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F-Gas Review – *ConstructionSkills* Assessment

We decided to conduct an evaluation of F-Gas Training, Assessment & Certification by looking closely at the structure of the *ConstructionSkills* (previously CITB) Scheme. Consequently, I decided to tackle one of the best known and longest-serving Centres for Refrigerant Safe Handling Training & Certification - Business Edge Ltd.

Business Edge is run by Mike Creamer, a personality within our industry who is well known for his extensive technical capabilities, experience and sound business ethics.

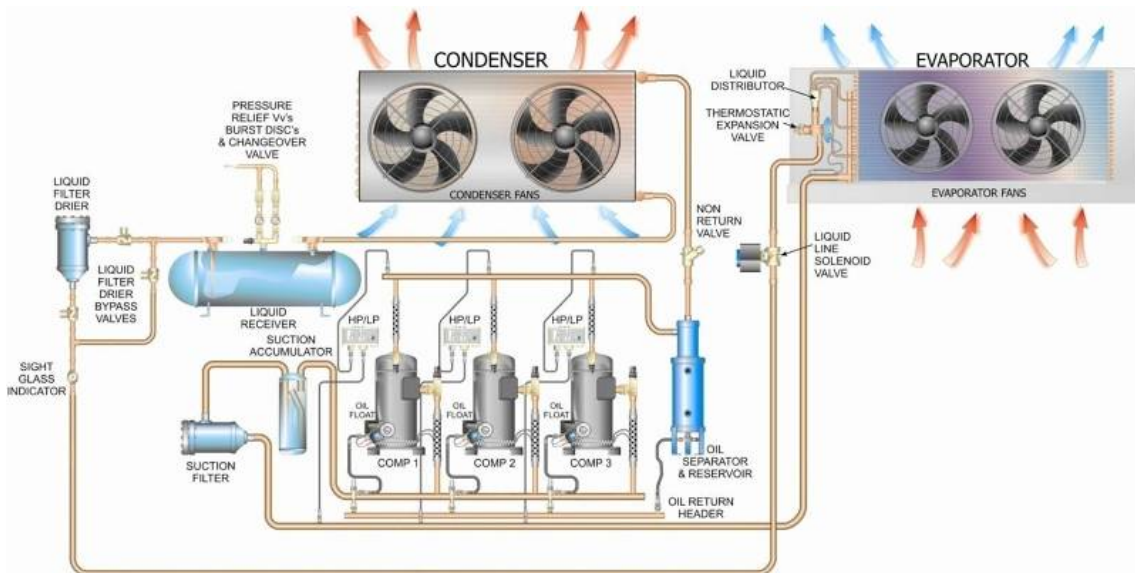
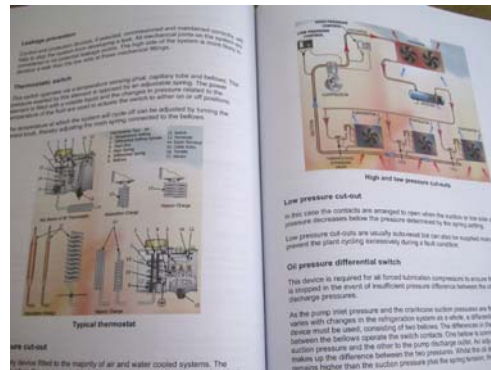


