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# DIVERSITY IN CONSTRUCTION

A partnership project to  
address gender segregation  
in the construction industry.



## Diversity in Construction

Equate Scotland is Scotland's expert in gender equality in science, engineering and technology (SET). We work in partnership with Skills Development Scotland, CITB, construction employers and trainers to take action to increase opportunities for women in construction, and support employers in the recruitment and retention of a more diverse workforce.

The "Diversity in Construction" project builds the business case for a more diverse workforce, based on research carried out by the Employment Research Institute at Edinburgh Napier University, informed by the experience of Equate Scotland in supporting employers and women employees in the construction sector.

The Employment Research Institute (ERI) is a team of academic researchers based in the Business School at Edinburgh Napier University which conducts research policy evaluation and evidence gathering to inform local and national policy making.

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Construction firms with sites across Scotland and with a range of sizes contributed to the research. Our thanks go to the following companies which participated in the survey:

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## Introduction

“Diversity in Construction” is a project undertaken by Equate Scotland, in partnership with Skills Development Scotland, to address the issue of gender segregation in the construction industry. As many previous reports have shown (see Sharapov and Tizard, 2011; Munn, 2014), despite a wide range of projects, networks and initiatives focused on gender segregation in the sector since the 1980s, there has only been a small increase in women in professional roles, and the impact on the number of women in the construction trades has been negligible. Less than 2% of construction trade workers are women, and approximately 10% of professionals, so there is potential for a substantial increase in female participation in the sector. This would help to address the impending skills shortage, increase the talent pool for the industry, and encourage career entrants to perceive the sector as an attractive career option.

The first part of this report is a literature review of major labour market issues within the UK construction sector, with a focus on gender equality. It reviews recent material on the construction labour market to identify how a more diverse workforce would respond to the business needs of the industry, as well as address equality issues, in this highly segregated sector.

The second part introduces new evidence on attitudes in the industry gathered from research undertaken with construction companies as part of the ‘Diversity in Construction’ project. It describes the research methodology and analyses the results from the research.

# PART 1

## LITERATURE REVIEW

This literature review identifies and summarises existing research and reports looking at:

- The economic outlook for the industry
- Demographics of the labour market
- Changing skills sets needed in the industry
- Barriers which impact on women's entry to the construction industry
- Other equality strands and the construction industry



**Although the UK construction sector was severely affected by the 2008-09 recession<sup>1</sup>, in 2015 the UK economy appears to be moving towards stronger growth.**

### 1. BACKGROUND

Looking ahead, output in the construction sector is expected to grow strongly, driven by investment in the private housing sector with output forecast to have grown 4.7% in 2014 with a further 4.8% in 2015. Growth is also forecast in each year up to 2018 (CPA, 2014).

However, as the sector grows there may not be enough skilled people to meet demand, constraining growth rates:

To ensure that construction growth over the five-year period is achievable, investment in labour/skills... will be necessary. Otherwise, capacity constraints could be an issue. (CPA, 2014)

Despite widespread awareness of skills shortages in the construction sector, the effects of not having a diverse workforce are not fully understood within the sector. A survey reported in Construction News (7/01/15) claimed that:

Half of leaders at the UK's biggest contractors have said they employ sufficient numbers of women and people from ethnically diverse backgrounds.

Despite this, nine out of ten respondents also reported that a lack of skills or staff was among their greatest concerns over the next 12 months. This suggests that there is little understanding of how a diverse workforce could help to meet the skills needs of the sector.

<sup>1</sup> Output fell by 16.8%, more than double the economy wide average of 7.2% (ONS, 2014)

## 2. SKILLS SHORTAGES

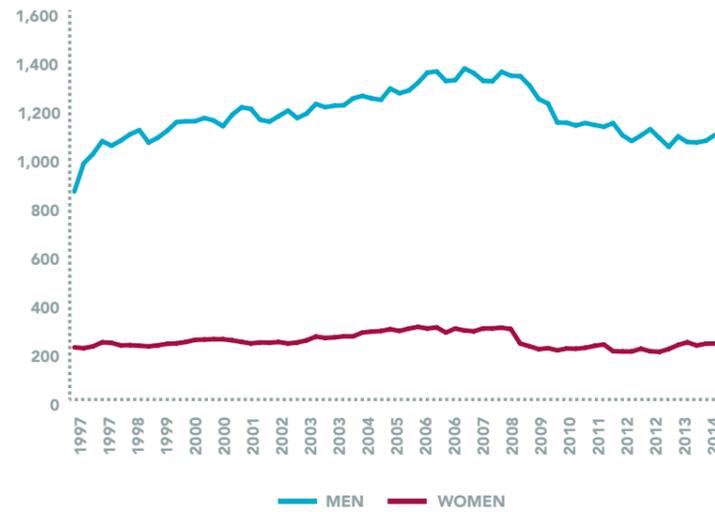
As the construction sector has started to recover from recession, the number of reported vacancies for construction jobs has also increased. In the period May to July 2013, there were a reported 14,000 job vacancies in the construction industry. One year later in 2014, that figure has increased to 21,000 vacancies, a 44% increase on the previous year (ONS 2014).

The Royal Institution of Chartered Surveyors has seen a strengthening of demand for construction but a continuing shortfall in the number of skilled workers able to meet that demand. Although demand for construction work rose in the final quarter of 2014, 49% of members surveyed reported that skills shortages were impeding further sector growth, while the proportion of respondents reporting labour shortages across all of the main trades climbed to 53% (RICS 2015).

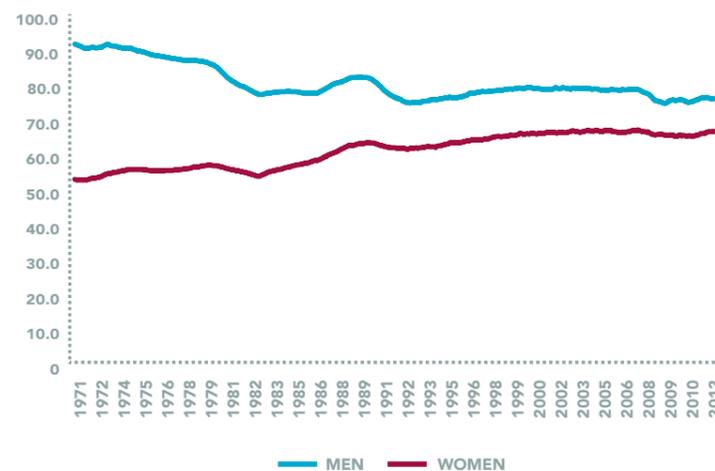
Despite this increase in the rate of skills shortages, the proportion of women working in the UK construction sector has remained relatively unchanged since the mid-1990s (see figure 1). These figures are counter to the general trend for increasing rates of female employment across the labour market (see figure 2).

The issue of skills shortages within the construction sector is evident from both supply and demand side perspectives. From the supply side, university enrolments on built environment courses have fallen. The problems and risks from falling numbers of professionals training for the construction sector were identified more than a decade ago.

