

COMPLIANCE WITH COVID-19 REGULATIONS IN MICRO-ENTERPRISES AND SMES IN THE IRISH CONSTRUCTION SECTOR

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In Ireland, the construction sector has such major influence on growth and economic stability that construction companies were able to restart operations during the COVID-19 pandemic, albeit with the development and implementation of a set of regulations by the Health and Safety Authority (HSA) and the Construction Industry Federation (CIF) to facilitate the safe return to work on sites across Ireland. The introduction of regulations is the first step in the provision of safe working conditions in relation to the pandemic and this research addresses the need to examine the functionality of, and compliance with such regulations. It should be noted that due to the nature of the pandemic, it would be the case that the regulations will be changing due to the emergence of virus variants, infection rates, and vaccination levels so this pilot study essentially takes a 'snapshot' that examines the suitability and compliance with regulations as currently imposed on the Irish construction sector. The study exclusively focused on staff working in micro and small to medium enterprises (m/SMEs) from mid-November to mid-December 2020. Interviews, centred around a 53-part questionnaire, were completed with 30 participants from 27 construction companies. Initial findings indicated the level of compliance with the regulations to be much lower than expected due to issues such as employee behaviour, difficulty in breaking of old habits and lack of supervisory personnel. Findings also indicate that 70% of participants found conflict between the new regulations for safe working relating to the pandemic and current Health and Safety procedures, listing issues such as worker isolation, manual handling issues and obstruction of both visibility and communication by facemasks. Typically, the responsibility for implementation and enforcement of the regulations has fallen into the remit of the Health and Safety personnel in the companies. The research, limited only to companies in the Irish construction sector, has raised many questions about the suitability of the current regulations and warrants further investigation as to why micro-enterprises and SMEs have difficulty with compliance.

Keywords: COVID; pandemic; micro-enterprises; SME; compliance; confined space

The COVID-19 pandemic has had a profound impact on construction, necessitating both the introduction of regulations to facilitate safe working on site and also research on the suitability of, and level of compliance with such regulations, especially where compliance has an effect not only on-site but also has a public health aspect. How the

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pandemic has affected various industrial sectors such as construction, and how different governments have reacted to it, differs widely across the world.

In Ireland, the response to the pandemic involved the Health and Safety Authority (HSA) and the Construction Industry Federation (CIF) developing regulations to facilitate safe working practices on Irish construction sites. Currently there have been no studies undertaken to investigate the level of compliance with the current COVID-19 regulations by micro and small to medium sized enterprises (m/SME) in the Irish construction sector. This study, while recognising the inevitable evolution of regulations as the pandemic develops, is limited exclusively to the Irish construction industry context during a specific time frame of mid-November to mid-December 2020, will identify barriers to compliance and make suggestions for eliminating or reducing such barriers to improve compliance.

A detailed literature review has been undertaken to understand the current regulations (which as stated above will most likely change as the response to the pandemic develops) and establish the key factors that influence compliance.

The fact that the COVID-19 virus can spread through close contact means that it is vital that regulations, especially those relating to working in confined spaces, are formulated, implemented and monitored on sites. This study investigates tools used to assist with compliance such as auditing, despite the negative stigma attached to auditing in the construction industry. The use of spot checks could also be utilised to optimally support compliance in the construction industry (Williamson, *et al.*, 2018). Other tools such as communication channels including Toolbox Talks (TbT), WhatsApp, or focused e-mail threads are also considered.

Interviews were used to gather information from 30 participants from 27 companies across Ireland. All companies that participated fall within m/SME category. The use of a questionnaire facilitated gathering of quantitative (scored and scaled questions) and qualitative data (using open ended questions to capture the experience and opinions of working professionals in the industry) to allow investigation of behaviour regarding their experience of, and compliance with, COVID-19 regulations. In the Irish context, it is paramount the construction industry complies with the current regulations set out by the regulatory authority, the HSA, and works with the recommendations from the CIF as the representative construction organisation not just to ensure on site safety but to ensure that public health is also safeguarded through appropriate behaviour and compliance with regulations on site.

LITERATURE REVIEW

In the Irish response to COVID-19, two Government Departments, the Department of Business, Enterprise and Innovation and the Dept of Health have created a forum of members from state and business bodies to ensure that all actions in the safe-working protocol are implemented to suppress the spread of COVID-19 in the workplace. In the case of the Construction Industry, regulations termed the safe working protocol are intended to augment existing Health and Safety measures on site in the hope of achieving full compliance to the new COVID-19 regulations (Department of Business, Enterprise and Innovation and the Department of Health 2020).

