Are clients, architects and juries becoming environmental?
-A critical view on the competition briefs and the juries’ assessments in relation to the outcome in
ten school competitions

Leif D. Houck
Norwegian University of Life Sciences, Department of Mathematical Sciences and Technology, Ås
Norway. P.O. BOX 5003, NO-1432 Ås. Tel.: +47 932 644 23. leifdh@umb.no

Keywords: Architecture competition, competition assessment criteria, school, daylight, environmental

ABSTRACT: This paper first examines how evaluation criteria for judging architecture evolve over time. Secondly it takes a
look on how new assessment criteria are emphasized when judging architecture. Finally this paper seeks to study to what degree
the new assessment criterion, whether a project is environmental or not, is emphasized. This is studied through the examination
of ten school competitions in Norway. The clients’ competition briefs, the assessment criteria, the competitors’ proposals and the
juries’ assessments are compared in respect of the qualities daylight and being environmental. Based on the results from this
study, one conclusion is that the environmental criterion is a new parameter fundamentally affecting which project designs will
win or lose competitions. The juries may even seem to over emphasize the importance of sustainability compared to other
traditional criteria like daylight.

INTRODUCTION

Are the architectural assessment criteria in design competitions timelessly valid, or do they evolve over
time? When society demands more environmental building solutions, how is this reflected in the
competition briefs? Do the juries assess on environmental criteria, and if so, how is this evaluated in
relation to other assessment criteria? New environmental demands ask for new, innovative building
solutions. This paper aims to present and discuss how, and to what degree, design competition briefs
have focused on the two conflicting qualities: energy friendly buildings and daylight. It also explores how
the various design teams responded to the tasks, and how the juries assessed and selected the winners.
The investigation is based on material from ten school competitions held in Norway, from 2009-2011.

BACKGROUND

In the very first recorded architecture competition in 448 BC, Callicrates assumedly hung up his drawings
for ten days for the people of Athens to vote on his proposal for the new Nike temple (Smith, 1926). The
assessment criteria, or rather what issues were discussed in the discourse about his and the other
competitors’ proposals, remain unknown. It is not until the emerging renaissance in Florence, in the year
1401, that we can study an architectural competition in more detail - how Lorenzo Ghiberti worked on
his motifs, discussing his work with several of the thirty-four jury members and customers, while Filippo
Brunelleschi kept his work all to himself during the year allotted to accomplish the proposal (King, 2001). In this paper I will examine ten school competitions with respect to stated assessment criteria, compared to how the jury actually judged. In the first section I will go swiftly through some contemporary theory on different aspects of the architectural competition as such, with an emphasis on assessment criteria. In the second section I will examine the ten school competition cases and then relate the results to the theory and then suggest some conclusions.

FIRST SECTION: THEORY

Randomness and the competitors’ strategy
In his article «Empirical Observations and Strategic Implications for Architectural firms» Kreiner explores the architectural competition in an extremely original way: he simulates 50 competitions between the same eight architectural firms, each ten times (500 simulations!) (Kreiner, 2009). He explains that the value of the simulation model “lies in the ways in which the model inspires us to learn from empirical facts – or rather, to prevent us from drawing too strong implications from single events in a complex reality.” Kreiner explains three strategies on how to read the competition brief as a scale of interpretative freedom: the brief can be read either as an instruction, as an indication or as an illustration. When read instructionally, the strategy will simply be to follow the program verbatim, not questioning the meaning or challenging the boundaries (rules and constraints) of the competition. On the opposite side of the scale, an illustrational interpretation will lead to a creative exploration of the design options. Also, he discusses the phenomenon of randomness and luck linked to architectural competitions and explores sources of unpredictability through examples from a case study. Kreiner sums up the aspect of randomness in the following way: “Based on our empirical observations, no right or wrong buttons exist to be pressed. There are only buttons that are made right or wrong after having been pressed.” Through the simulations Kreiner shows that focusing on winning may harm the value of winning, because the proposal may be less thrilling and of poorer quality than the potential of the task.

Do architects do their best?
Magali Sarfatti Larson raises the question of whether the clients “…expect that the competitive situation will spur the architects to give their best?”(Larson, 1994). In an attempt to see this from an architect’s point of view, this quote from Rem Kolhaas is illustrative: “Wanting to win a competition is not the same as wanting to do your best possible work”(Kolhaas & Mau, 1995). When entering a competition the architect’s considerations may be even more complex than suggested by Kreiner. Even if the architect has a clear picture of how to read and answer the competition brief, the choice of strategy can still be a dilemma, for example, if underlying values of the competition briefs are at odds with the architect’s own personal convictions. So what does it mean, as an architect, to do your best? Is it to follow your convictions or to obey the competition brief, or to satisfy the jury?

Evolving values
In her article “Architecture competitions as discursive events” (Larson, 1994), Magali Sarfatti Larson shows how the majority of competitors could not win the competition for the Yale Mathematics Building.
in 1970, because it was too easy to misinterpret the competition’s preface. To put it simply, the competitors stumbled into the shift from modernism to postmodernism. The architectural values changed!

In her book “Architecture and Rhetoric”, where architectural competitions in Oslo from 1939 to 1990 are examined, Tostrup shows how architectural values evolve over time (Tostrup, 1996). The dominating concern in the competitions in the late 1940s is the creation of good workspaces – which apparently means rooms with optimal sunlight conditions. This is repeatedly stated by the juries and by the competing architects. In the competition for the new government building in 1948, one competitor declares that the primary requirement he set for the project was “No office shall face north”. Also the competition brief prescribes the office rooms to be not more than 5 m deep and the net height to be approximately 3.2 m. In the later decades daylight mattered, but emphasis was set on other values, such as space and spatial liberation (in the 50s and 60s), and what Tostrup labels “sophisticated spaces” in the 1980s.

