



OFFICIAL REPORT
AITHISG OIFIGEIL

Education and Skills Committee

Wednesday 14 June 2017

Session 5



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EDUCATION AND SKILLS COMMITTEE

18th Meeting 2017, Session 5

CONVENER

*James Dornan (Glasgow Cathcart) (SNP)

DEPUTY CONVENER

*Johann Lamont (Glasgow) (Lab)

COMMITTEE MEMBERS

*Colin Beattie (Midlothian North and Musselburgh) (SNP)

*Ross Greer (West Scotland) (Green)

*Clare Haughey (Rutherglen) (SNP)

*Daniel Johnson (Edinburgh Southern) (Lab)

*Ruth Maguire (Cunninghame South) (SNP)

*Gillian Martin (Aberdeenshire East) (SNP)

*Tavish Scott (Shetland Islands) (LD)

*Liz Smith (Mid Scotland and Fife) (Con)

*attended

THE FOLLOWING ALSO PARTICIPATED:

Professor John Cole

Ian McKee (Royal Institution of Chartered Surveyors in Scotland)

Paul Mitchell (Scottish Building Federation)

Jim Thewliss (School Leaders Scotland)

CLERK TO THE COMMITTEE

Roz Thomson

LOCATION

The Robert Burns Room (CR1)

Scottish Parliament

Education and Skills Committee

Wednesday 14 June 2017

[The Convener opened the meeting at 10:00]

Decisions on Taking Business in Private

The Convener (James Dornan): Good morning. I welcome everyone to the Education and Skills Committee's 18th meeting in 2017. I remind everyone present to turn their mobile phones and other devices to silent for the duration of the meeting.

I place on record my thanks to Ross Thomson, who was a member of the committee from the start of the session and who has resigned as an MSP to take up his new seat at Westminster.

Item 1 is a decision on taking business in private. Do members agree to take item 3, which is a review of the evidence that we will hear on school infrastructure, and item 4, which is consideration of a draft report on teacher workforce planning, in private?

Members *indicated agreement.*

The Convener: Similarly, are members content that the items to review oral evidence on school infrastructure on 21 and 28 June, and any future consideration of the draft report on teacher workforce planning, be taken in private?

Members *indicated agreement.*

School Infrastructure

10:01

The Convener: Item 2 is the first evidence-taking session as part of the committee's inquiry into school infrastructure. The inquiry will focus on the lessons that are to be learned from the incident at Oxfords primary school in January 2016; the inspection of, and remedial work on, the school estate since early 2016; and the quality assurance practices for new school buildings. We will hear from Professor John Cole, who was the chair of the independent inquiry into school closures in Edinburgh; Ian McKee, who is the immediate past chair of the Royal Institution of Chartered Surveyors in Scotland; Paul Mitchell, who is from the Scottish Building Federation and the Scottish Building Apprenticeship and Training Council; and Jim Thewliss, who is the general secretary of School Leaders Scotland.

It is important to note that there is a continuing fatal accident inquiry relating to the accident at Liberton high school in 2014 when, sadly, a pupil died following the collapse of a wall in the school. We will avoid discussing the specifics of that accident to ensure that the committee does not impinge on the FAI's work by exploring matters that may be sub judice. I am sure that members will join me in expressing our condolences to Keane Wallis-Bennett's family and friends.

I have a general question for Professor Cole. What are the main recommendations or conclusions of his report that he would like to highlight to the committee? What are the key lessons that we should draw from the Oxfords primary school incident?

Professor John Cole: There is a long version and a short version of the answer to that question, I am afraid. The long version is the 207-page report.

The Convener: The shorter version will do fine.

Professor Cole: I am sure that it will be more suitable.

The fundamental issue is the fact that there was no one with responsibility to ensure on the client's behalf that what the client procured was procured to the standard that was required in the contract. The quality assurance in the project failed. There is plenty of information in the report, which includes the tables of defects that were found across the schools. Six different main contractors were involved in building the 17 schools in Edinburgh and they used different bricklaying subcontractors and different personnel in those companies. It amazed me that the same basic

faults were found to have occurred across all schools to a similar degree.

Only yesterday, I was at a meeting in London where an architect told me about a wall in a gymnasium in a school that had been built last year. On the basis of this report, the contractor had gone back to look at the wall and had found that there were no wall ties in the whole wall. It was a two-storey wall and, if it fell, it would be liable to kill people in or outside the gymnasium.

The fault therefore is probably not limited to Scotland, but I can speak only about the evidence that I collected in relation to the inquiry, which focused on the information that I received from the City of Edinburgh Council, which was very helpful and open, and the other local authorities to which I wrote to ask for information on each of their projects.

The similarity of occurrences across all the schemes was amazing. We found a lack of embedment of wall ties, a lack of inclusion of header ties and a lack of inclusion of bed joint reinforcement. Those are fundamental and basic elements of the construction of walls that are essential to give them the stiffness that they require to resist wind loading in a range of specified conditions under the codes of the country.

Nobody was watching that. None of the quality assurance systems of the contractors and none of the roles of those involved, such as the independent tester in the public-private partnership projects—somebody who, in theory, signed off the buildings as being completed in accordance with the requirements—were sufficiently detailed or intensive to assure the client that buildings were built in accordance with the specifications. The only way in which that can be done is by having a clerk of works on site who visits so regularly that they can see the elements before the walls are closed in, particularly when walls are being built on a day-to-day basis.

That element of supervision, which was standard in previous procurement models has, to a large degree, been discarded by public procurement processes, particularly PPP, on the basis of quite a few legal advisers putting about the perception that the client does not want to take responsibility for contributory negligence by having their people look at the wall, comment on it and ask the contractors to do something. The client stands back and lets the builder do it.

The risk with that is that the builder might do it wrong. There are perverse incentives for contractors not to mark their own homework down, which would force them to rebuild walls. It would cost them extra money and delays that could lead to liquidated damages. The contractor will always

give the contractor's homework the benefit of the doubt, whereas independent scrutiny by others will allow errors to be captured. When a contractor knows that a clerk of works is on site, their attitude is different. They know that, if they build something inappropriately, it will be marked and they will be told to rebuild it.

Our procurement models have created a gap in the level of detailed inspection. The independent tester role is very much interpreted by clients as giving reassurance through certification that the building has been completed satisfactorily. The level of duties that such testers have and the fees that they are paid allow them to visit a site maybe once a month, or not even that, and they see their primary role as commenting on progress and whether the building is finished, whether it looks like it should, and whether all the bits are there, rather than commenting on the quality of construction and the detail behind it, which are fundamental to the future users of the building.

We have a gap in the system whereby the client thinks that the contractor is protecting them and that the architect who works for the contractor is working on their behalf. The client also thinks that the independent tester gives the contractor credibility. Finally, as members will see in the report, the client thinks that the building control officers who come out to the site also give a level of assurance.

The level of visits by building control officers has decreased over the years. The report shows that 90 per cent of visits related to drainage issues, and only one or two at the end were looking at the construction of the building. Rightly so, and as described in the legislation, those officers did not see it as their role to be supervisors of the work of the contractors. The client—the City of Edinburgh Council in this case—cannot delegate away responsibility to ensure that what they are procuring is a safe building for children and other users to be in. The client has to take appropriate steps to ensure that there is independent scrutiny of whether a contractor is delivering what they have promised to deliver, rather than relying on that contractor to do it automatically.

The level of supervision should reflect the level of risk. If it is found that 100 per cent of schools in Edinburgh have failed, all those schools will require to be supervised until it is found that that is not the behaviour of the industry and that walls are being built safely. The client can then look at the next risk issue. None of us would pay a contractor for doing work in our kitchen without making sure that it is all finished before we paid them. In effect, if the client steps back and says, "We do not want to take any risk in judging the contractor—you do it and it's over to you if it fails," and the building fails in a way that is to do with the structure or fire

safety—another element that I picked up in the report—and somebody is killed as a result, it is fine if there is one person to sue, but the client has not fulfilled their responsibilities by taking appropriate measures to ensure that what they have procured is safe.

The current procurement systems have lost that role. There is now a gap in the detailed level of scrutiny in many cases, but not in all cases, because some local authorities are still using a clerk of works. There are lots of issues to do with the change in the role of the professional, who no longer represents the client but represents the builder. There is an assumption that the professional is still acting on behalf of the client when in fact they can act only on behalf of the contractor, and in many cases they are forbidden from talking to the client directly without the contractor's approval. Professionals do not tend to report or cannot report to clients directly when they see defects; they report to the contractor, and it is up to the contractor to decide whether to fix those defects.

