

CONFLICTING FLEXIBILITY

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Abstract

New buildings are designed for first users. For a sustainable approach there are many advantages in designing in flexibility and adjustability in order to enable and facilitate the other sequential users. For the first investor this flexibility is translated into improved exit values due to increased potential. The second investor is acquiring a building with multi-functional opportunities.

The politically stimulated combination of schools with day care is generating several new design commissions in the Netherlands lately. These projects are characterised by a high level of user related features. At the same time these kinds of buildings are confronted with an additional need for flexibility due to (demographic) developments in the neighbourhood. There are some good examples of such projects, but there is a distinguished need for additional workable solutions. One of the design projects of the faculty of Architecture started a research by design project to establish an architectural approach for the combination of elementary schools with after-school child care in different scenarios: transformation of an existing building in a shrinking village, as a replacement in a urban setting and as a new addition to an existing school in an area with growing potential. The combination of scenarios strongly suggests a focus on flexibility during the building's life time. The growing area will create a peak demand, so even if it does not become a shrinking city after a while, the combined school will still have a fluctuating capacity need. However in this research by design course, accomplished by architectural students, it can be observed that not the life time flexibility, but the daily flexibility, needed by the combination, takes all the creativity. It is already almost too complex to create multifunctional spaces to be used for learning zones in day time and play area and child care zones afterwards. Compared to other types of projects, the first user approach related to architectural design is in this function mix getting even more attention with the specific requirements, up to the level of dedicated furniture.

The solutions provided by practice for the life time flexibility are in many cases related to an even more complex function mix. If a new neighbourhood first can be characterised by a peak in delivery, followed by baby care, elementary school and child care, higher education and taking care of the elderly people afterwards, the relation with different care functions becomes more obvious and time related. The synergy between those functions can be very promising in the right combination. Such a view on the neighbourhood suggests social centres developing and changing over time together with their servicing area. The context will lead to certain investors willing to fulfil their social and sustainable ambitions.

The research by design itself will have a satisfactory result for the institutions dealing with the implementation of after-school child care if the proper selection of design suggestions is

produced. These institutions will represent the first users. The scientific and social significance will be in the developments clearing the conflict by giving an answer to both the daily as well as the life time flexibility.

Keywords Flexibility, elementary schools, after-school child care, mixed function, multifunctional accommodations

INTRODUCTION

The building sector shows rather specific settings of partners around specific types of projects. This paper will discuss the agenda of flexibility for future demands along the developments of elementary schools in combination with after-school child care and additional communal functions. In order to be able to break through the tradition of these typical setting a more abstract view is required. Solutions rising from this view are suspect by default, since the abstraction itself, the alterations and possible extension of the scope, in this case to the communal functions are not proven. The proof of the pudding is in the eating? At least for sure there is the need for change. (1) There is a need for improved daily flexibility in the way limited space is used by different functions. (2) There is a need over time in the way (public) buildings are used with changing quantitative requirements to the functions. Probably the same for commercial buildings but in such a setting the drivers are more clearly. (3) An additional need over time in changing of qualitative requirements. The community will have other demands in future for the public buildings based on demographic changes but also due to a different (and at this point in time unknown) vision.

However, first a sketch of the actual situation must be drawn.

AUSTERELY BUT EFFICIENT

For those not of Dutch origin it is important to understand the Calvinist background of Dutch society, leading to a rather strict and ascetic political demarcation (“sober maar doelmatig”) of the way we deal with our elementary schools. The expression “austerely but efficient” has a boarding-house smell. The current situation is very well described by Jeroen in ’t Veld, Yasmine Hamdan and Emile Barendregt (2010). They have started their analysis from three aspects: the quality of the current buildings for schools, the quality of the process of establishing new schools and the quality of the organizing context (jurisdiction and legislation, financing and budgets and policy) the following conclusions are drawn up.

A key problem in the provision of buildings for primary education as well as the after-school child care is the lack of information. This is not only a huge hurdle while researching the subject, but most of all for a proper development process. Even very basic figures like numbers of buildings and their age are missing.

