

The regrowth of wood and its crafts

The exposure, education and practice of the woodworking craft



Photo (Photo, 2017)

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Abstract

Wood and the education and practice of the woodworking craft, to some might look ancient, seem to make a comeback. Which is why both the practice and education of the material and craft are discussed below in past and present context. Both to answer the question: “what has been the role of wood and craft education in the Netherlands over time?” In order to give an insight of its current status in the Netherlands. Besides, assuming wood and the education of its crafts are relevant today, a insight is given in a knowledge centre of the past and present to elaborate if a new knowledge centre might be relevant at present, in relation to both the material and craft. Multiple incentives, including the housing and climate crisis and the goal by multiple governments for lifelong learning, together with examples of the past and present, prove a persuasive base for a new knowledge centre of wood and its crafts.

Keywords:

wood, timber, crafts, wood working, craft education, craftsmanship, centre of knowledge.

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Wood and the education and practice of the woodworking craft, to some might look ancient, seem to make a comeback. A comeback suggests it had a previous relevance and status in, in this case Dutch culture, which most likely might ever be so relevant today. It is why both the practice and education of the material and craft are discussed below in past and present context. Both to answer the question: “what has been the role of wood and craft education in the Netherlands over time?” In order to give an insight of its current status in the Netherlands. Besides, assuming wood and the education of its crafts are relevant today, a insight is given in a knowledge centre of the past and present to elaborate if a new knowledge centre might be relevant at present, in relation to both the material and craft. The scope of this essay in the proposed format and time, does not allow it to be thorough, but presents the opportunity to give insights into the possible topics, which can then be pursued further.

Wood production and processing in the past

The material is not as foreign as it might possibly seems to most Dutch people. In contrast, many centuries ago it was common to shape almost our entire surroundings out of wood. However, it lost its trust and charms due to the many fatal city fires. Since then, especially in the Netherlands, other materials were chosen over wood, mainly clay in its use in bricks. (Haan, 2008) However, wood did not entirely disappear out of our buildings, its many qualities and advantages, ensured a modest role in our surroundings. In the Netherlands, it remained often applied in roof structures, stairs, floors, doors and window and door frames. Mainly because of its light weight, it is easy to transport, easy to handle and a relatively cheap material.

In the last century, industrialisation brought new materials forth, foremost concrete and steel, which further threatened the role of wood in Dutch building culture. Both have taken over part of the market in floors, structures and frames, at least for now. On the other hand, industrialisation also sparked innovations, in wood production and processing techniques. These helped overcoming some of the former shortcomings and risks of wood, such as withstand exposure to the elements, fire and ensured more consistent quality. While also scaling and speeding up the entire industry and pushing the materials abilities to new highs, for example much larger spans. These developments slowly recovered some of the status and the former appreciation of the material in Dutch culture.

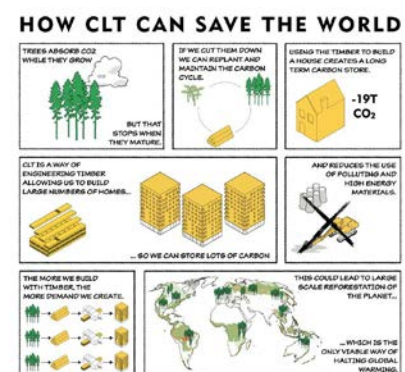
While some of the trust and application slowly regrew, strict legislations and outdated distrust, obstructed the implementation of wood in new construction methods and in various other application. However, intensive research, foremostly by Swiss engineers, and experimentation in foreign architecture proved the consistency and resistance to fire. This

theoretical and practical evidence paved the way and has accelerated the production and application of wood across Europe, since the 1990s. Furthermore, other innovations since then have further pushed this trend, most influential being Cross-Laminated Timber (CLT) and Computer Numerical Control (CNC) machines. Although the Netherlands is one of the cultures most heavily relying on an alternative material, being a brick culture, wood has also gained ground here ever since.

Wood production and processing today

Today, there are multiple new incentives why the industry is turning to wood, which are pressed by the following crises. Two of the most actual and urgent in the construction sector are the nitrogen crisis and housing crisis. The first mentioned, delayed 16.000 construction projects in the Netherlands, for which only a temporary solution is now provided and which is likely to arise again in the near future. (Rozinga, 2019) Both are closely linked to the climate crisis, which is likely to be the most challenging crisis for humanity in the first half of this century. In short, the Netherlands is facing an enormous construction challenge, the demand for 1 million new homes, built with minimal emission in the interest of the climate. This challenge requires other materials than the current mostly used materials, including concrete, brick and steel, because of the depletion of the resources and because of the emission which comes along with production and construction.