There are gaps in the process. Best principles of managing projects and quality assurance can make any of the procurement systems work. They can make PPP work, make design and build work and make traditional construction work. We have changed the system. Clients are not wanting to take on risk. We have left a huge gap, which can cause real problems and will continue to do so until something is done about it.

The Convener: Thank you for that very full answer.

When I worked in the building trade many years ago, the clerk of works was central to anything that was done. I am shocked to hear you say that they have such a minimal role now.

In your report, you conclude:

“while the financing method was not responsible for the defective construction, aspects of the way in which the PPP methodology was implemented on these projects did increase the risk of poor quality design and construction.”

How do you marry those views? What exactly do you mean by that statement?

Professor Cole: The first statement is that it does not matter where money for a project comes from if it represents value for money. I am sure that most of us around the table have taken out a mortgage to buy a house because we did not have the money up front.

My report says that the City of Edinburgh Council found itself in the position where it could not repair its buildings, which were in a really bad state, so it went to PPP to get the money from the private sector. The source of money is not necessarily relevant to how the quality of project

delivery is managed. Once the funding is there, you say, “What are the best principles for the design quality and construction quality? What mechanisms do we need?” You can have a clerk of works in a PPP scheme and you can have independent architects or design teams working for the client in a much more structured way. You can have proper quality assurance systems. Those were not there in the Edinburgh case.

It is possible for good practice to be compatible with PPP, but the trend in the way in which PPP is done is that there is less contact between clients and professionals on design and the detail of the work. The way in which it is implemented is the problem, rather than the fact that the money comes from a bank as opposed to from Government. The money is simply a resource that pays for the goods. It is how they are procured and the detail of the procurement arrangement and the definition of roles, including appropriate quality assurance mechanisms, that are important. If they are built into all those systems, they will work okay.

I have used PPP very effectively on different occasions, although I tend not to use it.

The Convener: Why did you think that PPP—which you are highlighting in this instance—was not working and there seemed to be a trend to cut costs or cut corners?

Professor Cole: Because nobody on the client side was checking that things were done to the level that they wanted. A belief has arisen among clients that they do not want to be involved; they want to transfer risk to somebody else. The benefit of doing that is—as in the case of the Edinburgh schools—that the other party has to pay for putting it right. In a more traditional model, if something went wrong, the client would have to sue the architect, the design team and the contractors to find out who was to blame. Under PPP, the contractor does not get paid when the building is not available. That is a benefit of PPP: if something goes wrong and the building cannot be used, the contractor does not get paid for it. That is an incentive for the contractor to fix it, and they have to pay to fix it, which is happening in the Edinburgh case.

That does not necessarily mean that buildings are built properly. The contractors build the buildings and they sell them off. In this case, the contractors were Amey and Miller Construction. Amey sold all its shares before the second phase of the schools was complete and Miller Construction sold its shares shortly thereafter. Contractors move their money through because they are builders of buildings rather than managers of buildings and they sell on to funds that buy into them. All the equity holders now are

not the people who were originally involved in the scheme.

10:15

The contractor is in for a short while. There was a belief with PPP that, if it was a 30-year contract, when people built the building, they would build it right. However, in evidence to my inquiry, the people involved with the facilities management side of things—Amey, in this project—said that only lip service was paid to the operator of the building in terms of when they were introduced into the process and their ability to influence the quality of design or construction. PPP was supported by many people on the premise that there is a 30-year contract and, if it does not work, you do not get paid, so you will build it better.

Clearly, that was not the case in this instance or in many others that we found. People took shortcuts. Contractors make their money in relation to what they pay out for the cost of building. If they can reduce that amount, there are, unfortunately, incentives for them to try to cover up work. Many contractors would not allow for that. In fact, I am encouraged by recent conversations that I have had with chief executives of some major contracting firms, who have already said to me that, as a result of the report, they have strengthened the level of on-site supervision that they are applying to brick-working areas. One company said that it has just appointed 20 bricklaying supervisors in the UK.

There is a recognition in the industry that things have gone wrong. I do not think that there is any attempt by the industry to do it in that way, but we have lost skills in the industry. We have people inspecting work who may come from a project management rather than a construction background and who may not know what to look for when they are looking at works; we do not have a clerk of works with a specialist's eyes on site. We do not have the professionals' eyes on site because they are not paid to go on site in the way that they were in the past. You are not getting the professional inspection or the clerk of works inspection to the same degree. I am talking about the generality rather than the totality because there are still lots of very good contractors and lots of people using very good practices. However, this has become the dominant model, where the people who used to be the client's advisers are now working for the contractor.

The Convener: I have one more question before I hand over to my colleagues. Do you think that, when it comes to procurement, the client should not be allowed to have that hands-off role—should they make sure that a clerk of works is involved or that there is some sort of safety inspection model in there?

Professor Cole: Yes. Ultimately, a public body client has to take all reasonable steps to ensure that what has been built is safe and complies with the building regulations that they—in the case of a council—are responsible for implementing and ensuring.

What steps do you take to do that? You take whatever appropriate steps you need. The level of supervision should be in proportion to the risk of something not being done properly. The risk of bricklaying not being done properly has been shown to be a very significant risk, therefore you should apply appropriate resources to make sure that it is happening correctly. Contractors told you that it was complete; the independent testers signed the certificates for the buildings saying that they were complete; building control gave completion certificates for those buildings that were signed. Two or three of the schools never received completion certificates from building control yet were opened. However, all those certificates would tend to let a less informed client think that they have a building which is completely safe but none of those processes were—

The Convener: Can I just come in there, Professor Cole? You just said something that shocked me—that some of the schools did not even have a building certificate but were opened without one. Is that what you said?

Professor Cole: Yes. It is in the report—it is quite a big section in the report.

The Convener: Thank you very much.

Liz Smith (Mid Scotland and Fife) (Con): Professor Cole, I find your evidence very interesting but also very depressing. I am interested that you have given us an articulate and clear view of what you think ought to happen to improve matters. I want to ask you not just about the actual building process and oversight of that, but about maintenance of school buildings.

Local authorities have, in most cases, an on-going responsibility to ensure that school buildings are fit for purpose. I am sure that every parent wants an absolute guarantee that their child's school building is safe. What are the fundamental qualities that are required in on-going maintenance inspection? What do we have to do in all local authorities across Scotland to ensure that we have robust regular maintenance and inspection of all our school buildings?

Professor Cole: Again, this could be a long answer, but I will try to keep it brief.

Strangely enough, the PPP model puts the level of money into maintenance to allow the buildings to be maintained properly. You will find in the report a commentary that is based on evidence that was given by people from the City of

Edinburgh Council. Under the PPP contractual arrangements, the council has to pay the money to have the schools maintained. Whether or not the walls need to be painted every three years, they will be painted because that is in the contract and the people will be paid for doing it.

However, schools that a council manages itself—maybe because of the amount of money that it is paying out on the private finance initiative maintenance contract—do not have the same resources. Schools that are owned and run by the council are maintained to a much poorer standard. The headteachers who are associated with the schools in question, who have experience of council-owned schools and PPP schools, have said in evidence that the PPP schools are better maintained.

Liz Smith referred to on-going maintenance to ensure that buildings have been built properly. The main problem in the Edinburgh schools, which involved issues with masonry and building of brick walls, would not have been found by maintenance inspectors after the building was completed. The insides of walls are no longer visible after completion—inspectors cannot tell that there is something wrong with a wall simply by walking around the outside of a building once it is finished. That was the case in Edinburgh: the 17 schools had been inspected through external examination, and the inspectors had said that they were all okay. It was only when the walls were opened up that inspectors found that so many fundamental elements were missing. That can be seen only when a building is being built, before the walls are closed up and are no longer accessible. Those elements require a fundamental inspection when the school is being built.

The issue around firestopping is interesting. You will see from the report that the facilities management service for the contractor, Amey, told me that it did regular inspections of firestopping. In general, firestopping is visible, although depending on its nature it is sometimes hard to get at and hard to see. However, a substantial number of defects were reported in all the 17 schools in Edinburgh, although we had been advised that Amey had done regular inspections.

