

Internship Report

James Birkenshaw

Company: Ingeman Fischer

School: Kea – Architectural Technology & Construction Management

Dates performed: 25<sup>th</sup> January 2018 – 22<sup>nd</sup> June 2018

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## Preface & Introduction


This report was written in June 2018 after a 20-week internship with an Engineering, Architectural and Consultancy firm named Ingeman Fischer in Copenhagen.

The aim of the internship was to gain knowledge within the industry as an Architectural Technologist and put into practise the theories and knowledge learned from our education at KEA. The report explains what was learned throughout the internship, in regards to the learning goals set out in the contract created before the internship began, the roles of an Architectural Technologist outside a study environment and a description of the internship company.

The report will sum up in detail the jobs performed during the internship and conclude with whether the internship served its purpose, in regard to meeting these learning goals that were agreed on before the internship, sum up my thoughts on the education and whether I gained what I required from the internship.

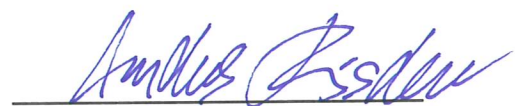
At the end of the report I will conclude with the benefits and negatives of the internship and assess what I have learnt and what I think that I can improve. There will also be many images referred to within the project of some of the work I have performed throughout my internship. This will be found at the end of the report after the conclusions

**I James Birkenshaw confirm that the words written in this report are my own and have completed the internship required in 6<sup>th</sup> Semester at Ingeman Fischer between the dates of 25<sup>th</sup> January – 22<sup>nd</sup> June 2018**



James Birkenshaw – 05/06/2018

Intern- Architectural Technologist



Anders Fischer – 05/06/2018

Ingeman Fischer – Company mentor

## **Account of the Internship**

### **Company Analysis**

Ingeman Fischer is an architectural, engineering and consultancy firm based in Copenhagen. The company was founded in 2013 as Klimapartneren but changed their name this year as they wanted to be seen as more professional in regards to the Architecture and Engineering sides of the project. In the company's short life span it has grown substantially and the work content is greater with larger projects and a clear direction. Being a young firm, they currently employ around 8 people which is made up of Architects, Engineers and Bygningskonstruktør (Architectural Technologists).

They deal with many kinds of different projects from medium sized renovations to new build multi storey homes and summer houses. The roles that the company takes within the different projects also varies a lot. The company sometimes acts solely as a consultant within a project or can see the project through its entirety. From the concept stage right through to the construction of the desired building

### **The role of an Architectural Technologist (Bygningskonstruktør)**

The roles of the Architectural Technologist seemed to vary from day to day within Ingeman Fischer. They perform many roles within the company from cost estimations, site registrations, building reports at different stages of the project, site meetings, consultancy, work specifications and creating different types of drawings.

They spend a lot of time out on-site, going to meetings, checking up on ongoing sites and performing different kinds of building surveys. After performing these tasks, they then generally spend time back in the office either solving the problems they've found, writing reports on the findings on-site or liaising with customers through phone calls or emails.

It is expected that an Architectural Technologist is competent in many different fields. To have a good knowledge of construction principles and to be able to find the information when it is not readily available.

Many of the tasks a regular Architectural Technologist performs on a day to day basis I wasn't able to do due to been unable to speak and write in Danish. This meant that many of the site meetings and office meetings I could attend but not fully understand and I was unable to complete most of the survey reports, quality assurance reports, create work specifications and calculate building energy requirements. Even with these tasks been unable to be performed as much as a Dane would have been able to, I was kept very busy and performed a great variety of different tasks.

## **Works performed during the Internship**

### **Larger Projects**

During the internship I performed many tasks and was involved with many different projects. Sometimes I was given larger tasks on projects and a lot of time would be spent working on it. Then there were many varied tasks on different constructions which would take sometimes an

hour and sometimes a day or two. I worked mostly with the Architects creating plans, elevations, sections and details and deciding on the feasibility and functions of the materials involved. Sometimes working on drawings in the concept stage for the client, in the development design stage for the Municipality or for the Contractors who will be building from the drawings we created.

### Sankelmarksgade, Vesterbro

One of the main projects I worked on was a project at Sankelmarksgade, Vestebro. The project was a renovation in which the storage area in the roof space would be remodelled into 2 apartments with a roof terrace above each one. The roof would be raised approximately one meter, with a new roof structure and columns passing through the roof to support the roof terrace above. There would be dormer windows added to the road side of the properties and skylights passing horizontally down both sides of the property. The new apartments would be insulated to meet the regulations by insulating the roof structure and the gable ends of the buildings.

At the beginning of my internship I inherited the 3d Revit model of the existing building and a layout of the apartments as the Architect intended it to be. During the next few months in-between working with other projects I was tasked with creating the full drawing sets required so that they could be set out to the main contractors who could then bid on the entirety of the project.

During this period, I created plans, elevations, sections and service drawings. I also created all the details required to be able to explain the entirety of the project in the best possible way for the contractors. (See images 1.1-1.3) I also spent time looking for some of the materials to be used in the project and researching best construction principles in developing this roof. For example, the type of cold roof used in these wooden structures requires ventilation to pass through the build-up of the roof. Due to the complexity of the Copenhagen roof, the 3 different angles of the roof build up and the number of skylights and sky doors in the roof, research was required to ensure that the roof was ventilated properly and according to the building standards.

I also went to the site numerous times to take measurements and survey different parts of the building. During this time, it was discovered that the existing model had been created 700mm too small either due to an error when measuring or a grid line had changed. After discovering this it meant we had more room within the living quarters, but it did mean that I then had to change the entire 3d model to the correct measurements.

I had a lot of dialogue with the suppliers of the Roof door, of which we needed to enter the roof terrace. It was important to get one of the right size and of the right quality. I spoke with several suppliers and in the end decided to use the one from Lamilux. Mainly because it was one of the only ones we could find in Denmark and was of a size we required.

We had meetings about the project in which the Architect and Engineer participated along with me and the director of Ingeman Fischer. Going over all the drawings and resolving any potential problems that people were having during the design of the renovation.

The work specification and drawings were completed on time and sent out to different entrepreneurs who would then bid on the project as the main contractor.

### Tjørnevej, Allerød

Another one of the larger projects I worked on was six roof renovations at Tjørnevej, Allerød. The job wasn't to create and renovate any new apartments but rather to add insulation to the roof, to replace the existing windows and skylights, replace the dormer windows and to finish the roof off with new tiles.

The first task was to calculate the amount of materials required for the renovation. After the energy report had been created by a co-worker I knew the amounts of insulation required and sizes of the rafters that would be required to renovate the roof. I also created a preliminary time estimate (see image 1.4) to calculate how long the project would take. This would help me calculate how long I would need scaffolds, site equipment etc.

From these calculations I put together a cost estimate which included all rental equipment required on site, disposition and removal of all materials to the required dump sites. All new installations were taken into account and placed into the cost estimation. (See image 1.5)

After this, the housing association required that we sent detail drawings of the renovation that would take place. I created the required details from the information from another employees site registration and the drawings I were given of the current building (see image 1.6 & 1.7). These drawings were then sent out to the client who could then evaluate the costs and extent of the work before sending proposals to bid to different contractors.

### **Smaller projects**

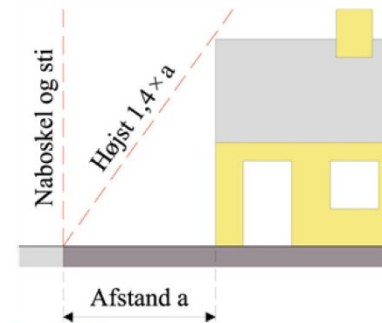
#### Østbirks Alle, Kastrup

One of the first projects I worked on was Østbirks Alle. It was a small new build in which we were assigned the task of creating the design of the building from concept stage through to technical stage. I was on the project from the start and was given some drawings of a similar building this contractor had built before. Our task was to change the building to suit the clients needs and make the building fit the plot.

After taking the plot size and finding out the plot ratio, we could then determine the maximum size of the new build home. It was then a case of placing this into Revit and modifying the building to suit best where the garden area was placed and where the sun would be at different points throughout the day. We changed the shape of the building to an L-shape from a T-shape as it best suited the plot and could fit inside the 2.5 Meters required away from the property lines.

It was then a case of working with the Architect to find the best layout for the family inside their home. One idea we came up with was to create a corner window so you could get lots of light into the home and have the view of the garden area. (See image 1.8)

There was one problem though in regards to the heights of the building on one side been against the regulations set for distance from property and height. This problem was solved by the Architect who came up with the idea of lowering one side of the building and creating a step that separated the bedrooms and kitchens from the lounge area.



(2.2.3.2(1)(ii))  
 The distance requirement applies equally to elevated recreation areas outside the building (more than 30 cm above natural ground level), conservatories, external staircases, balconies, chimneys, roof terraces, solar photovoltaic arrays or solar collectors and to swimming pools.

### Løvetandsvej, Brønshøj

I also worked on a project at Løvetandsvej, Brønshøj. This was one of the projects in which I had the opportunity to see from drawings to the near end of the project. I calculated the quantities required for the renovation of the attic into living quarters.

