

STAGE 4

Technical Design

Job no

Job Title

Team members

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Instruction for use

This checklist is an rtf (rich text format) form, optimised for editing in Microsoft Office Word. Parts of it have been temporarily locked to preserve the default wording found in the *RIBA Job Book* (Ninth Edition). The parts that are not locked are the check boxes, the 'notes' fields and the 'completed on' fields. In other words, it is possible to add your own text and subsequently edit these fields.

It is recognised that the default wording, which is currently locked, may need to be added to and edited. To unlock it, please follow the instructions below:

Microsoft Office Word 2003

- Select *View>Toolbars>Forms* from the main menu. The *Forms* toolbar will appear.
- Click the *Protect Form* button  to unlock the checklist. To lock it again, click it again.
- If needed, click the *Form Field Shading* button  to hide the grey shading that appears around the editable fields. To show it again, click it again.

Microsoft Office Word 2007

- Click the Office button  to bring up a menu. Select *Word Options* from the bottom of the menu.
- The *Word Options* dialog window will open. Select the *Show Developer Tab* option. At the bottom of the window, click *OK*.
- A new *Show Developer* tab appears at the top of your screen. Click on it.
- In the *Protect* group, select *Protect document*. A window will appear on the right-hand side of your screen.
- In this window, select *Stop protection* from the bottom of the list.

Microsoft Office Word 2010

- Click the *File* tab to bring up a menu. Select *Word Options* from the bottom of the menu.
- The *Word Options* dialog window will open. Select the *Customize Ribbon* option.
- Select *Developer* box in the right hand side menu and click *OK* on the bottom of the screen.
- A new *Show Developer* tab appears at the top of your screen. Click on it.
- In the *Protect* group, select *Restrict Editing*. A window will appear on the right-hand side of your screen.
- In this window, select *Stop protection* from the bottom of the list.

4.1	Client team
4.1	<p>Check that the client has settled all accounts submitted to date.</p> <p><i>Enter notes here</i></p> <p style="text-align: right;"><input type="checkbox"/> Completed on</p>
4.1.2	<p>Check appointing documents with respect to services and fees.</p> <ul style="list-style-type: none"> • If the services, cost or time targets are different from those agreed with the client, agree a formal variation by letter or deed, as appropriate. • If the extent of professional services for Stage 4 is not settled, agree with the client and confirm in writing. <p>If the methods and levels of charging for Stage 4 are not yet settled, agree with the client and confirm in writing.</p> <p><i>Enter notes here</i></p> <p style="text-align: right;"><input type="checkbox"/> Completed on</p>
4.1.3	<p><i>If procurement is through design and build:</i></p> <ul style="list-style-type: none"> • <i>for an employer client: check whether the client has confirmed in writing acceptance of proposals and information supplied so far to form part of the Employer's Requirements</i> • <i>for a contractor client: check whether the client has confirmed in writing acceptance of design proposals to form part of the Contractor's Proposals.</i> <p><i>Enter notes here</i></p> <p style="text-align: right;"><input type="checkbox"/> Completed on</p>
4.1.4	<p>Check whether the client has confirmed in writing acceptance of the Spatially Coordinated design submitted at Stage 3.</p> <p><i>It is important to remind the client that any changes to the approved Spatially Coordinated design which are client-originated might mean abortive work, additional fees and expenses and delays.</i></p> <p><i>Enter notes here</i></p> <p style="text-align: right;"><input type="checkbox"/> Completed on</p>
4.1.5	<p>Advise the client on the need to appoint further consultants and specialists.</p>

	<i>Enter notes here</i>	<input type="checkbox"/> <i>Completed on</i>
4.1.6	<p>Obtain the client's approval of materials and finishes. Obtain samples, etc. and submit to the client for comment. Prepare special presentation panels, etc. for the client.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.1.7	<p>Discuss with the client any outstanding matters of detail design which need to be resolved before preparing Manufacturing Information and Construction Information.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.1.8	<p>Advise the client on the need for a clerk of works if appropriate, and explain the role of such a person and the appointing procedures.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.1.9	<p>Discuss with the client whether interviews with potential contractors should take place at this stage.</p> <p><i>Under certain circumstances, contractors' views on operational methods and Health and Safety during construction could be valuable. Contractor involvement can in principle start at any stage.</i></p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.1.10	<p>If acting as Project Lead:</p> <ul style="list-style-type: none"> • Check with the client when the site will be available to the contractor and that nothing is likely to prevent possession or commencement on that date. • Discuss with the client any intention to impose restrictions on the contractor's working methods (e.g. sequence, access, limitation on hours, noise). <p><i>Note: this could have an effect on technical design and would be essential information for tenderers.</i></p> <ul style="list-style-type: none"> • Discuss with the client essential information for completing contract documents (e.g. appendix) and which will need to be referred to in preliminaries (or project management sections) of specifications or schedules of work. • Check with the client any special or optional 	

