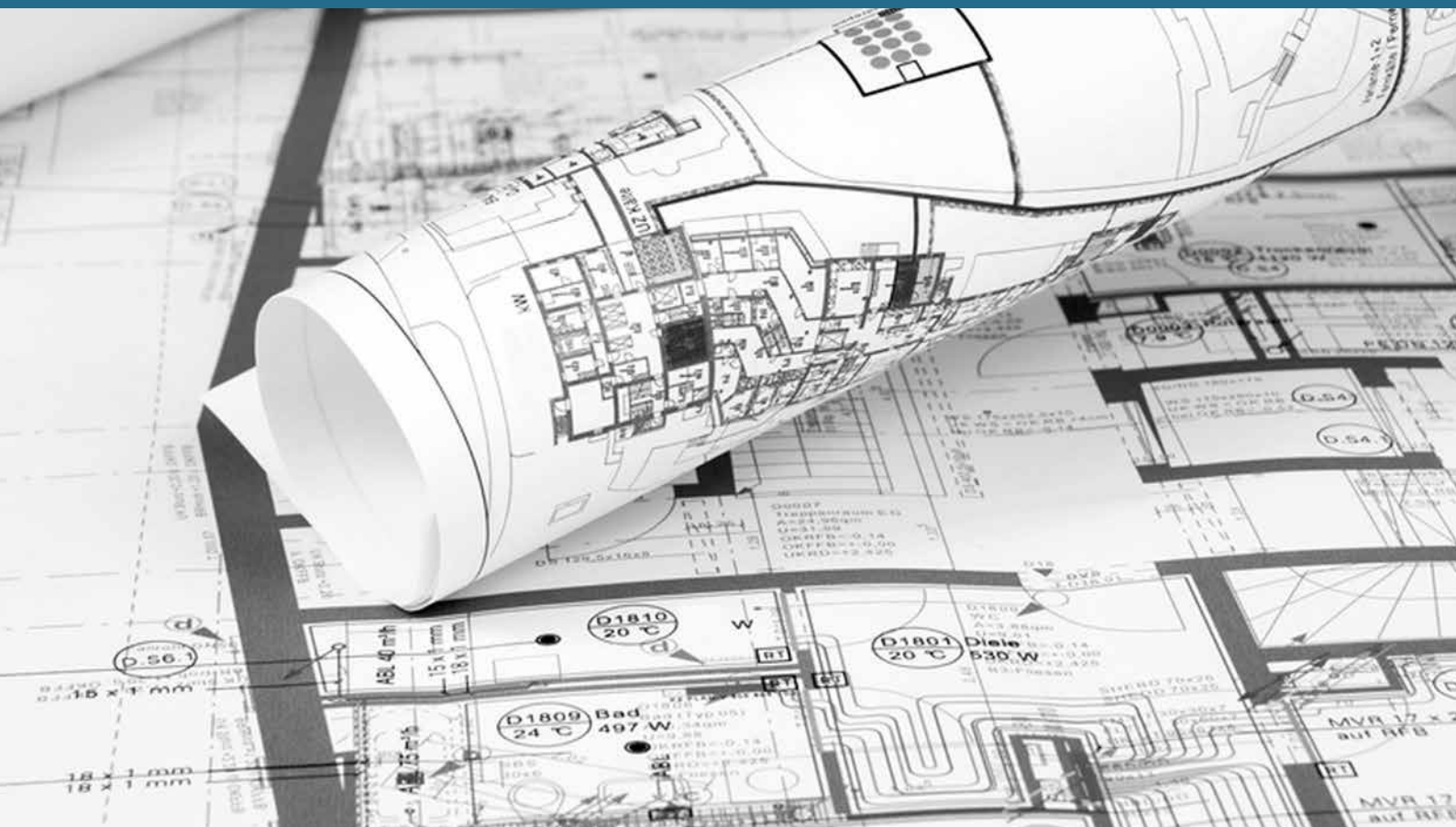


Brickwork Procurement

General Guide

Last Updated: March 2022



This is an initial guidance document for the general public and members of the construction profession.

Brickwork procurement can involve a large number of sources, so this document is not intended to be a comprehensive guide for procurement professionals, but rather a summary of the key issues and a signpost to further information, if required.

