



Gas Engineer Training

Report

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1. INTRODUCTION

1.1 Background

Formed in 2000, the Gas Industry Safety Group (GISG) aims to promote gas safety by improving co-operation amongst the industry players, dissemination of best practice and providing a forum for them to address safety issues collectively.

The primary objectives of GISG are to:

- Promote gas safety.
- Encourage co-operation amongst industry players to develop, introduce and improve practices for the safe transmission, storage and use of gas throughout the UK.
- Ensure the safety of consumers and the public.

As part of this remit, GISG commissions research, providing an opportunity to address safety issues on a collaborative basis.

The Institution of Gas Engineers & Managers (IGEM) is a chartered professional body, licensed by the Engineering Council, serving a wide range of professionals in the UK and the international gas industry through Membership, events and a comprehensive set of Technical Standards.

In the light of a significant increase in unsafe gas work from recently qualified engineers, with volumes of unsafe work up from 1% to 5% (Gas Safe Register), there has been an increased focus on engineer training and assessment amid growing concerns that the training focuses on passing the assessments rather than job competency.

In order to understand better the current experience of training and assessment, GISG and IGEM commissioned a qualitative research study.

1.2 Objectives

The key objective of the research was to understand how best to address issues of training to facilitate an improvement in the levels of unsafe gas work being undertaken, thereby ensuring that high standards of training and capability are upheld.

2. METHODOLOGY

2.1 Introduction

A qualitative methodology was used in order to gain a greater depth of understanding. Telephone depth interviews were carried out with twenty-three newly qualified gas engineers, the definition of 'newly qualified' being within the last 18 months.

Contact details of engineers likely to be in scope were mainly provided by Gas Safe Register and recruitment undertaken by phone. Additionally, two British Gas engineers were nominated by British Gas.

The interviews lasted around 30 minutes and the topic guide used is shown in Appendix A. Participants (with the exception of the British Gas employees) were given £40 to thank them for their time.

Interviewing took place between 14 July and 5 October 2016.

The research was undertaken in accordance with the market, opinion and social research international quality standard ISO 20252:2012.

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3. FINDINGS

3.1 Engineer backgrounds

The majority of those we spoke to (and this may be typical of gas engineers in general) were not school or college leavers; they had in most cases worked for a number of years before undertaking gas engineer training.

Aside from the two British Gas employees, most were self employed or working for a small company although one was not yet employed having completed his training and one worked for a council.

In some cases they were re-training following a completely different career:

- Left the Army or Air Force
- Left the Fire Service

In those cases a grant was sometimes provided to cover the costs of re-training for a new career.

"A military charity paid for it due to me being discharged from the Army."

"I left the Air Force at the end of 2014 and during that process you had to use some funds to get you back into civilian life and I chose gas plumbing."

Other, less directly related previous careers included a window cleaner, a post office worker and a school caretaker.

In these cases the motivation for choosing gas work was having friends or family working in that sort of area, looking for something completely new and something practical.

"I wanted something that could earn me some money that wasn't too physically demanding so I was looking at something like gas service mainly rather than installation work" (retired from Fire Service).

"It was a big investment to begin with but I think it's going to pay off quite well hopefully. But I haven't done much yet because I've had other projects on the go."

Most, however, had worked in a related industry such as plumbing and decided to broaden the scope of what they could do, as a way of advancing their business or themselves, seeing gas engineering as a definite step up and, in some cases as more lucrative. Many of those with a plumbing background had worked alongside people who were qualified to do gas work.

"I've been doing plumbing for about 4½ years or something and decided a lot of my customers wanted me to get into the gas."

"I want to leave the plumbing side behind because I think it's better really if I'm doing gas day in and day out where I can make myself a better identity if you like."

"Well in my job [bathrooms and tiling] a lot of the time I get asked to do boilers as well and I've always turned them down in the past so I thought I might as well do them myself."

"I suppose it's a bit more professional this trade and yes, to be honest, a bit more professional and a bit more respected in the company being a gas engineer rather than just being standard plasterer."

"I'm a full state qualified certified electrician and...I worked for a company that maintained heating and all that kind of kit. And I was always with Gas Safe Register, because they couldn't figure out the controls or the electric."

"Well I was working in London for a bit...running a central heating service and we were even hanging the boiler on the wall, running all the pipe work up to it and the people that seemed to be doing okay were the people that just came there, connect the boiler up, and commissioned it and they were getting paid like £250 a throw for doing that."

Those with plumbing experience or qualifications were often taking shorter courses or doing the qualification for gas work as an add-on to their plumbing qualification. In some cases there was an assessment of competence before enrolment but the evidence suggests that not all training providers assess potential students.

"Basically the company assesses you to see if...you're ready for the gas work if you've got enough plumbing experience to jump from plumbing to gas basically. So they tested us; well they call us in, we go in and we do a little small test, very simple, and if you pass that then they put you straight onto the gas side. If not then they recommend you go onto the plumbing course before you do the gas."

