International Journal of Advances in Engineering and Management (IJAEM)
Volume 4, Issue 5 May 2022, pp: 2024-2028 www.ijaem.net ISSN: 2395-5252

Design and Development of Work Pod

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Submitted: 15-05-2022 Revised: 25-05-2022 Accepted: 28-05-2022

ABSTRACT- Through observational studies and surveys, the designers worked on several 1:1 scale cardboard and plywood mock-ups that were built to resolve all the component dimensions in the work pod. Designers also conducted a comprehensive survey that questioned over 50 students and potential users within the college about what factors they consider when choosing a location to work and what the most important aspects of a work pod must be. The full-scale mock-ups were also used as part of the survey, giving survey respondents hands-on experience. The immediate user feedback gained was used to rapidly iterate on the design accordingly. It was clear from the survey of 14 questions that the most vital issues needed to be addressed are acoustics and privacy related, as well as visual isolation.

Keynotes: Aluminium, plywood, Composite panel, Work pod

I. INTRODUCTION

Ever since the way workplaces operate have changed, organizations have become more aware of the hybrid workforce model. Though all the modifications of a hybrid work model are targeted to improve productivity, it is no doubt that the hybrid work model has made employees' lives much easier.

From many opportunities to work from home, options to get new comfortable furniture, use software that makes work easy, and have complete control over the working hours, the hybrid system is a dream come true. Thanks to the many inventions, a modern workplace is now loaded with top-notch technology and recent ideas to make the most of an experience.

Work pod is one similar addition to a modern workplace. A work pod is a new term to many, and though it doesn't seem like a promising idea at first glance, this article will discuss how the privacy work pod for your private workplace design can make your work life more productive.

A Work pod, also known as an office work booth, is a quiet office space for improved focus. It is an addition to the hybrid work model because remote workers often have difficulty finding the best private corner for their work while remote working. Since dedicating an entire room in the home is expensive and for most people, it is not very practical, these privacy pods are sleek and smart designs, with a small footprint. The work pods are usually made soundproof, so you won't even notice the disturbances around you.

Soundproof work pods or homework pods are equipped with all the essential accessories and home office requirements depending on the type of work pod you choose. Other than individual work pods, there are also meeting work pods for confidential discussions and smooth work progress.

Most workplaces these days have an open floor plan. They're touted as a popular way to maximize space use, lower costs, boost productivity and increase collaboration between employees.

It's also an effective way to counter the issue of employees feeling isolated at work.

However, it's not without its flaws.

An open-plan workspace tends to have higher levels of office noise and more distractions, all of which can hurt productivity.

Here's our solution. And don't worry, you can still keep your beautiful open office!

Rather than reverting to a closed floor plan to create privacy and reduce noise distractions, adding a work or meeting pod is an affordable option that creates a micro-environment while still retaining the collaborative nature of an open office.

Research Elaborations

Problem Statement:

We created unique products to simplify the work. The company transforms simple, utility-based products into ergonomic designs with the help of advanced engineering and AI.

Our Work Pod is different. It aims to enhance your productivity and efficiency by providing you with space exclusively for work.

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Nowadays, companies have taken it upon themselves to revamp an outdated, fairly average looking and turn them into a modern, clean-looking cubicle. Depending on its use, the pod is typically furnished with a desk, chairs, electrical outlets, and perhaps a few decorative items to pull it all together.

It isn't as big or as executive as an official boardroom, but it creates a quiet, multi-use space where employees can go to focus on their work, make a phone call, take meetings, or even sit back and unwind when they need to get away from their desk! It's no wonder work booths are becoming a staple of the modern office.

Work booths present a cost-effective alternative to building a room from scratch and can lower your operating costs by up to 45% compared to a traditional fit-out whilst still serving many of the same functions.

Work booths come in a variety of shapes and sizes to suit your operational needs. Whether you want a four-person meeting room, a single-person workspace, or even a nap pod, the possibilities are (almost) limitless!

Plus, if you fancy making a change to your office layout or need to move to a new location, the booths can be easily reconfigured or moved with minimal disruption to your office routine. These are particularly perfect for startups who have limited space and require more flexibility for when it comes time to scale up.

If you've ever worked in an office or home, you'll know that some conversations are difficult to have in front of your colleagues – whether it's because you get nervous talking in front of other people, or if there's sensitive client information you need to discuss privately. This is where a booth comes in handy.

Booths that support noise occlusion offer a safe, secure space to give employees the privacy they desire and also prevent disrupting everyone else in the office or home too.

