

**RURAL STUDIO FOR THE INFORMATION AGE:
A CONNECTED HUB FOR CREATIVE PROFESSIONALS**

by

Jason R. Butler

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KEY WORDS

Remote Working, Digital Connectivity, Design Collaboration, Healing nature, Creative Hub

ABSTRACT

This thesis examines how the design of a rural and connected hub can enhance creative work, and add value to a rural community. Rural areas have less job opportunity compared to their urban counterparts, but in this 'information era' physical boundaries no longer need to dictate where people live, work and create.

The proposed project will seek to define and describe collaborative spaces and resources for entrepreneurs and creators by offering an inspirational and healing natural workplace, away from urbanity. The architecture will stimulate social activity and through collaborating design with nature, stimulate creativity.

The general program is a mix of community education, office space, and on-site housing, the exact program will depend on the location. The initial prototype will be developed in the context of British Columbia, near the village of Pemberton, but will remain adaptable and applicable to other rural landscapes around the world.

DEFINITIONS

Urban: an area with a concentration of population at a high density. It has a population of at least 10,000 people and density of 400 or more people per square kilometer

Rural: an area where population is not concentrated, but dispersed at a low density; an area outside of an urban area.

Parent Firm: an established firm with presence in one or more urban areas, which may intend to expand their offices to include smaller firm locations for their employees

Creative Hub: a design center for creative professionals in the style of a campus, offering all necessary resources and amenities for their work

Creative Professionals: a person who has a career in a design related field such as Architecture, Industrial or Product Design, Graphic Design, etc.

Design Pod: a design firm's private office space within the creative hub.

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CHAPTER 1: INTRODUCTION

The world is undergoing a tectonic shift precipitated by the advancement of technology. The pace of technological development leads to questioning traditional methods of working and challenging former limitations of distance and accessibility. Computers and the Internet have become everyday tools for many people, accessibility of technology and its future evolution will open up opportunities for urban decentralization. This opportunity will address the modern challenges that exist when living within an urban centre. Challenges such as high cost of living, lack of privacy and people's detachment from nature and the landscape being just a few. Living in a rural environment offers a powerful connection to nature, but tends to lack global connection and therefore does not provide a diverse range of jobs. Creative Professionals such as Architects and Designers are among the many who are required to live and work in urban areas to satisfy creative opportunities. Offering a lifestyle alternative for creative professionals in a rural setting combats the urban imbalance in job availability, and stands to offer an influx in jobs and skills, economy and community that opens doors for rural towns and creative professionals around the world. Landscape settings benefit people through inspiration, physical and mental well-being from proximity to plants and animals, and generate productivity for creative work and education. This thesis will investigate how we can build a creative hub in a rural landscape setting that provides a healthy, social & creative atmosphere for living, working, and learning. Firstly, the global and regional opportunity for a creative hub will be explained. Secondly, several similar precedents will be analyzed to confirm conceptual desirability & harmony, and effective design implementations. Next, the ecological, mental, educational, and working benefits of the creative hub will be detailed. Finally, an understanding of how the project fits into existing urban infrastructure will be outlined.

CHAPTER 2: THE OPPORTUNITY

Global Opportunity

City Migration

There is a global opportunity for a Creative Hub to thrive rurally, but first we must examine urban areas. As of 2014, over half of the world's population lives in urban areas.¹ In addition, there is a constant trend of growth, and it's expected that by 2050 two out of every three people will live in an urban area. The same is true specifically of Canada, except populations there have risen from 69% urban in 1960 up to 82% urban in 2015; These rates are growing faster than our overall population growth rate, meaning more people are moving from rural areas and into urban ones.² Overall, developed nations typically are about 74% urban on average, while less developed nations are only about 44%.³ Why are people moving to the city? There are usually higher quality and a wider variety of education choices, more specialized healthcare options, and more availability when it comes to stores, entertainment, and community programs. Historically however, a huge reason has been from more job opportunities in the city. More recently the development of the internet has given rural areas equivalent access to online stores and entertainment, and arguably also offers a connection to the global community. In developed nations, there are shrinking rural communities which could benefit from more public interest. Meanwhile, in less developed nations the more populous rural areas could also benefit from community investment.

Distance and commute time greatly affect the choice of where people choose to reside. The city's main draw is the diversity and choice it offers, especially when it comes to

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1. United Nations, "World's Population Increasingly Urban with More than Half Living in Urban Areas," accessed October 28, 2016, <http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html>
 2. US Census Bureau, "Growth in Urban Population Outpaces Rest of Nation, Census Bureau Reports." Public Information Office, accessed October 17, 2016, https://www.census.gov/newsroom/releases/archives/2010_census/cb12-50.html
 3. United Nations, World Urbanization Prospects, "Human Population: Urbanization." Population Reference Bureau, accessed October 17, 2016, <http://www.prb.org/Publications/Lesson-Plans/HumanPopulation/Urbanization.aspx>

jobs. Such high paying jobs typically demand that people commute to, or live in a city. In regards to design professions, typically design firms will locate themselves in the city, further described in Appendix A. There is an opportunity to offer these types of jobs in a rural setting if we can replicate the city's efficiency.

Leaving the office and moving away from traffic-heavy urban areas has been a growing interest in the modern age, with many people in various professions turning to teleworking. Of those who telework, the majority report better work-life balance and experience a less stressful day.⁴ The desire for a less stressful work environment is universal, and since technology is enabling these possibilities, our working world can be reimagined. However, certain jobs lend themselves better to remote working than others, and when it comes to creative professionals like architects and product designers, as with many other jobs, they favor a working studio with shared resources. These kinds of resources can be expensive and cumbersome, and point to the need for an office. While not all phases of work require access to printing, prototyping or materials, there is an opportunity to offer these types of resources for communal use, in a rural area. This would not just give space for creative professionals to aggregate, but it could become a basepoint for a mobile working future. Centralizing similar jobs would stimulate social encounters, and the sharing of information and resources. This opportunity could benefit many rural cities around the world, giving them an economic boost driven by the creative sector, and by also serving as a technological beacon to urban centers and the rest of the world.

In Need of Rural

Despite most of the world living in cities, some people prefer to live rurally. The reasons vary, from the desire for a less hurried and more peaceful way of life, to wanting a more spacious and natural environment, those attracted by low housing prices, or who want to be near family or friends.⁵ There are also individual benefits to mental health and creativity attributed to living rurally, which will be further explored in Chapter 3. On the other side,

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4. Shweta Agarwal, "Work/Life Balance Ranks as Top Reason for Telecommuting." Framingham, MASS: Staples Advantage, 2014. <http://investor.staples.com/phoenix.zhtml?c=96244&p=irol-newsArticle&ID=1936154>
 5. Rixt A. Bijker, Tialda Haartsen, and Dirk Strijker, "Migration to Less-Popular Rural Areas in the Netherlands: Exploring the Motivations." *Journal of Rural Studies* 28, no. 4 (2012): 490-498

urban areas enjoy a large range of employment opportunities but lack the quality of life that rural areas are celebrated for. There are tangible benefits to living in both the city and rurally, but rural communities are shrinking as more people migrate to cities for work, and less are choosing to live rurally. In some cases, rural citizens must commute long distances into urban centers, due to job availability, which harms the rural economies by robbing them of everyday expenditures that otherwise would take place in their communities. The slow bleed of rural communities is made worse by the fact that many youth are leaving and not returning.⁶ When it comes to the vital demographic of youth 15-25, there is a steady flow leaving rural areas which outpaces migration from cities, and that is a significant concern for the future of rural communities.⁷ A dynamic opportunity exists to enhance the rural community both economically and socially by creating a center that facilitates virtual connections with urbanity, using technology to reinvigorate and sustain growth.

Rural communities are still at a disadvantage compared to their urban counterparts due to lower densities and therefore a smaller client base, but through architectural design and application of modern technology, this can be overcome. This thesis aims to apply architecture with the innovative technological landscape to address and overcome the exclusive draw of employment opportunities in cities, thereby increasing the practicality and attraction for living and working rurally. Rural areas would benefit from having added employment options, formerly exclusive to urban areas. Since many rural areas are landscape oriented, local architecture can synthesize with the local culture and the natural environment to offer enhanced recreational opportunities in an inspirational setting. Together these qualities offer a different and arguably more productive setting for creative professionals, which will be analyzed more closely through precedents in Chapter 3. To overcome the social deficit compared to urban counterparts, the architecture and technology intervention should be aggregated into a design community for rural societies. Author Jane Jacobs felt that streets and built form can be planned to promote vibrancy

6. Richard Dupuy, "Rural Youth: Stayers, Leavers and Return Migrants," edited by Francine Mayer, R. (René) Morissette and Statistics Canada. Analytical Studies Branch. Ottawa, Ont.: Ottawa, Ont.: Statistics Canada, Analytical Studies Branch, 2000

7. Ibid, 6.

and social capital by encouraging diversity.⁸ It is this diversity that when combined with technological innovation and tapping into the global community, will enable a realistic opportunity for rural areas to offer jobs typically found in a city. Furthermore, the opportunity to integrate organic farming into the corporate work regime would be a sustainable benefit to rural society and their working community.

Reviving Rural

In the 1850s as many as 9 out of 10 Canadians lived in rural areas, and now as few as 1 out of 5 Canadians do.⁹ While there is no ideal balance between rural and urban populations, the world market has forced more people to urban areas. Other countries typically have larger rural populations compared to Canada; two thirds of people live in rural areas in India, and about half of China's population is rural.¹⁰ Improving and enhancing rural communities is a global opportunity, however this thesis will focus with the Canadian landscape, more specifically in British Columbia.