Both the depletion of resources and the need for a reduction of emissions is why architects are turning to wood. Firstly, we can increase the stock by increasing the amount of production forests, potentially overcoming depletion. Secondly, wood production absorbs carbon dioxide (1m³ of wood equals 1.000 tons CO₂), so ideally wood becomes a product that absorbs rather than emits. (Groot, 2019) This debate belongs not only exclusively to the construction industry, it relates to all industry linked to consumption, including furniture industry. Also there wood and woodworking, could potentially replace harmful and exhausting resources, paving the way for more cabinet-makers.



infographic advantages use of CLT (Waugh, 2019)

Over the last decades, many professionals have seen the need and opportunity and have argued for an increase in wood construction ever since, convincing ever more people. Despite these examples, change is too gradual, because the interests in the old economy are too large. When the government seeks for building innovation in response to the crises, bad solutions are brought forth by lobbyist of the old economy. Project developers are also hesitant to change and prefer to stick to the way it has been done over the last decades. (Rozinga, 2019) Furthermore, (higher) education pays far too little attention to wood. (Groot, 2019)

On the other hand, lobbyists and others might also argue against wood from a certain perspective. Because the growing demand for wood, unsustainable forestry takes place, which is for 26% responsible for deforestation. (Fritts, 2018) The total loss of forests is 26 million hectares wide each year, which roughly corresponds to the total land area of the United Kingdom. (Harvey, 2019) Besides, much of the wood used in the Netherlands, comes from across the world, for example South America and Canada, resulting in an high emission due to far transportation. These are mostly righteous and are everything but good examples of wood products with positive impact. However, a major part of the currently used wood in the Dutch construction industry comes from sustainable forestry in Europe, including a minor share from Dutch forests. An even better solution is suggested by architect Vermeulen, who proposes to use 140.000 of the 365.000 hectares Dutch forests, which is originally planted to be cut and used for construction of buildings and ships. This part is potential production forest, monotonous, bad soil, barely used for recreation and does not include the natural forests. Using this part for sustainable forestry, by cutting and replanting selectively would result in richer forests. (Rozinga, 2019) Vermeulen also calculated that in the Netherlands enough wood grows to build 22,400 homes a year, sixty a day, one third of the total required production. (Hal, 2019) Furthermore, it would result in more young trees, which absorb more carbon dioxide. Besides, most of the wood which is now cut in the Netherlands and even a large share of the wood import, is now used for low valuable use and biomass plants. The latter is highly criticized, because it is unrightfully considered as a green energy source, while it also burns wood, which could potentially used for more high valuable use, such as construction.



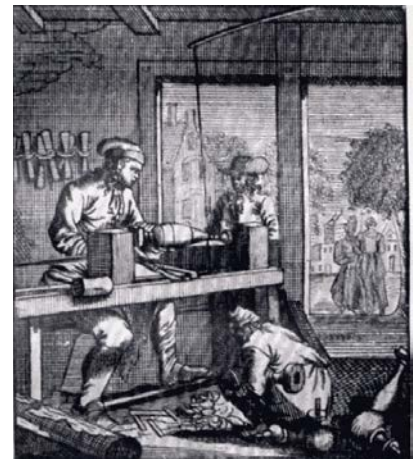
map of forest available for use = forest suitable for enriching and diversifying: 140,000 ha (38% current forest); Exclusive Natura 2000 forests: 225,000 ha (Vermeulen, 2019)

In short, wood can be an answer to a considerable share of the challenges the Netherlands faces. One third of the houses needed in the Netherlands in the coming decade, can be built from wood. In this replacing as much of possible other more polluting materials, including the largest polluters as concrete. (Rozinga, 2019) Wood, if extracted by sustainable forestry, is most likely the best material to answer the objective of a minimum emission in construction in the interest of the climate. Especially if wood is extracted from mainly Dutch forests or alternatively European forests. However, change is to gradual, partly due to the little attention (higher) education pays to wood, the outdated assumptions and the influence of the old economy.

