CPD NARRATIVE

CPD Title: Celotex & Section 6: Simplifying Compliance (Non-RIBA approved)
Version 1. July 2012.

Note to presenter: Before the presentation:
1. Consider setting the room up with samples, literature, business cards etc.
2. Ensure lap-top sound is activated to play corporate video
3. Presentation can not be modified. Click "read only" when prompted when opening presentation.

Slide 1. Title slide.
Hello everybody and welcome to this CPD presentation from Celotex. My name is (INSERT PRESENTER NAME) and I am Celotex' (INSERT JOB TITLE) for (INSERT SALES TERRITORY). Thank you for taking the time to attend today's presentation which will focus on both our PIR insulation as well as how compliance to Section 6 can be simplified.

Slide 2. Agenda
Note to presenter: This is the only slide where each box appears on a separate click. This is to ensure each point of the agenda is covered. When to click is shown on the narrative below.

Let's start by looking at what we will cover today. We will first look at Celotex ***(CLICK)*** including PIR insulation, our product solutions, features, benefits and applications. Following this we will discuss carbon reduction programmes ***(CLICK)*** spending the majority of this time on Section 6 ***(CLICK)*** and how compliance can be simplified ***(CLICK)***. The focus of today's seminar will be centred on the phrase 'fabric first' which you will hear on many occasions. Later on in the presentation, we will provide examples of how designing with a fabric first ***(CLICK)*** approach is a more cost effective process than keeping fabric performance at a low level and adopting renewable technologies.

Slide 3. About You.
So, can I just take a couple of minutes to gain a better understanding of your practice? Of interest to me, and so I can adapt the presentation where relevant to your needs, it would be useful to understand your client base, area of specialism along with the insulation materials you regularly specific and why. If you are an existing specifier of PIR and/or Celotex this would also be useful to understand.
Note to presenter: Open the discussion to the floor, to gain insight into these key areas. Once understood, attempt to use this information throughout presentation where relevant.

Slide 4. Objectives
By the end of the presentation, the four objectives we will have covered will be providing the difference between Celotex and other (PIR) insulation materials, up to date understanding of Celotex as a brand and product solution, how you can meet the requirements of Section 6 as well as how this should all be achieved cost effectively through a fabric first approach.

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Slide 5. About Us – Chapter Slide
Let's begin by taking a look at Celotex. I'd like to start by showcasing our corporate video. This shows the full-scale operations of Celotex including details of our company history, strategy, product range, manufacturing process, sustainability credentials, third party approvals and available services.

Slide 6. Corporate Video

Note to presenter:

- ***Video will take a few seconds to start to play.***
- ***After video check audience engagement by asking how what they have seen compares with their initial understanding of Celotex. At this point ask if audience has any questions before you move on.***

Slide 7. Celotex FR5000 & CG5000
Just to quickly recap on the product element of the video. Our Celotex FR5000 and CG5000 solutions offer 'best in class' PIR insulation. Previously the perception of PIR was that it contained the same product and performance properties. Our recent developments and innovation now take lambda performance to 0.021W/mK whereas typical PIR is less thermally efficient at 0.023W/mK. Backed up with industry-leading performance, FR5000 and CG5000 also offer an A+ Green Guide rating, Class O fire performance as well as our Celotex IQ innovation which delivers super low emissivity values in cavity air space applications. This development offers thinner solutions and even better U-values making compliance to carbon reduction programmes easier.

Note to presenter: Use this slide to make the point that not all PIR insulation is the same. State references to BBA, typical lambda and emissivity values, breadth of range. Also hand out a sample of FR/CG to demonstrate the product

Slide 8. New Build
Celotex now has a range of solutions that support all elements of the building fabric. This covers floors, walls and pitched and flat roofs with specific products that can be used in both traditional and modern methods of construction.

Slide 9. Refurbishment
With two layer installations representing approximately 30% of our specifications, our range is equally as important in refurbishment projects where maximisation of internal space is a key driver. Be it a one off measure or a larger project Celotex has the product offering to deliver your design needs.

