PUSH, PULL, SHRINK, GROW

THE CO-SHARE WORKPLACE INTERIOR THAT REFLECTS CHANGING SPATIAL NEEDS

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Push, Pull, Shrink, Grow The co-share workplace interior that

reflects changing spatial needs

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ABSTRACT

This thesis explores how co-working offices emerged as a solution to the shift in the social expectations of the workplace. It studies how the rise in the number of freelancers and entrepreneurs has resulted in the materialisation of co-working offices. It examines how coworking offices offer flexibility in terms of membership plans, but how their interior environments do not yet reflect this. In short it aims to investigate how these workplace interiors can adapt to meet residents needs.

This research embraces the multi-functionality of the co-working office and the demands of residents who occupy these spaces. Three local case studies and international precedents are explored which give insight and offer opportunities on materiality, site context and multifunctional spaces. It explores how to engage residents by challenging how best to design co-working offices. This project considers the requirements of the co-working office and how co-working interiors are occupied throughout the day. The design proposes a kit of parts 'space making' solution, which enables co-working offices to meet resident's needs.

This research contributes to the limited published discussion of understanding interior space in the context of co-working offices. This research explores through interior architecture, how co-working offices can be designed to reflect its resident's individual ways of working and co-workings varying spatial needs. Although based around co-working spaces, the researcher recognises the implications for findings based around corporate office environments.

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Figure 01. Organised Chaos.



01 INTRODUCTION

Traditionally society has forced people to choose between working at home and working in an office for a company. A conventional 'nine to five' company job provides community and structure, however it means less independence and less control over work-life balance. Working from home provides independence but incurs loneliness and bad habits from isolation. Co-working offices are a solution to this problem. In a co-working space, freelancers and entrepreneurs (known as residents) rent a portion of a shared space a few days a week to work. Co-working provides the environment of a traditional corporate job and gives residents control over the way they work.

Co-working can mean different things to different people. It can describe a movement, an activity or a space. This project uses the term 'co-working' in the sense of a movement with the core values: interaction, support, structure, autonomy, flexibility and work-life balance. This research investigates the spatial implications of the coworking movement in interior architecture. It looks at what residents do in co-working offices, how designers should address the collective as well as the individual, the types of activities that need to be facilitated for co-working to be successful and the types of spaces needed to support individual and collaborative work.

This research developed into a project about co-working office space that can be reset and adapted by its residents. The aim was to create a system that gets the residents of the co-working office involved, invested and engaged by creating their own space, one which adapts to their needs. It became clear through the research that for co-working offices to be successful, they need to be designed and built by those who use them.

This research project challenges the traditional method of designing an interior fit out for a co-working office where the designers impose a layout on the inhabitants. Instead, it proposes a kit of parts, which addresses the main issues in co-working: acoustics, privacy, space making and storage. It is an adaptable interior system that suits the movement of co-working.

RESEARCH QUESTION

Can established office models be altered to reflect the shift in workplace ideals and the design of co-working offices? Can interior architecture challenge the traditional method of designing interior office space, which imposes a layout on its residents, and instead gives them the tools to design and build their own workspace?

This research questions whether a solution for co-working can be found which critically integrates a co-share workplace and its residents changing spatial needs through an interior architecture solution.

RESEARCH AIMS

- To contribute to a limited discussion on ways of understanding inte rior space in the context of co-share workplace design.
- To investigate if co-working offices need the same types of interior office spaces as its traditional counterpart.
- To design an adaptable interior system for a co-working office which houses entrepreneurs and freelancers from diverse industries.

DESIGN METHOD AND SCOPE

This research project presents literature on designing traditional office space and applies it to the context of co-working offices. This thesis research examines the traditional office models from The New Office by Francis Duffy, as a starting point to provide insight into which office model co-working identifies with. It uses known office psychology theories to provide understanding on how traditional office design problems are approached, and how these methods could be adapted for co-working offices.

The research examines whether the integration of resident's different spatial needs within a co-working space is the new office typology that reflects co-working expectations and demands. It investigates how to design acoustic and visual privacy for co-working offices in a way that does not isolate residents from one another. This thesis proposes an interior system for a co-working office, which residents can adapt by 'pushing and pulling' to create a working environment that 'shrinks and grows', suitable for their changing needs. It became clear through the research how little information there is available about co-working for designers and highlights the gap in published literature about these office types. This gap proves that this is a relevant investigation as co-working continues to gather traction and popularity due to the expected growth of freelancers, entrepreneurs and the changing corporate environment.

THESIS STRUCTURE

This section presents a background and overview to the development and background of the office and how co-working has emerged from this development.

Chapter Two investigates how literature behind traditional office design is presented and relates it to issues around designing co-working offices.

Chapter Three studies three local co-working offices as well as international office case studies.

Chapter Four investigates the site that is used to test the kit of parts for the co-working office.

Chapter Five addresses the needs of the co-working office and the brief for the kit of parts. It presents the matrix, which introduces the six zones that a co-working office needs to be successful and where the kit of parts fits in.

Chapter Six explores the preliminary kit of parts design through a series of iterative investigations of form and materials.

Chapter Seven refines the kit of parts through a further iterative design process. It utilises industry and professional feedback to ensure the systems relevance.

Chapter Eight provides a critical reflection and conclusion on how issues around co-working have been addressed through the design of the kit of parts. It gives a conclusion on the investigation; constraints and limitations of the findings, as well other applications for the kit of parts and how this study can be continued past the scope of this thesis.

BACKGROUND OF THE OFFICE

The concept of the 'office' is derived from the Latin word 'officium'. An officium was not a physical space, but a mobile bureau in the form of human staff (Perseus).



Twentieth century offices became known for the standardisation across the office environment, which occurred when the typewriter was introduced and changed the way interior office space was organised (Duffy 20).

Frederick Taylor addressed problems around incentives and efficiency of the manufacturing process in the twentieth century and his ideas became known as 'Taylorism' (Saval 45).







The traditional office developed into a 'landscape' and due to new technology, workers became seated (Saval 5).



Taylorism influenced the office environment. It was a dominant management type, which emphasised order, hierarchy, supervision, and depersonalisation. These values became fundamental parts of office architecture (Duffy 20).

1910

1964

The Action Office by Robert Probst was an alternative to open plan office design. It was a furniture system based on human movement and consisted of moveable partition walls, a desk, shelves at varied heights and tack boards (Saval 207).



1964

Companies had no interest in investing in quality furniture for their staff and Herman Miller, the company who marketed the Action Office and assisted Probst with the design, reverted back to box-like systems similar to the office cubicle we know today. Jacques Tati's film, Playtime, was a criticism of office cubicles and cramping the body into un-natural positions (Saval 215).



The Burolandschaft was a reaction to the uniformity of previous office designs and the start of the open plan office. This type of office design had no internal doors or partitions. 1950 was also the year of the development of the electronic computer (Saval 202).

Alvin Toffler, a futurist, predicted in the 1980's that telecommunication technology would reshape the workplace (Saval 258). Toffler anticipated that workers of the future would work in 'electronic cottages' linked to a worldwide network. Working from home or in a remote location was expected to make the traditional office obsolete in the early nineties. However this has not happened because of the importance of social interaction within most organisations (Saval 258).

1980

1990

The 'World Wide Web' was established and has had a revolutionary impact on culture and commerce (Foertsch and Cagnol).

'Hot desking' becomes popular where multiple users share a workstation at different times in an organisation (Duffy, 109).

1995

One of the first pre co-working spaces, C-Base in Berlin, opens (Foertsch and Cagnol).

Brian DeKoven, coined the term "coworking" as a way to identify a method that would facilitate collaborative work in a shared environment (Foertsch and Cagnol).

1997



The New Office by Francis Duffy outlined the four basic work patterns in his book: Cell, Hive, Club and Den. These were developed after Duffy found that organisational work patterns were being altered by the increase in information technology, flattened hierachys, a focus on team work and interaction in the 'new office' (Duffy 30).

2007

Co-working becomes a trending search term on Google (Foertsch and Cagnol).

Co-working listed as a term on Wikipedia (Foertsch and Cagnol).

2013

An estimated 110,000 people use co-working offices (Foertsch and Cagnol).

2015

Wikipedia offers articles on co-working in 23 languages (Foertsch and Cagnol).



02 LITERATURE REVIEW

INTRODUCTION

There is little published literature and understanding about co-working offices. This research endeavours to relate known office psychology theories to the limited research about co-working offices. This literature review aims to address the psychology behind traditional office design, human behaviour and how these theories could be adapted to inform the needs of co-working. It discusses the changing work environment and key ideas behind human behaviour in relation to office design: personality and motivation, environmental psychology and evolutionary psychology. These theories were explored to provide insight into how to approach designing for a co-working office and its changing needs.

CO-WORKING OVERVIEW

Co-working emerged as a work style that involves a shared environment and independent activity. The concept of co-working is based on a philosophy of collaboration, openness, community and accessibility (Alwan). Freelancing has become the fastest growing sector in the economy and co-working offices offer a solution to the problem of isolation that many freelancers experience while working at home (Saval 305). Co-working is about the physical environment and establishing a community of like-minded individuals, known as residents. Residents lease desk space from the co-working office and memberships range from casual hourly use to permanent full time use (Kupriyenko). Coworking offices are a hybrid of coffee shop, home office and traditional office. Co-working offices are a mixture of mini networks due to the connections that residents make from working with others from diverse industries (Shewring). It is inferred that without these networks, coworking offices would collapse, as there is no common organisation or goal keeping it together. The type of co-working office that this thesis is exploring, is one that operates '24/7' to allow residents flexible work hours to keep up with their worldwide clients. Designing comfort for a space that is open 24/7 is a challenge. Co-working offices function differently when less people are occupying the space and have a different set of spatial needs. This project will address how the residents spatial needs change during evening hours as people require better lighting, areas for sleep and private video conference spaces that encourages them to maintain their international clients.

