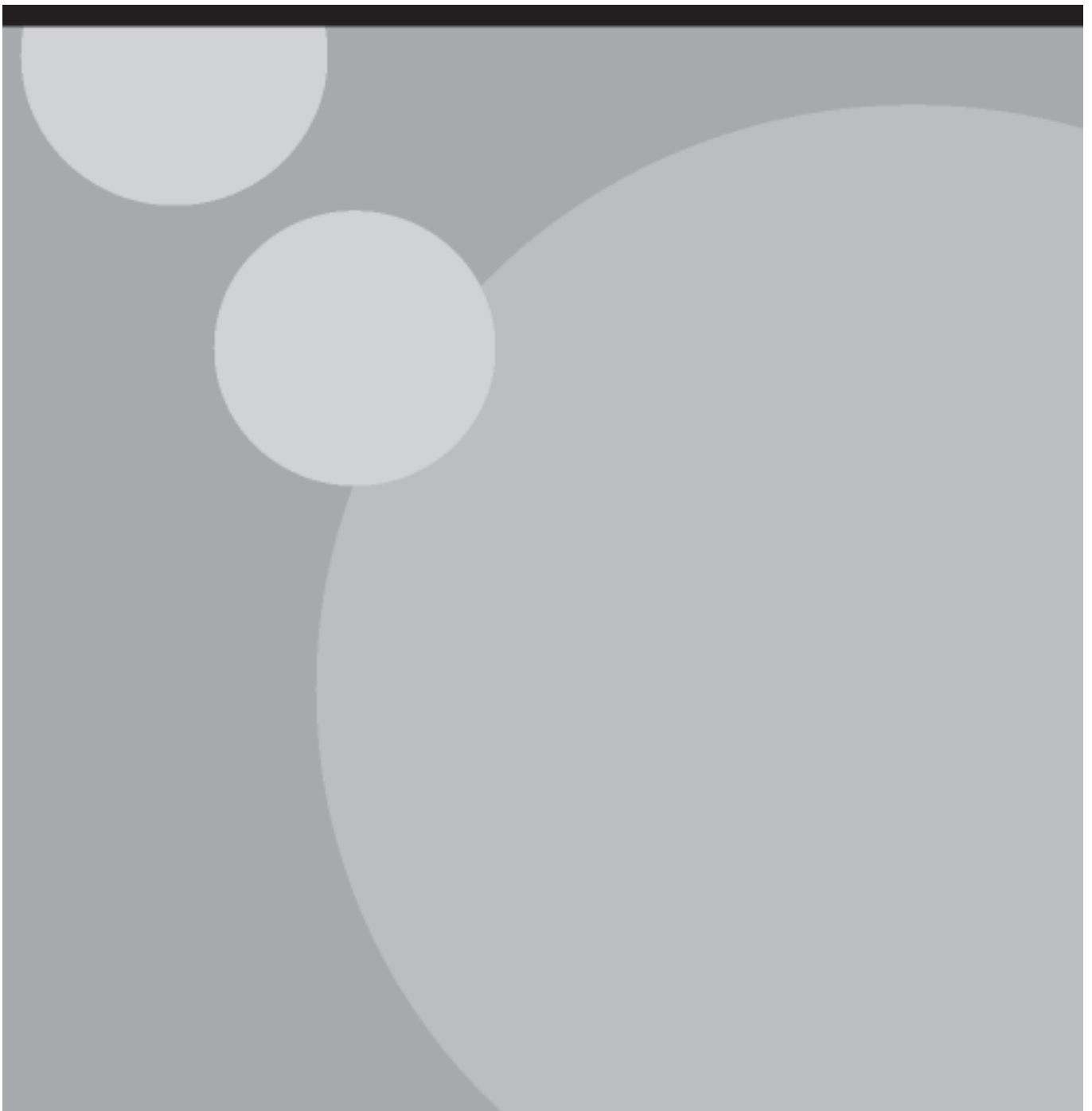




Consideration of amendment of the Building
Regulations: Approved Document A (Structure)
- Freestanding masonry walls

2004 initial impact assessment





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BRE

January 2012
Department for Communities and Local Government

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INITIAL REGULATORY IMPACT ASSESSMENT

CONSIDERATION OF AMENDMENT OF THE BUILDING REGULATIONS: APPROVED DOCUMENT A – STRUCTURE: FREESTANDING MASONRY WALLS

PURPOSE AND INTENDED EFFECT

Objective

1. The proposal under consideration is that the construction of all freestanding masonry walls in England & Wales be brought under the control of the Building Regulations.

Outline

2. This initial Regulatory Impact Assessment (RIA) addresses considerations to amend the Building Regulations with respect to structure, specifically with respect to the construction of freestanding masonry walls. Approved Document A *Structure*¹ was last subject to technical review² in 2001 although no changes to the Requirements of Part A of Schedule 1 to the Building Regulations 2000 were made other than the removal of the Limits on Application for Requirement A3. Many of the changes were concerned with bringing the document up to date in respect of references to British Standards and other documents.
3. This RIA is intended to set out the costs and benefits of for amending Approved Document A with regard to freestanding walls and is presented under the following headings:
 - the objective and intended effect that such amendments might have,
 - the options that have been considered,
 - the benefits that could result,
 - the compliance costs for builders, building owners, developers, and,
 - other costs that may accrue.
4. A summary of costs and recommendations is given on page 14.

Background

Building Regulations and Structure

5. The Building Regulations 2000 apply to most building work in England & Wales and are made principally to ensure the health, safety, welfare and convenience

¹ Available at:
http://www.odpm.gov.uk/stellent/groups/odpm_control/documents/contentservertemplate/odpm_ind_ex.hcst?n=244&l=3

² Can be inspected at:
http://www.odpm.gov.uk/stellent/groups/odpm_control/documents/contentservertemplate/odpm_ind_ex.hcst?n=177&l=2

of people in and around buildings. They also deal with energy conservation. The guidance given in Approved Documents has been approved by the First Secretary of State as being one method that, if followed, will show compliance with the statutory requirements. The current edition of Approved Document A provides guidance on some of the ways in which the functional provisions of the Building Regulations can be met.