Significant shortages of supervisors and managers are anticipated and the industry remains grossly under-qualified. Long-term recruitment into industry from higher education needs to address issues of professional development for graduates into management roles, a matter for the professional bodies jointly with the CITB and other training bodies to conclude as a matter of urgency. (Egan Report, 2002)



**Figure 1:** Gender of construction workers (thousands), 1997 – 2014. Source: ONS Labour Force Survey, 2014.



**Figure 2:** Employment rates for men and women aged 16-64, 1971 to 2013, UK. Source: ONS, Women in the labour market, September 2013

This followed up the first Egan Report (1998), which highlighted training cuts as a long-term systemic weakness within the sector. The report described how:

Too few people are being trained to replace the ageing skilled workforce, and too few are acquiring the technical and managerial skills required to get full value from new techniques and technologies. (Egan Report, 1998)

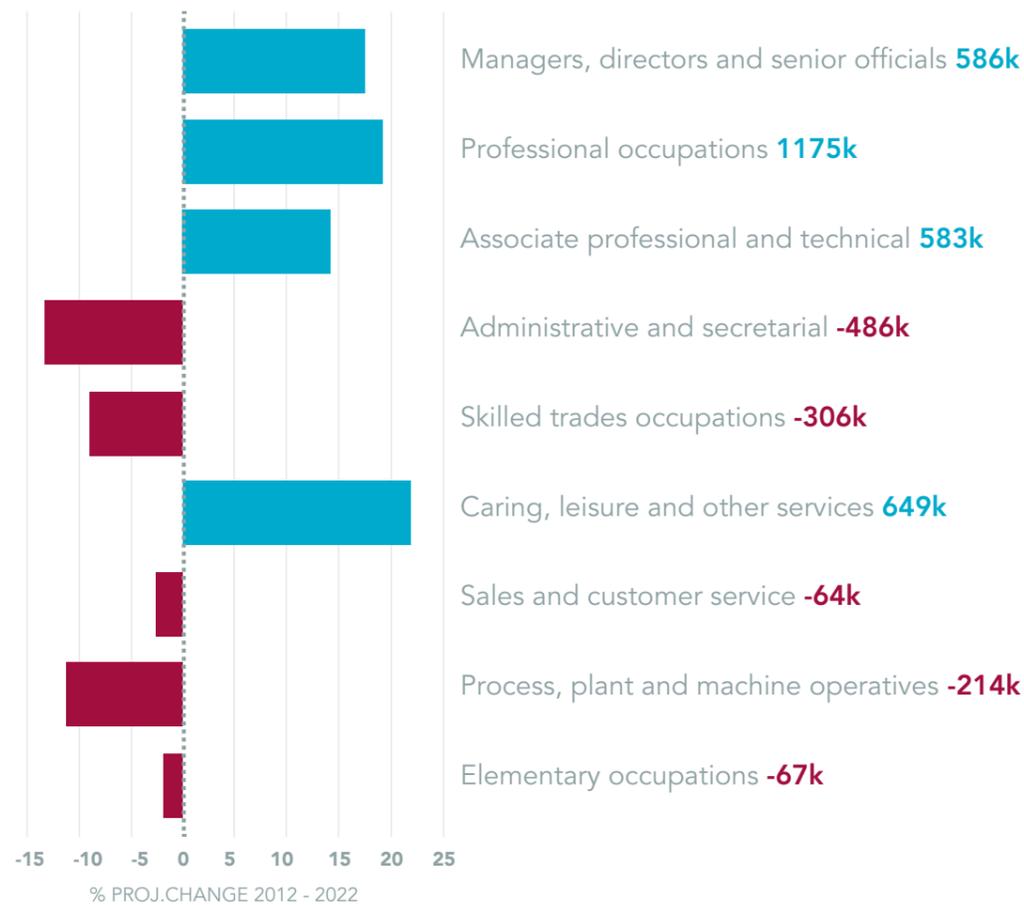


The issue of declining numbers of students in courses that supply the construction industry with professionals will have long-term consequences for the capacity of the industry to meet skills demands of the sector. Continuing to rely on a recruitment base that is predominantly young, white and male will increasingly cause problems for the construction industry because:

- the industry misses out on the majority of the population, thereby limiting the choice of applicants available to it. This may lead to both skills shortages and to a lower overall quality of employee being recruited;
- the industry's workforce does not reflect the majority of the population who use the built environment and hence is unlikely to satisfy client needs;
- the industry misses out on the acknowledged benefits of diverse workforces and teams such as more innovative problem solving, improved productivity and more motivated employees (Agapiou, 2002).

The second Egan report (2002) has a limited mention of the potential contribution of women and other equalities groups to addressing skills shortages and problems of recruitment within the sector.

The industry needs to widen its recruitment and attract more women and more people from minority groups, which are currently very under-represented. As well as the actions endorsed under Respect of People there is a need to improve opportunities for adult learning. Women and ethnic minorities often find it more attractive to join the industry at a slightly older age. Funding for adult training and work experience needs to provide adequate support for achieving the necessary vocational qualifications. (Egan Report, 2002)



The relative lack of change in the number of women employed within the UK construction sector contrasts with the increasing number of women across the UK labour market. Figure 2 shows how employment rates for women have increased steadily since the 1970s to a point where in 2013, almost 67% of women were in employment, highlighting the lack of change in the proportion of female employees within the construction sector.

The problem of equality within the construction sector is not simply about the number of women working in the sector but also the gender pay gap. This has decreased across the UK economy from 17.4% in 1997 to 10% (ONS, 2013). However at 27% in construction the difference in earnings between men and women<sup>2</sup> is considerably more than the national occupational average.

In addition to the problem of gendered wage differentials, the occupational strata occupied by those working in the construction industry is being squeezed by changes to the nature of work as competition from other sectors, globalisation and technology are felt. Figure 3 shows how the skilled trade occupations are projected to contract in the period 2012 – 2022, creating an 'hourglass' economy whereby 'traditional job roles... fall into decline' (UKCES, 2014).

The combined effects of stagnant female rates of entry to the construction sector, a persistent and deep gender pay gap and the potential for long-term contraction of occupations within the sector suggest that there are a number of major barriers to greater equality and diversity within the construction sector that must be addressed.

**Figure 3:**  
The hourglass labour market:  
occupational projections,  
2012-2022.

Source: UKCES (2014)

### 3. WORKPLACE ATTITUDES

In addition to these quantitative indicators of change within the construction sector, it is also necessary to look at indicators of social and attitudinal change within the sector, situating these attitudes within the broader context of skills shortages and demographic change.

