



*Concrete Products*

Pave Espania has been manufacturing concrete pavers and other prefab products since 1999. Quality and consistency is our main focus. We source the best aggregate, use ultratech 53 grade cement, and use the best pigments available in the market.

We have executed over 300 projects over the last many years ranging from residential, commercial, institutional etc. We have undertaken projects for hotels , hospitals, schools, industrial zones, roadways and a whole lot of other applications for individual homes and farms.

Our production facility is extremely versatile and diverse, allowing us to manufacture all kinds of precast concrete products. Our product range varies from paver, kerbstones, blocks, drain channels and other precast products.

Pave Espania upgraded its manufacturing facility to meet international standards by setting up an entirely automated system imported from Germany.

Our production facility has the capability to produce both through a PLC based automated system as well as through wet cast labour intensive methods. However the product lifecycle and quality between the two varies greatly.

**Below is a concise comparison between both methods. One is a method that is used internationally in the most developed nations of the world (Europe, USA, Japan, Korea), while the other is a labor intensive method that has been successful only in India (due to abundance of labor).**

## PLC AUTOMATED SYSTEM

## WET CAST MANUAL SYSTEM

High strength products

Substantially lower strength

Uses a semi-dry concrete and therefore minimises the water : cement ratio ( $w/c < 0.35$ ).

Uses wet concrete and water cement ratio is on higher side ( $w/c > 0.55$ )

Raw material are dosed by batching plants to ensure consistency and strength.

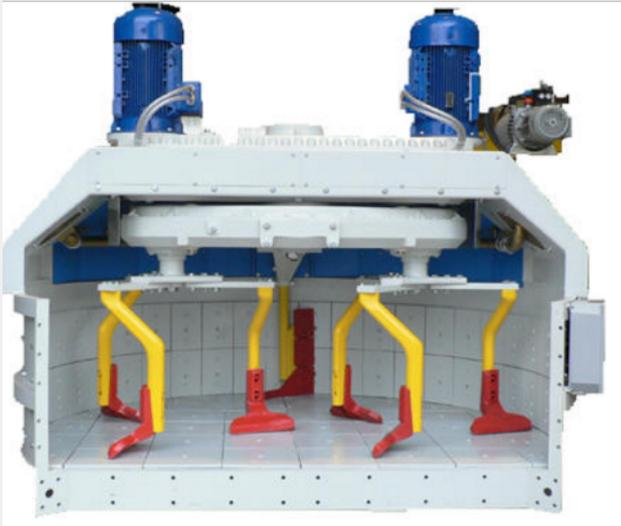
**Automated dosing of :** cement , sand , aggregates , water and admixtures.

Raw materials are added into the mixer by unskilled labour and there are no controls to ensure the correct design mix/ strength.

**Manual dosing of :** cement , sand , aggregates , water and admixtures.

Raw materials are mixed in planetary mixers that have multiple mixing arms to ensure a thorough mix of all raw materials. The planetary mixer is designed for the precast industry.

Raw materials are mixed in pan and drum mixers that are outdated and do not give best mixing results for precast applications.



In the automated machinery, hydraulic pressure is coupled with very strong vibration which results in highly dense concrete giving very high strengths.

The wet cast manual method only uses the process of vibration . Liquid concrete is poured into plastic / rubber moulds. Final product strength is much lower than machine made products.



### PLC AUTOMATED SYSTEM

Moulds are high grade steel and very expensive (Rs.3-7 lakhs). One mould is cast from one solid block of steel ensuring consistency .

The high precision moulds do not deform and ensures consistent size of products. The final finish of pavements come our extremely even.



### WET CAST MANUAL SYSTEM

Moulds used are extremely cheap.(Rs.30-1000) and made of polyurethane or ABS plastic. One told is used to cast one paver at a time.

Plastic / PVC moulds deform very quickly resulting in deformed products with inconsistency in sizes.



All faces of the finished product are moulded in the machine (including the bottom surface). product dimensions are highly accurate and conform to international standards.

