



## Thor Heyerdahl vgs

**VEIDEKKE**

Norconsult  
Rådgivende Ingeniører og Konsulenter

ERLING FREITAG AS  
Kulde- og Bløkkelager

MULTICONSULT



SWECO



Erichsen & Hørgen A/S  
Rådgivende Ingeniører VGS Kilde-Kilde-Energj

THUNBERG A/S

**Thor Heyerdahl is inextricably linked to innovation and knowledge dissemination. Keywords that also fits the new high school in Larvik that bears his name.**

The new school will be measured in the number of pupils, one of the largest. 1650 students and 300 employees will frolic on 28,000 sqm. The whole 12 of 13 study programs are offered as a result of the merger of four different schools located in as many places.

- The merger was not only for economic efficiency. It was primarily a school organizational measures, because it was about to get a status and class differences between schools. It was more a school or educational issue, "says project manager for the builder Vestfold County Council (VFK), Måns Davidson.

### Levels of twists

And cooperation will be guaranteed in the new building that opened 17 August. The Danish architect firm

**Location:** Larvik

**Project Type:** VGS

**Project Cost incl:**  
1.052 million

**Total Area:** 34,000 square meters (hence the arena around 7000 sqm)

**Client:**  
Vestfold County Council

**Construction Form:**  
Interaction Contract with AF Synergy  
(Architects: Schmidt, Hammer & Lassen KS, LARK: SLA landskabsarkitekter, Building Construction: Veidekke

Schmidt, Hammer & Lassen KS used in conjunction with SLA landskabsarkitekter it announced an architectural competition with its proposal Synergy.

The architects have had a goal to collect the school's various elements in a compact, vertically oriented building. The school's floor deck dislodged as a rotation around the house's central axis. An atrium brings thoughts of a square, and brings daylight deep into the building.

Atrium forms the basis for social meeting places and common features. Shifts in the tines creating terraces, which from the outside gives the school a dynamic form with four axes.

Architectural design competition, and competition in the contracting section was at the same time. VFK demanded the construction solution, it would be an interaction model, where the builder should have a contract with only one player. How this should be organized there were no requirements. It was up to the contractors themselves to decide.

### **AF Synergy**

Veidekke Department of Vestfold had already started with Farris Bad in the same city, but was naturally NOK interested in being on this project too.

- We are in the contractor group found each other first, the three technical and us as a building contractor. So we decided that we ourselves would choose the advisors we should have to. This group of four contractors and four consultants filed a joint tender. It was given the award based on a plan to build the budget, a target cost. We submitted the tender in November 2005 and was awarded the contract before Christmas in 2005, says project manager in Veidekke, Erland Johansen. Working Community was named after the architect's winning draft; AF Synergy.

- Main idea of going into this model was that we experience using much time and energy to avoid conflicts and change regimes in construction matters. There we wanted to change that. All of the AF will have a joint and several liability, and do not push any of the others. We have avoided here and have spent few resources on fighting about money and well. But one thing in contract negotiations was that Veidekke has experience and financial backbone to manage a possible loss. It is not a given that all the architects and consultants have the same basis. Therefore, it was a long process in which lawyers were in the picture for review and quality assurance of contracts for them, "says Davidson.

### **Personalization**

In the first sketches of the architects built the sign of the difference. It was one floor higher, had more items with glass and double-high levels, and the arena was partially

contractor, Tube: Oras Telemark, Ventilation: Oras Climate, Electric: Siemens, RIB: Sweco, RIG and SOUND: Multiconsult; RIE: Norconsult, Advisory VVS : Erichsen & Horgen)

**Project:** Vestfold County Council and PTL Kristiansand

**Construction Management and Equipment Coordinator:** Viken Project

### **Subcontractors and**

**suppliers:** Rive Works: Pewee Contractor - Pipeline Reinforcement: Reinforcement Porsgrunn - Basic Labor: Arne Olav Lund - Peling: Kynningsrud Foundation - Sliding Formwork elevator and stair hunt: Inter Form - Core drilling: Concrete Design - concrete elements: Block Berge Bygg / Nor-Element - Steel Works: SKV / Svein R. Jacobsen / Hamtre / Steelcon - Roofing: Protan - Gulvstøp (filler): Thunberg - Internal glass fields: Bosvik - Solavskjerming: Celsius / Fram blinds and Awnings - Glass Facades arena, internal fire glass arena: Freitag Glass & Facades - Folding Walls: Sigmund Olsen Agents - Ports and fire curtains: Port Services East - Lock and hardware: Lock and Project Services - Blikkenslager Works: Erling Freitag - Tredører: Doria - Templates Labor: The loss and Malercompaniet - Murer Work: Tveiten & Lundquist - Flooring / filler: Bach Johansen - Epoxy Works: Rescon Hunger - Ceilings: Moelven Nordia - Light-Roof: Light-overhead systems - Overlys / smoke hatches: Bramo Glass & Climate - Rent building and construction cleaning: ISS Facility Services - Texlon Roofsystem: Vector Foiltec - Fire insulation and sealing: Building and Fire Eastern - Telescopic Stands: Bertel Italy - Windows: SA -Windows -

buried. This proposal was knadd down to the building we see today.