Several academic papers have studied attitudes in the construction sector to the role of female workers. In a paper based on the views of construction workers in the Tayside Region of Scotland, the perceptions of male employers, operatives and apprentices were analysed (Agapiou, 2002). The findings suggested some differences in attitudes to women in the workplace from each of these occupational categories. Employers did not overtly resist the presence of women in the workplace:

Few male employers were openly hostile to the notion of women becoming involved in a male working environment. Instead, they repeat the politically correct line and resort to the issues of strength and ability to use tools as reasons why some trade areas, in particularly carpentry and bricklaying are unsuitable for women. (Agapiou, 2002: 701)

The article presents the views of a small number of construction workers that range from supportive and accepting of a gender diverse workplace to those that were resistant to the presence of women on a building site. Resistance stemmed from the view that women would not be able to do the physical work required on a building site and that the employment of women in a predominantly male workplace would lead to problems around sexual harassment and discrimination. These concerns were cited by some male employees as reasons why women should not seek work in the construction sector:

On numerous occasions it was said that women are likely to find it difficult doing some of the lifting required of the structural aspects of domestic building work... comments such as 'women don't have the innate ability to use the tools', 'they don't have that natural understanding of building as the men do' and 'women aren't designed to lift heavy material' indicate a persistent belief in some men who are or have been skilled craftsmen. (Agapiou, 2002: 702)

These views seem to express a belief in a supposed natural order of gendered roles whereby women are seen not to possess certain innate skills that are required on the building site. The author of the paper describes how the previous experience of construction managers when recruiting women may have led to the formation of these views:

Employers who had given a woman a chance may have experienced that the person was unable to do her share of heavy lifting and, therefore, remain convinced that women should only consider the non-structural aspects of the construction industry. (Agapiou, 2010: 702)

<sup>2</sup> In 2012, men with skilled trades jobs earned £476.6 per week while women earned £346.4



based partly on the so-called “unique aptitudes” of women (which by inference also states that certain tasks are beyond their capability) but also on the notion that women must be protected from male behaviour. There was some evidence that men sought to tone down their behaviour and language in the presence of women on the building site in order to protect women from some of the more direct criticism that men are expected to deal with:

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It seems that within the male culture, men are expected to be able to handle direct criticism – ‘straight talking’ – and that men can handle being yelled at, where women ‘cannot.’ (Agapiou, 2002: 702)

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Another study that investigated the role of female architects in the construction sector continues this narrative of otherness and difference for women in the industry and pays particular attention to the perceived toughness of the building site. Fowler and Wilson (2004) highlight the portrayal by interviewees of innate differences between men and women and how this can come to affect the role of women within the construction and building design sector. They quote an interview with a female architect who attributes a practical knowledge on the use of tools to men but not women:

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Architecture in real life has more to do with those very modest occupations, the trades, and maybe in this, most women are at a disadvantage compared with men. Most men have more practical knowledge about the use of tools. In our period, women have lost skills, such as dressmaking, which once taught you about materials and assembly. (Fowler & Wilson, 2004)

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The idea that female characteristics made them unsuitable for certain roles on a building site also had a reverse side that saw some men describe female abilities as being well suited to other tasks in construction such as the fitting and finishing tasks:

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Trades such as painting, plastering, tiling, joinery and electrical fitting were those most likely to be mentioned as ‘particularly appropriate’ for women. These occupations do not require the same degree of strength as is required for the structural work. They require ‘the aptitudes of attention to detail, a sense of colour and design and sense of finesse’. Apparently, women are more likely to possess such aptitudes. (Agapiou, 2002: 702)

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Despite the willingness of some male interviewees to consider women as suitable for certain roles on the building site, it was clear that there were entrenched views on what roles were suitable for women to undertake in the sector. These views were

There is widespread agreement by architects that site visits represented a particularly challenging and intimidating aspect of the job for female employees, representing the sharp end of masculinity in the profession:

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Many acknowledged that there was a masculine culture in the profession ‘when it comes to dealing with men on site’, or as one put it: ‘the building industry is in the “Dark Ages”’. ‘[S]ite visits [among so many builders, joiners and bricklayers] are very difficult for women’, remarked another, ‘they are supposed to know better than anyone else...it must be a bit intimidating or very intimidating for them.’ (Fowler & Wilson, 2004: 113)

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Whilst building sites represent a challenging environment for some female architects due to the highly gendered nature of the work, the authors also highlight the effects of harsh economic conditions and the strong competitiveness that encourages individuals to fight for new contracts and work long hours. The long hours culture was seen to be particularly detrimental for female architects with children where ‘room for tolerance and nurture of those with young children becomes reduced’ (Fowler & Wilson: 2004: 116). Whilst there may have been some attitudinal change among younger males in the workforce on how parenting roles should be managed within the family, women still shoulder the majority of the childcare. This has meant that in the labour force, ‘parenthood generally has a positive influence on men’s careers and a negative one on women’s.’ (Schroeder et al, 2008)

The role of women in engineering, a sector allied with the construction industry, is relevant to the study of changing workplace attitudes towards the role of women in the construction sector. This male dominated culture and

profession challenges women to conform to a masculine culture of the workplace (McIlwee & Robinson, 1992). Entering a male dominated profession where men shaped the cultural and social expectations of the profession, led women to feel that they needed to explain their presence in the sector because they continued to be seen as unusual or exceptional. This led some women who took part in Faulkner’s (2009) study of female engineers to justify or explain their decision to become an engineer. It was notable that none of the male engineers interviewed felt any such need to explain their role:

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Like not having children, choosing to be an engineer demands an explanation if you are a woman. The reactions of outsiders are a constant reminder that being a woman engineer marks them out as unusual; it begs a remark. And indeed, many relish being unusual, even rebellious; they are the sort to seek out a challenge. By contrast, the men who opt to be engineers are not exceptional, as men. (Faulkner, 2009: 173)

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A similar pattern in construction means women have to conform to a workplace culture shaped by the dominant masculine ideology, revealing how the women carry high social and individual costs in order to be seen to meet male notions of long-hours and self-sufficiency:

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Site managers (i.e. project managers) in the construction industry reproduce masculine ideologies by enacting a specific site manager’s role relying on self-sufficient or paternalist leadership practices and a commitment to work, in many cases leading to substantial overtime. (Styhre, A, 2011: 944)

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#### 4. RECENT CHANGE

The issue of skills gaps in the UK construction sector has gained increasing prominence across the UK media throughout 2014, moving from being a central theme of the industry press such as Construction News and Building to mainstream UK newspapers such as the Guardian and the Times.

The Guardian (22/9/14) reported on the 'Skills Timebomb' that is causing a shortage of skilled trades people, allowing subcontractors to 'ramp up their hourly rates'. A further article presents a pessimistic picture of the construction sector:

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The construction sector, for example, lost almost 400,000 workers during the recession and another 400,000 are due to retire over the next five years, according to the Construction Industry Training Board. Even before taking into account the government's latest plans, the industry is struggling to keep up with, or capitalise on, resurgent demand. Building companies repeatedly bemoan a shortage of skilled workers, particularly bricklayers. (The Guardian 7/12/14)

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The article argues that industry must find ways to plug the skills gaps, meaning:

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More apprenticeships and more work with schools to make careers in areas like construction and engineering more attractive. But just as importantly, employers must

provide lifelong training opportunities to keep more people in fairly paid, productive work. (The Guardian 7/12/14)

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The effects of the ongoing skills gaps in the construction sector were also reported by the BBC (9/12/14) under the headline, 'Foreign Bricklayers on £1000-a-week amid skill gap'. A recruitment company was told that bricklayers' pay had doubled as a result of skills shortages and the strongest levels of growth since 2007, with one in three construction firms in London experiencing skills shortages, causing firms not to bid for work. This suggests that skills shortages in the sector are causing stagnation in growth as firms struggle to find workers. However, and this is a common feature on current articles on the skills gap, there is no suggestion on how the issue can be addressed.

