
Case Study in

# ENGINEERED INTERLOCKING CONCRETE PAVEMENT

*Hong Kong International Airport*


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# Building for the Future

## Hong Kong International Airport represents the largest single airfield installation of interlocking concrete pavement using state-of-the-art design and construction.

For centuries, Hong Kong's location was regarded as the door to the world's most populous nation and serves as an entry to the economic engine of China. Given staggering economic growth, a new airport was envisioned by the government in the late 1980s. Completed in 1998, Hong Kong International Airport is designed to handle over 45 million passengers (87 million ultimately) and over 3 million metric tons (9 million metric tons ultimately) of cargo annually. The HK$49.8 (US$6.46) billion airport rests on the island of Chek Lap Kok, joined by some 21 miles (34 km) of rapid rail transit and highways to the heart of Hong Kong and Kowloon. Operated by the Hong Kong Airport Authority, the new airport opened in July 1998 and replaced the outdated, congested, single-runway Kai Tak Airport in central Kowloon.

Over 39 million sf (3.7 million m$^2$) of airfield pavement supports some 180,000 take-offs and landings annually. Some of the heaviest commercial aircraft use the airport including B-747s, MD-11s and A340s. With the heaviest B-747s weighing 992,250 lbs (450 T) and a 213 ft (65 m) wingspan, the airport is also designed to handle the next generation of aircraft weighing 1,700,000 lbs (770 T) and having wingspans of up to 275 ft (84 m). Tire pressures on the pavement will exceed 250 psi (1.8 MPa).

*Figure 1. Hong Kong International Airport rests on native land and fill from two islands and soil dredged from the sea.*

*Figure 2. Interlocking concrete pavements were selected because they would tolerate expected settlement around the terminal building and remain serviceable.*

Parts of two islands were excavated and used to reclaim land from the ocean while the remainder of the airport-island came from marine borrow areas in Hong Kong territorial waters. The combination of marine dredging and casting island mountains into the sea created 4.8 square miles (1,255 ha) of land for the airport. Figure 1 shows an aerial view of the massive construction project. The island supports:

- 555,400 sf (51,600 m$^2$) airport terminal building, control towers, parking and transportation facilities.
- Two main runways, each 12,500 ft (3,810 m) long paved with 2.6 million m$^2$ of asphalt.
- 7.53 million sf (700,000 m$^2$) cast-in-place concrete taxiway and apron areas.
- 5 million sf (464,000 m$^2$) of interlocking concrete pavement in apron areas and cargo loading areas, the largest airside airport application to date.
- Over 1 million sf (100,000 m$^2$) of landside interlocking concrete pavements.

### State-of-the-Art Interlocking Concrete Pavement

Since a large part of the airport is built on reclaimed land, settlement of the pavement is expected. The anticipated settlement required that flexible asphalt pavement

*Figure 3. Steel stabilizer legs under cargo loading equipment concentrate point loads on pavements.*

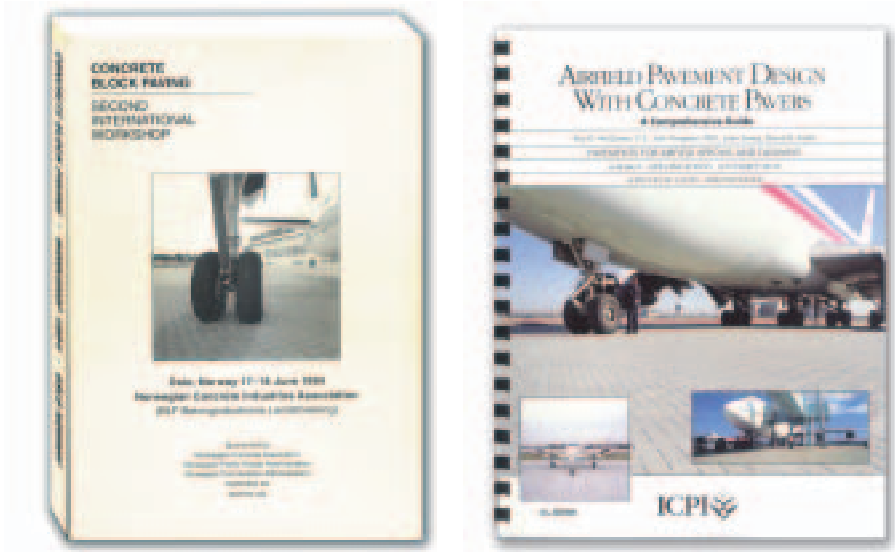



*Figure 4. A compilation of experiences on airfield pavements with concrete pavers emerged from an international workshop in 1994 (1) and from ICPI's manual on airfield pavement design (2).*

rather than rigid concrete be used for runways. Should deformations occur, the asphalt can be repaired rapidly with overlays at night thus minimizing runway closures. Conventional portland cement concrete (PCC) has been the traditional choice for aircraft aprons and parking positions because it resists degradation from fuel and is more tolerant of rutting from channelized wheel traffic.

