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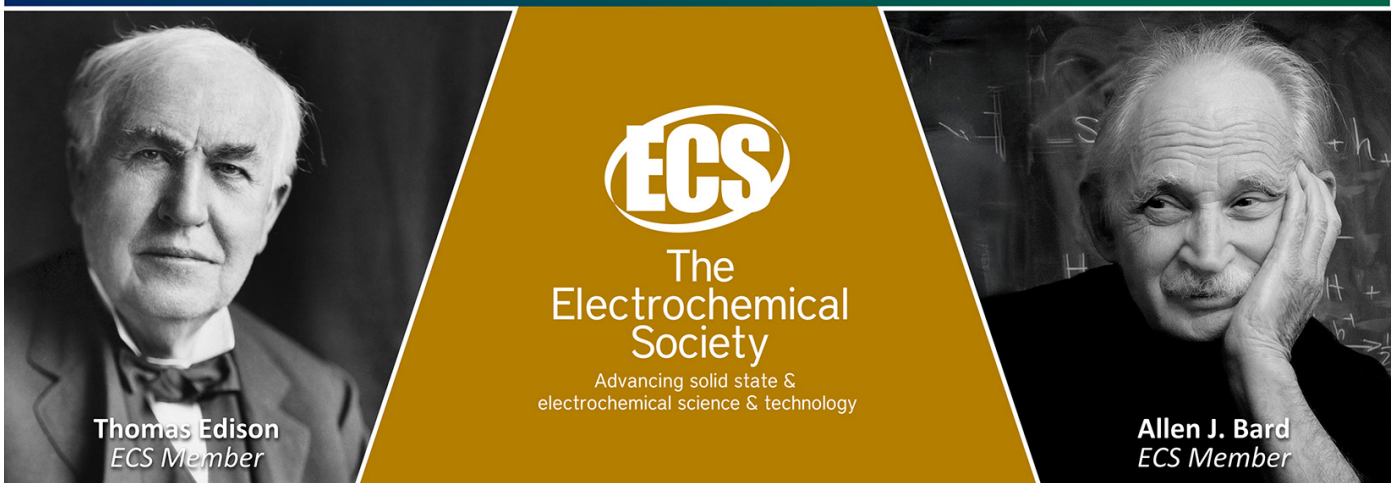
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# New Zealand's response to the COVID-19 pandemic and the effects of its governance on the construction industry

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**Abstract.** The global COVID-19 pandemic has impacted the construction industry. The pandemic caused wide international disruption to employment, supply chain, costs, skills, and other aspects, and it caused huge uncertainty. Around the world, governments dealt with the crisis in different manners. This study investigates the ways New Zealand responded to this pandemic and examined the effects of its governance on the construction industry. This is done through examining and analysing government records and guidelines in response to COVID-19 at different stages and alert levels. Relevant government information portals and websites such as “Ministry of Business, Innovation and Employment”, “Construction Sector Accord”, and “Covid.govt.nz” are investigated to find guidelines and information to help the construction industry respond to the impacts of COVID-19. These guidelines and information were compared to understand how similar these recommended responses were. The findings show the mitigating implications and solutions to the construction industry's current disruption and demonstrate the similarity of the recommended solutions.

## 1. Introduction

The coronavirus outbreak began in Wuhan, China, in December 2019. All countries have encountered similar but distinct obstacles in changing and managing the crisis, with various degrees of success or failure in limiting the virus and minimizing damage [1]. New Zealand's Government imposed entry restrictions on those traveling from mainland China on the 3rd of January 2020, mandating 14 days of self-isolation upon return. On the 24th of January 2020, the New Zealand Ministry of Health established a team to monitor the situation. New Zealand reported its first incidence of COVID-19 on the 28th of February 2020.

Apart from individuals traveling from the Pacific Islands, the 14-day self-isolation mandate was extended to anyone entering the country on the 14th of March. To clear the land from COVID-19, New Zealand closed its borders and established a strict policy and lock-down. The approach was named “go hard, go early.” It has been an exemplar for other countries [2]. On the 19th of March 2020, all borders were shut to non-residents.

New Zealand has experienced a low number of confirmed and dead cases. It has a unitary government, which means that authority is concentrated in the hands of the National Government [1]. New Zealand's response was command and control-oriented; its lock-down policy was quick and well-defined [3]. A four-level COVID-19 alert system was implemented on the 21st of March to specify social actions to move the country through phases of preparation, reduction, restriction, and lock-down [2].



Since then, New Zealand has experienced each alert level for a while and different parts of the country have had different alert level status. According to [4], even though the financial costs of implementing a lock-down are undeniably high, the lock-down was vital for controlling the spread of COVID-19, lowering the number of critical cases, and subsequently reducing the number of fatal cases.

