in action

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Formula One – High Performance Drainage !

Tombac Bar and Stopper for extra grate locking security

PowerDrain, ACO's heavy duty trench drain system has recently been installed in two Australasian venues hosting the Formula One Grand Prix, the Sepang International Circuit (SIC) in Malaysia and the Australian Grand Prix, Melbourne.

Since 2008, ACO has worked closely with SIC and contractor, Nippon Road to provide drainage for the upgrade of the Sepang track. The most recent installation provided a quick and sustainable solution in time for the opening of the 2011 Malaysian Formula One Grand Prix. Following the client's decision to replace the previous deteriorated cable ducting run, ACO supplied **PowerDrain** in a 300mm width to serve both, as a drainage and telecommunications ducting enclosure. The insertion of a cable tray, fixed to the inside walls of the polymer concrete channels, allowed for this dual service trench to perform to SIC's requirements.

The Australian Formula One Grand Prix, V8 Pit Lane is the most recent addition to this world class venue. Over 500 metres of **PowerDrain** was supplied to provide drainage of sufficient capacity to keep the road surface from ponding during heavy rainstorms. ACO backed its product with hydraulic calculations to ensure all drainage requirements were met.

PowerDrain is the product of choice for both Australian and Malaysian Formula One venues for its durable construction and its ability to withstand the repetitive down force exerted by Formula One cars. For both these installations, **PowerDrain's** locking assembly, **PowerLok**, was augmented with a purpose designed **Tombac Bar** and **Stopper** to ensure system compliance with the stringent security and safety requirements of the track. During maintenance, the locking device is easily disabled to provide quick and easy maintenance.

ACO backed its product with hydraulic calculations to ensure all drainage requirements were met.

Asphalted pavements designed for racing tracks differ from that of normal roads. A racing track's pavement and its drainage elements require very high quality control with respect to stability, surface regularity and durability. For many years, cast in situ drainage had been standard practice in Formula 1 tracks. Recently, however, findings by a research group carried out at Paul Ricard HTTT (High Tech Test Track) indicated that in time, drains, cast-in-situ, contain components that would cause potential issues with safety; were unsightly; and would oxidize causing maintenance issues.

ACO's **PowerDrain** grated trench drains are available with 90 tonne capacity ductile iron grates locked with boltless mechanisms into integrally cast ductile iron edge rails with anti shunt mechanisms. The underlying trench comprises interlocking precast channels made from polymer concrete, a durable resin composite with excellent strength properties.

Numerous racing tracks around the world, such as the Nürburgring and Hockenheimring tracks, Europe; and the Formula One track in Shanghai, China; are drained with ACO's world famous trench drains.

For more information, visit: www.acoaus.com.au/drain

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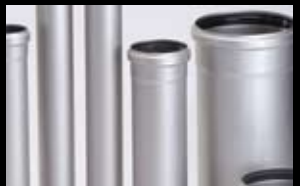

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For more information on ACO's products or services, contact our sales office or visit:

www.acoaus.com.au

Malaysian Drainage Shipshape - 12 years on!

Port Johor, MALAYSIA

In 1999, the Malaysian Government embarked on the development of some new container docks at Tanjung Pelepas Port (Port Johor), located at the southern tip of Malaysia. This was an initiative for a strategically positioned port location to actively compete with other established south-east Asian ports, particularly Singapore and Hong Kong.

As part of the pavement design for the new facility, engineers required a high performance trench drainage system that would satisfy three main requirements: to keep the overall pavement geometry flat, free from unsafe complex falls; restrain the brick pavers and allow trafficability of heavy loads to F900KN (EN1433).

The **ACO DRAIN 'S'** System (an earlier version to **POWERDRAIN™**, ACO's current heavy duty trench drain), met all three requisites. A total of 1,000 metres was installed in the project and the system will continue to perform to its design requirements for many years to come.

Commercial Wharves & Docks provide the most punishing environments for drainage systems. Busy maritime operations involve the movement of very heavy vehicles as they load and unload containers. The repetitive nature of heavy wheel loads imposes severe stresses on apron areas, whilst the corrosive nature of the marine air environment requires only proven, reliable, quality products to be used.

A total of 1,000 metres was installed in the project and the system will continue to perform to its design requirements for many years to come

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As an ISO 9001 registered company, ACO has supplied a variety of durable products including heavy duty access covers and trench drains to container and passenger wharves and docks worldwide for over 30 years. ACO also manufactures high performance stainless steel drainage grated troughs, floor gullies and modular pipe systems ideal for use in terminals and other quayside buildings.

Fully accredited building drainage systems

Boags, TAS

Heelguard AntislipTM Patent No.635425

WaterMark

ACO are established world leaders in the manufacture of high performance stainless steel building drainage solutions.

Its purpose built line drainage systems, including over 10 grate options, are now fully accredited to WaterMark Licence Level 2.

WaterMark is granted to products that comply with MP52 or AS/NZS 3500 and certified in accordance with ISO/IEC 67.2004, System 1b. This allows designers and installers to select any system from ACO's range with confidence.