Urban areas are viewed as containing the most creative and cultural diversity, so rural communities could benefit from a type of revival that provides technological, social and economic benefits. This revival would enable artists and creative designers to live and work in a setting that is both a center of creativity, and an inspirational environment. That opportunity will be answered through the imagining of a Creative Hub, and while the concept could apply to numerous professions, this thesis will be imagining a center focused for digital designers ranging from architects to product designers. While its implementation could take place in virtually any rural setting, this thesis will examine the possibilities in British Columbia, which is one of the most visually stunning and inspirational provinces in Canada, and offers an ideal example of a dominating urban center with overlooked rural outskirts.

8. Angela Beppe, Ellise Goarley, Johnson Kwan, Sana Razvi, Katherine Glowacz, Gregory Kuenzig, Peter Moskalyk, and Garrett Von Aderkas, "Cultivating Rural Creativity: Prince Edward County," (Toronto: Ryerson U Department of Urban and Regional Planning, 2009), 27.

9. Statistics Canada, Analytical Studies Branch, "Canada's Rural Population since 1851." Statistics Canada, accessed October 28, 2016, https://www12.statcan.gc.ca/census-recensement/2011/as-sa/98-310-x/98-310-x2011003_2-eng.cfm

10. Ibid, 9.

The rural areas that this thesis is interested in are small in population, with the ideal size being a few thousand people in a localized area. Nearby settlements to the rural area should be similar in population, within a reasonable commute time. This enables the small-town character to shine and generate attraction to the site, as well as focusing on the important underdeveloped natural landscape that should dominate the area. If nearby settlements are within a reasonable commute time, the creative hub stands to serve them as well, but settlements with larger populations would create a demand imbalance and could even offset the desirability for the Creative Hub overall.

BC Opportunity

Housing Crisis

British Columbia has a vast and beautiful mountain landscape with a global allure to tourists and nature loving people. Despite its breathtaking landscapes, most of the population resides in one major area. The largest urban center in BC is Vancouver and the surrounding Lower Mainland area, which in 2015 was ranked the highest in quality of living in all north America, and fifth worldwide.¹¹ Despite praise for its physical beauty, Vancouver is not without its problems; housing affordability in Vancouver is at an all-time low, with a staggering 9 out of 10 homes costing over 1 million dollars.¹²

“Housing is so expensive in Vancouver that an additional annual income of between \$22,000 and \$40,000 is required for the average house, compared to other major metropolitan areas (Toronto, Montreal, Ottawa, Calgary and Edmonton).”¹³

Many people are being driven further from the city in search of a less expensive place to live, or must tolerate what little they can afford in the affluent city of Vancouver. This is made worse by the fact that most jobs are in urban areas. When it comes to creative

11. CBC News, “Vancouver Tops Quality of Living Ranking for North America.” CBC News, accessed October 28, 2016, <http://www.cbc.ca/news/canada/british-columbia/vancouver-tops-quality-of-living-ranking-for-north-america-1.2998068>

12. Julie Gordon, “Nine Out of 10 Vancouver Houses Now Worth More than C\$1 Million: Study.” Reuters Canada, accessed October 29, 2016, <http://ca.reuters.com/article/businessNews/idCAKCN0Z30BX>

13. Wendell Cox, “Housing Affordability and the Standard of Living in Vancouver.” Winnipeg, CA: Frontier Centre for Public Policy, 2014. ProQuest ebrary. Web. October 29, 2016.

professionals like architects and industrial designers, there are more limited career options farther from urban centers. In addition to any natural preference that some people would feel for working in a rural community, the cost of living in urban centers is driving people away from Vancouver. There is an opportunity to serve people who desire or are compelled to work rurally in BC, by providing a space to link urban jobs with a rural setting.

In all of Canada, based on cost of living, Vancouver appears to be the most challenging urban center to practice a career at a design firm. Many people endure the cost for a variety of reasons, from the high quality of life to the beautiful landscape it is situated in. But, as prices in Vancouver continue to rise, design firms have an opportunity to extend their office space out to rural areas, giving designers the choice they deserve. The Creative Hub would incorporate a style of remote working; connecting design firms with strong reputations and client base with remote outposts in rural communities. Modern technology and high speed internet would combine to simulate a connection back to urban centers.

The Future of Rural

Rural communities are important to BC, and Canada in general. They benefit the BC economy in the form of tourism, giving Canadians and the global audience a playground to explore. Many travelers come for hiking, camping, skiing, snowmobiling, mountain biking, and much more. Rural areas have a strong, fiercely independent culture, and have historically held an important responsibility to the Canadian national economy and society.¹⁴ Modern paradigm shifts and a strong urbanization have shifted the Canadian economy away from relying on rural communities. This coupled with a global sensitivity to resource gathering and biodiversity have disturbed the social and economic nature of rural areas.¹⁵ Considering the previously mentioned migration tendency of rural to urban, this presents challenges for the future stability of rural areas, which have become dependent on tourism. There is an opportunity to move jobs out of the city and into rural areas in BC to aid in their social and economic stability.

Outside of the Greater Vancouver area, in the rural communities northward, much of the

14. Sean Markey, John Pierce, Kelly Vodden, and Mark Roseland, "Second Growth: Approaching Rural and Small-Town Communities." Toronto: UBC Press, 2005.

15. Ibid, 14.

land falls under Aboriginal ownership from the Squamish nation and St'at'imc nation. Whether aboriginal or not, many members of these communities grow strongly attached to BC's powerful landscape and way of life, and develop strong community connections. Many youths are leaving these communities for urban centers like Vancouver and the Lower Mainland,¹⁶ often for access to the kinds of jobs which they cannot find in their communities. This robs rural communities of a younger generation, effectively weakening their community. There is an opportunity to offer rural and aboriginal communities in BC a center bringing access to new jobs and careers, without drastic life changes such as moving to an urban center and away from their support and community.

New realities for companies to exist and thrive outside the city limits are limited by the very thing intended to connect them: the internet. In rural BC and Nova Scotia traditional internet speeds are slow, as of 2016 they are capped around 1.5 MB/second.¹⁷ However, a satellite internet company called Xplornet is currently offering rural areas in Canada speeds up to 25MB/second. While reasonable, by year 2020 an evolution of the wireless internet spectrum known as 5G will come to proliferation, offering speeds up to 100x faster than current, as well as an extremely low latency of just 1ms, down from 60ms,¹⁸ further discussed in Appendix I. This near-term revolution will not just enable instant connection of rural areas to cities, but make the sharing of large files and live video virtually instantaneous.

The British Columbian landscape is a precious asset, and the communities which are most immersed in it are rural, and account for a low percentage of habitation that is dropping. If we take advantage of all the opportunities outlined above, the concept of rural creative hubs can be analyzed through the lens of recent and future technological innovations, and precedents. This will hopefully offer the world a compelling opportunity for living in rural communities. This leads us to some questions about what that means:

16. Nxekmenlhalhu Iti Tmicwa: St'at'Imc Preliminary Draft Land use Plan, Public Law 1, (2004), accessed Sept 27 2016, <http://www.firstnations.de/media/06-4-0-statimc.pdf>

17. NetworkBC. Network BC Connectivity Map, 2016, accessed April 18, 2017, <http://www2.gov.bc.ca/gov/content/governments/about-the-bc-government/communications-technology/internet-in-bc/network-bc-connectivity-map>

18. Ed Ram, "How Will the 5G Network Change the World." BBC, accessed April 18, 2017, <http://www.bbc.com/news/technology-30224853>

Thesis Question

How can we build a rural working environment in a landscape setting? Does it provide a healthy, social and creative atmosphere for living, working and learning?

CHAPTER 3: PRECEDENTS FOR THE CREATIVE HUB

Theoretical Precedents

Outsite

Before formally outlining the intended qualities of the Creative Hub, several related theoretical and built precedents can be analyzed to infer desirable potentials. Precedents include: an online business outsite.co, the Chuckleberry farm community in the BC mountains, the ongoing working and learning community 'Arcosanti', the outdoor focused education center Hawaii Preparatory Energy Lab, modern company towns, artist's residences in Banff and Fogo island, and the H-Farm & H-Campus combined education and workspace in Italy. Through their example, the need and benefit of a harmonizing creative hub will be demonstrated.

We begin with outsite.co, which espouses the modern idea that you can do design work from anywhere. It is not a design firm, rather it is an organizing body through which other design firms can arrange company retreats. The organization offers a community of people from entrepreneurs and developers, to designers and artists, to academics. It promises a healthy and stimulating mix of people in each work environment.¹⁹ The company compares itself to AirBnB, offering the equivalent of hostels or living spaces, except that it offers an enhanced living experience adapted to professionals through specific accommodations and a like-minded community.²⁰ Outsite's project goals are further outlined in Appendix B. What to take away from this example is the evident opportunity and desire for working in nature, due to increases in worker productivity, because there is a community of like-minded people being empowered by modern technology. Corporate retreats are often held in rural environments, because companies recognize their productive value.

In the academic realm, it is common practice for institutions to have satellite campuses to make education more accessible, yet currently few design firms emulate this format. The

19. Outsite, "About Us: Our Story, Mission and Team," accessed October 29, 2016, <http://outsite.co/about/>

20. Ibid, 17.

critical difference with the potential creative hub and the company outside.co is that the on-line organizing body doesn't have a permanent rural facility, instead company or individual retreats are just temporary. The notion of vacationing with your office while unwinding and getting work done is not the goal of the creative hub, which will be a permanent facility. Ultimately, Outside.co is designed and structured as a transient team building event and doesn't seek to permanently offer people or firms an offsite campus. However, the project does reveal interest for remote workers to settle in beautiful locations for work, even if just temporarily. It is important to recognize that temporary users can be a critical user group for a potential creative hub; since its practicality depends on a high user base, temporary users can fill out the space if full-time users are scarce.