	<p>contract provisions.</p> <ul style="list-style-type: none"> • Check with the client and advisers on insurance for works, etc. • Report to the client on cost matters at agreed intervals. <p><i>If procurement is through design and build for a contractor client:</i></p> <ul style="list-style-type: none"> • <i>provide any further necessary information to the contractor's estimators</i> • <i>review estimates received from specialist firms, either direct or through consultants, for inclusion in the tender documents or as basis for provisional sums.</i> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.1.11	<p>Report regularly to the client on fees and expenses incurred, and submit accounts at agreed intervals.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.1.12	<p>Check that the client's instruction to proceed has been given and confirmed in writing.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.2	Design team	
4.2.1	<p>Establish or review project quality management procedures together with relevant procedures of all design team members.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.2.2	<p><i>Check the scope of professional services agreed with other consultants as they are appointed.</i></p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.2.3	<p>Agree input to the stage by design team members.</p> <p>Remember that the procurement method chosen will greatly affect the amount of detail design information necessary at this stage.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.2.4	<p>Establish the information exchange programme.</p>	

	<i>Enter notes here</i>	<input type="checkbox"/> <i>Completed on</i>
4.2.5	Prepare a drawing programme/schedule. <i>Enter notes here</i>	<input type="checkbox"/> <i>Completed on</i>
4.2.6	Have an agreed policy for coordinating information on drawings and between documents. <i>Coordinated project information should be introduced at the earliest possible stage in information preparation.</i> <i>There must be an organised flow of information between the architect and other consultants, particularly with the cost consultant.</i> <i>Enter notes here</i>	<input type="checkbox"/> <i>Completed on</i>
4.2.7	Confirm the programme and pattern for design team meetings. <i>Enter notes here</i>	<input type="checkbox"/> <i>Completed on</i>
4.2.8	Monitor, coordinate and integrate input from design team members and specialists. Appraise input from specialist firms, including potential subcontractors and suppliers. <i>The architect needs to bring both design and management skills to Stage 4. Collaboration with other design team members and coordination of their contributions is often difficult to achieve in practice.</i> <i>The lead designer is responsible for facilitating the coordination of all information and its integration into the general scheme.</i> <i>Enter notes here</i>	<input type="checkbox"/> <i>Completed on</i>
4.2.9	Check that any instructed design changes are recorded and subject to the Change Control Procedures. <i>No design team members should attempt to make decisions unilaterally.</i> <i>Enter notes here</i>	<input type="checkbox"/> <i>Completed on</i>
4.2.10	Coordinate and integrate information from design team members. <i>Enter notes here</i>	<input type="checkbox"/> <i>Completed on</i>
4.2.11	Confirm with design team members the arrangements for inviting specialist tenders. <i>Enter notes here</i>	<input type="checkbox"/> <i>Completed on</i>

4.3

Construction team

4.3.1

Appraise input from specialist firms, including potential subcontractors and suppliers.

Enter notes here

Completed on

4.3.2

Review quality management of potential suppliers and subcontractors and their general compliance in Health and Safety matters.

Enter notes here

Completed on

4.3.3

If acting as Project Lead, review any proposals for work by subcontractors or suppliers.

In projects where there are to be many specialist subcontractors, particularly where these are undertaking some design obligations, it may be necessary to initiate some tender action for subcontractors at an early stage. This will enable design proposals to be integrated into the overall design and quotations to be checked against the Cost Plan. This information may be needed before the main contract tender documentation can be finalised.