Objective:

The goal for successful office design is to effectively support increasingly flexible behavior. And this means the flexibility afforded to us by the evolving technologies we can use to work.

Flexibility means the opportunity to meet, or to be alone, and to be transient. We can be increasingly effective workers while totally mobile, and most of today's mobile workers actually spend less than 60% of their days in physical office spaces.

Additionally, as technological options have progressed, we often only need to focus on our screens. Paperless work environments remove much of the need for desk space, and wireless devices open up the configuration options for standing, moving, and sitting.

Flat surfaces are required for heavier design work, and for ergonomically acceptable long-term typing. Power strips should be accessible in close proximity to enable fluid and uninterrupted flows.

But has this been achieved by the open office design movement?

Open office design aims to foster collaboration with ideation spaces, standing tables, and expansive coffee areas to talk in. It's true that recent years have seen a mania for 'benching' people out into the open and examining how this affects overall productivity through heightened opportunity for supervision.

There is a flexible math in play too, as many offices plan for desk space numbers that are lower than the actual employee headcount.

Calculations

Given: the load is constant(UDL)
Sol:
Converting UDL into point load
Work load=1000*0.76 N
= 760N
Fx=W*X (Shear Force)
X=0, Fx=0
X=0.76m ,Fx=760N
Mx=-wx*x/2
X=0, Mx=0, X=0.76m
Mx=-w*l*l/2 =1000*0.76*0.76/2 =288.80
X2=y2+0.45
Y=√(□2 − 0.45)
If x=1, Y=0.75

Total load =area of load
=½*0.9*1+□□2
=0.45+ □/4 (1)=1.25
converting the load of applied at middle
Fx = 1.25*x
X=0,Fx=0
X=0.25, Fx=1.11
Mx=wx*x/2=0.124N

Result

The following modifications are done while designing the work pod. 1. Portability factor: - Earlier versions of the work pod were stationary, the work pod was made portable by changing the structure and adding wheels at the base. 2. Excess noise is another issue that has gotten more prevalent as open-plan workplaces have become more common. Acoustic materials are now used in

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many meeting pods and booths to assist absorb unwanted background noise. So while the meetings or new hires are taking place or a team is collaborating on the nextproject, the work pod could be an area with maximum quiet. 3. Anxiety in a workplace is common, and most people feel anxious because of their surroundings. Creating a work environment geared to address common workplace concerns is an effective method to increase employee satisfaction and experience. Stress levels will be reduced, and motivation and workplace optimism will be higher. ➢ CONCLUSION: - We have studied the research paper and analyzed existing Work pod and provided necessary solution for the same. We can assure that these modifications would be sufficient to overcomeabove problems of existing work pods and provide a well-balanced alternative for the same which wouldbe safe and worth the cost.

Dimensions (L*B*H)
4ft*4ft*7ft (internal)
4.5ft*4.5ft*7.5ft

Product Dimensions	4ft x 4ft x 7ft
Weight	50 kg
Packaging Dimension	4.6ft X 4.6ft X 7.6ft
Colour (Two Available)	White, Dark Brown
Material	Aluminium ,Tinted glass, Composite panel
Seating Capacity	1 Person
Mounting Type	Floor Mounted
Coating Type	Powder coated
Operation	Semi automatic

The center of the screen should be lower than the eye height, so as to obtain a viewing angle of about 25–35° below the horizontal (Hill and Kroemer, 1989)

The assumption behind this standard was that operators prefer to type with horizontal underarms and 90° elbow angles. If so, the available vertical space between the hands and upper legs can be calculated from anthropometric measures in below Table such as sitting elbow height minus thigh clearance. For a small 5th percentile female operator this is 7.5 cm, barely enough to fit a 3-cm keyboard and a 3-cm table top.

The second most important factor is adjustability of the seatback angle. A seatback angle of greater than 110° reduces the pressure on the spine (Michel and Helander, 1994). As a person moves from a straight standing posture to a straight sitting posture, the hip joint angle goes from 180° to about 90°. The last 30° of movement from 120° to 90° are absorbed by the pelvis, which rotates forward. This biomechanical change reduces the length of the leverage arm from erector spinae muscles (back muscles) to the spine. As a result, the disk pressure is about 30% greater while sitting as compared with standing (Andersson and Ortengren, 1974). The third most important adjustability factor is the lumbar support. This design feature may have been oversold. Lumbar supports are often not used since chair users do not sit straight and usually do not press their back all the way into the backrest. In fact, many chair users prefer a more relaxed sitting posture (Grandjean, 1986). However, individuals with bad backs are sensitized to the effect of lumbar supports, and have a tendency to use them much more than persons with healthy backs.