Scope of Document

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Introduction

Brick, often unfairly, has a reputation for being a difficult material to procure. The purpose of this document is to provide procurement best practice guidance for project managers, developers, contractors, builders and clients.

The guidance in this document will help ensure that the supply of bricks does not impact the construction programme. It will also help minimise confusion and make for a more streamlined procurement process.

Scope of Document

This document is intended primarily for construction professionals and self-builders who are going to be responsible for specification and the purchasing of bricks.

The guidance in this document is arranged in the sequence that many projects will follow.

The guidance consists of considerations to be raised with the brick manufacturer or suppliers at certain milestones in the project life cycle. Where the designer is not involved in procurement, the advice is intended as a reminder of what information the developer/builder will require.



Lifschutz Davidson Sandilands. Birmingham University.



Lifschutz Davidson Sandilands. Birmingham University.



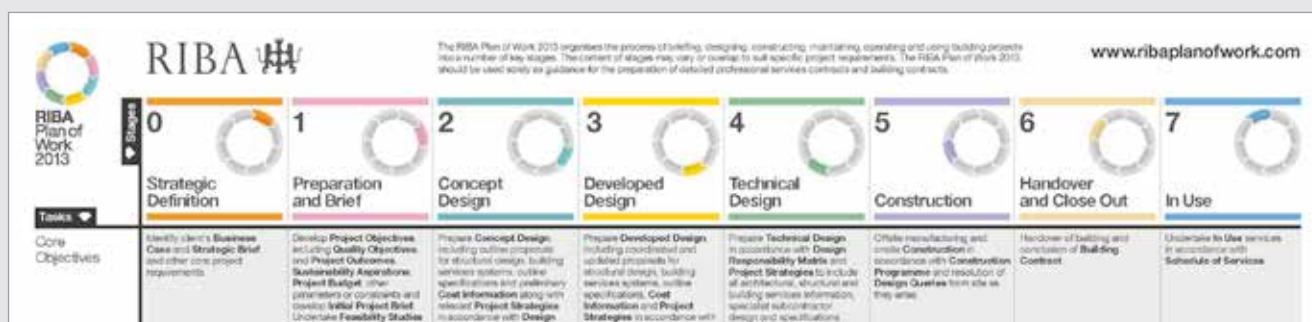
Lifschutz Davidson Sandilands. Birmingham University.

Concept Design

The concept design stage is likely the first point in the project lifecycle when the project team will consider the specification of the external materials. It may seem early in the process to engage with a brick manufacturer or supplier but making key decisions at this stage can help smooth the following design and procurement process.

RIBA stage 2 defines the core objective as; prepare Concept Design, including outline proposals for the structural design, building services systems, outline specifications and preliminary Cost Information along with relevant Project Strategies in accordance with Design Programme. Agree on alterations to brief and issue Final Project Brief.

RIBA STAGES OF WORK



Manufacturer or Supplier?

There are two main routes of engagement with regards to the initial specification for brick; direct to the manufacturer or through a brick supplier.

Both options have their positives and negative considerations. The brick manufacturer will likely have a better understanding of their product. Whereas brick suppliers will usually be able to provide a range of bricks from multiple manufacturers.

Whichever route you decide to follow a good starting point for procurement is often your local brick manufacturer. It's likely that they will have a history of supplying the local area and will be able to provide guidance on specification.

