

Accelerating Change in Built Environment Education  
(ACBEE)

Report on Phase 3

September 2006

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## Accelerating Change in Built Environment Education (ACBEE)

### **FOREWORD**

This year we have taken forward the work begun in the first and second phases of the ACBEE programme. We have expanded the number of case studies on which we can base our thinking and conclusions. We have further developed an overall model for industry-academic engagement which establishes a framework for our further work. We have made progress on thinking through what a regional ACBEE programme might look like, and are in the advanced stages of research into these issues in the South East with a view to a conference in November, and we have developed a set of KPIs on which we are in the course of consulting and validating.

I am more and more convinced that this is vitally important work. There is increasing concern not just about skill shortages, but about whether our educational systems are capable of producing the kind of trained and educated people that our modern economy requires. The Latham / Egan agenda of greater partnership and collaboration has still a long way to go and Government is keen to encourage the development of sustainable communities throughout the regions. The 2012 Olympics bring these issues into sharp focus. Yet we are still not producing the kind of multidisciplinary people that these new models call for. Nor are the professional institutions yet doing all they might to facilitate and speed up these changes and at the moment the finance system in Higher Education incentivises student wishes rather than employer need. So a programme like ACBEE is focusing on the right key issues.

The KPI work is particularly important. The key message of Egan was that performance measurement is vital. We have found measurement of engagement quality between industry and academe difficult and intellectually demanding. We have not easily identified the value added role of professional institutions. But I am clear that without progress on this work ACBEE will not have achieved its key objectives.

We are grateful to the Strategic Forum and to CITB-ConstructionSkills for their continued support. In phase 4 of our work we hope to offer a clear proven model of how a good relationship works between industry and academe and how in detail its success and quality can be measured objectively. And through our case studies we will have produced a network of people who have made our ideas work in practice.



*John Hobson, Chairman of ACBEE, former Director of the DTI  
Construction Directorate - September 2006*

# ACBEE

Improving industry performance through industry-education engagement

## Executive overview

The third year of the ACBEE (Accelerating Change in Built Environment Education) programme has been one of progress and further development. The programme aims to foster and develop engagement between industry and higher education and, through this engagement, promote a better quality experience for students and a higher level of skills for industry and practice.

The year has seen the development of a set of Key Performance Indicators for evaluating the performance of engagement. We have also tested the framework developed in phase 2 by applying it to some existing and new case studies to identify high level engagements.

### Phase One – 2003-2004

- **Prospectus** – a detailed statement of ACBEE purpose, nature and overall objectives
- **Workshops** – bringing together industry, institutions and higher education to investigate the issues of measuring performance in industry-university engagement.
- **Debate** – a major debate on the issues facing the industry and its educators. It shaped subsequent workshop content and guided the overall investigation.
- **Case Studies of Excellence** – Twenty three case studies were identified, interviewed and written up.
- **Website** – launched to promote ACBEE and the case studies
- **Phase One Report** – launched by Peter Rogers, chair of the Strategic Forum in June 2004.

### Phase Two – 2004-2005

- **Case Studies of Excellence** - a further 19 case studies have been identified, written up and are available on-line ([www.acbee.org](http://www.acbee.org))
- **ACBEE Conference** – a national industry-education conference held in London, June 2005, to coincide with publication of this report.
- **Methodology for measuring performance** – a ‘Framework of Engagement’ has been developed, tested and implemented, with pilot cases and performance measures.
- **Phase Two report** – on ACBEE’s findings and the application of its engagement framework to the phase one case studies.
- **Regional development** - Exploring the value of regional engagement, building on work undertaken in the South-east region.

### Phase Three – 2005-2006

- **Case Studies of Excellence** - a further 13 case studies have been identified – seven at grade 5 and six at grade 4, these are available on-line ([www.acbee.org](http://www.acbee.org))
- **BEECON Conference** – a national symposium as part of the Built Environment Education Conference to be held in London, September 2006, to coincide with publication of this report.
- **Methodology for measuring performance** – a proposed set of Key Performance Indicators has been developed.
- **Phase 3 report** – on ACBEE's findings and the application of its proposed set of KPIs.
- **Regional development** - Exploring the value of regional engagement, building on work undertaken in the South-east region.

To date ACBEE has identified many different forms of engagement between industry, the professional institutions and academia; it has developed a robust engagement measurement framework; and has proposed a set of KPIs for evaluating the performance of engagement.

The KPIs now need to be tested and that will form the major part of the activities in phase 4 of the project. If successful, there will be a reliable basis on which an organisation can objectively measure the performance of its engagement activity.

*The ACBEE programme is endorsed by the Strategic Forum for Construction and funded by CITB-ConstructionSkills.*

## Accelerating Change in Built Environment Education

### Introduction

ACBEE was established in 2003 to focus on the need for the built environment industry and higher education to attract and appropriately educate sufficient graduates for an ever changing industry working with more demanding clients.