A footrest can be helpful for short operators, so that they can support their feet. However, footrests should not be used out of convention. In Figure 14.2 the footrest is unnecessary since the operator can put her feet on the floor. Arm rests should not interfere with the table or desk top. For a keying task, where the operator must pull the chair close to the table, short arm rests (elbow rests) are often preferred over long arm rests. Today, many chairs come with height adjustable arm rests that can be used in many different ways. Wrist rests are optional. Because typing habits are different, some operators prefer wrist rests and some do not. Soft wrist rests (rather than hard) are supposed to put less pressure on the wrist and reduce the risk of developing carpal tunnel syndrome. However, research has not been able to prove the significant benefits of wrist rests, and whether soft wrist rests really make a difference. But footrests, armrests and wrist rests are inexpensive, and should be readily available to operators who require them (Sauter et al., 1985).

There are a few controversial issues concerning recommendations for viewing distance. Some researchers claim that the viewing distances to the screen, to the documents on the document holder, and to the keyboard should all be the same,

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so that it is not necessary to refocus the eyes. Refocusing takes time and is unproductive (Cakir et al., 1980). In addition, for older operators with presbyopia (inflexible lens in the eye) the uniform distance is helpful since it is easier to focus. Other researchers claim that it is important to keep exercising the focusing mechanism (accommodation) of the eye, and that thereby visual fatigue and temporary myopia can be avoided (National Research Council, 1983). The term temporary myopia implies that the accommodation or focusing of the eyes adjusts to the somewhat closer viewing distance which is imposed by a close working task. Thereby the range of clear vision is moved closer to the eye, and it is difficult to focus on distant objects. This phenomenon is not unique to computer work. Every close work task may cause temporary myopia, which typically disappears an hour after work. Nonetheless, many individuals notice these effects and are overly concerned. For example, when driving home after work during darkness, temporary myopia, combined with dilated eye pupils, makes it difficult to read traffic signs. Some individuals may misinterpret this and obtain eye glasses to correct a condition which hardly needs any correction.

Many operators complain about visual fatigue. Usually, visual fatigue does not have anything to do with the CRT screen but rather the type of work that people undertake. Computer terminal work can indeed be very intense and fatiguing (Helander et al., 1984). For example, a data entry operator may input as many as 20,000 characters per hour for 8 hours a day. Typically, the operator looks at the source document and glances at the screen only occasionally to check the data. After such an intense work day it should not be surprising that operators are fatigued in their entire bodies as well as in their heads. Thus, visual fatigue is just another aspect of general fatigue. Several studies have indeed confirmed that data input operators complain the most about visual fatigue, although this type of work involves comparatively little screen viewing (Helander et al., 1984)

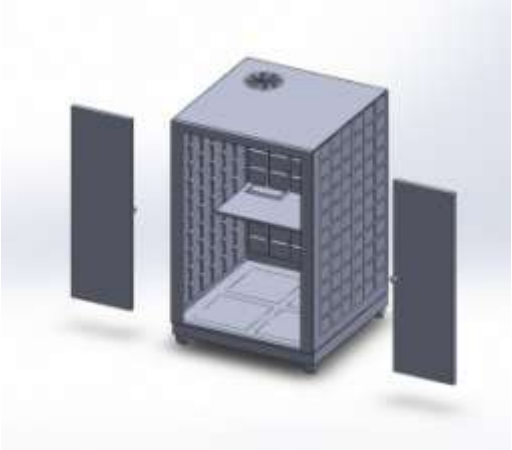

Fig. 3D Model of Work Pod

II. RESULT:

The following modifications are done while designing the work pod.

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2. Excess noise is another issue that has gotten more prevalent as open-plan workplaces have become more common. Acoustic materials are now used in many meeting pods and booths to assist absorb unwanted background noise. So while the meetings or new hires are taking place or a team is collaborating on the next project, the work pod could be an area with maximum quiet.
3. Anxiety in a workplace is common, and most people feel anxious because of their surroundings. Creating a work environment geared to address common workplace concerns is an effective method to increase employee satisfaction and experience. Stress levels will be reduced, and motivation and workplace optimism will be higher.

III. CONCLUSION: -

We have studied the research paper and analyzed existing Work pod and provided necessary solutions for the same. We can assure that these modifications would be sufficient to overcome the above problems of existing work pods and provide a well-balanced alternative for the same which would be safe and worth the cost.

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