The offering includes a variety of stainless steel trough and grate systems manufactured in either grade 304 or 316 for hygiene and aesthetic applications. A choice of edge profiles and grates are available to suit most load, security requirements and surrounding floor finishes.

The comprehensive range is ideal for commercial, industrial and residential applications.

For more information, visit www.acoaus.com.au/accreditation

KERBDRAIN™ meets Singapore's PUB approval

The road surface on Henderson Road adjacent to Telok Blangah Road, just minutes from Singapore's bustling CBD, was originally drained with a stormwater system consisting of grated side inlet pits. These structures were connected to the city's main stormwater drainage system by a culvert. Heavy rainfall during storms combined with long, steep road gradients on Henderson Road, meant that large volumes of surface water would often bypass the inlet grates and cause flooding to a property downstream.

The Public Utility Board (PUB), Singapore's national water agency, manages the island state's water supply, catchment and drainage works. During the consultation period, PUB trialled ACO's **KERBDRAIN™** system as a potential solution to the flooding problem. The installation was project managed by Smitech Engineering Pte Ltd and ACO provided site support to the nominated subcontractor during the installation. Finally, testing of the system prior to the handover was done with a water truck discharging water into the drain from the high end of Henderson Road. During the evaluation, the performance of **KERBDRAIN™** was assessed and approved by representatives of PUB. Following this success, **KERBDRAIN™** is now being used in Singapore as a solution for problem areas where localised ponding is prevalent.

Unlike conventional side inlet systems, **KERBDRAIN™** transforms kerbs into continuous inlet structures with minimal excavation. Manufactured from durable, polymer concrete, **KERBDRAIN™** consists of 500mm long pre-cast modular units each comprising an integrally cast channel and batter with inlets for continuous drainage. The underlying channel then transfers captured flow to the stormwater often eliminating the need for multiple pits.

Following this success, KERBDRAIN™ is now being used in Singapore as a solution for problem areas where localised ponding is prevalent.

ACO's **KERBDRAIN™** has been used exclusively throughout Europe, the UK, the US and Australia as a continuous lateral collection drainage solution. It keeps water away from traffic lanes by effectively reducing the width of gutter flow. This provides an efficient water management solution to roads with steep gradients and flat cross flows typical of some intersections, roundabouts and a wide range of kerb line applications with depth restrictions.

For more information, visit www.acoaus.com.au/drain

ACO's offshore waste management solution

Throughout the world, ACO's grease separators are typically found in buildings or on marine vessels. However, recently, ACO has sold its first unit on an offshore platform which was recently commissioned for natural gas production.

The platform belongs to the Malaysia-Thailand Joint Development Area (JDA), a zone in the Gulf of Thailand which has been designated for use by both countries where energy resources are to be shared equally.

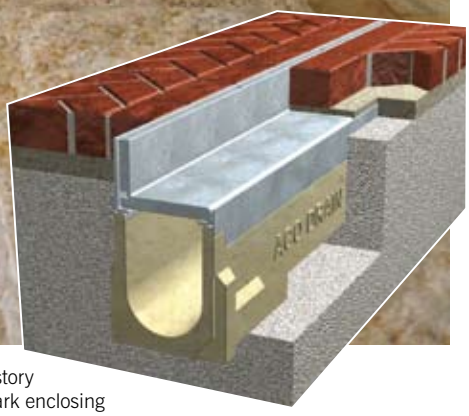
ACO's **HYDROJET™ OS** grease separator was installed in the food preparation area in JDA block B-17 which supports 140 working staff with 3 meals a day. The unit was sized by planners in accordance with the European Standard, EN 1825.

The trend to be green is increasingly important in waste management, particularly for the recycling of fat, oil and grease (FOGs) which are used in food processing. Moreover, proper waste treatment prevents pipe blockages and the unlawful disposal of untreated wastewater.

The **HYDROJET™** range is available in a number of sizes (capacities) and offers an advanced cleaning capability for hassle and stench-free results. Each unit comes with an integrated sludge trap which can be cleaned out easily via a disposal truck.

With a certified life span of 25 years, all ACO's grease separators are durable and manufactured to EN 1825.

Discreet drainage for Singapore's Skypark



Marina Bay Sands Casino, Singapore, is punctuated by three, 50 story hotel towers. The tri-structures are crowned by a 2 acre modern park enclosing a spectacular 150 metre long infinity edge swimming pool. Constructed by Venturer Private, the precinct is called Sands Skypark, containing a bar, restaurant, spa, garden and observation deck. It can take a person twenty minutes to walk around its entire ellipse, offering 360º views of the city and the sea.

For such a large outdoor botanical precinct, designers required the surface water drainage to be functional and visually discreet. Peridean Landscape Asia Pte Ltd invited ACO, renowned suppliers of innovative drainage solutions, to provide input into the overall drainage design.

The drainage solution had to cater for a rainfall intensity of 330mm/hr and due to the physical constraints, could not protrude beyond a depth of 266mm. After some consultation and careful analysis by ACO's engineers, a solution was provided, complete with run schedules and hydraulic profiles. This gave designers the confidence to specify **ACO DRAIN's KS100** system as the project's surface drainage solution. In obscured areas, **HEELGUARD™** stainless steel grates were used and stainless **BRICKSLOT™**, in highly visible areas. **BRICKSLOT™**, is a purpose made trench drain which allows designers to preserve the visual continuity of the pavement design whilst allowing drainage through a continuous and discreet slot.