Note to presenter: Slides 8 & 9 are a great chance to showcase other Celotex products. Make specific reference to 200mm cube, PL4000, SW3000 as well as FF4000 for underfloor heating

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Slide 10. Benefits of Celotex
Before we move on to talk about Section 6 in more detail, let's just take some time to summarise the features and benefits of Celotex products. As you saw in the corporate video, these include:

- **Highest performing insulation**. Through our 'best in class' offering FR5000 and CG5000, PIR solutions with Celotex are now available with a lambda performance as low as 0.021 W/mK which is consistent across thickness range. Supported with A+, Class and Celotex IQ, these products offer premium options delivering better U-values and thinner solutions.

- **Breadth of Range.** From as thin as 12mm through to 200mm thick, Celotex solutions cover the broadest range of product thicknesses available from any PIR manufacturer and are all available from stock.

- **Versatile.** For new build or refurbishment projects including pitched and flat roof, walls and floors, Celotex products are multi-purpose and provide the perfect solution for all elements of the building fabric. Our recent product development programme includes not only the launch of FR5000 and CG5000 but also thermal improvements to other products within our range. In all instances, these have been supported by validation from the BBA and are included within our BBA certificates, copies of which are available from our website. In addition to this, we have also launched solid wall products for both internal and external wall upgrades. Our PL4000 solution is suitable for direct bond or mechanically fixed installations be that onto timber, metal or even direct to wall. If it's an external render board you are after our SW3000 is approved by some of the UK's leading EWI system providers.

- **Fire Resistant.** PIR insulation is manufactured through an irreversible chemical reaction. This means that it cannot melt. The ratio of the two primary chemicals used to make PIR delivers a stronger chemical giving the product an improved resistance to higher temperatures. With fire performance being an important selection consideration for many projects, Celotex was the first PIR manufacturer to have a Class O rated product in its range. FR5000 and CG5000 offer Class O fire performance throughout the entire product.

- **Lightweight.** PIR insulation possesses substantial inherent structural strength. The core prevents the product from sagging through time ensuring it retains its thermal characteristics. These characteristics are complemented by the lightweight attributes of the product ensuring it can be easily handled and transported during installation. Based on 100mm product, Celotex PIR is over 10% lighter than phenolic insulation.

- **Moisture Resistant.** Water absorption through exposure to moisture or indeed in exceptional circumstances through floods, is a significant factor in the selection of any modern insulation. The thermal performance of mineral wools and phenolic foams is significantly compromised and reduced when exposed to water. In fact testing at the BBA confirmed that when exposed to water, mineral fibre thermal performance degraded by over 40%. Similarly phenolic degraded by 3%. Celotex due to having a closed cell structure is a hydrophobic product meaning it does not absorb water. This allows the thermal performance and integrity of the product to be retained over time.

- **Environmental Impact.** The environmental impact of insulation materials are independently rated within the BRE Green Guide 2008. Materials are rated on an A+ to E scale where an A+ rating is given to materials with the lowest environmental impact. PIR insulation is generically rated 'A' providing a lower environmental impact than extruded polystyrene and some cellulose glass and stone wool solutions. Celotex was the first manufacturer of PIR insulation to achieve an A+ rating which it has held since July 2008. This A+ rating is driven via a BRE Approved Environmental Profile providing an environmental impact rating which is over 15% better than typical PIR.

- **Technical Support.** Our Celotex Technical Centre has a team of advisors who are available to assist you with planning and improving your insulation and energy performance needs. Whether you are working to Section 6 or to specific performance levels within BREEAM, our Technical Advisors can provide advice on any aspect of product selection to ensure the necessary compliance. This includes application and installation guidance, and condensation risk analysis. Additionally, we have in-house 'On-Construction' assessors available to provide you with all your SAP and Energy Performance Certificate requirements.

  Our website also includes an on-line U-value calculator service where you can carry out your own U-value calculations. This service provides over 250,000 calculations per year.