Based upon the information which is available most buildings do meet the basic requirements. However these requirements are shaped as utterly minimum. For e.g. inner climate, cleaning and maintenance even these very basic requirements are not always met. The requirements as a set do not lead to buildings meeting the expectation of the people of the sector.

The processes for establishing the buildings are inefficient and not productive. The omission of the obvious party taking the lead, especially where multifunctional accommodations are concerned, is disruptive.

The actual legislation and financial system is outdated and designed for a situation with only educational buildings. Act on primary education (WPO) declares the responsibility of the municipality towards realization and building maintenance on a global level. The actual detailed instructions are given in the model by-laws of the Association of Netherlands Municipalities (VNG). Municipalities are not obliged to use the by-law but usually do treat them as law. All the directives to m² and budget become rules. Separately there is a Act on Child-Care with additional directives of the Ministry of Social Affairs. Rules for buildings are laid down in the Building Decree with reference to standards. The municipality is responsible for permits of use, all of course fit to the Act on Spatial Planning.

Although the political ambitions may be clear, and again changing with new rounds of elections, the legal and organizational system below is very layered and diverged. It takes more to work out completely the consequences of policy adjustments than to take new directives. The result is a rather unstable complexity in which participants hardly dare to move. The financial component is even more interwoven. On top of the pyramid both the Ministries of the Interior and Education, Culture and Science) are providing funds for realization and maintenance of buildings for primary education and after-school child care. The first cash flow goes through the Fund of the Municipality towards this municipality and the second by lump sum financing to the school. At that point a 'dialogue' is foreseen between the school and municipality if there is a need for an addition to the school stock. The traditional way is along the act on primary education in which the municipality is responsible and using the by-law for the appropriate instructions. The municipality builds. However there is an alternative by which the school can get a yearly amount for realisation and maintenance of the building. The municipality will keep its ultimate responsibility for the provision of education and care.

Probably this diversion of financing is done for historically well thought arguments, but the result is a focus on investment costs for the municipality and cleaning costs and other maintenance for the schools. The value of the investment is hardly steered by the process while all insights on the need to steer on life cycle costs in order to work on more sustainable solutions is basically neglected due to the way the process is set up.

Even more alarming is the fact that during the years a clear demand can be established, the administration and bureaucracy takes a very long time, in which a whole range of temporarily measurements has to be taken, rather often resulting in a situation in which temporarily buildings become definitive solutions, due to the fact the system cannot provide the right terms the system need to move from a temporarily status to a definitive status. Where the important values of these school buildings are missed, municipalities do react heavily on vacancies; schools have to cooperate on sharing (building) resources, logically argued on 'societal costs'. Also in the presented alternative (Veld, Hamdan et al. 2010) this obsolescence is used as an argument for new approaches into the direction of the combination of primary education and after-school child care.

The budget for both primary education and after-school child care is above all a political choice. Therefore it is worrying that although in the different political programs the essential benefits of collaboration between primary education and after-school child care are widely spelled, the whole idea is presented too as a way of economising within the system itself. The loss of the current system is quantified to € 55.000,- per school on simplifying the preparation process, €16.500,- per school per annum on additional occupation (and removing redundancy and obsolescence) and €4.000,- per school per annum on life cycle optimisation.

These numbers can be related to 150 new projects and 100 renovations on a yearly base for the preparation costs and about 7.500 schools for the per annum figures.

As acknowledged by In het Veld (2010) it is in this perspective very positive that even with the given bureaucracy the involved people and parties, including the municipalities, are succeeding in the establishment of reasonable buildings after all. The response of the bureaucracy, the Association of Netherlands Municipalities (www.vng.nl) is rather conservative with the proposition a change of system in order to prevent bureaucracy will create additional bureaucracy.

STUDENT RESEARCH



Figure 1: The Hague (above), Biggekerke (below left) and Amsterdam (below right)

The first case is a new development in The Hague on a VINEX-location (Leidschenveen). A VINEX-location is an area designated in the Supplement to the Fourth National Policy Document on Spatial Planning as large-scale housing development area, and therefore an example of monoculture development. The second case is almost the opposite, a redevelopment in a small village in the more rural parts of the Netherlands which areas are confronted with shrinkage. Although the demand on pupil places is getting smaller, the integration with after-school child care requires adjustment of the building. The third case is a new development in a brown field area in a larger city. Due to its size there is a large variation in population.