Strong and clear communication of such guidelines, coupled with robust yet practical enforcement encompassing training, provision of appropriate personal protective equipment (PPE), auditing and feedback, is essential in protecting construction workers from the spread of COVID-19 (Department of Business, Enterprise and

Innovation and the Department of Health 2020). For example, the CIF states that to slow down the transmission of COVID-19, a minimum distance of 2m between employees must be adhered to on-site (CIF, 2020). Employers are generally aware that they have the responsibility to comply with safety programmes but there is no evidence available showing that construction sites in Ireland operated by m/SME are in full compliance with site specific regulations set out to reduce the spread of COVID-19. This pilot study aims to provide a 'snap-shot' of compliance with the COVID-19 regulations across the m/SME in the Irish context.

The construction industry is constantly facing changes, such as adoption of new methods of communication, new equipment and new processes that bring with them new hazards. The industry is on a continuous learning curve to adapt to these changes and so it is never fully free from safety problems (Cesarini, Hall and Kupiec 2013). The emergence of COVID-19 has presented a new and dangerous public health risk that needs to be carefully managed through the development of new safety regulations, their implementation and monitoring both on site and in the community in general.

With regard to compliance, it has been reported that in safety management, both behavioural and attitudinal factors from employers and employees in the USA contribute to an increase in behavioural safety non-compliance (Jamal Khan, 2006). Historically, human factors affecting compliance consist of worker age, worker safety awareness (Alaqqad, 2009; Ismail, Doostdar and Harun, 2012), worker experience and previous exposure to accidents (Charehzehi and Ahankoob, 2012). Also mentioned are worker education, worker marital status, the knowledge and involvement of workers (Alaqqad, 2009), along with communication between workers (Zamani, Banihashemi and Abbasi, 2020). Human behaviour unfortunately cannot be programmed like a machine (Jannadi, 1995). It has been argued by (Ejdys and Halicka, 2018) that a positive attitude shown reflects a readiness to learn. However, it is key that this attitude is evident not only in staff and subcontractors on site but is supported by institutional pressure on individual behaviour to positively affect compliance in m/SME.

There are many physical tools that can also be used to assist with ensuring compliance. Signage with simple diagrams using symbols that all employees can readily understand or using barriers to prevent or control access are two effective tools that are relatively simple to implement (Alaqqad, 2009). Toolbox talks (TbTs) can be used as a potentially impactful form of supervisor safety communication on sites in the construction industry (Olson *et al.*, 2016) with the aim of explaining requirements and therefore reducing non-compliance issues. It is recognised that TbTs are a common and valued method of aiding compliance and addressing complications with safety issues (Olson *et al.*, 2016).

Compliance audits are used to assess the functionality and compliance with health and safety processes on construction sites, factoring in legislative requirements, industry best practices and the contractors own understanding of their health and safety management system (HSA Inspections, 2020). Although safety inspections carried out by officers of regulatory authorities are believed to be of importance in the prevention of accidents and compliance to regulations, there is little in-depth research on this (Saurin, 2016). Findings have also shown that there can be a negative stigma surrounding the term 'audit' and the profession of auditing (Eulerich, Kremin, Saunders and Wood, 2017). This can affect outcomes of these interventions and has

also made it difficult to attract high quality candidates for jobs in the audit role. Another study into auditing professionals in both the US and Europe identifies the profession as being morally dirty work (Ashforth and Kreiner, 2014), attributed to the intrusive and exposing nature of auditing. In more recent times, a case for more non-punitive inspections has been made although literature is limited in this area. However, a study by (Williamson, *et al.*, 2018) illustrates how Australian national policy endorses and promotes a responsive approach to work health and safety, using a combination of positive motivators such as education and advice, with compliance monitoring and enforcement to promote and secure compliance to regulations.

A specific challenge for construction sites regarding compliance with COVID-19 regulations, arises when it comes to working in close contact, especially in a confined space, where it is advised to keep at least 2m from other workers when possible (CIF, 2020). Confined spaces are defined as limited or restricted areas not designed for continuous occupancy where employees enter and perform a specific task (Botti and Duraccio, 2018). It is well recognised that overcrowding increases the risk of transmission of diseases in general (Beggs and Noakes 2003) and the limited spatial environment on site was attributed as one of the core factors affecting workers health and safety (Spillane and Oyedele 2013). The main cause of accidents and fatalities in most confined spaces is the atmospheric condition (Botti and Duraccio, 2018). In Ireland, employers and self-employed persons are responsible for the implementation of health and safety measures complying with a defined Code of Practice to ensure employees are working safely in confined spaces (Code of Practice for Working in Confined Spaces 2017).