Reidunn Rustad (Rustad, 2009) also shows how different dominating architectural values both change and are maintained over time. Typically, daylight is a central value in her first competition case from 1927, whereas daylight is not mentioned as a separate factor in her later cases. Interestingly, she leans her work on discursive theory by Fairclough, Lecau and Mouffe. It is outside the scope of this paper to dive into discursive theory, but one of its aspects should be drawn attention to, namely the discursive process. In the first stage, “politics”, the meaning of a value or term is discussed, in the second stage, “hegemonia”, there will be a common understanding of, and agreement about the meaning of the term. In the third stage, “objectivity”, the hegemony has existed over time such that original meaning and discussion about the term’s meaning is forgotten. Rustad refers to Fairclough (Fairclough, 1992) in the following: “It should not be assumed that people are aware of the ideological dimensions of their own practice. Ideologies built into conventions may be more or less naturalized and automatized, and people may find it difficult to comprehend that their normal practices could have specific ideological investments.”

To summarize this section: Over time, the importance of different architectural values will vary. This may have been the case for daylight, at least in Norway, and one could argue that this value has become an automatized ideology – an objective value in its own right. In the 1940s both the competitors and the competition brief would explain the exact implication of good daylight, e.g. ceiling heights and orientation, whereas contemporary competition briefs asking for good daylight may assume that there is a common understanding about how this achieved.

**Assessment criteria and quality judgment**

In a study on how to achieve high architectural quality based on four case studies, Kirsten Arge and Siv Bleiklie identify the first phase of the design process as very important (Arge & Bleiklie, 2003), and that 1) a good architect, 2) an architectural concept strong enough to be kept through the whole building process and, 3) the client’s wish for good architecture, are common aspects for all of the four cases. An architectural competition could be considered a useful tool to secure these three aspects in a project.

Judging competition entries is not the same as judging built architecture – a building. If we for instance examine the articles in “Judging Architectural Value” (Judging Architectural Value, 2007), we will discover a fundamental discourse on the very core of what architecture is and can be, and why some
buildings become icons and some not. There is a focus on architecture as art. If one looks for judgment criteria for good or bad architecture however, there are no clear-cut guidelines – until the interview made by William S. Saunders and Nancy Levinson. Kenneth Frampton is asked: “Consider the rapidity with which architectural fashions change, how quickly one taste of culture displaces another these days. Consider the widespread, often reflexive desire to be “cutting edge,” to anticipate new movements and participate in the very latest developments in design. How does this affect the judging of design? What responsibility does this place upon the critic who wishes to be serious?” From Frampton’s answer we can identify a set of aspects to be considered when evaluating architecture: Ethical, ecological, psychological and biological criteria. When asked other questions, Frampton mentions other values: The aims of the client, constraints imposed by building regulations, socio-economic and ideological limitations, the play of climate, constraints of production, the sensuous accommodation of the body. He also quotes Alvar Aalto: “...Architecture must have charm, it is a factor of beauty in society...” In his article in the same book, Roger Scruton identifies the following values: 1. Buildings should outlast the purpose for which they are constructed, 2. Aesthetic considerations should take precedence over all others, 3. Most users of a building are not clients of the architect – architecture is public art, and 4. Architecture is a vernacular art. The book closes with an article by the editor William S. Saunde, who has examined writings on architecture. He has found the following criteria to be the most common.

“...architecture should:
1. be art, i.e. should provide a vitalizing, ineffable affective experience through its expressiveness, originality, and formal power and subtlety;
2. be beneficial to the socially and economically underprivileged (...)
3. revive the “best” tradition of design;
4. be well constructed and use fine materials and craftsmanship;(...)
5. allegorically express and/or comment on the spirit of our age,(...)
6. embrace, explore, and express the desires and energies of “ordinary” people and vernacular expressions.”

Compared to the assessment criteria for judging architecture competitions (see below), the assessment of built architecture seems rather to focus more on architecture as an art form than on its functionality.

Leentje Volker is of the opinion that “there seems to be no real difference between discussions about realized objects or designs as projections of future buildings”(Volker, 2010). I think one should be aware of the responsibility of a jury to assure that a building fits the purpose it is planned for. When looking for built architecture with capital A, the perspective will be somewhat different. I will dare to claim that most professionals think most Greek temples are great architecture, although their idea of a temple’s functionality is very vague.

In the year 1974 Judith R. Blau interviewed 152 Manhattan architecture offices with the aim of discovering their convictions about architecture (Blau, 1984). Through a list of 36 quotations they were asked how much they agreed or disagreed with each one. We must assume that these underlying convictions among architects will affect both their work, and the way they assess architectural

---

1 Saunders does not specify further what literature has been explored
competitions. The general picture of Blau’s investigation is that formal or aesthetic criteria are ranked less highly than social or functional criteria. The number one quotation (95% strongly agree or agree) is “Good buildings must relate to their environment”. It is not only ranked number one, it is clearly the number one; the number two quotation only gets a score of 86%. The quotation “Top priority should be given to the serviceability of buildings: access to transportation, sunlight, public safety, acoustics and so forth” is ranked as number 6 with a score of 81%. The reader should pay attention to the incident that although the value of relating a building to its environment should be considered important, there is no plausible reason why it should get a very much higher score than the serviceability of a building. Relating this notion to Tostrup’s exploration of changing architectural trends, a question should be asked: Could it be that there was an excessive emphasis on the value of relating buildings to their environment because in 1974 this value was new? And I would also like to ask the reader: When you read about the architect above saying that the mantra for his competition proposal for the Norwegian government building was “no office should face north” – did you think this was an exaggeration? If this is the case, could there be new trends and new values in the architectural realm today – and if so – is there an excessive emphasis on this “new” value when projects are assessed?

