

TECHNICAL PROMOTION OF CONCRETE BLOCK PAVEMENTS: SOMETHING MORE THAN SIMPLE ARGUMENTS

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Every culture and every place has a different way to do business. In the process of marketing and selling concrete products there is the conjunction of several interests: the producers of raw materials, processing equipment and related or collateral products; the trade associations and the commerce and construction chambers. All of them can play a different role when searching for the same objective: to increase the demand, and to satisfy it with the right products.

One of the activities involved in this process is the technical promotion, which can be performed in different ways: from a very discrete salesman, handing-out some brochures about the quality of the product or commenting on certain characteristics of it, to a well-conceived structure of professionals, with a clear strategy and defined goals; and the commitment for a solid, responsible establishment of the product, based on a strong technical support. The purpose of technical promotion is to make the product a lasting option in the market, that could continue developing and be a source of expansion of the company or the industry in general.

In technically developed markets, with a business oriented structure, the technical promotion is performed, up to a certain level by each producer; and at other levels by the trade associations. In smaller or less developed markets and industries, individual companies very seldom have technically-strong salesmen or professionals dedicated to promote the products and to give an after-sale service.

This paper presents the author's view of what the technical promotion for concrete paving blocks and concrete block pavements should be, based on his 15 years experience on technical promotion of different uses of cement, with special emphasis on pavers. It is not pretended to present a definite document but a series of concepts, organized in a way that could be used as a guide for the definition of goals, the creation of a structure and the definition of a strategy to bring concrete paving blocks or other cement products to a certain level, specially in underdeveloped or developing countries.

Key Points for the Technical Promotion of Concrete Block Paving

General Considerations

The technical promotion must take into consideration certain principles:

- Do not be afraid of the competition of alternative materials: There is always a way to define a competition scheme and to exhibit relative advantages for each product. Most of them

have been in the market for years, decades or centuries, and very rarely one has made the others to disappear.

- Use technically correct argumentation: It means to expose the true positive or negative aspects (advantages or disadvantages) of the concrete block paving alternative. Lies never last forever, and always turns back with a greater and harmful effect than the benefit obtained when they were originally told.
- Any competitive alternative can, at least potentially, produce excellent pavements. Your competitors have equally good or even better people than you doing the same thing, and very rarely they offer an inferior product if correctly designed, built and used. So never talk bad about the competitors, and leave the users the judging and the freedom of election.
- Always analyze specific cases. Independently from the honesty proposed in the previous paragraphs, it is fundamental to analyze and compete based on specific cases or situations. It is very dangerous to promote the use of predetermined ideas, tables or catalogs in which the judging has already being made. It will tie both, the competence and your product; and there will be a small field for growth in the future.

Costs Scenario

- Very often the cost is seen as a punctual problem, but it is necessary to visualize the complete cost scenario for materials in terms of:
 - Availability of materials and products.
 - Costs at the production plant.
 - Costs for hauling the product to the job site: Type of packaging (non packed, tied cubes, pallets, plastic wrapping) and transportation system (hand loading and unloading of trucks, cube or pallets moved by crane or a lifter).
 - Availability of construction equipment and labor
- Cost analysis of pavement: It is fundamental to consider equivalent alternatives meaning different materials or structural schemes, but with the same service life or design period, the same service level during use and at the end of its life.
- Consideration of total costs for each equivalent alternative: Initial (down or construction costs) plus maintenance and residual value at the end of its service life. Since some pavements (like the ones made with asphalt concrete) allow the delay of the construction of part of the structure (the top layer of asphalt concrete), it is fundamental to take into account the local tradition in terms of delaying the investment, in order to build more with the same money allowance ("others will have to get the money and to build the rest of the structure later on", a common thought in underdeveloped, politically controlled economies).