Education of crafts in the past

Humanity has long been without schools. People learned everything they needed in their own circle, that is, from their parents, their families, or the village community. When the first people became full-time craft specialists, knowledge was usually passed on from father to son. The latter, was the apprentice, a role which in large shops or in case the craftsman had no son, could be carried out by someone else. Except of apprenticeships, there was no form of education in the Netherlands in the early centuries of our era. Around the 8th century, the first schools came into existence, most of them founded by Christian groups, teaching classes in the field of language and math. This type of school, although slightly changed over time, remained the most dominant type until the late 18th century. Despite that many other schools have been established over time.

The former mentioned form of education, which concerned apprenticeship became an official system after the establishment of guilds in the late Middle ages. On the basis of seniority, a hierarchy was introduced and exams were organized to enable people to assert a higher role. Someone who wants to become a craftsman starts with seven years in the role of apprentice, followed by five to ten years journeyman, before becoming master. The latter means you were able to start your own workshop. It was standard practice to pass on the trade from father to son. However, The demand for more craftsmen and an increase in the number of orphans, gave some of them the opportunity to become apprentices. In the early years of the system, these orphans were housed with the craftsman as well. However, due to the concern of exploiting, they later were housed in orphanages where they were be taught in the evenings, while apprenticing during the day.



*The Guild of Wood Turners of Rotterdam
(Drawing, n.d.)*

In 1200, with the rise of cities and increasing prosperity, literacy became more urgent and the bourgeoisie became involved in education. This created a city school, but this was not intended for craftsmen. This did not change until the mid-fifteenth century, when the invention of printing and further urbanisation, what led artisans to learn to read, write and calculate. It was probably the case that for every profession, there came a time when practitioners felt that it was no longer good to practice without any school knowledge if they had to compete. (Boekholt et al, 2008, p. 11) This can be seen not only in the large number of pupils in the lowest classes of city schools, but also in the rise of private schools, then called 'bijscholen'. These private schools often offered different subjects and new target groups, including younger children, girls and adults. This resulted in an increase in the number of schools and places for training and more schools were established in villages. Followed in the

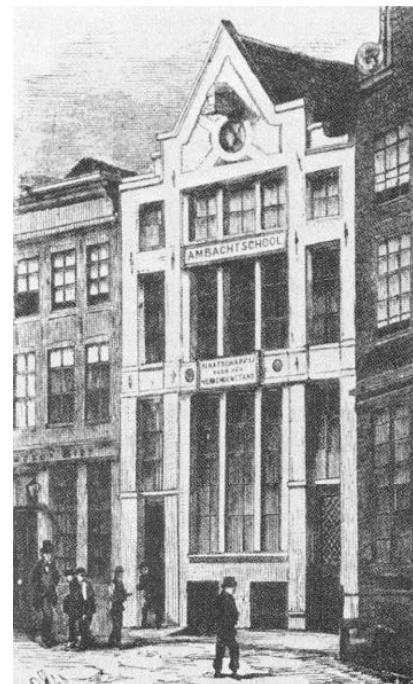
next century, under the rise of Humanism, some poor schools and Sunday schools were also founded for the working youth.

In the eighteenth century some schools for the poor and orphans started to offer some limited form of vocational education. Including in basic engineering, but often also in drawing skills, so that at a later age one could be outsourced to craftsmen to further learn the trade in practice. An exceptional example is the Fundatie van Renswoude, where talented orphans are offered an opportunity to be trained in ship carpentry, mill construction, construction of locks and dikes, mathematics and architecture. (Wendt et al, 2008) In the last quarter of the century, with the advent of the industrial revolution and the factories, the crafts came under pressure, the guilds and associated apprenticeship were abolished and professional skills went downhill. The ever-growing factories now offer "learning and factory schools" where poor and orphans can learn a trade. These training courses are given by the most experienced and skilled employees. They are also offered to permanent staff over time to enable them to assert a higher role.



