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MARKETING CONCRETE PAVERS AS DECORATION OR AS LOAD CARRYING PAVEMENTS?

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Summary:

Concrete paving blocks were introduced in Denmark in the 1960'ies, and were at that time a new product in a new marked.

This article is about the introduction and marketing of concrete paving blocks primarily as a load carrying pavement. Individual applications are presented and the technical/economic competition conditions to alternative materials are discussed. The growth in the application of paving blocks to industrial areas and to decorative areas in Denmark are estimated.

From discussions at international congresses it appears that the use of concrete pavers in some countries are limited mainly to decorative pavements in parks, shopping areas, sidewalks, paths, entrances, drive ways and terraces. The impression is that it is the architects who become interested in this relatively new paving product, and use its many possibilities regarding to colours and shape to create beautiful pavements with exciting paterns.

This is understandable. But it is also understandable, that products known for decorative characteristics and especially when used for pedestrian traffic, are not one of the products that engineers will consider first of all when building a container terminal.

When marketing the product in a new marked it is probably easiest to obtain a steep sales curve during the first years by using features such as exciting shapes and colours, the innumerable possibilities of patterns and the numerous expressive surfaces combined with easy laying. The fact that the pavement are easy to maintain and pleasant to walk on completes the picture.

The fact that concrete pavers are suitable for the purposes mentioned above, are not a subject for discussion, but the question is whether it is more difficult to have the product acknowledged for industrial purposes if, in the introduction phase, you concentrate on the decorative elements?

To illuminate this question it may be useful to look at the development in Denmark and focus on the marketing strategy which was chosen by SF-STEN A/S in Roskilde when it introduced concrete pavers on Sealand in the 1960'ies.

The overall philosophy was to check out those areas the traditional products were not good enough, or the lifetime too short. The list contained areas like:

- Bus stops
- Service Stations
- Car parks
- Port pavements
- Industrial areas with heavy load and traffic by fork-lift trucks
- Military sites (tracked vehicles)
- Residential streets constructed before commencing to build the houses
- Sidewalks
- Slaughterhouses and dairy works

The traditional materials were asphalt, cast in-situ concrete and, in some cases, industrially produced special flags. All of these are good, recognized materials but are not suitable for all purposes.

Asphalt is a thermo plastic material which deforms under static loads. It is spillages influenced by spillages of oil and the surface hardness is limited compared to that of concrete. Repairs of asphalt pavements are usually very obvious.

Cast in-situ concrete is not suitable if excavations are planned later on. Moeover it needs a curing period before it is fit for use.

Special cast reinforced flagstones are expensive compared to concrete pavers.

With this knowledge, we started analyzing "the problem pavements" because we felt very confident that it was easiest to sell "a problem-solving approach".

These questions were examined:

1) Would concrete pavers perform to satisfaction technically?

2) How much were the construction costs and the maintenance costs compared to the traditional pavements?

3) How big was the sales potential?

Bus stops were one of the areas in which at an early stage we worked. By having bus stops paved with concrete pavers, it was shown that these pavements were both a technically better alternative, and enabled cost savings. Furthermore these pavements were seen by many people accordingly we were in a far better sales position when pavings were to be chosen for the bus garages after we had solved the problems at the bus stops.

The port pavements were also very interesting. Junckers Industrier A/S in Køge were to extend their port facilities and the pavement was still to be be chosen. They had experience with both asphalt and cast in-situ concrete and thought that a test should decide whether this "new paving material" was better. It was therefore agreed that we would pay for the test paving, and Junckers Industrier A/S would test it with normal traffic, which was fork-lift trucks handling stems. The deal was, that, if the pavement passed the test, we could invoice the costs, and, if not, we were to remove the pavement without any costs to Junckers Industrier A/S.

The pavement was constructed on sea sand and consisted of 15 cm of good quality stable gravel and 4 cm of bedding sand + 10 cm concrete pavers (of the type SF®-blocks). The test was carried out without any damage to the pavement. Then the idea was brought up to test it for the worst thinkable case. For this purpose a mobile crane picked up a stem of app. 70 cm in diametre and a length of approx. 6 m to a distance of 4-5 m above the ground. This was dropped. The stem broke because it hung a little askew and hit the pavement at the edge. In the impact area 3-4 pavers were forced down a few mm, but not even a fork-lift truck could catch these with its forks. We were allowed to send the invoice, and in the future concrete pavers were used.

In our part of the world sidewalks are not loaded by pedestrians only. During the winter, vehicles for removing the snow are used, and it is not unusual that cars are parked with 2 wheels on the sidewalk.

A common construction of a sidewalk in Denmark is a kerb unit + a strip of asphalt + 2 rows of flags (62,5 x 90 x 7 cm) with a row of cobblestones in the middle + sometimes another strip of asphalt. Asphalt with ruts and broken flags resulted in high maintenance costs. It appeared that sidewalks paved with a 6 cm paver throughout the whole width of the sidewalk were competitive financially and technically.

The economy improved even more when an engineer "invented" a kerb unit simply by chamfering the side blocks in the SF system so they worked as kerb units, and therefore replaced the traditional solution. Many kilometres of sidewalks were constructed this way.

It proved to be possible to use the various characteristics of the concrete pavers. For instance it appeared that the high strength of the concrete resulted in a better resistance to acids in slaughter houses and dairies. In Germany only a few months ago I saw a pavement at a dairy, which was fully functional after 30 years of service.

For acceptance of a technical solution a pavement should secure an economic or technical advantage. The concrete pavement was not at all times the cheapest at the time of construction, but the demand was, that after 5-7 years there should be a breakeven due to lower maintenance costs.

SF-STEN A/S in Roskilde became known for technical solutions. This meant naturally that we often were asked for advice. This positive effect led to increased turnover.

During the first years we sold less than 5% to private consumers. But we learned that, if we had delivered to sidewalk pavements in connection with a building site, we received orders for 80-90% of the pavements to driveways for the newly build houses.

From this background we became interested in the private consumer marked, and the type of products which could be sold here. For this purpose we found paving products in Germany, Holland, Switzerland and Australia, and that the fastest way to get started is by signing a license agreement, and so we did. And by this time we increased business of decorative concrete pavers.

In 1993 app. 3,5 mill. m^2 of paving blocks were sold in Denmark.

If we define "decorate applications" as pavement for:

Residential streets
Recreational areas and footpaths
Shopping areas and and town squares
Entrances etc.

we get an an estimate for these purposes on app. 60% of total.

If we define all other applications, as pavements for industrial purposes we get

app. 60% of total for decorative areas
app. 40% of total for industrial areas

It would be interesting to learn the experience from other countries, partly regarding the split up of these two areas, and partly regarding competition between concrete paving blocks and asphalt and cast in-situ concrete respectively.

The building and construction sectors have always had boom periods followed by recessions. We have learned that it is an advantage to deliver both "engineering solutions" and "architectural solutions" and we have not regretted starting with the technical difficult problems.

It is, of course, an assumption that the concrete pavers are of high quality and that they are able to resist both the mechanical and the chemical influences they are exposed to. SF-

STEN A/S have chosen to produce pavers which fulfil the following demands:

60 MPa compressive strength
≤ 3% waterabsorption and
≤ 300 g per m^2 peeling off the surface after 28 freeze/thaw - cycles

as described in the Danish Standards.

Another assumption for valid pavements are, that base course is correctly designed, and that the paving job is done correctly using the right materials for the bedding layer and the joint filling.

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