Interlocking concrete pavement was selected because rigid PCC pavement could not tolerate expected subgrade settlement without severe distresses that could interrupt airport operations. A flexible pavement surfaced with interlocking concrete pavers was the logical solution for aircraft parking areas subject to differential settlement such as around the terminal cut-and-fill areas over service tunnels. See Figure 2.

Concrete pavers provide a more fuel-resistant surface than asphalt while the flexible nature of their interlocking surface tolerates settlement more readily than rigid concrete pavement. Should pavement settlement interfere with aircraft operations, the pavers can be removed, the areas re-profiled to acceptable elevations, and the same pavers reinstated. Unlike asphalt, concrete pavers resist degradation from fuel, oils, and indentation from wheel loads exceeding 50,000 lbs (22,680 kg). Likewise, pavers resist indentation from stabilizer legs used to position cargo handling equipment next to aircraft. Figure 3 shows cargo loading equipment.

## Design, Details and Specifications

In the mid-90s, Larry Mujaj with the Hong Kong Airport Authority researched the literature, construction and performance of interlocking concrete pavement airfields in Australia, United Kingdom, Norway, and the United States. Much information was introduced in 1994 at the Second International Workshop on Concrete Block Paving in Oslo, Norway. That conference provided in-depth technical sessions on design, construction, and performance of interlocking concrete pavement airfields

**According to civil engineer Larry Mujaj, the Airport Authority's Design Manager for the airside part of the project, "Each pavement type—asphalt, concrete, and pavers—has its purpose. We chose concrete pavers in areas where a fuel-resistant surface was needed and where concrete pavements would crack under the expected differential settlement. Also, pavers gave the advantage of reduced down times and gate closures during repairs due to the ability to work on small sections at a time."**

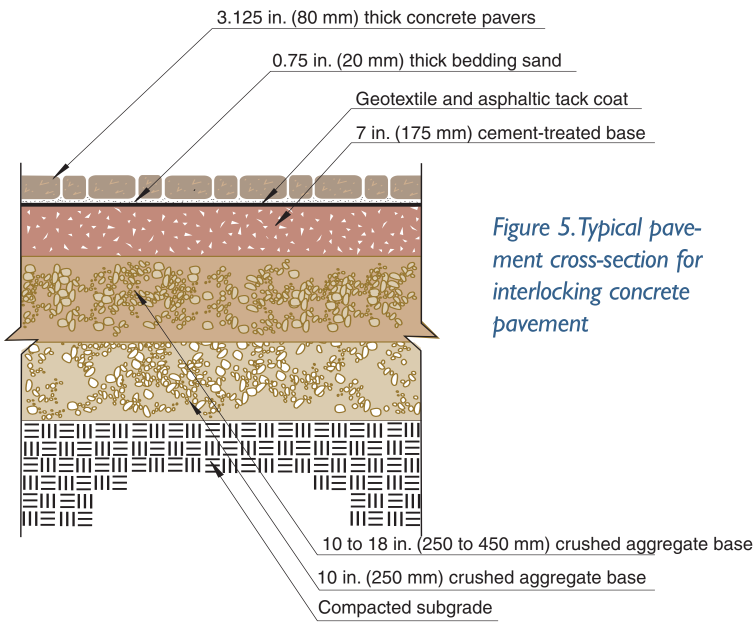



*Figure 5. Typical pavement cross-section for interlocking concrete pavement*

in all climates, as well as an introduction to the Interlocking Concrete Pavement Institute (ICPI) manual, *Airfield Pavement Design with Concrete Pavers* (U.S. Edition).