6. The three requirements under Part A of Schedule 1 to the Building Regulations 2000 are:
 - A1. Loading
 - A2. Ground movement
 - A3. Disproportionate collapse

Freestanding masonry walls

7. There is concern in England & Wales about the number of fatalities and injuries arising from the collapse of freestanding masonry walls which are found in all areas of the country along property boundaries in both domestic and non-domestic environments particularly adjacent to public highways. Such walls are amongst the most common forms of masonry to suffer collapse. Small children are particularly at risk given their size and their inability to move out of the path of a collapsing wall quickly. In the event of the death of a small child then the incident is often subject to considerable media interest.
8. The need for the construction of such walls is dictated both by planning requirements and the desire of building owners and occupiers to improve security and privacy. Freestanding wall construction is often required in the context of new-build housing development where some 160,000 dwellings are constructed each year in England & Wales³. A survey of 23 NHBC⁴ inspectors (see Appendix B) indicates that up to a third of such developments have freestanding walls usually as a result of planning requirements.
9. There are large regional differences though with up to three-quarters of housing requiring freestanding walls in some areas. If the development is a prestige one or is for social housing then this can increase the likelihood for wall construction – in one region up to 90% of social housing developments require walls. Security and privacy reasons can be very important in some contexts as illustrated in the growth of so-called ‘walled developments’, although these still appear to be quite rare making up <1% of new residential development. Walls are a common feature in the South West of England as strong winds means fences are not always suitable and changes in ground level mean walls have to fulfil a retaining function.
10. In England & Wales, freestanding walls are not defined as buildings, so they do not come under the Building Regulations of England & Wales. As a result, they are not controlled structures, and many walls are built without reference to either a designer or current best practice.

³ Source: NHBC New House-Building Statistics, Q3 2003.

⁴ National House Building Council

11. In practice, this lack of control on freestanding walls leads to a large variability in the type and quality of freestanding walls being built. Without controls, freestanding walls can be inappropriately sized - typically they are too slender for their location; made using inferior materials; and built following poor site practice. The result of this is that some walls are neither as robust nor as durable as they ought to be - leaving them prone to localised failure or total collapse. The outcome of this is that, even if no one is injured when the failure occurs, the walls need to be repaired or even replaced more frequently than would be necessary had they been built following best practice.
12. Local authorities (LAs) do have powers to deal with dangerous structures – which includes freestanding walls - under the Building Act 1984. Section 77 deals with dangerous buildings or structures that are not immediately dangerous but may become so. This Section allows LAs to apply to a Magistrate's Court for an order requiring the owner, within a specified time to:
 - carry out the necessary work on the building to make it safe,
 - to demolish the building or structure or the part of the structure that is not safe, including removing the debris from the site, and,
 - make an order restricting the use of the building where the danger arises from its overloading.

Where a building or structure is considered to be immediately dangerous the LA must take action under Section 78 of the Act to make it safe. Before removing the danger the LA shall, if reasonable practicable to do so, give notice of their intention to the owner and occupier of the building or premises.

13. The construction of freestanding masonry walls is controlled by the Building Technical Standards in Scotland so this proposal would bring England & Wales into line with the situation in Scotland. The proposal would also ensure a consistent approach in the design and construction of such walls as well as bringing their performance into line with British Standards and other good practice guidance.

Risk assessment

Nature and frequency of occurrence of freestanding walls

14. The English House Condition Survey (EHCS)⁵ includes data on boundary walls around dwellings which gives an indication about wall height, wall length as well as its condition. Analysis of the database suggests that the proportion of all dwellings with a plot wall is about 40% with a greater proportion (over 55%) found in dwellings constructed before 1945. The data also shows that some 20% of dwellings have at least one 'high' plot wall (i.e. having a height equal to or greater than 1.5m). Again, high walls are more prevalent in housing constructed before 1945. This data only gives a limited indication of wall age as

⁵ See

http://www.odpm.gov.uk/stellent/groups/odpm_housing/documents/page/odpm_house_604719.hcsp

15. Using the EHCS it is also possible to estimate the total length of domestic walls in England. The data suggests that the total length of 'low' walls (i.e. those between 0.5 and 1.5m in height) is nearly 295,000 km, and the total length of high walls is just under 180,000 km. The EHCS also provides an indication of the state of disrepair of such walls as follows:
 - *Demolish* implies that the wall should be replaced by something cheaper, e.g. a fence;
 - *Renew* means a significant amount of rebuilding - the wall is probably unsafe; and;
 - *Repair* is likely to be minor, a repair that is required for cosmetic reasons or to prevent further deterioration of the wall.
16. Analysis suggests that between 0.003% and 0.1% of all domestic walls should be demolished, between 0.01% and 1.7% should be renewed and that between 0.01% and 0.5% should be repaired. There appears to be little difference in these figures for low and high walls. These figures are very approximate and range by an order of magnitude which is a consequence of the way in which data is collected.
17. Noting that the categories 'demolish' and 'renew' are very similar, the EHCS indicates that between 0.02% and 2% of dwelling walls are probably unsafe. Given the nature in the way that the data is collected and the assumptions needed to derive these figures it is not possible to be more precise about the proportion of unsafe walls. As might be expected the vast majority of these unsafe walls are found around dwellings constructed before 1945.
18. Unfortunately, it is not possible to obtain equivalent data for walls around non-domestic (i.e. public, commercial and industrial) buildings and developments. However, the likelihood – simply based on the number of dwellings to non-domestic buildings - is that the number of such walls will be much smaller, perhaps by an order of magnitude.

Mechanisms for failure

19. The main agent for decay for masonry walls is water either through the action of driving rain or frost. Walls may also be affected by:
 - **Trees.** As trees mature, there is a risk of the wall being damaged by the roots, and from wind-blown branches. Damaged sections may have to be rebuilt, perhaps with bridges incorporated to carry the wall over the roots. Removal of large trees can also lead to problems because the soil accumulates more moisture and expands.
 - **Thickness of the wall relative to its height.** The variation in wind strength and rainfall across the country means that walls in more exposed parts of the

country (e.g. West Wales and Cornwall) need to have a high wall thickness to height ratio in comparison to, say, the South East of England.

- **Climbing plants.** Plants such as ivy can damage walls if left to grow unchecked.
- **Traffic.** Walls, particularly piers at vehicular entrances, can be damaged by traffic impacts.
- **Vandalism.** This is a common cause of damage to copes and upper masonry courses.