I was also assigned the task of creating the details at different areas of the loft conversion and it was during this time I made a mistake. (See images: 1.9 & 1.10) I wasn't thinking about ventilating in the roof and thus so created a kip (ridge) detail without any ventilation there. Luckily enough my boss saw it and it wasn't the largest mistake as all work had been done from the inside. Which meant it was all existing tiles on the roof and the ridge tiles would have to be replaced with some new ridge tiles which could ventilate through the roof build up above the insulation at the ridge of the roof.

After this and the building was near completion we went to site to do a progress report and quality check the construction work. I created a report of which works needed to be completed or redone and sent this out to my manager, the client and the contractor performing the work. (See Image: 1.11)

### Hagens Alle, Hellerup

I also performed another quality inspection on a house in Hellerup with another Bygningskonstruktør from Ingeman Fischer. We were contracted solely as consultants and to check that everything was been built in accordance with the drawings and the specifications. The contractors had been advised to leave a section of the plasterboard off for us so we could inspect the thickness of the insulation and the build-up. Upon this inspection we noticed that there was no vapour barrier installed in this whole area. The drawings stated that there should be one installed so our recommendation to the client was for them to remove the plasterboards in this area and install a vapour barrier.

### Jacobsens Vej, Amager

The next site visit was in Amager, to several homes to check the status and quality of the building a year after finished construction. This was in regards to the 10% that can be held back by the client until a year after the finished construction. This can then be paid to an amount of 2% which can then be kept for up to five years. These payments can be stalled due to defects and not paid if problems are deemed the contractors fault and they are not willing to rectify the problems.

*Subs. 4. One year after handing-over the bond shall be reduced, however cf. § 36, subs. 3.(1), to 2% of the contract sum, unless a prior claim for the rectification of defects has been put forward in writing by the employer, in which case the bond shall be reduced when such rectification has been effected.*

Our task was to be the middle man between the client (the homeowner) and the contractors to try and determine if the problem was something the contractor should have done to a higher standard or to determine if the problem, isn't actually the contractors fault.

There were many small problems in different apartments but nothing that would require a whole lot of money or time to be spent rectifying problems. Something I did see a lot of was wet patches on the ceilings on these prefabricated concrete homes. This was something my work advisor was quick to point out to me. It was from the hollow core slabs. At some point, in transit, storage or on-site, water has infiltrated the hollow core. This then finds its way out at a later date and is a common small problem on prefabricated concrete buildings using these types of slabs.

### United Arab Emirates embassy in Copenhagen

On the 27th February, I was given the task of writing a letter to a customer who was from one of the embassies in Copenhagen. They had requested we create some drawings for them of there existing building but had a set price of which they wanted to pay. Working with the architect we came up with an estimate based on how long the drawings would take and the hourly rate Ingeman Fischer charges. We came up with three prices of which the customer could choose the amount of work we would be putting into the project. (See Image: 1.12)

### Rødstensvej, Hellerup

Me and the other intern went to do a site registration at Rødstensvej. The task was to take as many measurements as possible so we could create a model of the original building. We worked as a pair as we took measurements of every wall, window, door etc so we could make the most accurate model possible. This would be beneficial when renovating the building as the existing model would already be in place.



#### Aldershvilevej, Bagsværd

This was a project in which we had created all the drawings for and were the main contractor for the job as well. Our task was to go to site near the end and ensure that everything had run smoothly and that everything had been completed to standard. There weren't many serious problems but a few small jobs to rectify.

#### Blågardsgade, Nørrebro

This was an interesting project in which we were tasked with creating some drawings for the tenant of the building to send to the Municipality. This was a requirement, so the owner had the permission to turn this area of the building into a bar.

The building would be renovated from a plant shop into a bar and our task was to create a layout inside the future building for around 60 people maximum, show the toilets were disabled friendly and meet the guidelines set out in the building regulations. We also created a drawing to show an elevation of how the building would look (not affecting the façade) from the front of the building with exterior sign positions. (See images: 1.13 & 1.14)

#### Henriettevej 11, Højby

The project at Henriettevej was to take a pre-designed summerhouse and to change the layout so it suited the customer's needs. I worked closely with the Architect on this project who showed me many techniques for laying out a functional home.

It was also important to ensure that the site was located the 5 meters away from the property lines and placed in a position with favourable garden space.

It was essential that the orientation of the building was thought through as been a summerhouse it is essential to have enjoyable outdoor sitting areas that receive the sun at different points throughout the day. After creating a basic layout of the summerhouse and placing it onto the site, we were able to create a sun study to assess which areas were best for positioning terraces, double doors and window.

It was then possible to work on the layout inside so it met the building regulations and provided a functioning home. From here it was possible to create the drawings. Situation plan, floor plan and elevations so the customer could decide if the design was right for him. (See images: 1.15 & 1.17)

The customer was very happy with the concept and from this stage it was necessary to create a drawing set for the Kommune. The aim of these drawings was to show that the basic needs in regards to the site met the building regulations. To do this, we created site plans showing the distances from the property line, the exterior wall maximum heights and roof heights and the 1.4x distance angle from the roof to the property line.

Nordvænget, Dragør

The project at Nordvænget was for the kommune to get the acceptance of dormer windows and a balcony at one side of the building and for a small extension on an out building at the bottom of the garden.

My task was to create some drawings which showed the position of the new dormer and the build-up of it. I showed this accurately on a situation plan, floor plan of the 1<sup>st</sup> floor, elevation and a section. (See images: 1:18 – 1:21)

### Learning Goals

Below highlights the different work tasks and the learning goals that I wanted to achieve during my internship. These were set out before the internship within the contract between me and the company. I have rated the work tasks as a percentage of how much of the work I performed. The learning goals I have explained in more details.

### Work tasks

Revit Work: 3D Modelling- 95%  
Technical Details- 100%  
Construction Management: Time planning 20%  
Liaising with sub-contractors and other professionals 60%  
Creating State reports (for energy ratings) 0%  
Building Surveying 80%

Although I didn't perform the entirety of work tasks there were many more tasks that I did perform,

- Concept stage work with Architects
- Cost Estimates
- Progress reports and quality checks
- One- year check as a consultant
- Writing letters and emails to customers
- Speaking with suppliers to gain information on the use of different materials and building parts

### Learning goals

1. Identify how the subjects we learn in KEA are used in the industry – It was pretty clear from the beginning of the internship how similar the way we worked at KEA was to the industry. Seeing it first- hand makes it easier to understand the different phases throughout the construction process.
2. Understand Energy Reports & how to create them – The energy reports were something I wasn't able to create due to them been in Danish. I was able to read them and use them to create the drawings in regards to how much insulation would be required in different parts of the building.
3. Creating Building reports – I managed to create several building reports, taking photos of any problems on-site and noting down the requirements to get the job finished. I made reports at

different stages of projects in different roles. As the main contractor checking the site was progressing as it should be. Also, as a consultant, mediating between the contractor and the client on any issues.

4. Enhancing Revit skills as they are used in practise – I spent a lot of time on Revit during the internship. I created all different types of drawings and worked on several different models and projects.

5. General Consultancy & Dialogue within the construction industry – I had lots of dialogue with the people within the company and also with clients and material suppliers.

6. Learn more Danish & Danish technical terms within the construction industry – This was something I learnt quite a lot of, with everything been done in Danish

### **Evaluation of learning goals**

Overall, I believe I met the work tasks and learning goals I set out to achieve at the beginning of the internship. Although I didn't manage to spend as much time on some of the work tasks I expected to do, it was more than made up by the extra tasks that I performed during the internship.

Throughout the internship I had continuous dialogue with my company mentor, who ensured I was doing the things that I wanted to be doing and was happy in the roles I was performing within the company.

I gained a lot more clearer understanding of how the process works in Denmark and which things from KEA we could use in practise and enhanced my drawings skills as they should be used in the field.

### **Competence of the education**

As a student of KEA, I believe that the structure of the education is very good. In regards to working in groups and learning to deal with and work with different types of people, this prepares for work life in a real construction company.

KEA also teaches the basics of just about everything with a lot of onus been placed into learning different programs to be able to fulfil the growing use of BIM. I feel we are adequately placed leaving KEA in regards to working with BIM and in regards to planning. The understanding of the building process, creating costs and times and planning building sites is taught efficiently in KEA and to a high level.

There are certain things that I believe KEA should do differently and put more effort into. I think we should be lectured more on standard construction procedures within Denmark and have more efficient and thought out lectures on different materials within the industry. I felt at times I had a lack of knowledge on standard building procedures within Denmark. This is partly down to a lot of the information not been readily available in English for example the SBI anvísning and BIPS.

I also feel we should have more time and go more in depth with the engineering calculations and mathematics. I would like to be able to have a better dialogue with the engineers and have a clearer understanding of which solutions to use at different times.

I feel we leave KEA pretty well equipped to go out into the construction industry as Architectural Technologist's although I think there are parts of the education that could be structured better or be lectured and given more focus on to be even more prepared when going into the construction industry.

### **Conclusion**

When applying for internships I decided I would challenge myself and work for a smaller company in a Danish work environment. I felt if I worked for one of the larger companies (with more English) I would be stuck doing a similar job on a day to day basis without been involved in different aspects of the design phases. Working in a smaller company definitely gave me a greater scope of things and I have learnt a lot from the people around me in the company who were always willing to share knowledge and explain things to me that I didn't thoroughly understand.