Chuckleberry

Next, we will look at the Chuckleberry farm community in the Selkirk mountains of British Columbia. This example is not a design firm either, it is an off-the-grid organic farm business with integrated educational and wellness programs. The farm is a permanent habitation of people living together in a natural setting, and there is a strong sense of community because of their common thread of spiritual healing and farming.²¹ There are undoubtedly wellness benefits to living in a natural environment over an urban one, further explored in Chapter 3, and in the case of Chuckleberry, they exploit the sometimes-intangible benefits of the BC landscape for wellness and mental health. The community has successfully drawn visitors since 2012, hosting community events and workshops, with some people moving there permanently.²²

These examples aren't making a case for how to design a creative hub, but rather expose the human needs directly related to living and working in nature in BC. The intent of these examples is setting the stage for an integration of technology to enhance living and working in nature for the purposes of both productivity and well-being. By creating a place that is productive to working, for creativity and well-being, it becomes inherently desirable

21. Chuckleberry Community, "Welcome to Chuckleberry: Vision," accessed October 29, 2016, <http://chuckleberrycommunity.ca/>

22. Chuckleberry Community, "Healing Services," accessed October 29, <http://chuckleberrycommunity.ca/healing-.services/2016>

for a design firm. However, the creative hub is more than just a design firm; by integrating education and wellness workshops like at Chuckleberry community, the creative hub can further justify its scope, its scale and its community. There are also inherent benefits to an educational center in a natural environment, which will be further explored in Chapter 4, and analyzed through further through built precedents.

Built Precedents

Hawaii Preparatory Academy

The Hawaii Preparatory Academy created a high school science building for studying alternative energy known as the Energy Lab. It runs at net-zero energy-use thanks to its onsite solar panels and wind turbines. Importantly, the building was designed to expose the beautiful and open outdoor spaces surrounding the lab from every room.²³ This is complimented by the fact that all classroom spaces flow into one another, with glass partitions, which encourage fluid learning and offer inspiring views.²⁴ The lab educates students about understanding sustainable living systems, and its design encourages student discovery, exploration and experimentation by linking interior spaces with the surrounding landscape.²⁵ The importance of the landscape to the Energy Lab is critical in its design, and its intent is to cultivate both environmental respect and creative inspiration.

The building is in an optimal location for wind and sun capture, but also seeks to provide outdoor shelter from overexposure to both. The Living Building Challenge case study analysis, elaborated upon in Appendix C, concluded that the natural beauty was very important to students:

“Over 90 percent of the students like their new Energy Lab building, think it is beautiful, like having classes there and feel inspired by it!”²⁶

23. Flansburgh Architects, “Hawaii Preparatory Academy Energy Lab.” Flansburgh, accessed October 29, 2016 <http://www.flansburgh.com/portfolio/hawaii-preparatory-academy-energy-lab/>

24. Hawaii Preparatory Academy, “The Place.” HPA, accessed October 29, 2016, <https://www.hpa.edu/academics/energylab/the-place>

25. Living Building Challenge, “Hawaii Preparatory Academy Energy Lab.” Living Future, accessed October 29, 2016, <http://living-future.org/case-study/hpaenergylab>

26. Ibid, 24.

The educational benefits of a school in a beautiful landscape are clear, it becomes a place you want to be, so students want to learn. So, the Hawaii Preparatory Academy Energy Lab has a strong sense of place harnessed from its viewpoints and outdoor connections. The space itself can be separated and partitioned into spaces for small group collaboration, or opened for large groups.²⁷ The flexibility is important in educational centers where uses need to be found outside of school season, similarly with the creative hub.

Students of the lab claim the building itself is an inspiration, looking from its forward leaning and innovative layout to its integration with nature and the landscape.²⁸ The technology of the Lab is described in Appendix D; Altogether the Energy Lab uses modern technologies and a flexible open layout to promote effective student work. In combination with a beautiful landscape setting, the views of the outdoors are framed and integrated into the indoor spaces. The Energy Lab, when taken out of the context of the entire Hawaii Preparatory Academy is an excellent precedent for the creative hub, except that it only focuses on education. The ideal precedent involves a mixture of landscape, design collaboration, community, wellness, flexible education spaces, workspaces, and modern technology.

Arcosanti

In 1972 the project Arcosanti was started by Architect Paolo Soleri, curious about human aspiration and urban form. Constructed in a remote desert location in Arizona, the compact habitat continues to be an experimental prototype to his ideas of 'environment in harmony with man'.²⁹ Arcosanti searches for a new paradigm of built environment, and a solution to urban sprawl.³⁰ It is comprised of mixed use buildings and public spaces where people live, work, visit and participate in educational and cultural programs.³¹ The project draws in over 30,000 visitors annually, for which it offers guest facilities, art galleries, food and

27. Ibid, 23.

28. Ibid, 24.

29. Cosanti Foundation, "About Paolo Soleri." Arcosanti, accessed October 29, 2016, <https://arcosanti.org/project/background/soleri/main.html>

30. Cosanti Foundation, "Welcome." Arcosanti, accessed October 29, 2016 <https://arcosanti.org/>

31. Ibid, 34.

educational workshops.³² Many people also permanently reside on-site and work here. There is on-site agriculture for food production, as well as education services for visitors and residents. To overcome its remote setting there are also communication centers for connection with urban centers.³³

There are a wide range of programs throughout Arcosanti, but it remains within a compact boundary. According to Paolo Soleri, the design principles revolve around leanness, and that efficiency is the key to the sustainable health of a living system,³⁴ further described in Appendix E. The ecological envelope is a major component of Arcosanti, which Paolo Soleri believed was necessary to sustain the health of the city; this limits the development of the project into strict boundaries, and the outer natural landscape is intentionally left alone.³⁵

Technology has been an essential factor in the project's development, used to lessen consumption, power usage, and waste. There are passive climate systems, water treatment and reclamation systems, and recycled building materials that all contribute to a more efficient and responsible development.³⁶ Further agricultural and educational ambitions are described in Appendix F.

The ambition of Arcosanti is much larger than the creative hub, but they both offer community at a human scale, wellness through its ecological focus, and education at its core. It also seeks to provide a single space for living, working and learning that's engrossed in a natural landscape. Ultimately the creative hub will be smaller in scale, and will offer similar services to Arcosanti but focusing specifically on creative industries and education in design. It wouldn't be the first time a single industry created a space for more productive and fulfilling work, as we can see through the example of Company Towns.

32. Cosanti Foundation, "Arcosanti Today." Arcosanti, accessed October 29, 2016, https://arcosanti.org/arcosanti_today

33. Ibid, 36.

34. Cosanti Foundation, "Design Principles." Arcosanti, accessed October 29, 2016, <https://arcosanti.org/node/8628>

35. Ibid, 38.

36. Ibid.

Company Town Typology

Company towns are a type of settlement that began with industries designing complete communities with a shared economic interest; typically they were reactions to technological advancements. They embodied the concept of living and working in the same place. Early examples include fur trading posts in Hudson's Bay, waterwheel powered textile mills on the east coast, and lumber/mining towns on the west coast.³⁷ Each time a company town was created, it tried to solve the social problems of the day, using new spatial relationships and new social arrangements to try and create a better community.³⁸

The company town was often owned by a single company or group of related companies, including the houses their employees would be living in. Some companies went further and included amenities like schools, hospitals and commercial areas.³⁹ Company towns would be either dependent on a local primary resource, or they were focused around a nearby technological resource like a rail system, canal system and power source. New technologies often lead to new types of company towns, and we can still see them today, among the leaders in modern consumer technology like Apple, Facebook, and Google. While the original company towns were focusing on physical power from the industrial revolution, the new company towns focus on improving brain power.⁴⁰ This is because ideas and creative thinking are the key to innovating in new technology companies, so they have created modern company towns which provide creatively stimulating environments. They include recreational services, pedestrian transportation systems, sleeping areas and a variety of food choices. Recently, these company towns have started to include on-site apartments for employees like at Facebook's campus.⁴¹

37. Warren Sanders, "Architecture as Power: Dynamics of Spatial Configuration." March, Dalhousie University, 2016, accessed September 30, 2016, <https://dalspace.library.dal.ca/handle/10222/72050>

38. Amale Andraos, "49 Cities: WORKac," (New York: Storefront for Art and Architecture, 2009), 14.

39. Horace P. Davis, "Company Towns," in *Encyclopedia of the Social Sciences*, vol. 4 (New York: The Macmillan Co. 1930), 119.

40. Erik Brynjolfsson and Andrew McAfee, "The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies," (New York: W.W. Norton & Company, 2014), 19.

41. Dan Bates, "Inside Facebookville: Employees to Get Their Own Housing in \$120m Town Zuckerberg Built," *Associated Newspapers*, last modified October 4, 2013, <http://www.dailymail.co.uk/news/article-2442852/Town-Mark-Zuckerberg-built-Facebookemployees-dorm-style-housing.html>

Ultimately these tech companies are in constant competition for talented workers, so creating an attractive environment is vital. Their efforts show recognition of the importance of health and well-being to productivity and creativity.

The company town's desire to create a healthy and stimulating environment parallels the intent for inspiring creativity and productivity with the creative hub. I argue that we are now reaching a point where we can create a new type of company town, one that through combined modern technological resources can stimulate design collaboration, community, and education in a beautiful rural landscape. The natural setting would contribute to creativity and well-being, and technology would connect users with their clients, sites and companies around the world. Artists and creative professionals know the type of environments they are inspired by, which has led many to experiment temporarily living and working in Artist's Residences such as those in Banff and Fogo Island.

Fogo Island & Banff Artist Residences

The Fogo island arts residency program invites artists and researchers from across the world to live and work on Fogo Island and the Change Islands, in Newfoundland.⁴² The residency focuses on a wide variety of creative professionals including those in visual arts, new media, design, music, dance, writing and film.⁴³ In addition to offering artists an escape from their busy lives, the center also offers education programs including workshops for kids and teens, as well as more advanced programs for adults and specific community groups.⁴⁴ In addition to direct services for artists and education, there are also public services including gallery space, a hotel and restaurants.⁴⁵ Popularity for the Fogo Island Residences is driven by the beautiful coastal landscape of northern Newfoundland, and its power of inspiration.