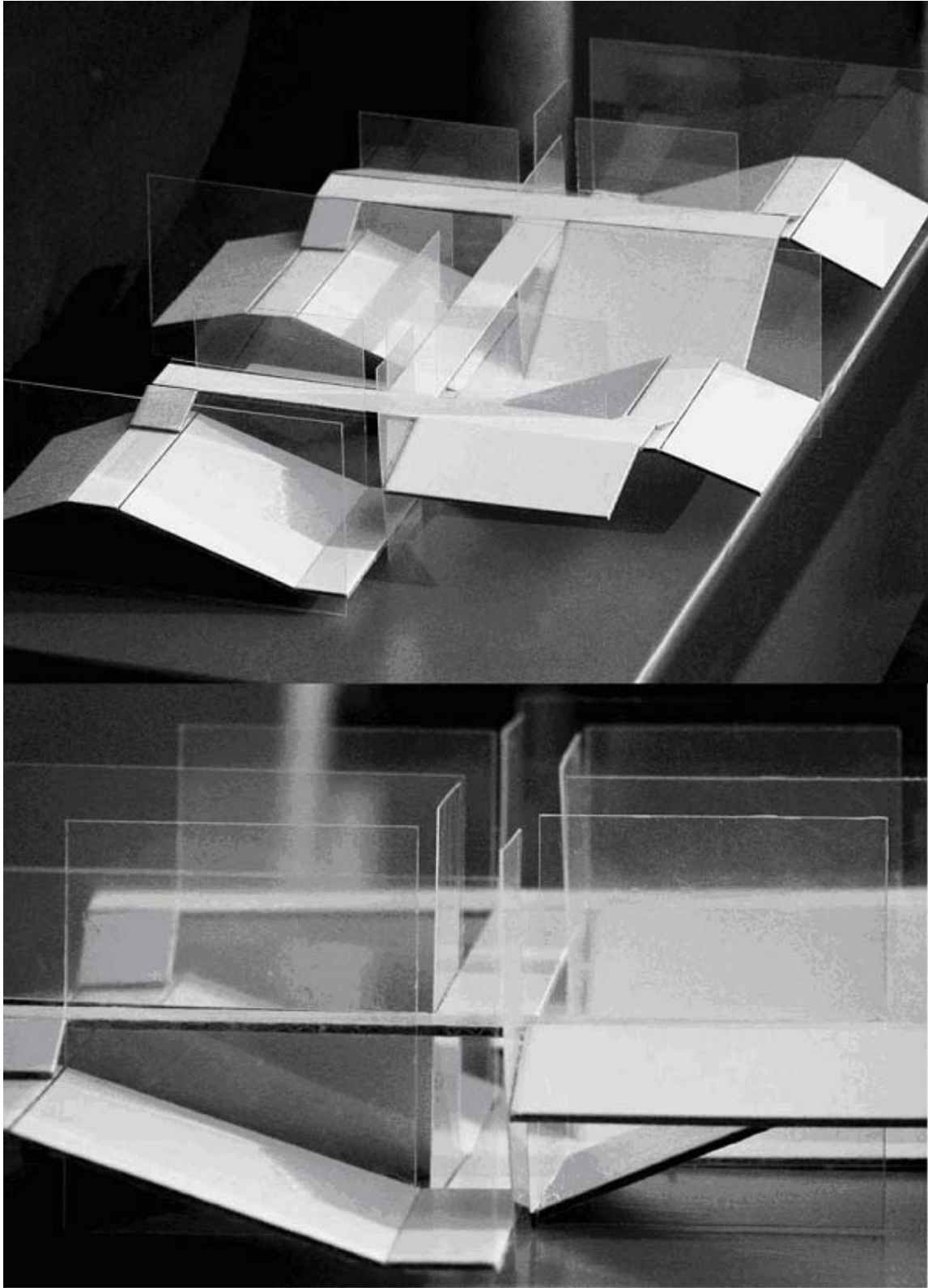


Figure 2: Transport between rooms is always done through another room since all the horizontal transport area is skipped. Bram van Hemmen Group 1 – Growth and transformation.