The National Association of Norwegian Architects set out rules for architectural competitions as early as 1907 (Sauge, 2003). In the section concerning assessment, we can read that the proposals should be given a thorough review, and the artistic, practical and economic advantages should be compiled. Even a method of giving points is described. In short, points from one to ten were to be given for the plan, the artistic treatment and the economy respectively.

In Magnus Rönn’s comprehensive study of architectural competitions in the Nordic countries (1999-2000), he points out six general design criteria (Rönn, 2011) [author’s translation]:

1. Unity (“helhet”) and fundamental idea
2. Coherence and surroundings
3. Entrance position
4. Suitability and functional set up
5. Economical and technical solutions
6. Development possibilities

The study also refers to the Swedish Action Program for Architecture and Design (Kulturdepartementet, 1997/98), where “good quality” is described accordingly: “Good quality cannot be defined once and for all. Our experiences, knowledge and values influence how we look at quality. Quality is also dependent upon situations and time...This means that we reconsider what is good quality according to how our values and needs change.” [author’s translation] If Rönn’s study had been carried out in the 1940s based on Norwegian competitions, daylight would probably be the number one design criteria, as Tostrup pointed out. And most likely we would have to scroll to the mid-70’s or the1980’s to find the design criterion Coherence and surroundings. The reader should note that in the assessment criteria listed above, there are no criteria concerning energy, environmental aspects or sustainability.

In a later study executed in 2005 (Svensson, Tornberg, & Rönn, 2006), experienced jury members were
asked about opinion about elementary evaluation criteria for architectural competitions. In this study the environmental criterion occurs, and interestingly, it is the only criterion mentioned by these architects that does not occur in the Swedish Architects Association’s evaluation manual. I assume that the criterion “design for all” and for sure the criterion “environmental and/or energy” would appear on Rönn’s list above if the research had been undertaken today. In the further research Svensson et al. (Svensson et al., 2006) documents that the environmental criterion is applied in four of the nine investigated competitions.

The Swedish Architects Association’s operates with 16 assessment criteria. The criterion “total experience” (helhetsupplevelse) covers universal design, and likewise the criterion “design” (utforming, gestalting) covers treatment of light. The Swedish Architects Association says that: “All competitions have environment as a criterion nowadays. In three of the competitions even the level of energy consumption should be calculated.” (Cofaigh, 2013).

Based on the Swedish material above, it appears that at some point after the year 2000 there has been a change in the assessment criteria in architectural competitions. A most relevant question for this study is therefore to examine to what extent the energy/environmental criterion is being applied by the clients and the juries today.

Applying the assessment criteria
In a case study, Charlotte Svensson shows how a jury uses the assessment criteria in the competition brief more as a guide for comparison between projects (Svensson, 2009). What also happens to the jury in Svensson’s case, is that the politicians are worried about the opinion of the public. This concern is one of the direct reasons for the jury to develop a new assessment strategy. This fits in with what Max Bazerman (Bazerman, 2006) calls “bounded willpower”; our willpower is bounded in such a way that we tend to give greater weight to present concerns than to future concerns. Another bound he describes is the “bounded awareness”: People have a bounded awareness that prevent them from noticing or focusing on observable and relevant data. “Bounded awareness exists when individuals do not attend to predictable, accessible, perceivable, and important information, while attending to other equally accessible and perceivable information.” This notion of human behavior should make us aware that even for a jury it would be possible to overlook, and fail to judge, important aspects of a building project.

Schools and daylight, generality and flexibility
When reading about the architectural development of school buildings, it becomes clear that daylight traditionally has played a significant role in the design (Wu & Ng, 2003). Daylight has been valued for its positive impact on human behavior and the performance of school children. Therefore ceiling heights, window sizes and the depth of the class rooms are all aspects that have been carefully considered to optimize daylight conditions. Recent comprehensive studies have revealed how daylight impacts on learning (Heschong, Wright, & Okura, 2002; Nicklas & Bailey, 1997). Daylight is important to adjust the circadian system and affects sleep and human wellbeing (Bakke & Nersveen, 2013; Dumont & Beaulieu, 2007; Küller, Ballal, Laike, Mikellides, & Tonello, 2006; Roennenberg, Allebrandt, Merrow, & Vetter, 2012) Sleep deficiency among adolescents has been shown to increase the risk of morbidities such as obesity, diabetes or accidents (Leger, Beck, Richard, & Godeau, 2012). One research project shows that the most popular pupils tend to occupy the working spaces closest to the windows, and that the pupils
tend to seek contact with the windows in the breaks (Shemirani, Memarian, Naseri, Nejad, & Vaziri, 2011).

It has been common knowledge for architects that northern countries need more window area to compensate for shorter days and the reduced amount of daylight in wintertime (Büning, 1948). Other rules of thumb have been to not design rooms deeper than approximately 6-7 meters (Cold, 1980), and also not deeper than double the ceiling height (Byggforsk, 2001). Norwegian Building Codes require a minimum 2% daylight factor as a mean value for a regularly occupied room, whereas Danish regulations demand a 2% daylight factor on any working plane. In the UK, the guide for good practice advises a 5% daylight factor as a mean value in teaching areas (Department of the Enviroment, 1996).