Note to presenter: Use the section on CTC to ask audience whether they use these services and to obtain feedback.

Slide 11. Carbon Reduction Programmes – Chapter Slide
Let's now move on to look in more detail at Section 6.

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Slide 12. Carbon Reduction Programmes
Section 6 is just one of a number of carbon reduction programmes currently in existence within the UK. All carbon reduction programmes are in place to assist the UK with meeting the requirements of the Climate Change Act which states that by 2050, the UK will reduce its carbon emissions by 80% compared to 1990 levels. Given the carbon emissions associated with UK building stock coupled with the environmental impact of construction materials used to build new homes and other building types, the construction market has a significant role to play in delivering this ambition.

Whilst Section 6 calls for a 30% reduction in CO2 compared to 2007 levels, BREEAM schemes look to take this level of reduction to a greater level and also combine other environmental aspects including waste, materials and water. Forthcoming programmes include Green Deal and the Energy Company Obligation which will replace the existing CERT and CESP schemes and focus heavily on existing buildings offering where relevant for fuel poor homes and communities, additional subsidies to deliver carbon reductions. In this area, it is widely accepted that solid wall upgrades will be one of the key measures for delivering carbon reduction targets.

Slide 13 – Section 6 – Aims
Moving on to discuss Section 6 in more detail, we will start by outlining the aims of this Approved Document. Section 6 has two legal requirements. Firstly, producing an EPC and also ensuring that CO2 emissions do not exceed a target value. Other than this the document is purely guidance focused on delivering improvement in the levels and standards of building design. Designing to the correct standards of detail helps ensure that the building will be constructed as intended and achieve the levels of performance it needs to. Section 6 is concerned in the conservation of fuel and power and therefore reduction in carbon emissions is its primary aim. We will come on shortly to highlight how compliance is achieved but focusing on the performance of the fabric is the key area that needs to be addressed.

Slide 14. Section 6 - Simplifying Compliance.
Achieving compliance to Section 6 can be achieved by focusing on a fabric first approach. This specifically involves concentrating on the building envelope ensuring where possible the fabric performs to its maximum potential. This will include designing and building to U-values which exceed that of the maximum targets. Focus must also be provided on eliminating the impacts of thermal bridging, designing to air-tightness levels which again are an improvement on the levels set out in regulations as well as addressing performance of party walls which have been included in regulations for the first time. We will shortly demonstrate the level of U-values that Celotex recommends to meet compliance to Section 6 and towards the end of the presentation highlight the cost advantages of building to a fabric first approach.

Slide 15. Section 6
There are four parts to Section 6 split by building type. The four parts are

- New Build Dwellings
- New Build Non-Domestic
- Existing Dwellings

- Existing Non-Domestic

Slide 16. New Build Dwellings
Starting with new build dwellings, we will in turn compare the 2010 U-values for floors, walls and roofs. The left hand side of this table compares the maximum fabric U-values or backstop U-values as refer to them within this presentation. These are the maximum U-values that can be built to and in no instances can these be exceeded. It is also readily accepted that these values will need to be improved on to comply with Section 6. The right hand side of the slide shows the standardised U-values for 2010. U-values used to vary according to the fuel type used as the main space heating but in 2010 have now been standardised by each element type. The improvement in these U-values is between 20-30% compared to 2007 levels.

Slide 17. New Build Non Domestic
This slide for non domestic new buildings splits the comparisons between both standard buildings and also shell and fit out buildings which now must comply with CO2 emissions. Again we have split these by three main elements; floors, walls and roofs and showed the maximum U-values required in 2010. These improvements in U-values are up to 20% when compared to 2007.

Slide 18. Case Study – New Build
Now is a good opportunity to see through a couple of case studies, how Celotex PIR can not only achieve thermal performance improvements but also other design challenges that may need to be overcome. Starting with this new office building at Watermead Business Park in Leicestershire which has become the first carbon negative Passivhaus commercial office in England.