One participant was a university graduate who had decided not to follow the career that his degree choice suggested but instead to join his father's business, and another had gone straight into training after A levels.

One participant had run a business in Italy for 8 years and had the equivalent Italian qualifications.

3.2 Type of training

Length of course

There was considerable variation in the length and composition of the courses which had been undertaken.

At one end of the scale were apprenticeships.

- 2 year course “2 days in college and the rest was meant to be on site experience with whoever you were working with. You had to get a job in the industry to be able to go on the course as I understood it.”
- 4 year course to get to NVQ Level 3, in college 1 day a week (mentioned by three participants)

The two British Gas trained engineers had apparently undergone very thorough apprenticeship training. This consisted of residential training at British Gas ‘academies’ where they did twelve weeks in the college and then out ‘on the patch’ for a couple of weeks to put into practice what they learnt. After that they alternated between two weeks at college and two weeks out accompanying qualified engineers. It was timetabled and described as ‘very well structured’. The training also included the Duke of Edinburgh’s Gold Award.

For those who were not doing apprenticeships, the course length was shorter where they had a level of pre-qualification through having studied plumbing:

“They did an option where you could do a full week introductory course but obviously for people who haven’t actually worked on gas but because I’d already had the experience and I did it at xxx College so they knew that I was competent, it was just a case of building up a portfolio and actually taking the exams.”

This engineer had a level 2 NVQ in Plumbing and was offered a 2½ day course to get the gas qualification.

The variety of other course lengths and compositions included:

- 2 weeks (as an add-on to 30 weeks part time plumbing training)
- 10 days
- One day a week for 10 weeks
- One day a week for a year
- 20 days (as an add-on to a part time plumbing course lasting 3 months at weekends, one weekend on, one weekend off)
- 3½ weeks (but spent two months beforehand building up the portfolio)
- 3 weeks spread over 3 months (started with 2 weeks full time of which only one day was practical with a week’s refresher after the portfolio)
- 4 weeks full time
- 4 weeks training then sent on work placement to do the portfolio then back for a further 2 weeks training (spent 5 months in total)
- 5 weeks
- 6 weeks full time
- 6 week intensive training then onsite for 25 jobs
- 10 weeks over weekends
- 6 months on and off (including the portfolio)

Portfolio

Putting together a portfolio is sometimes a challenge for those not currently employed in a relevant company as there is little incentive for others to allow unqualified trainees to accompany them. In fact there is a perception that by helping others they create more competition for themselves.

“People don’t seem to want to help you do your gas and do any training with you.”

Those who were not already working in companies doing gas work generally found help with the portfolio through their own contacts:

“A gift of the gab I’m afraid. I worked in a post office in xxx for like seven years so I’m quite well known in my little village.”

“It was quite easy for me because I had some sort of background and it wasn’t difficult to get hold of some people who were registered and just get the evidence of working with them.”

“It was pretty difficult...I was fortunate enough that my sister-in-law works in the same office as...a social housing company...she basically put in a good word, explained my situation and then I was able to go out with a couple of the engineers for 3 months.”

However, in some cases the training establishments they used facilitated the portfolio side of the training. In one case £1,000 was quoted for having the college organise the portfolio. But the promise of help with the portfolio was not always fulfilled.

“I paid the college to organise that, yes, and I’ve also got a mate who’s Gas Safe and I done quite a bit with him as well”

“When they sold me the course, they sent somebody round, the sales person, who was saying the most difficult part of the gas training was the practical, getting the practical work because you’d have to work alongside a gas engineer to build up a portfolio but they did say that if I couldn’t find anybody locally, they would sort something out for me. And when it came to the position all the time I was ready to do that, they didn’t want to know. They said ‘No, we never said that’. And so it took me the best part of 18 months really to find somebody to work with.”

The time taken to complete the portfolio, like the courses themselves, varied considerably. Some took two years to complete the portfolio, others did it in two weeks as part of the course. One engineer commented that he had managed to produce his portfolio with far fewer jobs than some of his fellow trainees due to focussing his attention on making sure that all elements were covered off but not necessarily more than once.

The length of time between doing the initial training and the final exams because of the time taken to prepare a portfolio was mentioned as a problem; delays in completing the portfolio could mean that it was then more difficult to pass the exams. There was

generally a refresher course of a couple of days but there was mention of having forgotten what had been learnt.

Although there was no first hand knowledge of fraudulent portfolios in the engineers we spoke to, there was awareness of the issue.

"I think they really need to look long and hard at the portfolio system because I think it's being abused widespread, it really is. I've heard that you can buy them online, that some gas engineers are selling photographs of work that's been done so people can build portfolios around that and a lot of the supposed installations are just made up. How widespread that is I don't know because obviously people are reluctant to actually say that's what they're doing but I've heard all sorts of stories about you can do this, that and the other. I saw a complete portfolio for sale on eBay the other day."