In the Scandinavian countries, the experimentation with novel pedagogical solutions along with the equivalent experimental solutions in building plans, have led to the construction of school buildings almost devoid of the traditional long corridor and adjoining classrooms. New educational principles and plan solutions are now also emerging in Germany and solutions with teaching areas without direct daylight are shown as exemplary (Burgdorff & Schneider, 2013).

The results from the first phase of the research

I will have to devote a few lines to explaining the first phase of the research. The research was based on the drawings from 10 school competitions in Norway held in the years 2009-2011. The competitions will be outlined in more detail in the Problem and Method section below. The overall thesis for the research was that increased demands for more energy efficient buildings may affect design of schools. Studying an issue of the journal *Arkitektur N*, where three schools were presented, two designed before 2000, and one designed after 2000, it became very obvious that there had been a shift in values in terms of what physical demands a school building should fulfill. The schools designed before the year 2000 focused on good daylight. This was achieved through a so called “finger” diagram. The one school designed after the year 2000 had a focus on a compact plan. The client’s aim here was to build the first passive energy school in Norway.

My research was therefore undertaken to explore the possible switch in values from emphasis on daylight to emphasis on compactness. I decided to measure tangible characteristics of the competition entries:

1) *The amount of linear meters of façade per class devoted to classroom and prime teaching areas*  
2) *The number of study group rooms with direct daylight*  
3) *Ceiling heights*  
4) *Class room depths*  
5) *The ratio of width to depth of the classrooms*.

---

2 *Arkitektur N* No. 6, 2010. *Arkitektur N* is the Norwegian Review of Architecture
Plan winning project case 1  Plan winning project case 4  Plan winning project case 9

Green: Primary teaching area with daylight. Red: Primary teaching area without direct daylight. Grey or white areas: Other functions than primary teaching areas

Obviously, what we are talking about here is a technical understanding of daylight; the ability of a building to receive daylight in the first place (linear meters of façade), the ability to distribute daylight into the deeper areas of the building (ceiling heights), and the ability of a working plane to be lit by daylight (classroom depth). Although the qualitative, intangible aspects of daylight certainly influence our experience of architecture, that is not the object of this research. The quantitative aspects listed above are not only important parameters for daylight as such, but also for understanding a building’s capacity for change. Hence, if a project proposes a total mean value of only 6 linear meters of façade per class to be spent on classrooms, study group rooms and any other prime teaching areas, it is only geometrically possible to provide daylight for a classroom, and not for any single group room or other prime teaching area – unless the classroom is to be even narrower than 6 meters. Furthermore, this value tells us that a normal-sized classroom will have to be at least 10-11 meters deep. According to the rule of thumb—that a room should be no deeper than the double of its ceiling height to achieve sufficient daylight, we can see that the ceiling height has to be 5 meters for the daylight conditions to be sufficient. For an experienced professional, no daylight computer simulations are necessary to predict that the daylight conditions in the classrooms will be poor. And for the group study rooms and any other possible prime teaching rooms having no façade, and therefore no windows, even a layman should be able to “see the light” with regard to the daylight conditions. I would also argue that a teaching room with windows offers a greater utility than a room without windows; it can simply be used for more purposes.

The parameters above are easy to measure and compare, and are therefore very useful in the competition phase. On competition drawings, often windows in the facades do not correspond with the plans or sections. Also at this stage it may prove more relevant to investigate and comment on a project’s potential rather than its various window details. The first phase of the study showed - depending on the parameters - that in 7 to 8 of the 10 cases, the winning projects had the very worst values on the daylight parameters compared to the losing competitors. In other words, the winning project could in most cases be identified through measuring basic daylight parameters. To verify the quality of the data set, it was decomposed into principal components and a PCA-analysis was carried out by Knut Kvaal, Professor in mathematics at the University of Life Sciences at Ås. Included in the data set were not only the measurements relating to the projects’ daylight capacity, but also information on the shape of the schools, distribution of entrances,
locker room solutions and educational solutions. The results were significant and showed that to win a school competition, one should, statistically, rather propose more deep and narrow classrooms, lower ceilings, fewer linear meters of façade than the other competitors. This result makes one ask how the competition briefs were formulated, and how the juries valued, or did not value the daylight.

![Figure 1: The competitions 1-10 and linear meters of façade per class for classroom, study group room and additional prime teaching area. In six cases the winning project has the lowest amount of façade meters. In five of the cases the linear meters of façade per class are about six meters.](image1)

![Figure 2: The competitions 1-10 and the depth of the designed classrooms. In eight cases the winner has the very deepest classrooms compared to the loosing projects.](image2)

Red diamonds: Winning project has the poorest daylight value compared to loosing projects. Yellow diamond: Winning project has medium value. Green diamonds: Winning project has the best value. Gray diamonds: Not winning projects. (Houck 2012).

**SECTION TWO: PROBLEM AND METHOD**

In this section I will study the clients’ competition briefs, the composition of the juries and the juries’ evaluations. This will be compared to the outcome of the ten school competitions examined earlier. The study will focus on the daylight and environmental issues in particular.