OFFICE MODELS

Office design has been "confounded by the changing nature of work (from a service to knowledge to creative industry), new flexible work styles (see fig. 02), the distributed and virtual workforce, and globalisation

	CONVENTIONAL OFFICE ASSUMPTIONS	NEW WAYS OF WORKING
PATTERN OF WORK	Routine processes, individual tasks and isolated work (Duffy 58).	Creative knowledge work, groups, teams, projects interactive work (Duffy 58).
OCCUPANCY OF SPACE OVER TIME	Staff are assumed to occupy workstations on a full-time basis, typically 9-5 working hours. One person per desk, provides hierachy and is occupied typically at 30% below full capacity (Duffy 58).	Distributed working locations (nomadic, mobile, office based or at home). Linked by networks and autonomous individuals work in project teams. Timetable is extended and irregular. Daily occupancy is almost at capacity (Duffy 58).
SPACE LAYOUT, FURNITURE SYSTEMS & USE OF SPACE	Hierachy of space and furniture related to status. Individual allocation of space is more important than interactive space (Duffy 58).	Shared group work and individual task-based settings. Setting, layout,and furniture of the office suited to work process and tasks (Duffy 58).
USE OF IT	Technology used for routine data processing, terminals in fixed positions (Duffy 58).	Mobility of IT used in a wide variety of settings. Technology used to support creative work, both individual and group. Wide use of PCs and laptops as well as shared specialised equipment (Duffy 58).

Figure 02. Conventional Office Assumptions and New Ways of Working. Diagram adapted from Francis Duffy "The New Office", shows a comparison between convention office design and new ways of working.



Figure 03. Autonomy and Social Interaction. Diagram adapted from Francis Duffy "The New Office", looks at the four different types of traditional office model.

THE FOUR TYPES OF OFFICE MODEL

and merging of cultures" (Oseland 244). As with traditional office models, it is important to understand how the co-working office model functions and how successful design can provide an environment which allows residents to advance their careers and achieve their potential. Francis Duffy, author of The New Office, researched conventional office assumptions and compared them to 'new ways of working'. Duffy coined the four types of office model: Den, Hive, Club and Cell, and established that most traditional corporate offices fit into one of these models (see fig. 03). The club office is highly autonomous and interactive. It could be argued that co-working offices could be considered a Club office, as the residents are autonomous, the spaces are designed for interaction and the residents occupy the office on an as needed basis. Club office models have designated spaces for concentrated individual work and interactive group work (see fig. 04). This type of office model emphasises transactional knowledge and like co-working offices they thrive on the mini networks established in these spaces (Duffy 61).

CO-WORKING PERCEPTIONS

Co-working offices come under criticism as they are perceived to consist of cheap furniture and can be disruptive to work in due to noise and lack of privacy (Alwan). However co-working offices are also highly regarded as spaces for residents to enjoy social interaction by working with others from diverse industries. Co-working offices have the network available to help residents advance their careers as "co-working has more potential than a one-company office to make encounters a genuine proposition" (Saval 306). It has been predicted that by 2020, freelancers, temps, day labourers, and independent contractors, will constitute 40 percent of the workforce (Saval 306). While not all of these will be office workers, a substantial number will be freelance or spend a portion of their working lives freelancing (Saval 306). Of these freelancers, some will work in a co-working office. While the current economy has pushed some people into independent work, many have chosen this work style because it allows for greater flexibility during the working day and work life balance (Florida 90). The co-working office is not a solution for everybody, but it has materialised as an option to help freelancers and entrepreneurs succeed and advance their careers through networking and support.

One of the biggest issues facing freelancers and entrepreneurs who work from home is isolation and viewing others in the industry as their competition (Florida 90). Co-working, through its connections and networking, has the potential to become a 'family', like a traditional office, for its residents if the issues around noise and comfort can be



Figure 04. Four Types of Office Model. Diagrams adapted from Francis Duffy "The New Office", gives an overview of the characteristics that make up each of the four office model types.

resolved in a manner that does not house the residents in private cubicles. Co-working spaces could help freelancers to stop seeing other freelancers as their 'competition' and rather as fellow colleagues who are there to offer advice in a supportive environment (Florida 90). The resulting design for this project should address spatial flexibility and encourage connection. The solution needs to resolve workplace comfort and ensure that the design reflects co-working resident's needs; if this can happen then co-working spaces will continue to thrive and meet expected future demand.

OFFICE COMMUNITY AND ENVIRONMENT

The modern office has become a second home due to longer work hours (Plunkett and Reid). People are spending the majority of their waking hours in an office environment and as a result the organisations they work for have become a secondary family to them (Plunkett and Reid 7). The social ethos that these organisations embody has influenced and developed the modern office aesthetic and hierarchy (Plunkett and Reid 7). Co-working spaces are not competing with the modern office, but instead with resident's homes (Saval 305). When people choose freelancing, many are attracted to the idea of working from home and not commuting. As a result, co-working offices entice people to use their space by promoting their services and facilities and by providing the network and support to help the residents advance their careers (see fig. 05). People seek community places where they can share stories, ideas and food as well as private places to relax and rebuild. They prefer daylight, natural ventilation and a visual connection to the outside world when working in an office environment. People want community and justice and desire places that make them feel that they belong. People enjoy exploring and varying their 'sensory stimulus' rather than remaining stationary (Oseland 250). However, many offices fail to meet basic needs. Offices should provide environments that encourage people to happily and healthfully spend half their waking hours in as they are likely to spend more time in that environment than any other (Plunkett and Reid 6).

People prefer noise to be at a similar level to that found in the natural world, but with an underlying hum of action (Oseland 251). Co-working spaces have been slated that they are not always everything they market themselves to be; as a consequence residents stop using the space (Saval 305). This can be due to a number of reasons: residents feel the space is not helping them achieve their goals because support is not available or issues around noise and comfort (Saval 306). Poor working conditions lead to dissatisfaction and reduced performance in the workplace (Oseland 245). Plunkett and Reid argue a "better

working environment which flatters the individual and promotes social interaction will counteract minor dissatisfactions that might otherwise cause employees to move elsewhere" (6). Work satisfaction is related to environmental conditions such as temperature, daylight, noise and privacy (Oseland 247). If an office environment does not meet these base needs, then it is unlikely that superficial changes such as layout and colour will improve performance (Ornstein 247). In a co-working office, unsatisfactory working conditions would result in low occupancy and residents would not return to use the space.

Interaction between office workers has been found to decrease exponentially the further away people work from each other. As a result designers pack employees together to increase interaction (Ornstein 145). The subsequent design is one that promotes noise and distraction. The other issue with designing for interaction is where designers place collaborative spaces in front of private offices. The effect is little to no use, as people do not feel comfortable to sit and interact near a space designated as private (Saval 296). Privacy is not simply a state of withdrawal, but a "dialectic and dynamic process for controlling the level of availability to others" (Oseland 249). By dialectic Oseland means whether people are seeking or avoiding social interaction and by dynamic, the desired level of social interaction. Privacy is not only controlled by physical factors, it can also be achieved through solitude and intimacy (Oseland 249). In co-working offices, efficient space zoning such as Eat, Sleep, Play, Work, Meet and Event, could help to minimise noise and distraction while providing a clear indication of the function for that zone. The zones indicate whether the space is for interaction (Eat, Play, Meet and Event) or privacy (Sleep, Work). There is some overlap for Work zones where hot-desking is interactive while private workstations are residents requiring periods of concentration.

OFFICE PSYCHOLOGY

The field of psychology has many theories and studies that explore how people behave and perform in certain environments in relation to their base human needs, personality, motivation, perception, expectation and experiences (Oseland 244). To create successful and comfortable workplaces, designers must understand the requirements and behaviours of the occupying people and organisations (Oseland 244). People want to work where their accomplishments are supported and recognised and for this to happen it usually needs to be outside the home (Florida 73). Designers "need to understand the way collaborative work happens" and how a mixture of micro-environments are vital to co-workings success as it determines whether people want to be in the office more than at home or a café (Florida 106). This is

why co-working offices have potential to be successful places to work; co-working encourages people to work in unfamiliar places outside of their comfort zone, where their ideas are supported by people outside of their own industry. Co-working provides the facilities and support to be successful; residents are not just looking at solutions to issues within their own industry but from other industries as well.

For collaboration to occur, designers need to understand that that creative work is typically project-based work and projects run in cycles. For creative work to happen in a co-share workplace, residents require quiet spaces to work as well active spaces. A mixture of collaborative spaces, private spaces and down time areas is key to supporting residents during their workday (Shewring). When employees are bound to their desks, quietly and diligently working, an office is not functioning correctly (Florida 109). Residents in co-working offices are social and autonomous workers. Creativity happens best when residents are interacting throughout the workday, rather than enclosed in private cubicles. Ideal interaction occurs when "people whose roles are different enough to give them different perspectives, but who have enough common knowledge and common interest to know what would be mutually useful" (Florida 109). A co-working office is viewed as successful when it helps residents from different industries create a mutually beneficial professional work environment.

People are classified as either introverts or extroverts, and this classification can impact their work style (Oseland 245). Introverts prefer to spend time by themselves; while extroverts are outgoing individuals who are content in social gatherings but get distracted when working alone (Oseland 245). Most people have personalities that are a combination and their preferred working environment depends on other factors such as mood and activity (Oseland 245). There is a relationship between a person's performance and their level of motivation. People perform better if they are stimulated by their workspace, however too much can lead to stress, which reduces performance (Oseland 245).

These theories show that designers should maximise the performance of residents in co-working offices by designing different spaces for varying levels of motivation. However the complication of designing this way is that people have different base levels of motivation and need different quantities of stimulation for peak performance. Difficult tasks and working under time pressure increases stress, and as a result people need subdued environments to maximise their performance (Oseland 145). Repetitive tasks require more stimulating environments to increase motivation to finish the task. Offering a variety of spaces in



Figure 05. Co-working.

a co-working office allows residents to choose the area that relates to their current mood and preferred environment. This will help residents to feel motivated to continue to use the office, ensuring growth of the co-working movement and resident comfort.

Individual experiences and expectations of a space affect how people interpret and interact with it (Oseland 248). Two terms used to describe space types in office design are sociofugal and sociopetal. A Sociofugal space discourages social interaction while a sociopetal space encourages social interaction (Oseland 248). Breakout spaces that do not offer privacy, comfortable seating or attractive design and discourage social interaction could be considered sociofugal. While collaborative workspaces like hot-desking areas could be considered sociopetal. There could also be a link between the idea of sociofugal space and introversion. Sociofugal space could be recognised as an introverted workspace due to the nature of preferring to be left alone while working, while sociopetal space could be observed as extroverted workspace due to the nature of encouraging social interaction.

