

Section 8

Computer Aided Design (CAD)

Ensign cast iron drainage 1st choice for car parks

Ensign has the strength vital in areas where soil stacks are vulnerable to impact:

- secure – strong enough to withstand the knocks from manoeuvring motor vehicles
- tough – also strong enough to withstand vandalism and wanton attack
- non-combustible – will not drip as molten, burning globules (unlike HDPE, UPVC), contributing to spread of fire and threat of injury to the public, staff and firefighters alike
- requires minimal up-keep – helps keep maintenance costs and disruption to an absolute minimum
- durable – systems last in excess of 50 years

Computer aided design



We are confident the Ensign CAD drawings will be of benefit in drainage design for all forthcoming projects, but should you experience problems with the CD, in the form of either damage or compatibility, please contact us for further assistance.

Ensign CAD is available on CD-ROM and via our website in AutoCAD and DXF formats.

Any comments or observations concerning Ensign CAD which you might care to make would be most helpful and favourably received.

Introduction to FastrackCAD

The FastrackCAD Database allows INSTANT access to Building Components 'at the touch of a button'. The FastrackCAD Database give architects and specifiers using Computer Aided Design the ability to produce accurate, detailed and quality drawings with the minimum of time and effort.

The FastrackCAD Database utilises the new CAD previewer menu, quite simply it allows users the freedom to browse on screen, pick the components required and place them directly into project drawings.

The majority of the files remain stored on the CD-ROM diskette leaving the hard disk free of unnecessary data.

To load the FastrackCAD Database on to your AutoCAD system, simply follow the brief instructions below.

ENSIGN (FastrackCAD) Database supplied by:

Saint-Gobain Pipelines, Lows Lane, Stanton-by-Dale, Ilkeston, Derbyshire DE7 4QU.
Tel: 0115 930 5000. Fax: 0115 932 9513.

FastrackCAD Database prepared by:

Technical Graphics Ltd, Ullswater Business Park, Coulsdon, Surrey CR5 2XX.

FastrackCAD Database User helpline:

Tel: 020 8668 4646
Email: fastrackcad-help@techgraf.co.uk

Instructions For Use

You must have the CD-ROM in your CD drive to use the database, which is compatible with all supported versions of AutoCAD. However, you do not need AutoCAD to preview and print the drawings.

Insert the CD-ROM into your drive. The set-up should run automatically. If the CD does not autorun, select START then RUN and key in <CDdrive> : GO.EXE eg. D:GO.EXE. Choose from the options available.

FastrackCAD Database AutoCAD users

Identify the drawing file that you require from the product listing or product catalogue. To insert the CAD drawing in AutoCAD use the drag and drop facility as follows.

Place the cursor over the drawing preview, then hold down the control key and the left mouse button. You can now drag the CAD drawing into your working drawing before releasing the control key and the left mouse button. Alternatively use the Insert into AutoCAD button. AutoCAD LT users must use the drag and drop facility to insert the CAD drawings.

The Previewer has a useful file search facility. Simply type the filename you are searching for in the field next to *Find* then hit the *Find* button, the file will be displayed in the window below. To return to product headings hit the close *Find* button. If you wish to close the viewer rather than minimise it, click on *Close* at the bottom of the viewer.

Non AutoCAD users

Identify the drawing file that you require from the product listing or product catalogue. Select *Copy drawing to my PC* then select *Dwg* or *Dxf* file format. Alternatively select *Copy to clipboard* button. Your CAD manual should explain DXF translation in detail.

For Web users

The AutoCAD DWG drawing files can be downloaded directly from the Saint-Gobain Pipelines website **www.saint-gobain-pipelines.co.uk**

If you need further assistance, please do not hesitate to contact the FastrackCAD Helpline on 020 8668 4646 or email fastrackcad-help@techgraf.co.uk.

Ensign standard specification

1.1 Above ground soil, waste, vent and rainwater pipework.

1.2 Cast iron pipes and fittings

- a) The systems shall be designed and installed in accordance with BS EN 12056 code of practice for gravity drainage systems inside buildings and the relevant sections of the Building Regulations.
- b) Soil, vent and rainwater pipework of nominal diameters, 50mm to 600mm shall be installed using lightweight cast iron socketless pipe and fittings which fully comply with all requirements (27 clauses) of product standard BS EN 877:1999 with kitemark third party approval.
- c) Soil, vent and rainwater pipework shall have been tested to BS EN 14366:2004 (Laboratory measurement of noise of waste water installations) by a recognised certified laboratory. The results to be made available for review if required.
- d) Soil, vent and rainwater pipework shall have a fire rating A2, S1, d0**

Brackets

- e) Pipework shall be supported true to line by methods strictly in accordance with the manufacturer's recommendations. Proprietary adjustable ductile iron hanging brackets such as EF048 or EF049 or EF048AD shall be used or brackets as recommended by the manufacturer's standard guidelines.
- f) Soil, vent and rainwater pipework shall be supported by acoustic brackets that ensure the pipework will not exceed 47dB (A) airborne noise and 11dB (A) structure-borne noise at 4 l/s (litres per second), without insulation as recommended by the manufacturer's standard guidelines.