Enter notes here

Completed on

4.3.4

Review/update standing lists or register of specialist tenderers and check you have written confirmation from the client for their inclusion. Check willingness and availability of firms included as listed subcontractors and, if necessary, decide on additional names.

Enter notes here

Completed on

4.3.5

Initiate tender action for quotations from specialist subcontractors and suppliers if appropriate.

Check tender invitation documents for sending to specialists.

Invite further tenders as appropriate.

When inviting tenders for specialist subcontract work that includes a design element, make certain that the client consents in writing, and that their interests are properly protected by warranty.

Enter notes here

Completed on

<p>4.3.6</p>	<p>Inspect tenders and information submitted by specialist subcontractors and suppliers.</p> <p>Refer all tenders to the cost consultant for cost checking.</p> <p>Approve specialist tenders and notify all tenderers of this decision.</p> <p><i>Follow meticulously the procedures stated in the main contract to be used for the appointment of specialist subcontractors.</i></p> <p><i>Only place advance orders with specialist subcontractors or suppliers as provided for in the subcontract documentation, and only if authorised in writing by the client.</i></p> <p><i>Enter notes here</i> <input type="checkbox"/> <i>Completed on</i></p>
<p>4.3.7</p>	<p>Discuss the list of potential main contractors (or construction managers if appropriate) with the client and the design team. Check whether the client holds a general list of approved contractors from which tenderers must be selected. Make preliminary enquiries with contractors if appropriate.</p> <p><i>Tender lists should only include firms well known to the architect, or firms which have been satisfactorily investigated.</i></p> <p><i>Enter notes here</i> <input type="checkbox"/> <i>Completed on</i></p>
<p>4.3.8</p>	<p>Discuss with the client the tender procedures, including:</p> <ul style="list-style-type: none"> • whether firms that wish to be considered as tenderers should complete a tendering questionnaire P/N3 • whether the client will require tenderers to complete a non-collusion or other similar certificate. P/N5 <p><i>Enter notes here</i> <input type="checkbox"/> <i>Completed on</i></p>
<p>4.3.9</p>	<p>Continue discussion with the client on the inclusion of any special clauses or amendments to the Building Contract. Remind the client of the need to take legal advice before amending standard forms of contract. Discuss with the client the implications of any advice obtained.</p> <p><i>Enter notes here</i> <input type="checkbox"/> <i>Completed on</i></p>
<p>4.310</p>	<p>Review the position with respect to advance orders for design, materials and fabrication by</p>

	<p>specialist subcontractors and suppliers, including named subcontractors. If authorised, take further necessary action.</p> <p><i>Always obtain authorisation before taking action on advance orders.</i></p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.3.11	<p>Confirm with the client the details of any preliminary contracts for enabling works and, if authorised, take the necessary action.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.4	Cost	
4.4.1	<p>Discuss with the design team and the client the effect of detailed design decisions on the allocations within the Cost Plan before implementation.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.4.2	<p>Provide information to the cost consultant for revision of the Cost Plan.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.4.3	<p>Provide information for the cost consultant to review the Cost Plan and monitor cost implications of decisions during the preparation of technical design (or revise the cost estimate if appointed to do so).</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.4.4	<p>If procurement is through design and build:</p> <ul style="list-style-type: none"> • for an employer client: provide revised information if relevant for corrected cost estimates • for a contractor client: provide revised information if relevant to contractor's estimators. <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.5	Other activities	
4.5.1	<p>Assess the office resources needed for Stage 4 and ensure that they are available and adequate.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>

4.5.2	<p>Make such visits as are necessary to supply sources (e.g. quarries, brickyards, stoneyards) and manufacturing sources (e.g. foundries, factories, workshops) before making final design choices.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.5.3	<p>Arrange for further tests to be conducted on components, panels and finishes, if appropriate and authorised by the client.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.5.4	<p>Decide on the provisions for testing to be included in the tender documents, including the contractor's testing and Commissioning of building services before completion.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.5.5	<p>Determine provisions for the client to witness testing, if required, and whether this is to be part of the contract period.</p> <p>Establish the contractor's obligations for attendance and rectification if necessary.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.5.6	<p>Continue resource control procedures for the job:</p> <ul style="list-style-type: none"> • check expenditure against the office job cost allocation for Stage 4 • monitor fee income against projected fee income. <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.5.7	<p>Review and update the Sustainability Strategy and the Plan for Use Strategy.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.5.8	<p>Review the Construction Strategy, including sequencing and programme, and update the Health and Safety Strategy.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.5.9	<p>Review and update the Project Execution Plan.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>
4.5.10	<p>Prepare the technical design in accordance with the Responsibility Matrix and Project Strategies.</p> <p><i>Enter notes here</i></p>	<input type="checkbox"/> <i>Completed on</i>

4.5.11

Prepare information for inclusion in specifications, schedules and bills of quantities.