The most difficult part about the internship was that everything was in Danish. There were times at the beginning where I was a little frustrated as I wanted to be involved in dialogue with the other workers when they were speaking about something in Danish. To be able to share the knowledge that I had learnt studying for the past two and half years and come up with solutions for any problems that may arise or have occurred. It was during this stage I realised I had to make more of an effort to ask questions and push to be involved. The benefits of this have been that my understanding of Danish has improved a lot and I have learned to work in a company where the first language is not my own. One thing I also need to work on is to be confident with the knowledge I have gained. I should be more authoritative when I do possess knowledge in something and not be afraid to make decisions.

For me, the internship was a success, as most of all I have learnt a lot and been able to help Ingeman & Fischer out at the same time. The employers at Ingeman & Fischer have been a great help and given me responsibility in projects I didn't expect to get as an intern. I have thoroughly enjoyed my time doing my internship at Ingeman & Fischer and look forward to working with them as a student job in the future.

### **7<sup>th</sup> Semester**

After been unable to do energy reports within the company I have read some material on the impact of the new energy requirements within the construction industry and the impact it has within a building and the living quarters. I find this very interesting and will potentially write my bachelors report on this topic next semester.

References

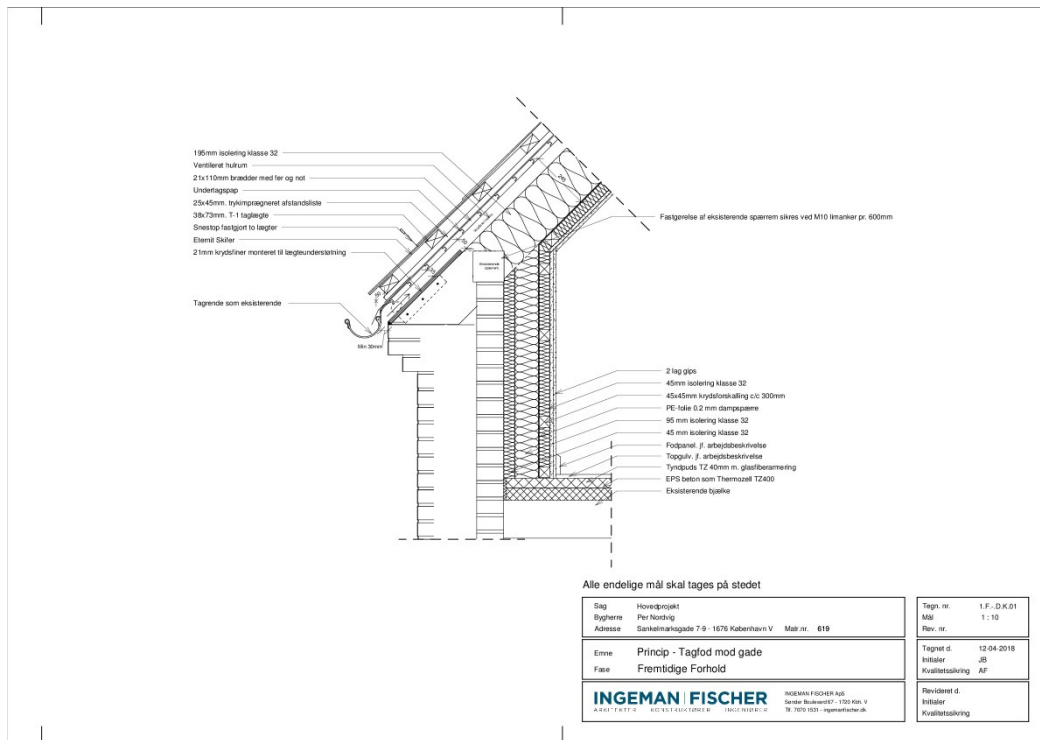


Image 1.1 – Roof eaves detail

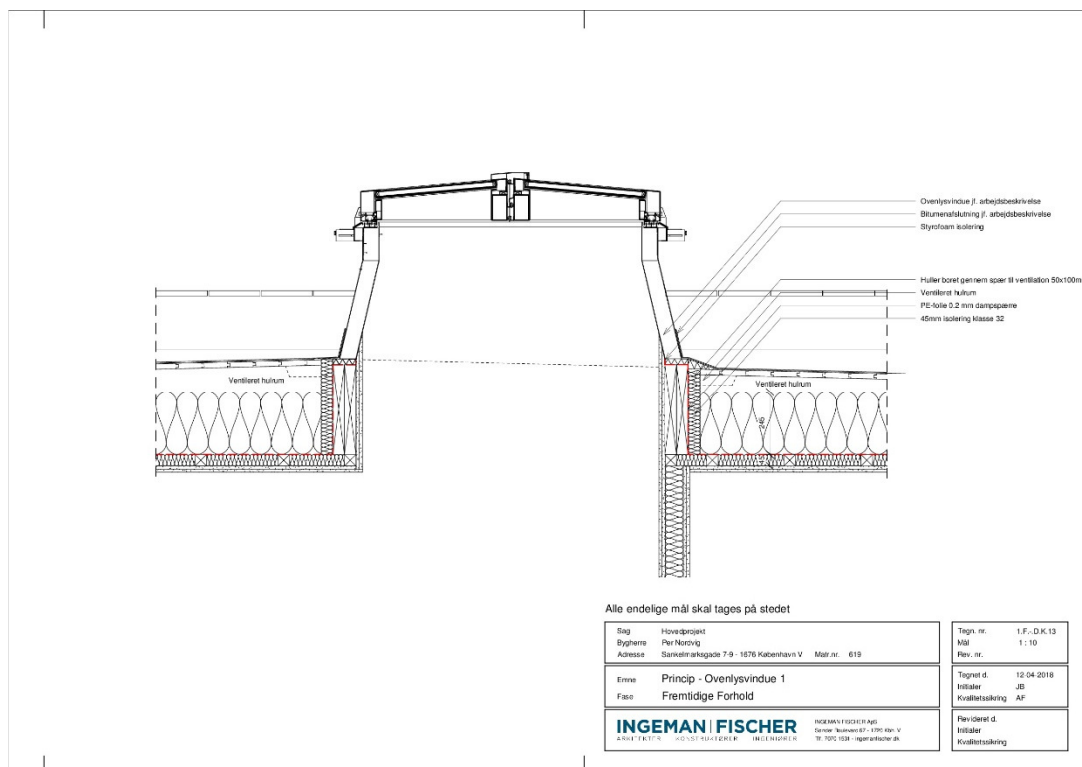


Image 1.2 – Skydoor to roof terrace

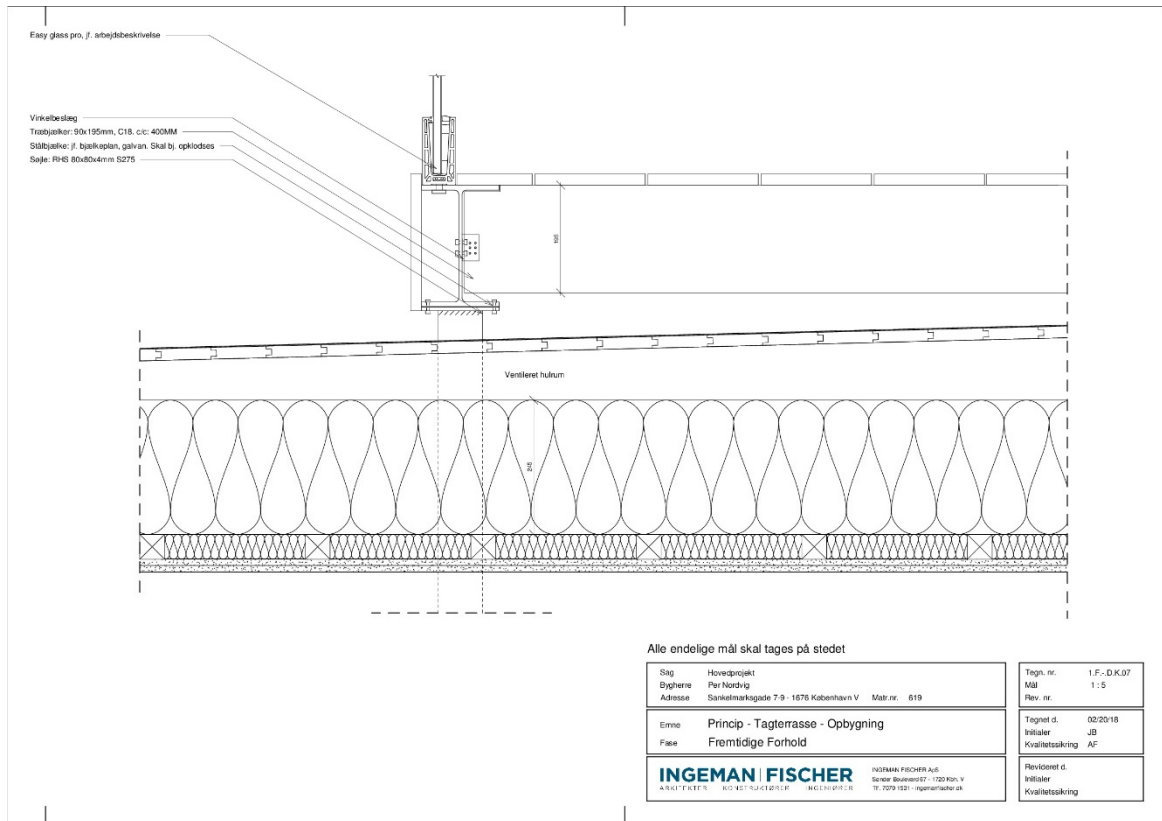


Image 1.3 – Roof terrace

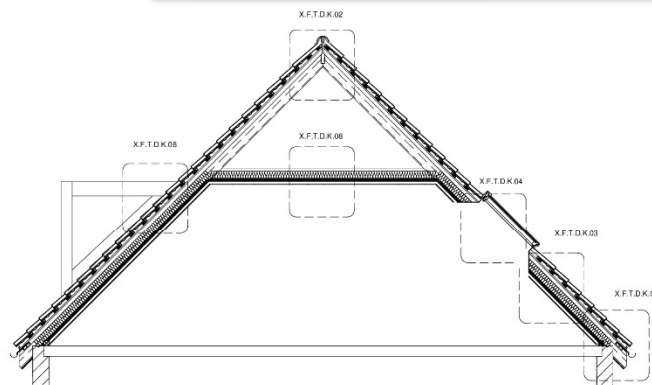
<b>Preliminary Project Cost</b>			
	Gross floor area M2	644.1	
	Estimated Cost M2	1500	
	Construction	966150	
<b>Costs</b>	<b>Total Price (DKR)</b>	<b>Final Cost (DKR)</b>	
Construction	1	966150	Geographic Adjustment in Copenhagen is 1.00
Site +8%	0	106277	
Weather +5%	0	48308	
Indexing	0	3865	
		<b>1124599</b>	
Consultancy Fees +10%	112460		
Contingency Sum +20%	112460		