The physical appearance and assumed 'normal' behaviour can affect how an office space is used. It is not uncommon to see breakout spaces, informal spaces for group work, left unused as people associate the term 'breakout' with 'taking a break' because the "associated acceptable behaviour is not understood" (Oseland 248). Ornstein found that office layout and furniture is directly related to worker satisfaction and that many employees were dissatisfied because the environment was "arranged in a fashion that was counterproductive to accomplishing tasks they were required to perform" (145). People have varying experiences and expectations of the same space; the way they interpret and respond to it is different even if people appear to be behaving in a similar manner. Office design impacts attitudes and behaviours, it also "influences impressions through the conveyance of symbolic messages" (Ornstein 145). Different elements imply messages and images that people use to form impressions about that space or organisation (Ornstein 145). What one person, might consider a 'good' environment, could be perceived differently by another (Oseland 248).

A solution to this issue is to allow residents of co-working offices to change their workspace either by encouraging them to work where they want in the space, or by providing the tools, which empower them to design and build their own workspace. This can be done through superficial changes for example adding shelving, putting a partition up for more privacy and to reduce noise, or by physically changing their workspace to give more room, access to better light and less distraction. Giving resident's tools to build/design their own spaces



Figure 06. Co-working Values.

together within the co-working office comes back to co-workings core values: community, flexibility, support and independence (see fig. 06). Community is the main core value that keeps co-working spaces collected, as there is no common organisation or goal that keeps the residents together. Encouraging community through building shared spaces keeps the ideals of co-working resilient and ensures its success for future users.

CONCLUSION

This review aimed to link to ways of understanding traditional office space to the limited knowledge on co-working office design. This literature review revealed a gap in the information about coworking offices, how they function and how to design for them. It has highlighted how little information and resources there are available for designing these offices. This project aims to challenge how to design for a co-working space in a way that enhances interaction, minimises distraction and is comfortable for residents from diverse backgrounds and industries. The solution is not simply a matter of individual offices for everyone as this reduces interaction and interferes with daylight and ventilation. In co-working, the solution is as much to do with the management of the space, as it is the design of the space. The resulting solution should be one that residents crave to use because they cannot find an environment anywhere else like it. Co-working offices offer community already, the challenge is how to incorporate different needs into a cohesive design and offer the tools for residents to create their own working environment in a collective group setting. Co-working spaces are catalysts for interaction, creativity and innovation, but also for solitude, concentration and contemplation. Providing spaces that can be easily adapted is preferable to fixed environments with no control over the environmental conditions or layout. The acceptance of people-orientated working environments as generators of productivity and loyalty are crucial to the success of the co-working movement and their interior office environments.



Figure 07. Authors Co-working Perceptions.

DISCUSION OF AUTHORS CO-WORKING PERCEPTIONS

The research for the literature review and co-working background formed the author's perceptions about co-working offices. These insights were plotted on a scale to emphasise these two extremes as well as the authors perceived ideas in the middle of the scale on how they felt (guided by the literature review) a co-working space would function best for its residents (see fig. 07).

Perception one found that some co-working spaces are strict about how residents should work in the space and provide limited inclusions that make the space uncomfortable to work in and would probably result in low occupancy because of the limited flexibility. Perception two found some co-working offices had too much flexibility and as a result this cause stress for the residents as there was no structure. While this limited structure would work for some residents, the majority would find these types of co-working offices unproductive to work in.

The author observed that the ideal co-working space would be a combination of relaxed spaces, and professional spaces suitable for residents to bring clients. The co-working office space would offer structure, but also flexibility in terms of membership plans and spaces to appeal to a wider range of prospective residents. The ideal co-working office would thrive on the mini networks created by the resident's connections to provide a space that offers independence and support with a clear identity.

03 PROJECT REVIEW

CO-WORKING NEEDS

Bizdojo, In Good Company and Enspiral Space, are Wellington City based coshare workplaces, which were used as case studies for this research. These case studies give an understanding of what co-share workplace facilities are currently available in Wellington and the various business models in which they operate. Figure 08 below illustrates the relationship between the residents, the business and the space. It is a lead into the case studies and gives a quick overview of the residents, the space and the businesses needs.



Figure 08. Relationship between the residents, the business and the office space and their individual needs. This image gives an overview of the trio as a lead in to the co-working case studies and as a tool to help designers understand the needs of these office spaces.

CO-WORKING OFFICES WELLINGTON CITY





Large format printing 3D Printing Workshop Space Meeting Rooms Board Rooms Kitchen/Café Space Break space



BIZDOJO

ENSPIRAL SPACE

● LOCAL CO-WORKING CASE STUDY



Figure 09. In Good Company layout.



IN GOOD COMPANY, 166 CUBA ST, TE ARO, WELLINGTON

In Good Company is a supportive environment based in Cuba Street, Wellington (see fig. 10), to help freelancers and entrepreneurs take their start up ideas to the next level and grow their business. They have a target user demographic of 23-35 year olds. The space has areas for permanent users, as well as 'hot-deskers' that rent space at a shared table by the hour (Kupriyenko). Permanent residents rent on a monthly basis and 'hot-desking' residents use a pre-paid timecard. All options include Wi-Fi, power, and refreshments. These networking events add to the entrepreneurial nature of the space.

In Good Company is not open 24/7 and this allows them to host talks, exhibitions, and workshops after hours (Kupriyenko). There are three zones (see fig. 09) ; co-share cafe, artist space and permanent space and residents pick the area that suits their work style (Kupriyenko). The space is open plan, apart from the permanent desks, which are in a separate room off the co-share cafe space. The co-share cafe is identifies as Duffy's Club office model where residents are interactive, autonomous and the space is used intermittantly over an extended period of time where residents occupy it on an as needed basis. The permanent desk zone identifies as part of the Den office model as the residents are still autonomous, however the group setting allows for some interaction.

In Good Company is a vibrant workspace and noise control is limited. The interior has wooden floorboards, white plasterboard walls and a mix of furniture (see fig. 11, 12). Residents are welcome to move furniture around as needed.

ADVANTAGES

- +Efficient utilisation of space
- +No physical barriers to communication
- +Space zoning (with signage)

DISADVANTAGES

-Limited acoustic and visual privacy (not suitable for confidential work). -No spaces to take private phone calls/conversations



● LOCAL CO - WORKING CASE STUDY

Figure 13. Bizdojo layout.


BIZDOJO, 113 TORY ST, TE ARO, WELLINGTON

Bizdojo, founded in 2009, offers '24/7' access for residents with international clients. There are three main zones: focus, active and social (see fig. 13, 16, 17). Bizdojo identifies as Duffy's Den office model where residents are interactive, autonomous. The active zone is used intermittently over an extended period of time where residents occupy it on an as needed basis. The focus zone (see fig. 18) is for more autonomous workers who want the group setting, but need quiet for concentrated work. Bizdojo has a separate event space accessible off the social area that can be rented out, a moveable meeting room and a semi-private meeting space. Although Bizdojo is open plan, the acoustic carpet tile and high-backed felt furniture helps to dampen noise and create a comfortable working environment for the residents (Shewring).

The atmosphere in Bizdojo is relaxed, but professional. The space is lit by a combination of natural light and suspended lighting panels. Bizdojo use a ventilation system to ensure fresh air is circulated through the space and the interior is kept at a comfortable temperature (Shewring). The meeting room is a lightweight drum (see fig. 14, 15), which was selected for the fit out because it is portable. When Bizdojo relocated from their Vivian Street space to the Tory Street space, the drum was brought with them (Shewring).

ADVANTAGES

- +Space zoning (Social, Active and Focus) allows residents choice.
- +Spatial flexibility/adaptability (can accommodate future growth).
- +Furniture chosen for privacy, comfort and acoustic properties.

DISADVANTAGES

-Limited visual privacy -Background noise is distracting to residents in Focus zone.

●LOCAL CO - WORKING CASE STUDY



Figure 19.Enspiral Space layout.



ENSPIRAL SPACE, 89 COURTENAY PLACE, TE ARO, WELLINGTON

Enspiral Space caters to technology start-ups, non-profit organisations and freelance professionals with an ethical focus (Walker). The space is open 24/7 for residents on selected memberships, which allow residents to work whenever they need to. Members on permanent membership plans have free access to the meeting rooms via an online booking system (see fig. 20). The meeting rooms are also available for hire, including after hours by arrangement (Walker).

Wi-Fi, printers, kitchen facilities, and breakout space room for informal brainstorming are also available for the residents (Walker). The most commonly used spaces are the meeting rooms, with the least used space being the Skype room. The office typically gets busy from mid morning through to early evening (Walker). Enspiral space identifies as a mix of Duffy's Club and Cell office model types. Enspiral's permanent desk space is open plan and allows for interaction so it is based on the Club model, whereas the rest of the space is closed off and could be considered the cell model as it discourages interaction and the spaces (such as the meeting rooms) are used intermittently. Enspiral Space has a fixed layout because its site is less open plan than the other co-working offices in Wellington (see fig. 19). This presented Enspiral with the challenge of how to approach their layout to give their residents the best workspace possible within the confines of the site. The approach was to have the meeting rooms, Skype room and hot-desking room at the front of the office (see fig. 21, 22, 23), and the collaborative workspace at the back of the office where there was more space to accommodate their permanent residents (see fig. 24, 25).

ADVANTAGES

+Diverse range of spaces (meeting rooms, board room, studio offices, Skype room, Lego room, breakout spaces and collaborative workspace).

+Visual and acoustic privacy.

DISADVANTAGES

-Some communication block, although there is an 'open door culture'. -Teams are separated from the rest of the residents in 'studio office'.

Figure 19, 20, 21, 22, 23, 24, 25. Enspiral Space co-working interior. 19. Layout 20. Meeting space 21. Breakout space 22. Entry to hotdesking room 23. Hotdesking space 24. Permanent work space 25. Permanent workspace.

INTERNATIONAL CO-WORKING CASE STUDY



Figure 26. Neuehouse space overview.