This skills crisis is supported by ONS (2014) data showing the number of bricklayers claiming Jobseekers Allowance had dropped to its lowest level in a decade to 1,775 in August 2014. Construction wages also increased by 4% in the previous year. The Guardian (22/9/14) argues that this increase in demand exposes systemic issues in the sector; a key weakness is the lack of training. The article argues that schools should take a stronger lead in letting young people know the opportunities that exist in skilled jobs. Vocational training for jobs that supply the construction sector should receive the same level of attention and respect that has been shown to the pursuit of university degrees. A spokesman for City & Guilds described how some of the shortages of young people in the sector can be attributed to patchy careers advice in schools:

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It's true that lots of people are pointed down the academic route when that is not necessarily appropriate," he says, noting that many people start apprenticeships in construction several years after school. "They need to be advised or guided to these areas earlier, like at 14 or 16.

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The Daily Telegraph (1/7/14) takes this up and in an article (7/11/14) entitled 'Inaccurate perceptions hold women back from STEM' focuses on the question of why more women are not seeking careers in the construction sector. The article notes that the UK engineering and construction sector expects to see a shortfall of more than a 100,000 workers by 2050 and states that:

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Businesses in the STEM sector are faced with two main options to combat skills shortages – increasing wages for roles or 'buying in' from overseas.

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Both options can cause problems for companies whereas the problem of skills shortages could be addressed by increasing the proportion of women in the STEM sector from current levels of 13% to 46%.

Barriers to increasing the number of women in the sector include the stereotype that women lack interest in technology and maths, despite girls performing similarly to boys in STEM related subjects when provided with the right tools and role models. The problem is related to the lack of knowledge about STEM careers for girls at school age level:

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Teachers sometimes struggle to make the connection between the practical aptitudes and interests of girls and a future career.

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The article advocates improved links between education and business and the involvement of the Government Equalities Office with the implementation of pilot schemes.



The Times newspaper has also recently highlighted the effects of skills shortages on wages and labour shortages stating that slightly more than 400,000 construction workers are due to retire in the next five to ten years. When combined with skills shortages, these factors are pushing up labour costs:

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The Federation of Master Builders warned that more than a third of small and medium-sized construction firms were struggling to recruit the bricklayers they needed to stay on top of their workloads.

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## 5. EVIDENCE FROM EQUALITIES GROUPS

Programmes to address gender segregation in the construction industry have developed since the 1980s (albeit in a piecemeal fashion), with a range of projects networks and initiatives (see Appendix 2). In comparison, relatively few initiatives have been available to people from other equality strands, and until the EHRC Race Discrimination (2009) and Equality and Diversity (2011) reports, there seems to have been little awareness of the need for a more inclusive approach from the industry. However, the Constructing Equality/CITB “Be Fair” programme offers a basis from which the industry can develop fairness and inclusion practices which should benefit all equality strands.

### Disability

Although a significant number of construction workers experience work-related disability, there is very little evidence of systematic monitoring or programmes to support disabled workers in the industry. Some of the issues were addressed by the Olympic Delivery Authority (ODA) in the construction work for the 2012 Olympics (EHRC, 2011), but

despite awareness raising, there remains a suspicion that unseen disability (eg dyslexia) is under-reported in the industry. Newton and Ormerod (2005) found only a small number of construction organisations believed that disabled people should be excluded from the industry, but health and safety issues make employers reluctant to recruit from this group. However, they found that if a worker becomes disabled, employers are often prepared to make adaptations to ensure continued employment. This may reflect a recognition that some disability is age-related, and a general sense that experienced workers are valued in the industry. At least one construction company (Balfour Beatty) has signed up to DWP’s “Disability Confident” campaign, but the main impact of current interventions is to reduce bias and change attitudes, rather than actively recruit people who experience disability.

### Ethnicity

The EHRC (2009) report on non-white ethnic minorities in construction identifies very similar barriers to career entry and retention as those experienced by women. Since 1999 there has only been a small upwards shift in numbers employed

(from 1.9% to 3.3%). However, it appears that whereas very few women enter training for the industry, in the case of non-white ethnic minorities, the numbers in training are notably higher than in employment, indicating that transition to the workforce may be a significant barrier.

This may explain why there seem to have been relatively few initiatives to attract non-white ethnic minorities into the sector. The report identifies a few, mainly London-based initiatives such as those built into Transport for London, Docklands Light Railways and the ODA. Equate Scotland has been unable to identify any specifically Scottish initiatives to address the barriers faced by people from non-white ethnic minority backgrounds.

### Sexual orientation and transgender

Although many of the barriers faced by women are shared by LGBT individuals, the fear that negative attitudes in the workplace might inhibit career advancement probably leads to a high level of non-disclosure. The EHRC (2011) report does not cover this group, no initiatives to actively recruit from this group are known of, and no construction companies feature in Stonewall’s Top 100 employers. However, the main barrier is seen as attitudinal, both on the part of employers, and potential LGTB employees/trainees. Unconscious bias training is seen as the main way of addressing issues with employers and trainers, although very little is known about attitudes to LGBT individuals in the industry. Stonewall Scotland has carried out a survey on attitudes to MAs which includes the construction industry, finding that over 50% of LGTB people expect to experience discrimination in construction or engineering MA courses. Currently a survey amongst construction professionals and students is being undertaken, sponsored by the Architects Journal, Construction News and New Civil Engineer<sup>3</sup>, which may help to identify the level of bias in the industry.

## 6. CONCLUSIONS FROM LITERATURE SURVEY

As the construction industry emerges from recession, it is widely acknowledged that skills shortages are becoming increasingly problematic, leading to high labour costs, the need to “import” foreign workers at a time when the use of migrant labour is politically sensitive, and in some areas preventing construction companies from bidding for new contracts.

The literature also indicates that, at least on the surface, there is little hostility to women entering the construction workforce. There is a general feeling that women are capable of performing well in a wide range of construction tasks, although there is still some doubt about their suitability for heavy lifting work.

However, throughout the literature there is little awareness of how a more diverse workforce could address the issues of skills shortages. The current solutions focus on:

- Making training for the construction industry more attractive to the “traditional” labour pool (young white men)
- Paying higher wages to those already trained – perhaps to attract back workers who left in the recession
- Importing skilled labour from overseas

All these solutions reflect a crisis management approach rather than a strategy which responds to the current and future needs of the industry. The demographics show that the traditional pool of labour is shrinking and subject to competition from other industries, and the construction industry needs to become more aware of the business case for diversity and how it can enlarge the potential pool of labour for the sector.

<sup>3</sup><http://www.surveymonkey.com/s/attitudesinconstruction> accessed 13/04/15

# PART 2

## RESEARCH WITH THE CONSTRUCTION INDUSTRY IN SCOTLAND

"Diversity in Construction" undertook a small, in depth research project to ascertain current attitudes towards women in the construction sector in companies across Scotland. This was carried out by the Employment Research Institute at Edinburgh Napier University, and the purpose of interviews with project managers and site workers in construction firms across Scotland was to:

1. Identify the current complement/profile of staff by sex, age and post
2. Identify current recruitment, retention and progression policies and practice
3. Identify perceptions of employing women in construction by role, suitability of women for construction work and whether women can have long term sustainable careers in construction
4. Understand the nature and extent of barriers to employing women
5. Identify the involvement of firms in diversity initiatives
6. Understand better how to attract women to the industry



### 1. RESEARCH METHODS

A standardised questionnaire was used to achieve aims 1 and 2, and an approach called Q Methodology (a tool to study the subjective viewpoints of research participants) covered aims 3-6. Respondents were asked to rank-order 50 statements on the role of women in construction (see Appendix 1). These statements represent the range of possible views on the role of women working in the construction sector. Respondents were chosen for their role as project managers and on-site workers in the construction sector. The gender and occupation of the sample is shown below.