As advised in the ICPI manual, structural design for all airfield pavements including the interlocking concrete at Hong Kong airport followed U.S. Federal Aviation Administration (FAA) design method for flexible pavement (3). The 3 1/8 in. (80 mm) thick pavers and 3/4 in. (20 mm) thick bedding sand was considered structurally equivalent to the same thickness of airfield quality asphalt. The resulting base design under the pavers and bedding sand included the following layers (see Figure 5):

- 7 in. (175 mm) of cement-treated base
- 10 to 18 in. (250 to 450 mm) of compacted aggregate base depending on load applications
- 10 in. (250 mm) of compacted aggregate subbase
- A compacted sand subgrade with a 7% California Bearing Ratio.

Asphalt and concrete pavements have been used in commercial and military airports for many decades with continual refinement of design, plus quality control and quality assurance during construction. By comparison, interlocking concrete pavements are fairly new to airports, first introduced into commercial airfields in 1983. Between 1983 and 1994 approximately 5 million sf (464,000 m$^2$) of concrete pavers were placed in commercial and military applications around the world. Some of these projects were successful and others represented learning opportunities. Experience with concrete pavers at Cairns, Australia International Airport and a review of other airport projects by Mr. Mujaj indicated that successful projects depended on adequate specifications, enforcement of workmanship and tolerances during construction (4). By implementing rigorous quality control and quality assurance specifications at Hong Kong, past mistakes were avoided.

FAA design requires that pavements supporting aircraft over 100,000 lbs (45,000 kg) be stabilized with cement or asphalt. Given that design requirement, the crushed aggregate base immediately below the bedding sand was stabilized with 3% cement. This yielded a minimum 7-day compressive strength of 725 psi (5 MPa) for the cement-treated base (CTB).

Another reason for using CTB was studies indicated that it would keep elastic deformations kept below 1/16 in. (1.5 mm) during the life of the interlocking concrete pavement. This would substantially reduce the risk of paver spalling, cracking, and foreign object damage (FOD) to aircraft. To achieve the stringent elevation and surface smoothness requirements, it was necessary to lay all the pavement layers under the concrete pavers with laser-guided equipment. This produced a consistently smooth surface that allowed for a uniform 3/4 in. (20 mm) thickness of bedding sand under 115 acres (47 ha) of interlocking concrete pavement.

Some shrinkage or movement cracks inevitably occur in cement-stabilized bases over time. Cracks could result in places for bedding sand to migrate downwards. The resulting loss of support under the pavers would then cause surface deformation and possible failure. To reduce this risk, a geotextile was placed over the surface of the cement-stabilized base course and secured with a cold-applied, bitumen emulsion tack coat. Additional bitumen was applied and allowed to soak into the geotextile.

To accelerate development of shrinkage cracking and to induce micro-cracking, the CTB was not cured after compaction. Rather, it was "pre-cracked" after the CTB had set sufficiently using large vibrating drum rollers. This

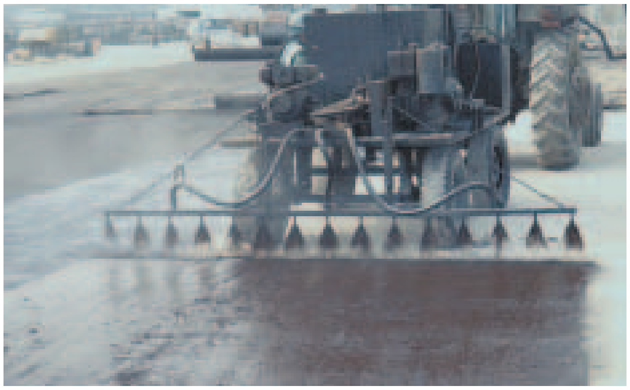


*Figure 6. A bitumen tack coat secures geotextile in place over the CTB. A thin layer of sand was then spread to keep the bituminous material from sticking to boots and tires.*


*Figure 7. A sonic-controlled asphalt machine accurately placed, 3/4 in. (20 mm) thick bedding sand layer over a smooth CTB surface.*

*Figure 8. The screeded bedding sand maintained a consistent thickness since the surface of the CTB met tolerances for smoothness.*

approach prevented the CTB from cracking into large segments. The bitumen-impregnated geotextile formed a flexible impermeable barrier that prevented surface water and bedding sand penetrating into any cracks. Figure 6 shows the bituminous tack coat being applied to the geotextile placed over the CTB.