NEUEHOUSE, 110 EAST 25TH STREET, NEW YORK

Neuehouse is a New York co-working office, situated in an iconic former light-manufacturing building (NeueHouse). The office spans across five floors with ceiling heights up to 6 metres. Neuehouse rejected the 'typical office fit-out' aesthetic and chose to enhance the 'grandeur' of its industrial space (see fig. 29) with a design that reflects a non-corporate aesthetic (Office Snapshots). Neuehouse provides its members with integrated work and social space as needed depending on residents personal work style and project needs (NeueHouse).

Neuehouse appears to be a combination of the Den, Club and Cell office models. The 'Spanish Steps' on the ground floor (see fig. 26), is a collaborative space used for informal gatherings, events and working and would be considered a Club space as the spaces are designed for high levels of interaction. Levels 2-4 are comprised of 'incubator' spaces (see fig. 27, 28) that are dedicated office space designed to grow and adapt to accommodate the residents needs and would be considered a mix of the Den and Cell office model because the spaces are designed for less interaction and more concentration or smaller group interaction. Transformable 'partner desks' made from plywood and steel, suit the industrial aesthetic, and provide workspace for two to four residents which can be configured in multiple ways depending on residents needs. The basement provides a 47-seat auditorium/ theatre, main conference room (see fig. 30), radio booth, and library and packaging room. The main conference room can be transformed into a private dining room for events (Office Snapshots).

ADVANTAGES

+Efficient use of space zoning. +Diverse range of space.

DISADVANTAGES

-Teams are separated off on a different floor away from other residents. -Spaces are fixed, rearrangement is not encouraged.

Figures 26, 27, 28, 29, 30. Neuehouse Co-working Interior.

^{26.} Spanish Steps and space overview 27. Team Pods 28. Team Pod Interior 29. Space Overview 30. Conference room.

MATERIAL CASE STUDY



Figure 31. Workspace overview.



TRIBAL DDB OFFICE, AMSTERDAM

Tribal DDB is an advertising firm based in Amsterdam and the fit out for their new office was designed by i29 Interiors. The materials used in the design are white epoxy flooring, felt and steel (see fig. 21) (Dezeen). The office houses 80 staff over an area of 650 m2. The goal was to create an environment where creative interaction is supported through types of workspaces such as breakout spaces, flexible desks and collaborative workstations (see fig. 22, 23, 24). Tribal DDB needed a working environment that was stimulating for staff during long office hours and concentrated work (Dezeen). The design needed to reflect an image that was friendly and playful for their staff, but also professional and serious for their clients.

Felt assisted as a way to cover the parts of the building that had been demolished or altered by a previous occupant. Acoustics became an important element in the design, as open spaces for stimulating creative interaction and optimal usage of space were required. The use of felt is playful, and good for absorbing sound. Felt has been used on the floors, ceiling, walls, furniture and lampshades because it is durable, has acoustic properties, fireproof and environment friendly (Dezeen).

ADVANTAGES

+Efficient use of space by hanging dividers from the ceiling. +Refined material choice helps with space acoustics and minimalist aesthetic.

DISADVANTAGES

-No colour use.

-Space is inflexible; the ceiling hung partitions cannot be moved.

FURNITURE CASE STUDY



Figure 35. Brick screen in context.



BRICK SCREEN, EILEEN GRAY

The Brick Screen, designed by Eileen Gray, is comprised of a stainless steel rod framework and lacquered panels (see fig, 25). It has polished solid bronze shims, spacers and end caps, and is coated with clear varnish (see fig. 29) (Eileen Gray). The panels have a high-gloss handcrafted lacquer finish. There was a limited edition production of 75 screens during 1922 - 1925 and each original screen is signed (see fig. 28).

The Brick Screen is one of Gray's best-known pieces and she experimented with various dimensions and panel finishes. The fixed and moveable panels are lacquered by hand then sanded by hand and polished. This piece is desired by collectors and is part of the permanent design collection of the Museum of Modern Art in New York (Eileen Gray). Each screen is signed and given a serial number as proof of authenticity and origin. The size of the piece is W 1150mm D 240mm and H 1870mm (Eileen Gray).

The screen gives privacy, but the moving panels and gaps let light filter through the screen and into the space (see fig. 26, 27). The lacquer finish also allows light to reflect off the screen and the position of the panels starts to mirror and highlight features of its environment (Eileen Gray).

ADVANTAGES

- + Space maker
- + Allows light to filter through

DISADVANTAGES

-Fixed size, modules cannot be added to make wider or taller.

CASE STUDY CONCLUSION

These case studies provided insight on the way local and international co-working offices function. It examined how materials can be used to create stimulating and comfortable work environments without shutting people off from one another. It studied Eileen Gray's Brick Screen as a partition precedent that gives the illusion of visual privacy, but still allows light to filter though into the space. These case studies follow on from the literature review in chapter two to give a further understanding on the ways local and international co-working offices operate and which of Duffy's office models that they fit into. The case studies examined how co-working offices are currently being designed and the advantages and disadvantages of each one.



SITE BACKGROUND

The South British Insurance Building, designed by Malcolm Draffin, was constructed in 1936. The building has a Category 2 Historic Listing. The interior can be modified, but the exterior of the site must remain untouched. The style is neo-Georgian on a Chicago-style office building (see fig. 45, 46). The rear of the building was added in the 1960's and has remained unchanged since (Heritage New Zealand). The site is significant because the land it sits on is part of the South Lambton Quay district. The land that makes up this district has considerable historical significance as a focal point in the early development of Wellington City (Heritage New Zealand).

INTEGRATION OF PROGRAM INTO SITE

The South British Insurance Building was chosen to test an interior system for a co-working office because of its prominence on Lambton Quay and because there are no co-working offices in this area of Wellington City. The site will present a challenge on how to integrate a co-share workplace over six floors and how to integrate the ground level successfully with the entrance onto Lambton Quay (see fig. 43, 44).

INTERIOR

The site is situated opposite the Hunter Street Plaza, an open space, which allows natural light into the front of the building. The building has retained its original fully functioning steel framed window joinery. The interior is open plan and the walls are lined with plasterboard and painted (see fig. 49, 50). The stud height is 3.8m between floors; this height will present a challenge for designing open and intimate working spaces. A lift services each floor, as well as a main stairwell and a fire stair (see fig. 47, 48). There are toilets/shower and a kitchenette off each floor.

CO-WORKING OFFICES NEAR SITE







Figure 40. Map of amenities near site.

SITE AMENITIES

The site is within walking distance of the Gilmer Terrace Serviced Apartments and Travelodge Hotel (see fig. 40). ANZ and Westpac are in close proximity as well as shops and cafes. It is a two minute walk to the waterfront, ten minutes to the train station and there are carparking buildings nearby. Have these amenities near the site makes it a desirable location for co-working and will attract residents in to use the space.

STRUCTURE

The structure of the building comprises six transverse reinforced concrete frames supporting ribbed in situ concrete slabs (Tommys 17). The columns have transverse ties at just over half column width spacing. These frames have been assessed to have seismic strength of approximately 20-25% of the National Building Standard (NBS). The longitudinal boundary walls are 200 mm thick reinforces frame infill panels (Tommys 17). The basement walls are thicker and are tied together with a basement slab. The rear of the building was added in the 1960's and is braced by short transverse walls and longer boundary walls. The rear of the building has been assessed at over 67% (Tommys 17). The front of the building needs seismic strengthening, which will be completed by the buildings Body Corporate (Tommys 5).



Figure 41. Map of the South Lambton Quay District. Image by Author.





Figure 43. Model of Site and isometric section through site. Photograph and drawing by Author.



Figure 44. Street view of site, ground floor and first floor plans. First floor plan to be replicated up for remaining floors. Photograph and plans by Author.



Figure 45. Elevation of the front facade of The South British Insurence Building ,1930.



Figure 46. Plans of The South British Insurence Building, 1930.

EXTERIOR SITE SURVEY



Figure 47. Exterior photographic survey of site. From top left: Access to level 6 and roof top parking from Gilmer Terrace, Back facade, Ramp to Gilmer Terrace and surrounding buildings, Ground floor shops, Side access to lobby, Front facade, Awning, Front facade.

LOBBY & STAIRWELL SURVEY



Figure 48. Lobby and Stairwell photographic survey of site. From top left: Access to level 6 and roof top parking and ramp access to Gilmer Terrace, Original stair and balaustrade, Stairwell looking down, Stair skylight, Original door to bathrooms, Original window level 6 of stairwell, Door to basement from lobby, Stairwell, Landing access into level 2 offices. Photographs by author.



INTERIOR SURVEY OF LEVEL 3 OFFICES



05 program

INTRODUCTION

This chapter highlights the iterative process of addressing the spatial adjacencies. This project is testing an interior system for a co-working office with a café on the ground floor and offices on level 1 and above. The café is a mix of hot-desking and meeting rooms for residents to bring clients. It is accessible directly off Lambton Quay and will advertise what co-working is about. The rest of the floors are to be divided up into private and collaborative workspaces. It is essential for residents working in the cafe and office to have an interior environment that can be adapted to suit their individual needs. This section introduces the office space types that are found in traditional offices (see fig. 51), and uses them to devise the system matrix (see fig. 55) as a tool to help designers identify co-workings spatial needs.

After the program iterations (see fig. 52), the author took a step back and decided to narrow the focus of this project and design a kit of parts for the ground floor cafe and level 1 office space. This allows the kit of parts to be replicated up over the remaining floors as the space grows. This adaptability to accommodate growth shows how crucial a flexible kit of parts system is to the success of co-working offices.

WORK SPACES



OPEN PLAN OFFICE 6 square metres per workstation.



WORK LOUNGE 4 square metres per workstation.

SUPPORT SPACE



FILING SPACE 1 square metres per filing cabinet.



TEAM SPACE 6 square metres per workstation.



SHARED OFFICE 6 square metres per workstation.



STORAGE SPACE 1 square metres per storage cabinet.



TEAM ROOM 6 square metres per workstation.



STUDY BOOTH 6 square metres per workstation.



CUBICLE SPACE 6 square metres per workstation.



TOUCH DOWN SPACE 4 square metres per workstation.