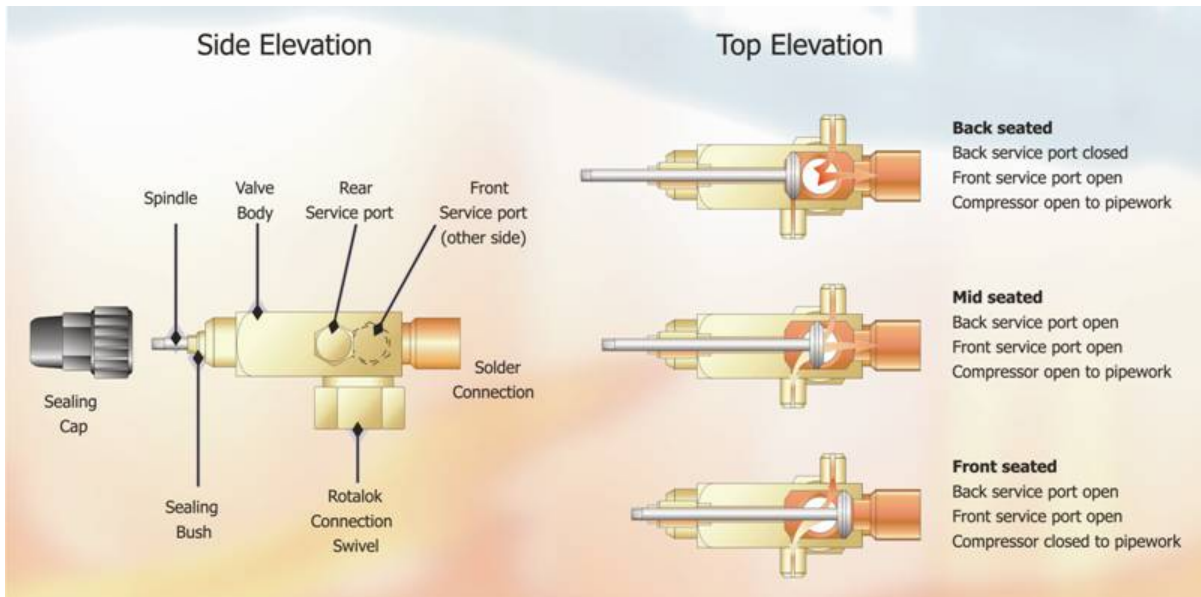
I asked Mike how he feels about the new *ConstructionSkills* F-Gas Scheme, having run the original CITB J01 courses from almost the very beginning in the early 90's:

"The new Scheme, encompassing the four levels of Competency (J11, J12, J13 & J14) is simply light years ahead of the previous schemes run by CITB, and its counterpart, City and Guilds". This is of course driven by the legal requirement to structure such training and assessment in accordance with the new European Regulation 842/2006 and subsequently Regulation 303/2008 and ConstructionSkills have worked long and hard to develop a course structure that is thorough, and above all, of direct practical benefit to those who attend. This is already the view of the exceptionally large number of Engineers who have been through this process with Business Edge.

It has been an honour for Business Edge to have been extensively involved in the development of the course materials including the excellent Study Notes now issued to candidates.

We have contributed significantly to the technical content and in particular the technical illustrations some examples of which I have provided below:"





F-Gas Training Rigs

I asked Mike what impact the new F-Gas Regulation and the resulting course structure has had upon the Training & Assessment equipment at each Business Edge's three Training Centres:

"In this regard Neil, we have seen a massive change. In addition to the practical refrigerant safe handling elements of the course, candidates are now required to change major components on an operational system and this will include a compressor, thermostatic expansion valve, condenser coil or an evaporator coil. Consequently the Assessment Rigs have had to be designed and constructed to facilitate the removal/replacement of such components with reasonable access and to withstand the rigors of numerous Engineers disconnecting and reconnecting mechanical joints, especially in a way that ensures no refrigerant leakage. Moreover, the safety aspect of these Assessment Rigs has been carefully considered from mechanical, pressure-related risks and electrical safety viewpoints. We conceived the primary design of the Assessment Rigs and then worked with Bitzer (UK) Ltd, in order to finalise the design, whilst incorporating their compressors and other key components".

Mike, has the investment in the Training and Assessment Rigs been substantial?

"The investment for a Training Centre to set up this operation properly is now significantly higher than ever before. Our investment has been even greater as we run three fully Authorised

Training Centres in Waterlooville, Milton Keynes and Tiverton. As we had to construct identical sets of equipment, it was essential that these were designed and developed very carefully”.