Products always have one un moulded surface (bottom surface). Product dimensions cannot be guaranteed due to variable settlement of concrete. Final outcome of paving is always uneven due to deformed moulds and uneven bottom surface.



### PLC AUTOMATED SYSTEM

Kerbstones/ Drain Channels do not require any jointing mortar in between each piece. This gives a much superior look without the ugly mortar patches. They can be made in any colour of concrete to match the colour and finish of the paving. Since each side meets at a 90 degree angle, it reduces construction and curing time immensely.



Consistent quality, monitored to ensure compliance with national / international standards. Each product is made with a dual layer to ensure a far longer lifecycle of the paver. The top layer (wearing layer) is consistent throughout the product. The product evenly wears throughout its life and looks consistent at all times.

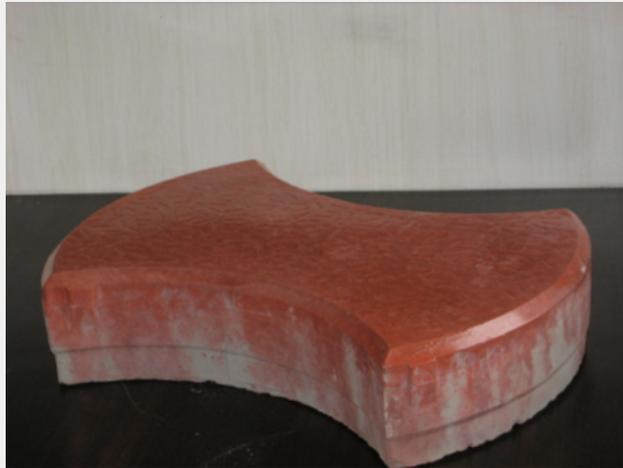


### WET CAST MANUAL SYSTEM

Kerbstones/ Drain Channels require mortar in between each joint as the sides do not meet at 90 degree angles. This causes the ugly mortar patches between each piece. Concrete kerbs made with this method always look dirty and patchy. Construction and curing time takes much longer.



Variable quality - national / international standards virtually non-existent. Even if the product is made in a dual layer, the process does not ensure consistent top layer in all areas. The top layer of the product runs off to the sides causing the top layer of the product to wear unevenly through its lifecycle.



## PLC AUTOMATED SYSTEM

Products look better over the course of time and do not look degraded or patchy due to negligible variance between each batch of products manufactured.