PRINT/COPY SPACE 1 per 50 workstations.

KITCHEN SPACE 1 per floor.



WAITING SPACE 2 square metres per seat.

MEETING SPACES



SMALL MEETING ROOM 2 square metres per person.



BRAINSTORM ROOM 3 square metres per person.



BREAK AREA 1 per 100 workstations.



LARGE MEETING ROOM 2 square metres per person.



MEETING POINT 1 square metres per person.



LOCKER SPACE 1 area per floor.



LARGE MEETING SPACE 1.5 square metres per person.



SMALL MEETING SPACE 1.5 square metres per person.



LIBRARY SPACE 1 square metres per book cabinet.

Figure 51. Types of workspaces found in traditional office design. Images by Author. Information from Planning Office Spaces: A Practical Guide for Managers and Designers by Juriaan van Meel, Yuri Martens and Hermen Jan van Ree.

BRIEF FOR THE KIT OF PARTS

The chosen site is The South British Insurance Building, comprised of six stories including a rooftop terrace with car parking and a basement bunker. The purpose of this site is to test a 'kit of parts' for a co-working office that is suitable for entrepreneurs and freelancers working in diverse industries. The co-working space needs to encapsulate an entrepreneurial spirit, facilitate networking and provide business support. The co-working space believes it is successful when residents are able to move out and grow their start up. The space aesthetic is to be 'serious fun', relaxing and enjoyable to work in for the residents as well as professional for clients coming in for meetings.

AIM To design a 'kit of parts' suitable for a co-working office that houses entrepreneurs and freelancers from diverse industries.

OBJECTIVES The design is to be responsive to the environment by selecting recyclable materials where possible.

As residents work in different ways, the co-working space needs a mixture of open areas and private areas to appeal to all types of work styles and personalities. This applies to meeting spaces and relaxation spaces. The kit of parts should be adaptable to help residents create flexible spaces as needed.

The kit of parts needs to be transportable so that if it is no longer feasible to take over the entire site, the design can be reduced to the minimum and the rest stored until later needed or recycled.

The design needs the ability to function comfortably 24/7. As the site is open plan, acoustics will be important to the success of the co-working office. The kit of parts should provide acoustic and visual privacy.

CRITERIA

COST Give residents the best value for dollar.

NOISE LEVEL Have a variety of spaces with different noise levels (collaborative spaces and private spaces).

CULTURE AND NETWORK The design is to reflect the culture and network potential of the space, and the industries which use it.

CURB APPEAL The co-working café on the ground floor needs to present/advertise the space as a desirable and enjoyable space to work in.

ROOM FOR GROWTH Provide space to support small teams. As a residents start-up business grows they may need to lease more space for their team. The co-working office needs to be adaptable so that as more residents join, the office can adapt as needed. The kit of parts will be instrumental in helping to provide that adaptability.

LOCATION The South British Insurance Building - Located in the Wellington CBD.

ALSO REQUIRED

Kitchen facilities Meeting spaces of varied sizes Brainstorming rooms Breakout spaces Sleeping area Quiet zones Variable height work desks Space for play and relaxation Performance/display/function space Lighting – natural and artificial Acoustics



ITERATION 6

ITERATION 5



CO - WORKING OFFICE REQUIREMENTS

	G R O U N D F L O O R	L E V E L O N E	
	C O - S H A R E C A F E	C O L L A B O R A T I V E W O R K S P A C E	P R I V A T E W O R K S P A C E
FACILITIES	Meeting Spaces for residents to take clients (2 Small, 1 Large). Collaborative 'hot desking' tables for people who rent on an hourly basis. Cafe facilities Kitchen (for cafe)	Shared work tables Shared Environment Break-out space Lounge space for relaxing and non work related activities. Small library Kitchen + Bathrooms	Private phonecall booths Private workstations. Sleep space for residents with international clients. Breakout space Kitchen + Bathrooms
EQUIPMENT / SERVICES	Power outlets Lighting (Natural + Artificial) Large collaboration tables (Sitting). Chairs Acoustics Storage for bikes and kick scooters, Jackets/Coats. Personal Lockers Private phonecall booths	Power outlets Lighting (Natural + Artificial) Large collaboration tables/desks (Sitting and standing) Lockers/personal storage Hooks for hanging bags, coats,suits etc. Shelving Acoustics Lounge chairs Work chairs/stools Portable storage (small) that can relocate as required. Printing/Copying	Power outlets Lighting (Natural + Artificial) Individual tables/desks for private quiet work (Sitting and standing). Work chairs/stools Lockers/personal storage Hooks for hanging bags, coats,suits etc. Small tables join together to make the larger tables for workplace flexibility. Sleep 'pods' Printing/Copying Underdesk storage
SYSTEM



SYSTEM MATRIX



Figure 55. Co-working Matrix. Developed by Author as a tool to help designers address the needs of co-working offices.

SYSTEM

At the end of the program iterations for the co-working office, the scope of the project changed from designing the whole co-working office to designing a kit of parts and showing how it can be integrated into a co-working office along side existing office furniture (see fig. 53). Designing a kit of parts system will aide the adaptability and flexibility of the co-working office interiors (see fig. 54). The kit of parts will be replicated up over the remaining floors as the office grows. As the economy changes, the co-working office might need to pack down and its is important that the kit of parts system can aide the co-working office to function at a reduced capacity or in a smaller space.

SYSTEM MATRIX

The system matrix was developed from the case studies and literature review. It is the central focus of this research and highlights the six zones that a co-working office needs to operate: Event, Play, Meeting, Work, Eat and Sleep (see fig. 55). The matrix devises what each zone needs in terms of acoustics, lighting, seating, screens, kitchen, privacy, power supply, storage and tables as well as the types of spaces that each zone needs to function. This matrix was created as a tool for designers to understand co-working needs, as well as for other co-working offices to use as a guide when planning their needs.

OCCUPANCY SCENARIOS - LEVEL 1 CO-WORKING OFFICE



-Space is slowly starting to occupy.

-People using collaborative hot-desking space and private desks.

-The team space is filled up.

-Space occupancy about the same level as the morning shift.

-Team still working in their

-The small collaborative workspace has been turned into a meeting room.

space.

LEVEL 1 - MORNING 8AM-12 NOON



LEVEL 1 - AFTERNOON 12-5PM



-Space is at its lowest occupancy level.

-The team space is empty, but some residents are working in the private quiet workspace.

-As the space is empty, some residents have decided to turn their workstations around and turn the space into a makeshift collaborative area.







-People starting to arrive and use collaborative hotdesking space.

-The number of small start up teams has grown and there are now two teams working in their own space at the rear of the office.

-The collaborative space has dividers around it and an acoustic cloud above to dampen noise.



-The small collaborative space has been turned into a private meeting space.

a private meeting space. -Since meeting space is not available, one of the teams has blocked off their space

nas blocked off their space with a divider to have a meeting. -The Private workspace has

-The Private workspace has been separated off again into smaller spaces with dividers.





-Space is at its lowest occupancy level.

-The relax space has been set up for an informal temporary videoconference meeting and has been shut off with dividers.

-The team has finished their meeting and the dividers that were used have been packed down and stored.







-Residents are starting to arrive and use collaborative hot-desking space. -There are no teams, just individual users.

-Breakout space set up in the centre of the office to encourage interaction between the residents.

LEVEL 1 - MORNING 8AM-12 NOON



LEVEL 1 - AFTERNOON 12-5PM



-Space is at reasonable occupancy level.

-There is an evening event on, so dividers have been reconfigured to create an informal event space for a speaker.

-Workstations have been pushed aside and seats brought into the event space.







BATHROOM

ITCHEN

00

2

BREAKOUT SPACE

TEAM SPACE

LEVEL 1 - AFTERNOON 12-5PM

-Space is slowly starting to occupy.

-People starting to arrive and use collaborative hotdesking space.

-One team space set up for a small start up company, as well as phone booths, a relax space and private/ quiet workstations.

-Space is nearly at maximum occupancy.

PRIVATE MEETING

SPACE.

1 +

TEMPORARY PRIVATE

MEETING SPACE.

-Team space is full and the private meeting space is occupied.

-A temporary meeting space is set up to accommodate another meeting.

-The private workstations are nearly full and some residents are using the relax space.



-The team have gone home and some residents remain in the collaborative space.

-Some sleep spaces have been set up for the evening.

OCCUPANCY SCENARIOS - CO-WORKING CAFE GROUND LEVEL



GROUND FLOOR CAFE - MORNING 8AM-12 NOON



-The small meeting spaces have been booked for residents to have meetings with their clients.

-Other tables are filling up.

-A large meeting space has been set up for a meeting later on in the day.

-Space configuration has been rearranged after the small meetings finished.

-The small meeting rooms have been changed back into private work space and a phone booth.

-The large meeting space is now occupied and the other tables are now starting to fill up.

GROUND FLOOR CAFE - AFTERNOON 12-5PM



-Cafe is closed. Space has been set up for the following days requirements.

GROUND FLOOR CAFE - EVENING/OVERNIGHT CLOSED





-Two of the small meeting spaces have been booked for residents to have meetings with their clients.

-Two of the private workspaces have been booked and are occupied for the morning.

-Other tables are starting to fill up.

GROUND FLOOR CAFE - MORNING 8AM-12 NOON



-Space configuration has been rearranged after the small meetings finished.

-The two of the small meeting rooms have been reconfigured to a large meeting space and the private workspaces have been set up as small meeting rooms.

-The rest of the space has not changed much, apart from some of the tables splitting up.

GROUND FLOOR CAFE - AFTERNOON 12-5PM



-Cafe is closed. Space has been set up for an event on the following day.

GROUND FLOOR CAFE - EVENING/OVERNIGHT CLOSED



OCCUPANCY SCENARIOS - CO-WORKING CAFE GROUND LEVEL



-The space at the back of the cafe has been configured for an all day event.

-The front of the cafe has been set up as usual.

GROUND FLOOR CAFE - MORNING 8AM-12 NOON



GROUND FLOOR CAFE - AFTERNOON 12-5PM



-Cafe is closed. Space has been set up for the following day.