ACBEE aims to encourage industry, higher education institutions (HEIs) and professional bodies to work together to improve dialogue and provide more relevant training and education. This is in response to the culture and process changes facing the industry and its academic colleagues in implementing the ideas put forward by the Latham and Egan reports that propose a more collaborative and integrated industry.

ACBEE promotes the need for courses and teaching programmes to align with current industry themes and demonstrate positive examples of university, industry or institutional partnerships that are measurable in ways that illustrate how they contribute to the advancement of the industry and the society it serves. ACBEE aims to achieve this by:

- Promoting successful case studies that demonstrate engagement between industry and HEIs, aligning to key industry themes<sup>1</sup>.
- Developing methods of measuring the success of these
- Encouraging the development of courses that demonstrate improved industry performance

The ACBEE programme results from the views of many leading educational, industry and institutional observers, whose wider issues and opinions will continue to be taken into account. ACBEE is funded by CITB-ConstructionSkills<sup>2</sup>, and forms part of the Accelerating Change agenda endorsed by the Strategic Forum. CEBE (The Centre for Education in the Built Environment)<sup>3</sup> provides the day-to-day secretariat, research management and administrative support for ACBEE.

ACBEE is guided by a pan-industry steering group that includes representatives from CITB-ConstructionSkills, Construction Industry Council, Constructing Excellence, and CEBE as well as academic and industry specialists, professional institutions and trade associations (ref: Appendix Three).

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<sup>1</sup> Over 50 case studies are now complete and available on-line at [www.acbee.org](http://www.acbee.org)

<sup>2</sup> CITB-ConstructionSkills, CITB (NI) and the Construction Industry Council (CIC) work in partnership as the Sector Skills Council for Construction. CEBE and the Engineering Subject Centre are part of the subject network that is part of the UK-wide Higher Education Academy.

<sup>3</sup> The Centre for Education in the Built Environment is a partnership between Cardiff University and the University of Salford. The ACBEE project is managed by the School of Construction and Property Management at the University of Salford.

## Where are we now?

Changing markets, globalisation, new technologies and new business approaches introduced since Latham and Egan emphasise the need for the construction industry to adapt and change to meet increased client expectations. Importantly, there is a need to improve business processes to support enhanced performance and to improve supply chain working; ultimately delivering greater value to industry participants and stakeholders. The market for construction in the UK is very strong leading to an excess of demand over the supply of new recruits entering the industry.

Meeting this challenge must be of prime concern to those interested in the future success of the industry. This includes education providers who must actively seek to develop links with industry and practice and, through these links, an understanding of the nature and needs of the industry. Only with industry and academia working together in partnership with professional institutions and Government and other agencies will we be able to deliver the workforce required to meet the challenge of these changes<sup>4</sup>. The importance of understanding this issue is even more critical when we consider the likely large increase in vocational education that government policy will generate in the next few years<sup>5</sup>.

### ACBEE Framework – a driver for change

In phase 2, the ACBEE framework and scorecard were developed (see fig 1 and 2)<sup>6</sup>. The purpose of the framework was to establish an objective measure of the nature and type of an engagement between industry/practice and higher education. The principle embodied in the framework is that the higher the level of engagement, the more benefits may accrue to the partners. It is important to establish here that the framework is not intended to measure the quality of the engagement; as all engagements have the potential to be successful or not. However, the high level engagements do have the potential to provide more benefits. Therefore, an organisation that has established a number of successful grade 5 activities will be seen as highly engaged and enjoying the significant benefits that flow from those engagements. The framework should be seen as a driver for more engagement.

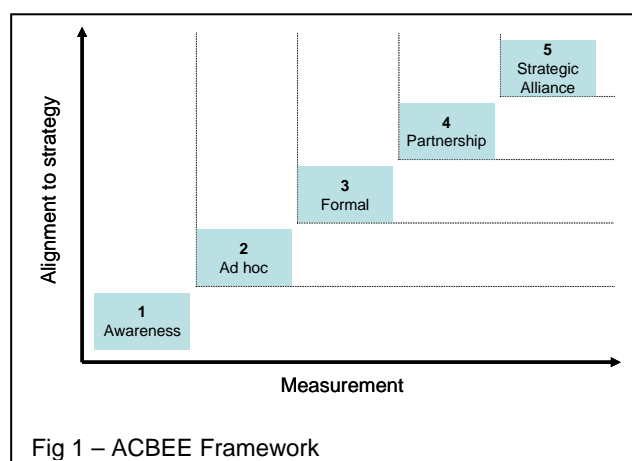


Fig 1 – ACBEE Framework

The issue of quality is important. Partnerships and strategic alliances are fine, but only if they work well. It is clear that we need some way of measuring the

<sup>4</sup> The recent report by Richard Lambert identified explores the importance of such collaborations *Lambert Review of Business – University Collaborations* (2003) HM Treasury, London

<sup>5</sup> A useful source of information in this regard is the HEFCE Strategic Plan 2003-2008 available on-line from [www.hefce.ac.uk](http://www.hefce.ac.uk)

<sup>6</sup> For more details on the Framework, see the Phase 2 report at [www.acbee.org](http://www.acbee.org)

performance of high level engagements and that this mechanism needs to be objective and capable of allowing organisations to benchmark the activity.