Another mechanism for facilitating compliance is the use a Safe System of Work Plan (SSWP) with the main objective to identify significant hazards associated with work on construction sites coupled with actions that ensure any guidelines set out by the HSA are highlighted and understood before work commences. It was found when reviewing the current literature that no generic SSWP currently exists for dealing with the COVID-19 crisis under the current code of practices from the HSA. Nonetheless an SSWP is effective through its use of pictograms and simple language to communicate to employees with little to no English (Health and Safety Authority, 2020). The development of an SSWP relating to the key factors for compliance to COVID-19 regulations would be a beneficial addition to the compliance toolkit on site.

METHODOLOGY

The research methods used aimed to gather primary data through interviews conducted over a 4-week period between November / December 2020, effectively 8 months after the virus had impacted the Irish construction sector.

The selection criteria to identify suitable companies for participation in the research were as follows. The companies had to fall within the size category of micro or small to medium enterprises (m/SME) as defined in Ireland. A micro enterprise is defined as an enterprise that employs fewer than 10 employees and has an annual balance sheet/ turnover that does not exceed €2 million, with a small to medium enterprise defined as an enterprise that does not employ more than 50 employees and has either an annual turnover/ balance sheet not exceeding the amount of €10 million (SME Facts and FAQs - ISME, 2019). The companies also had to be in existence and trading in the construction sector for at least one year prior to the COVID-19

pandemic as one of the research aims was to analyse the impact of COVID-19 on 'normal' working conditions.

The data acquired was a mix of both Qualitative and Quantitative data. The interview questions were designed to gather data over five core areas in respect to COVID-19 regulations that this study aimed to investigate. These areas were: 1.) Tools to Assist, 2.) Thoughts on Guidelines, 3.) Compliance, 4.) Confined Space Works, 5.) Employee Attitude and Behaviour. As all participants are asked the same questions in the same order, the data gathered can be compared, it can also be numerically transformed and quantified (McIntosh and Morse 2015). Likert Scales were used to aid in this process and facilitate comparison as Hasson and Arnetz argue that Likert scales are more responsive and more easily understood than other methods, they also argue that Likert scales are comparable, reliable and provide valid information (Hasson and Arnetz, 2005). Industry professionals' views and opinions were gathered as a subjective reaction to the phenomena of COVID-19 through a limited number of open-ended questions, thus extending the data capture by facilitating access to the years of experience in the field and individual opinions of the participants which were considered as valuable assets to the study.

The interview data was logged anonymously with only the person's position, approximate age and gender recorded thereby allowing more truthful and accurate responses as participation carried no implications for the interviewees nor their companies' reputation. The interviews were carried out over the phone due to the limited access to sites, facilitating ease of access to participants dispersed across Ireland. As discussed by (Liamputtong, 2014) conducting interviews in this way allows access to a much greater pool of participants. The fact that the interaction is exclusively auditory and so absent of visual cues, removes any preconceived ideas or views of the interviewer that may impede the participant expressing their perspective, and finally it allows participants to participate safely which also contributes to more honest responses.

RESULTS AND ANALYSIS

Interviews were carried out with 30 participants across 27 companies in Ireland. These interviews were based on a 53-part questionnaire focused on 5 core themes: Tools to assist, Thoughts on Guidelines, Compliance, Employee Behaviour, and Confined Spaces as highlighted in the literature review.

Tools to Assist: Of the 30 respondents asked whether they use internal auditing procedures such as spot checks for compliance, 100% answered yes. Although, on a follow up question as to whether regular spot checks were carried out, 80% indicated that spot checks were infrequently performed. Toolbox Talks (TbTs) were identified as a widely used tool to aid with explaining regulations and assisting compliance with them, 47% of participants using them on a weekly basis and 53% scheduling them once a month. Some companies increased the number of TbTs delivered to limit the number of employees in attendance and facilitate social distancing. It was found that 30% of Interviewees indicated that their companies had adapted new ways or methods of communicating information due to the current pandemic using channels such as WhatsApp groups and focused email threads. Another tool used was signage and positioning of physical barriers, 100% of participants said that physical barriers and extra signage had been erected on site and that the meanings of any pictograms or symbols new to the site were explained beforehand.