Further information is contained in the ODPM leaflet *Your garden walls: better to be safe*⁶.

Hazards and risks

20. In order to understand the hazards and quantify the risks associated with freestanding walls two sets of data were analysed: (a) accident databases published by the Department of Trade & Industry (DTI), and (b) data kept by the BRE (Building Research Establishment) on freestanding wall failures and the fatalities associated with them. Although collapsing walls can be covered by household, commercial and local authority insurance, it appears that the insurance industry does not keep such data centrally since the risks of collapsing walls are much lower than other similar risks (e.g. falling trees and roof tiles).
21. Analysis of these two data sources shows that there are three hazards associated with freestanding walls which can lead to death and injury:
- (i) a wall collapses onto a person,
 - (ii) a person is struck when part of a wall falls out or off, and,
 - (iii) a person climbing over a wall falls because of loose masonry.

The majority of incidents fall equally into the first two categories with a small proportion of incidents (6%) falling into category (iii).

22. Further analysis shows that the incidence of injuries from the collapse of freestanding masonry walls in the UK is around 1,000 cases per year⁷. This equates to an annual risk of injury of just under 1 in 60,000. There appears to be about one death per year: seven fatalities were reported over a ten year period. Of these, six were due to all or part of a freestanding wall collapsing onto the victim, and one was due to the collapse of a concrete balustrade.
23. About half of all incidents can be attributed to brick walls but this is probably a consequence of there being a greater population of such walls as opposed to brick walls being more prone to failure. Unfortunately, the accident descriptions

⁶ Available at:

http://www.odpm.gov.uk/stellent/groups/odpm_buildreg/documents/page/odpm_breg_600154.hcsp

⁷ It is not possible from the data to separate out the number of incidents in England & Wales from those in Scotland but, on the basis of populations, it is very unlikely that the figures would change if England & Wales could be assessed separately.

are inadequate to identify the age, height and method of construction to establish the exact reason for wall failure.

24. In terms of severity, about a fifth (19%) of injuries can be classified as Class IV - which is 'moderate' harm – and nearly three quarters (73%) of them can be classified as less than Class IV. Examples of outcomes arising from the collapse of freestanding walls that fall into Class IV are: severe bruising to body, moderate cuts to face or body, broken finger/toe, slight concussion and occasional severe discomfort.
25. Overall, it appears that the annual risk of injury and death due to collapsing freestanding walls is quite low. The number of incidents, particularly of fatal incidents, is considerably less than those due to incidents on stairs, carbon monoxide poisoning, electric shocks and fires in the home or scalding from tap water, all of which are already covered by Building Regulations.

OPTIONS

26. At this stage no formal amendments are being proposed so the remainder of this RIA is concerned solely with the consideration of bringing the construction of freestanding walls under the control of Building Regulations.
27. Such a proposal would require revisions to Approved Document A to define walls as controlled structures and perhaps include re-wording of the Requirements. In terms of guidance the Document would say that freestanding walls should comply with either BS 5390 and BS 5628, or BRE Good Building Guides GBG 14 *Building brick or blockwork freestanding walls* and GBG 19 *Building reinforced, diaphragm and wide plan freestanding walls*.
28. New-build walls not currently complying with these documents are likely to require a number of technical changes to their construction some of which are listed in Appendix A. In addition Building Control Bodies (BCBs) would be required to inspect and approve that such walls met the requirements of the Building Regulations.

BENEFITS

Nature of the benefits

29. The two benefits of the proposal are:
 - potential reduction in numbers of lives lost and injuries occurring since better constructed freestanding walls are less likely to collapse, and,
 - reduction in maintenance/repair and replacement costs for freestanding walls since they are likely to be more robust and durable and hence will have a longer lifetime than many of those currently built.

30. However, casualty figures arising from collapsing freestanding walls is unlikely to change significantly as a result of the proposal simply because the vast majority of incidents of collapse will occur in the substantial stock of existing walls. (The numbers of casualties, particularly in terms of lives lost, is also very small.) This proposal only applies to new walls so will only address existing walls as these are replaced. Wall replacement occurs because it has collapsed, it is deemed unsafe or is for cosmetic reasons.
31. Paragraphs 14 to 15 illustrate the extent of existing walls in England & Wales. A small survey of 20 micro⁸ and small⁹ building companies working in the domestic sector (see Appendix B) showed that between them they construct just over 100 walls per year. Given that there a little over 50,000 small building companies in England & Wales¹⁰ suggests that nearly 280,000 freestanding walls are built each year in the existing domestic sector. Although a substantial figure it still only represents some 0.5% of the existing wall population. Therefore, the rate of replacement of the stock of existing walls is very low.
32. Ultimately, constructing improved quality walls will save lives and reduce injuries but, based on current casualty figures (see paragraphs 20 to 25), this is likely to be minimal. Considering the rate of constructing walls in comparison to the existing wall stock, it is suggested that over a period of 50 years the number of casualties prevented would be comparable to the current annual causality rate, i.e. 1 life saved and 1,000 injuries prevented.
33. As a consequence the key benefit arising from the proposal is likely to be the extended lifetime of freestanding walls and the corresponding savings in repair and replacement costs. These cost savings are quantified below.
34. There are no environmental or social benefits associated with these proposals.

Issues of equity and fairness

35. This proposal would impose burdens on builders, purchasers and developers who will have to meet higher standards in wall construction. There will also be a burden on local authority building control departments as well as Approved Inspectors who will be required to undertake regulatory control activities, although a fee will be levied for undertaking this activity. Such bodies may also need to undergo some initial training/familiarisation to help them undertake their duties.
36. A preliminary investigation of the impact on small builders and building control bodies (BCBs) has already been undertaken – see Appendices B and C.

⁸ Less than 10 employees (DTI definition)

⁹ Between 10 and 50 employees (DTI definition)

¹⁰ Source: ONS data on number of UK industries, SIC code 4521.