Experience has shown that insufficient hardness, poor gradation, or excessive thickness of the bedding sand under concrete pavers can cause distresses. These can include variable thickness and density, saturation and degradation from concentrated loads, uneven compaction or loss into cracks and joints. Errors in similar projects were avoided at Hong Kong airport because the specifications required a uniform, 3/4 in. (20 mm) sand layer made from clean, strong, well-graded material. A smooth CTB surface enabled use of this thin layer. Bedding sand was spread and screeded with a sonic-controlled asphalt spreader to a consistent 3/4 in. (20 mm) thickness. Figure 7 shows the asphalt machine spreading the sand and Figure 8 shows a close-up of the screeded bedding layer.

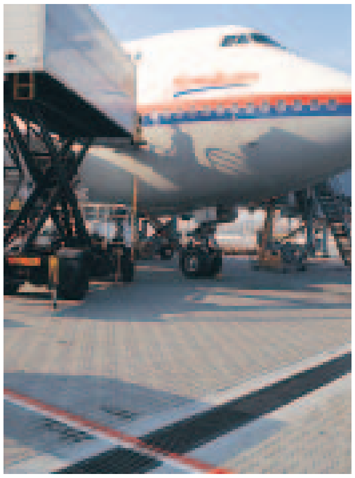
Sand gradation for the bedding material met the specifications for gradation and hardness. Gradation specifications maintained material passing the No. 200 (0.075 mm sieve) to less than 3%. Hardness was tested using a modified Micro Deval degradation test. The locally dredged marine sand was found to be extremely durable when tested using this test. However, the grading of this sand wasn't acceptable so it was dried and screened to achieve the correct grading. This was done in the on-site asphalt mixing plant prior to the commencement of asphalt production. The percent passing the No. 200 (0.075 mm) sieve was consistently monitored and kept below specified limits.

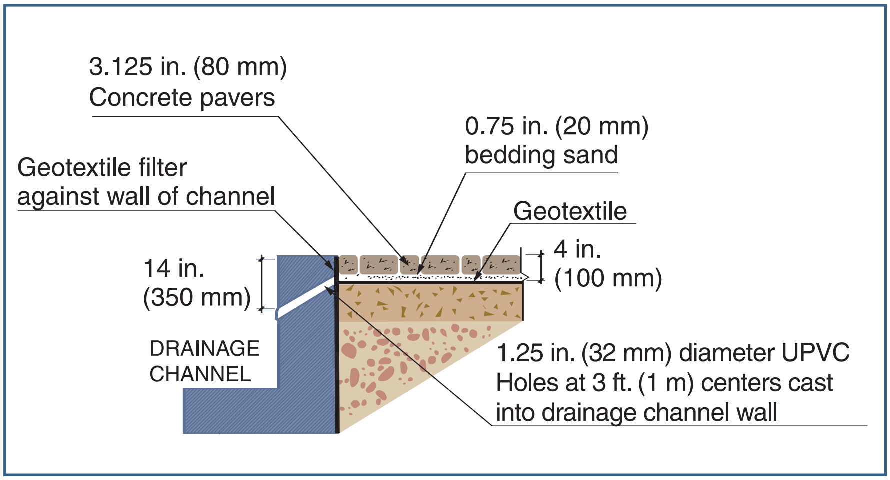
The designers, influenced by their work completed at Cairns International Airport in Australia, selected dentated pavers laid in herringbone pattern. Herringbone pattern offers the strongest interlock augmented by the shape of the units. The Airport Authority required the contractor to propose methods for dimensional control of the pavers during manufacture to compensate for paver growth due to mold wear (paver plan dimensions increase slightly as the hardened steel production mold wears) so that joint widths were consistent during installation. Paving units were regularly measured for dimensional consistency in the factory. All bundles of pavers delivered to the job site were tagged with their date of manufacture, strength, and dimensional characteristics. Bundles of pavers were stored on-site in lots representing daily production runs. Pavers were generally placed in descending production day sequence, i.e. slightly larger pavers were installed at the start of an area, and the paving progressed with units gradually reducing in size.

The specifications also required that the contractor mathematically model the effect of his proposed plan for control of dimensional tolerances for submission prior to construction. Modeling confirmed that the joint spacing of 1.5 mm to 4 mm in the project specifications could be consistently achieved across a large expanse of pavement through control of dimensional tolerances for the length and width of each paver.