The thesis is that the competition briefs asked for and emphasized energy efficiency innovations. In a limited design competition it is not only important to choose the best project. First and foremost the competition brief has to be formulated, and the competitors have to be chosen, in such a way that the jury gets good projects to choose from. In Leentje Volker’s (Volker, 2010) City Hall case, an expert is quoted as saying “one should not judge the details during the tendering procedure, because each firm “will throw the design as presented into the wastebasket””. This is an interesting discussion related to what can be called “details”. The aspect of sustainability, which often requires the reduction of the building façade, and the aspect of daylight, which requires access to façade area, should be considered opposites in a basic design dilemma, and not a question of detail. When a winning project is chosen, it is very difficult to achieve major changes in the project, like changing deep and narrow classrooms into square ones. Such a change would alter the lay out and inner functionality of the building dramatically.
This study is based on the competition briefs and the written evaluations of the juries from 10 school competitions in Norway. One competition was held in 2009, five in 2010 and four in 2011. The total number of designs is 44, proposed by 28 different architectural offices. In this study, the competition number one to eight are all limited design competitions, where four to five architecture offices are prequalified and chosen out of a group of applicants, mostly counting about 20-30 offices. Competition number nine is a design-and-build competition where the design teams work together with a contractor. A design as well as a turnkey offer was to be delivered, but there was also an interaction phase planned after the competition phase. Competition number ten is a concession contracting, Design Build Finance Operate, which means the competitors design, build and operate the school facility for a predefined period, the capital investment being repaid through the revenue stream (Winch, 2010).

This study examines the following:
1: The jury members
2: The competition briefs with focus on daylight requirements
3: The competitions’ different assessment criteria formulated by the clients prior to the execution of the competitions
4: How the projects were judged in relation to the assessment criteria, with particular emphasis on the environmental/energy question and daylight

In this paper, the environmental/energy criterion should be understood as a tangible criterion on how well a project is designed in order to save energy. Other environmental aspects, such as transport costs, carbon dioxide accounts, degree of pollutants and emissions are not the part of this investigation. The daylight criterion is examined in respect to any comment the jury may express about daylight, either as a qualitative value or as a more quantifiable quality in terms of to what degree there is sufficient daylight or not.

RESULTS
This section presents the result. The different results will be analyzed successively, while the overall discussion and conclusion will be reserved for the end.

The composition of the juries
The size of the juries varies from four to ten members. If we divide the jury members of all the competitions into two groups, the users and non-users, the result is 16% and 84%, respectively. A division of the jury into members with building competence, educational competence and others (parents, politicians) we get the distribution of 51%, 34% and 15%, respectively.
The results show that on average half of the jury members have building competence, while there is only a modest participation of users.

The competition briefs
Six competition forms require daylight in some way. Three competition forms do not have a single sentence about daylight, and in one case it has not been possible to gain access to the competition form.

<table>
<thead>
<tr>
<th>Competition</th>
<th>Daylight requirements in the competition briefs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Size of the brief: 17 pages. No requirements concerning daylight</td>
</tr>
<tr>
<td>2</td>
<td>Size of the brief: 41 pages. No requirements concerning daylight (Daylight and overview mentioned as a provision against bullying, violence and racism.)</td>
</tr>
<tr>
<td></td>
<td>Size of the brief: 39 pages.</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------</td>
</tr>
</tbody>
</table>
| 3 | "All prime teaching areas should be oriented to outer walls to secure best possible light conditions. It must be taken into account how to obtain light in the deeper areas."

<table>
<thead>
<tr>
<th></th>
<th>Size of the brief: 38 pages.</th>
</tr>
</thead>
</table>
| 4 | General section: "A building with much daylight, and still important with blinds" In the room description, activity room: "Preferably with daylight..." Sports: "Preferably with daylight..."

<table>
<thead>
<tr>
<th></th>
<th>Size of the brief: 32 pages. No requirements concerning daylight</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Size of the brief: 46 pages.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>General section: High ceilings required. Also: «...structure securing high utilization of daylight. Daylight should be accessible in all workspaces. Whenever possible, daylight from multiple directions should be provided.»</td>
</tr>
<tr>
<td></td>
<td>Room table where daylight requirements for each room is marked with yes, no and yes/no. Group study rooms are marked yes/no</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Size of the brief: 35 pages.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>For all the teaching rooms, classrooms, group study rooms and so on, there is a list of requirements starting with the following requirement: &quot;good light- and acoustic conditions&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Full competition brief not received</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Size of the brief: 27. pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>General section: “Good light (daylight) … must be given priority” Entrance: “…the entrance area must have extensive glass areas”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Size of the brief: 18 pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Teaching areas 1st to 7th grade: “…and a rich amount of daylight in the room.”</td>
</tr>
</tbody>
</table>

Table 1: Daylight requirements in the competition briefs.
The competition assessment criteria

Examining the ten competition briefs, we find a total list of 23 different assessment criteria. Some criteria have been formulated in different ways in the respective competition briefs, but similar criteria are collected under one headline, for example “aesthetics” and “architecture.” All ten competitions had listed the criteria “Programmed functions/functionality”, seven competitions addressed the “environmental/energy”, “area efficiency” and “architecture/aesthetics” criteria, and then “economy” in six, “accessibility/design for all” and “topography/site” in five. Only in competition number 5 was the “indoor climate, health” mentioned as an assessment criteria (and daylight should be considered a precondition for obtaining a good indoor climate).

The Swedish Architect Association includes accessibility in the evaluation criterion “total experience”, whereas this issue is found to be a separate evaluation criterion in five of the ten cases examined in this study. In the five competitions where accessibility is an evaluation criterion, the total sums of evaluation criteria are respectively six, nine, ten, ten and fourteen. One way to interpret this is that the relative importance of this criterion varies to some degree.