GROUND FLOOR CAFE - EVENING/OVERNIGHT CLOSED





GROUND FLOOR CAFE - MORNING 8AM-12 NOON

-The space at the back of the cafe has been configured as usual.

-Three meeting spaces have been set up as well as private workspaces and phone booths.

-The cafe is starting to fill up.



-The cafe space has been reconfigured to allow for another meeting room as well as smaller tables.

GROUND FLOOR CAFE - AFTERNOON 12-5PM



-Cafe is closed. Space has been set up as needed for the following day.

GROUND FLOOR CAFE - EVENING/OVERNIGHT CLOSED



06 PRELIMINARY DESIGN

INTRODUCTION

Initially, the preliminary design considered an interior system, which could inhabit the whole site. As a result the preliminary design focused on a system, which could work with already established office systems and furniture, in any co-working space. The site is not a driver for the design of the kit of parts system, but rather a space to test the kit of parts. It became clear that the kit of parts would not work without the spatial planning that was addressed in chapter five, as this set up what the kit of parts needed to cover. This project is as much about the co-working office spatial adjacencies, as it is about the kit of parts system. This chapter documents the experimental process of the preliminary design. It begins with initial form diagramming (see fig. 56) based on the idea of 'push, pull, shrink, and grow' and investigates how those forms interact with the site and each other. The preliminary design moves into a series of system-oriented experiments that are developed from the initial form diagramming and concludes with experiment four.

FORM EXPLORATION IN SITE CONTEXT

These form exploration iterations were derived from 'push, pull, shrink and grow'. They are photo overlays of the paper sketch form models put into site context. The aim of these iterations was to explore how the forms could start to interact with the interior of the site and give an indication of how they could start to adapt. These initial form exploration iterations are part of the preliminary design process, and were beneficial in illustrating which forms were the most successful and how they could work with each other to create adaptable spaces for the co-working office.

PRELIMINARY DESIGN FORM EXPLORATION





Figure 56. Preliminary design form exploration. These forms were conceptualised through the idea of push, pull, shrink and grow. They are modular massing forms, which explore the idea of movement and adaptability.



FORM EXPLORATION IN SITE CONTEXT ITERATION 1

Figure 57. Form Exploration in site context iteration one.

Iteration one takes the forms from fig. 56 and overlays them on the plans and elevations of the site to show how the forms work together in the site and the program that these forms can start to become.



FORM EXPLORATION IN SITE CONTEXT ITERATION 2

Figure 58. Form Exploration in site context iteration two.

Iteration two takes the forms from fig. 56 and overlays them on the plans and elevations of the site to show how the forms work together in the site and the program that these forms can start to become.



FORM EXPLORATION IN SITE CONTEXT ITERATION 3

Figure 59. Form Exploration in site context iteration three.

Iteration three takes the forms from fig. 56 and overlays them on the plans and elevations of the site to show how the forms work together in different configurations in the site. It also addresses the forms assigned programs.



ITERATION 4

Figure 60. Form Exploration in site context iteration four.

Iteration four takes the forms from fig. 56 and overlays them on the plans and elevations of the site to show how the forms work together in different configurations in the site. It also addresses the forms assigned programs.

INITIAL DESIGN REVIEW FEEDBACK DISCUSSION

- Development and detailing of the forms.
- Develop forms through furniture scale
- Assign spatial adjacencies and program to the forms.
- Address how the forms will deal with building and office needs.
- Address office acoustics and how this could be included within the forms.

This feedback leads into the next stage of the preliminary design chapter. The next stage takes the initial form exploration (see fig. 56) and the forms in site context iterations (see fig. 57, 58, 59, 60) as well as the initial design review feedback to develop the kit of parts further. The next stage involves a series of design sketches (see fig. 61), which took successful elements from the previous section and starts to develop the forms through detailing and furniture/micro architecture scale. Further sketches are carried out at the end of the chapter (see fig. 66), which start to detail the ideas from experiments one to four, and are a lead in to the developed design chapter.

PRELIMINARY DESIGN SKETCHES



Figure 61. Preliminary design sketches. These sketches build on from the the form exploration process and are the lead into the preliminary design experiements.

PRELIMINARY DESIGN EXPERIMENTS



EXPERIMENT ONE

Experiment one consists of four corner pieces. When fitted together, they form a private meeting space or workspace for teams (see fig. 62). When pulled apart it's corners are designed to be floating around the space and are used as call booths, private workstations, meeting spaces for small teams.

The pieces can also be turned around to create dividers to separate out workstations. Experiment one would suit an open plan co-working office space, and the office could choose to have one or many to suit their needs.

The initial design had a raised platform, however it would use excess material and that layering a floor on a floor was unnecessary. Further iterations explore options to have ceiling and side panels interlock added privacy when taking a phone call or important meeting.

Figure 62. Experiment one.



EXPERIMENT TWO

Experiment two consists of rectangular flat and concertina folding panels. The form can 'shrink and grow' depending on the needs of the residents. These forms could be added together to create larger spaces (see fig. 63).

The flat panels have cutouts for shelving or rails to be slotted in. These forms could be used for meetings, a library, and breakout spaces as well as team workspaces for teams. The concertina walls can be used to partition off space for phone booths or semi private meetings.

Experiment two is free standing and can accommodate different spatial needs. It is easily assembled, lightweight and can be shifted around the coworking office as needed. The bracket in the centre, which the panels slot into, holds the form together. The circular forms can have flat panels attached at the end to create privacy and wall space.

Figure 63. Experiment two.



EXPERIMENT THREE

Experiment three investigates concertina interlocking through different heights and depths. These forms were explored through paper modelling and then in Autex Vertiface PET felt in a 1:2 scale (see fig. 64).

The purpose was to test at a larger scale and in a potential material. This experiment has two versions, one where both pieces interlock and the second where only one piece interlocks. The version where both pieces interlock was the most successful as it locked the form and gave it stability.

Note: Autex Vertiface used to test idea. Vertiface product has colour attached to white backing.





EXPERIMENT FOUR

four Experiment explored alternate ways of making a concertina fold. This experiment started with а standard honeycomb and evolved into pinching the concertina folds together to make a pleat/ smocking pattern (see fig. 65). It then looked at how to create an individual pod that was a combination of the two forms. This experiment investigated how the pod could be combined to make a larger honeycomb pattern. I looked at joining different sizes together, but this was not as successful and gave less flexibility to the form.

This form is malleable, packs down flat and can concertina, like the honeycomb, just and when stretched it curves naturally. Canvas fabric was used to create the pod form at a scale of 1:2, but it did not hold its shape. Further investigation into materiality could help to find a flexible material that would allow the form to hold its shape. This experiment looked at how it could be used as a privacy hood that attaches to table/desk tops. The hood would be suitable for the permanent workspace were residents might want to option of privacy while working, or to shield noise from phone calls.

PRELIMINARY DESIGN SKETCHES



Figure 66. Further preliminary kit of parts design process sketches.

PRELIMINARY DESIGN CONCLUSION

The preliminary design takes knowledge from the case studies, literature review and system matrix and began to apply it to the kit of parts preliminary design. The form explorations, site context explorations and four experiments built on from each other. The preliminary design explores the idea of 'space making' and adaptable interior architecture in the context of co-working office design. The site is treated as a vehicle to explore the challenge of designing an adaptable system suitable for co-working. Experiment three and four met the brief set in chapter five and had the most potential to work with existing office furniture systems to create a cohesive and adaptable kit of parts 'space making' system to be developed further in chapter seven.

PROFESSIONAL REVIEW FEEDBACK - Development and detailing of the kit of parts. - Address how the forms will deal with building and office services. -Start to sketch details as this will help inform the rest of the design.

07 DEVELOPED DESIGN

INTRODUCTION

This chapter focuses on using successful elements from the preliminary design chapter and develops them into a cohesive kit of parts system for a co-working office. The developed design concentrates on reintegrating the kit of parts back into the site to show how it can adapt to suit resident needs and work with other office furniture pieces. This chapter starts with further design process sketches (see fig. 67) before starting the developed design iterations. There are three iterations, each going into further refinement and detail. Iteration three is the final consideration for this project.



Flgure 67. Kit of Parts Design Development Process Sketches.







KIT OF PARTS ITERATION ONE

The initial kit of parts is centred on the experiments from the preliminary design chapter and the main issues in co-working: acoustics, privacy, space making and storage.

Iteration one introduces the pieces that make up the kit of parts: the modules, desk partition, Hedge, Booth and Collab (see fig. 68).

Desk partition attaches to existing desk tops; Hedge is an interlocking concertina partition which can create different spaces within the co-working office; Booth is a kit set structure for private phone calls, small standing meetings and video conferencing; and Collab a large kit set structure to house 'hot deskers' and be adapted for private meetings by adding more side panels and a Hedge at each open end.

Figure 68. Iteration One of kit of parts. Presents models of the kit of parts. It introduces the modules and how they piece together to make up the kit of parts for the co-working office





COLLAB MEETING



KIT OF PARTS ITERATION TWO

Iteration two develops the pieces that make up the kit of parts: the modules, desk partition, Hedge, Collab and Collab Meeting (see fig. 69).

Desk partition uses the small Fold modules and stretches across desktops to partition off and provide privacy. It can be adapted for any size table and more Fold modules can be added to build up height.

Hedge is a space maker made up from the Fold modules. All the modules fit together and using the different sizes can create different patterns.

Collab is for hotdesking, it uses the Pod modules to create an acoustic ceiling to keep noise contained without blocking residents off from one another.

Collab Meeting allows more privacy. Pods make up the sides and ceiling of the structure. The pod sides allow visual and acoustic privacy while residents are in meetings. It can be made more private by adding a Hedge to each open end (see fig. 71, 72).

For materials and colour palette see figure 70.

Figure 69. Iteration Two of kit of parts. This iteration further develops and defines the kit of parts.

VISITING ACADEMIC FEEDBACK

-Investigate the Hedge further and consider how it could start to support horizontal surfaces such as shelves.

- Look at scaling Hedge to suit any site that it is put into.

-This system could be siteless, which makes it adaptable and suitable for any co-working office.

FINAL PROFESSIONAL REVIEW FEEDBACK

- Look at how Collab, since it is a more permanent structure than the rest of the kit of parts, could be made more private for meetings.