Balance of theory and practical

Most reported that the courses they attended had more of a slant towards theory rather than practical work, in some cases it was mostly theory. For some that was a positive, a change from the everyday practical type of work that they're used to and they found it interesting to understand more of the background to what they do.

"I think the theory stuff, I'm fairly good with that so it interests me things like numbers and technical stuff and stuff like that. That was really good; I kind of enjoyed that more because the practical, you're always going out and doing it. It's like you're on site and you come across these situations, problems and stuff and the theory stuff is a bit more weighty stuff but you realise why you're doing it. You get the full picture if you would so it was quite good just trying to do all the technical stuff."

But overall when asked about that balance, more said that they felt the courses to be too theoretical and this was often identified as a weakness of the training. It may be that the nature of gas engineers is that they are practical people who will always prefer to be doing practical work rather than theory. However, it is also possible that in covering all the necessary aspects needed to pass the exam, it was the practical side which was cut back on. For example, one of the apprentices, taking longer to study, mentioned a 50:50 split between theory and practical work but in the shorter courses there did seem to be more emphasis on theory in order to fit in all that was needed to pass the exams.

Level of difficulty of the training

Most of those we spoke to found some elements of the training challenging but overall it wasn't too hard, particularly for those with an appropriate background (and bearing in mind that these are all people who did pass the exams – the view would no doubt be different from those who dropped out or failed the course).

"Because of my technical background I found a lot of it quite easy."

"Because of the background I've got with the electrical stuff and what have you, it was reasonably easy."

“You would only find it difficult if you found difficulty with numbers; if you were good with numbers, you’d find it easy.”

One engineer who had previously worked as a plasterer did say that he found the course difficult. One or two were surprised that there was less emphasis on appliances than they were expecting with the focus very much on gas safety.

“Obviously I’ve been in the game quite a while so I did know the appliances. If you were just going in there afresh, you would need to go on a course to actually learn how to do the appliances as well.”

“Rather than the actual work, there wasn’t a lot telling you how to do jobs but everything was geared towards simply the safety, what safety checks you need to do ...it was definitely drummed into you how dangerous gas is and how important it is that you’re competent.”

Perhaps the most challenging aspect was the fact that for those doing the short courses it was very intensive because of the amount that had to be fitted in to a short time period.

“There’s a lot to learn in the time that we’re given to learn it, let’s put it that way. It is intensive.”

“There’s a lot of learning in a short amount of time really.”

3.3 Evaluation of training

Views were rather mixed regarding how good the training was although the majority were happy with what they’d received, a few being very strong advocates for the gas engineer training that they’d attended.

Strengths

When asked to identify the strengths of the particular course they undertook, the instructors were often singled out for praise and further feedback on this is provided separately below. In particular the fact that the instructors were able to take account of people’s different speeds of working and learning was mentioned.

Generally class sizes were small which obviously helped in terms of getting the attention they needed. However, several mentioned numbers dropping as the course went on.

“We had about six because it was a short course and some weeks it was only like two or three of us.”

Also mentioned as a strength was the theory side of things because the practical work is what they do on a daily basis but the theory was often new to them.

And they also enjoyed the interaction with others; being able to chat through problems with other students.

For one of those who had done the British Gas training, the sheer size of the company was seen as a strength as they had so much experience to draw on both in terms of the people there but also the equipment:

“You’ve got hundreds of boilers with all different installations, different scenarios and if you’re unsure of something, just ask and just go out and practice. You’ve got all of that at your disposal.”

Weaknesses

Most were pleased with the training they’d undertaken and were unable to think of any weaknesses of their particular course.

However, the elements which were seen as strengths by some engineers, were seen as weaknesses by others. For example, some did not like the fact that a larger proportion of the course was theoretical.

While some mentioned that it was good that the instructors took it at a pace that suited individuals, for others this made it repetitive and ‘painfully slow’. They questioned the suitability of the training for certain individuals.

“There were a number of people on the course who had got no background in anything at all really apart from there was a taxi driver and there was a couple of very young lads that had just come into it that had bought these courses. Of course you can only go at the slowest pace so because of the different levels of ability and certainly in the last one, there was only three of us on the course where you do the assessments etc. and two of the guys could barely speak English...I think they’re selling a product to people and it’s much more difficult than they’re saying. It’s not a cheap product.”

Another common criticism was the fact that it was quite ‘intense’ – often a lot to take in during a short period of time and in some cases rather rushed. The intensity meant that if you missed anything it was difficult to catch up, an example being an engineer who was half an hour late due to traffic and struggled with the element that he’d missed until an instructor stayed behind and helped him catch up.