42. Fogo Island Arts, "Residencies." FIA, accessed October 29, 2016, <http://fogoislandarts.ca/programs/residencies/>

43. Ibid, 49.

44. Fogo Island Arts, "Education." FIA, accessed October 29, 2016, <http://fogoislandarts.ca/programs/education/>

45. Fogo Island Arts, "Fogo Island Inn." FIA, accessed October 29, 2016, <http://fogoislandinn.ca/outside>

People who are temporarily living at Fogo island are given spaces in nearby heritage houses, and they work in one of several studios around the island.⁴⁶ Fogo's community integration is explored in Appendix G. Since the creative hub caters primarily to digital designers, a focused user group enables architecture and technology to extend it to a global audience.

Similarly, the Banff Centre offers diverse support for artists of any discipline, ranging from poetry to sculpture and everything in-between.⁴⁷ The Banff Centre is nestled in the stunning mountain scape outside Banff, Alberta, and is affiliated with the University of Calgary, although it operates autonomously.⁴⁸ The Artist Residences are provided to any artist who needs work space and access to Banff Centre facilities, as well as the community of visiting artists itself.⁴⁹ The residences have a wide range of forms due to the various preferences for solo work, team work, or work with the faculty itself. In addition, the residences are offered to not just students, but professionals engrossed in their careers.⁵⁰ The Centre benefits from this variety of experience and celebrates their work in presentations like the Summer Arts Festival.⁵¹ While a student individual or enterprising professional can find a peaceful and inspirational setting to practice in Banff Center, its limitation comes from its huge scope of supported disciplines. This, unlike with Fogo Island, is due a strong focus on education, thereby obligating over-inclusiveness.

The creative hub offers education as well, but as a secondary service offering the rural community training and workshops, rather than a complete education. The primary service of the creative hub is providing designers a space to work on a global scale, therefore the spaces and costs are focused on specific enabling technologies, rather than a generalized space for all kinds of artists. Moreover, there is a recent project in Italy which attempts to do just that. By

46. Shorefast Foundation, "Residencies, Initiatives and Programs." Art & Education, accessed October 29, 2016, <http://www.artandeducation.net/announcement/fogo-island-arts-residencies-initiatives-and-programs/>

47. Artists in Residence, "Banff Centre," accessed October 29, 2016, <http://artists-in-residence.com/banff-centre/>

48. Banff Centre, "History of Banff Centre for Arts and Creativity." Banff Centre, accessed October 29, 2016, <https://www.banffcentre.ca/history-banff-centre-arts-and-creativity>

49. Ibid, 56.

50. Ibid.

51. Ibid..

creating a hub in a rural setting for working, living and educational programs the H-Farm and H-Campus work together holistically and set a strong precedent for the Creative Hub.

Human Farm

The project 'Human Farm', or H-Farm, is an incubator for ventures in technological entrepreneurship.⁵² H-Farm's rationale to harness creativity from the natural landscape and synthesize work, living and education for a better environment parallels the creative hub's goals despite not focusing on the same demographic of creative professionals as the Creative Hub. The Human Farm landscape is critical to its concept; the buildings are immersed in green fields and trees, then immediately surrounded by the farms of Roncade, Italy.⁵³ Most work here is focused on breakthrough apps and computer programming ideas, exploring progressive technologies including 3D printing and working with drones. Since starting in 2005, 53 startup companies have formed in H-Farm, and 7 have exited as successful businesses as of 2016.⁵⁴ The project is also heralded as a digital academy for Italians to come and learn about technology and meet new people.⁵⁵ H-Farm is allowing its resources and skilled members to reach out to the community and offer training, this is one of its strongest assets as a project. It is for the same reason that the Creative Hub emulates H-Farm's offerings to the nearby rural community.

In response to the support for H-Farm, the same group expanded the concept with a new educational program known as H-Campus, further described in Appendix H. The Creative Hub intends to offer to students a similarly inspirational and technologically focused atmosphere. H-Farm and H-Campus focus more directly on technology and computer programming, while the Creative Hub's primary audience will be designers first and foremost. The benefit of being surrounded by open farm land manifests in the quiet and productive natural working environment; the design also takes advantage of solar and wind power on site, as well as rainwater collection for on-site greenhouses and farming

52. Orli Yakuel, "Innovation Vista: Lessons from Italian Accelerator, H-Farm." Scoutness Blog, 2013, accessed September 27, 2016

53. Ibid, 61.

54. Ibid.

55. Ibid.

areas. These farms provide the community a healthy activity and fresh food when not inside or working at their computer screens.

The envisioned qualities of the creative hub are centered in connection with nature for inspiration, well-being, and therefore productivity. The hub will use technology to enhance and enable work on a global scale, and extend into relevant education. It will encourage living, working and learning in a rural landscape setting. The various precedents outlined above show an inherent desire for a type of creative hub, and by their example we can continue to define what the creative hub is.

CHAPTER 4: THE SOLUTION – CREATIVE HUB IN NATURE

Ecological Benefits

The most crucial aspect of the creative hub is its placement in a natural rural environment, as illustrated by the precedents Outside, the Hawaii Academy, and H-Farm. Using the natural environment as an essential factor in the design is a significant point for potential users. On-site farms, whether for food production or for aesthetics, would be a productivity boost in form of stress relief or entertainment for the community; and it would be beneficial to include elements of farms on site. The natural environment will frame nature and boost user creativity through inspiration. There are widely accepted mental health benefits, educational benefits and long term ecological benefits for living, learning and working in nature which will be broken down below.

Health in Nature

The positive effects of a green and natural environment are widely known. In terms of offering educational benefits, in an environmental and behavioral study by Nancy Wells, it was determined that compared to an urban environment without nearby greenspace, more natural environments were responsible for an increase in children's cognitive functioning.⁵⁶ Not only does this indicate that living and learning in a green environment is beneficial for a child's education but easily extends to both younger and older adults as well. In another study from Nancy Wells, it was concluded that nearby nature in a child's environment moderates their perceived life stresses.⁵⁷ Living among nature is therefore beneficial to the psychological well-being of children as well as stimulating cognitive development.

Taking these findings into account it isn't a difficult concept to infer that a child's cognitive functioning and life stresses would be similar to an adult's, and that a green environment is not just important for young minds, but for all minds.

56. N. M. Wells, (2000), "At Home with Nature: Effects of 'Greenness' on Children's Cognitive Functioning." *Environment and Behavior*, 32(6), 775-795.

57. N. M. Wells and G. W. Evans, (2003), "Nearby Nature: A Buffer of Life Stress among Rural Children." *Environment and Behavior*, 35(3), 311-330.

More obvious health benefits in rural nature include bountiful fresh and clean air, benefiting our physical wellbeing. Proximity to wildlife and complex ecosystems, give a boost to our mental wellbeing in a way that can't be replicated in an urban environment. Nearby walking and hiking paths, as well as wild and undeveloped land offer us much more than a city park can equate to. In addition, being near the water, whether it be rivers, lakes, or the ocean can be enjoyed in a much more intimate setting in a rural environment.

Learning in Nature

A study from Auckland University concluded that green space helps increase physical activity and emotional well-being.⁵⁸ This parallels the role of nature in Chuckleberry Farm, and confirms the therapeutic role of nature and physical activity. Not only does nature help individuals, but it also helps instill respect for the land. In a study of historical documents in the 1920s to 1930s, the distance education of children in rural BC was assessed compared to the public-school system. Both parents and children wrote about their experiences; while parents expressed concern for isolation and the harsh environment, children relayed their appreciation of the natural world, enjoyment of nature, and what they had learnt from it. Overall, the study found that these rural children developed skills and a respectful attitude toward the land.⁵⁹ It can be said that the land has a symbiotic relationship with the mental development of young people; it helps individuals with their mental well-being and in turn cultivates an enduring respect for the natural environment.

A systematic review of youths and nature was conducted by the London Sustainable Development Commission, which concluded that health, both mental and physical are positively affected in a natural environment. Further findings of the same review pointed to the productive value of free play, exploration, and self-initiated learning. This learning style, associated with mental health and the environment, is reflected in the implementation of Hawaii Preparatory Academy, and will be ideal for the similarly open and flexible concept of the Creative Hub.

58. J. Ward, J.S. Duncan, A. Jarden, and T. Stewart, (2016), "The impact of children's exposure to greenspace on physical activity, cognitive development, emotional wellbeing, and ability to appraise risk." *Health & Place*, 40, 44-50.

59. C. Díaz-Díaz and M. Gleason, (2016), "The land is my school: Children, history, and the environment in the Canadian province of British Columbia." *Childhood*, 23(2), 272-285.

In a parallel study examining children and nature, it was concluded that nature exposure promotes mental well-being and positive ecological behavior. This is since exposure to nature at a young age increases one's connectedness to nature. The study goes on to suggest that adult mental well-being is correlated to one's childhood exposure to nature.⁶⁰ This same result is found in the London report which demonstrated that childhood respect is typically translated to a strong environmental respect as an adult.⁶¹ Altogether the message is that environmental respect and mental well-being, when gathered at a young age, persists into adulthood.

When examined together, the studies point toward nature and green space offering young minds psychological stability and productivity, while simultaneously cultivating a stronger appreciation for nature, and a desire for physical activity. If the resources of a creative hub would be shared with the community of its rural surroundings, education would be a pragmatic offering. Since a primary goal of the creative hub is to be immersed in a natural environment, this would contribute to the productivity of education, and the mental and physical well-being of youths. This in turn would yield well-adjusted adults with a strong respect for nature.