COSTS

Sectors affected

37. The main costs associated with the proposal arise from the need to adopt improved construction techniques and materials (see Appendix A) and the fact that BCBs - who are responsible for enforcing compliance with the Building Regulations - will have to undertake additional regulatory activities. BCBs can be either local authority building control departments or Approved Inspectors (AIs)¹¹. Currently there are about 400 local authority building control departments¹² and 24 individual Approved Inspectors and 24 corporate Approved Inspectors¹³. Together these Bodies employ some 4,000 staff directly engaged in building control activities in England & Wales, and these are the staff that would be subject to a Public Services Threshold Test (PSTT) – this is discussed further in paragraph 46 below. However, as a first step, it is important to establish current levels of compliance with the proposed new standards for freestanding masonry walls.
38. Although freestanding wall construction in the context of new-build housing development is substantial (see paragraph 8) the proposal is unlikely to have much impact in the context of changes to wall construction. This is because about 90% of all new houses are covered by the NHBC warranty¹⁴, and the NHBC Standards¹⁵ mean that freestanding walls already comply with the proposal under consideration. The majority of the balance of new houses conform to the Zurich building guarantee and the associated Technical Manual¹⁶ has similar requirements to the NHBC Standards with respect to freestanding walls.
39. Similarly, it is felt that the construction of freestanding walls in the non-domestic (i.e. public, commercial and industrial) sector will also not be substantially affected since many of these walls are already likely to be designed and constructed in accordance with good practice principles.
40. Therefore, the main impact of the proposal is likely to be in the existing domestic sector where there are a large number of small builders who are constructing new walls with limited knowledge of good practice guidance and standards. Accordingly, a small survey of such builders was undertaken to establish amongst other things: the amount of freestanding wall activity, whether they

¹¹ A number of companies and individuals have been appointed as Approved Inspectors under Part II of The Building Act 1984, and are BCBs in their own right. Under the provisions of the Act, an alternative building control service can be offered to designers and developers working on schemes throughout England & Wales.

¹² See <http://www.labc-services.co.uk/>

¹³ See <http://www.cic.org.uk/cicair/AIregister.htm>

¹⁴ Source: NHBC New House-Building Statistics, Q3 2003.

¹⁵ NHBC Standards Chapter 9.2 *Drives, paths and landscaping* (1999) refers to freestanding walls. It requires that they comply with either BS 5390 and BS 5628, or BRE Good Building Guide (GBG) 14. Materials for freestanding walls should conform to GBG 14.

¹⁶ Zurich Building Guarantees Technical Manual *Solid Foundation* (2002) requires that freestanding walls should be designed and constructed in accordance with BS 5628:1, and materials should conform with those specified in BS 5628:3.

used published guidance and standards and their views on the proposal. The results are contained in Appendix B.

41. The survey shows that although many of them are not aware of good building guides and equivalent documents up to half already use ‘official’ documents such as LA guidelines, trade publications etc. and this implies that they already build to a high standard. This is supported by the fact that over half (60%) suggested that bringing the construction of freestanding walls under the control of building regulations would not affect them. Any additional costs would be passed on to their clients.

Cost to construct walls

42. In order to quantify the likely costs of constructing freestanding walls to improved standards five generic wall types were developed to represent the forms of wall construction used. These types were:

- (i) Simple brick wall
- (ii) Simple brick wall with piers
- (iii) Grouted cavity wall
- (iv) Rendered blockwork wall
- (v) Screen block wall

43. The cost per metre (averaged across England & Wales) to construct these walls was then determined by a quantity surveyor in two contexts: (a) using current materials and techniques, and (b) using improved materials and techniques thereby conforming with BRE GBGs 14 & 19. These costs are summarised in Table 1 and are for 2m high walls, although costs for 1m high walls were also determined.

Wall type	Basic wall type (£/m)	Improved wall type (£/m)	Cost increase (£/m)
Simple brick wall	177.06	273.56	96.50 (55%)
Simple brick wall with piers	145.89	182.20	36.31 (25%)
Grouted cavity wall	229.47	282.62	53.15 (23%)
Rendered block work wall	246.63	300.88	54.25 (22%)
Screen block wall	229.75	280.70	50.95 (22%)

Table 1. Cost per metre to construct generic freestanding walls 2m in height

44. The cost increase required to meet the improved standards is about 20-25% except in the case of the simple brick wall where the cost increase is over 50%. The pronounced increase in the cost of a simple brick wall is a consequence of moving to a much thicker wall and hence a greater number of bricks is needed.

45. The survey of NHBC inspectors (Appendix C) showed that the two most popular wall types by far were simple brick wall and simple brick wall with piers. Together they made up 88% of all freestanding wall types constructed. This finding was borne out by information obtained from the survey of small builders (Appendix B). Screen block walls were the next most popular (just over 10%), and the other two wall types appear rare in the context of domestic freestanding wall construction. The survey of small builders also showed that most (55%) freestanding walls were constructed at the front of houses, followed by the rear (26%) and then side (19%). Generally, lower height (e.g. 1m high) walls are found at the front of houses.
46. The other cost impact arising from the proposal is the building control fee that would be levied by BCBs who would ensure compliance with the Building Regulations. Based on experience of the 2002 replacement window provisions¹⁷ and the scale of building control fees commensurate with the costs of freestanding wall construction, this will typically be £50 per wall. There is unlikely to be any training or familiarisation costs for BCBs as freestanding wall construction is well within their normal experience. Therefore, given this, the fact that BCBs will levy a fee for checking compliance of freestanding walls and that the proposal is unlikely to be subject to high levels of political or media interest there is no need to undertake a formal PSTT.
47. There are no environmental or social costs associated with these proposals.

COST-BENEFIT

48. Using the figures presented above in the *Benefits* and *Costs* sections a cost-benefit model was developed which encompasses the following features:
- Small builders constructing new freestanding walls in the existing domestic sector are the only part of the construction industry to be affected by the proposal.
 - 50% of these builders already adopt good practice guidance and so would be unaffected by the proposal.
 - 280,000 domestic freestanding walls are constructed each year in England & Wales.
 - The distribution of wall types constructed conforms to that set down in paragraph 42 and their costs are taken from Table 1.
 - A BCB fee of £50 is levied per wall inspected.
 - The lifetime of a wall conforming to good practice guidance is 50 years compared to 25 years for a wall conforming to current practice after which it is replaced. An overall period of 50 years is considered.
 - A nominal annual maintenance cost of £20 per wall conforming to current practice compared to £10 per year for a wall conforming to good practice. This covers both materials and labour. For simplicity it is assumed that this is incurred continuously throughout the lifetime of the wall. It is accepted that in

¹⁷ See <http://www.fensa.org.uk/index.phtml>. FENSA is the scheme set up to ensure the replacement glazing in dwellings meets the thermal requirements of the Building Regulations.