Environmental Factors

It is important to analyze the concrete-product option and to make a comparison with other alternatives in order to use this argumentation in environmental sensitive scenarios. The importance of each of the following lines depend, very much, on the local conditions and the enforcement of regulations, but sooner or later all of them will be considered, even up to a minimum level:

- Origin of the mineral resources (quarries, rivers; new or old sites; local or hauled; national or imported).
- Possibility of using recycled material as aggregates (crushed concrete, industrial byproducts), and to dispose or recycle the product at the end of his life, incorporating it in new concrete or construction products.
- Consumption of oil resources (generally very low in concrete). There is the trend to use chemical admixtures, to make the process more efficient and; pigments to increase the vari-

ety and appealing of products. In some cases there is the consumption of fuels (oil, gas, etc.) in the burners for curing or drying the product.

- Existence of a certain level of non-intentional pollution in quarries and processing plants and intentional pollution in processing plants. Most of it can be efficiently avoided or corrected, reaching a point of clean plants, both inside as well as outside the building, and with a very low generation of noise.
- Stability of the material (concrete) to environmental and chemical factors, and to fire resistance, making it safe, durable and, hence, economical.

Political or Legal Factors

The consideration of the legal issues for a given place is a more particular subject than even the approach to the environmental situation.

- Taxes and subsidies are always a complicated topic specially in non-organized countries where tax evasion is an addiction, and large registered industries have to compete with hidden companies. Changing policies in the level of taxation or the applicability or not of a certain tax to a certain product make the financial schemes and the competitiveness in the market to change very often and long-term planning a risky business. Subsidies to certain products, in socially-oriented governments, distort the cost relation of the different alternatives and their participation at different levels of the market.
- Employment generation policies can promote labor intensive scattered processing plants, instead of the creation of concentrated large-scale, high-efficiency industry.
- Trade balance is always something to be taken into account. The best example is the difference between oil producing or non-producing countries. And it has to deal with all sorts of import: production and construction equipment, raw materials and complementary products for production and construction; and even professional services and labor.

Technical Factors

There are some technical factors to take into account when studying the type of equipment to buy and the product to make:

- Origin and cost of equipment: Well established brands and representatives area additional benefices to quality, reliance, and even low cost. Similar technological environments or languages are fundamental to ease all future deals with the supplier. The charm of technically advanced technology or first-hand equipment not always compensate the, generally, lower investments that has to be made for a second-hand, well maintained machine, specially in places where the cost of the money is high, and the returns are not so sure.
- Size: It is fundamental to dimension the equipment to reasonable expectations for the size of the market, taking into account how much of the potential unattended market is possible to get and what margin is expected from the displacement of other alternative materials. But not always the market defines the size of the equipment; the real possibilities for the provision of materials and the dimension of the marketing and delivering structure (roads, equipment, fuel costs) are fundamental in evaluating the size of the production industry to create.
- Versatility: It is not always desirable to have specialized equipment for only one product, specially when it is the first machine for a new company (unless the market is so large and stable that the company is created with only one product in mind).
- Technological refinement: The technological characteristics of the equipment must be chosen according to the technological level of the place or the advancement trend that can be sustained in the future. It is not always possible to have the right people to manage the equipment or it is difficult to deal with foreign or far-away suppliers.
- Esthetic factors: They are much more important than some engineering facts. It is almost impossible to approach concrete block paving without taking into account its appealing.

Choosing the right shape and size of the blocks to be produced is something that must be carefully studied, not without considering their performance from the engineering perspective.

- **Texture:** Macro (shape, one unit or a system of units, sizes, laying patterns, etc.) and micro (roughness by aggregate grading; sand, shot or fire blasting; grinding, cemented veneers or industrial processes) are the adjectives to the basic noun "paver", and launches it to the infinite space of applications.
- **Color:** Integral or in two layers; saturation degree and stability of pigments; type, color and shape of aggregates add to the multiple options exhibited in the previous paragraph. Experience has shown a certain evolutionary process in terms of sizes and shapes (from large to small, from complicated and organic to simple and geometrical) but what is important to consider is that once the basic industry is established, those additional products or processes must be provided as soon as possible, and on a constant basis, to give concrete paving blocks a permanent momentum and an image of freshness and novelty, and to compensate for being a new face of the oldest pavement of humankind.