“Towards the end of the Level 3 [plumbing], maybe the last month or the last 3 weeks dealing with the Gas Centre it was learning about gas so it was just like an appendage on the end of the plumbing course. But we didn’t learn much of gas through the plumbing course. When we came to the end, it was all kind of rushed in.”

In one case the course, supposedly lasting 3½ weeks, was even more accelerated:

“They said you are cruising through it so quickly we might as well get you done before Christmas. If you don’t want to that’s fine. I was really excited. Anyway I just said yes, but in hindsight I would have probably waited a bit longer and gone through a bit longer.”

The length of the course also raised a concern among some that the courses are not actually including enough content:

“These gas courses are way too short; I’m not just speaking from my own course but I partake in internet forums and what not and I speak to a lot of other people in the industry and people can get qualified very quickly with the gas and there’s not enough there at all.”

Several people mentioned that the way workshops are set out, with plenty of space to work, is unlike the situations you find in real life and they felt this was one of the weaknesses of the training.

Quality of instructors

In general the instructors were rated highly by engineers; this was especially the case where they felt that those training them had been engineers themselves previously.

“I think the guys that do the training have also been gas engineers on the job in their previous life...so they’re not just giving you spiel from a book, they’re actually giving you good advice, bad things that have happened to them in the past.”

“And Phil was an ex British Gas engineer; he used to teach the British Gas engineers and he...had a lot of hands on experience, really easy to get along with, which made the course very enjoyable.”

“I had nothing but praise for the people that took me on the course. They were excellent people. One was an engineer and plumber, and not only that he had a vast wealth of experience in lots of things...Nothing was too much trouble... with some people he had to persevere and went over and over and over.”

And where they didn’t have that type of background it was noted:

“Some of the tutors hadn’t been in the industry as it were; they were teachers. Some of them weren’t able to give you different ways of doing it.”

The patience of those doing this type of training and willingness to put in extra time with their students was mentioned on several occasions.

“The person that was training us he was really good, he took us aside, explained it to us, stayed behind after class for about 5, 10, 15 minutes, whatever,... and he was happy to do so.”

“Probably the strengths would have to be the instructors. They had a lot of years experience, they were very friendly, very welcoming, you were able to talk to them as a person rather than as a teacher.”

Specific aspects of the training

Engineers were asked about two specific aspects of training, to check these were covered: carbon monoxide dangers and the dangers of flues in voids.

All engineers said that carbon monoxide was covered and in only one case were flues in voids not discussed. Engineers were often keen to emphasise the importance placed on both these issues.

“Yes they were really hot on that [CO]. That was probably one of the biggest eye openings of all the training, because even when I went on site before, that didn’t get hammered into me, but when you were there it was like yeah it’s the biggest killer, killer, killer, killer, and they really drilled it into us.”

Almost all engineers claimed that they do talk to their customers about the dangers of CO poisoning and seemed happy to do that, giving examples of where they had given advice or provided alarms. They mentioned talking about the symptoms of CO poisoning and checking that there was a CO alarm installed. There were a couple of comments about the customer not always being receptive to the information.

The only exception was the engineer working for a social housing association where all the properties already had carbon monoxide alarms fitted.

Flues in voids were generally covered but not always in detail: *“We had some worksheets on that. All these were covered really on the theory side. It was expected that we were to remember all this stuff rather than being touched on again in the practical side.”*

One person mentioned that flues in voids wasn’t covered on his (five week) course:

“I have read about it since the technical bulletin came around but there was nothing about that on the course.”

3.4 Assessment

Generally it was felt that the assessment of the training they had undertaken was thorough and was a fair evaluation of what they had learnt. Inevitably those we spoke to, being registered gas engineers, had been successful in achieving the qualification, although one did admit that he’d failed initially.

They reported that being assessed under pressure was like a real life situation with a customer looking over your shoulder. It was described as mentally challenging.

“I’ve seen grown men cry it’s that stressful, the pressure.”

‘There was one that walked out because he couldn’t handle the pressure’

One engineer reported that the assessment he went through was particularly strict and they'd heard rumours that previously people from his college had been passed who shouldn't have been, therefore the examiners were being more strict than usual.

There were also reports in a couple of cases of people being asked to leave the workshop during the assessment because they were not able to complete the tasks.

Asked to assess whether there were people on their course who they felt should not necessarily have passed, but who did so anyway, many were unable to say as they did not always know what had happened to others on their course. They didn't necessarily sit the assessment at the same time and didn't always keep in touch. They were more aware of people dropping out during the course than failing the exams. One British Gas engineer mentioned that of the twelve people who started his course, nine made it to the end.

However, there were certainly instances of seeing people passing the assessment who, from their experience training with them, they felt should not have passed.

"I think to be honest with you, I think when I took my assessment, I think I was the only person who was ready to take it."

"Everyone on my course passed it...I think two or three of them should have failed. There was about eighteen of us on the course but not everyone on my course was going out getting the onsite experience which they probably should have been to be able to pass the apps."