Full depth concrete curb edge restraints up to 5 ft (1.5 m) deep were specified to restrain the pavers and base at the edges. In other places, the terminal building foundation provided a restraint. The curbs occurred mostly at the high elevations of the paving while the low points were restrained with drainage channels. All of the precast drainage channels had 1 1/4 in. (32 mm) diameter weep holes cast into their walls at 3 ft (1 m) centers at the level of the bedding sand to aid drainage. See Figure 9. Drains relieved excess rainfall on the base and in the bedding sand during construction. During the early life of

*Figure 9. Weep hole detail at drainage channels*






the pavement, the drain holes dissipate excess water in the bedding sand, thereby reducing the chance of pore pressure build-up and sand loss through the joints. To ensure that the bedding sand was not washed away through the weep holes, the geotextile continued up the face of the drainage channels to 3/8 in. (10 mm) below the surface.

## Construction

Construction of the airside infrastructure began in May 1995. Concrete paver installation began in Spring 1996. Civil engineer John Howe, Project Manager with Airfield Works Joint Venture (AWJV) led the interlocking concrete paving team and used mechanized equipment to pave the large area. Mechanical equipment picks up and places about a square yard (1 m²) of concrete pavers called a layer or cluster arranged in the final herringbone laying pattern. As noted earlier, monitoring of dimensional tolerances among the pavers in the factory enabled each layer to fit against the next throughout the entire laying process.

Figure 10. Mechanized installation accelerated paving by using three machines to place layers of pavers in their final herringbone laying pattern. Note the bundles of pavers in the background and the crew adjusting joint lines and tightening each layer against its neighbors.

Mr. Howe notes that, "Mechanical installation was necessary because the construction schedule required a high quantity of pavers to be placed every day for a considerable time period, and it was unlikely that this would have been achieved with manual placement while maintaining consistent compliance with the specifications. We eliminated the potential for wide joint spacing between clusters of pavers and ensured compliance to the stringent specifications with mechanical equipment." AWJV used three mechanical installation machines to place up to 16,145 sf (1,500 m²) per ten-hour day with production averaging about 10,700 sf (1,000 m²) per day. This rate of production includes laying the geotextile and tack coat, screeding the bedding sand, placing and compacting the concrete pavers, plus completing the joint sanding operation. Figure 10 shows a layer being placed by mechanical equipment on the screeded bedding sand.

Always concerned about the quality of the product and the installation, Mr. Howe worked closely with Chinese partners who manufactured the concrete pavers to ensure conformance to the product specifications, and to AWJV project-specific criteria. "Multi-million dollar aircraft will use this pavement and it must perform flawlessly. Every effort has been made to ensure the highest quality installation," Mr. Howe said.

Manufacturing pavers on the site was considered but rejected due to logistical constraints on setting up the plant and supplying raw materials. The 3 1/8 in. (80 mm) thick concrete pavers were manufactured in nearby Shenzhen and hand stacked in the final herringbone laying pattern. Each cluster of concrete pavers consisted of 41 pavers. Where labor costs are higher in other parts of the world, hand stacking is uneconomical. Rather, each layer is manufactured in a ready-to-install herringbone pattern as used on many commercial, industrial and port paving projects.

For the Hong Kong project, each layer included four pavers at the corners re-oriented during installation to create a completely interlocking concrete pavement among neighboring layers. Stitching units also tied each layer to its neighbors. Figure 11 illustrates the movement of corner pavers and location of stitching pavers that join a layer to its neighbors.

The layers were stacked in bundles or cubes, fastened to wooden pallets and barged to the island airport in 54,000 sf (5,000 m$^2$) lots. Each paver has 12 spacer vertical bars slightly protruding from the sides of the pavers by 1.5 mm. They stopped short of the top surface by 3/16 in. (5 mm). The spacers ensured that there was no face-to-face contact among the pavers when installed, thereby reducing the chances of spalling and chipping.

As noted earlier, concrete pavers often enlarge slightly in length and width over the course of a large project due to production mold wear. This gradual change in dimensions makes the pavers difficult to fit into the laying pattern. The time spent making adjustments on the job site can waste installation efficiencies normally gained by mechanical equipment. In order to prevent this possibility, sampling and measuring pavers during production maintained conformance to specified tolerances.

The pavers were manufactured to meet the 1993 version of British Standard 6717 which required a minimum average compressive strength of 7,100 psi (49 N/mm$^2$) and cement content of no less than 640 pounds per cubic yard (380 kg/m$^3$)*. The British Standard allows the plan dimensional tolerances of ±2 mm and ±3 mm for the thickness. However, the contractor's experience and results from the modeling indicated that tighter controls would be necessary. The tolerances were modified to no greater increase in length and width of 1.25 mm and thickness limited to ±1.0 mm.

