CHARCON
HARD LANDSCAPING

ANDOVER GROUND

Pedestrian Traffic | Car & Light Vehicle Traffic | Lorry & HGV *Certain sizes

STEP | BIM ENABLED | Life

Andover Ground offers the aesthetics of granite with the durability and affordability of concrete.

FEATURES

- Incorporates uniquely formulated granite aggregates to maximise performance, durability and aesthetics
- Premium ground paving
- Range of colours can be used to complement and contrast one another
- Incorporates up to 88% recycled and reclaimed aggregates

Andover Ground in Leemoor, Grey and Charcoal, Westgate Stevenage

APPLICATIONS

Andover Ground flag paving is suitable for high volume pedestrian areas, town centres, shopping precincts and footways as well as occasional car or mechanical sweeper overrun, footways with cars and HGV vehicle or service areas. Refer to the relevant sections of BS 7533 for correct design and applications. Refer to Technical Department for advice on your given application – email charcon.technical@aggregate.com

MANUFACTURING STANDARD

Andover Ground paving is manufactured using either a semi dry, wet pressed or wet cast process and is manufactured in accordance with and complies with all relevant sections of: BS EN1339: Precast Concrete Flag paving – requirements and test methods. Aggregate Industries fully operates an accredited Quality Assurance Scheme, certified to BS EN9001:2008 which is independently and regularly assessed by BSI (British Standards Institute). All Charcon manufacturing sites are also certified to BS EN14001 Environmental Management Systems.

PERFORMANCE

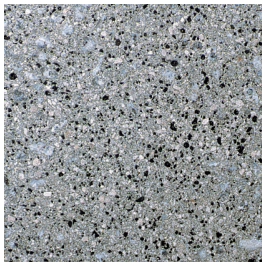
Unpolished slip resistance values when tested in accordance with BS EN1339, BS EN1340 and BS EN1338, Annex 1 – method for the determination of unpolished slip resistance values are available on request. The product is classified as having a low potential for slip, i.e. a USRV of greater than 40. Polished slip resistance values can be provided upon request.

COMPLEMENTARY PRODUCTS

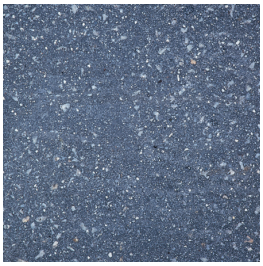
Suitable for use with kerbs, step units and H2O Linear Drainage

COLOURS


Leemoor


Black Fleck


Grey


Charcoal

Flag Product Data						
Size (mm)	**600x600**	**600x450***	**450x450***	**450x450***	**400x400**	**400x400**
Thickness (mm)	50	63	70	70	65	65
Weight (kg)	44.00	38.90	38.70	38.70	25.00	25.00
Units/m^2	2.78	3.70	4.94	4.94	6.25	6.25
Units/pack	20	16	30	30	32	32
M^2/Pack	7.20	4.32	6.08	6.08	5.12	5.12
Weight Pack (T)	0.88	0.63	1.16	1.16	0.80	0.80
Shades	Black Fleck, Leemoor, Charcoal*, Grey	Black Fleck, Leemoor, Charcoal, Grey	Black Fleck, Leemoor, Charcoal, Grey	Black Fleck, Leemoor, Charcoal, Grey	Black Fleck, Leemoor, Charcoal*, Grey	Black Fleck, Leemoor, Charcoal*, Grey
Edge Detail	Square	Chamfered	Chamfered	Square	Chamfered	Square

*Indicates where the product is MTO, minimum order quantities will apply. Colour swatches are for indication purposes only, for a true representation of product colour, samples can be ordered from www.aggregate.com. Our paving comes banded and shrink-wrapped to a pallet. To obtain CO2 figures, contact the Charcon Technical Helpline for accurate figures to suit your given application.

DESIGN CONSIDERATIONS

DESIGN

Laying design can make a significant contribution to the overall appearance of the area to be paved. The options for distinctive end results, whether from patterning of an individual product, or via combinations of products and shades are almost infinite.

This section is, therefore, necessarily confined to basic principles only, from which designs to suit specific projects may be individually developed.

PRELIMINARY CHECKS

Ensuring that the specified paving system is suitable for its intended purpose is a fundamental requirement. Before deciding on laying design, it is advisable to validate product selection against anticipated traffic, loadings etc.