"I've not been in touch with them since so I don't know but what I do know or the feeling I've got is that at the end of it...if they did pass, I wouldn't like them tinkering on my gas."

"I think there were a lot of people doing the bare minimum. At the end of the day they've just got to pass the exam and get the ticket...my only concern is you've got a lot of people that get the ticket but don't actually know anything about or remember it or retain the information."

They did report students having to retake the tests, not automatically passing – but don't know whether these students subsequently passed or failed.

"A couple had to re-do a couple of weeks from weak areas...but I don't think anyone failed because the training centre that we were in...they wouldn't put you through the exams until you were ready...It was quite good in that way."

However, the fact that colleges were willing to keep retraining people was also seen by one engineer as a negative: *"You've obviously got to pass the exams, you know you could do the same exam 100 times until you pass. They're not going to kick you off the course."* And they were aware of anecdotal evidence that there were places which would pass you regardless of ability.

“I actually know of places you can go if you fail the gas and you can spend a bit of extra money and then you’ll get a certificate at the end of it.”

“The quality of the training and the people delivering the training that I had, I think it couldn’t have been any better but it was just the fact that you could see the glaring holes in the system and where it was being abused all the way through and the quality of people that were coming out the other end. I’m not convinced that the system that they’ve got in place is producing what they think it is ...I know that the course I took I was guaranteed to pass; that was one of the selling points: ‘You are guaranteed to pass’.”

3.5 How well training equips engineers for real life situations

There were mixed views as to how well their training had equipped them to deal with the sort of situations they would find in real life. Most engineers reported feeling confident when they first started work after qualifying, but this was in part due to the fact that some had previous relevant experience and also in part due to the fact that they know where to find help if they need it. One said that it had taken him about a year to feel fully confident.

Some felt that the training had equipped them well or very well, particularly where they had not previously been aware of the hazards of working with gas. They certainly felt that they were equipped to ensure that they worked safely and it was then a case of building up experience and confidence.

“They give you enough information and then you’re out there.”

Others were less inclined to think that their training had made them ready for the reality of work as a gas engineer

“I don’t think it really does equip you. I think you learn on the job basically a lot of stuff. It’s the safety aspect that’s the main important thing and they do equip you for that, most of that anyway. But as to do the actual job, that’s a different thing.”

“I really don’t think it equips you very well at all. What it equips you to do is pass the assessments.”

One of the ways in which real life is different to the training situation is the time pressure that they can find themselves under when working for customers – both from employers keen that they move on to the next job but also from customers themselves:

“Customers put pressure on, they want things doing as cheaply as possible and you’ve got all that to contend with as well as sticking to the rules.”

One engineer reported the training establishment advising newly qualified engineers against thinking they were already competent.

“They said ‘Even though you’re Gas Safe now, you’re not competent to do the job. You need to work alongside somebody before you go out and get your own card.’...I think they might have been aware themselves what is unrealistic, sending people to go out in the real world as gas engineers but with not enough time to do it ...I think they might have been subconsciously thinking ‘This training we’re doing is not good enough’.”

However there was also recognition that no training is a substitute for hands on experience and for some, without the previous experience they’d had, the course might not have been sufficient. They also acknowledged that the learning would continue throughout their working lives and they didn’t expect to know everything simply from having completed training.

“I’ll be honest with you, it’s not 100%...it doesn’t matter how good your course is or whatever, I don’t think anything can equip you for the outside world except experience and going around with people who are experienced...10 years down the line I’ll still be learning on the job.”

“Every job you do you will learn and there’s new things you learn.”

3.6 Extent to which they were monitored or supervised following qualification

Many of those who had gone straight into employment had had little or no supervision and were pretty much left to their own devices – particularly the case where they were self employed.

However, the Gas Safe Register inspection was mentioned by many and there was generally positive feedback about those inspections.

“The supervision is very hot with Gas Safe, they really are. They keep an eye out and especially if you’re new.”

For those who were employed, the level and length of supervision varied widely. For example, one had spent a month working with two other qualified engineers. One worked for six months alongside someone doing landlords’ certificates and got experience of a lot of different unsafe situations that way. One just had the first boiler that he fitted checked over by the company owner.

Two of those interviewed had joined their father’s business and they were subject to higher levels of supervision initially. One described it at ‘85%-90%’ and was occasionally, but increasingly, left on his own. And the other apprentice who was working with his father appreciated the experience he was gaining:

“That’s the other good thing about still having someone with you ie my Dad who’s got a lot more experience than me, that you can bounce ideas off of him or how would you get round this, and you’ve still got that reassurance that you’re doing it right.”

The British Gas engineers were monitored 100% for the first few weeks and were then allowed out on their own but they had a mentor.