- Assemble specification notes made during Stage 3.
- Prepare a checklist to show which headings or subheadings might be relevant for the particular project.
- Allocate responsibilities for writing particular parts of the specification.
- Select specification sections and clauses from a standard specification library (NBS Create is recommended).
- Identify sections or items that are not covered adequately for the particular project and which will require supplementary information. Establish which parts will be descriptive and which prescriptive.
- If specifying by reference to documents, e.g. British Standards, obtain the documents and carefully read the relevant parts.
- Review the selection of materials, descriptions of workmanship, etc. and check against the Cost Plan.
- Check the final copy for errors, omissions and possible inconsistencies, both within the document itself and between the specification and other parts of the Technical Design information.

To assist the cost consultant during preparation of the tender information, the architect might be expected to supply the following:

- *specification or specification notes for incorporation in work sections*
- *information for inclusion in preliminaries (or project management sections) such as:*
 - *form of contract, supplements, option clauses, amended clauses, etc.*
 - *content and use of contract documentation*
 - *method statements required*
 - *health and safety information*
 - *work to be done by the employer direct*

	<ul style="list-style-type: none"> – requirements concerning sequence, time limitations, etc. – provisional sums to be included – provision for named subcontractors/suppliers • location drawings (plans, sections and elevations) • component drawings (i.e. showing information necessary for manufacture and assembly) • drawn schedules. 	<input type="checkbox"/> Completed on
<p>4.5.12</p>	<p>Draft preliminaries (or project management sections) together with work sections – specifications for materials and workmanship (or systems, products and execution).</p> <p><i>Use specification clauses which are clear and precise. It should be normal practice to use the appropriate version of NBS Create. It is important that the specification is incorporated so that it forms part of the contract documentation.</i></p>	<input type="checkbox"/> Completed on
<p>4.5.13</p>	<p>If procurement is through design and build:</p> <ul style="list-style-type: none"> • for a contractor client: review any client’s comments on the detail design or development and note any adjustments which may be unavoidable owing to modifications introduced lately by component manufacturers or specialist subcontractors. <p>Detail design amendments might also be necessary, for example, because of substitutions forced by long delivery times.</p> <p>Check what action is to be taken as a result.</p>	<input type="checkbox"/> Completed on
<p>4.5.14</p>	<p>Consider the requirements for the Commissioning of engineering services by subcontractors and the main contractor, and provisions for testing for inclusion in tender documents.</p>	<input type="checkbox"/> Completed on

4.6

BIM and digital technology

4.6.1

If appointed as information manager:

- assist members of the design team to develop the design using the BIM model, ensuring that data-sharing protocols are followed
- check and sign off the model at agreed stages
- issue or assist in the issue of design data at agreed times throughout the development of the design
- assist in the development of data relative to the agreed levels of detail
- assist in the integration of contractor's, subcontractors' and suppliers' data into the BIM model.

Enter notes here

Completed on

4.6.2

Carry out detailed modelling, integration and analysis using the BIM model.

Enter notes here

Completed on

4.6.3

Create Technical Design level parametric objects for all major elements (where appropriate and where information exists this may be based on Tier 2 suppliers' information).

Enter notes here

Completed on

4.6.4

Undertake a final review and sign off of the BIM model.

Enter notes here

Completed on

4.6.5

Enable access to the BIM model by the contractor(s).

Enter notes here

Completed on

4.6.6

Integrate subcontractor performance-specified work information into the BIM model data.

Enter notes here

Completed on

4.6.7

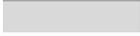
Review construction sequencing (4D) with the contractor.

Enter notes here

Completed on

4.6.8

Share data for conclusion of design coordination and detailed analysis with subcontractors.



Enter notes here



Completed on