When inspectors are being paid for inspections by a client, we also need somebody to inspect the inspectors. You do not rely on someone in your pay to tell you that everything is okay. We need an appropriate regime of independent inspection. Time and again, I have used the words “independent scrutiny”. You cannot let the person who is being paid tell you that everything is fine; you need somebody else looking at the building to give you the reassurance that you need. Again, the level of independent scrutiny should be proportionate to risk and experience, and it should

focus on the areas of work that are more liable to have not been carried out safely.

The key element in the maintenance of buildings is having in place appropriate regimes for long-term and short-term maintenance, and for funding of property. Unfortunately, most public buildings—I say this as somebody who for many years worked mainly in health, building hospitals and so on—fail miserably in terms of the level of maintenance funding that is supplied to them during their life cycle.

Liz Smith: Thank you. That is all very interesting. You are, in effect, saying that there must be two components to the inspection process. Inspection and scrutiny should be done absolutely properly at the time of building and, secondly, on an on-going maintenance basis, obviously with slightly different criteria.

On the second point about maintenance over a longer period, would it be possible at the time of a school inspection, as part of the inspection process, to have authority from the construction company, the architect or whoever to give a guarantee to the school that, as well as the school being fit for purpose, the buildings’ maintenance is also fit for purpose?

Professor Cole: Every piece of work should have somebody signing it off to say that it has been done properly, which requires competence in the people who do that. That is another weakness in the industry; many of the people who sign off and certify work are not necessarily competent enough in that area to speak knowledgeably about the issues.

Liz Smith: What do we need to do to ensure that people have that competence?

Professor Cole: We need a properly structured system. For example, there are particular requirements in respect of who can inspect and sign off alterations to and maintenance of gas systems: it must be done by a registered person. However, there is no requirement in respect of the level of competency that enables someone to build: anyone can call himself a builder. The current regulations put the responsibility on the owner or developer to appoint somebody with the competence to do the job, but there is no definition of that competence because there is no standardisation and no licensing of construction companies. Therefore, anyone is allowed to build a wall.

The other issue is that, when people come on site to build walls in times when there is a demand for bricklayers, we really do not know who they are and what qualifications they have.

Liz Smith: Is it your recommendation that we should have higher professional standards and accreditation?

Professor Cole: Yes—but if we want higher professional standards, we have to pay for them. Over recent decades, the processes that help to guarantee quality have been cut more and more in order to achieve efficiencies. If we want a professional person, we have to pay them reasonably for their time. If we leave it to the contractor to decide how often an architect whom they are paying will come to inspect their work and perhaps tell them that it is bad and they have to do it again, there can be a conflict of interests. In many projects, the architects or engineers are not appointed to carry out that supervision because the contractor does not want them to say what is not correct.

The Convener: Mr Mitchell, would you like to comment?

Paul Mitchell (Scottish Building Federation): The main way to check an individual's credentials at the moment is through construction skills certification scheme cards. A person can obtain a CSCS card if they have a relevant qualification. Often, we find that such people are in circulation on larger construction sites. However, we still have a problem in that smaller local contractors will simply receive a call from somebody who says that they are a bricklayer. The contractor will tell them to start on Monday morning and they will know by the first tea break whether the person can hold a trowel and perform. We still have issues about candidates who do not have formally recognised robust qualifications entering the construction industry.

Ross Greer (West Scotland) (Green): Professor Cole, will you explain a little bit more the process immediately after the initial incident at Oxfangs primary school, when part of the cladding of the wall collapsed and the school was closed for three days? There was a visual inspection of the 16 other PPP1 schools and the school was reopened. Two months later, that school was closed for a prolonged period, as were the other 16, because of further survey work that had revealed more problems. To a layperson, it is really concerning that the school was closed for three days then reopened, only for further serious issues to be discovered and for it to be closed for a prolonged period two months later. Can you explain why the school was closed due to a structural problem, reopened and then closed again?

Professor Cole: I can tell you what happened rather than explain why. The wall collapsed and there was an immediate response: people worked very quickly. They knew that storm Gertrude had just happened, so they knew that the cause of the

collapse was the suction of the wind pulling the outer face off the wall. At that stage, they had not done the full calculation to understand whether the construction of the wall had been up to the standard that is required under the codes. A wind exceeding the design requirement for the codes would still cause a wall to fail; we could not criticise people for that because the wall could have been built properly but still have failed if there had been a hugely extreme wind.

There was a process to go through to identify the cause of the fault. The engineers who did that analysis also had to try to get the school ready for use again and to ensure that it was, in their minds, safe to do so. Therefore, they did a visual inspection—you will find what the report says about visual inspections—of the school and said, prudently enough, that they would examine all the walls to see whether the wind had caused bulging or cracking, which would be the normal signs of stress in a wall that might subsequently collapse. None of that was found in the other schools, but the engineers' report said that it required further consideration and recommended that such examination be done.

10:30

The incident was on 29 January. The report was completed on 29 February, following intrusive inspections of the rest of the walls of that school, which showed similar defects in terms of missing wall ties. At that point only the wall ties were the subject of debate.

All the schools were closed because, in the process of starting to reattach the missing wall ties, one of the contractors noticed that header ties were missing. I do not know whether members all understand the nuances, but if you have a wall panel, a steel column on either side of it and a steel beam across the top, if nothing fixes the panel to the columns and the beam, it is virtually a freestanding panel. The wind could suck it or blow it down on either side.

Also, the wall was a cavity wall, so there was an outer leaf and an inner leaf. The Oxfangs school failure was initially put down to the failure of the inner panel to be bonded adequately to the back leaf so that they would act as a single panel. At that stage it was not realised that the inner panel had also not been tied back to the steel frame, as required.

The requirement for freestanding panels like that, so that they stop flipping about, is that they be tied with steel ties to the columns and to the steel beam above. What was found, almost by accident when the missing wall ties were being repaired, was that many ties that should have held the panel to the steel beam at the top to make the

wall rigid were missing. That created the risk that not only would the outside face fall, but that the inside wall could fall out or in.

Only when that was discovered was the decision made to close all the schools. Up to that point it was felt that the risk was that a fall would be outwards only, and all the affected areas were being fenced off for protection. I think that people moved as fast as they could with the level of information that was coming.

The other thing to say is that, as an architect who has been involved in half a billion pounds of work, I was amazed to find that the same incidents were happening at that frequency across 17 different buildings. No one could have foreseen that. At first it was thought that it was an isolated incident, so action was taken on that basis. Prudently, however, people looked, and it was only because they looked and did the report that came out on 29 February that they opened up the walls and found the second defect. They then realised that they had to do something much more significant, which led to the closure of the schools.

Ross Greer: I totally accept what you are saying about there being an unprecedented scale of errors across multiple buildings, but is there an issue with the process? It is agreed that the codified process was followed but that it was inadequate, that visual inspections were not adequate to identify what could have been wider problems and that the process itself needs to be reviewed and strengthened.

Professor Cole: I have said in my report that visual inspections should not be considered to be satisfactory. One of the report's recommendations is that nobody can assume that because a wall looks straight from the outside it is built structurally well. That goes back to the maintenance issue: you cannot tell afterwards and you cannot go digging holes in walls to check them, because you can only see so much through a scope going into a wall. You can only really check it when you build it. That goes back to the point that a clerk of works is the ears and eyes of an architect and of a client on a site, watching what the contractor does and confirming that work has been done properly. That would really have been the only answer in this situation.

Ross Greer: On the point about the clerk of works, you said something earlier that I might have missed. Were you referring to a clerk of works when you said that often they are not allowed to go directly to the client but have to go through the contractor?

Professor Cole: No. Design and build has become the predominant method that is used by public sector organisations. It is a method that I tend not to use, because I prefer to have

professionals on my side, and I always have. Under that system, the architect does not work for and get paid by the client, but by the contractor. Most of the contracts have a confidentiality clause that stops the architect or structural engineer from talking to the client directly about issues that affect the quality of construction.

The report is long, so I am sure that you have not read all of it, but I recommend it to you.

The Convener: That is something for the recess.

Professor Cole: You will see in the report that in one situation, the architects pointed out that they were building the inner leaf first, which increases phenomenally the risks of building the wall and not getting the joints coursing properly or the ties fixed properly. The architect pointed that out—he showed me emails in which he pointed that out to the contractor. The contractor decided to ignore him because they wanted to build the inner leaf first to get a dry interior so that they could finish the build a bit more quickly and then finish the outside walls later. That contributed significantly to the faults that we found in the construction of the building. However, the architect did not have any authority. Under the old system, the architect would have said, “The specification that I wrote says that you can only build the walls together and bring them up together so that they are properly tied together.” However, he was overruled by the contractor because he was not working for the client; he was working for the contractor.