Figure 3: Considering the use of the building during the day. Jeannette Bisseling Group 2 – New town and transformation.



Figure 4: Central hall as meeting place Bob van Rooijen Group 3 – Shrinking city and transformation

When grouped together like this, it becomes clear the neighbourhood development starting as a VINEX will end someday as a shrinking village. The relation with urban dimensions can give some relieve, depending on the regional impact of such facilities. The answer to these kind of adjustments over time is hardly researched by this research approach. As can be drawn of the examples below, in case of architectural research by design, the complexity of the daily flexibility takes already all the focus of the researcher – designer - student.

The PO-council, a sector organisation concerned with financing, employment and policy for elementary education asked for new ideas from an architectural perspective. The basic

question for the research by design assignment was to give solutions for the combination of elementary schools and after-school child care in case of shrinking cities, new towns and reuse in inner cities.

The student research fulfilled its primary goal. The students did have a steep learning curve on the complexity and possible architectural solutions. However the way this research by design is shaped, students are only confronted with the first flexibility requirement: to find solutions for the optimal use of space during the day by giving room to the primary school with their class rooms in which learning is the issue and the after-school care with places for playing, food and resting in which caring is the matter.

In this research approach the outcome is not to find solutions for primary schools in combination after-school child care in a new town, transformed after some time and again two decades later when the town is shrinking again. So it is not about the need for flexibility over time due to changing quantitative requirements. It is also completely not about variations in qualitative requirements.



Figure 5: Same project, after care playing options in zones between functions

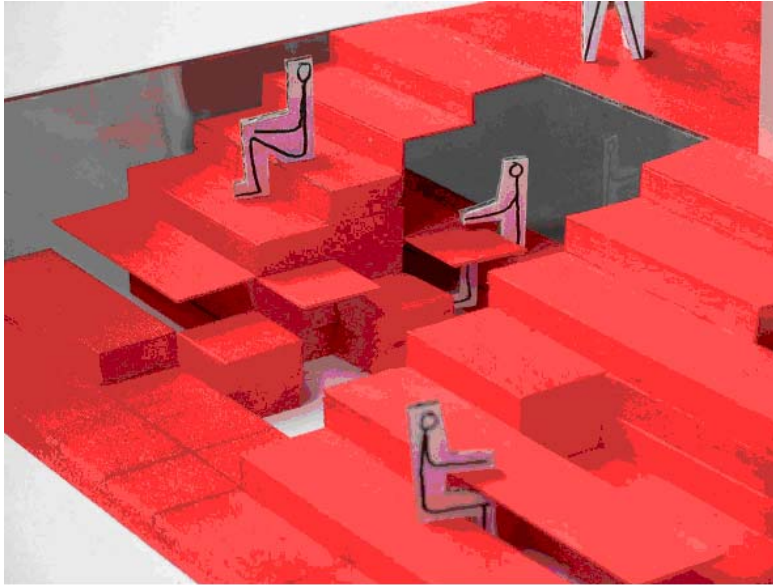


Figure 6: *Soft gradient zoning (from creative to playing), stairs as presentation platform Martijn Aling Group 4 – Growth and transformation.*

INSIDE OUT OR OUTSIDE IN

Both the discussion on the running operations and the research by design are illuminating that it is only very partial an architectural solution. As far as school buildings can contribute to the system, and the idea is of course the appropriate buildings do, the process of establishing these buildings can make the difference, both for the build result as for the process which has to take place in the building.

The solution is to be found in a demand driven system in which the user is holding the central focal point (Veld, Hamdan et al. 2010), a flexible model taking care of the utmost efficient investment of means. Without calling it by its name, the report gives a continuation of what is embraced in the current political climate as the agreeable free market processes. The same privatizing causes besides benefits also plenty disadvantages. Like similar discussions in health and public transport it is disputable if and until which extent such central elements in the society are save in the hands of the market, or depending on someone's stand, to be trusted to the authorities. At least it is clear such processes go in fits and starts.