The following checklist may, therefore, be helpful:

- Is the paving area designated for pedestrian use only – or is any vehicular trafficking likely?
- Will any vehicular trafficking:
  - Be occasional overrun only, or regular?
  - Be limited to cars only?
  - Include light commercial vehicles?
  - Emergency vehicular overrun?
  - Extend to HGV / heavy duty loading?
- Accordingly, under normal service conditions, does the selected paving meet the necessary criteria in terms of strength, thickness and declared trafficability?

GENERAL PRINCIPLES

Design and overall looks may be influenced by choices within one or more of the following:

Laying patterns

The principle patterning styles are as listed and illustrated However, there are other related choice factors which may be influential on final laying design and contribute attractive visual results. These include:

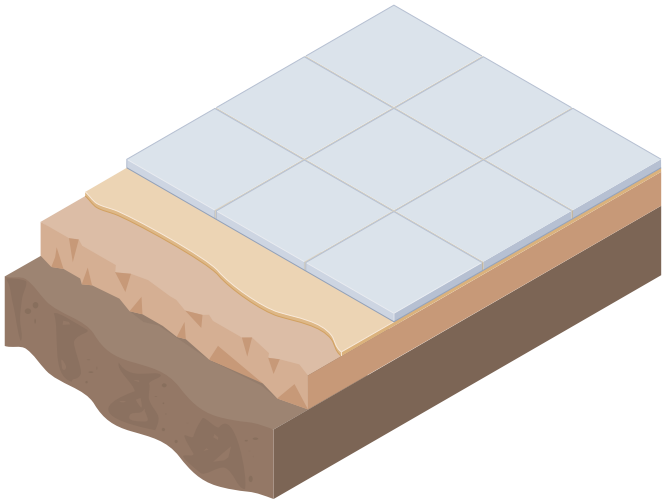
- Complementary combinations of two or more paving types/ products (instead of sole use of just one paving type/product)
- Combinations of two or more patterns or styles
- The use of such variations for functional zoning (e.g. to denote designated walkways) as well as decorative effect

Colour contrasts

Differing shades of the same, or a complementary paving product, may similarly be used for zoning purposes or simply to add to the aesthetic appeal of the end-result.

Edge restraints/detailing

All paved areas require strong and stable edge restraints. Wherever selected patterning results in an irregular perimeter, edge detailing for the paved area needs to be pre-planned to ensure neat finishing against kerbing, walling or other adjoining areas.



LAYING PATTERNS

EDGE DETAILS

Edge detailing requirements are largely dependent on the adopted laying style. Certain patterns resulting in irregular edges can be completed by cutting units to fit. In some cases, however, this is difficult or unsatisfactory because only very small cut-pieces would be required to abut kerbs or other edge restraints.

STRETCHER COURSES

Such cases can be resolved by planning perimeter stretcher courses to 'frame' or part-border the main paved area in question. Stretcher courses may also be planned for other laying patterns for purely aesthetic reasons.

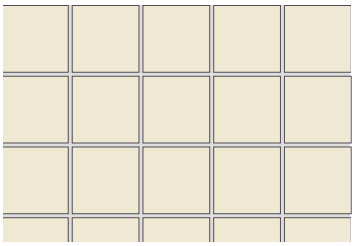


Fig.1 Chequerboard

Suitable for areas where there is no vehicular overrun

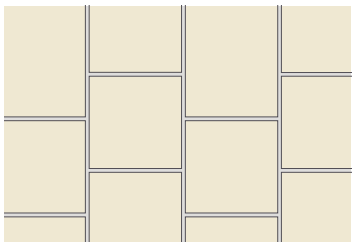


Fig.2 Transverse Stretcher Bond

Suitable for areas where there is occasional overrun

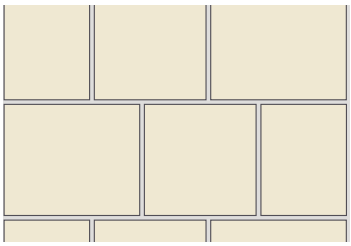


Fig.3 Longitudinal Stretcher Bond

Suitable for areas where there is occasional overrun

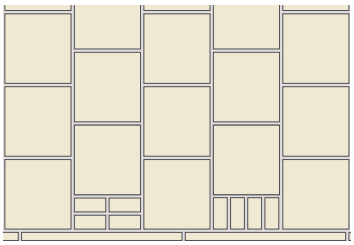


Fig.4 Stretcher Bond with Block Infill

Suitable for areas where there is occasional overrun

Fig 5: Stretcher Bond

Suitable for pedestrian and very lightly trafficked areas only

FLAG INSTALLATION

DESIGN STANDARDS

All installations should be detailed and constructed in accordance with the relevant British Standard. This is BS 7533: Part 4 for installation. For structural design, please refer to either BS 7533 Part 8 and Part 12 or the Interpave Design Guide.