For clients to think in that situation that they are getting the full benefit of professional technical input is a mistake, but I think that the clients were led to believe that. They then sat back, but did not have people representing them, and they did not understand fully the implications of the poor construction that can happen as a result of that approach.

Ross Greer: Thank you.

Ian McKee (Royal Institution of Chartered Surveyors in Scotland): I would very much like to pick up on a couple of Professor Cole's points about placing or involvement of professional consultants and professional members of the design team, about how they have become subservient in the project and, as Professor Cole has said, about how they act, in effect, for the contractor, with no contractual link or means of communication with the ultimate client. The RICSS has been saying for time that that is the outcome of the procurement strategies that are being followed.

That links to the issue of maintenance. I am a chartered building surveyor. There are many different types of chartered surveyor; as a

chartered building surveyor, my principal role is to appraise existing buildings—to work on existing buildings to maintain and repair them, refurbish them and adapt them. That role is the principal role in maintenance—in assessing what a building needs by way of maintenance over a period of time. Generally it is a five-year rolling programme. You inspect it, you put together a programme of maintenance work, you create and agree the budget and then execute the work, and it rolls on.

The problem that we see now, in making professional consultants subservient and pushing them away from the front line, is that we are dumbing down the professional skills. A lot of these condition-type surveys—large-scale surveys of portfolios—are reduced to box-ticking exercises. To my mind, that just cannot go on. You need an experienced professional individual who knows the building to get in there and really investigate the building as part of the maintenance inspection. Only by doing that can we get to the heart of how the building is built and how it is deteriorating, because all buildings—newly built buildings and old buildings—deteriorate from day 1, and maintenance starts from the day after practical completion. You really need that level of diligence and expertise in there. As Professor Cole said, that comes at a price, because it takes quite a lot of time.

The Convener: Thank you very much. Mr Thewliss, do you have any idea of what headteachers think of all this?

Jim Thewliss (School Leaders Scotland): I come at this from a different perspective from my colleagues in that I am at the sharper end of it. Having read Professor Cole's report, I have to say that I feel quite scared about what has been happening.

Headteachers take over school buildings on the basis that they trust that they are fit for purpose. Professor Cole's report highlights entirely consistently the missing link between the contractor and the client. Can I substitute the word "headteacher" for "client"? There is an expectation among parents and society that, when young people are sent to school, they will be educated in a safe environment, but there is nothing in Professor Cole's report or the reports from local authorities throughout the country that gives me confidence that that is consistently the case.

We are talking about a wall that was blown down as a result of structural work not having been done, but what else in schools affects the safety in which we are educating young people? There is a huge question to be asked about that. Is a school's roof secure enough to stay on? Are the firebreaks in a school sufficient to stop a fire? You could go on down that line.

The link between the contractor and the client has an absolute and definite impact on the way in which young people are educated in schools. We are expected to educate them and to provide an environment that is maintained to be comfortable and safe. That is the first part.

The second part relates to on-going maintenance, which Liz Smith touched on. One thing to come out of the report, which we, as an association, were directly involved in, is the lack of a contingency plan for when things went wrong. The worst-case scenario of a summer holiday, when staff were not in schools, was of great significance in what happened in Edinburgh. Bearing in mind what the 32 local authorities have said, I asked what the contingency plans are in relation to any other defects that come along.

In your predecessor committee, we talked about developing the young workforce and about training young people in Scotland to contribute to the workforce meaningfully, and comments are made throughout the report about the impact that the level of training and skills among younger people—and among older people, perhaps—has had on what has been going on in Edinburgh. At some other time, it might be worth discussing further the training regime and the way in which we look at a skilled workforce coming into all aspects of Scottish industry.

Professor Cole: One of the problems is that a lot of public bodies have done away with their in-house clerk of works, who used to protect them. Also, clerks of works are not being used in contracts because of the issue of contributory negligence. As a result, there are fewer opportunities for clerks of works. Somebody advised me—I need to look into this in more depth—that there is a lack of availability of courses to become a qualified clerk of works. Because we are not using it, the skill is dying, and the skill is fundamental in relation to the problems that we are discussing.

From a skills perspective, we need to build up a cadre of people with the necessary experience. In the past, those people would generally have come from the construction industry—they would have been joiners or bricklayers, for example—but that is not happening any more because there are reduced opportunities or no opportunities for clerks of works. The problem is exacerbated by the way in which public bodies procure.

The Convener: I have a question that has come out of the evidence that we have been given. The answer is probably in your report—I apologise in advance if it is. What was the cause of the same fault being so widespread?

Professor Cole: The cause was how bricklayers are paid and the fact that they do not

generally belong to the organisations that they used to belong to—big contractors with really good apprenticeship systems. Nowadays, they can generally be picked up and moved from project to project, and they are paid by the number of bricks that they lay. The number of bricks that they lay does not measure the number of fittings that they put in behind the bricks, including the fiddly fittings. In this case, the beams were sloping beams and the bricklayers fixed the header ties, which were complicated header ties, into the eaves of the wall and the header beams as they drilled. That takes time. When they were doing that they were not laying bricks, and they were getting paid for how many bricks they laid in a day.

We found an instance of the fittings that should have been used to tie the building back to the steel beam having been left sitting on the flange where the bricklayer left them—no fittings had been put in. The bricklayer was getting paid for the number of bricks that he laid on the day.

10:45

The Convener: Should there be a way of compensating them for taking the time to do that?

Professor Cole: Yes, or a way of paying them on the basis of time. There is a combination of methods. I know that some contractors are already changing the way in which they pay bricklayers, and not just on the basis of the report, as some were doing it previously. One or two contractors have told me that they have changed the way in which they pay bricklayers to reflect the fact that they should have time to put in the fittings.

Gillian Martin (Aberdeenshire East) (SNP): The whole time that I have been listening to you, I have had on my mind the other sectors that have fully stringent health and safety procedures. I am thinking of, for example, the oil and gas sector, which is a very profitable area of work that, as a result of the Cullen report, completely overhauled the way in which it does things.

Do you think that the issue is so grave that we need to consider overhauling how health and safety works in the construction industry? Do we need an accreditation regime that prevents people from entering the sector until they have a certain amount of training in that respect?

Professor Cole: Health and safety can be confusing, but it has vastly improved within the industry in recent years because of the card system that has been brought in. There is mandatory training for everyone, including anyone who comes to the site. People have to go through health and safety training if they are working on the building, and the risk to workers and the number of incidents on site have reduced dramatically.

We are talking about the safety of people who use the building subsequently, which goes back to the quality of the building. The building regulations exist to protect that. If they were followed completely, the building regulations would provide all the necessary safety through the design of the building, fire protection and so on. The problem is that nobody is applying sufficient scrutiny to ensure that the regulations are being complied with. Building control officers now receive a certificate from the contractor and they have to assure themselves that it is reasonable to sign it. In the past, building control was responsible for going out and taking the lead on that.

However, even in that situation, there is a real issue with the number of visits that are made by building control officers and the number of building control officers that there are. To digress, people have been saying that they have had problems in recruiting building control officers who have the skills and that the number of courses for them in Scotland has also reduced.

Nobody is doing the checking. The regulations are there but the question is about appropriate scrutiny.

Gillian Martin: We already have regulations in place but they are not being followed and there is no scrutiny.

Professor Cole: Yes.

Daniel Johnson (Edinburgh Southern) (Lab): The issue has impacted on my constituency, as the catchment area for Oxfangs is within Edinburgh Southern. St Peter's primary school is another of the schools that have been affected, and Liberton high school had to host Gracemount high school for a significant period.

I am interested in the quality assurance process. Professor Cole, you have outlined the fact that the fundamental problem is the collapse of the responsibility for designing and building the schools. If that is the case, the design and build model would be just as prone to such issues as the schools that were built under PPP. Is that correct?

Professor Cole: The design and build model is a subset of PPP. The owners of PPP schemes—the funding companies and so on—are not builders; they just go to a builder. The general model is that the builder will then employ the design team. Design and build is a standard model for any PPP scheme. It is not different from PPP; it is a subset of it.