#### Results from Interviews

The results from interviews show that whilst there has been a shift in the cultural acceptance of women occupying on-site roles within the construction sector, this has not yet translated into identifiable change in the proportion of women

working in the sector. Most respondents could identify positive benefits from more women working in on-site roles within the sector, but also outlined aspects of construction work that could be seen to be a barrier to women entering the sector.

SEX	FREQUENCY
Male	23
Female	2
OCCUPATION	
Building firm Director	1
Site Manager	12
Project Manager	2
Stonemason	4
Joiner	2
Bricklayer	2
Electrician	1



## 2. BARRIERS TO INCREASING THE PROPORTION OF WOMEN IN SITE BASED ROLES

Research respondents were asked about the proportion of women working in site-based roles, and across all firms they thought that less than 5% of on-site roles at their own place of work were occupied by women. Respondents were then asked to consider why the rates of women in site-based roles were so low and provided a range of responses to this question including:

- a perception that construction work is dirty and unpleasant
- careers in the construction sector are not promoted early enough within schools
- the perception that construction work is low paid
- the perception that flexible working opportunities are not widely available within the sector for employees with young families

**The following section explores these issues using excerpts from interviews with those in the construction sector.**

### Image of the sector

The dominant barrier to increasing the proportion of women in the construction sector was the perceived negative image of the sector by those outside the sector. This negative image was based on the nature of the work involved as being 'dirty' and a perception that the sector had a 'macho' culture that produced behaviour on-site that was unlikely to appeal to women. There was frustration that improvements in working practices in construction since the late 1990s had not yet led to a major shift in the image of the sector.

A project manager on a large construction site described how an outdated image of construction continued to act as a deterrent to more women entering the sector:

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I think traditionally it has been perceived as dirty work, but the sector is changing and the message is just not out there .... Because of all the rules and the health and safety and the way work is evolving, then there is nobody actually out there beating that drum in schools to share that information. People just don't understand what is involved in the sector.

–

The perception that construction work was 'dirty' was a recurring theme but there was also an understanding that outdoor work in bad weather was just as likely to be unappealing to many young men as women.

The dominance of men in the sector was also seen to bring its own problems. Many research participants across all levels of the industry described the continued presence of a 'macho' culture on building sites, which brings behaviour that can make working on building sites unappealing for women. Examples of behaviour attributed to male dominated work-sites included vandalism, strong language and bullying. There was a perception that young

women might be less able, or less willing, to tolerate these forms of behaviour than young men. A project manager described what she had witnessed:

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Sometimes there can be a bit of tomfoolery, a bit of vandalism, there can be rude slogans on the walls, some of the things people do you would not believe.

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She also believed the presence of women on a building site could improve some of the poor behaviour that she had seen:

–

One of the biggest issues we face within the construction industry is behavioural safety and people taking responsibility for their own behaviour and I think if there was a more diverse workforce with a mix of male and female there would be a marked increase in the improvement of behaviour...

–

### Education

Many research respondents were engaged in school careers fairs to promote career opportunities in the construction sector, and emphasised the importance of ensuring that construction careers were highlighted to school age children at an early stage in their decision making around subject choices. However, there was a perception that too little was done to encourage girls to consider a career in the sector because of the historic dominance of men in construction:

–

Even within education it is not seen to be a female environment historically. So it's not pushed or promoted in schools. It's a man's world and that's the way it has been perceived. I think that is ever

so slowly changing. There are various facets of construction and some have more physicality than others. (Owner of a construction company)

–

Women are rarely offered the option of a career in the construction sector:

–

It's something that is not taught is an option for you. You're not particularly steered away from it but it's certainly not advertised. It's never offered in high school or mentioned. But even in university the path is more "you can go into planning or you can go into design and build" at the start I probably thought I could work through that... (Female project manager)

–

One respondent felt that women are already excluded from the sector in Higher Education, as 85% of all engineering graduates and 70% of architecture, building and planning graduates in the UK were male:

–

By the time you are tapping into the talent pool of graduates, kids have already made their decision. ...We are not going to get women coming into construction if we rely on the graduates because by the end, they are a small percentage. We have a far better chance of getting females into the industry by starting with school leavers.

–

### Gender roles and attitudinal segregation

Researchers asked why women had not made greater inroads to careers in the sector. Some respondents argued that the physically demanding nature of certain jobs within the sector would always act as a barrier

to women doing those jobs. There was a tendency to see women within the sector as competent in 'the finishing trades'. This included painting, decorating, plastering and tiling. These jobs, it was argued, did not require high levels of physical strength and could therefore be undertaken by women. Respondents described how it was no longer surprising to see women undertaking these roles on site. The owner of a construction firm described how he was used to seeing women working in these 'lighter' trades:

–

The only women on-site that I've seen have been painters and decorators, tilers, finishing trades really, I haven't really come across any women associated with the heavier works like joinery, bricklaying certainly not scaffolders, no. So it tends to be the lighter trades.

–

Respondents made assumptions about the physical strength required to undertake certain trades on site. Despite changes brought about by site safety regulations including lifting requirements for heavy objects, there was seen to be a difference between what was required by on-site safety regulation and the reality of what was expected on site. A bricklayer working on a housing construction site thought that if there was stringent adherence to the two person lift rules, then barriers to women undertaking roles other than the finishing trades would be reduced:

–

I know there's supposed to be two person lift rules for heavy stuff so, I guess like that would mean women could do the heavier jobs but like it does'nae often work like that and you just get on wi' lifting the heavy stuff and not wait 'till someone is around to help with the lift.

–

The 'macho culture' that many respondents identified during interviews is, in part, a reference to the division between on-site occupations requiring physical strength and those that do not. For many respondents it would not be seen as unusual if there were a female worker in one of the 'lighter trades'. However, as was highlighted by a project manager from a large construction firm, it would be seen as highly unusual for a woman to be doing on-site roles associated with heavy lifting.

However, this division between heavy lifting roles and finishing roles may be subject to change as the culture within the construction sector changes. Instead of limitations based on gender, one respondent described attributes that were seen to be unique to women that could be an asset on a building site:

–

... I don't see any barrier to more women working in construction. Our experience is that women tend to be that bit more careful, more particular and can almost provide a better standard of finish. They are more conscientious about their work. (Owner of construction company)

–

–

There's certainly a macho culture that exists and if you had a woman scaffolder she would definitely be seen as a very unusual character. There would be a lot of questioning, 'why is that woman a scaffolder?' Whereas with the finishing trades, nobody bats an eyelid. There's definitely a macho culture. Whether there is any actual physical impediment, it's probably perceived that there would be. The finishing trades are lighter work. In my own experience, and I've been in the industry for 25 years now, that's

the only women I've ever come across. I've never come across a women scaffolder, joiner, bricky.