COVID-19 has greatly influenced New Zealand's economy by forcing all non-essential enterprises to close, hundreds of firms to close permanently, and thousands of jobs to vanish overnight [5]. This research analyses the released and available information on COVID-19 and how it influenced the construction industry response. The aim is to analyze the responses to the crises step-by-step through the available and released information. The study includes the investigation of temporary regulations, arrangements and practices.

## 2. Literature Review

Covid-19 has disrupted many industrial sectors. The construction industry has been adversely impacted [6]. Most industries are facing unclear conditions and futures due to the outbreak of COVID-19 [7]. The construction industry faced delays in project completion, limited worker access to project sites, damaged procurement of products and services, issues in supply chain, delivery time, and workforce [8, 9]. COVID-19 has the same effect on construction workers, owners, contractors, and suppliers as on the general public [10, 11], such as work from home, social distancing, mandatory wearing of masks and a strong vaccination programme. Construction projects constraints have direct effects on economic development, raised unemployment, disrupted the supply chain, and increased investment losses [4].

The COVID-19 pandemic prompted construction companies to set long-term strategic goals for the industry and establish optimal safety standards that allow workers to continue working during the pandemic in the best safety situation [12]. Advice given to construction companies expected responsible construction practices such as improved safety standards to protect workers and professionals from COVID-19 exposure to operate safely and the avoidance of the virus and to protect staff. Operators were expected to develop and implement Site-Specific Health and Safety Plans for workers to ensure the best principles in building projects [13]. According to Eriksson and McConnell [14], although there is no perfect model for contingency planning, having a plan is better than not having one; plans should be integrated across all essential institutions and employ high degrees of modification and adaptation to real-world situations. Governments and stakeholders needed to take decisive steps to mitigate the escalating crisis. These bold initiatives limit the efficiency of construction projects; but help the construction industry operate more sustainably and healthily [13].

New Zealand has had a pandemic plan in place since 2002. In reaction to the H5N1 'bird flu' and H1N1 'swine flu' outbreaks, the plan was modified in 2010, and the current New Zealand Influenza Pandemic Plan (NZIPP) was launched in August 2017 [15]. The crisis framework was adjusted to account for the COVID-19 pandemic [1]. So New Zealand switched from a national influenza pandemic response to a COVID-19-tailored response that prioritized elimination over mitigation. To stop the spread of the disease, New Zealand used a hard-line approach and achieved low and, for a while, zero COVID-19 infections [16]. According to Fakhruddin, Blanchard [17], New Zealand's success key factors were determined leadership and early decisive action in the pandemic. Only a small number of New Zealanders became infected; they were tested, their contacts were traced, and quarantined to prevent spreading the disease.

The go hard, go early approach had consequences for the construction industry. According to the Construction Sector Accord [18], in New Zealand, COVID-19 caused about 4,600 projects to be postponed in the early stages, owing to high demand for contractors, a shortage of construction materials, and lower productivity [18]. In construction projects, a continuum of contracts tries to deliver fit-for-purpose in various working environments [19]. About 40% of construction companies in 2020 were reporting laying off staff due to project cancellations and equipment and material shortages [20].

### 3. Research Methodology

The government and relevant agencies' websites were analysed to provide a step-by-step analysis of the response to the global pandemic and its impact on construction. Inclusion and exclusion criteria were established to determine the relevant websites. The key features for selection criteria were: the website should be a New Zealand owned website that released New Zealand related information, the information should be associated with COVID-19 and the construction industry, the information and news released time should be during the pandemic, and the website should be considered as a primary source of information website. The researchers traced the current subject-related information on the internet to find their primary source using the research keywords to recognize this feature. Then, the released data on government, construction sector-related websites were analyzed. The analysis included consistency and discrepancy of information, regulations, and instructions. Websites are widely used sources of information offering guidelines to keep the community of construction workers, clients, contractors, visitors, and all who contributed to the construction industry safe. These websites were chosen since they play a significant role in informing the industry how to mitigate the impacts of COVID-19 and increase the health and safety of the construction workers and are generally seen as the main source of trusted information for the industry.

The data represents the actions and information until the 1st of November 2021. Websites selected through the searching for the words "construction" and "COVID-19" and "New Zealand". The websites often contained several external links, which led to other websites. By scanning these websites and following the links, three main sources of COVID-19 regulations applied to construction in New Zealand were found which were Covid.govt.nz, MBIE, and Construction Sector Accord. All other construction industry-related websites in New Zealand provided links back to these core websites.

The main information sought from the websites was guidelines and information for the construction industry in different COVID-19 alerts. The known ways of categorizing information are to divide them per subject, per time (chronically), or through different stages. Data in this study are sorted and compared based on COVID-19 Alert levels in New Zealand.