Working in Nature

Another strong argument for the benefit of the creative hub in a rural and natural setting is equally related to mental well-being and productivity, and that is related to personality type. There are two commonly accepted personality types known as Introverts and Extraverts. Introverts' minds require very little stimulation and they can easily become over stimulated. These people tend to be less social, less outgoing and may have an aversion for the busy and active lifestyles found in a city. These people need a certain amount of solitary time to be productive, and over socialization can make them less effective. They tend to be creative, and prefer working in small groups. On the other hand, Extraverts require strong

60. P. Pensini, E. Horn, and N.J. Caltabiano, (2016), "An Exploration of the Relationships between Adults' Childhood and Current Nature Exposure and Their Mental Well-being." *Children, Youth and Environments*, 26(1), 125-147.

61. London Sustainable Development Commission, "Children and Nature: A Quasi-Systematic Review of the Empirical Evidence." London: Greater London Authority, 2011.

stimulation and tend to prefer environments that provide large amounts of socialization.⁶² These people get recharged by the energy of groups, and are typically more task oriented. While neither personality type is better than the other, the creative hub stands to offer introverted workers a comfortable escape from the busy urban environment. Many people fall somewhere on the spectrum between introverted and extraverted, so it is important to offer spaces for both types. In a study by Glen Vickers, it was concluded that neither introvert nor extrovert personality type had any effect on team effectiveness and cohesion, even in a virtual environment.⁶³ The difference in personality type becomes more noticeable in working style, and preferred working environment. Introverts benefit from more structured learning environments like lectures and expository instruction. Extraverts prefer open space environments and discussions.⁶⁴ The notion of the rural Creative Hub would appeal strongly to introverted personalities, but not exclusively. It is important to recognize the conflicting conditions which make people productive, and to offer an adaptive approach that gives space for both group and individual work for benefits to both introverts and extraverts.

The Creative Hub as a rural facility in a natural environment has an inherent social exclusion compared to urban environments. This might translate to being more appealing to introverted personalities who prefer a calm and less social environment. An introvert designer would likely prefer an open, natural, and somewhat isolating work environment. Regardless, the creative hub must compensate for its social deficit by creating social areas, using technology and the internet to connect and interact with other communities. This compromise still favors introverts, who would ultimately be in their ideal environment.

62. Ronald Schmeck and Dan Lockhart, "Introverts and Extraverts Require Different Learning Environments." Association for Supervision and Curriculum Development, accessed October 17, 2016, http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_198302_schmeck.pdf

63. Glen Vickers, "Mannerisms, Effectiveness, and Team Cohesion: A Quantitative Comparison Study between Introvert and Extrovert Mannerisms," Edited by David Mohr, Eugene Jablowski and Yongmin Zhu: ProQuest Dissertations Publishing, 2015, accessed October 17, 2016, <http://search.proquest.com/docview/1734861285/>

64. Ibid, 75.

The Solution – The Creative Hub as Social Space

Healthy Communities

The program of the creative hub will also include some onsite housing options. It is not expected that the Creative Hub would exclusively appeal to the existing rural population in which it will be built, because there likely won't be a large enough user group who would be interested. Instead, many people would be expected to migrate there from other towns or cities. Therefore, there will be living space for people who intend to permanently live on site, as well as space reserved for a more transient user group. In this way, the Creative Hub can have a backbone of permanent users. Some people may start a family here, or grow strongly attached to the rural area and become a permanent resident. On the other hand, others may be more interested in a temporary experience, or might want to rotate their work between various creative hubs in different regions. Of course, it will be comforting to potential users for a framework to be in place for them to try living at the Creative Hub as an experiment.

The premise of the Creative Hub supports the notion of bringing people from the city, and moving them out to rural areas. It is expected that some locals from these rural areas will also share interest in the concept; these people may already own housing nearby, and some new users might also prefer to find their own accommodation. The appeal of cheap rural land may encourage some people to build their own houses. It is therefore logical to offer housing on site, but to not make it mandatory, and to support both permanent and temporary living situations. The idea is to encourage people to try this new approach, and offer them a range of choices. This approach takes inspiration from both Fogo Island and Banff Artist Residences, which receive a great deal of interest from around the country.

Learning Communities

In addition to offering social spaces for users, the Creative Hub is meant to offer enough community support so it can become a casual destination within the community. This is done through the previously mentioned integration of education programs which take advantage of the strong infrastructure of the remote design firm and offers them out to the community. Therefore, the Creative Hub can expand from being strictly workplace, to including community workshops where those without could explore innovative technology,

3D printing, fast internet, design principles and ecology. There would likely be wide interest from all ages, and accessibility permitting; it could become a community hotspot. A partnership with the rural community should be made, and adapted for practical needs and uses. Part of the Creative Hub could be used for the school district, or for summer camp programs, lending the community valuable resources for learning. As with H-Farm and H-Campus, combining education with a work environment can be beneficial to both groups, each learning from one another. In addition, a work and school partnership would provide early work experience for budding designers and creative professionals. This would benefit the youth of rural communities, providing internships and youth workshops. This would also contribute to a stronger social presence on site, as well as giving non-designers a reason to visit.

Working Communities

There is an intrinsic benefit for the Creative Hub to offer the community a space for the sharing of technology, and this can be combined with education, such as at H-Farm. This opens another avenue of economic justification of the creative hub, helping teach a new generation of designers, or those who are interested in technology. It would provide income for the facility, which will help it stay up to date, with new technology. To begin offering these services in rural areas, there might be partnerships with school districts, or nearby universities. By achieving this, the Creative Hub would become a strong community center and be a diverse space for people of all ages.

The Solution – The Creative Hub as Technology

Healthy Technology

While the creative hub will be populated by its primary users and their respective design companies, it will also share its resources and services to bring more visitors on site, stimulating the social atmosphere. These include education for all ages, workshops and summer programs, shared technology resources, and community space. Widening the demographics on site will contribute to a healthier community.

The Creative Hub is a rural outpost containing resources for designers, shared with educators, and immersed in a beautiful landscape. The Hub relies on the internet and technology to

connect back to parent firms in an urban landscape. The notion of a Parent Firm is important to the Creative Hub's success. Because the Creative Hub is in a rural landscape setting, its client outreach and consultant access is naturally limited. The internet offers some global access for finding work, but there is another more direct method that can be employed. Partnering with existing design firms means the Hub would gain a solid reputation, a large pool of experienced designers and consultants, and investment. Parent firms provide a base for clients, partners, and contractors to aggregate as they always have, and connect back to the creative hub, or could operate independently and share resources and talent.

Learning Technology

Because strong internet connection is central to the project's execution, it will enable innovative global connections for rural communities to others around the globe. Technologies range from basic video chat to forthcoming immersive virtual reality. These resources would be a rare luxury for many rural communities and could transform the Creative Hub into an appealing community center for a rural town.

People working at established firms in urban areas may be interested in moving rurally, if it meant they could keep their job. Others might be interested in the beauty and healing power of the rural landscapes. Regardless of the cause, if enough Parent Firms from various creative backgrounds partnered with the project, they would each possess rural work space, acting as their own rural satellite firm. The combined alliance of designers and their Parent Firms would help subsidize the project. Alternatively, the Creative Hub might find partnerships and funding from schools and universities, who would treat the Creative Hub similarly to H-Campus, sending students for lessons, internships and work experience. Regardless of its partnerships, its overall benefit to the local community is undeniable: including shared technology resources, public space, education and economic stimulation. The Project could also be subsidized by the government, which should want to support a significant community benefit in the form of services and provide an economic boost to rural areas.

Working Technology

The Technologies which enable design professions to decentralize from urban areas include video conferencing, which is presently used in firms today, but can be enhanced by both

virtual and augmented reality for in depth project discussions, assisted with 3D models and augmented reality through software. In addition, site visits which could be problematic for a remote design firm to access, could be documented in virtual reality, 360-degree video or seen with remote drones, either live or prerecorded to give users an immersive surrogate for an in person site visit, when economics or practicality get in the way.

While in their early days, drones are already being used for land surveying, historical and heritage building management, and photo and video documentation.⁶⁵ Combined with point cloud technology, the drones can laser scan and recreate in colour the 3D façade of a building, in just a few hours.⁶⁶ With all the information gathered by these innovative machines being digital and easily transferred over the internet, the Creative Hub can have eyes in any part of the world. This means in the future; site visits may become somewhat redundant for designers to visit in person.

Virtual reality and Augmented Reality offer an unprecedented opportunity for designers, and since these innovations are so new, it is difficult to fully predict where they will take us. They can offer a great way to share digital designs like buildings or products to clients, and to a parent firm. They will enable long range and intimate social interaction with consultants or clients. They will augment the design process, and reimagine the current notion of a site visit. The spaces that virtual and augmented reality require are fundamentally new, and should be integrated into spaces of the Creative Hub.

Modern technology that would contribute to the design process, reduce costs, and enable remote working would also be desirable for education and community access. There is an opportunity to share the resources of the Creative Hub with the people of rural communities. By giving them access to powerful technologies like 3D printing, drones, powerful computers, VR and AR, the Creative Hub will become appealing for students, hobbyists, and enthusiasts. Depending on the location of the Creative Hub, basic computer access and internet alone could strongly benefit the community.

65. Tesse D. Stek, "Drones Over Mediterranean Landscapes. the Potential of Small UAV's (Drones) for Site Detection and Heritage Management in Archaeological Survey Projects: A Case Study from Le Pianelle in the Tappino Valley, Molise (Italy)." *Journal of Cultural Heritage* (2016).

66. Shreyansh Daftry, Christof Hoppe, and Horst Bischof, "Building with Drones: Accurate 3D Facade Reconstruction using MAVs." (2015).