Several conditions are elaborated, which are probably rather essential, like a guarantee fund in order to keep financing within limits. The necessary knowledge has to be mobilised in this field to keep control over the quality level, support of users and schools has to be developed and maintained, and sufficient consideration has to be given to implementation of such a system modification.

So the free market is not seen as an universal remedy in advance. Nevertheless a small excursion outside the discipline to the office market is needed. Offices are built for centuries, like schools. Take the prototype in Florence in 1580 as an example to see its history. Nowadays it is rather obvious offices are established by developers, whenever possible in close consultation with future tenants, after which the buildings becomes the property of an investor and is rented by the final users. But for the larger part of the previous period between 1580 and today it was rather standard for end users to be the owners. These owner-occupiers took the initiative and were responsible for repair and maintenance. It took a long time before

the insight was gained by these companies to acknowledge the specialism of the specialists, and to see the benefit of stalling risk by those who can deal with it.

Decisive response on market changes is more difficult for companies if they have to maintain accommodation in the ancient way. In the end accommodation is not the only thing you rent but also the service around it. For those reasons the majority opts for rent.

It may seem less logical to take offices as an example in the Netherlands, since there is a good deal of obsolescence, created by this free market (2011). It is to be expected most of this obsolescence will be seen again in societal costs. The public demand for measurements on a national level is increasing, since it is still an option for developers to add to the stock of vacant office buildings while earning a personal profit. This kind of arrangements are declined by the developers but more and more embraced by the investors. At the same time these investors are searching for new forms of real estate investments. Dwellings are becoming a more interesting market. Indeed the possible yields seems substantially lower, yet the risks are within limits too. An investor is looking for the appropriate balance between the return and the risk, where at the moment the risk is playing a slightly more important part. Along this renewed focus on dwellings also other categories become of interest for investors, of which societal real estate is the most promising. New companies and forms of participation are evolving, leading to new sustainable answers.

The previously observed obsolescence in the schools and the supposed benefits additional occupation are missing the awareness of office developers, knowing a certain minimal of vacancy needed for a working market (Remøy 2010). Just like the demand for office space is not changing in building volumes and some small change is needed for dealing on such a market, these types of additional occupation will not work on the single square meters. Aiming at a zero vacancy rate is not realistic.

The need for accommodation in elementary schools in combination with after-school child care can be solved by the market. Unlike complicated Public Private Partnership constructions, in which the authorities are basically coping with risk-avoiding behaviour while trying to keep full control, a more laid back approach of the municipalities seems needed to see what the developing parties are offering. The risk the market is not establishing the kind of building the schools are needing is in this perspective the risk of this market, and they will mature quickly enough to make what is wanted. At the same time the municipality can, as sketched by In 't Veld (2010), organise a guarantee fund in order to create the right balance between risk and return, in order to enable this market for investors and developers.

Today it takes years (12 year on average) after the acknowledgement of the need and initiative for a new school. Assuming the market can respond much quicker, the best gain is to be found in these first years, where the demand is best known and the 'new' school will fit the original requirements. This can be seen as the best years, which can make the difference between austere development and quality development.

However the flexibility in the long term still suggest a wider scope on the elementary schools in combination with after-school child care. In order to cope with the demands over time additional functions seem to be the solution, especially in case of shrinking societies.

Analysis of the required space of four programs of demand of multifunctional accommodations did show that almost every combined use of area is related to similar functions and activities. This multifunctional use does not allow any change in use of rooms in order to fulfil different functional needs. As one can learn from the chapter 'Student Research' such frequent adjustment are not helping the process.

This observation is confirmed by initiators of multifunctional accommodations (e.g. municipalities), giving 'tips and tricks' for improved multifunctional accommodations (2010). "Main points with respect to flexibility, multi-purpose nature and standardisation, are essential to achieve long-lasting, durable and payable housing concepts. These main points stand however in many cases perpendicular on user expectations and wishes; for users a tailor-made approach and identity strengthening services and facilities are important". This quote and the remaining 'tips and tricks' indicates that initiators and users are more concerned with the performance at this instant, instead of future use. Even though motivations for multifunctional accommodations are (cost) efficiency and social appreciation.