#### 3.1. Construction Sector Accord

The Construction Accord is a government-industry commitment to collaborate to build a high-performing construction sector in New Zealand. The Accord started its work as a joint partnership in 2019 with the Prime Minister, Government Accord Ministers, and industry leaders. From the moment the government announced a move to Alert level 4, the Accord acted as a platform for leadership and collaboration between government and the construction industry. The Accord created the COVID-19 Response Plan and collaborated to develop health and safety measures that allowed the industry to resume operations under Alert Levels 2 and 3. Construction Sector Accord dedicated a particular link for informing about COVID-19. It includes COVID-19 updates, the prepared response plan, newsletter updates, and related issues. The main page describes the response plan and how the industry should operate under different alert levels [18].

#### 3.2. The Ministry of Business, Innovation, and Employment (MBIE)

The Ministry of Business, Innovation, and Employment (MBIE) is the government's primary business-facing Ministry. MBIE leads business groups in Building, Resources, and Markets, Digital, Data, Finance, Labour, Science and Enterprise. As part of the response to COVID-19, MBIE provided guidance and support for employees and employers, small business, landlords and tenants, and building and construction [21].

#### 3.3. Covid.govt.nz

Covid.govt.nz is the New Zealand government dedicated website. It is the site where most people would access information, and the site heavily promoted by Government as the site to visit for COVID-19 related information and advice. Covid.govt.nz is the center of information about the COVID-19 in the country. It provides updated news, guidelines, and data related to the country, people, and the disease including how to protect the community against COVID-19 [22].

## 4. Findings and Discussion

Content analysis was performed on the data collected. The information was structured into a spreadsheet format. The columns showed the name of the guideline provider or distribution, and the rows demonstrated the Alert Levels in New Zealand. The spreadsheet represents decisions and guidance announced by these websites related to construction. This research investigates guidelines level by level. In other words, it compares the policies announced in level one from these websites and then moves and compares to all level two guidelines. Finally, it will have an overview of the guidelines announced by each website.

### 4.1. Alert Level 1

Construction Sector Accord, MBIE, Covid.govt.nz, do not release any guidelines for alert level 1.

### 4.2. Alert Level 2

Contact tracing through the Government released Covid App, QR code, or by log-in, log-out registration was a guideline promoted by the Construction Sector Accord for Alert Level 2. Accord information stated that “All construction sites must keep track of people entering and exiting the site”. In contrast, MBIE recommended having a COVID-19 control plan in hand, which helps mitigate the risks of COVID-19 and helps deal with the suspected or confirmed infected case. This plan must be communicated with all workers before arriving on-site.

The government website confirms that wearing a mask for the employees is not mandatory as long as they can keep the physical distance, but it encourages them to wear one while contacting other people. Likewise, MBIE strongly recommends using a face mask. About maintaining physical distance in this alert level, all guidelines recommend physical distancing, but the distance is not the same. MBIE does not recommend any specific distancing, the covid.govt.nz recommends keeping 1m distance from colleagues and 2m from visitors, and the Construction Sector Accord recommends maintaining physical distancing not less than 1m.

Based on covid.govt.nz, the public is not permitted to enter a construction work site unless they manage it through prior notice and booking an appointment. They should follow the same sign-in, sign-out process, health declaration, and physical distancing as workers. At this level, only one person should be in contact with site visitors.

Traveling is part of the construction industry, especially the delivery of goods and supplies. Traveling within alert level 2 areas and between levels of the same alert status could be done freely according to covid.govt.nz, but traveling between regions with different alert levels was restricted. In contrast, based on the Construction Sector Accord and MBIE, domestic and freely traveling even between regions is subject to following public health guidelines.

### 4.3. Alert level 3

At Alert Level 3 the Construction Sector Accord introduced a rapid mobilization plan to maintain job and business continuity in the construction industry.. The Accord created an advice document for local and central government agencies that included potential delivery models in horizontal and vertical construction sectors and recommendations for matching models to project complexity and agency competence. The third guideline issued by the Construction Sector Accord was advice to the industry to how clients should work with contractors due to the COVID-19 shutdown. Regarding contracts, the government offered new advice to the construction industry, as clients negotiate with contractors to agree on a fair value for contract variations due to the COVID-19 lock-down. Previous guidelines suggested that contractors could claim fees as modification. The new guidance highlights the factors that must be considered when negotiating the variant's cost. It outlines the types of expenses contractors could claim and emphasises that they attempted to lessen them where possible.

All three websites aligned on businesses requiring close contact, mandating that they could not operate, and employees who can work from home should do so. On-site work was permitted only with health and distancing measurements in place. The safe distance between employees was set at 1m and

between employees and clients at 2m. The covid.govt.nz reduced 2m distance to 1m for both workers or people who provide services in a worksite and the clients or visitors.