During the design stage, thermal efficiency was built into the structure's fabric as naturally as possible to help achieve Passivhaus accreditation for air tightness, ten times that of standard UK regulation. In fact, when the building was complete, air tightness tested at an 800% reduction from current building regulation standards.

The creation of an airtight and thermally efficient envelope was a priority for the project. To achieve this, a specification was created that included triple glazed windows and Durisol walling units – pre-insulated with 50mm thick Celotex GA4000. With these elements in place, the wall's U-value was reduced to 0.15 W/m²K and ensured the building's total energy use is expected to be only 25% of the UK's current best practice. To provide a thermally efficient envelope, an additional layer of Celotex GA4000 insulation was applied to the exterior block works. helping the building to achieve a final wall U-value of 0.12W/m²K and air tightness of 0.885m³/hr/m² @ 50pa.

Interserve, occupants of Watermead Park, has predicted that the new facility will save them approximately £20,000 in energy bills and almost 100 tonnes of CO2 emissions every year, when compared with the company's previous offices.

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Slide 19. Case Study – New Build
Our next case study looks at the University of Bedfordshire's new Campus Centre in Luton, part of a £140 million redevelopment of University facilities. The new building, one of the first phases of the plan, features a new student social centre, a 400 seat lecture theatre as well as catering facilities and exhibition space. The building set out to achieve a BREEAM rating of Excellent. To help achieve this, particular attention was paid to the building's overall thermal efficiency. Specialist contractor Elliott Brickwork was tasked with undertaking all masonry work as well as installing Celotex CW4000 throughout the cavity walling – a task which required 2,500 square metres of boards.

Slide 20. Existing Dwellings
This slide for existing dwellings follows the same format as the previous building types but shows the U-values for both the conversion of heated buildings e.g. a refurbishment and also when new build work is being carried out onto an existing dwelling. For conversion work, the U-value is set out with a single value and significant improvements are required for floors and walls where the previous value was at 0.70. This is the area where there are the largest improvements in U-values.

For extensions to the property, the U-value that needs to be achieved will vary. If the U-values of the roof and walls of the dwelling are worse than 0.70 and 0.25 respectively than the lower value of the two shown on the right hand column must be achieved. If this does not apply, then the slightly higher U-value shown here can be met.
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Slide 21. Existing Non-Domestic: Conversions
When converting an existing non-domestic building the area weighted average U-values shown should be achieved. This is new for Section 6 2010 and shows a significant improvement on the individual element U-values from 2007.

Slide 22. Existing Non-Domestic: Extensions
For extensions to existing non-domestic buildings, the area weighted U-values should again be followed. These values represent up to a 25% improvement compared to the 2007 values. Again, individual element U-values are far higher and represent no change from 2007.

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Slide 23. Case Study Refurbishment
This first refurbishment case study focuses on Nottingham City Homes who manage Nottingham City Council's rented and leasehold homes. To be completed in 2015, the Decent Homes programme will be using funding to massively improve the thermal performance of Nottingham's 29,000 council homes. Prior to any improvements, a trial analysis of the thermal performance of one of the city's council houses was conducted. The results of this led to an energy/carbon emission improvement strategy for the two storey property - including a range of insulation solutions from Celotex. These included installing insulation to the external solid brick walls, window reveals and roof voids. Celotex' PL4000 plasterboard thermal laminate was specified in thicknesses of 20mm and 65mm for installation in the buildings' solid brick walls. For the window reveals, our 12mm TB4000 product was installed to eliminate the common occurrence of localised thermal bridges. Thermographic 'after' images show that with the installation of the Celotex insulation, heat loss has been dramatically reduced in the property. Following the assessment of the trial home, there has been a programme of work developed to insulate as many as 800 council homes in the Aspley area of Nottingham, funded by Scottish and Southern Energy (SSE), through CESP.