PREPARATION (ALL FLAGS)

Sub-grade

Clear top soil: complete sub-grade drainage.
Excavate and backfill soft spots: compact well throughout.
Protect sub-grade from adverse weather. Lay geotextile fabric or capping layer (if specified/required).

Sub-base

Prepare in accordance with the Specification for Highway Works. Lay and compact in layers to a close textured finish. Open textured sub-bases may require a binding layer of finer material.

General principles

Lay paving immediately on prepared bedding, do not leave bedding exposed to weather or overnight. To avoid bedding layer damage and creep, lay paving units up slopes and/or away from edge restraints. Stand on previously laid paving when placing next row.

LAYING

Select site category

1. Heavy duty applications of more than 60 commercial vehicles per day (over 1.5T unladen)
2. Medium duty applications of 60 or less commercial vehicles
3. Medium-light duty applications – 5 or less commercial vehicles per day
4. Light duty applications – no commercial vehicles

Select laying method

1. Flags laid rigidly for all categories
2. Flags laid rigidly for category 4 only
3. Flags laid flexibly for categories 2, 3, 4

LAYING METHOD

1. Flags laid rigidly for all categories

For this category, a hydraulically bound road base should be used and should be designed in accordance with the relevant standard (see above).

The back of the flag and top surface of the roadbase should be primed to ensure a good bond. The laying course material should be a modified mortar as specified in BS 7533: Part 4 and spread to give a depth of 30mm after compaction. Cement sand mortars are not suitable for use in this method.

The flags should be laid with a 6-10mm joint. A minimum of 12 hours after laying, the flags should be thoroughly wetted and the jointing material, as specified in BS 7533: Part 4 in slurry form, is spread over the entire surface. The material should be moved towards the open joints.

Once the joints are full, the flags should be wetted again and a squeegee used to remove excess mortar. The area should not be open to traffic until the bed and joints have reached sufficient strength.

Further guidance on the installation and mixing procedure should be sought from the mortar supplier.

2. Flags laid rigidly for category 4 only

The laying course should consist of a workable mix of 1:3 cement sand mortar, thickness between 15 and 30mm after compaction. The flags should be laid with a 6-10mm joint. These should be filled within 2-3mm of the surface of the flag with a 1:4 cement sand mortar and pointed as work proceeds. The flags should be compacted down using a paving maul.

3. Flags laid flexibly for categories 2,3,4

The laying course should be fine aggregate to BS EN 12620 GF 85 0/4(MP). The thickness of the laying course after compaction should be 30mm.

This can be done by either:

1. Screeding the material to give the required depth after compaction. (A small trial area may be required to determine the amount of surcharge). The top 10mm should then be loosened with a rake.
2. 30mm of laying course material should be screeded out and compacted. Then a further 10mm of loose material screeded out on top. The flags should be laid with a 2-5mm joint that is filled with Kiln Dried Silica sand to BS EN 12620 GF 85 0/4 (MP).

Note: The gradings for the laying course material and joint filling material may be found in BS 7533: Part 4

The flags should be compacted using a vibrating plate compactor fitted with a neoprene sole plate to protect some flags with special finishes in accordance with BS 7533: Part 4. Top up the joints with Kiln Dried Silica sand as necessary and during early life. After laying light coloured paving on site, care should be taken to protect from dirt and detritus while the remaining construction works are completed.

MAINTENANCE

MAINTENANCE AND CLEANING

Maintenance, Cleaning And Sealing of Interlocking Concrete Pavements

When properly installed, precast concrete pavements have very low maintenance and provide an attractive surface for decades. Under foot and tyre traffic, concrete pavements often become exposed to dirt, stains and wear. This is common to all pavements.

During the initial life of the pavement the joints between the pavers will be relatively porous. The ingress of water will consolidate the jointing sand and it is important that the joints are regularly filled with jointing sand to replace the sand consolidated by rainwater.

The joints will soon become semi-impervious due to detritus tending to seal the joints. Until this has occurred the paving should only be brushed by hand. Mechanical sweepers and in particular sweepers with high suction forces should not be used. If they are used there is a real risk of loss of jointing sand from between the pavers.

A liquid stabiliser can be added to the joint filling sand which impedes its unwanted removal by suction cleaners and at the same time helps to prevent the ingress of water during the early life of the pavement. If any form of surface sealing is used on the pavers it must be applied in strict accordance with the manufacturers instructions and it must be accepted that it may have an effect on the colour of the paving, its skid slip resistance and may require ongoing maintenance.