–

#### Flexible working

Respondents involved in project management roles described the pressure of managing large numbers of site-based workers and the onus on the industry to deliver jobs within time and on budget. Several respondents described how these pressures made it difficult for them to consider accessing family friendly flexible working practices. A project manager in her early 30s with no children described the enjoyment and satisfaction that came with managing 200 mostly male construction workers on a large building site but that as she was the only person with responsibility for those workers, could not envisage being able to take time off to start a family and retain her current role:

–

I'm 32 and all these companies don't encourage working on a building site and having a family. And at 32, that's now something that I will have to think of. I will have to change my career path because the reality is, I won't be able to be site based. I've worked for a lot of the main contractors and on paper they will all tell you, we support equal opportunities but when you are here, on the job, it's not going to happen. It's about the hours that you work and what you are responsible for. So for here, it's just myself and I'm responsible for a massive area of the works and if I'm not here there's nobody here to cover me.

–

In her view the construction industry has yet to take seriously the issue of how it retains female workers who are

thinking of starting a family. She felt her route back into the sector after having a family would have to be office-based as she would be unable to access flexible working practices in a site-based role:



–

I don't think the construction industry has ever really looked at how it can facilitate women going part-time. I've worked with a lot of women that have come up the same path as me and they now have a family and I always meet them when they are in the office because they've been moved into an office based role so they can go part-time and they always feel quite sad that they've worked really hard to get to a good position on-site where you feel experienced and where you feel you can do your job to the best of your abilities and then you kind of got to make that decision. Do I have a family or do I continue with my career? It's quite sad, I don't think there's any other job that a women would really have to completely change for.

–



An employee of a large contractor in the west of Scotland echoed these views. He described how access to flexible working practices in the construction sector differed, based on whether an employee was in a site-based role or an office-based role:

–  
The likes of paternity leave and part-time work is common now. Unfortunately that sits at the office level. I don't know how common it is in terms of our supply chain... but we have job-share. That's how women are going to take time off to look after family. Construction can be really well paid, if you are diligent and focussed and get on with it, it's really rewarding. They can be long shifts but it's very good money and you can find roles that don't rely on you travelling around the country and it's not all outside.

There was however evidence of one respondent with a young child, who had managed to retain her on-site project management role with the support of her employer. She had requested flexibility in her working hours to allow her to work around school drop-off times and this had been managed by the employer as she describes:

–  
From my own point of view, I have a young daughter and we are supposed to start at 8 until quarter past, half past five, five days a week and that didn't fit for me so my daughter goes to morning school at 8 and I can't be here until 8.15, and that's OK no problem and I'd like to pick her up 2 days a week and that was no problem either. So that opportunity was there. We have paternity leave and they pick their kids up from school but it's probably relatively new in terms of maybe the last 2, 3 years.

### Involvement in diversity initiatives

Larger firms that participated in the research demonstrated a relatively strong awareness of the importance of gender diversity within the workforce. Research respondents could cite several examples of diversity initiatives within their own firm, such as wearing wristbands that highlighted the importance of diversity in construction; diversity messages being made part of computer screensavers; attendance at school careers events where opportunities for careers in the construction sector were highlighted to young women; an LGBT group within a large construction firm; positive action to increase the number of women on the board of a large construction firm; prayer rooms and separate toilet and changing facilities for men and women.

A project manager within a large firm described how diversity messages had encouraged people to think about the role of diversity in the workplace:

–  
I was given a wristband at Christmas. It emphasised the importance of diversity and equality at work. I put it on and people were noticing it. It forced people to go 'what's that all about'. But you found that just by wearing it, it made you change because you are aware of it.

–  
It was also apparent that whilst firms had engaged with the issue of diversity in the workplace, this was rarely linked to the issue of skills gaps. Attempts to create a more gender diverse workplace were being undertaken because it was seen to be good for business in terms of the perceived link between effective decision making and having a gender diverse workforce. A project manager for a large construction firm outlined his understanding of the benefits and aims of diversity in the workplace:

–  
The diversity case that we are working on is that successful businesses, successful teams and successful decision making comes from a diverse group of people. That's the driver there, to encourage a higher performing company through diversity. Not a big focus on bridging the skills gap. I think it's about diverse thinking making better organisations.

–  
The second element to the issue of diversity in the construction sector was the role that awareness of diversity policies plays in sub-contracting decisions. Respondents were asked if, when appointing subcontractors, consideration or weighting was given to the presence of policies around diversity and equality. In almost all cases, respondents agreed that such practices were given consideration in the subcontracting process however there was little evidence to suggest that any points or weighting was given to the presence of such practices. A project manager described how diversity and equality issues were not seen as a major factor in the appointment of subcontractors:

–  
We don't actually ask that question because our clients don't see it as a factor. We are not measured on being a diverse business so because we are not measured by clients be they public or private sector, we don't feel the need to measure it going down the supply chain.

A similar view was expressed by a project manager with direct involvement in the appointment of subcontractors:

–

We go for price in the first instance, quality in the second and all the other raft of other things that are bolted onto that, its quality assurance, its environmental legislation, a raft of things, and I have to say it's a tick box and if someone said they didn't have an equality policy it's not going to sway our decision.

–

There was however some evidence to suggest that contractors could apply their influence down the supply chain to ensure that sub-contractors were giving consideration to diversity issues. Asked if a firm's diversity policies were taken into consideration when appointing subcontractors, a project manager noted that there is an expectation that sub-contractors will comply with main contractors' practices:

–

We do, yes. It's all part of the process. Whether or not at the moment that is a determining factor, probably not. But what we do is we influence. They take on our diversity policies. So when you go through the procurement process we check all of their environmental, health and safety, CSR and diversity and equality, that's all part of the process. And the way we operate is very much fed down to our supply chain. So while they are very much under our guidance and our project rules and regulations, they have to comply with that. But would it determine whether or not they get the job? Probably not.

–



### 3. RESULTS FROM Q METHODS

The findings from this research enable us to better understand the attitudes of those working in the sector to the recruitment of women to site based roles. The approach shows that there are 5 distinct groupings of attitudes expressed by those that participated in the research. We have named these distinct attitudinal groups: female positivists; cultural barrierists; social reformers; attitude changers; female unsuitabilists.

#### Group F1: Female Positivists

This group is made up of Q1 (male electrician), Q2 and Q5 (female site managers), Q10 (male stonemason), Q13 (male director of a building firm), Q14, Q17 and Q22 (male site managers).

This group strongly disagrees that women cannot be trusted, women need more supervision than men, women have less respect for authority than men, women get sick more than men, women demand a lot of attention at work, and that women do not have a suitable emotional temperament for construction work.

There is strong agreement that women are not brought up to think of a career in construction, that society does not consider construction to be women's work, there is an existence of macho culture, construction work is not family friendly, women perform equally to men in construction work and there is a need for more female role models. Thus group F1 believe that women are similarly as suited to construction work as men but the view in society that construction is not a "suitable" job for a woman, creating barriers to women entering the sector.

#### Group F2: Cultural Barrierists

This group is composed of Q4 and Q6 (male site managers), Q6 and Q25 (male project managers), Q7 (male joiner) and Q8 (male bricklayer).