For more information, visit www.acoaus.com.au/drain

Klassik Solution for Auckland's Premier Hub

First opened in 1979, Aotea Square has recently been upgraded into a safe, family-friendly environment for residents and visitors. It is now the city centre's premier open space. Striking designs and sculptures have transformed the domain into a new creative hub attracting thousands of people who come together to enjoy the best of Auckland's arts and entertainment.

At the start of the project, designers were faced with the challenge of managing the stormwater. Specifically, a solution was required to stop water from penetrating the concrete slab and entering the car park areas beneath. The drainage system needed to be heel friendly, aesthetically compatible with the pavement and strong enough to withstand the wheel loads from emergency vehicles. The high volume of surface water run-off from the expansive catchment areas required the underlying drainage system to be large enough to handle the anticipated stormwater volumes.

As a result of these requirements, consultants specified ACO's **Heelguard Antislip** grates as part of ACO's **KlassikDrain** system. The grates were purpose manufactured for Class D210kN (AS3996) loadings, strong enough for the transit of emergency and service vehicles.

The drainage system needed to be heel friendly, aesthetically compatible with the pavement and strong enough to withstand the wheel loads from emergency vehicles.

Designed for public pedestrian areas, forecourts and carparks, **KlassikDrain** is available in widths up to 300mm and features an integrally cast steel protective edge. The system can accommodate over 10 different grate types, including ACO's patented stainless steel **Heelguard Antislip** grates which comply to AS1428.2 (Design for Access and Mobility). All grates are secured with the '**QuickLok** boltless locking device. A nylon stud is factory fitted to the grate, allowing it to snap tight into a bar positioned across the channel for quick and easy maintenance.

For more information, visit www.acoaus.com.au/drain

ACO PIPE - New Building Drainage Handbook

ACO's Wide Range of Pipe Sizes

ACO, one of the world's foremost manufacturers of stainless steel drainage systems has launched a new technical handbook for the building drainage industry. The guide is also a product catalogue for the **ACO Pipe** system and features an extended range of stainless steel pipes & fittings for multi-drainage applications.

The **ACO Pipe** system is a modern metal alternative to PVC, HDPE soil and waste pipework. All components are manufactured from austenitic grade 316 stainless steel, and are chemically pickled and passivated for optimum durability and corrosion resistance.

ACO Pipe comprises a comprehensive range of pipe lengths to 6 metres for diameters up to 200mm. Pipes and fittings are socketed and can be push-fit assembled. The range is designed principally to address the needs of all stakeholders, building owners, designers, builders and end-users with features that include:

- Long service life – components are manufactured from grade 316 stainless steel for high corrosion resistance and low on-going maintenance.
- Quality design & manufacture – components exhibit better geometric concentricity, fitting design and weld quality than any other product in the industry.
- Optimum joint integrity – components have a low coefficient of thermal expansion compared with HDPE (in particular) which tends to fail when operating temperatures vary between 10°C and 60°C.
- Superior seal security – components comprise a unique double lip sealing system, ideal for extraneous conditions.
- Ease of installation – components are lightweight and push-fit for quick assembly.
- Connection adaptability – components are suitable for either push-fit or weld-up connection methods.

The new 28 page, A4 size, full colour handbook is a guide and covers issues relating to planning, designing, assembly and maintenance. Below ground installation is also featured as a special topic. Additionally, the guide gives specifiers and buyers, clear detailed information on **ACO Pipe**, pipes and fittings; and auxiliary items to facilitate installation.

To request your free 28 page handbook, contact ACO:
Tel: +60 1622 77945
For more information, visit www.acoaus.com.au/stainless

ACO extends its ShowerDrain range

ShowerDrain as shown in the publication, InfoLink Architectural

Australasia's most popular residential drainage system now has an extended product offering.

The **ACO ShowerDrain** range now comprises channels and floor drains which complement each other for use in a wide range of bathroom designs. These systems, designed for residential wet areas, comprise a wide choice of compact drainage systems designed for optimum performance, aesthetics and safety. **ACO ShowerDrain** comes complete with the industry's broadest selection of highly aesthetic, foot friendly grates.

New to the range is **ShowerDrain *Gully***, floor waste point drainage systems, complete with grates specifically designed to complement the **ShowerDrain *Channel*** range. Manufactured from 100%, stainless steel and available in 150mm x 150mm, 200mm x 200mm (Tile Insert grate only) or built to custom requirements, **ShowerDrain *Gully*** can easily be secured into the topping screed, ideal for existing (retrofit) or new bathrooms; and is generally installed in the middle of the shower area; or as and overflow relief gully within the bathroom.

Seven grate options are available including **Linéaire**, a unique patented Australian made grate designed with anti-slip features to ensure surfaces are safe to walk on when wet, ideal for floor areas requiring enhanced slip resistance.

For more information, visit: www.acoaus.com.au/stainless

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