GENERAL GUIDELINES FOR THE REMOVAL OF STAINS AND GROWTHS

These notes are intended for general guidance and are not intended to be exhaustive. Some of the cleaning methods described involve the use of chemicals which could be dangerous if not used correctly. It is important that any safety warnings issued by the chemical suppliers should be read carefully and strictly adhered to.

In general the following precautions should be taken:

- When using chemicals, protective clothing such as gloves, goggles, boots and overalls should be worn
- Adequate ventilation is required in confined spaces when using chemicals
- When using flammable materials; cigarettes, naked flames and other sources of ignition should be carefully controlled
- When diluting acids ALWAYS, add acid to water and not water to acid
- Any clothing, which is contaminated with chemicals should be disposed of safely
- When using any chemicals care must be taken not to damage, contaminate or stain any adjoining material
- Care must be taken to protect personnel operating in the area of the cleaning from any injury or hazard created by the cleaning

It is particularly important with all cleaning methods that trials should be carried out on a small, preferably inconspicuous area, to determine the effect of the chemicals before treating a large area.

GENERAL CLEANING

Light stains can often be removed without markedly affecting the texture and appearance of the surface. Proprietary cleaning materials my be used in accordance with the manufacturers instructions.

EFFLORESCENCE

Efflorescence or lime bloom is a transient phenomenon of Portland cement. Its effect is to lighten the colour of the concrete. Efflorescence, also know as lime bloom, appears as a white deposit covering part or all of the surface of products containing cement. The result of light deposits is the lightening of the surface colour, the heavier the deposit, the lighter the colour. Except in very severe cases, the phenomenon disappears completely when the blocks are wet and reappears as the blocks dry out.

Occurrence

Efflorescence is a temporary, naturally occurring phenomenon that occurs to a varying extent on all items containing cementitious binders. Mortar is particularly prone to efflorescence and this can contaminate other products. It is formed by soluble salts from the cement migrating to the surface where they react with the atmosphere to produce the white powder (Calcium Carbonate) know as efflorescence. Individual crystals are very small and are not firmly fixed to the surface. The smallest of the crystals linked with their optical properties causes them to become invisible when wet. As they dry out they become visible and are unchanged. Products are most susceptible to efflorescence under damp conditions as this aids the movement of the soluble salts Efflorescence in no way affects the structural integrity of the items

Treatment

The phenomenon is temporary and will, with time disappear as a result of normal weathering; the length of time depending on many factors such as rainfall, atmospheric pollution etc. Efflorescence can, however, be removed chemically by using proprietary cleaners. Please contact our Technical Department for information.

GENERAL DIRT AND DETRITUS

To remove general dirt and detritus, scrubbing with soap and water is normally sufficient. This can be done either by hand or by using an industrial cleaner.

If a power hose is used then care must be taken to avoid the removal of the jointing material (sand or mortar).

Ensure soap has been thoroughly washed from the surface on completion of the cleaning and the resulting run-off is carefully channelled to either drainage or containers where it can be safely disposed of.

Please contact our Technical Department for more information.

ADDITIONAL INFORMATION

We are constantly striving to improve our product range and therefore we advise that you always check that you have the latest product information available either online or request from our Sales Office and/or stockist.

The photographs and product swatches in our literature are only representative and we would advise that you request samples of the product and lay a sample area for approval (1.2m x 1.2m) Some samples may be chargeable, for example made to order items or Natural Stone.

Concrete continues to cure for months after manufacturing which may affect the porosity of an individual product resulting in some products appearing “damp”. This does not affect the performance of the product and will disappear over time as the product fully cures.

On occasion products can be affected by contaminated aggregates, Lignite or Iron Pyrites which may result in discolouration of the surface of an individual product. This will not affect the performance of the product.

We manufacture our paving products in batches and while great care is taken to control shade variation between production batches we cannot guarantee colour consistency between batches and we would advise that you take this into consideration.

We would advise that you work from as many packs as practicable during laying (minimum 3 for single colours, 5 or more for multi colour mixes and specifier paving). We advise that you lay blocks from vertical leafs of the packs not horizontal layers of the packs.

We produce some products that are textured and the process can sometimes result in some variation in texture which will not affect the product performance.

Products should be thoroughly inspected upon delivery and in the unlikely event that you are not totally satisfied with the product you should inform our Sales Office immediately. Please quote the quantities of product affected, and the batch details from the label on the packaging.