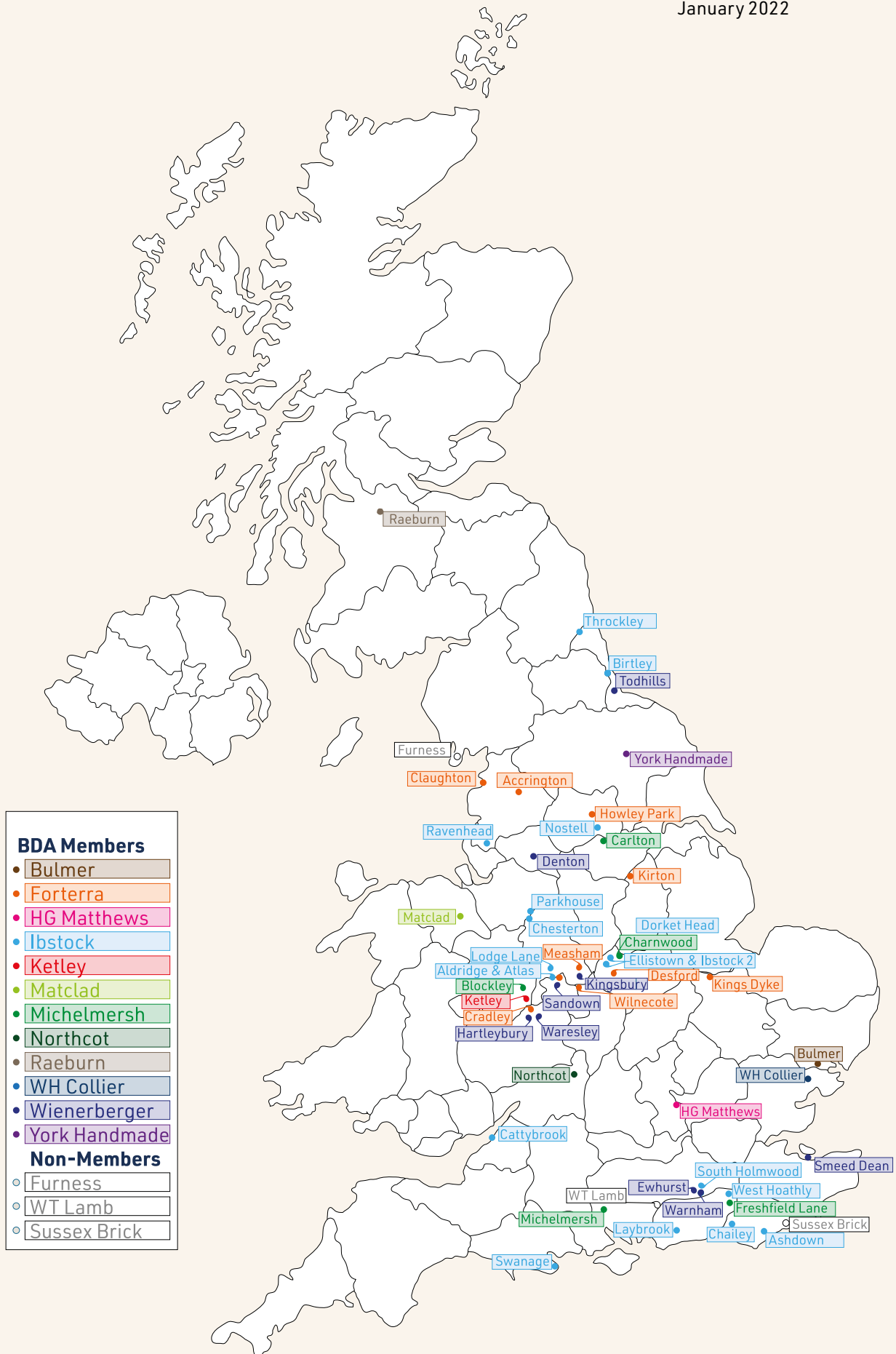
Key Tasks

- Request physical samples.
- Consider preferred colour & texture of brick.
- Consider preferred size of brick and mortar joints if deviating from standard.
- Brick bonding – stretcher, header, Flemish bond, English bond, honeycomb, and textured.

Information for the Manufacturer/Supplier

- Exposure zone for brickwork to determine appropriate specification.
- Preliminary cost information to source brick options at an appropriate range of values.
- Initial Construction Strategy including planning and preliminary start date.

Clay Brick Factories of the UK
January 2022



Developed Design

Riba Stage 3

RIBA Stage 3 defines the core objectives as; prepare Developed Design, including coordinated and updated proposals for the structural design, building services systems, outline specifications, Cost Information and Project Strategies in accordance with Design Programme.

By the completion of the developed design, the brick specification should ideally be narrowed down to a couple of options, which satisfy all the necessary specification, budget, buildability and logistic requirements. Physical samples of the options will have been supplied and a sample panel will possibly have been constructed.