'Stadsambacht Kinderhuis' ~City craft orphanage in Utrecht (Spilman, ±1750)

In the 1860s, the national government started to concern itself with secondary education. Education for the bourgeois was not regulated at that time, which meant that the schooling available to the average citizen was not ensured, as was the quality, since they could only find appropriate private schools. In 1863, the cabinet headed by liberal leader J.R. Thorbecke, has introduced the M.O. bill regards the 'middelbaar onderwijs' (M.O.), secondary education, resulting in legally regulated education. The 'burgerscholen' became the place for future craftsman, being offered an two years study program. Because the cabinet expected that a lot of the youth had to work during the day, not only day school, but also evening school was arranged. The governments goal for the schools was to offer the students knowledge that could be useful to them, whatever profession they pursued, not to train them for a particular profession, that had to be learned in the workplace. The day school, followed that ambition closely, what together with the inconvenient time on the day, resulted in many of them closing down, because most preferred the evening school. The latter was adapted to the needs of the (future) craftsmen. Thus emphasis was placed on technical education, especially hand drawing, which made the school increasingly attractive for the stand for which it was intended, at least for a while. In 1876 there



First Craft School in the Netherlands, Amsterdam, 1861 (Brugmans, n.d.)

were 34 evening schools with 3841 students, almost exclusively children of workers. 2930 students had already opted for a future profession: more than half later wanted to become carpenters / furniture makers. (Mouton, n.d.) However, after government intervention, evening schools were also obliged to limit themselves more to the general and theoretical, which also almost meant its downfall. Towards the end of the century, practically oriented craft schools 'vakscholen' therefore became increasingly popular. More and more came, through private initiatives, an interesting example being the 'ambachtsschool van de Maatschappij van de werkenden stand', the crafts school in Amsterdam, established in 1861. Despite their popularity with the students and industry, these schools constantly struggled to exist. After municipalities and provinces cautiously supported the schools financially, the state started to do so in 1891.

In 1900, the needs of industries changed, starting by learning in the workplace became unworkable with students who only have had primary education, partly due to the need for more specialized employees. In 1921, new financial legislation were introduced, which committed the state to cover 70% of the aforementioned craft schools, while remaining private, which further increased the number of students and its role in society. In the next decades the craft schools kept having an influx in student numbers, which slowly gave it the characteristics of mass schooling, losing its status of a craft elite. While a considerable positive effect was a rise of the intellectual level of this large lower class of society. The influx continued on, resulting in the amount of student in technical education over the years: 1920: 47.706; 1945: 80.116; 1950: 130.504; 1960: 225.800; 1968:305.600. (Boekholt et al., 2008)

After the Second World War another craft school typology came into existence. The Rijkswerkplaats, later called Centrum Vakopleiding (CV), was a place for basic (vocational) training, training ('nascholing') and retraining ('omscholing'). The initiative was an experiment, to rapidly educate new craftsman, to rebuilt the country after the devastations of the Second World War. The experiment proved successful



Rijkswerkplaats, in Weert, 1958

and from the 40s to the 90s many people followed a short practical training, were after they quickly found work. However, due to a decrease in need for craftsman, a low unemployment rate and less interest, the number of students dropped. After multiple reforms, the state decided to privatise the schools, which led to a further decrease and many of them to close.

To conclude, education has had almost always an important role in society. One of the roles was to fight poverty, help every human child to fully develop and so in order to enable them to better shape their future. Until the government stepped in, the focus of craft education has always been on the skills needed for the trade. What was mainly limited to practical skills, with here and there an exception to theory related to the craft, for example architecture. However, public schools, often followed Thorbeckers rhetoric place an emphasize on, not craft related,

general knowledge, much similar to the vocation schools of today, which will be discussed below. The in Thorbeckers time, initiated public schools for craftsman, were after a while almost all closed and lost the student to private schools that were more focused on practice and skills.

Education of crafts today

Today, craft education is foremost taught in large (MBO) vocational schools. These are massive institutes, which teach in many professions and are largely controlled by the state. In discussing this type of school, the vakscholen, craft schools, are also considered in this essay, disregarding that they are more focussed on a limited number of professions and less massive. The schools teach different levels of education, which determine the degree of practical and theoretical classes the student receives and the duration of the program. All levels get some form of general education and the tendence seems overall to focus on the development of the knowledge rather than the skill, similar to the earlier mentioned rhetoric of Thorbecke. The latter is an obstacle for the industries, as it has proved often in history, who need graduates more skilled in the practical aspects of the crafts, according to Mr. Sluis, director of an education centre in Groningen. The latter seems also be evident to vocational schools, who in some cases already closed their workshops, which is why they turn to organisations as Leerbouwen in Groningen, outsourcing the practical classes of their students to these private schools. (Smit, 2020b)