- Look at bringing colour and pattern into the design.

- The forms are an easy and interesting way to make spaces for coworking offices.

HAWORTH SHARKTANK INVITED PRESENTATION

(Strategic and Product Services, Haworth)

-Relevant product not only for co-working offices, but also larger corporates, which are also challenged with how they can quickly create different, sized 'project zones' with no construction work.

-The product has more than one selling point and the variety of module sizes for the standing screen and the desktop partitions mean the product is very versatile and will appeal to clients.

-Durability / stability – it would be good to see a full-scale prototype tested for these characteristics.

-Investigate if 'write-able' material could be integrated with this product as Haworth is seeing a demand for 'visual thinking' spaces.

-Could different materials be used for the Hedge modules (not just PET felt) and applied in different combinations to tailor the environment effects.

-Explore other 'accessories' e.g. Stationery organisers, photo frame holders, technology / cable storage, pot plants.

The feedback from the visiting academic, the final professional review and the Haworth Sharktank presentation was considered for the development of iteration two of the kit of parts. Iteration two begins to consider colour, texture and materiality (see fig. 70) of the kit of parts, the scale and aesthetics of each piece and how the pieces work together in the site. Selected pieces of the kit of parts have been mocked up in cardboard to test their size and aesthetics and details of selected Collab joints have been built, scale 1:1, to test the strength of the joints.



Figure 70. Iteration two material and colour palette.



Figure 71. Iteration two proposed floor plan for ground level co-working cafe.




Figure 72. Iteration two proposed floor plan for level one co-working office.



Figure 73. Key Plan. Small version of fig. 71.

HEDGE CURVE

Hedge Curve is an alternative way to configure the Hedge wall (see fig. 73). It is made up of interlocking modules joined by 5mm nylon ratchet rivets and can be built to any height and length to suit any site and residents needs (see fig. 74). Hedge modules come in four sizes and are made from Autex Cube 6mm PET felt and the modules are water cut. The flexibility of the interlocking modules and the concertina nature of its form allows the partition to curve.





Kit of Parts Featured: Collab Collab Meeting Hedge Hedge Curve Pods Cloud

Figure 74. Images showing kit of parts iteration two in site context.



Figure 75. Key Plan. Small version of fig. 71.

DESK PARTITION

The desk partition uses the smallest Fold module (see fig. 76). This piece is intended as a privacy and storage partition for permanent workspaces in co-working offices. It can be built to any length and height the suit the workspace. It can run down the length or across the width of the desks /tables. 1.2mm powder-coated steel shelves can be slotted onto the top of the modules. The shelves can also be flipped upside down and used as feet to keep the structure stable on the desktop. The shelves can be used to store phones, chargers, coffee cups, pencil cases and tablets. It does not hinder the set up or need holes cut in for cabling to fit through, can be set up quickly by residents and packs down flat.

HEDGE

Hedge is an interlocking partition wall system, which empowers residents in co-working offices to build their own space to suit their needs. Hedge concertinas and flat packs down. Hedge is made up of modules joined by 5mm nylon ratchet rivets and can be built to any height and length to suit any site and residents needs. Hedge modules are made from Autex Cube 6mm PET felt and are water cut to get clean edges. Hedge comes on four different sizes of module, with the possibility to be made even larger. The smaller modules give more privacy due to smaller concentration, while the larger modules would give less privacy, as there is a larger gap between the modules. Smaller and larger modules can be fitted together to create different patterns and textures of the Hedge wall.



1.PERMANENT WORKSPACE



Figure 76. Images showing kit of parts iteration two, Hedge and Desk Partition, in site context.



Figure 77. Key Plan. Small version of fig. 71.

COLLAB

Collab is a kit set, portable, 'space maker' intended for hot-desking residents using a co-working office (see fig. 77). The structure is an Ash timber frame that is pieced together with powder-coated 2mm steel brackets (see fig. 78). The brackets are held in place by 30mm countersunk socket screws that screw into a threaded insert in the timber. Collab has Autex 6mm Cube pods that are held together by the same ratchet rivets as Hedge. The Pods are to help reduce the noise coming from the space, but not block the line of site of the residents off from each other. The Pods are to be suspended from the frame by hooking onto wires running across the frame. Collab can also be grouped together to create larger spaces as needed.

COLLAB MEETING

Collab Meeting is a variation of Collab intended for housing semiprivate meetings in a co-working office (see fig. 78). With Collab Meeting, the Pods can be brought further down the sides to give the users more privacy. Collab Meeting is to be used in conjunction with Hedge (partition), which can be placed on either end for added privacy. Projectors can be hung from the timber structure and portable screens brought in. Lighting can be hung down into the space from the ceiling.



Figure 78. Images showing kit of parts iteration two in site context.

ITERATION TWO COLLAB DETAIL 1 EXPLORATION



Model Scale 1:1

Figure 79. Joint detail mockup for the Collab structure. 2mm steel bracket, 30mm countersunk socket screw and 20mm threaded insert. 2 mm steel bracket with pins. Bracket sits flush into timber structure. Pins used to keep structure from racking.

ITERATION TWO COLLAB DETAIL 2 EXPLORATION



Model Scale 1:1

Figure 80. Collab joint. 2mm steel brackets sit flush with the surface of the timber structure and countersunk socket screws and threaded inserts keep the bracket and structure in place. This detail was mocked up to test the strength of the join. Cardboard was used to test aesthetics and proportions of the bracket.

ITERATION TWO POD AND CLOUD DETAIL MOCKUP EXPLORATION



Model Scale 1:1

Figure 81. Model of the pods attached together with nylon ratchet rivets. These models explore how the form holds itself and how it can be packed down compactly and stored away. The Pods were also tested in opaque plastic with LED lights underneath to see what effect it would have and how lighting could be included in the design.

ITERATION TWO POD AND CLOUD MOCKUP EXPLORATION



Model Scale 1:1

Figure 82. Pods. Model of the hanging pods and acoustic cloud showing how it the form hangs when held from one point. Photographs by Author.

ITERATION TWO SLIDING FOLD EXPLORATION



Model Scale 1:1

Figure 83. Fold. These models explore how the form can expand and be added to vertically and horizontally. Scale model of Sliding Fold attached together with nylon ratchet rivets. These models explore how the form expands horizontally along a track.

ITERATION TWO HEDGE DEVELOPMENT EXPLORATION



Model Scale 1:1

Figure 84. Full-scale model of Hedge. This series of images show the potential of the Hedge as not just a partition, but also a storage piece that could be used for storing resident's coats/jackets. Fold modules can be omitted in places to create viewing gaps. Shelves can also slot in to the gaps for added storage).

ITERATION TWO DESK PARTITION EXPLORATION



Model Scale 1:1

Figure 85. Desk Partition. Small Fold modules, signage and shelf mocked up in cardboard to test proportions and aesthetic.

ITERATION TWO FOLD MATERIAL AND FIXINGS



Model Scale 1:1

Figure 86. Fold. Small fold modules tested in 6mm Autex Cube PET felt with 5mm nylon ratchet rivets from HiQ Components. The four module sizes from iteration two are also shown.

ITERATION THREE - FINAL CONSIDERATION

Iteration three is the final consideration for this research project; it refines the aesthetic of the kit of parts further as well as the materials and fixings palette (see fig. 88). It takes the kit of parts from Iteration two and develops it further to address adaptable 'space making' and the main issues in co-working offices: aoustics, privacy (visual and accoustic) and storage (see fig. 87, 89, 90,).



Figure 87. Kit of parts system overview in site context. Image shows the kit of parts set up for different space types and resident needs within the co-working office (meeting space, hotdesking space, lounge space, workspace). Also shows how the kit of parts system works with existing furniture.



Figure 88. Iteration three material and colour palette.



Figure 89. Iteration Three Ground level co-working cafe plan.



Figure 90. Iteration Three Level one co-working office plan. This plan is to give an indication of how the kit of parts can be used in the site, and propose a way that a co-working office may use this kit of parts system in this site.



1. MEETING SPACE 2. HOTDESKING 3. PRIVATE SPACE 4. LOUNGE 5. LOCKERS

Figure 91. Iteration Three Ground level co-working cafe section.







2m



Figure 93. Iteration Three Level one co-working office Event Space.

HEDGE CURVE

Hedge Curve, uses the Fold modules, and can be built up to different heights and widths to create hierarchy and topography within the co-working office (see fig. 91, 92, 93). For the event space, Hedge is pulled around to make a nest (see fig. 96), while the lounge space is open to welcome residents in (see fig. 94, 95). Also featured: Buzzihub and Buzzicube 3D by Buzzispace.



Figure 94. Iteration Three Level one co-working office Event Space birds eye view.





Figure 95. Iteration Three Level one co-working office Lounge Space.



Figure 96. Hedge Alternate configurations.



Figure 97. Iteration Three Level one co-working office, Permanent Workspace.

DESK PARTITION

The desk partition is made from the smallest Fold modules (see fig. 97). It can be built up to different heights to create hierarchy and different levels of privacy while working (see fig. 98, 99). The modules slot into ends to keep the workstation divider stable. Shelves can be slotted into the top of the modules to store items. Cords/cables can be run up through the modules. Signage can also be slotted in to indicate the type of workspace. Also featured: Planes table, Zody Task chair and Brazo desk lamp by Haworth.





Figure 98. Iteration Three Level one co-working office, Permanent Workspace birdseye view.







Figure 100. Meeting Space. Collab with full Hedge sides.

COLLAB

Collab can be configured using different add-on pieces to create a space for different needed within a co-working office (see fig. 99, 100, 102). Accessories include White boards, magazine holders, shelves and hooks (see fig. 101). Also featured: Hedge, Hanging Storage Pod, Haworth Planes table (height adjustable), Haworth Zody Task chair, Haworth stool.



Figure 101. Hotdesking Space. Collab with half flat sides.



Figure 102. Collab alternate configurations.



Figure 103. Sleep/ Lounge Space featuring Hedge.