The terms “architecture” and “aesthetics” are frequently used as assessment criteria. It is outside of the scope of this study to go into the semantics involved in such terms, but it is an interesting observation, that in the Swedish assessment criteria mentioned in the Theory section of this paper, the expressions “design” (utformning) and “shaping” (gestaltning) are used in the headline, not architecture.

The assessment of the competitions:

In the study, the juries’ written evaluation reports vary from 6 to 18 pages. In terms of competition number ten we only received the final scores on the five assessment criteria, not the comments of the evaluation group. Because of the obviously poor daylight conditions in the winning designs discovered in the first part of the research, we now wanted to investigate how the juries commented on the daylight and in environmental/energy issues. As we shall see, environmentally friendly buildings are often understood by the juries as compact, area efficient and economical buildings which result in short internal distances and a modest footprint. These design parameters may be in opposition to good daylight conditions.

Competition 1

The jury does not comment on daylight in their general assessment. According to the jury in the separate reviews, the winning project has the best pedagogical solutions. Still the drawings show that the proposal has 3 classrooms without daylight, and not a single group study room with daylight. The jury’s comment on daylight is: “The daylight conditions have to be improved for parts of the area...”, and the jury suggests this can be done through skylights. At the same time, when judging the environmental criterion, the winning project is criticized for its extensive use of glass. However, the winning project “is among one of the best” on area efficiency the jury writes, and the jury reports that the winning project has the lowest gross area.

Competition 2

In this project the environmental criterion is to suggest solutions more environmental visionary than required by the current legislation. The jury comments on the compactness of the different proposals. The winning project is given credit for its more oblong shape in the east/west axis, which, the jury comments,
also creates the possibility to collect solar heat. Of all the competitions in the research, this winning project is the only one with square classrooms. In all the other competitions, the winning projects have classrooms deeper than they are wide. The winning project here is the only one where the jury does not comment on daylight. All the façade areas are calculated. The project most criticized for its environmental solutions, is given credit for its optimal daylight conditions. Another losing project, which is criticized for its extensive façade area, is also criticized for its extensive use of skylights. The third losing project is given credit for area efficiency, but the jury has complaints about daylight deficiency.

Competition 3
This is a competition where both environmental and daylight aspects are totally absent. The jury gives a general comment on the varying façade areas, and that this is significant for maintenance costs. Neither in the assessment criteria, nor in the 9-page jury evaluation is there any trace of environmental comments in the sense of energy saving. In this jury, there were no participating architects chosen by the National Association of Norwegian Architects.

Competition 4
In this case, no environmental criterion for judging the projects is mentioned in the competition brief. However, the jury argues that the energy goal set for the project (105 kWh/m²/a) makes it necessary to consider this aspect separately, even to employ an external consultant. The jury praises the winning project for being compact and argues for the benefits of this: Short walking distances within the project and a good area efficiency. The jury recommends the winner to consult a daylight expert to develop a strategy for bringing the daylight deeper into the building.

Competition 5
The jury has had the different competition proposals’ compactness, window area as a percentage of façade and the gross area measured. Additionally, the jury obviously has - through some unknown method - evaluated whether the competition proposals have sufficient daylight or not.

<table>
<thead>
<tr>
<th>Project/value</th>
<th>Compactness (Surface/volume)</th>
<th>Window area % of façade</th>
<th>Window area % of gross area</th>
<th>Daylight conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.39</td>
<td>25</td>
<td>17</td>
<td>Not sufficient</td>
</tr>
<tr>
<td>2</td>
<td>0.34</td>
<td>35</td>
<td>22</td>
<td>Challenging</td>
</tr>
<tr>
<td>3 (Winner)</td>
<td>0.26</td>
<td>28</td>
<td>13</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>4</td>
<td>0.32</td>
<td>25</td>
<td>-</td>
<td>Not sufficient</td>
</tr>
</tbody>
</table>

Table showing the measured values in the jury’s report.

As the table shows, the winning project is the most compact, has the least window area compared to gross area, and is still considered to be the only project with sufficient daylight conditions. In the evaluation, the energy criterion counts 15 % and the collective health, indoor climate and choice of materials criterion counts 10%. As the table shows, only the winning project is still found to have sufficient daylight conditions. At the same time, the project is considered to be the most compact. What characterizes the winning project is that it is a 4-5 story building – compared to the 2-3 story buildings proposed by the losing competitors.
Competition 6
The head of this jury came from an architectural practise well known for its environmental profile. In this case, the competition brief required an environmental profile on the use of material, energy, and technical solutions. The jury interpreted this to mean passive energy standard. The jury calculated the different projects’ degree of compactness and also the glass area. The jury chose the second most compact project with the lowest area of glass as the winner. The jury advises: “A high amount of glass should be avoided because it has a far greater heat loss than insulated constructions”. One loser project is criticized for being the least compact, and for having a great amount of glass.

<table>
<thead>
<tr>
<th>Project/value</th>
<th>Compactness (Surface/gross area)</th>
<th>Window area m²</th>
<th>Window area/gross area/1,4</th>
<th>LCC cost NOK/gross area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (winner)</td>
<td>1.61</td>
<td>986</td>
<td>0.16</td>
<td>662</td>
</tr>
<tr>
<td>2</td>
<td>1.73</td>
<td>1428</td>
<td>0.23</td>
<td>670</td>
</tr>
<tr>
<td>3</td>
<td>1.5</td>
<td>1453</td>
<td>0.24</td>
<td>680</td>
</tr>
<tr>
<td>4</td>
<td>1.64</td>
<td>874</td>
<td>0.16</td>
<td>670</td>
</tr>
</tbody>
</table>

Table showing measured values in the jury’s report

Competition 7
This competition has the highest number of jury members (10) of all the competitions in the study. Part of the environmental assessment criteria in the competition brief, is the evaluation of lighting, air, heating, ventilation, indoor climate, noise and pollution. But the term “daylight” is not mentioned. The competition brief asks for environmentally friendly solutions, but does not wish to exceed the current legislative standards concerning energy use. The winning project is given positive comments by the jury for its reduced footprint, area efficiency, the reduction of area needed for transportation and for its compact plan. When it comes to daylight, the jury says that the use of glass should be limited in energy and environmentally friendly buildings. Also, the jury is concerned about the maintenance issue related to extensive use of glass, especially in a school building. Under the criterion “Architecture and aesthetics” the jury is of the opinion that a building can achieve a “light” expression through materials other than glass.