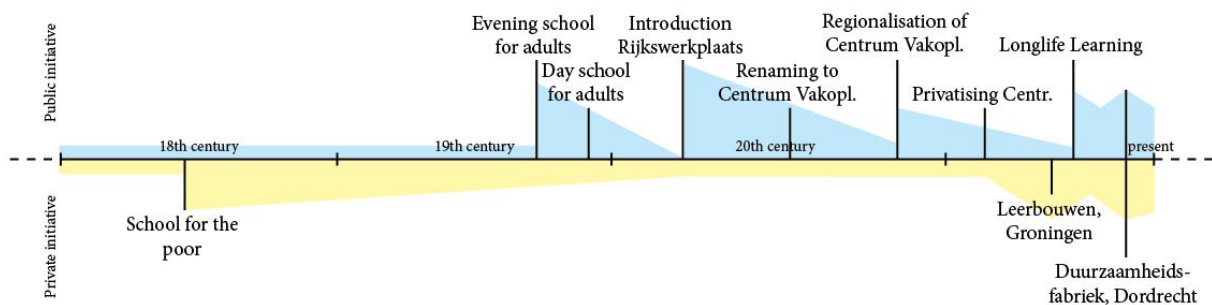
The vocational schools have in recent decades almost exclusively taught the ordinary student between the age of sixteen up to their early twenties. Only recently the program is under discussion and experiments are being performed, to break entire programs up into a number of trainings (MBO-certificates), in which the unemployed and employed, mainly adults, may also participate. In order to facilitate basic (vocational) training, in-service training ('bijscholing'), training ('nascholing') and retraining ('omscholing'). The experiment is organised in response to the ambition to facilitate Lifelong Learning, which is set by the European and Dutch government in the first decade of this century. It is in answer to the observed tendence in society, where current knowledge is required of employees and retraining is needed to the rapidly changing job market. Furthermore, it is seen as a means to strengthen the labour market and to proactively prevent unemployment.

Another type of craft education with a relevant presence is schooling for people with mild disabilities and the lower levels of secondary school. Both educate a considerable share of the population, who after graduating often assist the more skillful craftsman, practice more simpler professions in the craft or continue on studying in the education system. These schools are numerous, however often overlooked when craft education is being discussed.

Organisations as Leerbouwen are the private schools of the present, often similar to their precedents. In the aforementioned it is even housed in a former Rijkswerkplaats, offering a

similar service, only now private, proven the present relevance of the latter. At present these facilitate all sorts of training in crafts for the employed and unemployed in assignment of the municipality, industry and individuals.

In short, ordinary craft education today tends to run short in practical education. In result graduated beginning craftsman, often lack skills, which is a problem to their future employers. Besides, at the moment these prominent education schools do not facilitate the need for in-service training ('bijscholing'), training ('nascholing') and retraining ('omscholing'), which are increasingly needed. Furthermore, these and possibly other education places, sometimes suitable workshop spaces.



Timeline of education initiatives, divided by the line in two groups, public and private, focussed on non mainstream craft training (Smit, 2020)

Centre of knowledge as a response in the past

After the devastating effects of the Second World War, Dutch society was faced with the immense challenge to rebuild what had been destroyed. Moreover, shortly after the war the population and economy grew strongly, which led to a significant increase in construction needs. The need for construction forced the construction industry to reinvent itself, to build faster and more than ever before. Furthermore, the decrease in construction work and the number of casualties as a result of the war, combined with the great new need for construction, resulted in a severe need for craftsman. Which made the construction challenge even more complicated.



Bouwcentrum in bombed area, Rotterdam, 1952

In response to the need for innovation, knowledge and education in construction, a knowledge center for the construction sector has been established in Rotterdam. Bouwcenter (Building Centre) Rotterdam opened its doors in 1949. It became the national information, research and development institute for design, executive and supervisory disciplines in the construction sector. Organizing numerous exhibitions, courses and meetings for professionals in the industry. The building itself was a showcase of Dutch building culture, partly due to its exposed concrete construction and its centripetal spatial layout. (Pietsch et



Exposition in Bouwcentrum Rotterdam, 1958

al., 2018, p. 167) It undoubtedly made a special contribution to the renewal of architecture and construction technology in the Netherlands. (p. 168)