		<b>224920</b>	
<b>Total Cost</b>		<b>1349518</b>	
<b>Total Cost Plus Vat 25%</b>		<b>1686898</b>	
<b>Final Cost Per M2 (DKR)</b>		<b>2095</b>	
<b>Construction Duration Estimate</b>		M2 Price Inc VAT	
		<b>2095</b>	
<b>Construction Costs</b>		<b>1349518</b>	
Estimated share of Labour content		60% 600 out of	
Average worker wages per hour		500 Per Hour	
Standard working hours per day		7.4 Hours	
Average labour throughout Construction		6 Avg Labour	
Inaccuracy at the concept level	Approx +/- 20%		
<b>Construction Duration</b>	33.4340045	<b>33.5 Days +/- 20%</b>	
All 6 roof renovationa		<b>200Days +/- 20%</b>	

Image 1.4 – Preliminary time estimate

Image1.5 – Cost Estimate

<b>INGEMAN   FISCHER</b> ARKITEKTER   KONSTRUKTØRER   INGENIØRER				
<b>Samlet estimat</b>				
Nr	Tekst	Enhed	Mængde	Salgspris
<b>Hovedposter:</b>				
<b>1.1 - Byggeplads</b>				
	Stillads		1	124.768,00
	Skurby		1	28.032,00
	Afløst		1	99.881,00
	Stilladsoverdækning		1	131.902,00
				<b>384.583,00</b>
<b>1.2. Nedrivning</b>				
	Nedrivning af tag		1	85.362,00
	Nedrivning af vindue		1	8.000,00
	Nedrivning af Ventilation		1	4.526,00
	Nedrivning af VVS		1	7.528,00
				<b>105.416,00</b>
<b>1.3 - Tømrer</b>				
	Tag		1	407.009,00
	Vindue		1	164.575,00
	Energi optimering		1	499.767,00
				<b>1.071.351,00</b>
<b>1.4 - VVS og blikkenslager</b>				
(37)66.05.04	Faldstammeudluftning Ø 110 mm	stk	6	8.757,00
	Levetid: 30 - 50 år			
	Vedligehold: 1 - 2 %			
(47)13.06.35	Faldstammeudluftning af stål, udvendig diameter	stk	6	5.092,00
	Taghætte til aftrækker, isoleret			
	- Ekskl. underlag			
	Levetid: 20 - 30 år			
	Vedligehold: 3 %			
(37)64.80.02	Taghætter af polystyren til bølgeplader	stk	24	31.086,00
	Firkantet taghætte 150 x 150 mm, zink 14			
	Levetid: 15 - 30 år			
	Vedligehold: 1 - 3 %			
	Med zinkinddækning			
				<b>44.935,00</b>

Side 6 af 14



Alle endelige mål skal tages på stedet

Sag	Hovedprojekt	Tagh. nr.	X.F.T.S.K.01
Bygherre	Krasis og Viggo Petersens Fond	Mål	1:50
Adresse	Tjernevej 8 20, 3450 Allved	Mat.nr.	Sat
Erno	Princip snit tag	Tegnet d.	09.05.2018
Fase	Fremtidige forhold	Initiator	JB
<b>INGEMAN FISCHER</b> ARKITEKTER   KONSTRUKTØRER   INGENIØRER INGEMAN FISCHER A/S Sønder Boulevard 7, 1709 KA, V Tlf. 7021 1231 - ingemans@ingemans.dk		Kvalitetssikring	JT
		Reviseret d.	
		Initiator	
		Kvalitetssikring	