Setting Out

Ensure that the setting out in plan and elevation is coordinated with the dimension of your preferred brick options. For further guidance please refer to BDA document 'Designing to brickwork dimensions'.

Buildability and Logistics

Review the design to consider any potential buildability or logistics issues, which could affect the procurement. For example, a lack of storage on-site may necessitate 'just in time' deliveries or possible time constraints around Special bricks.

Ancillary Components

If required, please liaise with the suppliers of the ancillary components to ensure specification compatibility, including; ties, tension straps, hangers, brackets and bed joint reinforcement.



Masonry support angle fixed to slab edge.



ACME Victoria Gate Arcade, Leeds.

Prefabrication

Determine whether any elements of the design would benefit from being prefabricated. Such as areas of complex geometry, lintels, chimneys or a gable abutment.

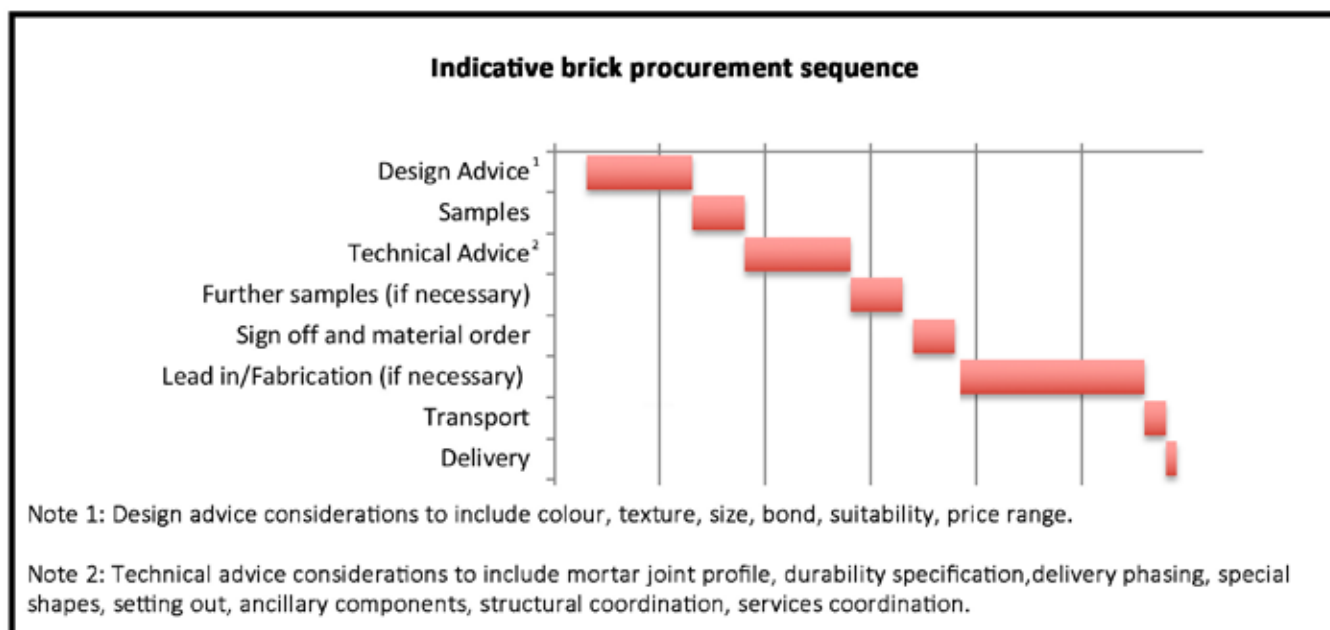
Coordination with Structure and Services

Consider how the bricks will be supported and whether the structural solution will affect the procurement. Either load bearing down to a foundation or supported back to the structural frame. For example, a brick support angle may require a rebated stretcher (pistol brick). Alternatively, brick at or below the ground level may require a more durable specification.

Developed Design

Procurement Sequence

At this stage, your preferred manufacturer will be able to confirm lead times for your preferred brick. This information should be incorporated into the procurement programme to determine a date for order placement, which will ensure that the bricks are delivered when needed on site.