Thoughts on Guidelines: When asked were the guidelines sufficient to prevent the spread of COVID-19 on site 90% of participants agreed or strongly agreed. However, when then asked whether they found the guidelines to be suitable for onsite work and activities only 3.3% agreed or strongly agreed bringing into question the suitability of the regulations for a construction site. From the data, the main barrier to compliance for 70% of respondents was reported as 'Lack of Personnel for Supervision'. When asked if any other specific barriers were evident, 80% of participants reported issues such as “Breaking old habits”, “Stubborn nature of staff and unwillingness to change” and “Older staff do as they know and find it hard to accept change when they do not believe it is the best way”. Participants were asked if they had identified conflicts with established Health and Safety regulations and the introduction of COVID-19 regulations. Interestingly, issues reported that had not previously been identified or reported included worker isolation, manual handling issues, and certain items of Personal Protection Equipment (PPE) causing more hazard than benefit for workers with comments such as “masks obstructing vision” “impaired communication leading to more frequent mistakes.”.

Compliance: According to the feedback from participants to the question ‘Do you believe all employees understand the COVID-19 regulations onsite?’, 96.7% of results showed agreement to strong agreement. Despite this promising sign, on Irish construction sites full compliance is not evident. For example, 96.6% of participants scored 3 or less on a 1-5 Likert scale, 1 being never and 5 being always, when asked do workers always wear the appropriate PPE as stated by COVID-19 regulations for specific tasks. Pressure of added paperwork or the need for extra on-site supervision due to COVID-19 regulations is leading to employees getting extra responsibilities with 42.3% of participants stating that the new regulations has added ‘significant’ pressure to their daily workload. To manage the extra workload, 30% of participants said extra staff were needed, with 11.1% of those companies employing 2-3 extra workers and the remaining 88.9% employing 1 extra employee. Compliance with handwashing regulations was also reported as extremely difficult to maintain according to 97% of participants.

Confined Spaces: The findings confirm that within the participant group, 40% agreed or strongly agreed that regulations relating to confined spaces were impacting on their work, the remaining 60% were either working outdoors or did not have multiple trades carrying out work in a confined space, allowing for a safe working environment. However, 100% of participants said that it is hard to break the habit of having multiple trades in the confined spaces, but this comes down to human nature and also overtime management. Interestingly, 67% of participants indicated that this issue with confined spaces did not impact significantly on project schedules. With regard to overtime, 96.7% of all interviewed participants stated that workers did not have to work overtime in comparison to pre COVID-19. This is a positive finding in relation to budgeting and costing for projects but brings compliance into question.

Employee Behaviour: Appropriate employee behaviour is of paramount importance for full compliance on construction sites in Ireland. Feedback from participants shows that 93% of employees are in favour of the COVID-19 regulations. The comfort of PPE on site was scored low, with 97.7% of participants disagreeing or strongly disagreeing that the PPE was comfortable. This led to employees not wearing masks when supposed to, and ‘operatives simply forgetting’ as one participant stated. There was also the negative impact of the contradiction between the 'routine' Health and Safety guidelines governing manual handling and working alone, and the COVID-19

guidelines. There was also the impact of 'old habits die hard' when it came to making the changes to work practices in line with the guidelines.

DISCUSSION

In this research, interviews allowed the capture of insights and personal perspectives of industry professionals in the Irish construction sector. The research clearly shows that there is no single key factor facilitating or impeding compliance to COVID-19 regulations. However, several areas of interest where clear barriers and obstacles facing compliance within the sector have been identified.

As discussed by (Olson *et al.*, 2016) Toolbox talks (TbTs) can potentially play a significant role in the form of supervisor safety communication with 25 of the 27 construction companies who took part in this study stating that they used some form of TbTs. However, the implementation of TbTs differed greatly. Some sites used them on a weekly delivering relevant information on site in a timely manner. However, 53% of sites only used TbTs on monthly basis because it was presumed the relevant information would get to the intended party when it was needed, due to the small physical size of sites and limited number of employees. A similar point can be made for onsite spot checks where 100% of companies used them, indicating a belief that spot checks can be effective. Yet when asked how often they were used the answers differed greatly, from daily, to weekly or even monthly. Some companies said they wish they could use them more, but they were not a feasible option due to limited resources and inability to take on extra staff for supervision.

It was found that only 30% of respondents were using new methods of communication during the COVID-19 pandemic, Simple methods such as WhatsApp groups or focused email threads were employed, both of which are free and relatively simple to operate. However, some older staff did say it can be difficult to track information on these platforms as they are not specifically designed for this use. The perception was that specific software available on the market such as Procore or Oracle Aconex were too expensive, too complex, or did not suit the type of projects these smaller firms were working on. This research indicates that there is a lack of knowledge about purpose-built platforms that allow quick and simple contact amongst staff on smaller sites, perhaps due to the fact smaller firms cannot afford to be paying yearly subscriptions for some of the bigger platforms. In some cases, there was insufficient knowledge of communication tools that have zero cost but could improve information flow on site, enhance compliance and diminish the safety risks during the COVID-19 pandemic.