Image 1.6 - Section through building

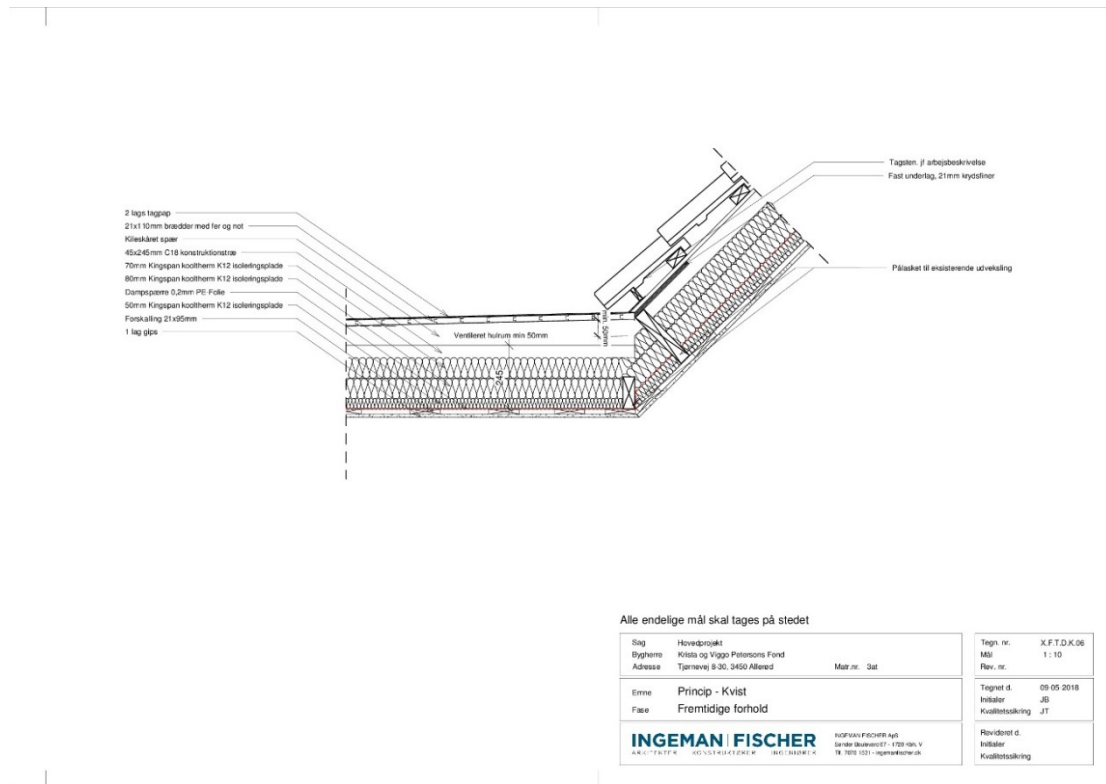


Image 1.7 – Dormer window detail

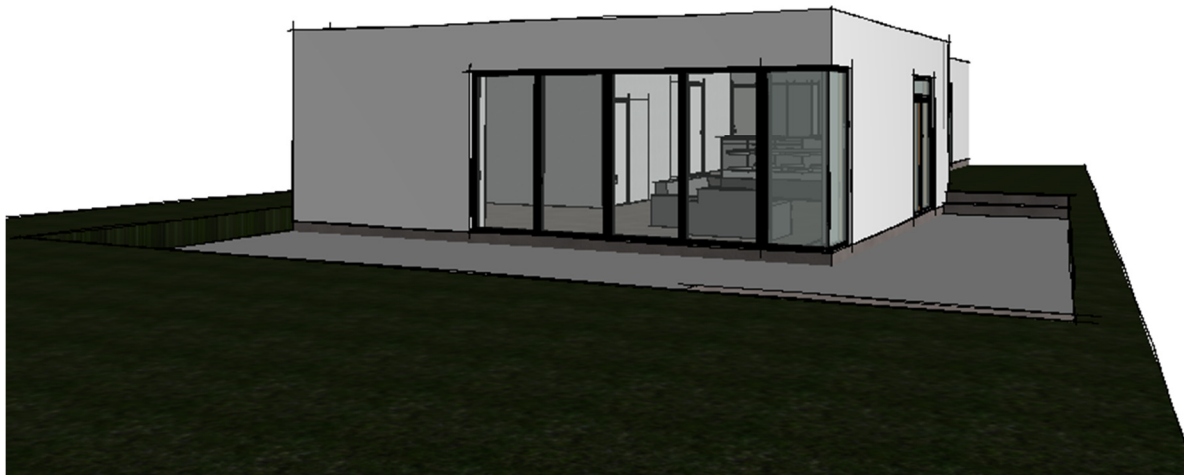


Image 1.8 – Corner window piece



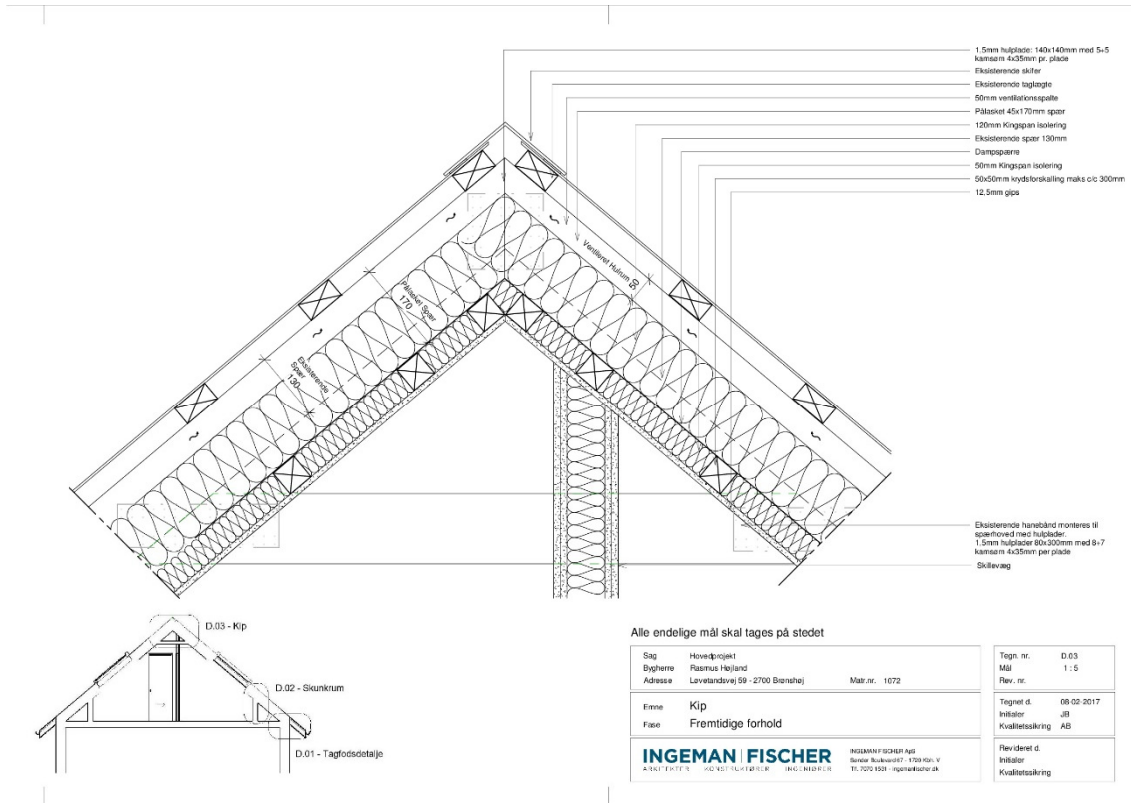


Image 1.9 – Incorrect ridge detail

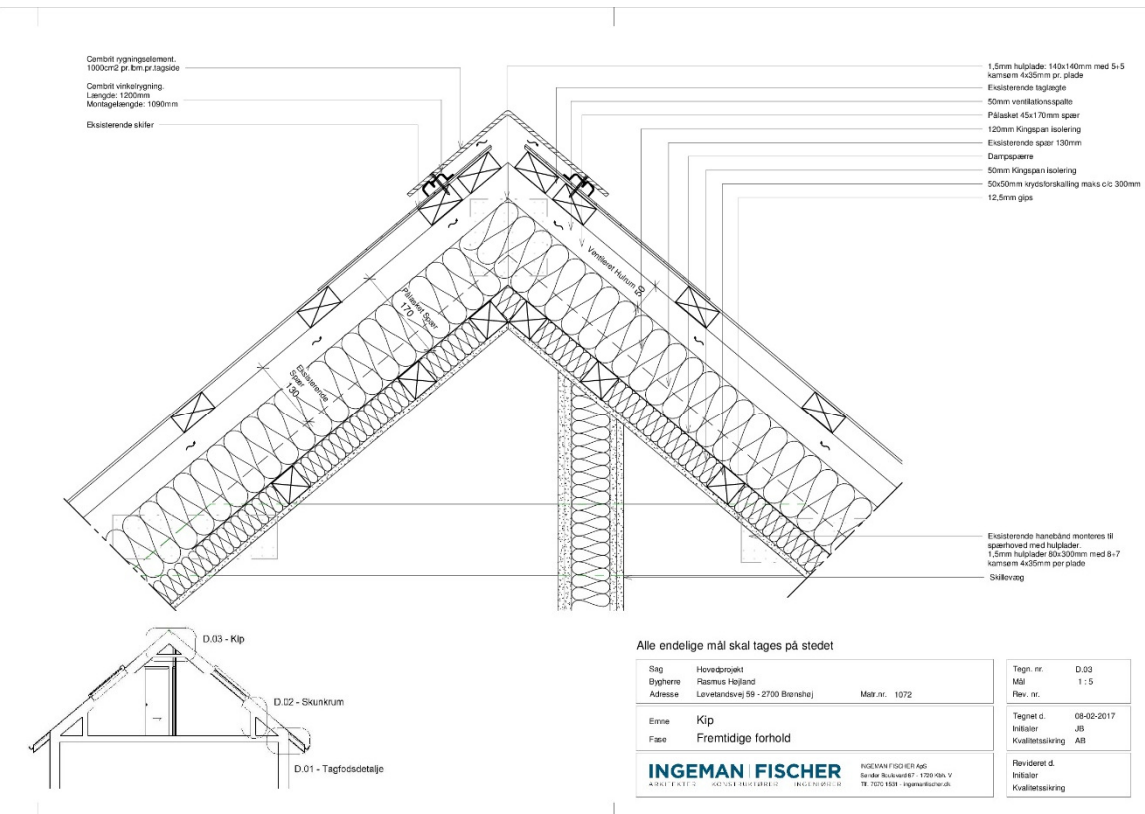


Image 1.10 – Correct ridge detail

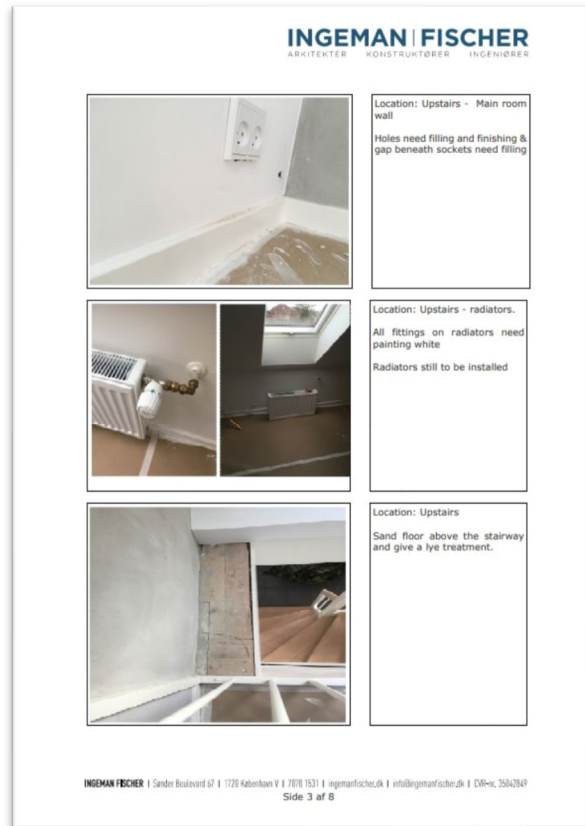


Image 1.11 – Quality inspection report

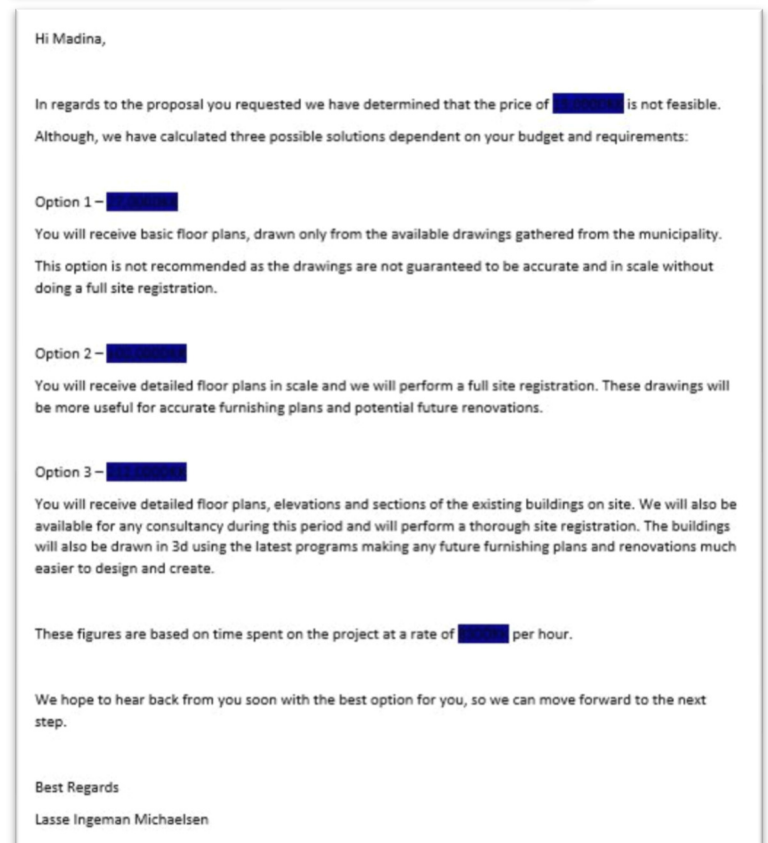


Image 1.12 – Letter to customer

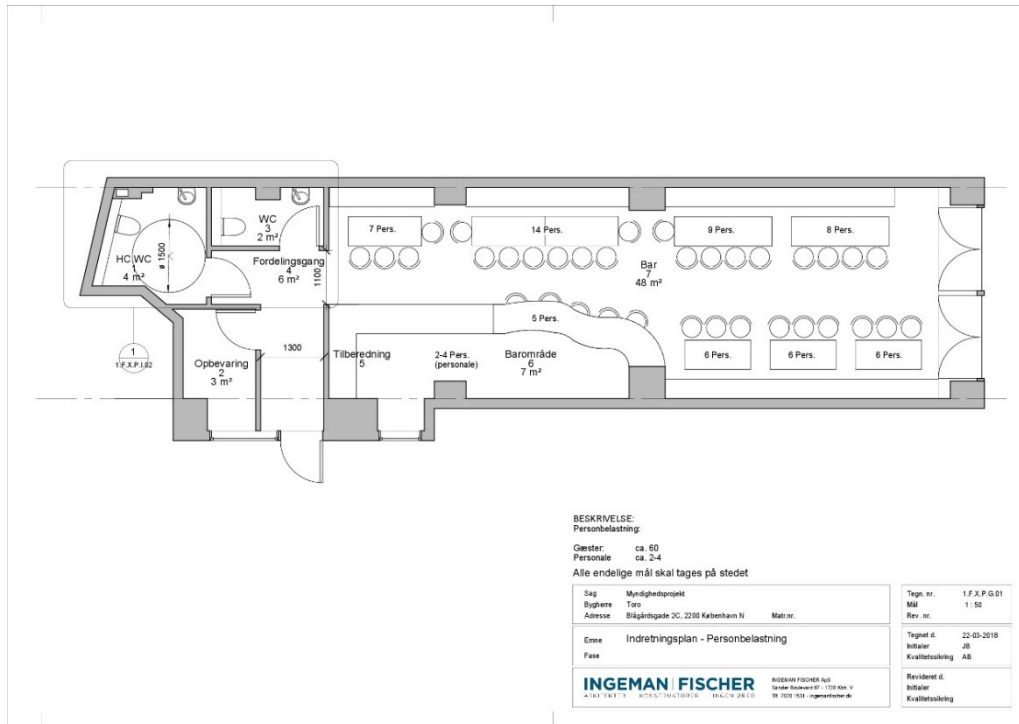


Image 1.13 – Bar floor plan

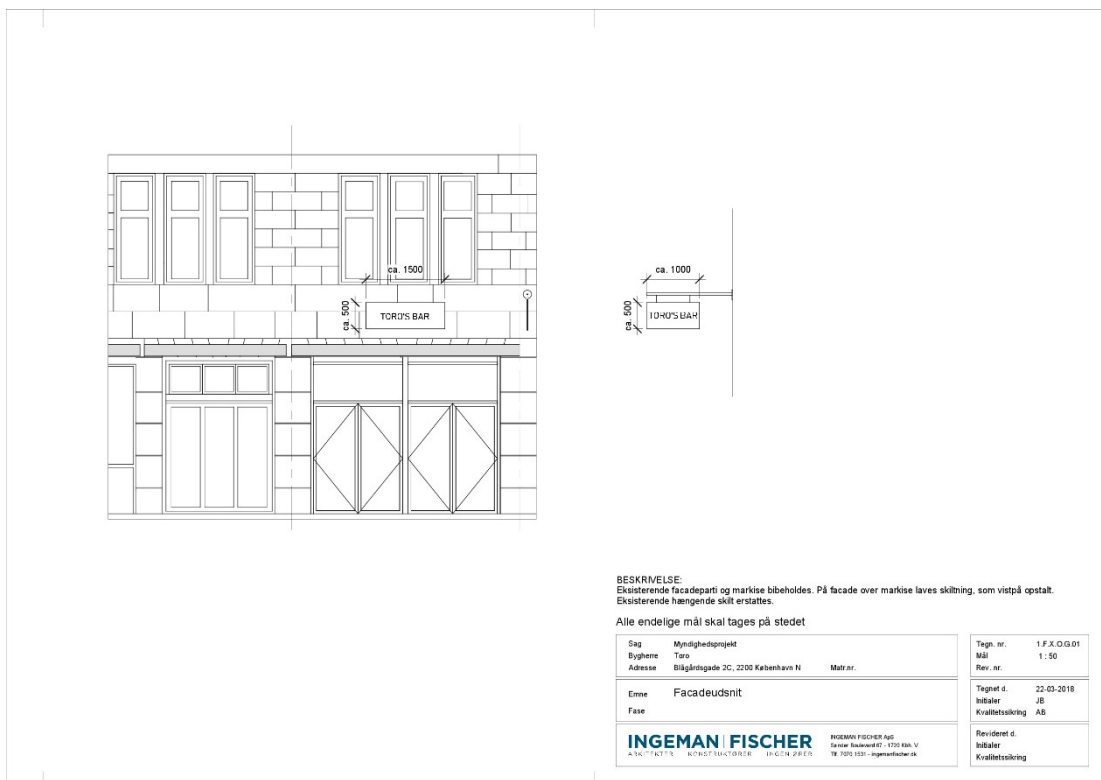


Image 1.14 – Bar elevation

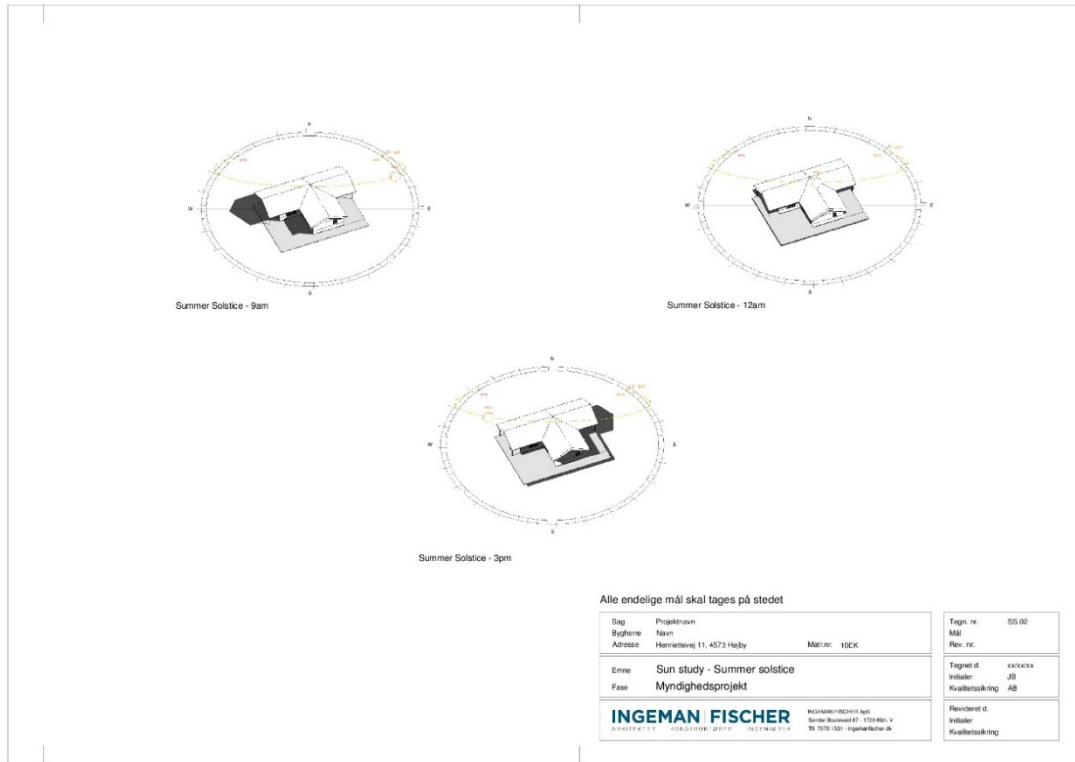


Image 1.15 – Sun study

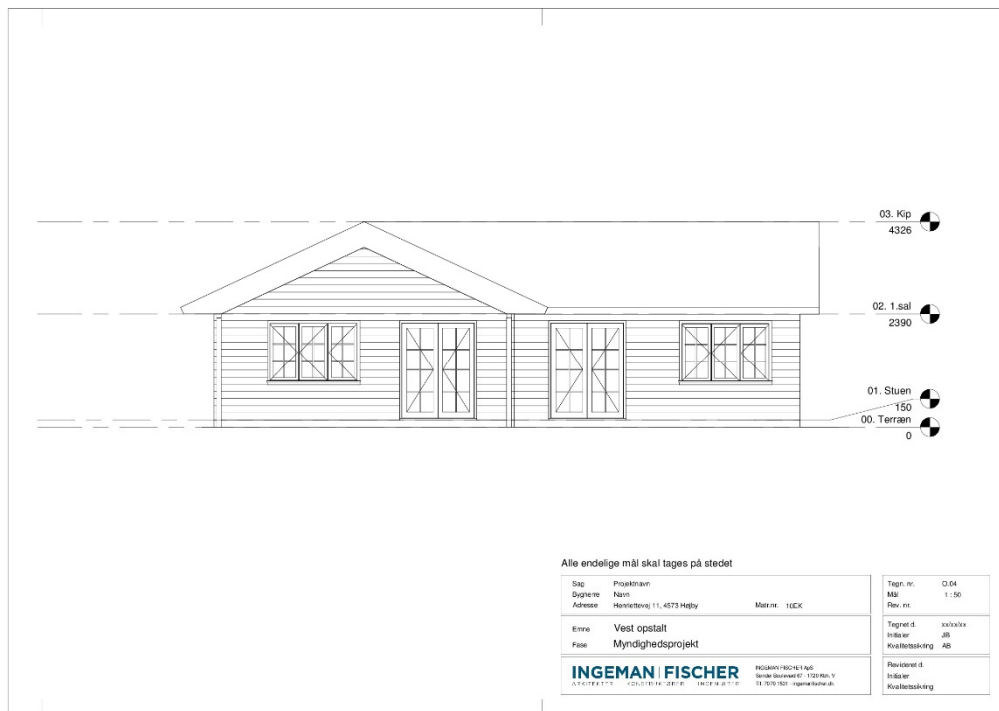


Image 1.16 – Elevation

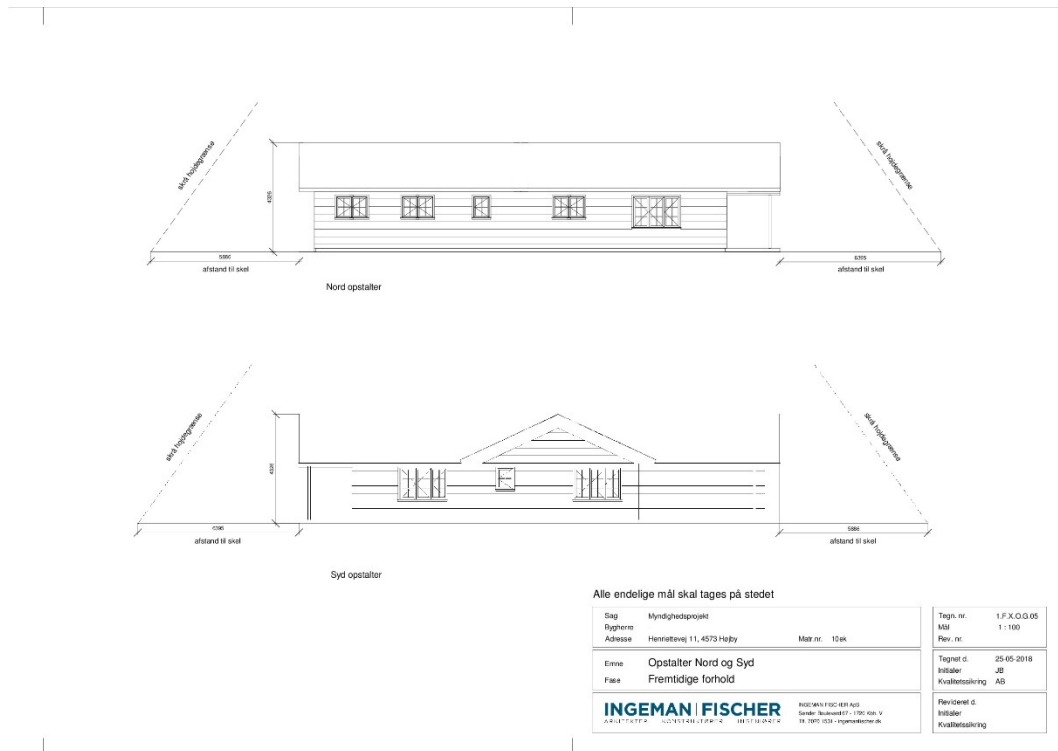


Image 1.17 – Planning permission

