General Instructions for Designers

What is Graphic Concrete™?

- Graphic Concrete™ technology is based on applying a surface retarder to the surface of a special membrane
- Prefabrication companies are our clients. They spread the membrane on a mold table when manufacturing elements with Graphic Concrete™ patterns
- The end result is a patterned, smooth or completely exposed surface
- The pattern on the concrete surface is a result of the contrast between the fairface and the exposed fine aggregate finish (Illustration)
- The cement can be pigmented, which provides the color for the fairface surface. Aggregates of different colors can also be used, which will be visible on the exposed areas
- The depth of the exposure is always about 1 mm.

Where can you use Graphic Concrete™?

- Graphic Concrete™ can be used with prefabricated concrete products. The technology cannot be used for casting-in-place
- Typical uses include façades, partition walls, walls and concrete slabs
- Graphic Concrete™ does not set any additional requirements for the concrete masses
- Normal white cement -based masses are recommended.

What are the limits for the design?

- There are no limits to the size of the element
- The height of the Graphic Concrete™ membrane is 3 100 mm and it is delivered to the prefabrication plant in rolls
- The pattern is printed on the Graphic Concrete™ membrane in segments
- The maximum dimensions for one segment are 3 020 x 1 250mm (height x width)
- You can design repetitive patterns that are comprised of several segments
- Lateral or vertical printing variation is possible at the joints of the printing segments.

What does it cost?

- The prefabrication company chosen for the project sets the prices for the finished concrete elements
- The price of the Graphic Concrete™ membrane depends on the size of the repeated pattern and the quantity of membrane ordered
- The most cost-effective choice is to repeat the same pattern in large volume
- Please contact us or our representative to advise on how best to achieve the most cost-effective result.

Exposed + Smooth = © graphic concrete™

The Graphic Concrete™ Design Process

DESIGN INSTRUCTIONS (DI) 2

Please proceed as follows:

1. **Choose a pattern from our GCCollection™ catalog or design your own GCPro™ pattern**

2. **Contact us or our local representative early in the planning stage**

   Provide us with the following information:
   - The project name, schedule and location
   - The project team: the architect, developer, general constructor and prefabricator
   - The estimated quantity of Graphic Concrete™ in square meters (m^2)
   - The draft of the GCPro™ pattern or the name of the GCCollection™ pattern used
   - Initial elevation drawings with the concrete element dimensions (Example 1).

   We will help you with the technical issues and how to keep the design cost-effective. We will also assign a project manager as our contact person.

3. **Contact a local prefabrication company**

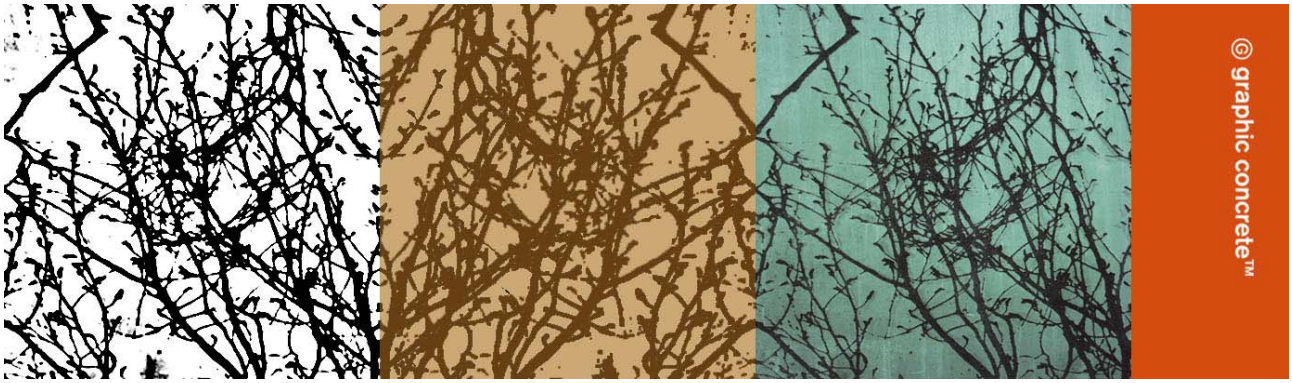
   - Consult the prefabrication company for recommendations regarding the concrete masses
   - Have sample slabs cast. This helps you to ensure that
     - the pattern and the colors appear in the desired way
     - the contrast between the fairface and the exposed areas appears as designed
   - We will train the prefabrication company in the use of Graphic Concrete™ technology.

4. **Prepare the ready-for-printing file according to our instructions (with GCPro™and GCArt&Design™)**

   - Prior to sending the file to us, please check that the material is prepared according to our Instructions for Creating Your Own Patterns (DI # 3 and Example 2)
   - Send the material and the printing instructions to us through material@graphicconcrete.fi

5. **Advise the element designer and the selected prefabrication company**

   - Match the desired pattern to the element drawings
   - The drawings should show the directions and the starting points of the pattern on the elements



A ready-for-printing file → A printed membrane → A finished concrete element

Instructions for creating your own patterns

Please make sure that the following five phases are complete before delivering the ready-for-printing file.

1. The file only contains 1-bit black and white graphics (or empty spaces)

- No colors or grey scales are allowed.