Daniel Johnson: A number of procurement routes using public money could have led to exactly the same issues.

Professor Cole: Many do. Many of these faults will be found in design and build schemes that

have had no PPP involvement. As I said, the money does not have too much to do with it.

Daniel Johnson: I am also interested in the RICS submission. It says that

“relegating the regulated, independent professional consultants to a subservient role has, on many occasions, reduced the quality of construction. This is prevalent in PFI/PPP and, more recently, Hub projects”.

That suggests that there is a significant, on-going issue rather than an historical issue. How seriously should we take it as an on-going issue in public buildings generally?

Ian McKee: We should take it extremely seriously. In my view, not having the professional design team at the forefront of building projects is foolhardy. Whether it is made up of the architect or of engineers and surveyors, the design team needs to have a contractual link to the ultimate client. Whatever the procurement method, there needs to be some means of keeping those professional consultants. They are the individuals who are insured and regulated and who work to high professional standards. We need that contractual link between them and the ultimate client.

Daniel Johnson: To what extent does the panel fear that there are a large number of undiscovered faults in public buildings that were built under both hub and private finance initiative/public-private partnership models?

Professor Cole: It is impossible to answer that question. However, given the frequency with which we have found faults when we have looked, I think that, if you open, you will find. That opinion is based on the evidence that we have to date and on the law of averages, given what has been found when buildings have been opened up.

A colleague of mine in London told me yesterday that two schools had been built and the contractor decided to open one on the basis of the report and found a wall with no wall ties. I hear stories like that all the time, and it is not just about schools; it is about all buildings. We are talking about walls—we should not forget that. It is just about walls, which could be in a leisure centre, a fire station or a hospital if they are panel walls that are built to the same construction. It is nothing to do with schools. We have called it the schools inquiry, but it is about construction.

I will add to Ian McKee’s point. Even if the architect is working for the client, that is not enough unless the architect is visiting the site and there are appropriate and regular inspections. Generally, that will happen maybe weekly on a site, although there can be a resident architect on bigger sites—I have used that approach many times. In all cases, the client still needs the eyes and ears of somebody walking around the site on

a daily basis. That brings us back to the role of the clerk of works. You need to have somebody who is independent of the contractor, who is able to say, “That isn’t good enough” and tell a professional architect or engineer, “You can now issue an instruction to take down that wall and rebuild it.”

Ian McKee: That is a key point. The clerk of works is an important role that has been eroded and lost over time. When I started in the profession, 20 or 30 years ago, I came across a clerk of works fairly regularly, but that now happens infrequently. It is important that, wherever they are drawn from, the clerk of works has skills that match the project that they are working on.

Nowadays, a clerk of works can be drawn from the trades but they can also be drawn from colleagues of mine—from building surveyors. The key consideration is that they need to report to the professional design team. Traditionally—historically—they have reported to the architect, but you do not now have the architect at that level; the architect has been removed. Having the clerk of works report to the builder—

Professor Cole: It must be the professional employer’s agent.

Ian McKee: Yes, it must. On the employer side, you must have that architect or senior professional for the clerk of works to respond to.

On the point about building control and professional skill, what is happening has been happening over a number of years, and it is an erosion of professional skill. We have a chronic skills crisis at the moment, whereby we are not attracting young people into the built environment professions. Because of the demographics, a lot of people will retire over the next 10 to 15 years, and there is also the impact of the financial crisis, so we have a big hollowing out of experience within the profession and we need to turn that around. We will not turn it around if the professionals are being asked to do only pre-contract work. If they create the design but do not see the construction work through, they will gain no experience. If they are not on site, seeing the thing built and interacting with the contractor and the other professionals, they will not know what a properly built wall looks like. We have a number of problems converging.

Professor Cole: The procurement model that we are using is deskilling the professions and the industry as a whole.

Daniel Johnson: Can I ask one last question, convener?

The Convener: You can have one last question, but can we start to keep our questions and answers short, please?

Daniel Johnson: First, most people will be pretty shocked to hear that building control does not ensure that buildings are safe, whether they are schools, office blocks or whatever. Do you agree that that is shocking?

Secondly, should there be a statutory requirement to have a clerk of works for public buildings?

Professor Cole: I am not sure that it should be a statutory requirement. There should be a good practice requirement, and issues should be looked at. The other point relates to the number of clerks of works and how much time they spend on site.

On the issue of building control, given the amount of time that officers spend on site and the number of officers that there are, I do not think that any local authority could ask them to guarantee that a building is built properly. If they visit the site once a week, once a month or whatever, that will never be enough. If they spent a lot more time there, the building control charges would have to be increased significantly to pay for that.

Daniel Johnson: Is that not exactly what we should be doing?

Professor Cole: You should be getting clerks of works and architects certifying buildings and telling building control that they have certified them on the basis of having put the right amount of time in. It is not really practical for local councils to take on that supervision job. They should be able to affirm that the work has been carried out properly on the basis of strong evidence from independent professionals.

Colin Beattie (Midlothian North and Musselburgh) (SNP): We are dancing around the point that subcontractors—and presumably the main contractors, to some extent—have seen a weakness in the system, and they have exploited it to cut corners. That is what it seems like to me. Do you agree?

Professor Cole: Unfortunately, that is the case in some cases. I do not think that they intentionally set out to cut corners—or, indeed, that anybody intentionally sets out to build something badly—but, by cutting the cost of the quality assurance elements through not having the proper staff and not having the professionals or the clerk of works on site, we are not investing in quality assurance. As a result, corners get cut.

That push has come from not just contractors but clients. The public sector has sought to reduce costs, and there is pressure to reduce the costs of fees. As a result, there is fee bidding by professionals. I can tell you that, as an architect, I do not fee bid, but I know that some of the bids that professionals are now submitting in order to win work are totally inadequate for them to

properly carry out the work that they are required to do. We still allow that sort of thing to happen. If you were to talk to any group of professionals, that would be the feedback that you would get from them: when they take work, they often cannot afford to put the time on. That was the evidence that people gave to the inquiry.

Ian McKee: When that happens—to square the circle, if you like—services get cut. There will be an agreement between the consultant and the contractor, and the post-contracts or the construction phase services are the things that are likely to get cut to make the fee work.

Colin Beattie: Basically, you are saying that the fault goes right through the system.

Professor Cole: Totally. If you look at my report, you will see that in my recommendations I begin with the client themselves. That is where the fault lies, and it goes all the way down to the manufacture of wall ties. It goes right down through the whole system.

We really need to think hard about how we build buildings and about the quality of infrastructure that we want to produce. As an architect, I have a passion for high-quality design, but I have discussed only construction standards in my report. There is also the issue of design standards and what they can do to enliven people's lives, make places better and make schools better places for kids, but that is another area that has also been cut back through the processes used in procurement. The contractor is being put in charge of selecting the architect and imposes a design that, in many cases, is potentially less than optimal but which is better for him to build.

Colin Beattie: I have always thought that building standards gave some sort of reassurance about the quality of the build and so on, but in your report, you say that the building standards system has no remit with regard to any sort of quality control practice. You highlight the point that

"It is not intended to provide protection to a client in a contract with a builder."

In that case, what is the building standards system for? Is it just a tick-box exercise?

Professor Cole: It is a legal requirement for the developer, the architect and the contractor to comply—

Colin Beattie: But does it mean anything?

Professor Cole: It might be a crime to walk across a road in the middle of traffic, but if nobody polices it, everybody will do it. In effect, nobody is policing this. We need systems that give such policing the appropriate attention, because if we do not, we get the type of incident that we had at Oxfangs. In the previous four years in Scotland,

four school walls collapsed. The collapse of the wall at Oxfords was the fifth such incident, but the connection between the earlier incidents had not been made prior to that.

11:00

Colin Beattie: We are looking here at one narrow issue—wall ties and the walls around them.

Professor Cole: But it is an example of the whole issue of quality.

Colin Beattie: Do we have examples of other issues that have arisen?

Professor Cole: The other example that I have highlighted in the report is firestopping in the schools. Areas that will be hard to inspect afterwards because they get closed up and nobody can see into them are those that are most likely to be skimmed on, because people can get away with it. They are not as obvious.