Joining

Standard Couplings

- g) Pipes and fittings up to 150mm diameter shall be jointed by couplings capable of withstanding up to 5bar (accidental static water pressure) when suitably restrained with support brackets. Pipes and fittings 200mm to 300mm diameter jointed by couplings capable of withstanding up to 3bar (accidental static water pressure) when suitably restrained with support brackets. Couplings shall have integral electrical continuity nibs. Coupling colour shall match the pipes and fittings.

Push-fit Couplings

- h) Pipes and fittings shall be jointed by push-fit couplings incorporating 2 EPDM gaskets. Meeting requirements of BS EN 877:1999. Coupling colour shall match the pipes and fittings.

High Pressure Couplings with Integral Grip

- i) Unrestrained Pipes and fittings shall be jointed by couplings capable of withstanding 5bar (accidental static water pressure) as supplied by the manufacturer (these do not require restraining brackets).

Fittings

- j) Where required to connect to low level soil pipework passing through the floor slab, use long tail radius curve branches at 88 degrees (conforming to BS EN 12056-2:2000) to connect to 100mm soil and waste pipes where applicable, thereby avoiding a joint in the floor slab.
- k) Where possible all 88 degree branches shall be radius curve entry (conforming to BS EN 12056-2:2000).
- l) Small diameter waste pipes in plastic or copper to be connected to the main soil pipework using either mechanical compression-fit or BSP threaded boss pipes, or push-fit manifolds with grommets or blank ends.

Cutting Pipes

- m) Where pipes are cut on site, ends shall be cut clean and square with all burrs removed. In most cases it is not necessary to re-coat the pipe ends with "touch-up paint". **However, where there may be aggressive materials passing through the drainage system (i.e. Coca-Cola; acid rain; acids or strong alkaline or similar substances), it is necessary to protect the cut ends of the pipework to the same standard as the internal coating of the pipe (as recommended by the manufacturer).**

Coating

- n) Pipes shall be externally coated with an acrylic, anti-corrosion primer coating, red-brown in colour, average dry thickness of 40 microns. Internally coated with a two-part epoxy coating, ochre colour, with an average thickness of 130 microns.

- o) Fittings shall be protected internally with a red powder epoxy resin electrostatically applied to an average thickness of 150 microns. Externally coated to an average thickness of 70 microns.
- p) Couplings/brackets shall be protected with a red powder epoxy resin applied to an average thickness of 70 microns.

References:-

**EN 13501-1 November 2002 Fire classification of construction products and building elements.

1.1 Below ground buried foul and stormwater pipework.

1.2 Cast iron pipes and fittings

- a) The systems shall be designed and installed in accordance with BS EN 12056 code of practice for gravity drainage systems inside buildings, BS EN 752-1 for drain and sewer systems outside buildings and the relevant sections of the Building Regulations.
- b) Foul and stormwater pipework of nominal diameters, 100, 150 to 600mm shall be installed using lightweight cast iron socketless pipe and fittings which fully comply with all relevant requirements of product standard BS EN 877:1999 with kitemark third party approval.

Brackets

- c) Pipework shall be supported true to line by methods strictly in accordance with the manufacturer's recommendations. Proprietary adjustable ductile iron hanging brackets as ED048 shall be used or brackets as recommended by the manufacturer's standard guidelines.

Joining

Standard Couplings

- d) Pipes and fittings up to 150mm diameter shall be jointed by couplings capable of withstanding up to 5bar (accidental static water pressure) when suitably restrained with support brackets. Pipes and fittings 200mm to 300mm diameter jointed by couplings capable of withstanding up to 3bar (accidental static water pressure) when suitably restrained with support brackets. Coupling colour shall match the pipes and fittings, and incorporate stainless steel socket cap screws and nuts wax coated.

Push-fit Couplings

- e) Pipes and fittings 100 and 150mm diameter shall be jointed by push-fit couplings incorporating 2 EPDM gaskets. Meeting requirements of BS EN 877:1999. Coupling colour shall match the pipes and fittings.

High Pressure Couplings with Integral Grip

- f) Unrestrained pipes and fittings shall be jointed by couplings capable of withstanding 5bar (accidental static water pressure) as supplied by the manufacturer (these do not require restraining brackets).