The paver specifications also required a smooth surface texture in order to achieve a surface that would not spall under use. A modified asphalt sand patch test was developed to measure the surface texture and the standard of acceptability was agreed among the designers. "Traffic light" display of pavers installed adjacent to the paver production equipment and at the site provided a

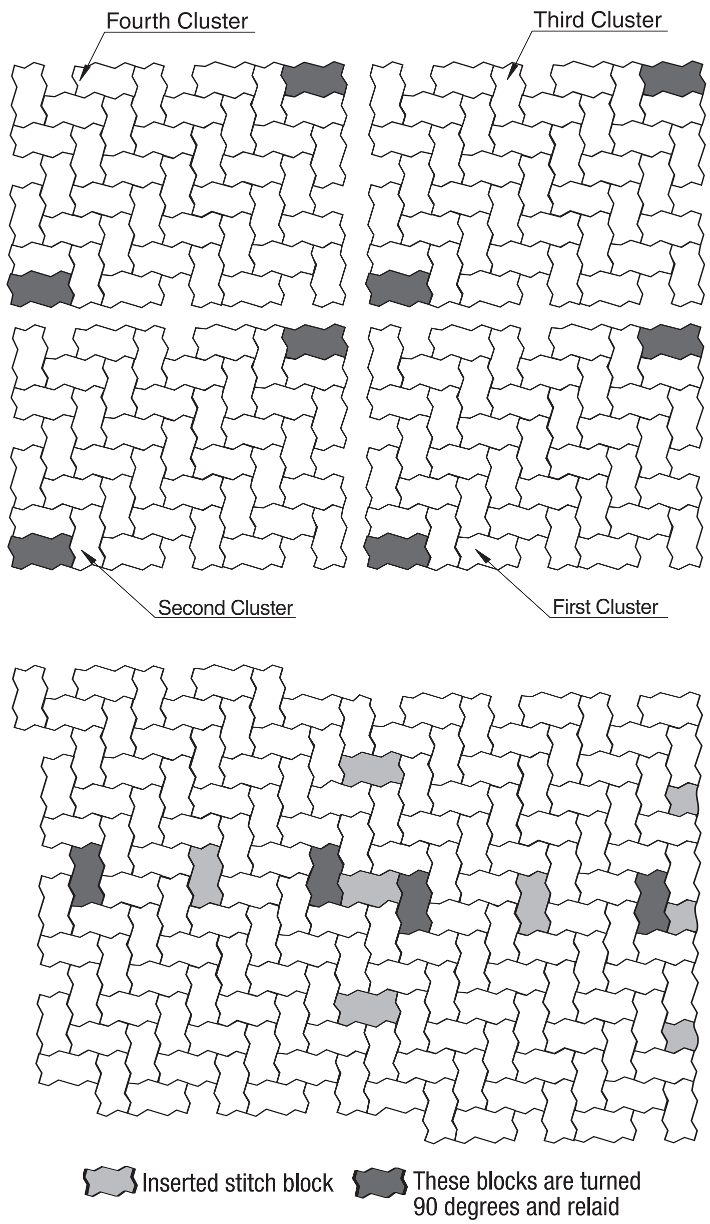



*Figure 11. Upon machine placement of each cluster on the bedding sand, pavers at the corners were re-oriented and stitching pavers inserted or turned to create a consistent, fully interlocking surface across the pavement.*

*The current British Standard requires tensile splitting rather than compression testing to characterize the strength of paver, and the cement content requirement has been eliminated.*

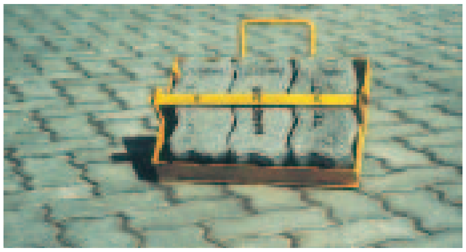


*Figure 12. A sample panel of good, marginal, and unacceptable pavers used by factory and site personnel provided visual acceptance criteria of the paver surface texture. This was part of a comprehensive program of quality control and quality assurance measures implemented throughout the project.*

*Figure 14. The left half shows a saw-cut paver with a chamfer on the cut edge. The right half shows a paver with rough edges cut with a manual splitter. No pavers at Hong Kong were cut with a splitter. Saw-cut pavers and chamfers eliminate risk of ingestion of chipped concrete into jet engines.*

*Figure 13. Cut pavers were fitted around concrete collars at bollards and at utility structures.*

visual datum for production and construction personnel. Figure 12 shows three pavers with varying surface textures ranging from acceptable (green) to marginal (yellow) and to unacceptable (red). Because unacceptable pavers were culled in the factory, no pavers were rejected on-site for non-conforming surface texture, as well as dimensional tolerances. The display boards and checking dimensions in the factory were part of a comprehensive quality assurance system developed and implemented on-site in accordance with ISO 9000. Recorded self-inspections or checks were undertaken at all stages of the construction process.