Veidekke started with demolition work in the summer of 2006 to take down the 10 to 12 buildings that stood on the old school. The building is pelefundamentert with pelehoder and is on record on the ground. It is used prefabricated concrete elements, columns and beams, with prefabricated covering between.

Finished Concrete: Unicon  
Larvik - Sports floor / dance floor: Unisport Scandinavia - sports equipment and partitions: Scandi Sport

- Capacity: The challenges were enormous when we started up. On the five prefab requested and received an offer. We had a working capacity of more montasjelag, but was thus only one. The school is a complex building. When it comes to urban construction issues are complicated, not only in terms of the many terraces. We could not close the atrium in the middle before we had built around us, "Johansen said.

### **Atrium roof**

The roof is Protan covered, but the body style of the atrium has Norway Premiere in this project. The same product was in a considerably smaller scale also used in Gyldendalhuset. German Vector Foiltec GmbH may refer to a resume with deliveries of the same type of roof or exterior walls across the globe.

Allianz-Arena in Munich and venues from the Beijing Olympics is probably best known for us Norwegians. Before use in Larvik had it obtained the Norwegian approval as a building material.

Foilteckonseptet is unique, with from three to five foiler transparent plastic on top of each other. In this case, three foiler which is connected to a compressor that helps to keep the pressure up. Everything is held up by Foiltecs own suspension system and aluminum frames, which have low weight.

When fire melts and drips not Texlonplasten, but evaporate. The assembly of the approximately 15 x 40 m large roof was made by German engineers in the course of ca. three weeks.

### **Arena**

Larvik has contributed 45 million to the 7000 square meters that make up the Arena Larvik. The school has a connection to the arena via a footbridge from the level 2 Håndballbanen, which can be divided into six smaller venues, as needed, the Larvik HK home arena. Sports floor is combined elastic.

The second floor is also Plyometrics Training Center as the school can use as part of teaching. The arena has telescopic stands for maximum efficiency, it offers 3100 seats. If needed, easy grip expand capacity to 4,000 seats.

The arena is built with steel columns and beams. In the short ends, it is partially span reinforced, column four, the concrete stands. The facade is perforated alu.fasade from Erling Freitag. It is almost 5000 die-cut square. They consist of 4 to 5 disc varieties that can be turned so that the visual print patterns are double that. At approx. 75 percent of the arena is used Light-Takelementer as exterior wall construction. These are perforated for better lydabsorbering.

### **Also for the local community**

With 1,650 students, the new school boasts impressive numbers in terms of sizes and areas. There are 320 classrooms, workshop premises is on 3000 square meters, and the three auditoriums can accommodate from 45 to 180 people. Cafeteria with 810 seats will also have a function beyond normal school hours; local community will also be able to use it and other facilities in connection with the course and association activities.

Total Budget incl. is at 1.052 billion, AF Synergis share amounted to 648 million dollars. inc.

## HSE

It is with Veidekke prepared its own environmental program, which in most points are true. It was made many general reviews in the initial phase, including the use of prefab for possible later reuse. It is not used endangered wood. The selected facade materials that require minimal maintenance. Most of the painted surfaces will premalt from the supplier. On the whole substitution obligation undertaken in respect of all materials.

- This obligation has been central to the process. Veidekke has done a very good job to ensure that the building site, and not just write about it in advance, "says Davidson. In the construction period it was used only 80 kwh. pr. sqm. Not pr. years, but total.

In the wake of another toppsak in the national media - living conditions for foreign workers - were made specific "precautionary examinations. It was decided that we should examine what kind of relationship the foreign workforce was living under. It was started by checking the salary, but was an extended control. These were the places where subcontractors were responsible for accommodation of its employees.

- Some of the principle would not publish the documentation. We were very tough and presented an alternative - it was out of the project, "says Johansen. The conditions were found satisfactory. Worth mentioning is also the only three minor injuries absence (a day's absence) that the project has had.

## Valuable input

This whole project has been dependent on getting input from users and coordinators. VFK has had redeemed coordinator who has had the authority to make decisions on an ongoing basis. - He has been (or is?) Administration at the school and have been valuable for us. In our next school project, a secondary school in Tønsberg, we will take with us the experience of a person in a similar role, end Måns Davidson.

- The challenge has been to get the project within an acceptable cost. Especially in the autumn of 2006 we had a hard omprosjekteringsperiode to tighten up the building in the axis system and volume utilization. Cooperation, both within the Synergy and the builder, has been very good and progress has been very good despite the fact that there is a large and complex buildings, to confirm Johansen.

*Text and photo: Trond Joelson*

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