I am encouraged by the positive way in which the Scottish Government has approached the report's proposals. For example, it has set up various groups—indeed, I have participated in some of them—and some are looking at how the high-risk areas can be identified. One of the report's recommendations is about putting standard quality mechanisms into the process to ensure that checks are carried out on high-risk areas that could impact on the safety of users and the public in general. For example, if floor tiles have not been laid particularly flat, you can see that, and it will not kill anybody—unless they trip on the edge, of course. The issues that could impact on health and safety and the lives of the people who are using the buildings should get much more scrutiny than they currently get.

Colin Beattie: You talked about contractors not being able to deliver at the prices that they had bid for contracts.

Professor Cole: I did not say that—I said that architects and professional services could not deliver inspections and other duties because the level of fees that was in their bids and which they were being paid was so low.

Colin Beattie: And is that the area where the cuts get made in order to make the contracts viable?

Professor Cole: Yes.

Colin Beattie: You spoke about ties and areas where defects get tucked away and hidden by contractors so that they are difficult to find. Can you give any other examples?

Professor Cole: I would start with the foundations, which we never see, and the damp-

proof courses within buildings, but the impact in that respect might be disturbance, inconvenience and the closure of buildings rather than people being killed.

Lots of pieces of work, including those to do with a building's mechanical or electrical systems or fundamental structural elements such as the roof, quickly go out of sight and might not be properly inspected. However, they can impact on safety, and one of my recommendations is that the various sectors of the industry get together and agree what the high-risk areas are and then apply a more advanced level of scrutiny than is currently applied by the industry.

Colin Beattie: This will be difficult to answer, but approximately when was the watershed for this change?

Professor Cole: The issue has been growing for the past 20 years. Perhaps I am being critical of my own profession, but there has been movement away from—and some loss of faith in—the ability of architects to control price. I will say nothing about the building that I am in at the moment.

There were questions whether architects could manage projects on behalf of the client, and it was felt that contractors would be more practical and better at getting on with the job. There is an element of truth to that. The pendulum, if you like, had swung one way, then it swung the other, and we now need to get it back into the middle and take a balanced approach to these things. The role of project manager—some non-specific professional who now seems to represent the client—has developed, and the real design professionals are somewhere down the system with much less influence, despite the fact that they are the people who have the knowledge about what is essential with regard to health and safety. Even though they have designed the building, they are in many cases not even allowed to see whether it has been built in line with their specifications.

Coming back to the issue of building control, I would say that an awful lot of time is spent getting warrants approved and signed on the basis of drawings, but what is the point of looking at drawings if the contractor can do whatever they want with them out on site, knowing that nobody will look into it any further? The focus needs to be on the site where the building is taking place. As I said to several building control officers that I interviewed, I do not think that anybody has been killed by a set of drawings falling on them, but people certainly have been killed by a wall falling on them. The site is where the real difficulties happen. Certainly, we have to ensure that designs comply with building regulations. We put a lot of energy into that, but it is totally wasted if we do not

go on and ensure that what is being built on site complies with all those stringent requirements that take months to get approved.

Johann Lamont (Glasgow) (Lab): It seems that we are being told that it is a false economy for local authorities to drive down costs with regard to inspection regimes, the management of projects, planning systems, architects or whatever. That is just a more general point, but I want to focus on what this issue tells us about the building industry.

Historically, there has been a high level of fatalities among construction workers and, in my view, that is a scandal that has not been taken as seriously as it should be. The suggestion seems to be that, if we do not police the building industry, people in it will just do whatever they like. There is a level at which it is impossible for others to police and folk have to self-police. From the perspective of the Scottish Building Federation, the review is a bit damning, because it says that, unless we nail people down, they will hide their work.

Professor Cole: I intentionally said in the report that appropriate scrutiny should be applied based on the level of risk of the event happening. If you have placed your faith in contractors building properly and doing the quality assurance on behalf of the client—as the procurement models have done—and you then find that that is not happening, you will be stupid to continue with that process. At that point, you have to apply scrutiny and increase the policing in areas where that approach is not working. As the report shows, we have found major deficiencies in the management of quality of bricklaying across Scotland. Builders have been charged with the responsibility of building those walls. It is the contractor's responsibility to build them, but in the public sector it is the client's responsibility to ensure that a builder who he is paying is building properly. The issue is not just with the builder—the whole system is at fault.

Johann Lamont: I appreciate that and I understand the complexities of the issue. However, if a builder is building a wall and they miss out the bit that ties it all together, at what level are you aware as a professional of what you are doing? Is it because the work is subcontracted down so far that the gap between actually laying the brick and what you are building is lost?

Professor Cole: I do not quite follow you.

The Convener: I think that Paul Mitchell wants to comment.

Paul Mitchell: We have to be careful not just to point the finger of blame at the bricklayer at the coalface, if you like. Obviously, there are issues if they have deliberately cut corners, but we have to look at the wider context, culture and system in which they are operating. My particular focus is on

people rather than the technical issues—my colleagues on either side of me are better placed to advise on those.

From my perspective, there are four main people issues. The first is the level of initial training that the tradesperson receives, which is generally their apprenticeship. Secondly, we have to look at the level of continuing professional development. Many bricklayers pass their apprenticeship and almost go through their whole career without receiving any further technical training on bricklaying. I am sure that they receive plenty of health and safety training, but there is no requirement, post completion of their apprenticeship, to do any continuing professional development whatsoever. That, too, is an issue. Thirdly, we have to look at the levels of independent supervision and scrutiny of their work, and Professor Cole has explained that better than I perhaps can.

Lastly, there is the way in which tradespeople are engaged through their employment contract or labour-only subcontract, or where people are self-employed. Allied to that is the way in which they are remunerated. Professor Cole has described how bricklayers are often paid by the amount of bricks that they lay rather than the quality of their work. If we provide little continuous professional development, create a perverse incentive to pay bricklayers according to the number of bricks that they lay instead of quality and then have a lax level of supervision, we should not be surprised if that cocktail combines to create the difficulties that are seen in the report.

Johann Lamont: To be clear, I was not pointing the blame at individual bricklayers; I am just interested in the culture and the pressures on people to get through the work. We need more understanding of that.

In your submission, you talk about the dilution of the skills agenda in apprenticeships and say that the current qualifications do not give the guarantee of the tradesperson's autonomy that might have been given in the past. I wonder whether you can say something about that issue, because we might want to explore it further. Are the apprenticeships that we are providing not creating the skills that we can be confident will enable an individual tradesperson to resist some of the broader pressures that are on them when they do their job?

Paul Mitchell: Thank you for the opportunity to speak about the apprenticeship qualifications. It will be the main focus of my contribution to the committee.

We have asked Professor Cole to meet industry representatives and college lecturers and identify any technical shortcomings in the curriculum of the

bricklaying apprenticeship. Thankfully, he is coming to talk to us next week to kick-start that process.

The concerns that we have raised in our submission relate to the renewal of the level 3 Scottish vocational qualification that craft apprentices, including bricklayers, receive. Unfortunately, over the past eight or nine months, we have experienced significant frustration with our partners at the Scottish Qualifications Authority and our sector skills council, the Construction Industry Training Board, which has been ineffective in representing the industry's views.

Last year, the SQA unilaterally decided that the skills test was to be removed from the SVQ. As members might know, the skills test is the end test that a craft apprentice must pass to be certificated. The SQA then unilaterally decided to introduce portfolios of evidence to the SVQs without any prior discussion or dialogue with the industry. It also terminated a successful joint awarding arrangement with the industry. All SVQ craft certificates carried an industry logo as well as the SQA's logo, and that was terminated without any justification being given to the industry or any indication of how the relationship will move forward.

The SQA is now considering introducing level 2 SVQs in what are sometimes referred to as the biblical crafts, which include bricklaying, but there has been no consultation with the industry on those qualifications. The body that I represent—the SBATC—is a combination of employer representatives, trade unions and employers, who see the introduction of level 2 qualifications as a dilution of the skill base in the biblical crafts. The level 3 SVQs are broad based, with candidates learning every aspect of bricklaying, carpentry and joinery or painting and decorating. Level 2 qualifications have a much narrower focus and concentrate on one or two aspects of each of those crafts, and the industry is concerned about losing what is normally referred to as labour market elasticity in the ability of candidates to move from one job to another.

The Convener: We will write to the SQA to ask it to respond to your comments.

11:15

Paul Mitchell: I appreciate that. We have really struggled with the SQA over the last eight or nine months. It seems reluctant to listen to the industry and the collaborative voice with which we—the trade unions, the employers and the trade federations—are speaking. Allied to that, we have sustained difficulties with our sector skills council,

the CITB, which has not properly represented industry's views.