According to MBIE, public and non-essential visitors' entry to the worksite was prohibited unless they booked an appointment. The government website defined having a contactless order, payment, delivery, and collection system and required the delivery person to wear a facemask.

The general advice from MBIE was minimizing traveling while at alert level 3. Construction Sector Accord and MBIE released guidelines regarding travel inter-region or between areas confirming that people can leave their house for travel to work. However, there was a need to apply for a permit, allowing a construction employee to travel.

#### *4.4. Alert Level 4*

MBIE did not give any recommendations or guidelines at this level but the Construction Sector Accord provided advice for the construction sector and the general government website provided generalised advice.

The Construction Sector Accord defined what construction business was considered essential and what was not. Essential work was necessary construction or building work including any construction work related to the essential services and critical infrastructure, and/or required immediately to maintain human health and safety at home or work and/or any work involved in building and resource consenting necessary for the above purposes. The Accord identified essential workers as the holders of nationally essential infrastructure roles for New Zealand. The works considered non-essential were not allowed to operate under alert level 4. Where essential work was undertaken, covid.govt.nz suggested installing barriers or applying policies such as "one in, one out" to keep the physical distance and maintain 2m apart.

At level 4, the Construction Sector Accord also focused on creating a consistent and supportive contract approach. The guidelines allowed for the possibility of extra costs incurred by contractors during the lock-down to continue construction work that can be done off-site, such as procurement, planning and design and help contractors to retain their workers to ensure they are able to deliver on their contracts once restrictions were lifted.

Covid.govt.nz required only essential workers to access construction sites and all office workers were required to work from home. Workers were required to sign in and out every time entering and exited the workplace. Covid.govt.nz makes distance working easier by allowing workers to go to their workplace and obtain the material needed for distance working under certain conditions, such as scheduling time, keeping distance and wearing a face mask.

Covid.govt.nz, and Construction Sector accord follows the same traveling protocols at Alert Level 4. Travel into and out of Alert Level 4 regions is heavily restricted and must comply with government requirements around exemptions, testing and evidence to be carried. Construction working travel is only allowed for emergency construction work if no other people could undertake this work within the required region. If this does happen, businesses must ensure that workers: Avoid any contact with those in the area, site, building, or dwelling, wear appropriate PPE while on-site, safely dispose of PPE and sanitize as per the protocols.

#### *4.5. Information dissemination and construction industry requirements*

Information and advice for safe construction operation are critical in a pandemic. In New Zealand, trusted sources of information emerged quickly through three main websites. The information from the Construction Sector Accord provided the industry with specific sense making of main government advice. In doing so, there were some minor discrepancies. Mostly, the information was consistent, easily digested and timely. Other industry providers quickly came to rely on the Accord for sources of construction information, and the government website for generalised sources of information. Through studying the guidelines, the main fields of attention of the websites across the alert levels were shown to be: having control or mitigating plans; requesting workers and visitors to sign in and out at entry and exit points; reducing workers density by providing distance working when available; requiring workers

and visitors to wear face masks; maintain physical distancing; providing guidelines for accessing the workites safely and addressing policies for deliveries, visitors and traveling.

The trend in the information and guidelines provided by the websites shows a natural increase of information and rules from alert level 1 to alert level 4. While level 1 missed regulations for distance working, wearing PPEs, and traveling and level 2 does not provide guidelines for communicating with workers, they have been fully addressed in levels 3 and 4. The cumulative amount of data to maintain people safe is observed by changing every alert level. The Construction Sector Accord had extensive guidelines for the construction industry on differing aspects of maintaining safety across changing alert levels.

This study faced limitations, mainly due to the researchers not being able to check possible multiple changes to the website's information from the first confirmed COVID-19 case to the noted time. Data was only gathered from specific portals and government websites in New Zealand and did not reflect any further suggested or confirmed guidelines on the internet as a whole.

This study is considered the base for more expanded research, investigating other influential state or private websites releasing construction and COVID-19 related information observed in a more extended period.

## 5. Conclusions and Further Research

The findings from the study show the similarity and consistency for the construction sector of released guidelines through the Government and the Construction Sector Accord websites. Main themes emerged, focusing primarily on how to keep the construction industry operational during the pandemic whilst maintaining the safety of employees. Stricter standards of operation were apparent at the differing levels of alert. However, consistent, easily digestible, and reliable information appears to have been provided to the construction industry in New Zealand, primarily through the Construction Sector Accord information channel. The focus of the information addressed relevant construction operations, such as having a control plan, access and traveling procedures and worker safety through distance working, face mask/PPE and physical distancing which facilitated some continuity of business.

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