CHAPTER 5: DESIGN CONCEPT

The concept of the Creative Hub is globally applicable. For this thesis, British Columbia has been chosen for the initial prototype, the area around Pemberton, BC specifically. Several sites were looked at for comparison, and to demonstrate the flexibility of the concept. These included a site just outside Summerland, on the Okanagan Lake in BC, as well as an ocean-side site outside the town of Antigonish in Nova Scotia. All sites are large, open and relatively flat acreages surrounded by agricultural land, but not farther than 15 minutes from their respective neighbouring town centers. Sites are between 6 to 10 Hectares of open space, with a natural tree line or water lined perimeter. All chosen sites are also between 1 and 3 hours travel from large urban cities. In theory, if they were located farther away from urban centers, they could function properly, provided they had reasonable proximity to a modest sized rural town and airport. While the sites vary slightly in climate and year-round weather conditions, they are all relatively similar with one another.

The Creative Hub concept consists of several building components, working together like a campus, Diagrammed in Figure 1. The central working building is referred to as the Design Center. The Design Center contains shared technology rooms and workspaces, as well as private office spaces and a classroom. A supplemental education building containing a library and lecture hall is separate from the Design Center, and includes the site medical center. A restaurant building is also a separate entity providing food and dining space for all users on site. Additionally, an entertainment building with a gymnasium will contain space for enjoying breaks and relaxation. A visitor center will earmark the entrance road into the site, containing a reception, a small shop, and site security. Aside from on-site housing, the other buildings on site include bike rental, an outdoor independent workspace, farming greenhouses, farming warehouse, the services and power building, a parking structure, bike and golf cart parking sheds, and boat or kayak storage.

Because of the distance between buildings, users may prefer to use bicycles or electric golf carts to get around, particularly in wet weather. Therefore, each campus building and main exit of the Design Center will have bike and golf cart shelters, for shared use. All main buildings should be located along an access road intended for use by people, bikes and golf carts. Cars will not be permitted except for servicing and deliveries. This service

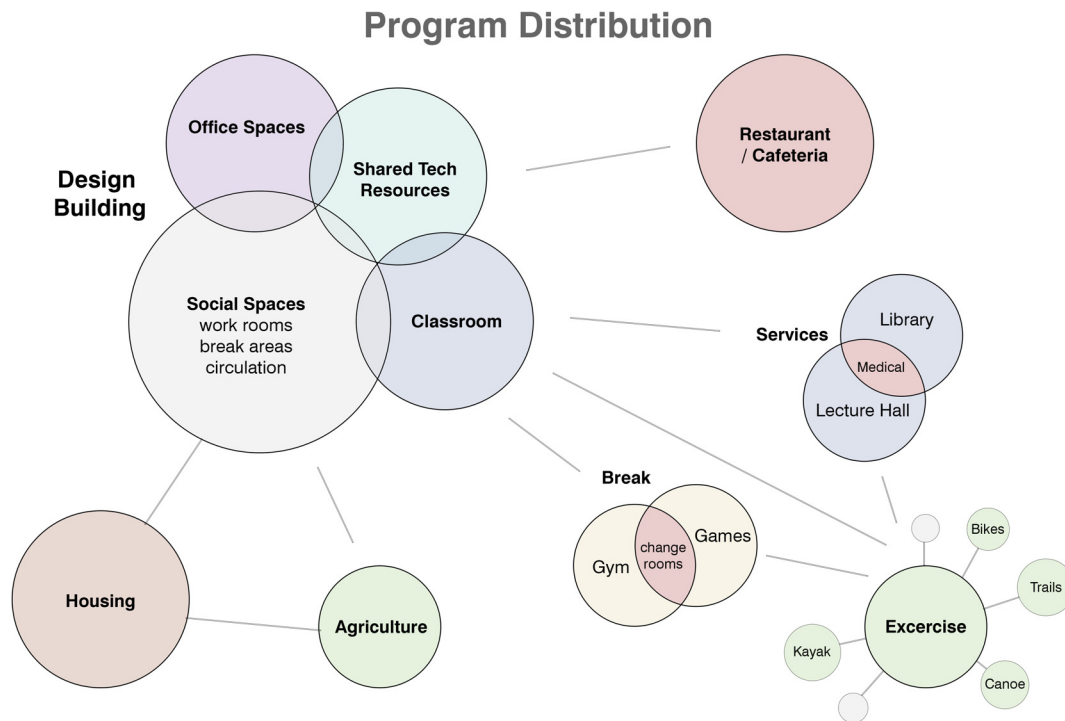


Figure 1: Diagram of Creative Hub program and building components

road will contain power, water and sewer infrastructure, and be linked to each building. Smaller paths will link the different buildings together, intended for travel to and from the Design Centre, as well as for recreational walks through the landscape.

The site organization could be formatted in a linear, radial, or an organic plan depending on each sites particular environmental landscape. The Design Centre Building should be central with all other buildings situated around it, ideally far enough away so that travel between buildings becomes a powerful precession through nature, and a chance to unwind, and absorb the natural landscape.

Design Center

The thesis master plan has been explored for the Pemberton site. The most important building to the function of the Creative Hub is the Design Center. Its partis is long and narrow to maximize natural light penetration, and to form a linear corridor of sequential spaces. Clear unobstructed views to the outside are important, so the building makes substantial use of glass walls. While the building doesn't necessarily have to be straight, its hallway might curve, fork, or turn with the form of the building.

The end points should be bookended with lobbies, bathrooms, and necessary technology resources for designers like printing, workshops, or VR space. By bookending the edges of the building with common program, users are encouraged to circulate through, as shown in Figure 2. Circulation through the building encourages collaboration with its resultant cross fertilization of ideas. Also the plan offers expanding opportunities to look outside through the building's glass façade and feel engaged with nature, without necessarily going outside. However, pathways connecting various endpoints of the buildings should be made in case users prefer a walk outside.

Within the center of the building should reside what I refer to as Design Pods, which are corporate spaces leased out to large global firms, looking to partner in the Creative Hub. Design Pods contain space for the entire firm to work privately as well as conduct formal and informal meetings, and connect back to their parent firm. These spaces should connect with at least one neighboring pod, for example, sharing an outdoor deck, or a small kitchenette and break area. This promotes socialization with other member firms in the Creative Hub.

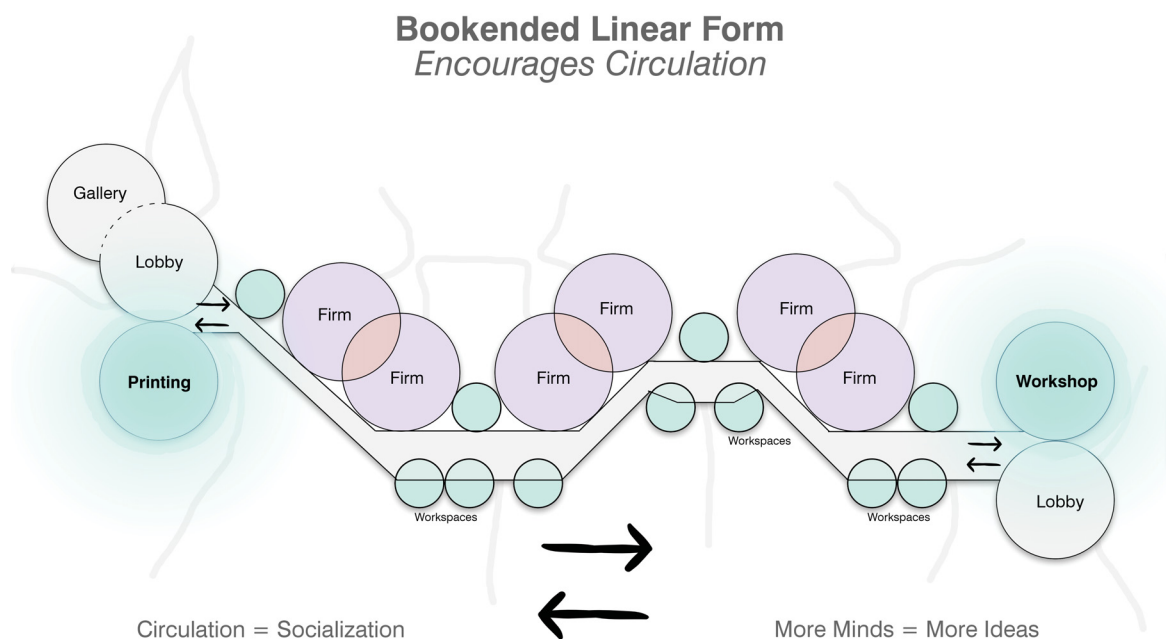


Figure 2: Bookended linear form of design center

The building should contain a variety of different sized work spaces for individuals or teams that need privacy, quiet, or extra space. These work spaces are spread out through the building, and not associated with any one Design Pod, to promote mixing and discovery, illustrated in Figure 3. Corridors characterized with views to the outside are important attributes to the work spaces, which helps create a strong connection with nature, and emphasize privacy. Also for less formal meetings, unenclosed tables and couches should be spread out along the circulation corridor in a more informal manner. Classroom space should be available for summer programs or association with high school or post secondary design courses looking to take advantage of the Creative Hub's local technological resources and design talent. Several early prototypes illustrate the Design Center's flexibility as seen in Figure 4.