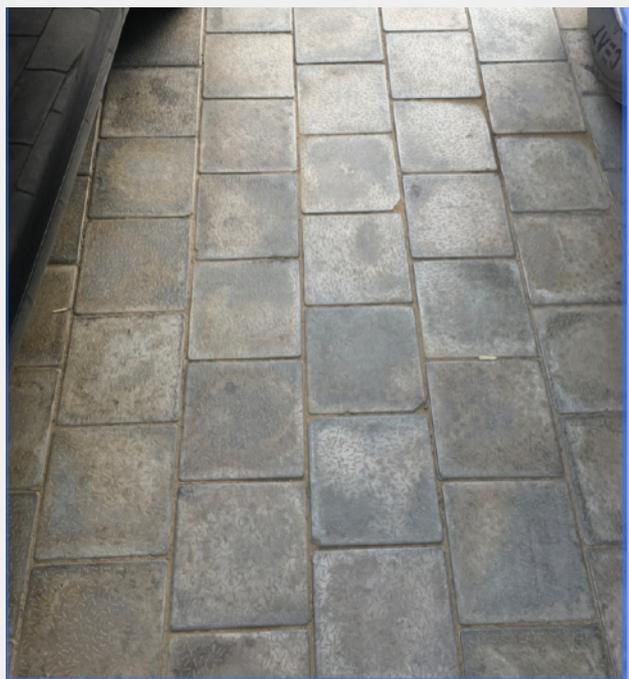
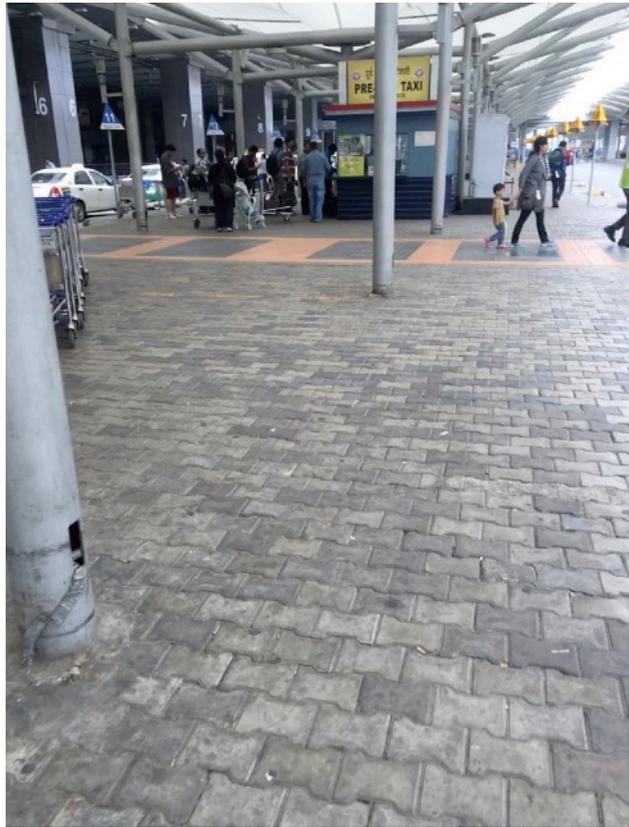
A consistent top layer also ensures an even wearing and gives the product a great look even after multiple years.



## WET CAST MANUAL SYSTEM

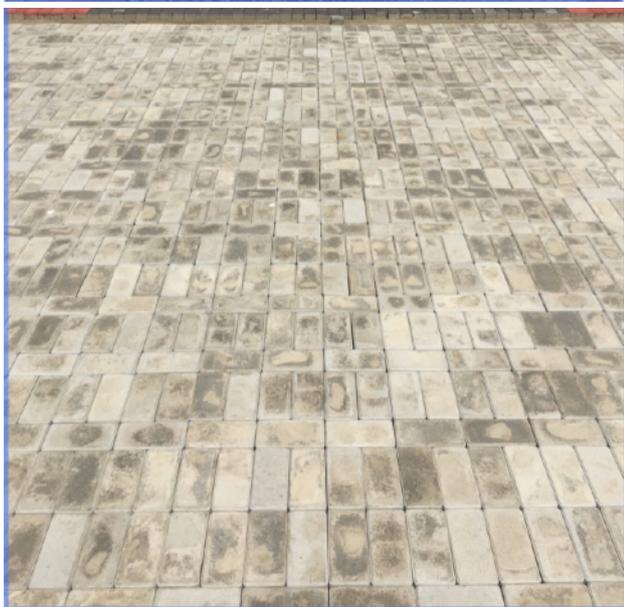
Products look shiny in the beginning, however within a few months of fixing, the products start degrading and become patchy due to the extreme variance in quality between all lots of material.

