

Working Together to Deliver High Levels of Construction Quality

Construction Quality Reviews by NHBC

NHBC has developed a programme focusing on construction quality that will help the house building industry maintain and raise quality during this period of significant volume growth. As part of this NHBC are introducing Construction Quality Reviews (CQRs) in addition to the normal inspection process.

What is a CQR?

An in-depth annual review of construction quality on a site specific basis

- A CQR will be undertaken by an NHBC Inspection Manager, taking between two and three hours.
- 38 build stages form the framework for the review (see appendix 1).
- CQRs focus on construction quality and understanding 'why or how' given levels of quality have resulted (both good and not so good).

Two forms of feedback

- Site level feedback will be supplied via a pdf report containing a summary of what has been seen at each build stage including photographic examples and 'key considerations' looking at potential underlying causes behind good and not so good practice (see appendix 2).
- Senior level management feedback at group, division and subsidiary level will provide an overall summary of quality and highlight areas of good practice that could be implemented company wide in order to drive up construction quality and reduce costs.

What does the process involve?

In advance

An NHBC Inspection Manager will make contact with the Site Manager a day or two prior to the visit. Only sites that have a sufficient spread of work available for review will be focused on.

Initial Site Manager meeting

The Inspection Manager will need a numbered plot layout confirming current stages in build and an initial meeting with the Site Manager in order to become familiar with the site - this is likely to take 20 or 30 minutes.

Site review

The Inspection Manager will typically spend two hours reviewing construction work in build (this can be accompanied or unaccompanied). Photographs and notes will be taken, and the Inspection Manager will compile a draft report and rate each construction stage seen using a six point scale (see appendix 2).

Final Site Manager meeting

The Inspection Manager will run through findings with the Site Manager and explore underlying causes or circumstances that have led to any good, or not so good construction quality. This process may take around 30 minutes dependant on observations during the review. Your help in identifying causations is key to the success of the review. It is from this information that we stand to gain the most in terms of learning and driving quality up still further.

Distribution and follow-up

The Inspection Manager will complete the report and e-mail a link to the Site Manager and builder's office.

No Reportable Items will be raised by the Inspection Manager as part of the review. A copy of the report will be sent to the local Building Inspector and if required, they will run through the findings with the Site Manager; providing guidance and documenting any actions/ follow-ups required - this will be by way of a consultative visit. In exceptional circumstances should the actions not be addressed within the given time period then it may be necessary for the Building Inspector to raise Reportable Items.

Construction Quality Reviews

What to Expect...

1

In advance

Inspection Manager...

- Prioritises sites within allocated area
- Plans visits and co-ordinates with relevant Site Managers 2-3 days prior to review.

2

Initial Site Manager meeting

On the day...

- Initial meeting with Site Manager lasts 20-30 minutes
- Pen picture of site created
- Any background attributes that may affect quality of build are identified.

3

Site review

- Onsite review of work in build taking approximately 2 hours (accompanied or unaccompanied)
- Review captures as many build stages as possible.

4

Final Site Manager meeting

- Site level feedback provided
- Work with Site Manager to understand 'why or how' given levels of quality have been achieved (both good and not so good).

5

Distribution and follow-up

- Report completed and issued to builder
- If required, the local NHBC Building Inspector will run through findings, provide guidance and document any actions or follow up required via a Consultative Inspection.

6

Feedback to senior management

- Summary of construction quality, fed back at group, division and subsidiary level.
- Highlighting opportunities to enhance construction quality.

Construction quality reviews

- Score Logic

Appendix 1

1	Very Poor	Many significant non-compliances of NHBC Standards and/or Building Regulations - Imminent danger to H&S apparent and/or almost inevitably resulting in a claim(s) > £100K
2	Poor	Many minor non compliances of NHBC Standards and/or Building Regulations and/or some significant non-compliance - Imminent danger to H&S apparent and/or almost inevitably resulting in a claim(s) > £30K
3	Requires Improvement	Some minor non-compliance(s) with NHBC Standards and/or Building Regulations
4	Good	Meets NHBC Standards and Building Regulations
5	Very Good	In addition to 4 - some extra attention to detail over and above minimum requirements
6	Outstanding	In addition to 5 - much of work seen can't be improved upon

Construction quality reviews

- Build stages

Appendix 1

Build stage list


1. FOUNDATIONS
1.1 Ground preparation
1.2 Excavations, piling and formwork
1.3 Reinforcement and concrete placement
2. SUBSTRUCTURE & DRAINAGE
2.1 Walls and columns
2.2 Waterproofing and ventilation
2.3 Sub-floor services
2.4 Ground floor
2.5 Drainage
2.6 Gas precautions
3. SUPERSTRUCTURE
3.1 Structural frame and/or loadbearing walls
3.2 External envelope
3.3 Cavities and insulation
3.4 DPCs and trays
3.5 Chimneys and flues
3.6 Intermediate floor structure
3.7 Lintels beams and other structural elements
3.8 Balconies including fixings and weather proofing
3.9 Fire stopping and sound proofing
4. ROOFS
4.1 Framing
4.2 Pitched roof coverings
4.3 Flat roof coverings
4.4 Ventilation and underfelt, Insulation, and fire stopping
4.5 Flashing, gutters and downpipes