Suitability for Application

As the design develops it should be periodically reviewed that the brick options remain suitable for the intended use. The technical data sheet for the brick will include specification requirements as per the below; some common issues are included:

Size tolerance, mean and range will have an impact on the uniformity of mortar joints.

Frog/perforations will need to be considered if projecting details are required.

Compressive strength will need to be considered if there is high loading on to the brickwork.

Durability (freeze/thaw resistance) will need to be considered regarding the exposure zone and detailing to avoid brickwork becoming saturated.

Soluble salts will need to be considered with regards to the exposure zone and detailing to avoid brickwork becoming saturated.

Water absorption will need to be considered to ensure coordination with mortar specification. Also, any potential use as a rigid DPC.

Developed Design

Phasing and Batching

Discuss potential phasing of the development with your preferred manufacturer/supplier. It may be that it is preferable to place a single order for the full quantity of bricks to complete a development.

This will help ensure that the bricks are procured from a single batch to minimise the potential for variation.

Identify Specials

Speak to the manufacturer to identify any potential specials associated with the design and determine the best method to achieve the desired aesthetic. Most brick manufacturers produce a full range of special shapes, which will complement the facing bricks and provide attractive features.

Due to the different manufacturing process some specials can have subtle differences from the standard brick. A 'cut and bonded' special or contrasting colour may be a quicker option.



A Cut and Bonded External Angle



Brick Special External Angle

Quantity, Wastage and Preliminaries

A bill of quantities should be produced at this stage to identify the quantity of brickwork, including wastage and preliminaries. A Brick Calculator can be found on the BDA website to assist with determining quantities. Generally a m² rate is given for standard brickwork areas; linear meter rates and quantities are also used for special elements. The bill of quantities will likely be revised following completion of the detail design.



Site wastage will need to be accounted for when procuring bricks.

Detail Design

Providing that engagement with brick manufacturers has been ongoing during the previous two stages, the detail design stage should only require minor revision and development of existing information.

RIBA Stage 4 defines the core objectives as; prepare Technical Design in accordance with Design Responsibility Matrix and Project Strategies to include all architectural, structural and building services information, specialist subcontractor design and specifications, in accordance with Design Programme.

Site Reference Panels

Site reference panels provide an essential benchmark should any issues arise during the brickwork programme. Panels should be built in a location to be maintained for the length of the project and therefore provide an agreed level of material characteristics and workmanship.

Bricks for the reference panel should not be selected especially and should be representative of the delivered bricks.

The panel should be a minimum of 1m² and ideally built by the successful brickwork contractor. The panel should include any particular details and should be reviewed at a distance of 3 meters.



Confirm Construction plan

It should be possible to confirm the final construction plan; including phasing and any outstanding buildability or logistics issues.

Delivery Schedule and Storage

In addition to the construction plan the delivery schedule and storage strategy can be agreed.

Coordination with Structure and Services

Review the construction details and consider the interaction of brickwork with services penetrating through the façade, which could impact the procurement.

For example, whether air bricks are required to terminate ventilation.



Example Reference Panels

References and Further Reading

EN 771-1, Specification for masonry units Part 1: Clay masonry units

BS EN 845-1, Specification for ancillary components for masonry – Part 1: Ties, tension straps, hangers and brackets

BS EN 845-2, Specification for ancillary components for masonry – Part 2: Lintels

BS EN 845-3, Specification for ancillary components for masonry – Part 3: Bed joint reinforcement of steel meshwork

BS EN 998-2, Specification for mortar for masonry – Part 2: Masonry mortar

BS EN 1990:2002+A1:2005, Eurocode – Basis of structural design

BS EN 1996-1-1:2005, Eurocode 6 – Design of masonry structures – Part 1-1: General rules for reinforced and unreinforced masonry structures

BS EN 1996-1-2:2005 Eurocode 6. Design of masonry structures. General rules. Structural fire design

BS EN 1996-2:2006, Eurocode 6 – Design of masonry structures – Part 2: Design considerations, selection of materials and execution of masonry

BS EN 1996-3:2006 Eurocode 6. Design of masonry structures. Simplified calculation methods for unreinforced masonry structures

PD 6697:2010, Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2

BS 8000-3, Workmanship on building sites – Part 3: Code of practice for masonry

<http://brick.org.uk/about/our-members>



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