Competition 8
The competition brief included a description of the different functions, but did not mention any total gross area limit. Thus, the projects vary in size from 4318 m² to 6208 m². The jury divides the competition entries into four compact solutions, and two “axis” solutions. Under the environmental criterion, only two issues are discussed: Area efficiency/compactness and sunlight. The jury points out that less façade area will give less energy consumption. When it comes to daylight, the only sentence mentioning this in the general comments is the opinion that teaching areas facing south are difficult due to direct sunlight. In the individual comments, daylight is commented on in all the projects except the winning project. Some projects are criticized for having “dark zones” and rooms without daylight, and in one project a skylight in the “school plaza” is mentioned as a positive quality. The winning project and one other project come out the most compact, with the least façade. In the final concluding section, the jury does not focus on environmental aspects, but rather on functionality and also on the fact that the winning proposal is area efficient.
Competition 9
The jury comments are comprehensive, 18 pages long, though the comments are thematically less structured than in the other competitions. The terms “environmental”, “energy” or “area efficiency” do not show up at all in the jury’s report. However, the jury pays systematic attention to the daylight conditions. The jury complains about narrow classrooms, dark zones, and deep building volumes, while writing positively about narrow building volumes and using terms like “high, bright and open spaces” in a positive sense. In this jury, there were no participating architects chosen by the National Association of Norwegian Architects.

Competition 10
The client in this project only shared with us the assessment criteria as 5 headlines, and the points given by the evaluation group. In an interview, the clients’ project manager explained that there were no explicit requirements concerning daylight in the competition brief. Secondly, there was a focus on fulfilling the environmental requirements from the organization “Fremtidens Byer” (Cities of the Future), an organization whose aim is to reduce the impact on climate derived from buildings. According to the project manager, the jury commented on the daylight conditions. He added that it was obviously quite a challenge to provide the teaching areas with daylight, while at the same time fulfilling the requirements of the passive energy standard. On the question of whether they actually wanted narrow and deep class rooms and a compact school, he replied, “We do not choose these projects, these are the projects they (i.e. the competitors) give us.”
### 1.1 Assessment criteria on environment/energy in the competition brief

<table>
<thead>
<tr>
<th>Competition</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Main focus</td>
<td>on area efficiency</td>
<td>Environmental solutions exceeding the legislation</td>
<td>Does not appear in any of the 5 assessment criteria</td>
<td>Energy use counts 15%</td>
<td>Environmental profile required</td>
<td>Environmental assessment criteria, but this is vague formulated and without ambitions</td>
<td>No</td>
<td>No</td>
<td>Focus on educational solutions</td>
<td>Environmental solution counts 20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### 1.2 Did the jury evaluate environment/energy?

<table>
<thead>
<tr>
<th>Competition</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Winning project is the most area efficient</td>
<td>No environmental criteria evaluated</td>
<td>The jury puts the environment on the agenda. External environmental evaluation</td>
<td>Compactness and window areas measured</td>
<td>The jury requires passive house standard. Compactness calculated</td>
<td>Area efficiency and compactness are assessed as environmental</td>
<td>Environmental criteria evaluated</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### 2.1 Daylight requirements in the building program

<table>
<thead>
<tr>
<th>Competition</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>None</td>
<td>None</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Yes</td>
<td>Yes</td>
<td>?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Health and indoor climate counts 10%</td>
<td>Calculates the amount of glass and chooses the project with the lowest sum as winner</td>
<td>Some comments about dark zones and rooms without daylight</td>
<td>Daylight systematically commented on by the jury</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>None</td>
<td>None</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Yes</td>
<td>Yes</td>
<td>?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### 2.2 Assessment criteria on daylight in the competition brief

<table>
<thead>
<tr>
<th>Competition</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Daylight recommendations for winner project</td>
<td>Systematic evaluation on daylight</td>
<td>Only the winning project is valued as satisfying</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Daylight is systematically commented on by the jury</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### 2.3 Did the jury evaluate daylight?