"You're monitored all of the time all the way through training and even now when I'm out, I might get a phone call this afternoon from say the safety assurance engineer saying 'Where are you going to be later?', then he'll come out and he'll stand on a couple of jobs making sure I'm doing it all good."

3.7 How they deal with unexpected incidents

There is a strong belief that there is plenty of help and information available to them and that this mitigates the possible effects of any shortcomings in their training.

They all have to deal with situations which are new to them, unexpected incidents, but the extent to which that happens does depend to some extent on how they interpret that phrase and answers ranged from 'very rarely' to 'extremely often' but depending really on their interpretation: *"Almost every day as part of the job, honest to God...something's always unexpected."*

Others tried to quantify the frequency with which they would come across unexpected situations; for example, three in ten situations; for another, once a week.

Asked what they do when they come across a situation which they don't know how to deal with, engineers have a range of options and none was concerned that they might not be able to find a solution.

"I think you've got to have confidence in your ability, but it's only a phone call away or it's just a search; the information is somewhere."

Mentioned most often was manufacturers' helplines, particularly where the situation involves a boiler.

"Manufacturers override everything. I speak to them first."

The Gas Safe technical helpline was also mentioned very regularly but had not been used by all those we spoke to. Some were strong advocates, one had had a less positive experience of using it and one had had negative reports from colleagues.

"The people behind the phone were really excellent. They know exactly what they're on about and they help you in a good way."

"They're not judging. They're there to help and that's what they do...so they were very helpful as well."

"I find that on the odd occasion they're not as helpful as I'd like...I spoke to somebody from their helpline and...he was very vague, it was almost as if he didn't want to take responsibility."

Virtually everyone had a contact they could turn to; a friend, a colleague, their boss, their father, one of their college instructors – someone with more experience who would be happy to be called. In fact, one set of students had set up a *Whatsapp* group for those on the course so they can easily contact each other if they want a second opinion.

“Normally I would read through the manufacturer’s instructions just to make sure that there’s not something particular for this appliance or whatever it is, then I have a couple of mates who have been doing the job for a massively long time, I will ring them and say ‘Have you ever come across this? What’s the procedure?’ If they don’t know then I ring the manufacturer and if the manufacturer is a bit confused then Gas Safe.”

“Phone a gas engineer that’s been doing it many years, take his advice and then if he says call the Gas Board, call the Gas Board.”

“Because it’s gas you’re working with, it’s not water, so there are times where I’m struggling. If I didn’t have that support [engineers he can call] I probably wouldn’t have gone down that path I’ll be honest with you.”

The British Gas engineers have an assistance or support engineer they can call if they have a situation which they don’t know how to deal with. They also have ‘BG Procedures’ on their laptops which they can refer to and they have *Whatsapp* so they can contact their whole wider team to get an opinion from more experienced engineers.

Some engineers also referred to their training books and manuals which they carry around in their van for reference and to the fact that the internet is also available if they need to quickly check something.

When asked how confident they are in their ability to check that they have done a job correctly, all said they knew how to do this and described how they would do this using tightness tests and gas analysers.

Gas Safe Register’s Technical Bulletins

There was high awareness of Gas Safe Register’s technical bulletins and most said that they read these and one engineer described them as the first place he goes for information.

They were generally accessed through an email or through the magazine. One engineer said that he saw these bulletins as a continuation of his training and that it was their obligation to read them and keep up to date.

3.8 Further training received or required

The majority of those we spoke to had ideas for further training; however only a minority had so far undertaken additional training. Training done so far included:

- different appliances

- adding repair to the installation he had already covered.
- free manufacturer courses in a couple of cases.
- one had done a plumbing and heating course, paid for, like his gas training, by armed forces 'unemployment credits.'
- a British Gas engineer was currently working on servicing but would be going back for a further 8 weeks training on fault finding so he could then work on breakdowns.

The type of further training planned was often manufacturers' courses to learn more about particular boilers which was often mentioned. Other ideas included:

- commercial gas work – mentioned by three engineers
- LPG – mentioned by two engineers
- Renewables – new technologies and solar technologies
- One was looking into doing a chimney sweep course

3.9 Industry awareness

There was fairly low awareness among these newly registered engineers of industry bodies other than the Gas Safe Register.

CORGI was occasionally mentioned when they were asked if they knew of other organisations, as was CIPHC and HSE on a couple of occasions.

Only one person mentioned IGEM spontaneously and knew about the organisation. Of the others, more had heard of IGEM than not, but they had not had direct contact and were not aware of IGEM's remit.

3.10 Improvements

While most were not unhappy with the training they'd undergone, there were nevertheless a number of suggestions regarding improvements which could be made to training courses.

Relevance

There were a few suggestions that the content of the courses was out-of-date in some respects and therefore less relevant than it should be.

However, one engineer pointed out that it was the accreditation board rather than the training establishments which were out of date.

"We live in a pretty much new town so all the old stuff you're supposed get all these examples of, they don't exist where I live...you've got to really travel a long way or be really lucky to actually find them."