At the beginning of phase 3, there were two issues to be addressed:

- Establishing a set of Key Performance Indicators that will allow the performance of an engagement to be measured objectively and will allow organisations to benchmark their activity.
- The development of level 4 and 5 case studies by either developing existing engagements or brokering new ones

Title				
Description				
Grade	Alignment to Strategy	Measurement		
5	Are there explicit strategic business objectives set down in a formal agreement (eg MoU)?		Does the evaluation process include target setting, control, evaluation, feedback and planning components?	
4	Are there explicit and shared business objectives set down in a formal partnership agreement?		Is there a formal mechanism for measuring quality that is informed by input from all partners?	
3	Are there explicit objectives set down in a formal agreement?		Is there a formal mechanism for measuring quality?	
2	Is there a specific operational need identified?		Is there any assessment of the quality of the engagement?	
1	Is there a stated purpose?		Is a record kept?	
<b>Summative grade</b>			<b>Impact measure</b>	

Fig 2 – ACBEE Scorecard

## Consultation Process

Since its inception and throughout the past year the ACBEE process has been inclusive, working with the people who can make a difference to how built environment education is provided and ensure the industry has a readily available and appropriately skilled and knowledgeable workforce. Throughout this process ACBEE has set out to work with and to consult industry as widely as possible. This has been achieved through input to steering committees, feedback on ACBEE consultation documents and concept development.

## Industry

Opportunities have also been taken to present ACBEE to industry audiences, such as:

- Council for Higher Education and Industry, Special Projects Committee – January 2006, London
- Built Environment Education Project (BEEP), Heriot Watt University, Launch event, March 2006, Edinburgh
- Council for Higher Education and Industry, *International Competitiveness* report launch – May 2006, London

By spreading the message in this way we believe that industry can be made aware of the opportunities that can be developed in working with universities.

## Education

ACBEE has been engaging with the academic community, education professionals and funding bodies by submitting their work and ideas for peer review and challenge. As a result a number of conference and workshop papers have been presented including:

- The Built Environment Education Conference (BEECON), September 2005, London
- The Building Education and Research (BEAR) Conference, Apr 2006, Hong Kong
- Associated Schools of Construction, International Conference at the Colorado State University, USA, April 2006

Amongst the many case studies ACBEE has identified, a number have been showcased at industry and academic events around the country, helping to inform as wide an audience as possible about ACBEE and the benefits of engagement. (*Phase 3 case studies: Appendix Two*)

## Regional development

As part of widening awareness of industry-education collaboration, and because of its importance for construction improvement, ACBEE has been examining industry's needs which might be supported by the Regional Development Agencies. Prompted by Government, the RDAs are turning their attention to urban renaissance and development of sustainable communities. This requires the regions to ensure a sufficient supply of appropriate skills and for regional HEIs, FE colleges and industry to align them to help meet this demand.

The South East England Development Agency (SEEDA) is the lead RDA nationally for construction. In 2004, ACBEE formed a South East Group and, working in conjunction with the SEEDA-supported South East Construction Skills Forum the ACBEE South East group is currently examining further the needs of regional industry-education engagement through a structured programme of research across the region. The findings of this investigation will be launched at an event in November 2006.

## International links

In the past year the team also began to internationalise the ACBEE concept by dialogue with change agents around the world who are interested in improving built

environment education. Contacts have been made in Europe, the US, South East Asia and Australia.

## Developing Key Performance Indicators

A key output from ACBEE phase 3 is a proposal for key performance indicators (KPIs). These KPIs have been developed by drawing on the work of ConstructionSkills and interpreting it into a higher education/industry practice application. The proposed KPIs should provide measurable and objective indicators that will allow organisations to benchmark their performance across their sector.

The driving force for the development of the KPIs is the search for value for money and making a positive impact upon the student learning experience, in effect identifying those activities that can be encouraged and resourced in the knowledge that there will be a mutually beneficial impact upon the industry and the HE sector. KPIs can provide the business case justification for taking particular courses of action – in this instance increased engagement between industry and HEIs.

In developing and identifying the KPI groups the initial focus was on developing industry relevant KPIs for engagement activity and producing academic KPIs which supported these through analysing academic benefits of engagement. The starting point in delivering this objective was to consider the sector skills agreement and the three key issues identified by Construction Skills that following work done for the Strategic Forum for Construction were felt to be appropriate areas in which to seek to develop KPIs and identify targets, namely:

- Recruitment and Retention
- A better qualified workforce (upskilling)
- Raising business performance

An example of this approach in practice is shown in Table 1 below; the detailed scheme is provided in Appendix One.