What other investment have you had to make?

“In addition to the increased number of tools and equipment including more recovery machines, vacuum pumps, gauge manifold sets and test instrumentation, we have also had to invest in the design, development and construction of a dedicated ventilation/extract system at our Waterlooville facility, as well as ensuring that these are up to standard at both the Milton Keynes & Tiverton Centres”.

Why was this necessary?

“It is a legal requirement for all brazing operations to be conducted within an adequately ventilated environment and now that brazing forms an elementary part of the ConstructionSkills F-Gas Assessment, this was an investment we had to make. Accordingly, we conducted all of the design work ourselves and these installed systems are working very well. At Waterlooville, we have a dedicated ventilation hood at each of our workstations and variable speed fan capability in order to match the extract and ventilation air volume according to the operations in progress”.

Does that mean that every Training Centre Venue must have a ventilation/extract system?

“I strongly recommend Candidates ensure that the Training Centre at which they are planning to undertake their F-Gas Assessment is adequately equipped”.

Does that mean that your previous modus operandi, under which you ran courses at your own Centres and were also able to take these to customers premises, or workshops and hotels, is no longer possible?.

“Absolutely. Firstly, our new training rigs, tools and equipment, and training presentation equipment, together with documentation and so on are now impractical to load and transport, without extensive effort, whilst suffering cost and time penalties. Moreover, this is now academic, since it is no longer possible to run such Training and Assessment at any venue where inadequate ventilation/extract is not available”.

What about the equipment associated with Pressure Testing and Brazing?

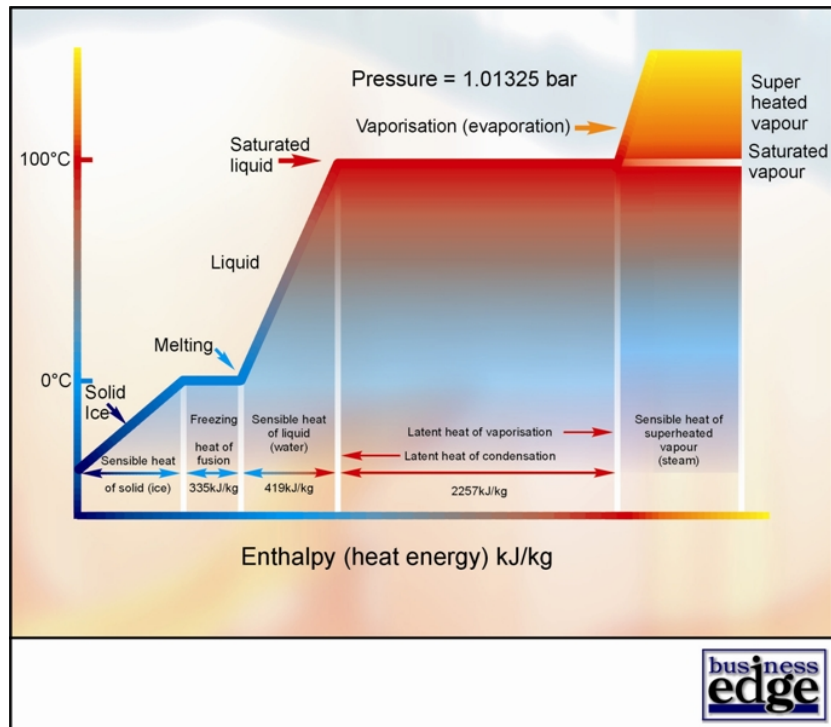
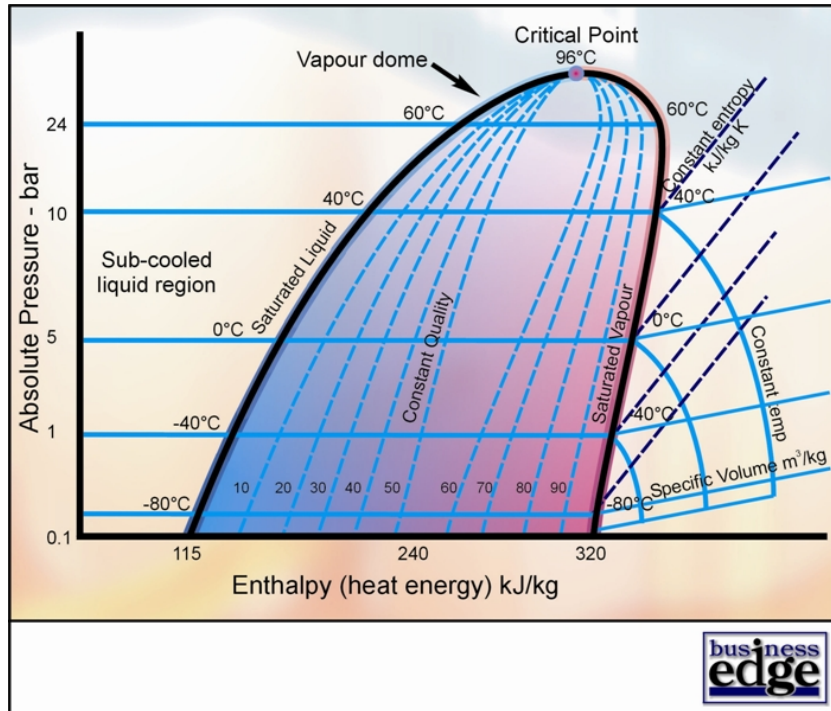
“Where pressure testing is concerned, we have dedicated Test Rigs for this specific purpose. These are designed with a high factor of safety and with failsafe capacity to ensure the candidates are unable to exceed the maximum allowable pressure of the components in accordance with the relevant standards. Where brazing is concerned, there are strict rules with regard to the equipment used, the gasses used, the arrangement of such equipment and its security within the brazing areas. Business Edge has again undertaken all the necessary steps to ensure absolute safety and compliance with the relevant regulations. Consequently this is another element that cannot be transported from site to site and this is why we have decided to conduct all training and assessments at three fixed locations. I will consider further locations as and when the need arises”.