"I'd say it got you ready for the Gas Safe, it trains you to be a Gas Safe engineer but it wasn't until I went out and started doing the actual job that I noticed, it's not basic training but the course quite clearly is pretty basic, like as in no gas engineer is ever going to know everything and they'll learn something every day, but...my gas course was more focused on gas fires which in today's world it's more combi boilers. So there was that kind of thing."

Length

Several acknowledged that the training they had done had been too short and that this was particularly an issue for those who had no prior experience.

"I would like it to have an extra week, that's my opinion."

"I think the course is too short. I'm alright because I did the plumbing but other people are going straight into the gas; they're not doing any follow ups or anything beforehand."

One of those who had done an apprenticeship was sure that other types of course were too short and leading to unsafe work. The British Gas engineers were, perhaps understandably, cynical that someone could be competent after a short course when they had studied for so much longer.

"Having gone through the last 18 months of training and the level of training, I can't see really how someone could learn enough in 6 weeks to be deemed as being safe to work on gas appliances to be honest. It's opened my eyes...I think it is shocking really."

Practical work

A knock-on effect of the short course duration is that there can be a lack of depth and engineers feel they would like more of the practical training in particular.

Mentioned as areas which come up a lot in real life but which were not covered sufficiently for some by the training were boiler faults and landlord's certificates. They also would have liked more work on appliances in general and some had not appreciated that this would not be covered by their training.

"Like they did only one simple gas fire and cooker and boiler...The boilers, there are loads and loads of types of boilers they have in the houses and they just did a simple basic boiler."

"I think the landlord's tickets ...should be a bigger; that should be covered more in depth in the course to be honest because that's where you're more likely to come across problems."

Although there is some dispensation for those who already have a plumbing qualification, there was a feeling that there could be a further distinction so that those who are coming in with no relevant experience (taxi drivers were mentioned) are given additional training compared to those with some practical experience (such as

electricians). The need for more training on plumbing and heating and pipe work skills for people coming in fresh was generally felt to be a good idea.

“It’s all well and good getting taught gas safety and passing your exams and know what flue is right, what’s not right, all the unsafe situations, but simple things like fitting a radiator, I didn’t get taught that...so gaining employment after, I had to explain I’m Gas Safe but I’ve not got the slightest clue how to change a radiator valve.” [ex-Army]

However there was one dissenting voice with regard to learning about appliances: *“If you’d have asked me last year I’d have said yes, but now I’d say no. In my opinion I think as long as you’re Gas Safe that’s all that matters. You can learn how to work on a boiler...most of the components are the same, it’s just different variations.”* He felt that extending the training to cover different appliances was trying to impart too much knowledge too quickly and it wouldn’t get absorbed.

Other potential improvements

Further suggestions for improvements included:

- More realistic workshop scenarios
- More one to one working – the tendency to work in groups on the courses means that not everyone gets to do everything
- Including more on the change from ‘Not to Current Standards’ to ‘At Risk’ or ‘Immediately Dangerous’
- Refresher days where engineers could go and do a day on a subject they might not come across often. *“Like fires for example...I haven’t touched one since I’ve done my course ...if I do get one, the last time I did it was on the course...So I suppose refresher days would be pretty cool.”*
- A suggestion that Gas Safe Register is involved in certification – one engineer mentioned that his certificate was from the training body and it didn’t feel ‘official’ enough.

4. CONCLUSIONS & RECOMMENDATIONS

- Lengthy apprenticeships were very much in the minority but would seem to offer a very solid basis for working with gas. It may be a function of the sample that most of those we spoke to had done shorter courses and were not in a position to be able to train for a prolonged period of time. However, given the thorough nature of the training offered by apprenticeships, these should continue to be promoted as a good entry route for the right type of candidate.
- Portfolios can be an area of difficulty for those undertaking training; finding help in building a portfolio can lead to delays in completing training and there is anecdotal evidence of fraudulent practice in portfolios. It would be worth considering whether there are ways the industry can assist in this aspect of training and whether, for example, financial incentives could be provided for helping trainees with this part of their training.
- The level of difficulty of training courses was felt to be about right. As would be expected, some found the training easier than others, depending on background and prior knowledge, but also on length of course with shorter courses being quite intensive. There may be scope to provide more tailoring of courses depending on the level of knowledge and experience of the applicant. This seems to happen currently to some extent but much of the teaching was taking place with mixed ability groups.
- There is a tendency to complain that the balance of the course content is more heavily weighted towards theory; however, theory is clearly important. It may be that the practical side of training is what is cut back on when the course is squeezed into a short time frame. Rather than cutting back on theory, the answer would seem to be longer courses or courses of a minimum length which allow time for both aspects to be covered in sufficient depth.
- Specifically, practical training in appliances and in basics such as pipework is mentioned as being worth including in training. While this is outside the current scope of the training and assessment, the extent to which optional add-ons are available should be considered.
- Most are positive about the training they received and especially about the standard of the instructors.
- The assessment was felt to be fair and a good evaluation of their competence but it wasn't unusual for people to say that there were people on their course who shouldn't have passed. This wasn't so much the examiners turning a blind eye to poor performance, it was more the fact that they were allowed to keep re-sitting the tests until they passed. It may be worth considering whether to introduce a maximum numbers of attempts at qualification.
- While newly qualified engineers felt competent when they started, they were not necessarily closely monitored; it depended very much on individual circumstances. The mandatory Gas Safe Register inspection was viewed favourably. Should there be an increased level of inspection and/or a requirement to be accompanied or checked when first starting out?
- Generally any initial lack of experience was mitigated by the fact that there seemed to be many sources of information available to them.