Possible Alternative Materials for Floors and Pavements

It is convenient to make a comparison table of the characteristics and costs of alternative materials for floors and pavements (considering the traditional local materials and construction methods), and the costs for equivalent solutions. In the low traffic market, it is fundamental to have a clear notion of the minimum design that can be built for each type of pavement and its potential performance, in order to know the competitive potential of concrete block paving in this very competitive market.

Table 1 shows a ranking of different type of floor and pavement options. The qualifications given might be more specific and change according to local available technology or construction methods, but this table can help to build a similar one for each local set of conditions.

Type of Pavement	Type of Structure	Repairability	Costs			Characteristics		
			Initial	Maintenance	Residual	Esthetic	Structural	Durability
Concrete slabs	Rigid	Low	Medium to High	Low	Low to High	Medium	High	High
Concrete flags	Flexible	High	Medium to High	Low	High	High	Medium	High
Concrete pavers	Flexible	High	Medium to High	Low	High	High	High	High
Clay pavers	Flexible	High	Medium to High	Low	High	High	High	Medium to High
Stamped and / or colored concrete	Rigid	Low	High	Medium	Low to Medium	Medium to High	Medium to High	Medium
Clay veneers on mortar	Rigid	Medium	Low	High	Low	High	Low to Medium	Low
Plain mortar	Rigid	Low	Low	Medium	Low	Low to Medium	Medium	High
Asphalt concrete	Flexible	Low	Low	High	Low	Low	High	Medium

Table 1. Comparison between different types of floor and pavement materials in terms of costs and characteristics.

Knowledge of the State of the Art

It is fundamental for a technical promoter to know what the state of the art is, not only in his area but in the most advanced countries; in order to nourish his own environment. It is important to know about:

- Commercial products: What is being offered in terms of blocks and related or complementary products.
- Materials, products, equipment and processes for the production of concrete paving blocks and the construction of the floors and pavements.
- Available literature on technical and promotional issues, national or internationally produced, to respond, soon and effectively, to any question that could be formulated.
- Local or foreign, national or international trade and technical institutions working on concrete block paving or related topics, and to keep a constant contact with them to have the largest possible amount of open channels for future communication.

Direct and Constant Monitoring of Previous Projects

Technical promotion requires to have a good domain of the history of concrete block pavements in the area of interest, in order to use this information as an argument for promotion (showing a superior performance, endurance, etc.); or in case of an abnormal distress or the collapse of a pavement, to have the right explanation for it. This is an expensive, time consuming and meticulous process, to be done along several years, but economically justifiable when a complain can be successfully attended or a promotional campaign can be sustained on solid, local experience. It is suggested to gather the following information:

- Date, designer (structural, architectural), contractor, paver supplier.
- Characteristics of the project as built (area, description of the pavers, construction tolerances, appearance, special craftsmanship characteristics).
- Technical level when built (state of the art, availability of documentation, design methods, standardization of products).
- Evolution of the project (if any major change is observed); analysis of the distresses (on a regular basis), production of a report and distribution of it to the professionals that could be interested in (or to have it available when it be required).
- Production of a set of recommendations to correct the existing distresses and how to avoid them in future projects.
- Storage of samples of blocks to verify stability of color, texture and, if required, to verify the strength.

Capitalizing Previous Experiences

The monitoring of previous projects must be capitalized (either way if they were good or bad experiences), to give the technical community a greater confidence in concrete block paving, and in the seriousness of the people working with it. It is fundamental to have a very direct and honest approach to the solution of problems, thinking more in the future image of the product than in the instantaneous result of the business:

- "There is only one opportunity to cause a good first impression". Demonstrative projects must be treated and developed with extreme care. They will be the reference for all future applications of concrete block paving.
- Never try to bury the mistakes. They must be accepted and corrected in the same or in a better way than when they were made (speed, quality, professional services, economic compensation).

