militantism and closing off social networks must be avoided. These concerns should be considered seriously to avoid a classical winner-looser mechanism. Such mechanisms will necessarily include protecting legal and financial measures. A problem to be solved might for instance be the various architect office taxation policies in Europe.

Third, it is questionable whether the harmonization strategy chosen by the European Union is the best one. The goal to harmonize laws is an ambitious one and so far most initiatives have affected the technical content of legislation. Within policies and procedures, the harmonization is limited to the public tender procedures. Regulation (EC) 593/2008 created a theoretical possibility to export national law for business to business contracts. However, the extent to which it works in practice is limited. Most businesses and governments do not show sufficient flexibility to be the "importer" of foreign law. This creates a situation where loose technical aspects such as energy performances are harmonized without having any further policy impact.

Finally, the European Union has made big steps to favor student mobility. Various subsidy programs such as *Erasmus+* promote international social integration. The legal framework to this was initiated by the Bologna declaration (1999) and includes harmonization of study programs and European recognition of high-school, Bachelor and Master degrees. In the case of architecture, the international recognition of the architect's title created a strong contradiction. The architect title is mandatory in many countries and can be obtained by following national experience programs linked to the country issuing the master degree (directive 2005/36/CE). Thus the master degree is reduced to not much more than an educational certificate and does not itself facilitate mobility on a European level.

A complete European harmonization is questionable. Many aspects have been discussed and need to be considered to create a single construction market. A solution discussed by Perinet-Marquet (2011) would be a parallel 29th and European contracting system. This would avoid modifying national legislation while offering businesses a new international level to cooperate. Differences in national law experience, such as often appear within international projects could be reduced. Such a system would be attractive to contractors who already expand abroad as only one new legislation would need to be mastered.

The solution of the 29th regulation might apply to the harmonization of the architect's title too. An additional experience program leading to a European title might be linked to a European contracting law. Making this program accessible and recognized with all Master degrees would give these ones much importance back.

These two innovations might clear the way towards a European architects identity. To achieve this , it is essential to continue to sustain social integration. However, the goal here should not be to abolish the rich diversity of European architecture. As Umberto Eco said "the language of Europe is translation" (Oustinoff, 2009) - could translation become a language on itself? To let such a language emerge law and policy on their own will not be sufficient. Private and professional relationships are essential to take a path that has already been cleared.

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List of abbreviations

Short	Term	Definition
ACT	Assistance à la consultation pour la passation des marchés des travaux	contracting assistance
AE	Acte d'engagement	Notarial statement which makes the contract enter in force
AOR	Assistance aux operations de reception	Assisting the acceptance of warks
APS	Avant projet sommaire	brief pre-design
APD	Avant project definitif	final pre-design
ATEX	Avis technique expérimental	If the material/object has no certification (pv technique) it needs to be approved with this expensive procedure that takes approximately 6 months
BW	Burgerlijk Wetboek	Fundamental Dutch law corpus
BPE	Bon pour execution	good to be executed, for construction works
CC	Cahier des clauses	Text form of the construction contract – exists in 4 variants:
CCAG	...administratives générales	Standard legal conditions of the contract
CCTG	...techniques générales	Technical conditions that apply to the all construction works
CCAP	...administratives particulières	Particular legal conditions of the contract – including regulations about deadlines, payment, liability,.... It includes any derogation to the standard legal conditions
CCTP	...techniques particulières	Detailed technical specifications (text): materials, DTU/ norms, testing,...
CSPS	coordinateur en matière de sécurité et de protection de la santé	coordinator for security and health issues
DBFMO	Design Build Maintain Finance Operat	Form of turnkey contract. Most common example of vertical integration for construction projects
DCE	dossier de consultation des entreprises	tender documents
DET	direction de l'execution des travaux	building site monitoring
DPGF	Décomposition prix global et forfaitaire	Detailing of the global offer of the contractor. This one is made part by part ("par lot") and material by material
DRAC	Direction régionale des affaire culturelles	regional authority responsible for protected monuments
DTU	Documents techniques unifiés	A set of French norms that apply to the technical aspects of buildings (including a lot of details). They are mandatory for public works
EXE		study of construction works, worker's drawings
FTM	Fiche technique modificative	Documents used to request the contractor to make a price estimation for modifying works
GPA	Garantie de parfait achèvement	One-year warranty on the perfect working of the building. This is particularly important for technical installations
HAND	verification des exigences d'accessibilité des personne handicapées	check of accessibility for disabled persons
LMOP	Loi Maitrise d'Ouvrage Public	Law which defines the process of public construction projects

MOE	Maîtrise/Maître d'œuvre	French term for the architect and by extension his "team" (engineers, ...)
MDO/ MOA	Maîtrise/Maître d'ouvrage	French term for the client
MOP	Maîtrisé d'œuvre publique	French term for the public client. Several standard procedures apply to this one
OPC	Ordonnancement, pilotage, coordination	phasing, management and coordination
OS	Ordre de service	Formal mission to execute additional works (formalization of contract content modification)
PAC	Plans d'atelier et de chantier	Building site layout plans (task of the contractor)
PMR	Personne à mobilité réduite	Person with reduced mobility
PROJET	projet	Final detailed design plans
SEI	Securité incendie des personnes dans les établissement recevant du publics	check of fire security for buildings accessible to the public
UAV/ UAC	Uniforme administratieve voorwaarden	Dutch standard construction contract
...-IC	Integrated contracts	Special variant for turnkey contracts
VISA	visa	validation of exe documents