- Benefits arising from lives saved and injuries prevented are likely to be small (see paragraph 32) and so are **not** included.
 - The Treasury discount rate of 3.5% is used.
49. In essence the model is based on the premise that walls built to a good standard should produce cost savings in comparison to a wall built to a lower standard. Lower standard walls require more frequent maintenance (e.g. re-pointing, replacement of crumbling brickwork, replacement of concrete copings etc.), activities that are not usually carried out until the wall is in an advanced state of disrepair in which case the most appropriate course of action may well be to demolish and replace the whole wall.
50. The model shows that over the 50 year period considered there is an overall cost saving of some £150 million, which is equivalent to a saving of just over £10 per wall constructed.
51. A sensitivity analysis shows that the overall cost-benefit figure can become an overall cost burden if the cost differential between walls conforming to current practice and those conforming to good practice were to widen. However, if the proposal were to be implemented then the costs of constructing good practice walls could reduce as experience and materials become the new standard.

CONSULTATION WITH SMALL BUSINESSES

52. As already mentioned two surveys have already been undertaken to understand the construction of freestanding walls in England & Wales. Both parties, small builders - who are likely to be most affected by the proposal - and NHBC inspectors, were also asked for their views on the impacts (both positive and negative) of the proposal to bring freestanding wall construction under the control of Building Regulations. See Appendices B and C.
53. With regard to small builders over half (60%) said that proposal was a good idea as it would put them in a position of strength with regard to clients when recommending methods and materials. This would also help to reduce the number of cowboy builders and help to ensure the integrity of walls, particularly those along a public right of way. The main reason given against bringing such walls under building regulation control was the burden it would place on BCBs and the delays it would cause for builders. A number of builders felt that BCBs had insufficient resources and inadequately trained staff.
54. To an extent this concern about the burden on BCBs was borne out by the NHBC survey - NHBC currently undertake some 55% of building control activities on new build housing sites. Inspectors said that additional staff time would be required to undertake checks, but that this should not be a major burden on Approved Inspectors.

COMPETITION ASSESSMENT

55. The results of the competition filter test show that the proposed changes are unlikely to have a significant detrimental effect on competition. The sector most likely to be affected by the proposals is characterised by a large number of small companies. The sector is not characterised by significant technological change and the proposals would not affect it significantly. Any increased costs would be passed onto clients.

ENFORCEMENT AND SANCTIONS

56. Intended work that is subject to the provisions of Part A, or of any other Part of Schedule 1 to the Building Regulations 2000, must be notified to the local authority. The work is subject to inspection by the local authority's building control department, or, at the election of the person carrying out the work, by an approved private sector building inspector.
57. Failure to comply with the requirements of Schedule 1 to the Building Regulations 2000 is a criminal offence. Local authorities also have powers to require the removal or alteration of work that does not comply with the requirements of Schedule 1. The local authority's enforcement powers are suspended in a case where building control is being carried out by an approved inspector. However, if a person carrying out building work fails to comply with instructions from an approved inspector to rectify non-compliant work, the approved inspector must cancel the 'initial notice' which brought the project under his supervision. Building control then reverts to the local authority.

MONITORING AND REVIEW

58. This RIA will be reviewed in the light of the response to consultation and a revised version would be published should it be decided to proceed with amending the Building Regulations to introduce the proposed new requirements. In the event of implementation of the proposals unchanged or in an amended form, it is the ODPM's practice to investigate experience after a reasonable time to monitor how the regulations are working in practice.

CONSULTATION

Within government

59. If proposals are drawn up they will be subject to consultation with the Building Regulations Advisory Committee (BRAC) appointed by the First Secretary of State. A Technical Working Party to review the proposals would be drawn from BRAC and across relevant government departments and could include the Scottish Executive, Northern Ireland Executive and English Heritage. Provided

any proposals are acceptable to BRAC they would then be subject to public review in conjunction with a more fully developed RIA. Such proposals may form part of a wider review of Part A. This RIA will also be subject to review by the Cabinet Office Regulatory Impact Unit (CORIU) and DTI's Small Business Service.

Public consultation

60. A limited consultation has already been undertaken (see Appendices B and C). Any BRAC Technical Working Party to review the proposals would include members drawn from industries directly affected by the proposed changes. However, wider industry has the opportunity to review the proposed changes during a public consultation exercise. A draft RIA together with the proposals – perhaps forming part of a wider review of Part A – would form the core of a public consultation package on which an extensive range of industry bodies are invited to comment. This will include a small firms' impact test which will be developed in conjunction with the DTI's Small Business Service (SBS).

SUMMARY AND RECOMMENDATIONS

61. This process of consultation with small business would be continued should the proposals be taken forward and a small firms impact test would be undertaken.
62. This initial RIA has considered the proposal to bring the construction of freestanding walls under the control of Building Regulations in England & Wales. This lack of control on freestanding walls leads to a large variability in the type and quality of freestanding walls being built, and such walls are amongst the most common forms of masonry to suffer collapse. Risk assessment though suggests that the risks of death or injury is actually quite low (1 death per year and 1,000 injuries) in comparison to other risks controlled by Building Regulation, although when such incidents occur they can be subject to considerable media interest. Controlling the construction of such walls would only make a limited impact on these risks given the substantial stock of existing walls in England & Wales.
63. The cost-benefit model developed has therefore focussed on improved robustness and durability and the attendant cost savings associated with higher specification construction as a means to evaluate whether freestanding wall construction could be controlled. The model focuses on new wall construction in the existing domestic sector since wall construction in the new-build housing sector already has to meet higher standards through private building warranties. Wall construction in the non-domestic (i.e. public, commercial and industrial) sector is also felt to meet the higher standards as these walls usually involve detailed design considerations. Surveys of small builders and NHBC inspectors have been used to understand the nature and number of walls constructed in the domestic sector and this has been integrated into the model.
64. The model shows that bringing freestanding wall construction under the control of building regulations could produce a small cost saving of around £10 per wall, or £150 million over a 50 year period. However, the figure is quite sensitive to small changes in the cost data. Ultimately lives would be saved and injuries prevented but this impact would be very small.
65. Over half (60%) of small builders surveyed said that the proposal was a good idea as it would put them in a position of strength with regard to clients when recommending methods and materials. A similar proportion said the proposal would not affect them. They also said that the proposal would help to reduce the number of cowboy builders and help to ensure the integrity of walls, particularly those along a public right of way. The main reason given against bringing such walls under building regulation control was the burden it would place on BCBs and the delays it would cause for builders. A number of builders felt that BCBs had insufficient resources and inadequately trained staff.
66. Further investigation is required of the issue and a more fully developed RIA is required but a tentative conclusion is that bringing freestanding walls under building regulation control would have a marginal benefit in terms of cost savings.