Slide 24. Case Study Refurbishment
This case study focuses on Hepworth Wakefield Gallery, the largest purpose built exhibition space outside of London and one that is literally built into a river. The gallery will play a vital role in the redevelopment of the Wakefield Waterfront. The gallery walls float 30 millimetres above the floor, so hidden supports had to be constructed to support the magnesite floor. It was essential to protect the structure from the elements particularly the cold river water and fluctuating water levels so 75mm thick Celotex GA4000 was installed as lining for the concrete walls and 50mm thick Celotex FF4000 as the underfloor heating system.

Note to presenter: Case studies are available from the website should audience require additional details though would recommend carrying copies of the case studies which can be handed out if required.

Slide 25. Celotex Solutions
We will now take a look at some popular applications. In all instances we will show the improvement in thermal performance required for compliance in Section 6 2010 compared to the previous 2007 edition. Where relevant we have shown how our premium solution of FR5000 or CG5000 can provide either a thickness or U-value improvement.

Note to presenter: All slides show the same 2007 vs. 2010 values along with FR/CG option if relevant. At each slide though begin to discuss the technical details of each application.

Note to presenter. For each application communicate change in U-value and demonstrate thickness to achieve along with benefit of FR/CG if relevant. Throughout discuss merits of Celotex solutions when compared to other insulation types. This should focus on buildability, functionality, space and building economics.

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Slide 26. Concrete Slab Floor
Make reference to following technical details…

- TB4000 as perimeter upstand insulation.
- Location of Celotex products above the damp proof membrane.
- Concrete slab floor covered by BBA certification.
- FF4000 is the recommended product for underfloor heating.

Slide 27. Partial Fill Cavity Wall
Make reference to following technical details…

- Clear cavity must be maintained between insulation and outer leaf.
- 50mm is typically required. Can be reduced to 25mm in some instances.
- Emissivity is a key function of PIR insulation. Celotex CG5000 includes market leading super low emissivity values delivering further thermal improvements.
- Any board used in a full or partial-fill cavity wall must be supported by a 'current' third party approval/certificate.
- CG5000 and CW4000 covered under BBA 94/3080.

Slide 28. Solid Masonry Wall
Make reference to following technical details…

- Multiple installation techniques achieved with one board solution.
- Product incorporates a built in VCL.
- Thinner PL4000 is available to line window and door reveals.
- Dot & Dab only recommended for walls that are free from moisture ingress.

Slide 29. Timber Frame Wall – Between & Over
Make reference to following technical details…

- Ideal construction for dormer cheeks.
- Breather membrane required on outside of timber studs.
- Thin PL4000 over the stud minimises thermal bridging and forms the VCL.
- If only insulating between the stud, a separate VCL is required.
- Compatible with multiple cladding systems (weatherboarding, tile hanging, lead, render).

Slide 30. Steel Stud Frame
Make reference to following technical details…

- Insulation installed to the outside of the steel studs to create a 'warm frame' application.
- Warm frame minimises condensation risk forming on steel frame.
- Super low emissivity benefits of IQ within cavity.
- A 1000 gauge VCL is required usually to inside face of steel frame.
- Typically two players of plasterboard are installed on the inside face.
- No breather membrane required but can be specified if necessary.

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Slide 31. Pitched Roof Between & Under
Make reference to following technical details…

- 25mm airspace is typically required between breathable membrane and insulation.
- PL4000 below rafters minimises thermal bridging and forms the VCL.
- Covered by BBA certificate 95/3197.

Slide 32. Warm Flat Roof Fully Bonded
Make reference to following technical details…

- Warm roof by installing on top of a deck. Either made of timber, concrete or metal.
- Three layer roofing felt is applied directly to board.
- VCL is installed on top of roof deck – below the insulation. Typically a reinforced aluminium or bitumen VCL is used.
- Multiple Celotex flat roofing products available for a range of installations including single ply membrane, mastic asphalt, pour and roll and torch on.