Paver installation usually began at an edge restraint. Special hand-laid edge pavers and manufactured half units were used to start the herringbone pattern. Manufactured half pavers (called "half stones" or "half blocks") were used to close the pavement at the edges. Cut pavers were applied where necessary at the closing edges, around pits and manholes, bollards and at changes in direction of the pattern. See Figure 13. Diamond saw cutting of every partial unit ensured a clean, smooth face, as well as uniform joints and contact areas. All cut pavers were larger than 25% of the whole unit. Cut faces were always chamfered to replicate the top edges on whole pavers. See Figure 14.

The pavers were seated into the bedding sand using dual 990 lb (450 kg) plate compactors on a rubber pad that transmitted a centrifugal compaction force of 9,000 lbf (40kN) or 11.6 psi (0.08 MPa). The large machine size and plate area enabled faster and more consistent compaction. Any cracked or damaged units were immediately removed and replaced. After an area was paved and compacted, it was immediately checked and the joint sanding proceeded if the installed pavers were in full compliance with the specifications. The joint sand was swept and vibrated into the joints until full with the same compactors. See Figure 15.

The most important self-inspection process was prior to the joint sanding operation. The pavers, joint spacing, surface smoothness, and general compliance to the specifications were checked. Any non-compliant characteristics were immediately corrected before proceeding with the joint sanding.

Like the bedding sand, no suitable joint sand was available locally so it was necessary for AWJV to develop a drying, screening and bagging facility to process dredged joint sand on the site. Figure 16 shows the joint sand which had a finer gradation than the bedding sand. Figure 17 shows compaction of sand into the joints.

*Figure 15. 9,000 lbf (40 kN) plate compactors were used to compact the pavers into the bedding sand, then again to compact the joint sand into the joints. Two were joined for greater efficiency.*

*Figures 16 and 17. Dry joint was distributed across the compacted pavers and compacted into the joints until full. The joint sand gradation was finer than the bedding sand.*

Random checks of 10 sf (1 $m^2$) for every 2,700 sf (250 $m^2$) of pavement were made to confirm the specified joint spacing of 1.5 mm to 4 mm. The final pavement checks included closely supervised proof-rolling using a 44 ton (40 T) pneumatic, multi-tire roller with tire pressures of 116 psi (800 kPa). See Figure 18. An independent laboratory tested for surface regularity. A computerized surface profilometer was developed and used to demonstrate that the pavement was within the required strict surface tolerances (maximum variation of ±1/4 in. over 10 ft (± 7 mm per 3 m) for aircraft pavement. These measurements were taken on a 15 x 15 ft (5 x 5 m) grid, running north to south and east to west over the all the pavements. Extensive checking of the surface tolerances and smoothness shown in Figures 19 and 20 ensured a pavement surface that would have a sufficient smooth-riding surface. Additional informal inspections were done by AWJV and the HKAA site teams. They examined joints in the pavements after periods of heavy rain to ensure that there were no areas of ponding.

As a final step, the joint sand was stabilized with a urethane sealer. The sealer holds the sand in the joints, keeping it from being blown out by jet engine exhaust. Mr. Howe developed equipment to spread and seal some 20,000 sf (2,000 $m^2$) per hour.

The low-viscosity elastomeric urethane pre-polymer was spread across the surface and allowed to soak into and stabilize the sand in the joints. Penetration of the sealer into the joints averaged between 3/4 in. and 1 1/4 in. (20 mm and 30 mm). Higher penetration was avoided because if it occurred near the bedding sand weep holes, the geotextile over the weep holes would clog and become ineffective. The sealer accepted paint markings. The joint sand stabilizer is expected to last at least 10 years.