APPENDIX A – Examples of improvements to freestanding wall construction required by proposal

- Ensure that a cope with a sloping top surface and at least a 45mm overhang is mortar bedded/tied into the wall. Cope should have a drip check on the undersides and be restraining or suitably sized to be stable against casual vandalism where easily accessible.
- High bond damp proof course (dpc) should be used in the bed joint under the cope.
- Bottom of foundation should be at a minimum of 450mm below ground level.
- 'Flexible' and slate dpcs should be avoided at the bottom of freestanding walls and either two courses engineering brick or equivalent used instead.
- Sealed movement joints of suitable width should be provided at the intervals specified in BS 5628 / EC 6.
- 'Specials' should be used in preference to cramps at steps in wall.
- 'Specials' should be used in preference to cut units where chamfers or other effects are required.
- Cut ends of masonry units should not be laid with the cut face on the external wall surface since they will weather at a faster rate than the surrounding whole units.

APPENDIX B - Impact on small builders of bringing the construction of freestanding walls under building regulation control

APPROACH

In order to establish the likely burden of bringing the construction of such walls under the control of building regulations and how it would affect the smaller building companies, a selection of 100 names under the heading of 'builders' were randomly picked from the Thompson Directory and Yellow Pages on line from areas all over England & Wales.

Over 150 telephone calls were made to the 100 companies, 33 of which were constantly being picked up by an answer phone machine and two people stated that they were not builders so therefore were unsuitable to be interviewed. Ten companies refused to participate saying that they were too busy or were just unwilling, and a further 33 kept suggesting that we call back at another time whenever they were called. Two companies said they would complete a faxed questionnaire but did not return the questionnaire to BRE. This left 20 companies who were successfully interviewed and the findings are given below. This low level of response is not unexpected given the nature of the companies that we were trying to contact; a number were contacted in the early evening as this was the best time to interview them.

It is felt that although small, the sample gives us a reasonably representative picture with regard to the construction of freestanding masonry walls.

RESULTS

Company profile

All the companies interviewed (n=20) considered themselves to be small firms with the average number of employees being 5. Many would be termed 'micro' businesses (i.e. less than 10 employees) under the DTI definition of SMEs. House extensions and repair work was the main nature of their building business. Chart 1 overleaf shows the number of employees within these companies, and chart 2 (also overleaf) shows the turnover for the last financial year. Six companies stated the number of jobs in preference to their annual turnover: four stated that they had been commissioned to do up to 50 jobs in the last year, and the other two said that they had been commissioned to do up to 150 jobs in the last year.

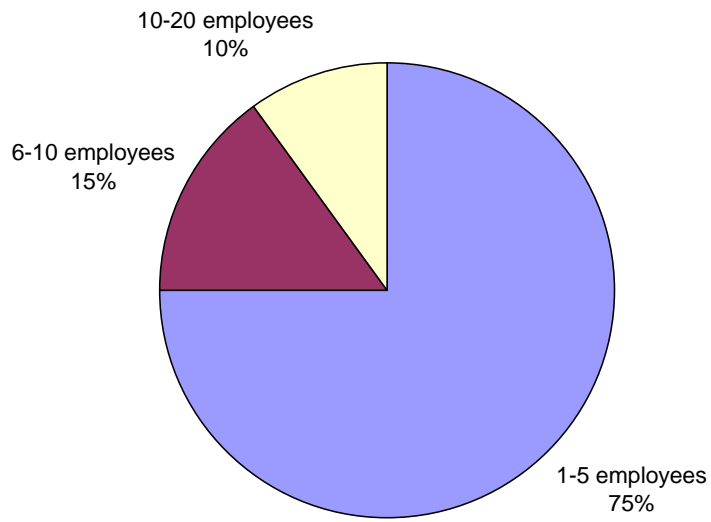


Chart 1. Number of employees within company (n=20)

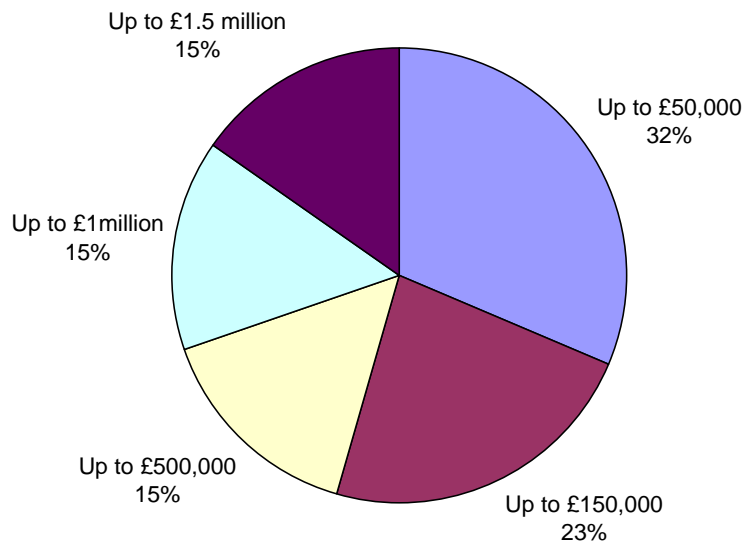


Chart 2. Annual turnover for last financial year (n=13)

Freestanding walls constructed

The total number of freestanding masonry walls constructed by these 20 companies over the past year was 108. (Two said that they had not designed or constructed a freestanding wall within the past year.) This equates to an average of just over 5 per year per building company. See Chart 3 below.