2. Everything in the file will be printed

- Include instructions (crop marks, frames, etc.), but only if they are intended to be on the printed membrane
- Clearly show which parts of the image should be imprinted in the concrete (the pattern) and which are only instructions.

3. The file is printed in the size given in the file name

- Name the file: (width x height in mm) (project abbreviation). (file format)
  - for example: 1250x3010_projectX.pdf
- The size should include the pattern and the instructions to be printed on the membrane
- For the placement reserve in the prefabrication plant, you can make the pattern overlap the upper and lower element sides by 10 mm on each side so that the image covers the whole element
- We print the pattern on the Graphic Concrete™ membrane in segments (Example 3).

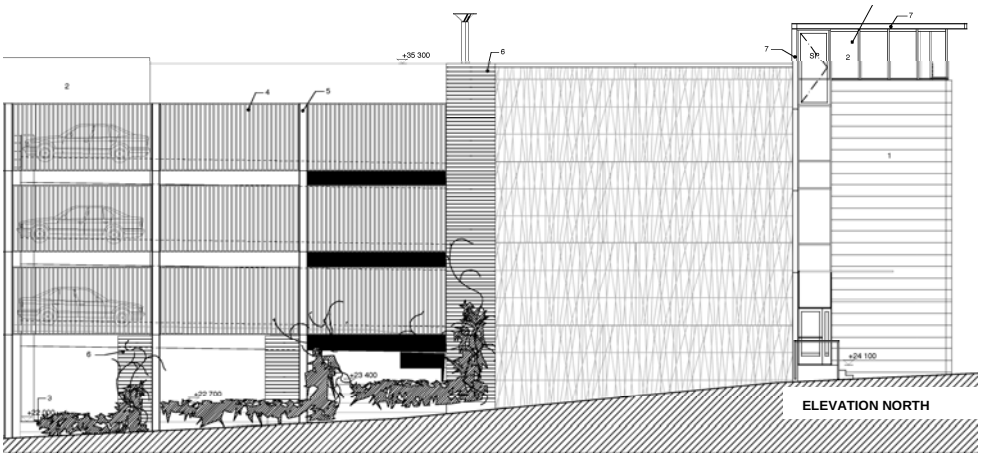
4. Print a section of the pattern on a 1:1 scale

- Test the visibility and the image quality by printing part of the image
- Check that the pattern is large enough with regard to the viewing distance
- Pay attention to curves. Ensure that no disturbing serration remains in the pattern
- When rasterizing a photograph, use large enough raster pixels. Our recommended minimum pixel size
- is 2mm

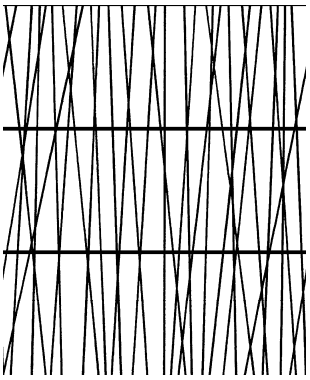
5. Deliver the file to Graphic Concrete

- Use the scale 1:10
- Deliver only vector graphics
- Deliver the black and white image either as a bitmap tiff-file or as a pdf-file produced by Distiller
- Send the file to us through material@graphicconcrete.fi (max 10 Mb) or upload it to your ftp-site.

Examples

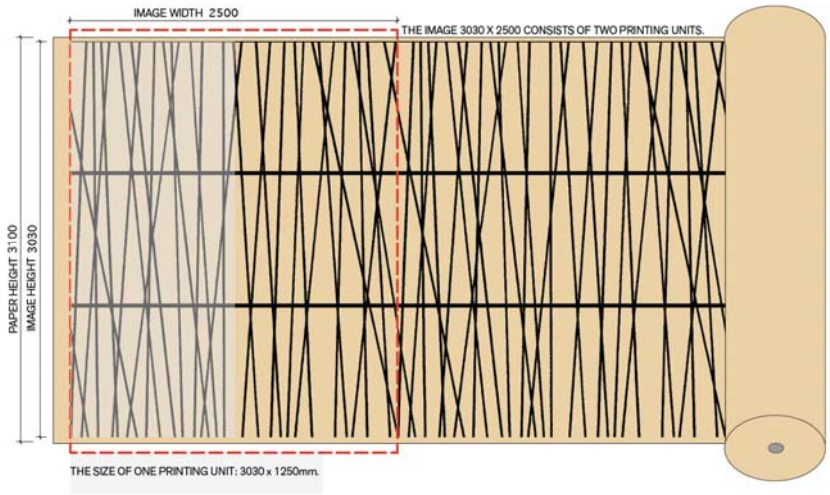


Example 1: Initial elevation drawing



- The file only contains 1-bit black and white graphics (or empty spaces)
- Include instructions (crop marks, frames, etc.), but only if they are intended to be on the printed membrane
- Clearly show which parts of the image should be imprinted in the concrete (the pattern) and which are only instructions.

Example 2: A ready-for-printing file named as: width x height in mm_project abbreviation.pdf.



Example 3: The pattern printed on the Graphic Concrete™ membrane in segments

For the placement reserve in the prefabrication plant, you can make the pattern overlap the upper and lower element sides by 10 mm on each side so that the image covers the whole element