Despite a lot of things being done right, such as the provision of PPE and the relevant training on how to use the equipment, supported by TbTs and the appropriate signage on site, non-compliance issues tend to prevail. Some factors affecting compliance may prove more difficult to correct according to the data collected. Working professionals believe non-compliance is due to human nature which would fall broadly in line with previous findings on issues of compliance to health and safety regulations. As stated in the literature, compliance is essential for the government measures to work effectively (Anderson, Heesterbeek, Klinkenberg and Hollingsworth, 2020). The results clearly indicate that the vast majority, if not all, of employees understand the COVID-19 regulations and 90% agree that the regulations and guidelines are necessary yet when asked about wearing facemasks on-site, 96.7% said they do not always comply. This was attributed to 'Old Habits' and 'Older staff doing as they pleased', indicating a behavioural and attitude issue where employees

must be educated and influenced over time to change their habits. The poor behaviour of older staff negatively influenced the behaviour of younger staff as they tend to follow the example set. Other issues included the physical design of PPE as a lot of the masks worn in the construction sector are not for continuous use throughout the day. Also, problems such as PPE interfering with communication or vision while completing some tasks have led to increased risk of mistakes and accidents. Similarly, worker isolation, and manual handling issues due to social distancing have created scenarios where the COVID-19 regulations create unintended safety issues. As a result, workers choose to ignore the regulations due to the regulation's lack of suitability - only 3.3% reported that the regulations were wholly suitable.

It was found that the COVID-19 regulations greatly impacted those sites where workers had to perform tasks in confined spaces. Respondents reported that it was difficult to maintain 2m social distance while working in confined spaces as advised by the CIF (CIF, 2020). This is a problem because the transmission of the disease drastically increases when humans are in close contact with one another as stated by (Beggs and Noakes 2003), this is especially the case with COVID-19. Companies working on projects that had confined spaces reported little to no delays and no real overtime being worked on projects. With the reason given very truthfully “Although the restrictions and recommendations are there most staff do not follow them as they say it is unreasonable or impossible to complete certain tasks while keeping their distance”. This research showed that onsite staff in some cases simply won't or can't follow guidelines in place. The findings indicated that there were many SSWP's in use in the field in as self-created SSWP or SPA (Safe Plan of Action). These documents varied slightly from site to site, yet all had the common objective of creating a suitable, safe working environment in relation to COVID-19 before the commencement of work.

CONCLUSION

This paper aims to highlight some of the key factors affecting compliance to and implementation of COVID-19 regulations in m/SME in the Irish construction sector. Several contributing factors have been discussed allowing valuable recommendations to be made. Tools to assist with compliance such as TbTs and spot checks have proven to be effective in the past. The results indicate that this could be true but the implementation strategy behind them is key to their impact on site. For TbTs and spot checks to deliver the intended outcome of increasing compliance on-site, they must be carried out on a regular and consistent basis. Many companies however questioned the feasibility of this and raised the issue of having neither the time nor money. This indicates that there may be reason for a subdivision of the HSA to be tasked with carrying out much simpler and quicker forms of site inspections or audits with the sole purpose of educating and encouraging staff to comply with regulations. Communication structures in smaller companies need to be revised. There is scope for the CIF to intervene here and develop a purposed built platform to allow ease of communication on site thereby facilitating compliance with the COVID-19 regulations.

As discussed by (Bévort and Suddaby, 2015), institutional pressures will impact employees and subcontractors, so it is key that the companies themselves believe in, implement, and follow the regulations as outlined. It is vital that staff in positions of management and leadership have access to as much support and training as possible so they in turn can support their employees in relation to understanding and

complying with the COVID-19 regulations. Another standout issue raised on several sites was the inability to always abide by social distancing measures due to tool sharing and manual handling, indicating the regulations themselves were not suitable. A recommendation to implement a buddy system could help to solve this issue. This would allow contacts to be easily traced while also allowing regular tasks on site to be completed as normal.

The final suggestion arising from this research paper is that a generic SSWP be developed by the HSA to be used in conjunction with the Codes of Practice that are already in place. This would allow every site to work towards the common goal of mitigating risks associated with COVID-19. There is need for further research in the area of developing regulations to facilitate the continuance of work in the face of a highly hazardous situation. It should be noted that in the time since this study was carried out the construction sector has been shut down due to a high increase in COVID-19 case numbers in Ireland, highlighting the need for the continuous development and improvement of effective and implementable safe working practice guidelines for the construction sector and monitoring of compliance with such guidelines.

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