This group strongly disagrees with the statements that women have less respect for authority than men, that the

construction sector would not benefit from the employment of women, women are not valued in the construction workplace, women are less reliable than men, construction work is perceived as routine, women have fewer social links than men to the industry, women find it difficult to complete training in construction, that it is unfair to encourage women to start a career in construction, that construction is not family friendly, women do not have a suitable skill set, women are physically harassed in construction and women are emotionally harassed in construction.

They strongly agree with the statements that there should be positive action to get women into construction work, women get sick more than men, construction is associated with dirty work, promotion routes for women are limited, facilities are not provided for women, there is a need to recruit more women into construction, women perceive that work in the service sector is better paid and that there is a macho culture in construction, society and the education system steer women away from construction and that construction is too physically demanding for women. This group considers that there is a need for more women in construction and that there is a macho culture but do not see problems with this and in general do not report many institutional barriers. As to why more women do not choose to work in the sector, they consider that work is better paid for women in the service sector.

#### Group F3: Social Reformers

This group comprises Q3 & Q11 (male site managers), Q15 (male joiner), Q20 (male bricklayer) and Q23 (male stonemason).

This group strongly disagrees with the need for positive action to get women into construction, that women perceive construction work as exciting and adventurous, women perform less well than males in construction work, promotion routes tend only to be into service functions, mixed-sex teams do not work as well as single sex teams,

males perceive women are treated more favourably, male colleagues cannot relax and do their jobs when women are present, women are better at creative work than men, women are physically harassed in construction work, women believe that there is physical harassment in construction, women are not as spatially aware as men and construction work is too physically demanding for women.

They strongly agree with the statements that there is a need to train males to be more accepting of women construction workers, construction is associated with dirty work, it is unfair to encourage women to start a career in construction, there is a need to recruit more women into construction work, women believe that there is emotional harassment in construction work, society does not consider construction to be women's work and the education system steers women away from construction jobs.

This group perceives the need for more women in construction and recognises that society and education need to be more pro construction. They see a need for change as currently they consider it unfair to encourage women to start a career in construction but disagree on the need for positive action.

#### Group F4: Attitude Changers

This group comprises Q12, Q18 & Q24 (male site managers) and Q16 (male stonemason).

This group strongly disagrees that women prefer indoor work, the construction industry would not benefit from the inclusion of more females, promotion routes for women tend only to be into service functions, male colleagues cannot relax and do their job when women are present, construction is not perceived as being creative, it is unfair to encourage women to start a career in construction, society does not consider construction to be women's work and women do not have a suitable emotional temperament for construction work.

Those in this group strongly agree with the statements that there should be positive action to get more women into construction, that there is a need to train males to be more accepting of women in construction, women believe pay rates are better in other sectors, women perform equally to men in construction work and women believe they are emotionally harassed in construction work.

To get more women into construction this group seem to consider that there is a need to change attitudes of male construction workers, and those of women themselves and to stop emotional harassment.

#### Group F5: Female Unsuitabilists

This is a small group consisting of only Q19 and Q21 both male site managers.

In this group there is strong disagreement with the statements: there should be positive action to get more women into work, women have less respect for authority than men, construction sector would benefit from the employment of more women, who one knows is more important for recruitment in to the construction sector and that the education system steers women away from construction work.

This group strongly agrees with the statements that women need more supervision than men, construction is dirty work, women need more time off than men, it is unfair to encourage women to start a career in construction, women believe there is physical harassment in construction, women are emotionally harassed in construction, there is a macho culture in construction and construction work is too physically demanding for women. The impression this small group gives is that women should not be employed in the construction sector.



#### 4. SUMMING UP THE RESEARCH

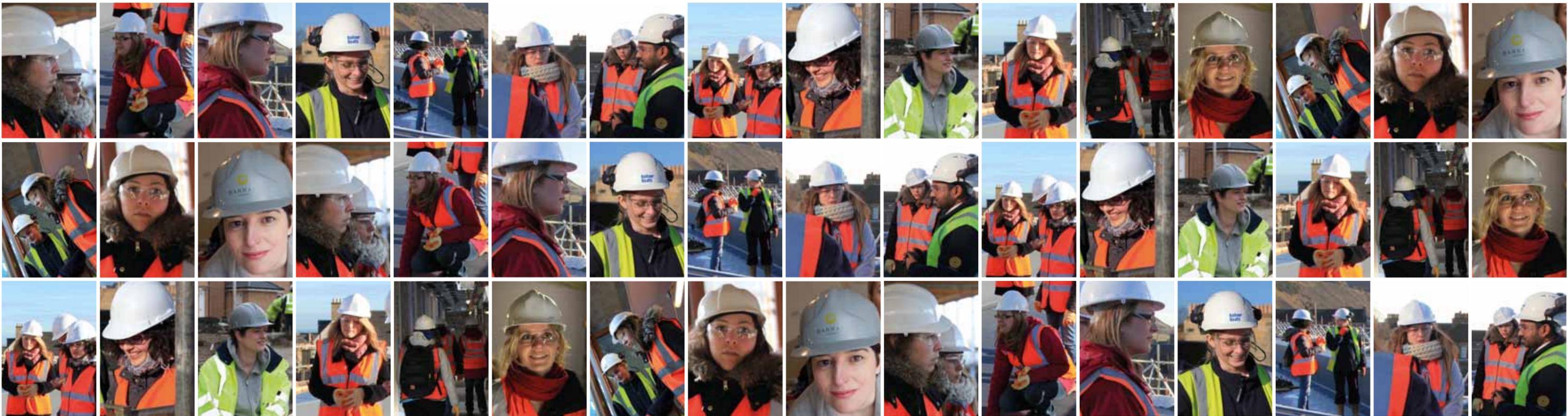
The largest group (F1) has a positive view of women in the construction industry broadly reporting that women are as suitable as men and the reason that fewer women enter construction jobs is a consequence of stereotyping by society and the education system. The second group (F2, 6 males) also seems to have a positive view of women in construction. However, they seem to disagree that there are structural barriers such as emotional and physical harassment. Rather they seem to suggest that it is women's choice not to go into construction perceiving the work as dirty and tough and that women consider that better opportunities lie elsewhere. To attract women to construction this group agrees with the need for positive action policies to increase the number of women in the sector.

Group 3 (F3, 5 males) reports that there is a need for more women in construction and also takes the positive view that women can and should work in construction but they disagree with the need for positive discrimination. They do however advocate the need to train males to be more accepting of women and to end emotional harassment. Group 4 (F4, 4 male employees) is positive about women in construction but does not consider

that society or stereotyping is the issue. They do however advocate the need to train males to be more accepting of women and for society to recognise that women can have a role in the construction industry beyond service roles.

The final group (F5) consisting of two male workers takes a view that construction is not suitable for women – there is a macho culture, work is hard and there are better opportunities for women elsewhere. It is their view that society and education systems are sensible to steer women away from construction.

Overall the majority of respondents believe that women are suitable for jobs in the construction industry and it is largely society's stereotyping of construction work and culture in combination with the education system limiting females' exposure to construction that is a major barrier. There is a view that the work is dirty and difficult and there is a macho culture and agreement that there is emotional and physical harassment – but this is a minority view. A number of respondents did agree that there is a lack of female role models but this did not emerge as an important issue. Views are mixed about the need or benefits of positive action with the majority disagreeing with the need for this.