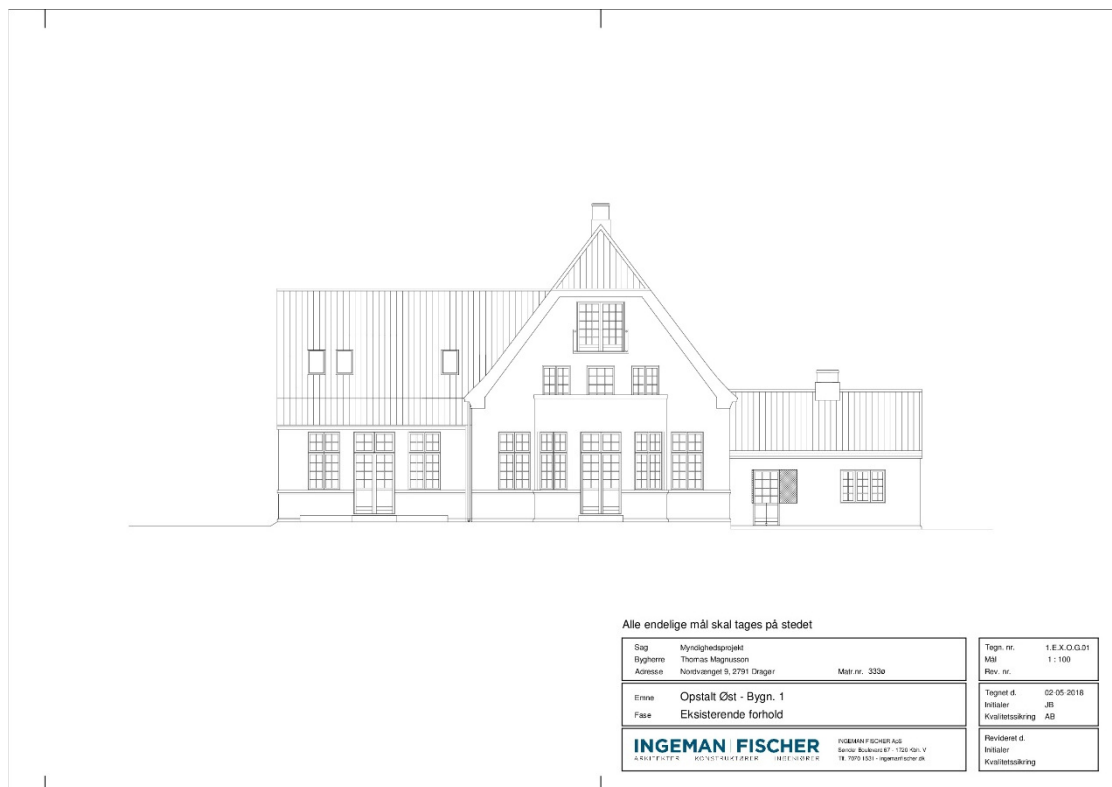


Image 1.18 – Existing Elevation

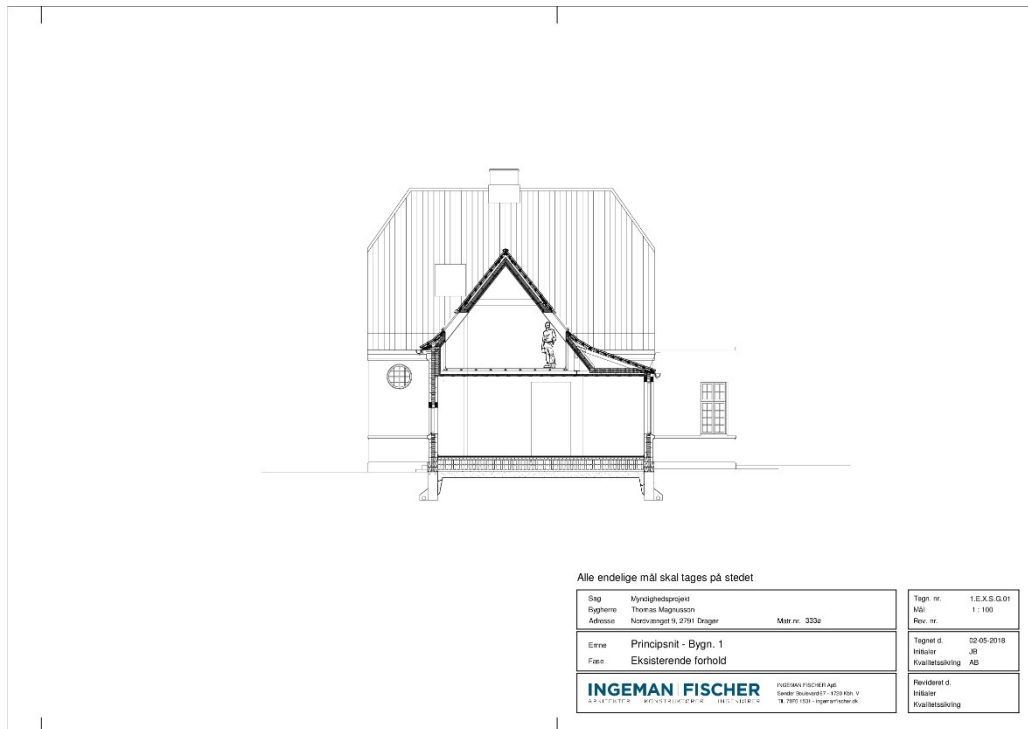


Image 1.19 – Existing Section

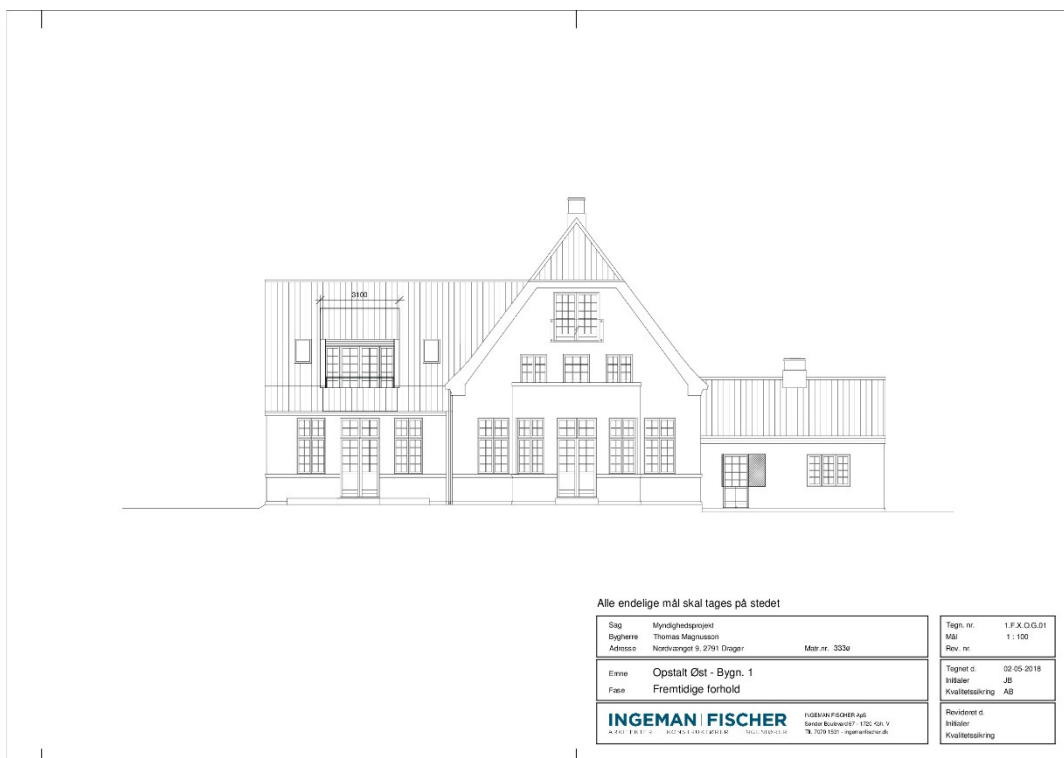
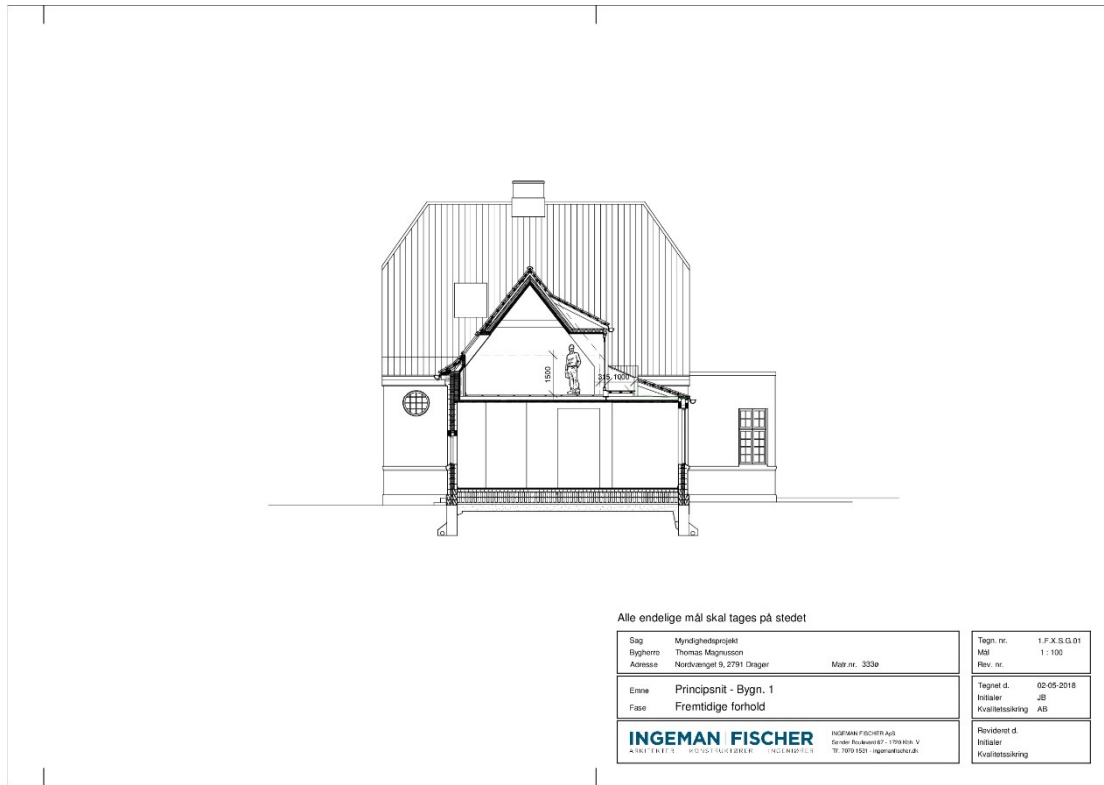


Image 1.20– Future Elevation



Alle endelige mål skal tages på stedet

Sag	Mjølhedeprojekt	Tegn. nr.	1.F.X.S.01
Bygherre	Thomas Magnussen	Mål	1:100
Adresse	Nordvangen 3, 2791 Dragør	Rev. nr.	
	Måst. nr. 333e		
Etape	Principsnit - Bygn. 1	Tegnet d.	02-05-2018
Fase	Fremtidige forhold	Italtaler	JB
		Kvalitetssikring	AB
<b>INGEMAN FISCHER</b> <small>ARKITEKTER   KONSTRUKTØRER   INGENIØRER</small>		<small>INGEMAN FISCHER A/S          Svanen Allé 117 - 1. etage, V          Tlf. 7090 1501 - ingem@ingemfisher.dk</small>	
		Revideret d.	
		Italtaler	
		Kvalitetssikring	

Image 1.21 – Future Section

Enclosure 4: Evaluation Form for the Accomplishment of the Internship.