**Table 1: HEI/Industry Engagement Key Performance Indicators**

	Industry / Practice	Universities
<b>Recruitment</b>	<ul style="list-style-type: none"> <li>▪ Average recruitment cost as a percentage of starting salary</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Average UCAS tariff points</b></li> <li>▪ <b>Percentage of course places filled</b></li> </ul>
<b>Retention</b>	<ul style="list-style-type: none"> <li>▪ Turnover of staff as a percentage of all staff</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Student completion rates</b></li> </ul>
<b>Better Qualified Workforce</b>	<ul style="list-style-type: none"> <li>▪ Percentage of staff with:                             <ul style="list-style-type: none"> <li>○ First degree</li> <li>○ Professional qualification</li> <li>○ Post-qualification specialism</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Percentage of faculty:</b> <ul style="list-style-type: none"> <li>○ <b>At professorial level</b></li> <li>○ <b>With professional qualification</b></li> </ul> </li> <li>▪ <b>Percentage of graduates employed within three months</b></li> </ul>

These proposed KPIs now need to be tested and validated in the next phase. Specifically, we recognise that the professional bodies have yet to be given an opportunity to contribute to the KPI development.

## New Case Studies

In Phase 3, a major effort has been made to identify examples of engagement that are operating at grade 4 and 5 of the ACBEE framework. So far, 13 such examples have been identified and written up as case studies. The list below sets out the case studies and brief details can be found in Appendix Two. Full details are available through the ACBEE website.

The 13 Case Studies written up fall into Grade 4 & 5 of the framework as follows:

### **Grade 5**

- *'APEX' Reflective Practice for Housing Practitioners* (UCE Birmingham/Chartered Institute of Housing)
- *Constructionarium* - (Imperial College London/Expedition-Engineering/John Doyle Construction Ltd.)
- *Engineering Doctorate Programme (EngD)* (Loughborough University / Industrial Consortia / EPSRC Centre for Innovative and Collaborative Engineering)
- *Foundation Degree in Building Services Engineering* (Northumbria University/NG Bailey)
- *The Educational Supply Chain - Building Awareness* (Costain Ltd)
- *The European Challenge* – (THE HANZEHOGESCHOOL, Groningen, The Netherlands, Partnership with 8 European Real Estate Schools)
- *The Styles & Wood Academy* – (Manchester Business School/Styles & Wood)

### **Grade 4**

- *BSc Construction Engineering Management* – (Loughborough University/15 large construction organisations)
- *BSc Honours Construction Management* – (University of Salford/12 large construction organisations)
- *Construction Cost Management* - (The University of Reading / Gardiner & Theobald / Davis & Langdon / EC Harris & Partners / RICS)
- *The HNC in Contracting Management* – (The Electrical Contractors Association (ECA) & various FE partners)
- *MSc in the Environmental Design of Buildings* (Atkins/The British University in Dubai)
- *MSc Interdisciplinary Management of Projects (IDMP)* – (The Bartlett, Faculty of the Built Environment and Industrial Consortium)

## Next steps

The development of the KPIs is still at consultation stage. There is a need to modify and validate the proposed KPIs into a proven set of KPIs that can be promoted and used in industry and academia.

Specifically, in phase four, ACBEE plan to:

- Identify, write-up and publish a further 5 case studies based on 'strategic alliances'
- Thoroughly test and prove the set of KPIs with all stakeholders (including professional bodies)
- Organise, manage and present a symposium on industry/education engagement as part of the Annual Built Environment Education Conference in September 2007
- Publish a report of the findings in Phase Three and the application of metrics to case studies

## **Appendix One**

### The proposed Key Performance Indicators (KPIs)

#### **Introduction**

Measuring output in any sphere of public sector activity is a prime concern to governments and policy makers. The government has undertaken numerous studies to identify measures of public sector performance in many different sectors, indeed at the instigation of the current Government, Sir Tony Atkinson, a leading academic statistician, was commissioned by the Office for National Statistics in 2005 to produce new measures of public sector productivity and performance<sup>7</sup>. This included the measurement of general education and the Atkinson proposals guided the undertaking of this current ACBEE project (Phase 3).

Whilst addressing slightly different issues to the current study this concern on behalf of Government and the studies that have been commissioned indicates the relevance of the ACBEE project and to the approach adopted. Specifically, ACBEE was tasked to identify KPIs and measures of success for HEI / Industry engagement in the Built Environment, however as identified in other studies evaluating education activities and HEI / Industry engagement in particular is notoriously difficult and hence a structured and logical approach is essential.

#### **Establishing the KPIs to measure HEI /Industry engagement**

The driving force for this exercise is the search for value for money and making a positive impact upon the student learning experience, in effect identifying those activities that can be encouraged and resourced in the knowledge that there will be a mutually beneficial impact upon the industry and the HE sector. KPIs can provide the business case justification for taking particular courses of action – in this instance increased engagement between industry and HEIs.