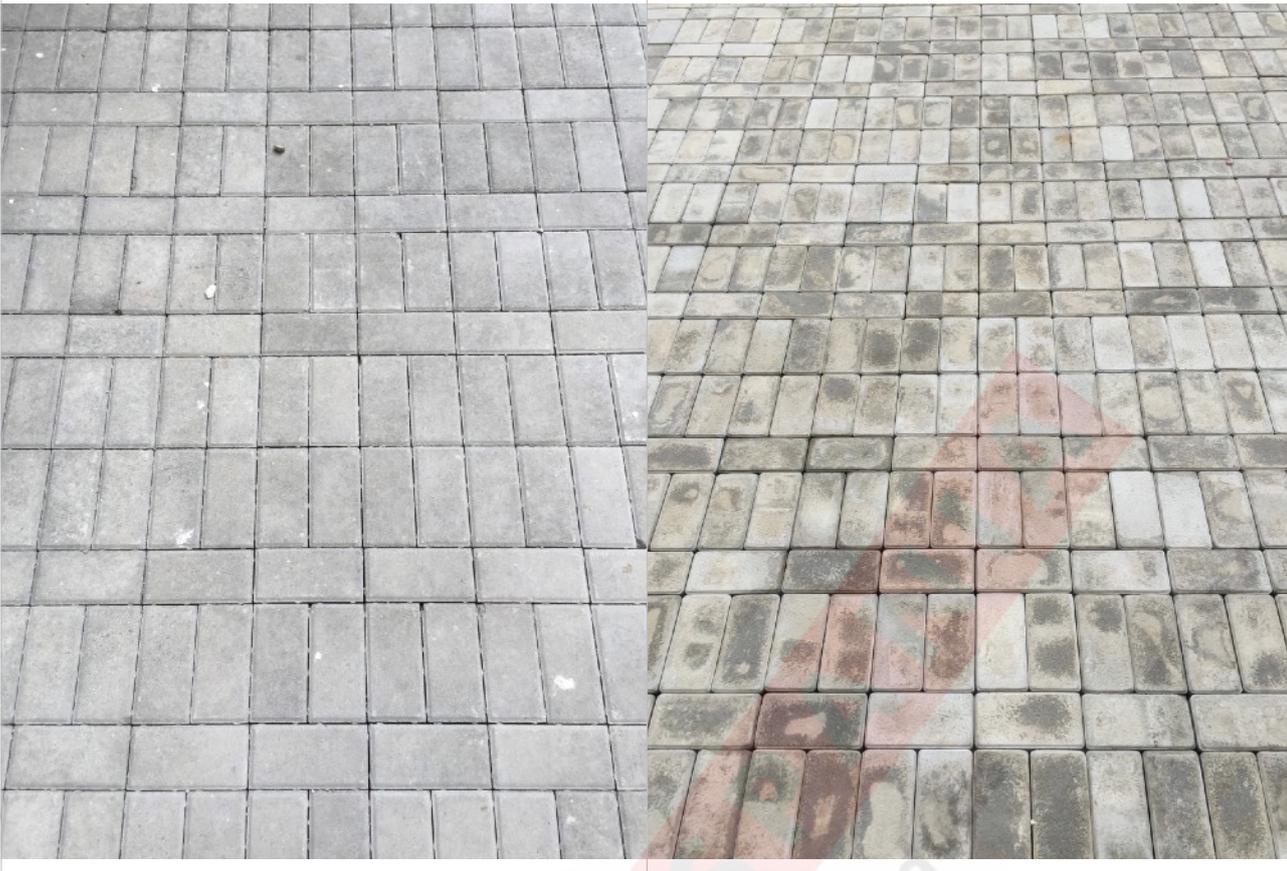
An inconsistent top layer does not allow even wearing to happen, giving a low quality and cheap feel.



**PLC AUTOMATED SYSTEM**

**WET CAST MANUAL SYSTEM**



**PLC AUTOMATED SYSTEM****WET CAST MANUAL SYSTEM**

### **Nomenclature of PLC Machine made products:**

Cement concrete pavers manufactured by PLC based Automated Block / Paver making machine having compression and vibration both in sequence using multi cavity precision steel moulds. The mixing of the concrete must be done with proper measured quantities of raw material including cement and mixed in an automatic Planetary Mixer to give uniform mixing and quality of concrete as per required strength. The paver must be manufactured in two layers. First the bottom layer must be filled and then the top layer must be filled. Top layer must have uniform thickness of 5-6 mm. The finished paver requires a rough finish on the top surface to provide better traction and less slippage of pedestrian / traffic movement.