Does that mean that all F-Gas Training Centres are only able to provide training at fixed locations?

“I would expect this to be the case but I am not able to comment on the operations of our competitors as I am simply not aware of how they execute such training and assessment in detail. Accordingly, I would advise candidates to make absolutely sure that they are going to receive their training and assessment at a professionally designed and managed training facility. Above all, the instructors must be knowledgeable experienced and highly capable”.

What elements of the new F-Gas Assessment do candidates find most difficult?

“Where the theoretical elements are concerned, it is undoubtedly the fundamental refrigeration cycle and the associated pressure-enthalpy chart that many candidates simply appear to have little or indeed no knowledge of. When you consider this is the fundamental basis on which all vapor compression systems are designed and operated upon, this is clearly of considerable concern. Having said that, it is of course now of major benefit to our industry that this element is now superbly covered within the new ConstructionSkills F-Gas Training and Assessment process.



I have personally been using pressure-enthalpy diagrams in conducting all manner of calculations for refrigeration and air conditioning cycles since the early '70's. In 1990, when I started Business Edge, I specifically designed all our air conditioning and refrigeration technology courses. Even then, these included substantial coverage of the P-E diagram and candidates were extensively

trained in every element of calculation associated with single stage and two-stage low temperature vapour compression refrigeration cycles.

This why we were really pleased to be invited to work with ConstructionSkills in the development of the Course Study Notes and associated material, as this gave us a real opportunity to ensure that this element was covered adequately and correctly”.

Are you happy that the course documentation and Study Notes are now complete and absolutely adequate for the purposes of Training and Assessment of Candidates to the appropriate Standard?