- Offering to replace the product as many times as required, if it fails, is a negative advertising argument. It shows a lack of confidence in the quality of the product by the producer. Replacing the product when it was damaged by other's mistake, in one occasion, could be a good demonstration of a special wish to cooperate, not just to get your money from it. To replace a poor quality product of an irresponsible competitor, in certain strategic projects, will protect the generic name of concrete block paving and could be an excellent advertising opportunity.
- Promote a constant dialogue between the competitors in the area in order to keep the good name of concrete block paving. Quality and performance must be the base for the development of the market; availability of products and price level could come in a second place.

Work with Designers, Promoters and Producers

concrete block paving is a relatively young technology, very seldom taught in civil engineering or architecture schools. A great effort must be dedicated toward designers, technical promoters, marketing and salesmen of the producing companies, and contractors in charge of concrete block paving. A general promoter should work to:

- Take advantage of projects with demonstrative effects, highlighting their positive facts and accomplishments.
- Review the designs, both structural and architectural. The view of an outsider, with a general but large experience on the topic, could bring into account certain relevant points for the project.
- Promote the use of pavers out of the conventional applications (walls, street markings, street furniture, art (sculptures, mosaics, dry landscaping)), and any possible field of application (communal programs, innovative or exotic uses), through specific activities (student competitions in design schools, competitions among paving block layers, yearly or biennial awards for producers, contractors and designers).
- Provide some recommendations to decline contracts (design, supply, construction) with potential problems (poor infrastructure, undetermined use (traffic), poor maintenance expectancy, adverse environment) in order concrete block paving technology not to get discredited for being wrongly applied or used.
- Work toward global proposals by producers, to include laying of the pavers, construction of the whole pavement and even the financing of the works, when required.
- Promote and in-depth knowledge of the standardization on concrete paving blocks and concrete block paving as a promotional tool, whether the alternative materials have it or not.
- Encourage the producers to offer a wide variety of products (shapes, colors, finishes) and complementary products (precast kerbs and channel systems, edge restraints and accessories (joint sand, cleaners, sealers)), as a very effective way to increase the market.
- Ease the channels for construction equipment to be available (cutting or splitting, transporting, sand-laying and installing machines).

Considerations for Special or Large Projects

Large or special projects are of capital importance for the development of the concrete block paving technology. The technical promoter must work, as early as possible, in order to:

- Make an in-depth study of the project.
- Recommend if the project should be tied to a specific block supplier from its early design stages.
- Provide assistance to architectonic or landscape designers.
- Cooperate in the production of specifications for the architectonic drawings, and for the bidding and construction procedures.

- If the project is really special, compared with previous local experiences, interview with the group of bidding contractors to help them to find the points they should consider with special care in order to avoid mistakes that could damage the advance of the works and the image of concrete block paving.
- Propose (and if the technical level is not trustful enough, try to make mandatory) to have specific training for professionals, foremen and workmen (even inner trainers if the project is large enough), to be sure all of them follow the same technical principles and speak the same language.
- Perform a self-assumed surveillance of the construction process, when allowed to do so, in order to detect problems and formulate solutions, specially if the supervising company has not a large experience on concrete block paving, or not in the kind of job being done.
- Work with the engineering department, the public works office or the roads department to produce a specific maintenance manual for each special project, according to use the pavement is going to have; and develop special, simple literature for the users (common citizens, neighbors) on the special characteristics of the pavement and how to use it (simple recommendations that seems to be obvious like: not to clean-out the sand of the joints with a the water jet of the garden hose).

Final Comments

This recount of facts concerning concrete block paving shows that there is large way from the decision to invest in this industry, to the moment when it is well established and maintains a permanent growth rate. In between, there comes the cooperation of many people with their knowledge and expertise, to take the right decision, on an specific topic, at the right moment.

Technical promotion is something that can be explicitly present or totally hidden for even those involved in the industry. To have it or not to have it (no matter its size, characteristics, and strengths), makes a large difference at the end of the road the project is supposed to go through. It is expensive, time consuming and not an instant-success story; but each cent invested in it, is profitable in a solid and lasting way. Just look around the different countries and the relative development of concrete block paving in them, to appreciate the difference the concept of technical promotion has made for them.