Campus Buildings

Additional buildings on site should be reasonably far from the Design Center, and from one another. They should embrace views out to the landscape and connect with the nearby vegetation or topography. All members and visitors to the Creative Hub will be immersed in design and education made possible from technology, so a library on site should be available. This building should maintain connection with the nearby natural landscape, and

Private Space vs Shared Space

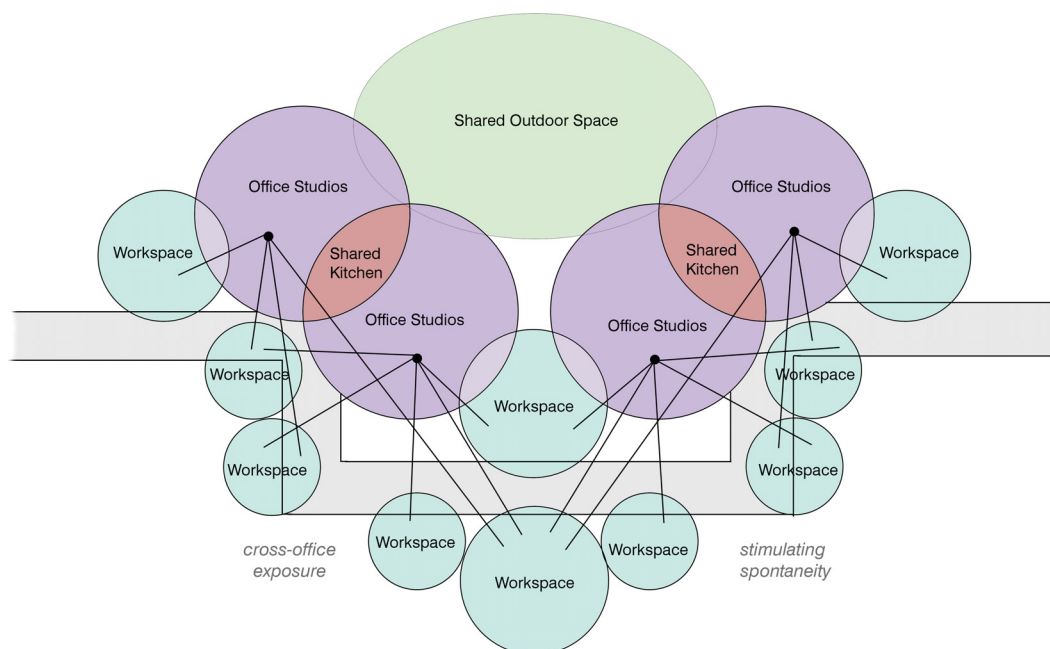


Figure 3: Design pod spreading out program



Figure 4: Design Center prototypes showing different arrangements of program

should therefore make use of glass walls. Students and Designers on site can make use of a large lecture hall, which should seat at least as many people that are expected to work in the Creative Hub. The theatre should be equipped with a projector for large firms or other creative hubs to share lectures or video presentations over the internet. In addition, an outdoor seating space might compliment the lecture hall and library, in case a presenter wants to take advantage of the natural landscape for their stage. In addition, it could serve as a space for performances or music during special events.

While smaller kitchen spaces are integrated into the Design Center, a proper restaurant should be available. This building should have more than enough space for everyone working on site, as well as space for visitors. The building should have a proper kitchen with staff as well as a continental kitchen for people who bring their own food. Views out to the landscape should be emphasized, so again a heavy use of glass is ideal. Outdoor eating space should be available as well.

Breaks are vital to a person's productivity, and being out in a rural landscape offers little in traditional escapism, unless one prefers walking and biking through trails. The entertainment building should contain a game room with table games, television, video games, and a

gymnasium with changerooms. Heavy use of glass should be repeated, again to immerse the users in natural scenery. If the landscape nearby includes water, as it does in Pemberton, then kayak and boat storage and rental should be available to completely take advantage of the site.

The visitor center should be located near the parking and entrance to the site, and should be relatively far away from all other buildings, to help promote a sense of unique place, nested in nature and isolated from cars. Offering a small on-site store allows users a chance to buy essentials and prepare their own meals, while living here providing a quicker way to get basics without having to travel into town every time.

A generous amount of space should be set aside for local food production and a community garden; since the Creative Hub's main allure is its natural landscape. It is most likely to be built near agricultural lands, and as is the case in Pemberton, agriculture can be another great activity for users and visitors. Therefore, there should be greenhouses and a warehouse for storing farming equipment on site.

Housing should be built remote from other buildings in the Creative Hub, because people who live on site will require a layer of privacy. Residents also need reasonable car access since they will be needing to leave the Creative Hub when they go out shopping or for activities. Housing should be available for people preparing to reside permanently on site, as well as temporary users that only want to sample rural life, or are looking to rotate between different Creative Hubs across Canada. There also needs to be variety in the sizes of living spaces, ranging from space for the individual, to the couple, to the family. These dwellings should offer residents the same beautiful views to the natural landscape following the theme found in the rest of the Creative Hub.

CHAPTER 6: ARCHITECTURAL SOLUTION

Using the above template, a prototype for the rural Creative Hub was created in Pemberton, British Columbia. As seen in Figure 5 and Figure 6, the site chosen lies just 15 minutes outside of the town of Pemberton, but still within a reasonable commute time for about 4000 people, with access to an airport, stores, and services. The site is an agricultural plot, surrounded by other farms, and wrapped by converging rivers. The site is visually isolated from everything around it by thick forest and is encircled by mountains to the east and west. A large natural pond is on site, which became a central point for which to wrap the program around.