“I am very happy with the content and quality of this first release. However, in all walks of life and business, there is always room for improvement. Consequently, ConstructionSkills have had the foresight to limit the production print run of the Study Notes so as to allow ongoing improvements to be made. The views of Candidates, as a result of their experience in undergoing the Assessment will always be considered and the professional Centres that deliver these Assessments will no doubt add to this ongoing development. The wording of questions must be very carefully crafted so as not to cause confusion or mislead the candidates. There may, for example, be some areas that whilst clear to the Instructors / Assessors and the Development Team, are not so clear to a few Candidates, and should this become evident over time, the documentation will be revised. I am pleased to say that we have had no problems of this kind to date.”

Have you had a good response to the new F-Gas Assessments from your customer base?

“The response has been simply amazing. I think it was inevitable that we would be fairly successful insofar as there is now, at last, a legal requirement for Candidates to be Certified under the new F-Gas Regulation. If an Engineer has no Certification whatsoever, he/she is legally bound to undertake the F-Gas Assessment. If an Engineer holds a valid J01 Certificate (old CITB Scheme) that expires before July 3rd 2011, they are legally bound to undertake the new F-Gas Assessment before it expires. If the J01 is valid until July 3rd 2011, they can defer the F-Gas Assessment until just before July 3rd 2011.

Business Edge has an enormous customer base of dedicated and loyal companies who, through their experience with us since 1990, have come to know the technical capability of Business Edge and its dedication to providing a totally professional service from start to finish, via its administration procedures, technical training, support equipment and presentation materials”.

I notice that you only offer the ConstructionSkills assessment. Why don't you offer the City & Guilds – based version?

"Interestingly, we were a City & Guilds Approved Centre for Refrigerant Safe Handling many years ago and offered both Schemes to customers. Interestingly, even though the City & Guilds was supposedly a lifetime qualification, the vast majority of our customers opted for the CITB scheme (J01 as it was then) and we consequently dropped the City & Guilds-based Training Programme. This is not to say that one was better than the other, since we are capable of running each to the same exacting standard. They were considerably different and indeed this is still the case now. Consequently, Candidates must be sure to select the appropriate Scheme that they feel is best suited to their needs. The ConstructionSkills Assessments for J11, J12, J13 & J14 are now valid for a period of 5 years. City & Guilds is in fact no longer a "lifetime qualification", in fact it was only ever for the lifetime of the qualification not the candidate and is therefore often superseded and this is why we have seen over the last few years C&G2077, C&G2078 and now C&G2079. This has been something of a myth and is thus dispelled".

Would you consider becoming a City & Guilds Assessment Centre?

"This question arises within Business Edge from time to time and we will certainly consider this, if appropriate. Currently however, we are so busy running the ConstructionSkills Scheme with numerous courses scheduled and booked out to December 2009, that we already have our hands full in running these. In addition, there are our other well-known Courses to manage, which include ConstructionSkills Brazing, Essential Electrics, Refrigeration Electrics, Air Conditioning & Refrigeration Technology and so on".

Are you considering the recruitment of additional Training Instructors?

"Quality instructors with the appropriate knowledge, physical experience, documentary capability, administrative skills and interpersonal / presentation skills are not easy to find. This is all the more difficult as a result of the exacting standards that I insist upon within Business Edge.

I am in the process of searching for a new Technical Support Engineer to assist me in my troubleshooting, consultancy and arbitration work, this being heavily technically based and for the same Engineer to assist us in the field with our ClimaCheck Performance Analyser, Fri3Oil Flushing / Cleansing System and finally, to augment the Training Department in terms of training

equipment maintenance, assistance on Courses and so on. This challenging role will require a very special person indeed!"

It was always a ConstructionSkills requirement that all Instructors be qualified to NVQ D32, D33 and D34. They now require A1 and V1 qualifications and this will ensure that only the best and capable Instructors are permitted to manage such Assessments & Certification in the future".

I see that you run a 3 day F-Gas Certification course. Why did you decide on 3 days rather than 1, 2, 4 or 5?