Fittings

- g) Connection to small diameter waste and ventilating pipework or other materials shall be made using blank ends using push-fit connection or proprietary fittings.
- h) Junctions between pipes should use the proprietary cast iron chamber, or standard branch type fittings as recommended by the manufacturer

Cutting Pipes

- i) Where pipes are cut on site, ends shall be cut clean and square with all burrs removed. In most cases it is not necessary to re-coat the pipe ends with "touch-up paint". **However, where there may be aggressive materials passing through the drainage system (i.e. Coca-Cola; acid rain; acids or strong alkaline or similar substances), it is necessary to protect the cut ends of the pipework to the same standard as the internal coating of the pipe (as recommended by the manufacturer).**

Coating

- j) Pipes shall be externally coated with an initial flame applied anti-corrosive zinc coating at 130gr/m² then painted using a grey acrylic primer with an average thickness of 40 microns. Internally coated with a two-part epoxy coating, ochre in colour, with an average thickness of 250 microns.
- k) Fittings/ couplings/ brackets shall be protected internally and externally with a single coat of grey powder epoxy resin electrostatically applied to an average thickness of 150 microns.

Ensign EEZI-FIT specification

1.1 Above ground soil and vent pipework.

1.2 Cast iron pipes and fittings

- a) The systems shall be designed and installed in accordance with BS EN 12056 code of practice for gravity drainage systems inside buildings and the relevant sections of the Building Regulations.
- b) Soil and vent pipework of nominal diameters, 100mm shall be installed using lightweight cast iron socketless pipe and fittings which fully comply with all requirements (27 clauses) of product standard BS EN 877:1999 with Kitemark third party approval.
- c) Soil and vent pipework shall have been tested to BS EN 14366:2004 (Laboratory measurement of noise of waste water installations) by a recognised certified laboratory.
- d) Soil and vent pipework shall have a fire rating A2, S1, d0**

Brackets

- e) Soil and vent pipework shall be supported by acoustic brackets that ensure the pipework will not exceed 47dB (A) airborne noise and 11dB (A) structure-borne noise at 4 l/s (litres per second), without insulation as recommended by the manufacturer's standard guidelines.
- f) Pipework shall be supported true to line by methods strictly in accordance with the manufacturer's recommendations. Proprietary adjustable ductile iron hanging brackets such as EF048 or EF049 or EF048AD shall be used or brackets as recommended by the manufacturer's standard guidelines.

Joining

Push-fit Couplings

- g) Pipes and fittings shall be joined by EEZI-FIT couplings incorporating 2 EPDM push-fit gaskets using suitable lubricant as recommended by the manufacturer. The couplings shall meet with the requirements of BS EN 877:1999. Coupling colour shall match the pipes and fittings.

Mechanical Couplings

- h) Pipes and fittings up to 100mm diameter shall be joined by couplings capable of withstanding up to 1.0bar when suitably supported. Couplings shall have integral electrical continuity nibs. Coupling colour shall match the pipes and fittings. (These couplings can be used in areas where future dismantling may be required).

Fittings

- i) EEZI-FIT soil pipework shall be installed using fittings that incorporate the jointing socket with integral EPDM push-fit gasket using suitable lubricant as recommended by the manufacturer.
- j) Where possible all 88 degree branches shall be radius curve entry.
- k) Small diameter waste pipes in plastic or copper to be connected to the main soil pipework using fittings which have integral bosses that can be cut out to suit the installation (with 51mm hole saw), push-fit boss pipes, or push-fit manifolds with grommets or blank ends.

Electrical Continuity

- l) On pipework installations where electrical conductivity (equipotential bonding) is required, continuity clips shall be installed.

Cutting Pipes

- m) Where pipes are cut on site, ends shall be cut clean and square with all burrs removed. In most cases it is not necessary to re-coat the pipe ends with "touch-up paint". **However, where there may be aggressive materials passing through the drainage system (i.e. Coca-Cola; acid rain; acids or strong alkaline or similar substances), it is necessary to protect the cut ends of the pipework to the same standard as the internal coating of the pipe (as recommended by the manufacturer).**

Coating

- n) Pipes shall be externally coated with an acrylic, anti-corrosion primer coating, red-brown in colour, average dry thickness of 40 microns. Internally coated with a two-part epoxy coating, ochre colour, with an average thickness of 130 microns.
- o) Fittings shall be protected internally with a red powder epoxy resin electrostatically applied to an average thickness of 150 microns. Externally coated to an average thickness of 70 microns.
- p) Couplings/brackets shall be protected with a red powder epoxy resin applied to an average thickness of 70 microns

References:-

**EN 13501-1 November 2002 Fire classification of construction products and building elements.