5. FIRST FIX
5.1 Windows and doors
5.2 Floor decking and stairs, sound proofing and fire stopping
5.3 Services - electrical
5.4 Services - plumbing
5.5 Services - ventilation
5.6 Non-load bearing and compartment walls
5.7 Plaster and dry lining to walls and ceilings
6. SECOND FIX
6.1 Services - electrical including equipment
6.2 Services - plumbing including equipment
6.3 Joinery
7. SURFACE FINISHES
7.1 Internal finishes
7.2 Floor finishes
7.3 External finishes
8. EXTERNAL WORKS
8.1 Retaining walls and free standing walls
8.2 Hard and soft landscaping

Construction Quality Review

- Sample report

Appendix 2



Site Assessment

Demo Builders
Demo Lane, Demotown


Site details:

Builder: Demo Homes
 Site Manager: Demo Smith
 Inspected: 09/02/2016
 SNIN Ref: 000666555

Under taken by:

Name: Demo Smith
 Job title: Inspection Manager

Construction Quality Review



Assessment Summary Table

Section Title	Score	Page
1. FOUNDATIONS		
1.1 Ground preparation		
1.2 Excavations, piling and formwork		
1.3 Reinforcement and concrete placement		
2. SUBSTRUCTURE & DRAINAGE		
2.1 Walls and columns		
2.2 Waterproofing & ventilation		
3.8 Balconies including fixings and weather proofing		
2.3 Sub-floor services		
2.4 Ground floor		
2.5 Drainage	3	3
2.6 Gas precautions		
3. SUPERSTRUCTURE		
3.1 Structural frame and/or loadbearing walls		
3.2 External envelope		
3.3 Cavities and insulation		
3.5 Chimneys and flues		
3.4 DPCs & trays	5	4
3.6 Intermediate floor structure		
3.7 Lintels beams and other structural elements		
3.9 Fire stopping and sound proofing's		
4. ROOFS		
4.1 Framing	2	5
4.2 Pitched roof coverings		
4.3 Flat roof coverings		
4.4 Ventilation and underfelt, insulation, and fire stopping	1	6
4.5 Flashing, gutters and downpipes		
5. FIRST FIX		
5.1 Windows and doors		
5.2 Floor decking and stairs, Sound proofing and fire stopping	6	7
5.3 Services – Electrical		
5.4 Services – Plumbing		
5.5 Services – Ventilation		
5.6 Non-load bearing and compartment walls		
5.7 Plaster and dry lining to walls and ceilings		
6. SECOND FIX		
6.1 Plumbing Services including equipment		
6.2 Electrical Services including equipment		
6.3 Joinery		
7. SURFACE FINISHES		
7.1 Internal finishes		
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Construction Quality Review

- Sample report

Appendix 2



3. Superstructure

3.3 Cavities and insulation

Rating: 1 - Very Poor

Build Stage Summary:

Timber framed dwellings with integral insulation and 50mm cavity
Cavities above dpc level were generally clean; however there was some excess mortar at the bed joints that had not been removed as the work progressed.
Cavities at ground floor dpc level and below on plots 8, 11, 13 and 19 (House Types XXXX & XXXX) were greatly reduced and measured less than the required 50mm, some areas were almost closed completely.

Photos:



Plot No's: < 8, 11, 13 and 19



Plot No's: < 20-30



Plot No's: < 20-30



Plot No's: < 8, 11, 13 and 19



Plot No's: < 8, 11, 13 and 19



Plot No's: < 8, 11, 13 and 19

Key Considerations:

Cavity Width at DPC level Plots 8, 11, 13 and 19

Design issue with crossover of trades, substructure design and timber frame design. When the dimensions of the sub-structure and timber frame drawings were checked for the two houses there appeared to be an obvious dimensional disparity. The recently revised house type dimensions appear to have been allowed for within the timber frame drawings.



5. First Fix

5.2 Floor decking and stairs, Sound proofing and fire stopping

Rating: 5 - Very Good

Build Stage Summary:

XX Floor decking system used throughout the site - Installed to a very high standard, liberal amounts of joint and joist adhesive (XX glue) had been applied to both the shoulder and groove of each profile joint. The boards were butted tightly together, perimeter protection carefully provided and expansion gap to walls consistently maintained.

Stair winders had additional wedges / supports provided and were also glued and screwed, with additional fixings provided to strings. Alignment to the wall and fixing of the stairs was of a high order with no need for additional packing at the top riser.

Photos:



Plot No's: > 10 to 16



Plot No's: > 16-20



Plot No's: > 16-20



Plot No's: > 20-30



Plot No's: > 20-30

Key Considerations:

The site manager had experienced numerous problems with both squeaking floors and stairs on this site and had taken steps to resolve the problem by including it in the check-list for this stage, providing a laminated copy of the manufacturers' details to the carpenters and ensuring that this detail was discussed during the site induction procedure.

Following numerous company wide problems with 'squeaking stairs' the company also recently provided an additional fixing detail and this is being implemented on this site and has been included in the works package.