Without wanting to go too far into the qualification's technical aspects, I would point out that we managed to overturn the SQA's decision to reject the practice of skills testing, which has been successful in Scotland for 30 years now. That took us six months. The sector skills council then wrote an assessment strategy, which is the document outlining the processes for skills testing. The way in which that document has been written essentially allows colleges to appoint their own skills test assessor to mark their own homework instead of having independent oversight from industry, with skills test assessors from industry appointed independently by the SBATC and then allocated to colleges.

The Convener: Mr Mitchell, can you please write to us with the detail on that so that we can take the issue up with both bodies?

Paul Mitchell: I am more than happy to do so.

I will finish by pointing out briefly that the details of the arrangements for skills testing are now such that they would undercut the collectively bargained terms of apprentices; construction apprentices in Scotland are all protected by collectively bargained arrangements. It would also undercut the time-served period of apprenticeship and allow candidates to gain SVQ level 3 outwith an apprenticeship. In other words, someone could complete a portfolio and be coached on how to pass the skills testing—and then they could be on a building site some time soon, working on a school. I think that we would all seek to avoid that happening.

The latest update is that the industry—again, this involves federations, trade unions and employers collectively—has written to the SQA to say that we do not want the revised craft qualification SVQs to be accredited, and we have written to the modern apprenticeship group to say that we do not believe that the revised modern apprenticeship framework in the biblical crafts should be re-accredited. We have also written to the CITB to express our concerns about the sector skills council's behaviour, and that letter has been signed by employers who recruit or currently train up to 1,000 apprentices a year. The situation really is a cause for concern, because from 1 September onwards there might not be an SVQ or a modern apprenticeship framework for candidates to be trained in the biblical crafts.

Johann Lamont: It would be worth speaking to the construction unions on the issue, too, because there must be a question about how that impacts on their members and their confidence in taking on such candidates on site.

I am interested in the longer term. You are talking about very specific training issues that are happening right now, but presumably many of the people on site have been trained over a longer period. Has there been a general dilution of skills training over a longer period that might have led us to this position? If that is not something you can answer now, perhaps it is something that you can look at. We have moved from what would have been regarded as very high-quality craft apprenticeships, but what are the reasons for the decisions to make changes in that respect, what are the changes and what has the impact been?

Paul Mitchell: I can give a short answer to that question. Candidates for craft apprenticeships in Scotland still achieve an SVQ level 3; for the sake of comparison, such candidates south of the border would typically gain an NVQ level 2. In Scotland, we have fixed four-year term apprenticeships, but that is not customary south of the border. We also have standard terms and conditions for all apprenticeships, which, again, is not customary south of the border. Moreover, in Scotland, we have a final skills test whereas England is considering introducing that with a trailblazing apprenticeship.

Our construction apprenticeships are not perfect by any stretch of the imagination, and the report highlights some areas where we need to improve the technical content of the curriculum, but when I speak to my counterparts south of the border they are often envious of the apprenticeship arrangements that we have in Scotland, which are internationally recognised and sought after. My concern is that the developments from the SQA and the CITB are going to undermine that.

Professor Cole: Something that recurred in the presentations that we had as part of the inquiry was a recognition and statement by every main contractor who came to talk to us that there is great difficulty in getting highly qualified, highly experienced bricklayers in the industry, and that that is part of their problem. It is to do with the boom-and-bust nature of our economy. It is also partly to do with the seasonal issues in Scotland, where it is difficult to build with bricks at certain times of the year, but there has also been a loss of people. In particular, many people left the industry last time there was a dip in the economy—it was a huge dip—and they have not come back. The dearth of people brings problems.

I will not go into the more difficult area of Brexit but, over the last while, at least 8 to 10 per cent of the skills in the industry have been coming from Europe. With that issue, the fall-off in apprenticeships and the reduction in the workforce due to the boom-and-bust situation that we find ourselves in, the industry is in a particularly bad position at present.

I will touch briefly on Paul Mitchell's point about the course. When we asked about the skills test in the inquiry, we found that it did not extend much beyond the simple building of relatively plain walls. It did not really go into the fundamental relationship between brick, structural brick accessories of the type that have failed and their importance in the totality of the scheme of things.

Again, I criticise architects and engineers, because we also found that the information that bricklayers are given when they go on site is not in the best format. A wall is pointed out to them and they get told, "You should start there and end there." Quite often, the information sits in four or five different documents, with different specifications in engineers' drawings and architects' drawings. The industry does not make it easy for bricklayers that come on board. The fact is that there are problems at all levels in the industry, where the quality issue is being squeezed.

The Convener: Tavish Scott wants to come in.

Tavish Scott (Shetland Islands) (LD): I want to ask a couple of supplementaries to Johann Lamont's first two questions. I am sure that my fears will turn out to be groundless, although I was taken by your response to Daniel Johnson's question asked about the scale of the problems that you have identified, in which you said that it is not just about schools but about every wall that goes up around the country. In your experience, tie rods to hold walls together are included in the specifications.

Professor Cole: Totally.

Tavish Scott: So what the heck happens?

Professor Cole: Nobody watches to ensure that they go in.

Tavish Scott: There is not an institutional approach that they are deliberately being left out because people are trying to skimp on contract costs.

Professor Cole: No, although we have told you of some instances. We also find gable walls with no ties in them. In one instance, a clerk of works who was working in another sector—not the schools sector—found a bricklayer building a wall with no ties. He was there on a labour-only basis, and the contractor had not provided enough ties to build into the wall. He was going to be paid for the number of bricks that he laid, so he just went on laying them. In that situation, it was the clerk of works who found out about that and stopped it, and the wall was taken down again. If there had been no clerk of works on the job, the wall would be like many of the walls that we find—there would be no ties in it. The bricklayer said, "I'm not responsible for buying the ties and I can't just

stand around because I'm being paid for the number of bricks I lay, so I'm going to lay the bricks anyway."

Tavish Scott: What I am struggling with is that the specification says that there must be tie rods—

Professor Cole: Totally.

Tavish Scott: —and the industry knows that that is how a wall is built, yet it does not happen. That is the bit that I just do not understand.

Professor Cole: It does happen. Let us be fair: occasions when wall ties are left out are relatively infrequent. Sometimes some ties will be missing, but the problem is with the level of embedment. In joining one wall to an outside wall, the requirement is that the brick tie goes at least 50mm into the wall. We found many instances in which the tie was just touching the wall, was not built into the wall at all or was sitting in the cavity, and in some cases it was missing.

The issue with the Oxgangs school was lack of embedment. The wall ties were just sitting there: they were not embedded. The precise figures are in the report. If ties are only sitting tightly in the wall, and the wind pulls the wall, they will come off. They need to be embedded. The minimum depth in the regulations—it is a statutory requirement, not just a specification requirement—is 50mm, and the recommended depth is 65mm. In many instances, we found that that was not applied: the ties were just sitting there, or were not there at all.

Tavish Scott: Thus your point about needing a clerk of works: the work has to be scrutinised.

Professor Cole: That is where the clerk of works comes in; he would look at the work. In fact, the quality inspector for the contractor should be doing that; the work should be supervised by the contractor who is employing the sub-contractor. That was not happening, although the procurement models put faith in contractors doing that.

Tavish Scott: Thank you.

Gillian Martin: Safety is obviously the number 1 concern in respect of what has been happening, but I want to return to the financial implications, given that those schools were built with a great deal of public money. I do not know whether you can help with this. At the point at which decisions were made about creating new local authority school estates, was PFI the only game in town?

Professor Cole: For the 17 schools in Edinburgh, it was the only game in town. The council was told that it would not get capital funding from the Government to build the schools, and the old schools were falling down and were no longer fit for purpose.

Here is my analysis. PFI was a source of the money, and the council was told by the Government that it would get £6 million a year towards the revenue payments on the PFI contract. That made it affordable for the council, which told me that that was the only way it could have got the money. Councils are not allowed to borrow independently—they have to get the money through Government.

Government has used PFI as a way of getting many things done, and done very well in general—road building, for example. Councils probably would pay more under PFI than they would pay if they had the money to do it themselves, but people pay interest on mortgages because they want the house and do not want to wait until they have saved up the few hundred thousand pounds that they would need to buy it outright. Government has been acting in that way for many years, since PFI came in. It is no longer waiting until it has the money itself—it is borrowing the money. The PPP system has derived from that.