Centre of knowledge today

A recent example of a knowledge centre is the Duurzaamheidsfabriek (DZHF), translated: 'Sustainability Factory', in Dordrecht, completed in 2013. The project is an initiative by business, education and different levels of government and aims to increase innovation, cooperation, encounters, new students, knowledge sharing and regional economy. The integration of both industry and education under one roof is to involve companies in education. The name, spatial layout and the inclusion of companies in the education building, seems to respond to the debate if and if so how much education should facilitate the needs of industry, which has been going on since governments started to involve themselves in crafts education. Furthermore, it might hint at the factory schools, which have existed around the late 18th century. DZHF has set the ambition extent its existing training programs over time to facilitate the needs which have been discussed earlier under the subject of Lifelong learning, facilitating the needs of adults, in cooperation with private schools.



Duurzaamheidsfabriek
exterior, Dordrecht, 2013



The program aims, facilitates, shows and shares 'making', creating a culture between different target groups, what resembles a 'culture of making', which is key to a knowledge centre, according to the writers of the book *The New Craft School*. (Pietsch et al., 2018, p. 157) On the other hand is the focus for a design which focusses on circularity, which has been among other things translated in an architecture driven by flexibility, completely contradictory to their philosophy for a good educational building. According to them, a craft school should have an architecture which expresses the craft and its material. Flexibility is what is expressed in most of the vocational schools (ROCs) in the Netherlands, what makes them these uninteresting empty shells which harm rather than help the status of crafts. (Pietsch et al., 2018)

Discussion

The scope of this essay has proven way to large. What made it relatively hard to come to clear conclusions. The limited amount of resources available on craft education in the Netherlands specific, did not help the research. In retrospective it might have prove more fruitful, to stay concise and focussed to a more limited topic. While much of the research which has not been included in the writings here, has given a lot of input for the design.

Conclusion

To conclude, as suggested in the introduction, wood is making a comeback. Several centuries ago it had a strong presence in building culture, for ships and buildings in the Netherlands. Due to city fires it lost a lot of its appeal, the Netherlands turned to brick and later to other materials. Despite its deficiency at the time, wood kept a modest role thanks to its virtues light weight, it is easy to transport, easy to handle and a relatively cheap material. However, new developments in its industry overcame its deficiencies, brought new possibilities of applications and are turning the tide, also due to new incentives.

The new incentives which form an opportunity for the wood industry are the crises that the Netherlands has to deal with, including the Climate crisis, Nitrogen crisis and Housing crisis. In these, wood can be a considerable share in the answer. One third of the houses needed in the Netherlands in the coming decade, can be built from wood. In this replacing as much of possible other more polluting materials, including the largest polluters as concrete. (Rozinga, 2019) Wood, if extracted by sustainable forestry, is most likely the best material to answer the objective of a minimum emission in construction in the interest of the climate. Especially if wood is extracted from mainly Dutch forests or alternatively European forests. However, change is to gradual, partly due to the little attention (higher) education pays to wood, the outdated assumptions and the influence of the old economy.

The education in crafts has always depended on incentives such as economy, state interest and partly own initiatives, such as branch groups, of which the guild was an example. Latter initiatives include the many private schools which have been established by these groups over time. A relevant example of the last century, was just after the Second World War, the Netherlands was also challenged by a need for a change in building culture. The new building technologies and the need for more construction required a large number of new craftsman, resulting in an increase in craft education and new education centres, foremost the Rijkswerkplaats. Furthermore, a knowledge centre has been created in the epic centre of destruction in Rotterdam. The latter to facilitate knowledge creation and sharing, which undoubtedly contributed to the renewal of architecture and construction in the Netherlands.

A craft school and a knowledge centre can be one, as proven in the relatively recent developed Duurzaamheidsfabriek (DZHF). This example not only proves that a knowledge centre can be still a relevant answer to the market needs, but also bring industry and education together, in an effort to increase the number of new students, tighten the gap between the needs of industry and that what is taught in schools and to improve the status of the branch. In addition, another interesting incentive for this specific knowledge centre and possibly other knowledge centres to come is the need for lifelong learning. What is interesting for industry as well as for schools, so that a building housing both could be the ideal place.

In short, the need for a change in building culture, an increasing market for wood and as a result its craft, with precedents in the past, prove a persuasive base for a new knowledge centre of wood and its crafts.

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