The record-setting project opened to traffic in April 1998 and the airport opened to full commercial use on July 6, 1998. Like many commercial airports, Hong Kong airport developed a computerized pavement management system to monitor pavement conditions and plan for maintenance activities. The system includes condition survey criteria and inspection sheets to collect informa-

*Figure 18. This 44-ton (40 T) machine rolled the completed surface of the pavers (prior to application of the sealer) to prove that they were seated and that the joints were full of sand.*

*Figures 19 and 20. Checking surface tolerances with a straightedge and overall smoothness ensured a pavement amenable to keeping aircraft level during refueling.*

tion on distresses and severities specific to interlocking concrete pavements. This has enabled routine collection of pavement condition information with the other pavement types.

In 2003, members of the original design and contracting team met at the airport to assess the pavement's performance. The following is excerpted from a report on their inspection (6):

- The pavement has performed exceptionally well in majority of the airfield.
- There are some minor areas of settlement that required lifting and reinstatement. The areas are generally around manholes in the heavily trafficked head-of-stand road next to the terminal building. The location of the affected manholes was generally observed to be directly on the wheel alignment of the traffic using the head-of-stand road. This road is the primary access route to the aircraft stands for all service vehicles including aircraft tugs, coaches, container trucks etc.
- The performance of the interlocking concrete pavements in the aircraft parking stands and apron areas has been almost exemplary. There was visual evidence of fuel spillages in the aircraft parking stands with no adverse affects on the pavers from the aggressive aviation fuel.
- The constructed gradient in the West Apron of the airport appeared to have a low lying area in one parking stand which was found to keep the bedding sand in a saturated condition and some settlement was occurring. The Maintenance Department of the Airport Authority recognized the problem and removed 3 ft (1 m) strips of paving to construct a no-fines sub-surface drain. The pavement was reinstated and has since been performing well.
- There was some evidence of pavers breaking under the stabilizing legs that are used position cargo handling equipment next to aircraft. The Maintenance Department is currently researching and testing methods to improve performance in this area including the use of half-pavers or concrete pads at specific locations.
- Staff from the Hong Kong Airport Authority remarked that the minor problems described accounted for approximately 2% of the overall interlocking concrete pavement. It has performed very favorably when compared with the other pavement types.
- An area of 32,000 ft$^2$ (3000 m$^2$) of pavement was recently lifted to allow construction of foundations and services as part of a terminal extension project. The same pavers were reinstated. The general quality of this reinstated section was reasonable although the connection to the unaffected pavement and general cutting around pavement penetrations was poor.
- All present acknowledged that the quality of repairs by hand carried out by the Authority's Term Maintenance Contractor had not matched the quality achieved during construction of the original pavement.
- The Maintenance Department is now planning to carry out progressive re-sealing of the paver joints as part of their scheduled pavement maintenance. They are optimistic that this will result in the continued positive performance of the pavement.

Improvement in areas of design could include:

- The position of the manholes in the head-of-stand road could have been adjusted slightly to ensure that they were not on the wheel track of the vehicles using the road.
- Additional positive drainage around manholes in the form of either no-fines channels in the underlying layer or weep holes directly into the manholes would result in faster drainage of the bedding sand and prevent settlement occurring at heavily trafficked manholes. Such measures will prevent water from being trapped in subgrade and reduce the risk of future settlement.
- Specifying chamfers to be constructed on cast-in-place concrete collars around the manholes would result in less spalling during construction operations and allow better control of joint width of pavers against manholes.

Improvements in areas of construction could include:

- More supervision and attention to compaction of backfill around manholes to reduce residual settlement occurring in heavily trafficked areas.
- Careful construction and protection of concrete collars around manholes would improve performance of the joint sealer at manholes, prevent water from entering the bedding sand and being trapped at the manhole interface resulting in settlement under heavy traffic.

Improvement in maintenance could include:

- Better training of skilled labor for pavement repairs.

The suggested improvements are minor in terms of the excellent observed pavement performance. They may be key to achieving 100% performance in future projects.

The new Hong Kong Airport is one of the world's premier airports in terms of passenger and freight throughput. The construction of Hong Kong's new airport on a platform primarily formed by reclamation resulted in the extensive use of interlocking concrete pavement in areas subject to settlement.

The high standards of technical excellence carried through from the design stage to material selection, and then implemented during construction resulted in exceptional performance. The visual appearance of the original pavement five years after installation was observed to be as good as the day it was installed. This is due to the close collaboration of the Design Team and Construction Team throughout the construction process. They have produced a pavement that will continue to serve Hong Kong Airport well into the future.

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