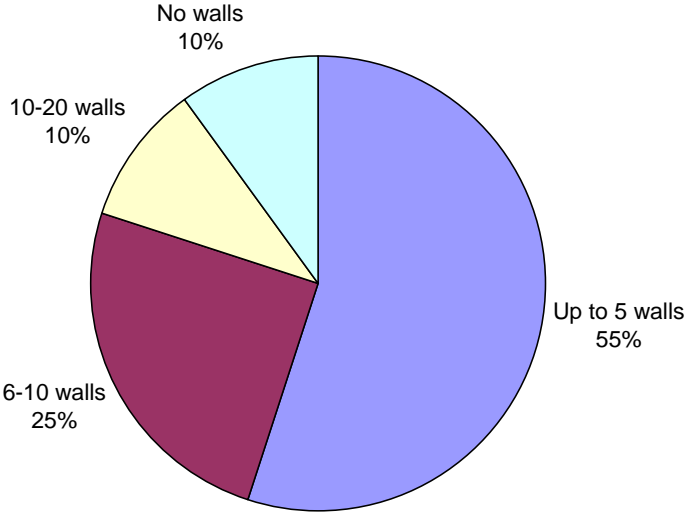


Chart 3. Number of freestanding masonry walls constructed in the last year by small builders (n=20)

Over half of these walls were built at the front 55% (59) of the house and would average 1.0m-1.5m high. These are commonly called dwarf or ornamental walls and are built to give definition between the front garden and the paving. 26% (28) of walls built at the rear of the property were usually higher boundary walls at 2m high to give privacy, unless they were to divide the garden in to certain areas, e.g. for eating or a patio area. Again privacy was a key issue given for the walls built at the side of the property 19% (21).

Some of these walls were constructed simply of double brick with the majority also having piers to add strength. A few variations were a panel fencing on top of a dwarf wall, railings in between the piers and one firm had constructed an inverted arc with piers stretching to 2m in height and coming to a smaller wall in the middle, of height 1.0m. This construction was finished with terracotta tiling under engineering blocks. This was the only firm that stated they used good practice guides and also had a structural engineer on their team. When asked what guidance documents were used for the construction of freestanding masonry walls, the response showed that many companies would just use past experience as their guide. Chart 4 shows the breakdown of the responses.

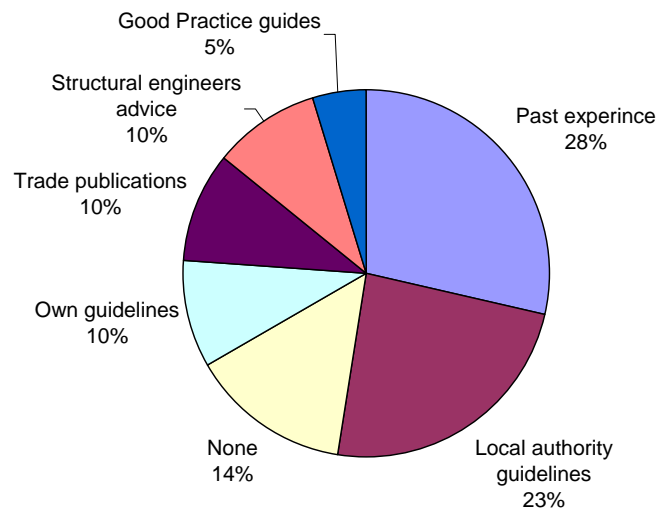


Chart 4. Guidance used by small builders to design or construct freestanding masonry walls (n=20)

Overall, nearly half (48%) of builders would use some form of ‘official’ guidance (i.e. LA guidelines, trade publications, advice from structural engineer or good practice guides) to design or construct a freestanding masonry wall. 10% use their own guidelines which could be a distillation of some form of guide practice guide or could just be a company’s past experience formally set down.

These results suggest that nearly all builders would need to make themselves familiar with the good practice guides (if these are to be used as the basis for specifying how walls can be constructed to meet the requirements of building regulations), although this should not be too onerous for half of them as they already appear to adopt good building practice.

Problems encountered

A quarter 25% (5) companies had encountered problems when designing or constructing freestanding masonry walls:

- One wall was built with substandard material; Fletton brick was used which was not frost proof and the wall did not stand up to the job it was designed for.
- One wall was built with poor quality mortar (a manufacturing problem) so this had to be replaced.
- One householder was concerned about the depth of foundations that were being dug for a wall he had commissioned - he felt they were not deep enough. Because of these concerns he called in building control and it found that he had good cause to be concerned, so the job was then passed on to another builder.
- One company had been called out to repair a wall that had not had adequate piers in place.

- One builder mentioned that the client was not always prepared to take advice from the builder. In one case he advised the client to use specific materials but the client had chosen to use a cheaper product.

The remaining three quarters (15) had encountered no problems with either the design or construction of such walls. However, 35% (7) respondents did mention that in their experience they had known of freestanding masonry walls collapsing, but this was usually due to problems with tree roots, age, vandalism or impact damage. Only two of these walls collapsed due to construction problems, one as mentioned above was due to poor quality mortar being used, the other was a wall that (in the opinion of the builder) was too narrow and long, and had no support of pillars or reinforcement.

Reinstatement of collapsed walls would consist of digging down to clear away the old foundations and total re-construction to match the previous construction, unless it was specified by an insurance company to build the wall using different dimensions or materials. One respondent stated that if the tree roots could not be removed when clearing the foundations they would bridge over the roots and re-build the wall as it had been constructed originally.

Views on bringing freestanding walls under building regulation control

When asked if they thought that bringing the construction of freestanding masonry walls under the control of building regulations, 60% (12) felt it would be a good idea.

Reasons given why they thought it would be a good idea were:-

- *“Yes, it is a good idea. I think all boundary walls affecting a public right of way should be inspected.”*
- *“Yes, it would help us to inform the client of the right structures and materials to use. “*
- *“It can be a good in areas of importance. The building works then would have to be over the top to meet the regulations. The walls that we have replaced have had poor materials used in the first place. Not just the bricks but the mortar and coping have all been of substandard quality. If building regulations were in place then all materials would have to be of a set standard and be able to stand for the 40 years that we would recommend as a lifetime for a freestanding masonry walls.”*
- *“Yes, because then the client would be more likely to take the advice of the builder rather than risk action from building control. One would hope with building regulations in place, there are likely to be less cowboys on the block.”*

Reasons given why they thought it would not be a good idea were:-

- *“No, I do not think it is a good idea, because the building control chaps have no idea what they are doing. Straight from college with no experience, too young and no clue. They should employ those already in the trade and train them up to become building control officers, at least then it may be taken more seriously.”*

- *“No, because building control would be swamped with calls and they can not cope with the workload as it stands now.”*
- *“No, you will always have the cowboy builders who get around the regulations, and this means that the genuine builders like me won't get the work because the customers won't want to pay the extra cost.”*
- *“No there is too much red tape already, any more we could do without.”*

40% (8) of companies said that bringing freestanding masonry walls under the control of building regulations would have an impact on them. The remainder 60% (12) said that it would make no difference at all to their companies, and one added that they already build to a high standard.