#### **What are KPIs?**

*“The purpose of Key performance Indicators (KPIs) is to enable measurement of project and organizational performance throughout the construction industry. This information can then be used for benchmarking purposes, and will be a key component of any organisation’s move towards achieving best practice.”* (From - KPI Report for the Minister for Construction, DETR 2000)

This quote illustrates the role of KPIs and thinking within government about how to go about improving performance in the construction industry that has been prevalent for the last six or seven years and it is appropriate that the same rationale is applied to the evaluation and benchmarking of industry and HEI engagement to improve the education process and output for those entering the industry.

The first issue that was addressed was to set the parameters for the study and a key issue that was deliberated was “what constitutes a KPI in this context of engagement in the built environment?” The subsequent development of the set of KPIs was

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<sup>7</sup> Atkinson Report on measuring government output and productivity (2005)

based upon group consensus that the characteristics of the KPIs we would seek to recommend would be:

- Tangible and a recognizable part of the identified problem and links to business objectives.
- Realistic,
- Objective and can be easily measured,
- Comparable, and,
- Could act a driver for positive change.

In developing the KPIs in this study, priority was given to the attributes in the list above and the relationship of the KPIs to the business objective should be such that, they are perfectly capable of affecting each other in terms of control and effect. There must be fitness for purpose; indicators should inform the decision makers of what they need to know about their collaborations with either HEIs or industry.

### **Which Stakeholders?**

The initial list of possible stakeholders that would have an interest in these KPIs included:

- the industry,
- the universities,
- the student learners,
- the professional bodies, and,
- the industry clients.

From this initial list it was decided to focus primarily upon the first two mentioned – the industry (essentially the organisations) and universities as it was felt that the interests of the other stakeholders should be embodied within these KPIs and so separate KPIs would not be needed. For example, it was felt that the interest of the student learner (who would be concerned with issues such as starting salaries, career progression opportunities and a diversity of opportunities) should be contained within the KPIs that Universities would use to measure their engagement but would not be measured directly. Likewise, the interests of professional bodies and industry clients would be catered for by the industry KPIs for engagement that would ensure an adequate supply of suitably qualified and motivated entrants to the industry who could deliver a higher quality of business performance. Again, this information would not be measured directly but implicitly would be contained within the KPIs and improvement targets that are proposed.

### **The KPI groups**

In developing and identifying the KPI groups the initial focus was on developing industry relevant KPIs for engagement activity and producing academic KPIs which supported these as a result of contextualizing the curricula through engagement. The starting point in delivering this objective was to consider the sector skills agreement and the three key issues identified by Construction Skills following work done for the Strategic Forum for Construction were felt to be appropriate areas in which to seek to develop KPIs and identify targets, namely:

- Recruitment and Retention
- A better qualified workforce (upskilling)

- Raising business performance

This list formed the basis of the KPI groups that were identified, although with some minor modifications. The first amendment was to split recruitment and retention into two separate groups as they were both distinct activities and separate data would need to be collected, which thankfully is generally available or should be collectable. A better qualified workforce was included as a separate group but raising business performance was omitted for four identifiable reasons. The first was that it was felt that improving performance in the three KPI groups identified (recruitment, retention, better qualified workforce) would in itself result in improved business performance as a result of more appropriate content in courses, better knowledge transfer, increased intellectual capacity and general capacity building activities. The second was that raised business performance can be considered as context or organisational specific and is obviously closely linked to a client's requirements and specifics of a particular project or series of projects and this may indicate that this needs to be measured at the individual project or group of project level. This appreciation can be considered more broadly in relation to lifelong learning and the development of learning organisations. This presents an additional dimension of the problem and brings to mind the concept of the knowledge supply chain and the difference between education supply, knowledge supply and the nature of the relationship that exists between the stakeholders and how these are evolving. The third reason was the feeling that data collection here may be difficult (particularly in regard to the "objectivity" criterion) but this was tempered by the fact that the standard Construction KPI and benchmarking programme of activities seek to measure this dimension. The fourth and final reason why raising business performance was rejected as a KPI group was that linking engagement activity directly through to business performance would be an extremely complicated undertaking and is beyond the scope of the current project.

### **HEI/Industry Engagement Key Performance Indicators**

As described above three groups of HEI / Industry Engagement KPIs were identified – recruitment, retention and better qualified workforce with separate indicators in each group for industry and for universities. Two workshops and extensive stakeholder consultation sought to validate this selection and led to the development of this initial set of HEI / Industry Engagement KPIs presented in Table 1 below. The focus of these KPIs is upon Industry / Practice and Universities as the primary participants in the variety of engagement activities that were identified in the 50 case studies collected in ACBEE Phase 1 and Phase 2 (refs).

In relation to the "Recruitment" indicators, industry is concerned with the speed of filling vacant positions, the quality of the person placed into the vacant position and ultimately the overall cost of recruitment. In this instance, the cost of recruitment is a function of the speed and quality of recruitment and so was identified as the headline indicator. For universities a qualitative measure can be simply derived from UCAS tariff points but a convenient quantitative measure is also available in terms of percentage of course places filled.