I do not see a problem with the concept of borrowing the money. The issue is the lack of good-quality mechanisms in the procurement processes, in contracting, in design and in supervision of the work. Those areas are where money has been driven out—they are squeezed in order to increase profits in the system.

Gillian Martin: Is there a risk, therefore, that some of the school buildings are not fit for purpose and that local authorities will still be paying them off when they may have to be rebuilt or replaced?

Professor Cole: The point about the nature of the work that we have looked at is that, if we take the bricks issue as the main issue, we cannot tell after the event whether the wall is safe or not.

Gillian Martin: Until something happens.

Professor Cole: We cannot tell until a wall falls. In Scotland, there have been five fallen walls in the past four years, for the reasons that we have discussed. Those are the cases that we know of, but not everybody reports falls, because people do not want the bad publicity, and the company will tidy it up quickly. Schools do not want parents to know that there is a risk in their buildings.

Jim Thewliss: I am not quite so sure about that. There is a difference between the social responsibility of a school and a headteacher, and the headteacher's relationship with the school community. It is a totally different relationship.

Professor Cole: Yes, but in general we felt at the start of our inquiry that there was some hesitancy among local councils in giving information to us. They did not necessarily want their schools to be talked about, and they were

hoping to manage the situation appropriately on their own.

With an issue such as collapsing walls, unless people have gone through the checking processes that we recommend in the report and made good any defects, there is always a risk. I am sure that many buildings have not been checked. It can happen again, but I do not know the frequency with which it will happen.

Another point relates to safety factors in the design of all structures. A wall will generally just sit there unless something happens to it through wind or some other factor. Many walls that are not built correctly have not been subjected to the maximum wind loading, so they are still there. However, if there were storms of greater strength, walls would start coming down.

11:30

Gillian Martin: When a defect is discovered in a school, what is done to look at the rest of the school estate that was built at the same time or by the same contractor? Take me through the procedure.

Professor Cole: We and the Scottish Futures Trust asked all local authorities to examine their schools and to make a risk-based analysis, such that if they found something when they looked first, they would then look further. If sufficient initial checks are done and it is found that things are safe enough, it is probably reasonable to stop. The City of Edinburgh Council is still doing that on its other buildings, and it was reported in the press this week that another four buildings have been found to have the same defects.

Gillian Martin: How independent are the inspectors?

Professor Cole: The inspectors are totally independent; examination is being done by the council, not by the people who built the schools.

Clare Haughey (Rutherglen) (SNP): I thank the panel for its compelling evidence. I want to pick up on what Gillian Martin said, and to ask whether the witnesses consider that the inspection activity in relation to the specific problems that have been identified in Edinburgh is adequate across the school estate, and whether it should be widened out to other facilities in Scotland.

Ian McKee: I have not been involved in the inspections at all.

Professor Cole: I am aware of the inspection activity and have seen responses from each of the local authorities that I wrote to as part of the inquiry, asking them to report to me all incidences that they had found. At the time of that report, people were still doing some of those exercises—

as I said, Edinburgh is still doing testing—so I cannot possibly comment on how comprehensively the local authorities have done that. I know that they have been asked to test rigorously, but it is impossible to say how rigorously they have done it. The focus has been predominantly on the schools estate, but the issue is to do with the construction of walls that could be in any public building or private building. We just do not know.

We are saying that people need to take reasonable responsibility as owners of buildings in the public sector. In particular, there is an onus on them to examine their facilities properly and to ensure for themselves, and confirm to their constituents, that they have done that. The main issue, to my mind, is that we must look forward and ensure that no more buildings are built with that level of defects and risk associated with them. The measures need to be adopted and enforced by the industry itself, which is taking a responsible view in terms of feedback. I have had nobody throw a brick at me—although I have not got back home yet, so we shall see.

I think that the industry has taken a responsible position and has re-examined itself. It has no option but to do that. The Government, public authorities, building control and clients, however, have to accept that they have not been doing it properly, and that they need to take more interest and review the procurement models that they are using. They have to consider how to supplement those procurement models with best-practice models that are available anywhere, and they have to invest in quality and assurance. If the first thing that they cut is the assurance checks, the one thing that we can be sure of is that they will not get good quality. That is what has happened.

Clare Haughey: I ask this question as the parent of a child who attends a PPP school. I also have constituents whose children attend such schools, and I am sure that most of the MSPs round this table have, too. We have considered wall ties and header ties, bed joint reinforcement and fire stopping, but do we know that there is no risk of another major defect in schools? Can you give that reassurance?

Professor Cole: As I mentioned earlier, we need to have a structured process for determining what risk elements in construction can be checked and need to be checked. The industry is discussing at the moment whether it is practical to do so, because it can be difficult to go back after the event to check such things. The money that is involved in taking something apart to prove that it was not built wrongly in the first place could mean that doing so is not practical. There has to be some sort of risk-based assessment with professional guidance. It may be that had

professional guidance been there in the first place, it might have prevented our having to do this now.

Clare Haughey: How do we get that independent risk assessment of the potential difficulties or dangers in our schools and other public buildings?

Professor Cole: We do that by removing the potential for conflicts of interests and by not having a system in which the people who are paid to do the work are the people who check it. The schoolteachers among the committee will know that, in general, we do not let kids mark their own homework. We have been allowing that to happen with the contractors.

Jim Thewliss: Liz Smith raised the issue of the inspection regime inspecting the fitness for purpose of educational establishments. There are models out there that chime with what Professor Cole is saying—the idea of an independent view being taken of the fitness for purpose of a school or any other public building. For example, every year, every school has a fire risk assessment, which is carried out independently. The Scottish Fire and Rescue Service does the checks; it might close down areas of a building if a school does not conform. My organisation would strongly encourage that approach being taken to how we examine the school estate.

Professor Cole: The key is not to find out something after an event has happened, but to stop it happening in the first place. That is where we have been taking short cuts.

Ian McKee: I want to pick up on that. The fire risk assessment is just one thing that needs to be done annually. We are rightly focusing on new construction and the failures that are apparent in that, but buildings—whether they are schools, tenement buildings, office buildings or other public buildings—deteriorate, as I said earlier, so we need to elevate the importance of maintenance. The reality is that we need to spend a lot of money maintaining our buildings and keeping them safe.

We must move maintenance way up the priority list, even with home owners. I have done quite a lot of work with the RICS on a policy paper that calls for cross-party support to encourage tenement home owners to engage with their buildings and to maintain them, in line with their statutory responsibility. Our intention was to take that approach to tenement buildings, which are the obvious big problem at the moment, and to apply it to other buildings. Schools are no different. We must move maintenance up the agenda.

We can talk about new block walls being a potential hazard, but many of our buildings are more than 100 years old and have not had any level of professional inspection. A lot of people will turn to a builder to inspect their roof and their

chimney after high winds, but the builder has a commercial interest—he will not be impartial.

Regardless of buildings' age, use and ownership, maintenance is absolutely fundamental if we want to keep buildings economically sound and—more important—safe for their users, owners and the people who pass by them.

The Convener: I am sure that most builders would do the work that is required, as opposed to looking solely at how much money they can make.

I have one last question for Jim Thewliss. What is the role of headteachers in the design process for school buildings?

Jim Thewliss: Their role has evolved and developed over the course of the PPP programme, and as we have moved into the Scottish Futures Trust programme.

I was integrally involved as the headteacher of a secondary school in Dundee when we started to consider a redesign of the building, but that was not common practice in the earlier phases of the school building programme. Engagement of the headteacher and—through the parent council—of the school community is becoming much more prevalent; it is now much more standard practice. When PPP was the only game in town, if the contract was for 10 secondary schools, we tended to get 10 secondary schools that were based on the same model. The design process is now tailored much more specifically to the needs of individual schools. There is still a way to go, but there is much more interaction and engagement, and the process is much more flexible than it was.

The Convener: Would you say that involvement of the headteacher and the school cohort in the design process is now uniform practice?

Jim Thewliss: In the most recent phase of secondary school building—I am less able to comment on primary school building—that has become the norm rather than the exception.

The Convener: I thank the witnesses very much. It has been an extremely worthwhile session, and I really appreciate the time that you have taken to speak to us. After we have discussed the matter among ourselves, we will decide what further action to take.

11:40

Meeting continued in private until 11:57.

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