- In order to move forward on the required improvements, it is recommended that government and the industry undertake a fundamental review to establish minimum standards of training, specifically with regard to:
 - Course duration and the certification of very short courses
 - Course content and the balance between theory and practical
 - Pass and fail criteria with a maximum number of attempts allowed.

APPENDIX A

Topic Guide

Moderator:

Date:

Time:

Good morning/afternoon/evening... My name is ... and I work for an independent market research company called Accent. We are conducting research for the Gas Industry Safety Group to look at recently qualified engineers' views of the training they have received. Thank you very much for agreeing to help us with this research.

The research is being conducted in accordance with the Code of Conduct of the Market Research Society (MRS) and also with the Data Protection Act, with whom Accent is registered. This means that everything you say is confidential and will not be attributed to you personally unless you give your permission for us to pass your comments on in named format.

Our discussion is being recorded. This is standard market research procedure and is to ensure accuracy – so I do not have to try to remember what you have said – and for analysis purposes only. The recordings will not be passed to any third party not associated with the research project, and in our reporting of the findings from this research everything that you say will be confidential and will be reported in grouped format only, again, unless you give your permission for us to pass your comments on in named format.

The discussion will last around thirty minutes.

Can I stress that we are looking for your views. There are no right or wrong answers.

General

3 mins (3)

Could you tell me a bit about yourself and your job?

PROBES:

Age; place of residence

Employment history – who working for, for how long, is this your first job?

Training & qualifications

10 mins (13)

Qualifications

What qualifications do you have? When were they gained?

Where did you study?

Let's talk about the training you received in order to qualify as a gas engineer

What did it consist of – how long – full time or part time

PROBES:

Easy – difficult; useless – useful; theoretical – practical; book knowledge – application to real life.

Did you receive any work experience as part of your training? If so, what did you actually do? How much was gas work?

**What were the strengths of your training?
What about the weaknesses?**

Thinking about some specific areas, were you given CO information as part of your training? Did you learn about potential safety issues around flues in voids?

**How well has it equipped you to do the job of a gas engineer?
Why do you say that?**

**Thinking about the assessment you received, would you say it was a good test of your ability?
Why/why not?
Did people on your course fail?
Was that right? Should they have failed/passed and didn't in your view?**

**Have you received any further training since you qualified?
What sort? Who paid for it? How useful was that?**

Would you like to receive any further training?

**To what extent have you been supervised in your first year since qualifying?
How often? Has that been useful? Adequate?**

Real-life experiences	10 mins (23)
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Thinking now about real-life experiences. How well did your training equip you for real life situations?

Tell me a bit more about that. Can you give me any examples

How often do you have to deal with unexpected situations?

How do you feel about that?

How do you feel about dealing with unexpected situations you have experienced?

Have you ever found yourself in a situation where you felt you did not have the knowledge to deal with the task at hand?

If so, what did you do? How do you work around it? How did you feel about it?

What sources of help are available to you?

PROBE: Gas Safe technical helpline; manuals; manufacturer helplines, online sources, colleagues; friends)

Do you know about Gas Safe Register's technical bulletins and how to access them?

Are you aware of industry standards? Do you use them? How easy are they to access?

Do you ever have to do gas work when you've gone to do a different job such as plumbing? Does that cause any issues?

Do you ever discuss CO with customers? Do you feel comfortable doing that?

How do you check your own work – how do you know you've done it right?

Improvements	5 mins (28)
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In your opinion, what areas of gas engineer training need improving? How can these be improved?

What training/experience/guidance during your gas engineer training would have made you feel more confident and/or competent?

PROBE: Longer training, more theory, more practical, different type of assessment

What training/experience/guidance would be helpful to you now?

Are you aware of any professional institutions, other than Gas Safe Register?

Probe for IGEM if not mentioned

Wrap and Close	2 mins (30)
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Any other thoughts on your gas engineer training or further training?

What would you say is the single most important thing to improve in the training and guidance you receive as a gas engineer?

Thank you very much.