For industry, "Retention" is primarily about staff turnover which if high can have a severe impact upon business performance and profitability. This raises an

interesting question as to why employees leave organisations but hopefully by engaging more closely with HEIs it is hoped that individuals can be placed better in the first place to avoid the departure due to an inappropriate job offer being made in the first instance. From a Universities perspective retention is all about keeping students and ensuring they progress smoothly to the successful completion of their degrees.

**Table 1: HEI/Industry Engagement Key Performance Indicators**

	Industry / Practice	Universities
<b>Recruitment</b>	<ul style="list-style-type: none"> <li>▪ Average recruitment cost as a percentage of starting salary</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Average UCAS tariff points</b></li> <li>▪ <b>Percentage of course places filled</b></li> </ul>
<b>Retention</b>	<ul style="list-style-type: none"> <li>▪ Turnover of staff as a percentage of all staff</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Student completion rates</b></li> </ul>
<b>Better Qualified Workforce</b>	<ul style="list-style-type: none"> <li>▪ Percentage of staff with:                             <ul style="list-style-type: none"> <li>○ First degree</li> <li>○ Professional qualification</li> <li>○ Post-qualification specialism</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Percentage of faculty:</b> <ul style="list-style-type: none"> <li>○ <b>At professorial level</b></li> <li>○ <b>With professional qualification</b></li> </ul> </li> <li>▪ <b>Percentage of graduates employed within three months</b></li> </ul>

The purpose of the better qualified workforce indicators is to develop comparative benchmarks that will monitor organizational development as closer links to HEIs are established. With a focus upon the achievement of appropriate professional qualifications in industry and HEIs this will tie into the interests of the professional bodies; and, focusing upon lifelong learning in the form of post qualification specialism, will embrace the encouragement for this in practice.

Additional guidance notes for each KPI are provided below with the performance targets in Tables 2-7.

**Performance Targets**

Having established the initial KPIs that indicate the success of the engagement activities, the establishment of targets can then act as a catalyst for measured improvement. The proposition of the ACBEE project team is that performance in each of these key areas would be improved through greater collaboration between industry and academia – in effect by operating at a higher level on the strategic framework for industry / HEI engagement proposed by ACBEE.

So linking the KPIs with this strategic framework – as you move up the framework it is anticipated that there will be performance benefits. These proposed targets generally assume a linear relationship (rather than an exponential relationship) but further research is required which would validate this proposition and assist in

refining the targets that are proposed. These initial targets for each of the proposed KPIs are outlined in the tables 2 -7 below:

**Table 2: Performance targets for Industry / Practice Recruitment**

Headline Indicator	Strategic level of Engagement	Performance target / Impact of engagement
Average recruitment cost as a percentage of starting salary	5	Reduced by 50%
	4	Reduced by 35%
	3	Reduced by 20%
	2	Reduced by 5%
	1	Increased by 10%

This KPI would relate to designated positions / staff and would include fees paid out to recruitment consultants and the use of agency staff whilst positions are un-filled. (How would HR department costs be allocated?)

**Table 3: Performance targets for University Recruitment**

Headline Indicator	Strategic level of Engagement	Performance target / Impact of engagement
Average UCAS tariff points	5	Improve by 20%
	4	Improve by 10%
	3	No impact
	2	No impact
	1	No impact
Percentage of course places filled	5	Improve by 20%
	4	Improve by 10%
	3	No impact
	2	No impact
	1	No impact

**Table 4: Performance targets for Industry / Practice Retention**

Headline Indicator	Strategic level of Engagement	Performance target / Impact of engagement
Turnover of staff as a percentage of all staff	5	Reduced by 10%
	4	Reduced by 5%
	3	No impact
	2	No impact
	1	No impact

The reasoning behind these figures is that staff turnover is reduced as a result of high level engagement with HEIs by more appropriate recruitment that sees the employment of better suited employees and which results in greater loyalty, greater job satisfaction and hence a less stressful working environment.

**Table 5: Performance targets for Universities Retention**

Headline Indicator	Strategic level of Engagement	Performance target / Impact of engagement	
		First Degree	Professional Qualification
Student completion rates (number of students going straight through to graduation)	5	50% reduction in non completion	50% reduction in non completion
	4	40% reduction in non completion	40% reduction in non completion
	3	30% reduction in non completion	30% reduction in non completion
	2	20% reduction in non completion	20% reduction in non completion
	1	10% reduction in non completion	10% reduction in non completion

The reasoning behind these figures is that students will be more motivated and better equipped to complete their degrees as throughout the course they will be experiencing teaching activities that are both more 'relevant' and more 'real world' due to industry engagement in the process; and, as a result this will impact upon their contextual appreciation of the subject and understanding of the industry they plan to join.

The reason why the KPI was for students who go straight through rather than who need to re-sit all or parts of the degree is because this indicates a higher level of performance and hence greater efficiency and in addition to this the data is also easier to collect.