Slide 33. Flat Roof Insulated Deck
Make reference to following technical details…

- TD4000 installed on top of timber joists to create warm roof construction.
- Three in one product providing deck, insulation and VCL.
- Boards fixed to joists with SureTwist composite panel fixings.
- Compatible with single ply membrane or pour and roll.
- Noggins required to support the short edges of the insulation boards.
- Board joints bedded onto mastic to complete the VCL.

Slide 34. Celotex vs. Other Insulation Materials
So, how does the performance of Celotex products compare to other insulation materials commonly used within the building fabric?

Slide 35. Celotex vs. Other Insulation Materials
This graph demonstrates the thickness comparison when benchmarked against the thermal performance of our premium FR5000 solution. As we touched on earlier, not all PIR products are the same or carry the same performance properties. This was mainly the case five years ago but over the last few years; Celotex has continued to lead the way in insulation innovation. This includes not only new products but the improvement in thermal performance of many of our ranges. There are still manufacturers of PIR who through their third party approvals claim lambda value of 0.023 and generic emissivity values in line with industry guidelines. In some cases, this can add 10-15mm of insulation thickness for the application. As you can see, as thermal performance of other insulation materials increases, the thickness of insulation grows to be in some instances twice that of Celotex. It is important to consider that whether these levels of thickness are technically feasible when looking to meet the U-values required for Section 6 compliance.

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Slide 36. Celotex vs. Other Insulation Materials
Looking closer at these U-values, here you can see the thickness of these materials to meet the Section 6 U-values. For example in a floor, it could be that 90mm more insulation is required to meet 0.15 and 75mm more insulation in a cavity wall. Important to consider the impact of these thicknesses both in terms of buildability as well as the cost implications which could include deeper rafters, longer fixings, increased cavity widths etc. Specifying Celotex will assist in keeping a building' footprint to the minimum possible levels whilst achieving high levels of fabric performance.

Slide 37. Importance Of The Fabric
Before we close, I'd like to just spend a couple of minutes considering the cost comparisons when building to a fabric first approach. Throughout the presentation we have made reference to the term fabric first. Earlier on, we showed the difference between maximum and recommended U-values and how that compliance with regulations is made easier by concentrating on the fabric, namely U-values, air-tightness and thermal bridging. The following slide will show is the cost effectiveness of a fabric first approach.

Slide 38. Fabric First
On this slide we have taken three standard house types. For each house type, we have used two different methodologies for passing a SAP. On the left hand side, we have assumed basic fabric performance with U-values of 0.30 for a wall, 0.16 for a roof and 0.25 for a floor. On top of this basic performance is a level of photovoltaic panels, the amount of which varies by house type. For the three bed semi this is 3 panels (3.75m²), the townhouse 4 panels (5m²) and for the four bed detached 7 panels (8.75m²).

On the right hand side, no renewable technology is considered but the fabric U-values have been increased to be in line with the recommended U-values of 0.20 for a wall, 0.13 for a roof and 0.15 for a floor. For all other requirements of SAP e.g. window area and direction, ventilation, thermal mass, lighting etc both examples include the same information.

The costs shown are based on the additional cost to get the fabric to perform to these levels when compared to an assumed cost of fabric performance of zero. This assumed value would not achieve SAP compliance. As you can see the cost of fabric performance is typically £3,000 less per house type when our recommended U-values are designed to and there is no requirement for additional renewable technologies. This cost information is taken from information referenced directly from the Part L 2013 Initial Impact Assessment.

Slide 39. The Future
Ok, so we have spent a lot of time on the current regulations but what about the future? As we know, carbon reduction programmes are now concentrating on the role of existing building stock. 2012 will see the end of CERT and CESP programmes replaced with Green Deal which will offer every household and business within the UK the opportunity to apply energy efficiency measures through up-front financing which is then paid back from the savings on the building's energy bill. Alongside this, the new ECO programme will continue to focus on providing priority groups with measures that allow them to heat their homes more affordably. It is widely accepted that both of these

programmes will focus highly on the role of solid walls be that insulating either internally or externally.