## Conclusions

The purpose of this literature review and research was to develop a better understanding of perceptions of employing women in site based roles in the construction sector and to identify the barriers and enablers to achieving greater gender equality in the sector. In addition it explores industry perceptions of how increasing the number of women working in the construction sector may help address the issue of skills gaps that are increasing labour costs and constraining growth in the sector.

The literature review highlights how the issue of skills shortages has been known in the industry for almost two decades, but increasing the diversity of the workforce has not become a widely adopted strategy to address this problem. Recent press reports show how skills shortages are impacting on the industry and restricting economic recovery. A few reports acknowledge that increasing the pool of labour by encouraging more women into the sector would be a practical solution.

However, raising wages and “importing” workers remain the predominant short-term response to the skills crisis.

A major issue in the supply of women to the sector is the interface between the education and construction sector. Respondents to the survey did not believe that females were encouraged by the education sector to think about a career in construction. Despite evidence of industry partnerships with the schools sector respondents felt there is uncertainty within the sector on the most effective way to support pupils to make subject choices that would strengthen their chance of securing a career in construction. They also believed some schools view the construction sector as an unsuitable career choice for high achieving pupils.

A further barrier to greater gender equality is the image of the sector. The research shows that those working in construction see the negative image of the sector as a legacy of working conditions, practices and behaviour that have not been present

for decades. Research results show that many of the misogynistic views often associated with predominantly male working environments have been significantly eroded and reduced. Women are not seen as inferior or physically or mentally incapable of working in the sector. There is also a clear rejection of statements suggesting that women in the construction sector are subject to harassment and require greater support and oversight. These findings could be interpreted as suggesting that the sector has made progress in changing some of the less enlightened views on women that could have acted as a strong deterrent for women seeking a career in the sector.

However, a stronger case needs to be made of the benefits to a career in construction. Role models have been used extensively in other industrial sectors seeking to improve gender equality in the workplace, and this would normalise the idea of working in the construction sector for young women and give them confidence that they would not be isolated on site.

It was also evident that the sector itself must look to make internal change if it is to create a more gender diverse workforce. The research highlighted how the industry is struggling to roll out flexible working practices for on-site workers. Ensuring that construction workers with care responsibilities, both male and female, are able to access flexible working opportunities could be a significant factor in their decision both to enter the sector and also to return once they have children. There is also a continuing issue with the presence of a ‘macho culture’ within the workforce, which is seen as a powerful disincentive to the recruitment of women. Gender awareness training and an active engagement with equality and diversity programmes at company level would help to address these issues. However, the most effective way to tackle the prevalence of this culture would be to increase the number of women in the sector and make their appearance on construction sites more routine and less unusual than is currently the case.

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Images from [www.dollarphotoclub.com](http://www.dollarphotoclub.com)  
Authors: dmitrimaruta, jeremias münch, Lsantilli, minicel73, sima, Daddy Cool, and ilkercelik.

# Appendix 1:

## QUESTIONS USED IN SURVEY

### A) Statements on the role of women in construction used with Q sample.

No. Statement

- 1 Construction work is too physically demanding for women
- 2 Women are not as spatially aware as men
- 3 Women do not have a suitable emotional temperament for work in construction
- 4 Women have been brought up not to think of a career in construction
- 5 The education system steers women away from construction work
- 6 Society does not consider construction to be women's work
- 7 The physical environment in which construction operates is too harsh for women
- 8 The existence of a macho culture in construction
- 9 Women are emotionally harassed in construction
- 10 Women are physically harassed in construction
- 11 Women believe there is emotional harassment in construction
- 12 Women believe there is physical harassment in construction
- 13 Preschool girls are taught construction work is not for them
- 14 Women do not have a suitable skill set
- 15 Construction work is not family friendly
- 16 Women perceive that work in the service sector is more rewarding than work in the construction sector
- 17 Women perform equally to men in construction work

18 There is a need to recruit more women in to construction work

19 It is unfair to encourage women to start a career in construction

20 Women have fewer training opportunities than men

21 It is more difficult for women than men to gain promotion in the construction sector

22 Women find it more difficult to take or complete training than men

23 Who one knows is more important for recruitment into construction

24 Women have fewer social links to those in construction than men

25 Facilities are not especially provided for women

26 Women are not so good at technical jobs as men

27 Women are better at creative work than men

28 Construction is not perceived as being creative

29 Construction work is perceived to be routine work

30 Women demand a lot of attention at work

31 Male colleagues can't relax and do their job when they have female colleagues

32 Multi-sex teams do not work as well as single sex teams

33 Males perceive that female colleagues are treated more favourably than male colleagues

34 Women are less reliable than men

35 Women are not valued in the construction workplace

36 Promotion routes for women in construction tend only to be into service functions

37 Women need more time off than men

38 Women believe pay rates are better in other sectors

39 Construction is associated with dirty work

40 Women perform less well than men in construction work

41 Women see construction work as exciting and adventurous

42 There is a need for more female role models

43 There is a need to train males to be more accepting of women

44 The construction sector would not benefit from the employment of more women

45 Women get more sick than men

46 Women have less respect for authority than men

47 There should be positive action to get more women into construction

48 Women need more supervision than men

49 Women prefer indoor work

50 Women cannot be trusted at work

### B) Questions in the standardized questionnaire focused on:

- 1 Proportion of site based roles occupied by women
- 2 The role of diversity and equality policies within subcontracting arrangements
- 3 Anticipated outcomes from greater gender diversity in the sector
- 4 Examples of good practice in gender diversity policies
- 5 Barriers to the participation of women in site-based roles in the construction sector

## Appendix 2:

Projects, networks and initiatives in the construction industry which have informed Equate Scotland's research:

### EQUATE SCOTLAND PROJECTS:

**2008-11** Getting in Getting on in Construction: delivery of equality and diversity training to career entrants

**2012-14** OnSite: work experience for women in construction

**2014-15** Women in Construction: support for women college students following pre-apprenticeship courses

**2014-15** Diversity in Construction: attitudinal research and support to construction industry

### OTHER ORGANISATIONS AND PROJECTS:

**CITB:** Construction Industry Training Board: oversees the Be Fair programme

**Chicks with Bricks:** Network of women in the construction industry  
<http://www.chickswithbricks.com>

**Constructing Equality Ltd:** Research and training on inclusion and fairness in the construction industry <http://constructingequality.co.uk>

**NAWIC:** National Association of Women in Construction [www.nawic.co.uk](http://www.nawic.co.uk)

**WAMT:** Women and Manual Trades: support and training for women "on the tools"

**WiCAT:** Women in Construction, Arts and Technology – offers training courses in construction trades. Based in Sheffield  
<http://www.wicat.org.uk>

**WIBSE:** Women in Building Services Engineering, UK professional network, contact in Scotland, Marianna Trusson  
[m.trusson@cundall.com](mailto:m.trusson@cundall.com)

**Women into Construction:** Independent not-for-profit organisation working in London, Birmingham and Wales to promote construction opportunities for women  
[info@womenintoconstruction.org](mailto:info@womenintoconstruction.org)

**Women in Property:** National association seeking to enhance the role of women working in the property sector – two branches in Scotland  
<http://www.womeninproperty.org.uk>