Reasons given of how this would affect them are stated below:-

- *“It may make the insurance work we do a little more difficult, only because we would have to wait for the building control to examine the work and this could lead to delays, and also the private works that we do may also suffer with these delays.”*
- *“We could possibly lose out on some work so it may make a slight difference, and besides it would encourage the householders to have a go at building walls themselves just to avoid the cost - more DIY disasters!”*
- *“It would have a huge impact on the timescale for each job. We all know the building control officers are pushed, and we would have to wait for the work to be inspected, all adds to delays”*
- *“Because I am a contractor it would take the onus from us.”*

Every one that was interviewed said they would pass on the cost to the customer, but some did feel that it would be the customer who would not wish to pay it.

When asked if they had any final comments to make regarding free standing masonry walls coming under building regulations some added:-

- *“I do feel that there are too many rules and building regulations to make it financially viable for the smaller business to compete. Already the smaller firms are losing their business to the larger companies for example building regulations dictate that the company should be accredited with certain standards.”*
- *“It should be noted that councils are not held accountable, they have no legal requirement to replace or repair already damaged or dangerous walls. I know of a 70ft long wall that is going over and it runs along block of several houses. I have had a word with some of the householders , who have contacted the council, but "there is no money in the budget". This then puts a burden on the individual homeowner, and not all homeowners are willing to contribute to have this wall repaired or replaced.”*

- *“There needs to be a structure to save delays with building control inspections.”*

CONCLUSIONS

This small survey of domestic builders shows that although many of them are not aware of good building guides and equivalent documents up to half already use ‘official’ documents such as LA guidelines, trade publications etc. and this implies that they already build to a high standard. This is supported by the fact that over half (60%) suggested that bringing the construction of freestanding walls under the control of building regulations would not affect them. The same proportion thought that such a move would be a good idea as it would put them in a position of strength with regard to clients when recommending methods and materials. This would also help to reduce the number of cowboy builders and help to ensure the integrity of walls, particularly those along a public right of way. The main reason against bringing such walls under building regulation control was the burden it would place on building control bodies and the delays it would cause for builders. A number of builders felt that BCBs had insufficient resources and inadequately trained staff. Any additional costs (e.g. BCB fees, improved construction methods and materials) would be passed onto clients.

APPENDIX C – Views of NHBC inspectors of bringing the construction of freestanding walls under building regulation control

An electronic survey of 23 NHBC inspection managers throughout England & Wales was undertaken to establish their experiences of freestanding walls.

The key findings were:

- On average up to a third of new residential developments have freestanding walls. The majority (about a quarter), unsurprisingly, are found around detached houses with a slightly small proportion (10-20%) found around other house types. There are large regional differences though – in some areas up to three quarters of new houses (usually detached and semi detached) have freestanding walls.
- About two-thirds of inspectors referred to planning requirements determining the need for walls. Where walls are constructed these are generally at the front of the development, particularly next to roads. Corner plots can also have walls. Terraced housing have walls at the front and rear.
- Other factors also determine whether walls are constructed:
 - If the development is a prestige one or is for social housing then this can increase the likelihood for wall construction – in one region up to 90% of social housing developments require walls. The reasons for walls in these markets can be for aesthetics, privacy or security.
 - Walls are constructed for security and privacy reasons as illustrated in the growth of so-called ‘walled developments’. Such developments appear still quite rare though (they make up <1% of new residential development).
 - In the SW strong winds and changes in ground level make walls a common feature probably because they are more robust than fences and walls may be required to fulfil a retaining function.
- Lengths of wall constructed ranged widely from 4m up to 20m reflecting the many different circumstances under which walls are constructed.
- Simple/basic walls and those with piers are by far and away the most popular forms of wall construction making up, on average, 38% and 50% of all wall types respectively. Combination screen block walls make up some 12% and render reinforced block walls only make up 1% on average. Only two inspectors reported the construction of grouted cavity walls and in both cases the proportion was very low.
- As might be expected the range for each of the wall types constructed was wide: some inspectors reported up to 90% for simple/basic walls and even 100% for walls with piers. Combination walls were popular in some regions with up to 40% of walls being constructed in this way. One inspector reported that 10% of walls were render reinforced block, and another reported that up to 5% of walls were grouted cavity.

- Typical wall heights ranged from 0.6 to 2m, with 1m being the most common. Maximum wall heights generally ranged from 1.8 to 2.5m but a maximum height of 4m and even 8m (for a screen block wall) was also reported. Simple/basic walls rarely exceeded 2m in height, and those with piers would occasionally be built to a greater height (up to 4m). The maximum wall heights of the other wall types generally fell within the same range.
- Inspectors reported many of the problems commonly encountered with freestanding masonry walls, i.e.
 - Lack of expansion joints
 - Wrong type of copings
 - Poor bricks (not frost resistant) and mortar
 - Lack of drains for retaining walls
 - Poor foundations – not deep enough for clay soils or where trees are present
 - Wrong height to width ratio
- Overall views on proposal to bring freestanding walls under building regulation control:
 - Feel it can be difficult to foresee the need for a freestanding wall at the planning or design stage of a housing development. A decision to construct such a wall may be taken during the construction phase. Thus, any added regulatory requirement might pose difficulties to a designer/contractor. On balance, there may be only a marginal benefit to include freestanding walls under Building Regulations. The design of freestanding walls in housing schemes usually follow published standard details rather than a rigorous engineering design.
 - As NHBC does not have statistics on freestanding walls it cannot make a definite statement about tangible benefits. However, it has not been made aware of the need to change the current practice in respect of freestanding walls.
 - The inclusion of freestanding walls would not impose a major burden on Approved Inspectors but certainly some staff time would be needed to make this extra check.

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