<table>
<thead>
<tr>
<th>Competition</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Comments on daylight conditions, but winning project has 3 classrooms without daylight</td>
<td>Daylight recommendations for winner project</td>
<td>Systematic evaluation on daylight</td>
<td>Only the winning project is valued as satisfying</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Daylight is systematically commented on by the jury</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### 3.1 The winner’s daylight capacity compared to the loosing designs (Houck, 2013)

<table>
<thead>
<tr>
<th>Competition</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Lowest values on daylight parameters</td>
<td>Highest values on daylight parameters</td>
<td>Neither best nor worst</td>
<td>Lowest values on daylight parameters</td>
<td>Lowest values on daylight parameters</td>
<td>Lowest values on daylight parameters</td>
<td>Lowest values on daylight parameters</td>
<td>Neither best nor worst</td>
<td>Lowest values on daylight parameters</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Relation between competition assessment criteria, jury evaluation and the daylight capacity in the designs, based on the competition brief and the written jury evaluation.
The environmental criterion – arguing through numbers

Table 2 above shows that in six of ten cases, the environmental criterion was stated in the competition brief, and then assessed by the jury. Additionally, in cases one and four, there was no environmental criterion in the brief, yet the jury still assessed on this criterion. In case four, they even ordered an external expert report. In case three, the jury listed five criteria derived from the competition brief, none of them environmental, despite this sentence in the building program: “It is a goal to develop a building with high environmental standards, with emphasis on energy solutions, indoor climate and waste treatment.” Both cases where the juries do not evaluate on any environmental criteria, case three and nine, there were no jury members engaged through the National Association of Norwegian Architects. When environmental criteria are judged, the evaluation seems to concentrate on area effectiveness/compactness and a low score on façade area and glass area. These parameters are measured and used as arguments in the jury evaluation. The numbers are discussed as pure numbers and are not related to any intangible architectural qualities. As a comparison, economy is rarely discussed through numbers, except in the case of one project. In others, the gross area is mentioned, but in 6 of 9 cases the juries argue for the environmental aspects of the different projects referring to numbers.

The daylight criterion

In six of the competition briefs we find daylight requirements. These requirements are not quantified. In none of these six cases, has the client decided to make daylight an assessment criterion. Daylight is only explicitly expressed as a criterion in one single case. Still, daylight is systematically evaluated in six of the ten cases in such a way that it can be traced in the jury reports – seemingly independent of whether daylight has been paid attention to in the competition brief or not. In the cases where there are no comments about daylight in the jury reports, it cannot be concluded that it has not been a concern. Nevertheless it would appear unlikely that daylight has been a very central part of the discussions.

- None of the competition briefs quantified the daylight requirements;
- None of the winning projects were praised for good daylight conditions in the jury reports;
- Only in one single case is a (loosing) project is given a very positive general remark on its’ daylight conditions;
- In one case the jury reveals its ignorance of daylight’s physical dynamics, believing daylight is able to pass through a skylight, proceed two stories down, and then turn 90 degrees to lighten up teaching rooms;
- One jury considered the winning project to be the only one with satisfying daylight, although the project had the least window area of all the projects, and was considered the most compact. The winning project also had the deepest classrooms (Houck, 2013).

We should also devote some attention to what the juries did not include in the competition reports:

- The single most important room, the classroom, is never discussed, neither is the fact that the classrooms in most proposals were narrow and deep;
- Not a single competition brief required deep and narrow class rooms, but all except one client got them;
- Not one single jury made any comments on the fact that they chose winning projects where, on average, only 20% of the group study rooms had the possibility of direct daylight, and in some cases there was not a single group study room with any direct daylight at all.
We have seen that the jury can disregard the assessment criteria in the competition brief and introduce new assessment criteria. The investigation shows how a historically important quality of architecture, daylight, can be taken for granted, and thus is evaluated, but at the same time ignored. If we think of Rem Kolhaas’ remark mentioned in the method section - “Wanting to win a competition is not the same as wanting to do your best possible work” (Kolhaas & Mau, 1995) - the question remains whether the architects designed the best possible project, or whether they primarily designed projects that would fit the assessment criteria in order to win, or even tried to guess how the juries would assess. It seems obvious that in general, the winner designs were successful in meeting the environmental assessment criterion, whereas the juries assessed the designs accordingly. At some point, what it takes to achieve adequate daylight quality was either forgotten, ignored, found unimportant, or incompatible with the central qualities of compact projects: short internal distances and a modest footprint.

Returning to the theory: What can we learn from this study in a broader perspective?

1. Randomness: Whereas some jury choices can be considered random (Kreiner, 2009), some are not, or at least there are different probabilities for different choices. It becomes clear that it would be more or less statistically impossible to win any of the competitions in the study by proposing classrooms that are wider than they are deep. Some architects had understood this, and some not. Some had learned from previous competitions, and some had not (Houck, 2013).

2. Evolving values: We have seen examples of evolving values in architecture (Larson, 1994; Rustad, 2009; Tostrup, 1996). Jury decisions understood as “bad luck” (or good luck) by some architects, may be a trend, a greater movement, a new direction – understood and applied by others. The environmental criteria should be understood as such: A new parameter fundamentally affecting which project designs will win or lose competitions.

3. Overemphasizing values: We have seen in Blau’s investigations (Blau, 1984) and in Tostrup’s work (Tostrup, 1996) how some architectural values at certain times became very important to an extent that calls for an explanation. Bounded willpower and bounded awareness (Bazerman, 2006) can explain why the new value – environment/sustainability – is emphasized in such a way that it is what I would call an automated value; daylight is given an unnaturally low priority. Unnaturally because of the importance of daylight for humans (Bakke & Nersveen, 2013).

4. The role of the client, jury and design teams in competitions in relation to the outcome: As we have seen, regardless of whether the client has asked for good daylight conditions, it seems to be hard to influence how the juries evaluate. The juries appear to act relatively independently. However, one conclusion could be that the juries pay more attention to assessment criteria expressed by the client, than to any expressions in the competition brief. We have seen that the assessment criteria did not require quantified values to be compared, whether for environmental assessment, or daylight considerations. Nevertheless, most juries chose to quantify the environmental aspects, but not the daylight aspects.
References


Volker, L. (2010). *Deciding about Design Quality Value judgements and decision making in the selection of architects by public clients under European tendering regulations* (pp. 323).