**Table 6: Performance targets for Better Qualified workforce in Industry / Practice**

Headline Indicator	Strategic level of Engagement	Performance target / Impact of engagement		
		First Degree	Professional Qualification	Post- Qualification Specialism
Percentage of staff with specific qualifications	5	10% increase	10% increase	10% increase
	4	5% increase	5% increase	5% increase
	3	No impact	No impact	No impact
	2	No impact	No impact	No impact
	1	No impact	No impact	No impact

The data which would be collected to compile figures for this KPI would be based upon per annum changes taken from a particular pre-determined state date.

**Table 7: Performance targets for Better Qualified workforce in Universities**

Headline Indicator	Strategic level of Engagement	Performance target / Impact of engagement	
		At professorial level	With professional qualification
Percentage of faculty with designated characteristics	5	10% increase	10% increase
	4	5% increase	5% increase
	3	No impact	No impact
	2	No impact	No impact
	1	No impact	No impact

This KPI seeks to measure both internal measures of esteem for individuals within the faculty and also professional relevance.

**Table 8: Performance targets for Better Qualified graduates**

Headline Indicator	Strategic level of Engagement	Performance target / Impact of engagement	
		Achieving 1 <sup>st</sup> or 2.1	Employed within 3 months
Percentage of graduates with designated characteristics	5	10% increase	50% increase
	4	5% increase	40% increase
	3	No impact	30% increase
	2	No impact	20% increase
	1	No impact	10% increase

## Appendix Two

### ACBEE PHASE THREE CASE STUDIES

#### **Higher National Certificate (HNC) in Contracting Management [Grade 4]**

Electrical Contractors Association & Various FE Partners (Napier University, Lauder College, Eastleigh College, Loughborough College, Bromley College)

A course designed to give management skills and knowledge to contract managers, project engineers and those in associated roles who are technically competent but have had no management training. It enables candidates to widen their development as managers. This provides them with the knowledge, concepts, techniques and skills to effectively fulfil their managerial responsibilities. The HNC was given 2 awards from C.I.B.S.E. in the 2003 Building Services Awards.

#### **BSc Honours Construction Management [Grade 4]**

University of Salford & Industrial Consortium

A fully sponsored programme that has been in operation for over 15 years designed to produce high calibre graduates. It has an established consortium of industry supporters who sponsor students and provide input into curriculum design to meet their business needs. The programme has evolved, with guidance from the industrial partners, to develop good quality graduates with industry based work skills in order that they are 'work ready'. This has been achieved through blending the industrial experience with the university experience.

#### **BSc Construction Engineering Management [Grade 4]**

University of Loughborough & Industrial Consortium

A partnership between Loughborough University and fifteen large construction organisations to promote, organise and deliver a Bachelor of Science Honours Degree in Construction Engineering Management (CEM). The course originated as an initiative by the ten companies who adopted the title of 'The Loughborough Construction Consortium' ('The Consortium'). They wished to enter into a partnership with an academic institution to design and run a new honours-level degree course in building management, which would provide a sound educational foundation for future senior managers of their projects and companies.

#### **MSc Interdisciplinary Management of Projects (IDMP) [Grade 4]**

The Bartlett (Faculty of the Built Environment) & Industrial Consortium

This 'executive' two year part-time course at UCL has been collaboratively designed specifically for the industry's leaders of tomorrow. This premier postgraduate education programme takes forward the new post-Egan, Strategic Forum-led agendas and draws on significant contributions from leading UK organisations within and beyond construction. It follows the style of teaching and participation found in the best business schools. This allows students to be exposed to innovative thinkers and entrepreneurs in academia, industry and government.

### **The Educational Supply Chain – Building Awareness [Grade 5]**

Costain Ltd

The Building Awareness initiative is addressing the problem of a skills shortage within the construction industry by establishing an educational supply chain. This programme aims to raise young people's awareness of the Construction Industry through direct involvement and partnership with a number of schools and colleges across the UK. Building Awareness is linked to the Costain Business Strategy. It brings together all industry stakeholders – professional institutions, schools, training boards, the business supply chain, and Costain's own staff – with a common purpose.

### **The European Challenge [Grade 5]**

The Hanzehoghschool, Groningen (Netherlands)

A highly collaborative project which links Professional Institutions; tutors, students and commercial firms with eight European real estate schools. The multinational corporate real estate simulation is based on the relocation of a US based corporation to a new Headquarters building in Europe. This raises students' awareness of the importance of location, property design, space budgeting and planning, layout and specification and its interaction with and impact upon a clients business. There is innovative use of the Blackboard Virtual Learning Environment as a communications tool.

### **'Constructionarium' [Grade 5]**

Imperial College London/Expedition Engineering/John Doyle Construction Ltd.

A course designed to generate an atmosphere that is as close as possible to the experience of constructing a real engineering project. Over a week students act as main contractors building a consultant engineer's design and negotiating with the client's representative over budget, methods, quality and time using their own initiative and engineering tools they have learned during the first three years of the MEng course. It is carried out on a purpose-designed 2Ha construction site which is the ultimate classroom.

