

# The need for Technical Education

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Let us think about the business environment, the office environment and the normal work environment for a moment. Let us think about what we take for granted, as it is really a lot more involved. The lights, well at some point a qualified electrician worked out how many lights you need to light the office. This would be found in the “code”. He would also have to work out the electrical load to ensure the correct breaker was used and the correct wire was used to prevent either the breaker “popping” or the wiring getting hot and causing a fire. There should be a conduit, to house the wire, of the correct size to enable expansion at some future time. The conduit should meet the “code” as should the wire and other equipment. So the electrician needs to know the electrical code applying to lighting and office environments. The electrician also needs to know how to wire switches if there are more than one entrance to the office or room, i.e. two-way or three-way switching. If any of these decisions are wrong then problems for the work environment occur. The same type of decisions are required for the electrical outlets, how many outlets on one breaker, what loading is required, what voltage and what equipment would be required. These things don’t just happen they have to be planned and worked out.

So we have established that we need an electrician to power our lights and equipment. Computers need a “clean” line, modern copiers need 220volts, different wire, different outlet etc.

We certainly do not want our equipment to shock us each time we touch it, use an unqualified untrained person and this can happen. I think we have all come across the amateur electrician’s work, yet we have few practical checks and balances to prevent this in our legislation. The truth is we have so few trained and “competent persons” that those capable are working practically and rarely wish to work in compliance.

Now please do not misunderstand, the laws may be written but enforcement is poor. Do we really need overpowering inspectors checking our properties all the time? I think not, but if we had all the electricians trained and they were paid according to their level of expertise, then the average person wishing to hire an electrician would ask for their badge/license.

I haven’t finished with the office/workplace environment yet, let us think a little about the water system.

Are we on city/government water, our own tank/cistern system, or well water?

It is “code” that “potable” water should be available, that means water fit to drink. Is the water tested? Does it contain unwanted bacteria? Who installed the water pump and pressure tank? Is it using more electricity than it should? Is there a well water system for toilet flushing? Is it connected to the fresh/potable water system so that flushing may continue if the well pump fails? Is the installation fitted with a “back-flow preventer” which physically prevents the well water entering the fresh water? Is the plumber qualified? Does

he ever clean his tools after working on the toilets or does he then install a set of sink faucets using the same tools? Is his nickname “leak”? These are just a few questions one has to address to prevent staff becoming sick and unable to work.

Is your workplace air-conditioned? Yes, but the company takes care of it and it is rare we get any problems. Are the service technicians Bermudians, qualified and well trained or are they charging you to learn their job at your expense? Was the system installed correctly, do you have ductwork, split-systems or multi-systems? Does the office smell of mildew or mould? Is the air-conditioning turned off at night to save electricity? Is there an indoor air quality issue? Is it easily controlled by the workers or by one person? How often does the maintenance get done and is it done well? Air conditioning is the cause of numerous sick days each year, yet how many of us know it was the air-conditioning or the water?

Most offices and a lot of companies have copiers; did you know the toner used in copiers is carcinogenic? Did you know the fine dust from the toners becomes airborne and long term exposure and close proximity to copiers increases your chances of inhaling the toner particles? IT personnel put copiers anywhere without knowing the technicalities or the risk to your health. Is toner spilt all over the place when it is replenished? Who maintains the copier, and is it done regularly? Laser printers have the same effect and should not be too close to workers eight hours a day, year in year out. Copiers should be enclosed in separate areas to prevent long term exposure to the toner.

Wait, now we can look at the office or workplace itself, most places need computers, the majority has a network internally and the internet to reach the world. Why do we need clean lines? What are they? We need servers and switches and modems and routers and hubs, oh come on, the IT takes care of all that!! Yes he does but is he Bermudian? Is he qualified? Will you lose him when his work permit expires?

Something we forget about is the cleanliness of the computers. They actually act like they are vacuum cleaners and the inside of the computer collects the dust, dirt, and hair etc., but more than that in the dirt and dust mold spores collect dust mites and other nasties. If the computers are not cleaned correctly and at regular intervals then the indoor air quality will suffer. Asthma sufferers will feel continually bad, as if the air-conditioning ducts were full of mold, dust mites and hair. So how often are the computers looked at? What is the quality of your maintenance and IT man? When the cleaners come around each evening sweeping, they stir up the dust and the fans on the computers suck the airborne dust. It accumulates until it builds up enough then it is released from the computer back in to the air.

Does that conclude the average workplace equipment? We will say plus or minus a few items that makes up an office environment or similar workplace.

So let us re-look at those things:

Electrical system

Water system

Air-conditioning

Copiers

Computer networks

So each and every workplace requires expertise to ensure your safety, to ensure your comfort, your health, and each of the above requires training to a level whereby you are receiving the service to eliminate the risks. Are you getting this service.

So above we have

Electricians

Water technician or mechanical specialisation

Air-conditioning technician

Copier technician

IT technician

Each of those fields are specialist careers.

Having established some of the reasons we need qualified people in our workforce and knowing we don't train any in Bermuda to a standard which can be improved upon until one is at the degree level means that we import our technical expertise to do it for us.

What I am trying to achieve is the training for our youth to start at the bottom and have the means and encouragement to reach the top. The bottom level is a technical high school teaching the basic principles of mechanical, electrical, and electronic engineering. Those that say we don't need fifteen qualified technicians a year have no idea about the technical education requirements.

We need our technicians to continually move upwards so that every two years a junior technician should pass his exams to become fully qualified technician and two years later should become a senior technician and so on. These technicians would be gaining experience all the time; they would be working in the field, helping the junior technician and studying for the next level. That is how it works and that ensures our youth will eventually reach managerial level to continue the process, start new enterprises, and earn good salaries. We will always have technicians wishing to move overseas, we will always have those technicians wishing to further their education abroad, and you will always have technicians looking for better jobs, so technicians need to be continually trained in numbers.

I have covered a very small field of technical expertise required here in Bermuda. We need vehicle technicians, diesel technicians, marine engine technicians, pressure vessel technicians. Electrical technicians come in many areas of expertise: high voltage Switchman, high voltage Lineman, high voltage Controlman, Generation technicians, planning technicians, maintenance technicians, all of whom require to be trained and the training can lead to higher positions within the company. The same applies in the mechanical field where maintenance of engines and pumps require different levels of expertise, vibration technicians, the list is endless.

In electronics the field is enormous, from computer technicians that repair computers to the software technicians, hospital equipment maintenance and repair, generator control equipment repair and security systems maintenance and repair. The banking system has specialised electronic equipment from dispensing money to the complex security systems.

One of the major tasks is troubleshooting the equipment, in other words finding out what the fault is within the system, it takes knowledge, experience and time. The more experienced a technician is the more he is worth because he will save a lot of time which means money in the present workplace.

I hope I have been able to highlight the need to train our youth in technical principles. Once they have a good foundation then they have the building blocks for improving and studying the field that interests them to a much higher level.

Bermuda needs to start all over again, we need technicians and as soon as we have a qualified workforce the economy of the Island can go forward. Exempt companies would be assured of a better experience both in the office and the home. Bermudians would be wealthier and happier to lead their country instead of following. We can do it if we all want it, in the words of Barack Obama "YES WE CAN"