Student: James Birkenshaw

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Company: Ingeman Fischer

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Contact person: Anders Fischer

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The Internship has been accomplished in the period from 25/01/2018 till 22/06/2018 and subsequently evaluated (please copy learning goals from the internship contract)

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The student's	Very good	Good	Not very good
1. Adaptation to the Company	X		
2. Cooperation skills	X		
3. Performance	X		
4. Efficiency		X	
5. Ability to get acquainted with a new project independently		X	
6. Technical skills	X		
<b>Tasks:</b>			
7. Revit work: 3D Modelling	X		
8. Technical details	X		
9. Construction Management: Time planning	X		
10. Liasing with sub- contractors and other professionals	X		
11. Creating state reports (for energy ratings)		X	
12. Building surveying	X		
<b>Learning goals:</b>			
13. Identify how the subjects we learn in KEA are used in the industry	X		
14. Understanding energy reports and how to create them	X		
15. Creating building reports	X		



16. Enhancing revit skills how they are used in practise	α		
17. General consultancy & dialogue within the construction industry	α		
18. Learn more Danish and Danish technical terms within the construction industry		x	

**Further Comments:**

James har leveret fuldt ud i rollen som praktikant

Derfor fortsætter samarbejdet efter endt praktikforløb

Date 5/6-2018 Signature *Anders Fischer*

Anders Fischer – Ingeman Fischer

Host company's stamp:

**Ingeman Fischer ApS**  
 Sønder Boulevard 67  
 1720 København V  
 Tlf. 7070 1531  
 info@ingemanfischer.dk  
 www.ingemanfischer.dk  
 CVR: 35042849