HEDGE

Hedge, uses the Fold modules, and can be built up to different heights and widths to create hierarchy and topography within the co-working office (see fig. 103, 106). It is designed to partition off space, and create visual and acoustic privacy (see fig. 105, 107). It can be configured in many different patterns using the four sizes of Fold module (see fig. 104). Fold modules can be left out to slot shelving in or to create viewing portals between spaces (see fig. 105, 108). For prototype of Hedge see figure 114. Also featured: Buzzicube 3D by Buzzispace.





Figure 104. Hedge Detail. Small and large Fold modules.



Figure 105. Hedge with portals.







Figure 106. Hedge alternate configurations.





Figure 107. Hedge in Extra Large Fold modules. Also featured: Acoustic Cloud, Cube by Buzzispace, Compose Table and Stool by Haworth.



2mm Powder coated steel (white) end for the Desk Partition.



1.2 mm powder coated steel (white) shelves. Signage board (6mm Autex Cube) can be sublimation printed (heat transfer printing) with signage or logos.



1.2 mm powder coated steel (white) shelves which hook over Collab structure.



Whiteboard with 2mm powder coated steel (white) arms which hook over the Collab structure.



1.2 mm powder coated steel (white) magazine holder and storage hooks which curve over the Collab structure.

Figure 109. Kit of Parts Collab accessories.



COLLAB STRUCTURE ASSEMBLY

Figure 110. Exploded isometric of Collab structure. Frame joins together by 2mm steel brackets fixed by M8x30 countersunk socket screws which feed into 20mm threaded insert in timber. Scale 1:50, do not scale off drawing.
ITERATION THREE



COLLAB STRUCTURE WITH FLAT SIDES

Figure 111. Exploded isometric of Collab structure with flat side and ceiling panels. Autex Cube 1200x2400x6mm PET Felt in 'Civic'.2mm steel brackets powder coated white, fixed to frame with M8x30 countersunk socket screws which feed into 20mm threaded insert in timber. Scale 1:50, do not scale off drawing.





COLLAB STRUCTURE WITH HEDGE SIDES

Figure 112. Exploded isometric of Collab structure with Hedge sides. 1.2mm steel brackets, powder-coated white, fixed into timber frame with M5x20 countersunk screws. Hedge fixes to bracket with ratchet rivets. Scale 1:50 unless otherwise stated, do not scale off drawing.

ITERATION THREE



Figure 113. Exploded isometric of Collab structure with Pod ceiling made from Autex Cube 6mm PET Felt in 'Civic'. Pods are fixed together with ratchet rivets and suspended from frame by hooking onto wires. Scale 1:50, do not scale off

COLLAB STRUCTURE WITH POD CEILING











NOTES:

FOLD MODULES TO BE WATERCUT FROM AUTEX 6MM PET FELT.

PUSH, PULL, SHRINK, GROW		
RAWING TITLE:		
FOLD MODULES		
CALE:	SHEET NUMBER:	
1:5	A1	







HEDGE FRONT ELEVATION - EXTRA LARGE MODULES

1:20 A3 ONLY, DO NOT SCALE OFF DRAWING

2



HEDGE RIGHT ELEVATION - EXTRA LARGE MODULES

1:20 A3 ONLY, DO NOT SCALE OFF DRAWING

4

PUSH, PULL, SHRINK, GROW		
DRAWING TITLE:		
HEDGE		
SCALE:	SHEET NUMBER:	
1:20	A3	



NOTES

4 PIECES NEEDED TO MAKE UP POD.

6 MM AUTEX PET CUBE FELT.

FIXED WITH HIQ RATCHET RIVETS 04-PRR71319

POD PIECE PATTERN

1

1:2 A3 ONLY, DO NOT SCALE OFF DRAWING







PUSH, PULL, S	HRINK, GROW
RAWING TITLE:	
OD PIECE	
CALE:	SHEET NUMBER:
2	A4





07









PUSH, PULL, SHRINK, GROW DRAWING TITLE: HANGING POD SCALE: SHEET NUMBER: 1:5 A5









NOTES:

POD PIECES FIXED WITH HIQ RATCHET RIVET, PART NUMBER 04-PRR71319.

PODS TO BE ADDED AS NEEDED.

PODS SUSPENDED FROM WIRES THREADED THROUGH PUNCHED HOLES.

PUSH, PULL, SHRINK, GROW		
RAWING TITLE:		
ACOUSTIC CLOUD		
CALE:	SHEET NUMBER:	
1:10	A6	

























NOTE: ROUND ALL CORNERS OFF, 2MM RADIUS.









500 MM

NOTE: ROUND ALL CORNERS OFF, 2MM RADIUS.

COLLAB MAGAZINE HOLDER -PLAN 1:5 A3 ONLY, DO NOT SCALE OFF DRAWING





COLLAB MAGAZINE HOLDER -FRONT ELEVATION

1:5 A3 ONLY, DO NOT SCALE OFF DRAWING









1:10 A3 ONLY, DO NOT SCALE OFF DRAWING





SMALL HEDGE ENDS WITH SMALL HEDGE - PLAN 1 : 10 A3 ONLY, DO NOT SCALE OFF DRAWING





SMALL HEDGE ENDS WITH SMALL HEDGE - FRONT ELEVATION

1:10 A3 ONLY, DO NOT SCALE OFF DRAWING





5

SMALL HEDGE ENDS WITH SMALL HEDGE - 3D VIEW

NOT TO SCALE



SMALL HEDGE ENDS WITH SMALL HEDGE - LEFT ELEVATION

1:10 A3 ONLY, DO NOT SCALE OFF DRAWING

NOTE:

ENDS TO BE MADE FROM 2MM STEEL, POWDER COATED WHITE FINISH.

HEDGE MODULES SLOT INTO THE END, AND RATCHET RIVETS USED TO CONNECT HEDGE FLAPS TO THE END.

END TO ADD STABLITY TO HEDGE.

SUITABLE FOR DESK PARTITION ON DESK TOP.

PUSH, PULL, SHRINK, GROW		
DRAWING TITLE:		
HEDGE ENDS		
SCALE:	SHEET NUMBER:	
1:10	A14	



Figure 114. Prototype of Hedge (Large Fold modules). Scale 1:1, note: prototype mocked up in 6mm Autex Vertiface, but would be made from 6mm Autex Cube if put into production. Thumbnail exploded line drawing shows how Hedge fits together. Hedge modules interlock, and are joined by elastic toggles to keep modules secure when being moved around in the space.

DEVELOPED DESIGN CONCLUSION

The feedback received about the kit of parts system from industry professionals and the public has been positive and the design has been well received. Although this research concludes after iteration three of the kit of parts design, there is still some development work, which would need to be addressed if this system is prototyped and put into production.

The kit of parts would benefit from further material investigation. It would be beneficial for the aesthetic of the final kit of parts design to investigate a New Zealand made wool felt product, which has a similar structural rigidity as the Autex PET felt. At the time of this research, there was no known product with the same structural properties as the Autex PET felt. Currently, if the design were to use wool felt, it would have to be glued/fixed to a backing board. Wool felt board, if tested and found suitable, could boost the finish of the product and bring texture into the design.

Timber (Ash) was used as it added to the home office/craft aesthetic of the kit of parts to move away from the typical stark and static feel that offices can have. If this thesis research was developed further and put into production it would be beneficial to the design to run a series of prototypes of all the pieces, including making the Collab structure in timber as well as aluminium to investigate aesthetics, detailing and structural performance in both materials. An aluminium frame for the Collab structure would make the kit of parts system more suitable for quick production as aluminium is more lightweight than timber and it is easier to produce the sizes. A prototype would be beneficial to test the structural performance of the Collab frame. Some of the joints have been built and tested as seen in iteration two and were found to be sturdy. However a prototype would be beneficial to ensure that Collab will withstand regular resident use.

This research project would value partnering with a local co-working office and installing a prototype of the kit of parts system into their space. This would allow for feedback from their residents on its ease of use, set up time, how well it adapts to residents needs and how it helps the issues of acoustics, privacy, storage and space making in co-working offices.

08 CONCLUSION

'Push, Pull, Shrink, Grow' explored how co-working emerged as a solution to the shift in social expectations of the workplace and the growing number of freelancers and entrepreneurs. With co-workings growing popularity, this research project identified, through the literature review, a gap in knowledge about co-working offices which has proved this thesis as a relevant study. This research project had two aspects: the first addressed the spatial needs and values of co-working to provide insight on how these types of offices function and how the kit of parts system would fit into these spaces, the second was to develop a kit of parts system that addressed the issues around co-working. Both aspects were equally as important to understand the complex and changing nature of co-working and how to design for their interiors.

This research project embraced the multi-functionality of co-working office interiors and through a series of design iterations and experiments aimed to provide a solution to the issues of adaptability, acoustics, storage, privacy and space making. The literature was beneficial in highlighting the lack of published research about co-working offices. This thesis presented literature on the psychology behind traditional office design, the four office models and how these theories could be adapted to inform the needs of co-working. The literature discussed the changing work environment as well as key ideas behind human behaviour in relation to office design: personality and motivation, environmental psychology and evolutionary psychology. This research related ideas and theories about traditional office design to co-working offices to develop the system matrix, which indicates how to approach designing for a co-working office.

'Push, Pull, Shrink, Grow' developed into an interior system based around a kit of parts that enabled residents to adapt their own spaces as required. The kit of parts is an interior 'space making system' comprised of modules and limited fixings, which make it easy and quick for residents to assemble their own interior architecture for the co-working office. It addresses the main issues in co-working and traditional office design: acoustics, privacy, storage and space making. The kit of parts is not the full office fit out; it works with existing office furniture to provide a comprehensive solution to the issues surrounding co-working office interiors. There is the potential for the kit of parts system to be used beyond co-working, and move into open plan offices, galleries and schools. There has been interest expressed about the versatility of these pieces, especially Hedge, because of its modularity and potential to be scaled to suit any interior space. Further development on how these pieces perform acoustically needs to be addressed.

Prototyping the kit of parts and placing it in a co-working office to study how effectively it is used would be valuable to the development of the design and give an indication of how to develop this interior system further to ensure a viable co-working office interior product. The kit of parts system is only one solution to designing co-working office interiors. It is hoped that further research will be undertaken as co-working offices continue to gather traction so that their interiors reflect the core values of community, adaptability and flexibility, and provide unique and individual work environments for the residents of these spaces.


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