With an experimental fictive model we like to show the advantage of considering a multifunctional approach (including a perspective beyond the first user). The experimental fictive model shows not an financial truth nor punctuality, but a thought. We do this by combining two social topics: Shrinking and including-education. Including-education as a second-user can use the without relative large adaptations (care-spaces and extra bathrooms) this second-user can fit in the vacancy of primary and secondary education, as an result of shrinking (notice: the conclusion of student work, page x and program of demands, page x). The experimental fictive model contains data collected of four municipalities in shrinking area's (schools and cost indicators) and cost-indicators from a including-education foundation.

This content creates a fictive real estate-file, which contains:

- Around 5.100 students in 2010;
- A reduction of 1.275 to 1.350 students in 2040;
- 23 Primary educations (circa 22.000 m²);
- 6 (secondary) special educations (circa 12.000 m²);
- 5 secondary educations (circa 12.000 m²);
- Estimated building operation cost: €58 per m²
- Estimated taxi-cost special education: €2.500 (cost indicator)
- Reconstruction each 40 years (instead of 60 years ordered by VNG)

Introducing (secondary) special education to primary and secondary education leads in the model to a reduction of 50% vacancy (€0,4 million building cost each year for municipality and school boards). Current ground attitude of special education with became unnecessary can be solved (€P.M). In contrast with primary and secondary education were selling half buildings and ground is much less attractive. An assumption is made that there is 10% less taxi-use can be realised for children in special education, because they can join education in their hometown. This leads to a reduction of €0,2 million taxi-cost each year for municipalities. When these numbers are capitalise, it is possible to purchase an credit around 10 to 14 million + P.M income of ground attitude (note: a part of this funds are needed to realise the integration of special education).

In comparison the scheduled investment cost in this real estate-file is circa 5 to 6 million. Although there are a lot of practical and ideological comments on this experimental fictive model. The comparison shows that financial and social advantage can be realised when the correct social themes are combined with the second of third user.

CONCLUSION

Reviewing the references will show a 100%-Dutch research on a 100%-Dutch case. The Dutch Calvinism is unique in the world, and so will be every idea coming out of it. However neighbouring countries have to deal with similar economic restrictions. Maybe for different reasons elementary schools are lacking the same quality. And above all economising is the main argument for after-school child care. At the same time it is clear this article is not dealing with big time shrinkage like e.g. Detroit is confronted with.

Although the student research did generate plenty ideas on how to combine elementary schools with after-school child care, it has to be acknowledged these ideas are not mature enough yet for being a response to the first flexibility. There is still a lot to improve on these designs where there is hardly a budget to do this professionally. Renewal of the way these kind of projects could be developed using new market mechanisms seems to be an answer to the second flexibility but very depending on the context in which still a lot of hurdles have to be taken. The third kind of flexibility discussed here, involving additional communal functions to create durable 'multifunctional community centres on care and education', resistant to obsolescence is with the increasing complexity far from being guaranteed. If the proof of the pudding is in the eating, it is advisable to start with a small portion. Still there are mountains to climb already to enable experiments into this direction, since many rules in school development are preventing experimental approaches. Probably the appropriate start for any renewal is to deal first with the 'austerely but efficient' directive. These schools are the place where our children do have to spend an important part of their youth, so 'ideally' should be the objective instead of 'ascetically'.

It is the observation of the average quality in office buildings feeding the believe in the free market to be able to create the schools we want and the schools we need. Given the right balance between risk and return, today's developers and investors are not only equipped for such developments, it also fits in their schemes of changing focus to other non-office markets. The suggestion by some of the market parties towards the development of multifunctional accommodations is both promising and still rather unsecure. Thinking on the sequential users of accommodations is new and like many aspects of sustainability, the proof of the pudding takes time, since such projects depend on a long term approach and the results are only to be seen after the first satisfied user has left the building.

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