"Our first objective was simple. We must maintain the cost of training to contractors, manufacturers and so on, at the lowest possible level, particularly in these economically difficult times. Not only is there the cost of training to consider; there is the loss of production time for Engineers whilst they are attending Courses instead of earning valuable revenue during the course of their normal work. Using our vast experience of Refrigerant Safe Handling under the earlier Schemes, and through experimentation, it became clear that we could manage the entire F-Gas Assessment & Certification process within a period of 3 days, but this required special planning and well-designed equipment.

So, our F-Gas Training & Assessment Rigs and our Auxiliary Rigs were designed so as to provide an efficient working platform for Candidates and to enable simultaneous operations by Candidates to be conducted. The arrangement of the Training Centres and the equipment therein has also been carefully considered.

Our Instructors have to manage extensive administration, candidate questions, the marking of Test Papers, physical demonstrations and physical Assessments, all of which takes a great deal of time. Consequently, all of our Courses are run with at least two instructors along with an internal verifier. Moreover, on Day 2 and Day 3, we usually run the Course over extended hours, very often commencing at 07:30 hrs and sometimes finishing as late as 19:30 hrs. This is a long day for our Instructors but is of considerable benefit to our customers".

Mike, is it your opinion that this level of Training and Assessment is really necessary?

"Undoubtedly. The new Regulation and the way in which ConstructionSkills has worked to develop this Training are such that Candidates will now truly learn the technical elements they really need to know. In addition, the thoroughness of the training is now geared such that

Candidates with the right mental attitude can conduct their work efficiently, safely and, above all, with a serious beneficial effect upon the environment”.

Has the new F-Gas Scheme been adversely criticised?

“As yet, we have had no complaints whatsoever from our customers or any other party. If further improvements need to be made, you can be sure that I will make them. Our auxiliary and complementary materials on the courses are always undergoing review and continual improvement. There are so many things changing within our industry that this is an essential process. Where the fundamental F-Gas Course is concerned, I would rigorously defend its principles against any criticism whilst at the same time keeping an open mind for improvements, based upon the suggestions of our customers and our ongoing experience.

I know too that, as a result of their considerable development investment, ConstructionSkills are determined to defend its principles and position in this regard. They were, after all, the organisation that conceived and introduced Refrigerant Safe Handling Certification to the UK AC&R industry with supporting materials that Candidates learn from.”

What have your customers had to say about the new F-Gas scheme?

“We now have hundreds of positive comments regarding the way in which the training has been conceived and delivered. Consequently, I know that we are on the right track. It is our ongoing mission to remain one of the top ConstructionSkills Centres for the delivery of the F-Gas Assessment & Certification Scheme”.

Business Edge Customers had the following to say:

“I found the Business Edge F-Gas course very intuitive. It was a great way to reinforce the good practice methods of carrying out the everyday tasks in Refrigeration and Air Conditioning and was also a way of learning aspects of the theory that would not be learned as part of the normal day. The Instructors were very knowledgeable and the examination was a great challenge, both theoretically and practically.”

(Refrigeration Engineer - Name supplied)

“I selected Business Edge for F-Gas Assessments of all my Installation & Service Engineers, principally on the basis of their technical and training reputation. The comprehensive training delivered by the Instructors, together with the supporting materials enabled us to get through this very intensive Course. The Training Rigs are extremely well designed and constructed and we found this to be 3 days of our time very well spent. I would not hesitate to recommend this company in the future.

(MD - Name supplied)

“Over the last few years, we have used Business Edge exclusively for all of our Air Conditioning & Refrigeration-based training. I am responsible for over 100 Engineers and must consequently ensure that they are working within the Law, safely and efficiently. Business Edge, along with its specialised technical skills, has consistently delivered the highest quality Training and Assessment service. The effects of their F-Gas Training & Assessment programme upon my Engineering Staff have been excellent”.

(Refrigeration Manager - Name supplied)