### **Centre for Innovative Construction Engineering (CICE) [Grade 5]**

Loughborough University/Industrial Sponsors/EPSRC

CICE was established to advance engineering industry research and innovation training providing its participants with a vocationally oriented 'Doctorate of Engineering' (EngD). During this 4-year multi-discipline course participants are each sponsored and funded by a construction industry company with whom they work to help deliver new ways of working, new applications and marketable ideas. A large proportion (typically 70-80%) of time is spent at the premises of the collaborating company, depending on the nature of the project.

### **The Styles & Wood Academy [Grade 5]**

Styles & Wood/Manchester Business School (MBS)

The Styles & Wood Academy is open to all staff, key suppliers and business partners. It is designed to raise standards of professionalism and service across all areas of the business. This corporate university initiative provides management and business skills training for construction professionals and includes modules that emphasise interdisciplinary teamwork, goal setting and management in a customer-oriented service-led culture. Each of the modules includes a day spent at one of the

Inside UK enterprise (IUKE) host companies as a practical demonstration of best practice in key areas.

**‘APEX’ Reflective Practice for Housing Practitioners [Grade 5]**

University of Central England/Chartered Institute of Housing (CIH)

APEX is the practical experience requirement for those who wish to be professionally qualified members of the Chartered Institute of Housing. It complements the academic professional qualification at undergraduate and postgraduate levels. Students at UCE Birmingham can undertake and be assessed in APEX, either studying it as a short course or as a 24 credit module at Level 6 (*equivalent to the final year of a full time undergraduate degree programme*) if they are completing their studies for the BA Hons Professional Housing Studies.

**Construction Cost Management [Grade 4]**

University of Reading/Industrial Sponsors (*Gardiner & Theobald/Davis & Langdon/EC Harris & Partners/RICS*)

A postgraduate fast track route to professional qualification and senior management practice in construction cost management. It integrates education in academic theories with professional vocational training in the practice of construction cost management. This innovative programme has been developed in consultation between the University, three industrial partners and the professional body (RICS). It is designed to provide a route for entry, education, professional training and qualification in construction cost management practice for high quality graduates from various disciplines.

**Foundation Degree in Building Services [Grade 5]**

Northumbria University/NG Bailey

The Foundation Degree in Building Services provides a 3 year programme of study for employees of NG Bailey who have suitable entry qualifications. NG Bailey has been closely involved in the course design, which is a distinctive feature of Foundation Degrees. Thus, a coherent programme is provided consisting of specialist education and development of personal and professional competencies with knowledge of current commercial practice. The academic benefits accrue from the close working with a major employer in the building services industry.

**MSc in the Environmental Design of Buildings [Grade 4]**

Atkins/The British University in Dubai (BUiD)

Atkins decided to fund a professorship and Research associateship and 12 half-fee scholarships at The British University in Dubai (BUiD) in support of the Gulf's first postgraduate research-based University and its Institute of the Built Environment. BUiD collaborated with the University of Cardiff and achieved UAE Ministry of Education Accreditation for the MSc in the Environmental Design of Buildings programme. This follows the UAE decision to sign up to the Kyoto protocol and the need to demonstrate efforts towards realising its intentions.

Full details of these cases are available on line at [www.acbee.org](http://www.acbee.org)

## Appendix Three

# ACBEE STEERING GROUP MEMBERS

### Chairman

- John Hobson, former Director of the DTI Construction Directorate

### HEI representation

- Prof Mel Lees, University of Salford, Deputy Director, [CEBE](#) (Centre for Education in the Built Environment)
- Prof. George Henderson, Senior Academic Advisor, [CEBE](#)
- Carol Arlett, Loughborough University - [Engineering Subject Centre](#)

### Industry

- Sheila Hoile, Director of Training Strategy, [CITB-ConstructionSkills](#)
- Stef Stefanou, Chairman, [John Doyle plc](#)
- Sue Hobbs, [Constructing Excellence in the Built Environment](#)
- Oliver Whitehead, Chief Executive, [Alfred McAlpine plc](#)

### Professional and trade bodies

- Mike Ankers, Chief Executive, [Construction Products Association](#)
- Paul Hyett, Chairman of [RyderHKS](#) and past President, [RIBA](#)
- Graham Watts, Chief Executive, [Construction Industry Council](#)

### Organisation, administration and research

- [Ian Cooper](#), Eclipse Research Consultants - adviser
- [Pam Lowe](#), ACBEE Administrator, c/o CEBE, University of Salford
- [Aled Williams](#), ACBEE Project Manager, Academic Co-ordinator, [CEBE](#)
- [Dr Stephen Allen](#), ACBEE Research Fellow, Heriot Watt University
- [Dr Jason Underwood](#), ACBEE Research Fellow, University of Salford

The work undertaken in the ACBEE project is supporting the aims and objectives of the Strategic Forum for Construction and the main sponsor is CITB-ConstructionSkills with CEBE at the University of Salford providing the project team.

**ACBEE - Accelerating Change in  
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Sept 2006