Section 6 2013 is not far away from implementation and as well as the expected improvement in fabric U-values it will be interesting to see whether, like Part L 2013 there will be the introduction of the Fabric Energy Efficiency Standard known as 'FEES'. This is a new requirement that sets an energy performance target in addition to the current CO2 emission target with the SAP calculation. This further promotes a Fabric First approach, as to pass SAP in 2103, there will be a minimum requirement for the fabric that must be achieved, as well as the overall CO2 emissions target. This means that compliance just using renewables with backstop fabric values as we saw in the previous slide will no longer be permitted - the fabric must be addressed.

The topic of Building Information Modelling (BIM) is beginning to gather pace. BIM is a process centred on creating, collating, sharing, managing and using digital data in a collaborative environment across an entire project lifecycle. It involves all stakeholders from product manufacturers to architects, designers, contractors, clients and facility managers. It will become a mandatory programme from 2016 for all government projects above £5m but is already being used within the construction market on high profile projects such as the UK's first nuclear power station at Hinckley as well as the first level two BIM project at Cookham Wood prison in Kent.

As you can see, beyond Section 6, there are lots of programmes in place to continue the planned delivery of zero carbon construction into the UK between 2016 and 2019.

Note to presenter.

- ***Further updates will be provided on Consequential Improvements as developments take place.***
- ***Obtain any potential feedback on BIM opportunities and how this is being adopted by your audience.***

Slide 40. Specification Aids

As we recap, a reminder of the various specification materials that are available to you from Celotex. Our popular Specifier's Guide and Handy Guide provide an instant source of information for all of our products and applications including installation guidelines and U-value examples. The Celotex Technical Centre is also on hand to provide additional assistance be it application and installation guidance, product specification and selection, technical approvals or compliance to any of the carbon reduction programmes. Our products are listed within various specification software programmes and product directories including RIBA NBS Plus, where you can simply select the Celotex solution and include it into your clauses. With its own in-house On Construction Energy Assessors, the Celotex Technical Centre can provide you with all your SAP Calculations and Energy Performance (EPC) Certificates, including a Recommendation Report offering advice and suggestions on how to further improve energy efficiency. Or for a U-value calculation, whenever you need it, why not log on to our website and use our on-line U-value calculation service. This popular programme generates over 250,000 calculations per year and is now available as an on-line mobile APP providing instant access to U-value calculations whenever and wherever you need it.

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Note to presenter: Ask audience which specification aids they use making particular reference and guidance to NBS Plus and the online U-value calculator.

Slide 41. Summary
Over the course of this presentation, we have discussed a number of areas all centred around simplifying compliance to Section 6. Celotex' range offers solutions with thermal performance as low as 0.021W/mK through our best in class FR5000 and CG5000 products. When complying with the requirements of carbon reduction programmes, this helps achieve thinner building solutions and even better U-values. Suitable for new build as well as refurbishment, the premium thermal performance of Celotex PIR helps optimise space; ideal for those projects where the internal footprint of a home or building needs to be maintained. Celotex products are supplied with a host of third party approvals including an A+ rating on selected ranges as well as compliance to ISO 9001 and ISO 14001, assisting with the achievement of credits on carbon reduction programmes such as BREEAM and The Code for Sustainable Homes. As we have covered today, compliance to programmes is simplified when designing and building to a fabric first approach. This involves focusing on U-values, air-tightness and thermal bridging. Our breadth of product offering, industry leading technical support and range of third party approvals make Celotex the insulation specialist and the perfect insulation partner for your next project.

Slide 42. Close
We have covered a wide range of subject areas during this seminar but it can all be summarized within these few words. To simplify compliance to Section 6 regulations, adopt a fabric first approach with solutions which won't breakdown, don't need maintenance and don't need to be replaced.

Slide 43.
Thank you for your time today. I hope you have all found the presentation of use. Are there any questions?

Supplementary Items for presentation and handout
200mm cube + FR, GA, PL, SW samples
Handy Guides
1 x spec binder,
Sustainability brochure
Case studies.