Product(s) deemed not in compliance with the relevant manufacturing standards or customer expectations must result in a formal complaint being raised with the Sales Office or representative within 48 hours of delivery and product should not be installed. Any uplift and relaying costs will be the responsibility of the installer should the defect have been apparent before installation.

Products should be installed in accordance with the relevant section of BS 7533, which covers the correct installation process for Paving, Kerbs and Setts.

With the execption of Infilta products where spacer nibs ensure joint widths are maintained, nibs where present on products, are for protection of the product during packaging, delivery and handling and not for creating a joint gap.

All products contained within this document will benefit from some maintenance to maintain their performance and aesthetic appeal. For questions on specific maintenance requirements please contact our Technical Department.

Product dimensions are subject to tolerances as specified in the current British and European standards. These need to be taken into account when planning your installation process as laying times and/or materials required may vary.

British Standard Flag, Kerb and Edgings and our ‘Natural’ and ‘Grey’ colours are ‘NON’ Pigmented and the aggregates and cement determine the final colour of the products. Aggregates and cement may vary in shade which will affect the final product colour.

All of our Made To Order (MTO) products require a signed agreement to be received by us before we will send an order acknowledgement. All MTO products will be invoiced. We therefore recommend that care is taken when measuring/ordering and that an allowance has been made for wastage and snagging, as the full ordered quantity will be invoiced and any additional small production runs will be charged for accordingly.

The use of proprietary spacers to create a joint gap in accordance with BS 7533 is acceptable.

Product swatches contained in our literature are for colour representation purposes only.

HEALTH AND SAFETY

Due to the nature of our products we always recommend suitable lifting equipment be used. We recommend the use of lifting equipment such as a vacuum lift.

- Always wear gloves and safety footwear when handling the product
- Always wear safety goggles, safety footwear, gloves, ear protection and appropriate regulatory protection when using cutting equipment
- Ensure the products are on level ground and retained in some way before removing any packaging
- Always handle with care as breakage and chipping may result from mishandling

RECYCLED CONTENT

Category	Product Name	% Recycled Content
Concrete Paving & CBP		
	Andover Ground - Black fleck	88
	Andover Ground - Grey, Charcoal, Leemoor	63

SUSTAINABILITY AND LOCAL SOURCING

ENERGY USE AND GREENHOUSE GAS EMISSIONS: Aggregate Industries is at the forefront of sustainability and has committed to reducing both energy and greenhouse gas intensity 5% year-on-year.

RECYCLABLE: 100% of the product can be recycled thus reducing the amount of material that is sent to landfill.

MANUFACTURING LOCATION: Produced in the UK, with locally sourced materials under strict environmental and social legislation, for local supply.

RESPONSIBLE SOURCING: Aggregate Industries is the first company in the world to achieve accreditation to the BES 6001 Framework Standard for the Responsible Sourcing of Construction Products.

Aggregate Industries has achieved a 'Good' rating for major product groups. The BES 6001 standard assesses:

- Quality Management
- Environmental Management
- Health and Safety Management
- Greenhouse Gas Emissions
- Minimising Raw Material Usage
- Labour Practice
- Biodiversity
- Community Engagement

KEY AGGREGATE AND RECYCLED CONTENT

Andover Ground is manufactured from specially selected aggregates in a semi-dry process and ground.

GENERIC GREEN GUIDE RATING*

Concrete paving flags (60mm with a prepared recycled sub-base) **A+ rated**.

Concrete paving flags (60mm with a prepared sub-base) **A rated.**

POLICIES

Aggregate Industries' policies on the environment and community, health and safety and sustainable solutions for different product applications can be viewed on our website www.aggregate.com

COSHH DATA

Full COSHH data is available on request.
Please contact charcon.technical@aggregate.com

TECHNICAL SUPPORT

Detailed guidance and assistance with the preparation of specification of the Charcon range of hard landscaping products, including model clauses, is available through the Sales Office. Guidance on selection and installation of our products is available.

For further information, please refer to our technical services at charcon.technical@aggregate.com

*Ratings based upon generic Green Guide values (2009) supplied by BRE Global Ltd, www.thegreenguide.co.uk

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A MEMBER OF HOLCIM

BES 6001 Responsible Sourcing www.greenbooklive.com

bsi. ISO 9001 Quality Management

bsi. ISO 14001 Environmental Management

bsi. ISO 45001 Occupational Health & Safety Management

bsi. ISO 50001 Energy Management

AGGREGATE INDUSTRIES