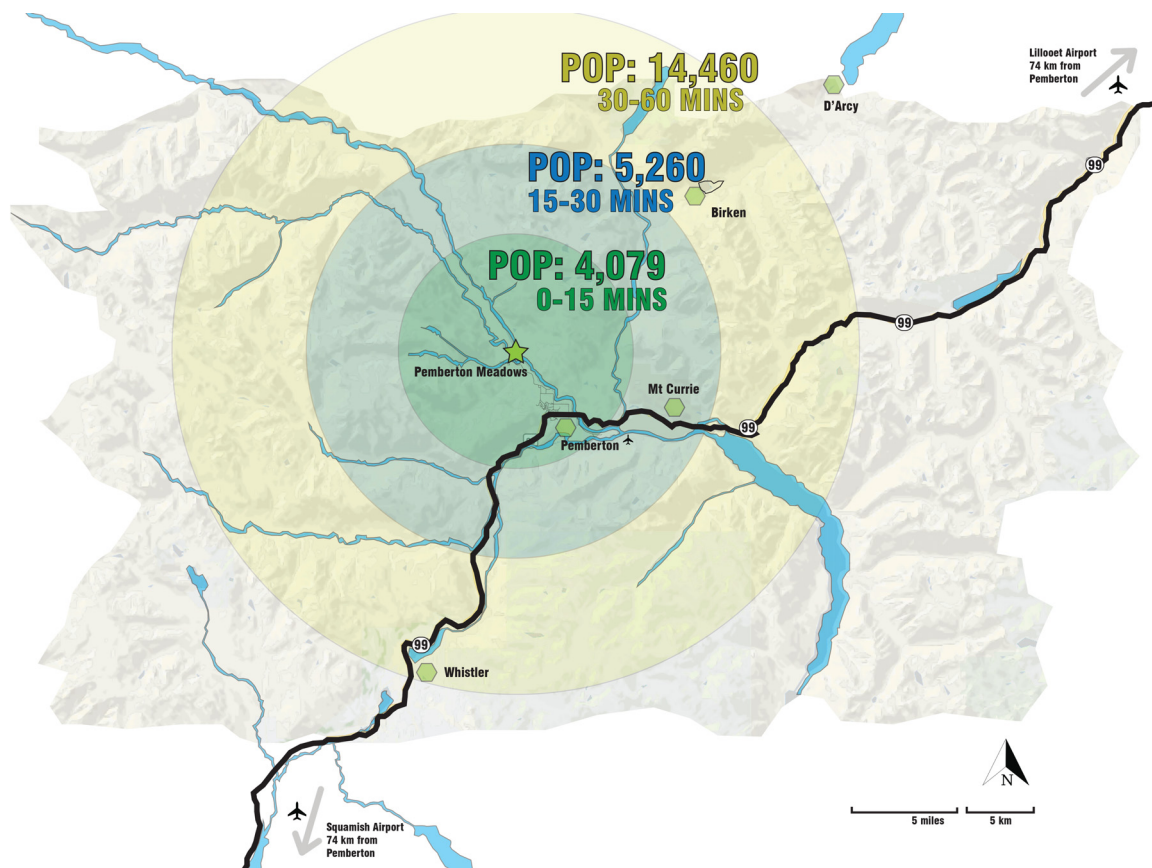


Figure 5: Range map of area surrounding Pemberton, and travel time from the site

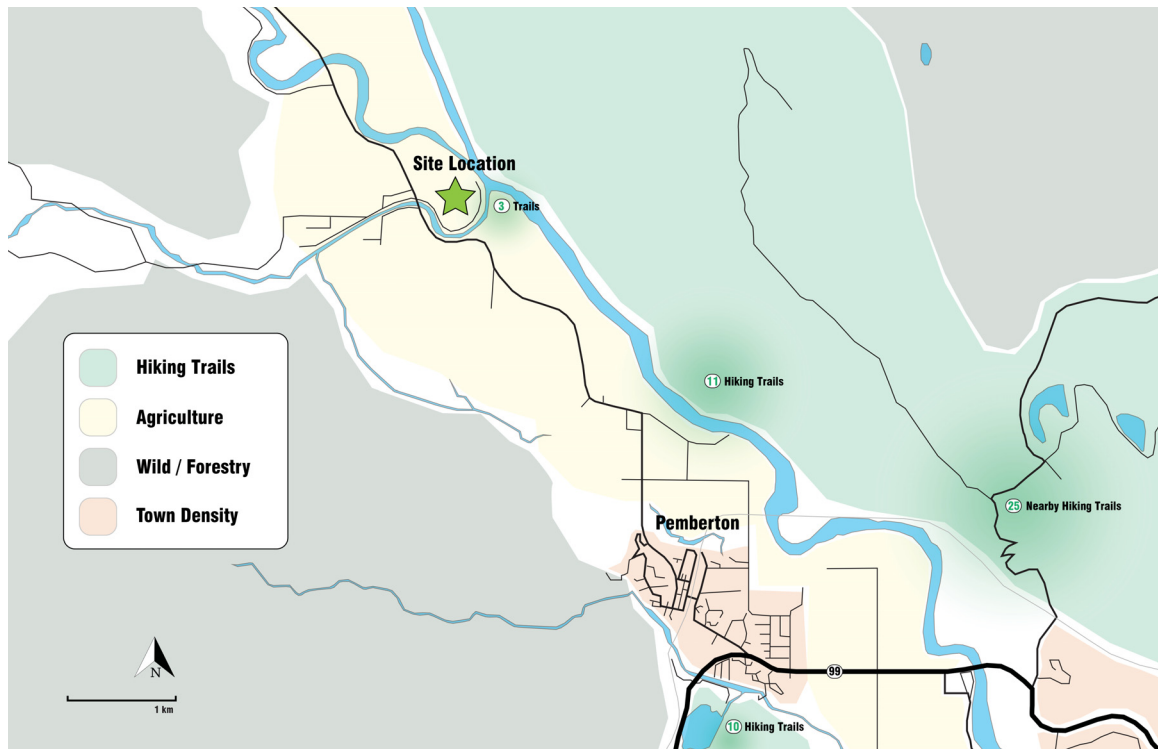


Figure 6: Zoning of area surrounding the site location

As seen in Figure 7, the site plan took inspiration from the curve of the river, using the pond as a rough center point. The campus buildings are spread along the perimeter of the circles access road, each surrounded in a thick belt of existing trees, and each with a riverfront view as well as clear sightlines to the mountains beyond it. The Design Center wraps around the pond in the middle of the site, providing calm northward views over the water and into forest and then opening to southward views through the meadow and sightlines to the mountains beyond. The placement of all these buildings take advantage of the existing landscape by maximizing viewports to nature, while maintaining visual isolation from each other, to avoid feeling urban.



Figure 7: Site plan of Creative Hub in Pemberton BC

Winding pathways connect each building to the Design Center, and afford an interesting and beautiful procession between structures. The local agriculture is tucked into a natural clearing in the trees to the south, apart from other buildings, it pivots up toward the Design Center where it becomes a community garden, and serves as a barrier between the Center and the on-site housing as seen in Figure 8. The housing wraps around the east side of the site, with excellent mountain views and open land around them. Each housing pod contains 3 units; a bachelor, a one bedroom, and a two bedroom. Each unit has a garage for parking, and private yard space.

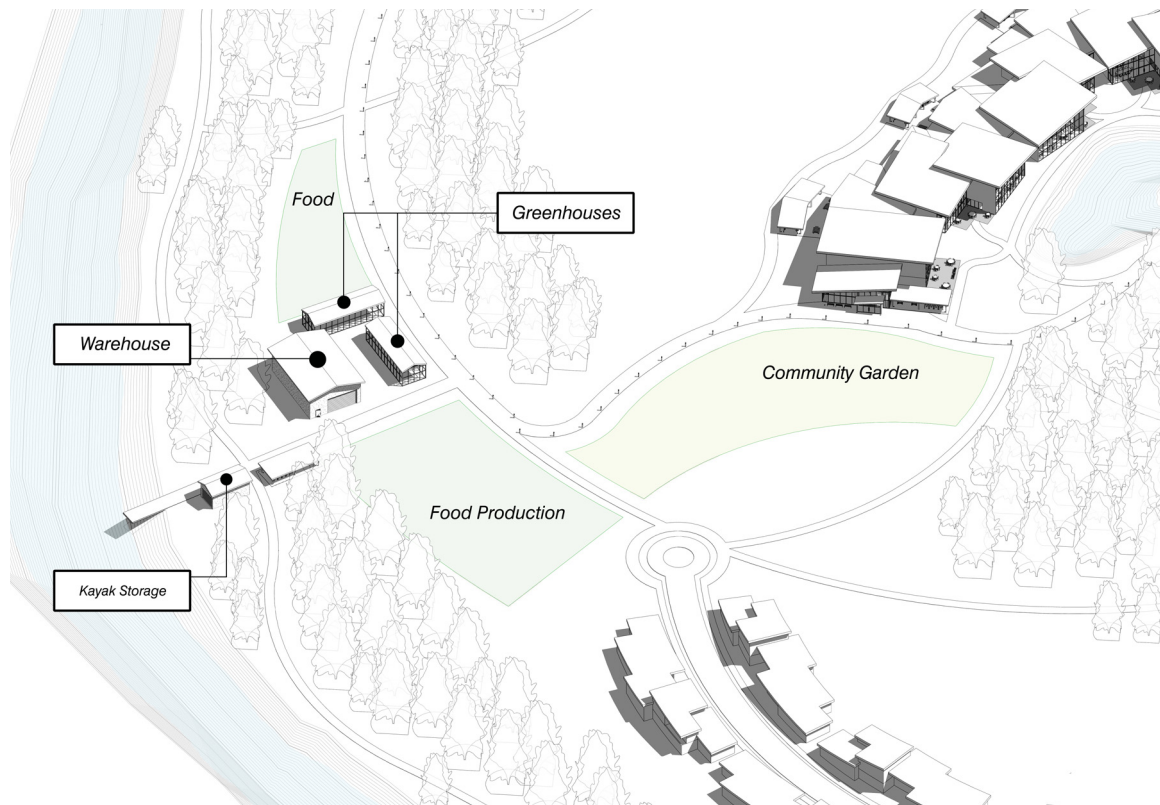


Figure 8: Agricultural component of design, acting as barrier to housing

Entrance into the site is kept from the existing infrastructure, but modified slightly to prevent deep car access into the grounds. Instead, a parking structure is tucked into the forest near the visitor center, hidden from users on site. While the Creative Hub does lie in the electrical grid of Pemberton Meadows, the area doesn't have water or sewer infrastructure. Therefore, a services building containing a backup generator, a sewer connected to a septic field, and a water well with pumps is located behind the parking structure, also hidden from view. The location is ideal to serve the circular service road, accessing each building from under the road as seen in Figure 9. Additionally, solar power can supplement the site from panels applied to the rooftops. The road leading onto the site creates an axis that lines up with the Visitor Center, pond, and Design

Center. A view corridor is highlighted and framed by forest, offering visitors to the site a glimpse and precession in their car, before turning away to the parking building, shown in Figure 10.

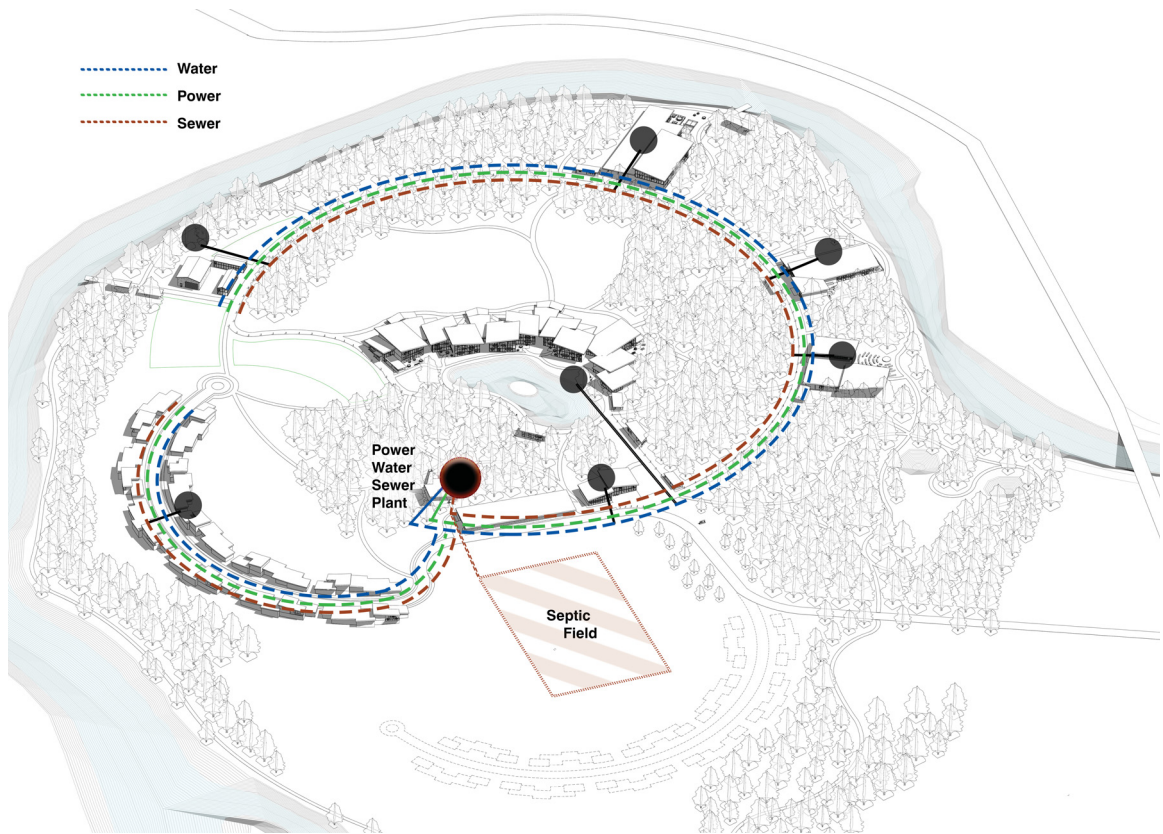


Figure 9: Services run under the ring road, serving each building



Figure 10: View corridor from entry road and entrance plaza

The Design Center's landscape focus is harnessed in its view corridors; the narrow glass hallway opens to common areas, and its pivot point creates a concave focus toward the northward lake, as shown in Figure 11. Views in the narrow points of the building also open to southward scenery, creating a corridor of glass, and the feeling of being surrounded by nature, as illustrated in Figure 12. Another landscape focused feature of the Design Center is the Design Pod; a double height room with a large north facing glass façade. Its open views to the lake, trees and mountains are shown in Figure 13 and Figure 14. An upper mezzanine offers the firm extra space without compromising light or the important view. Negative spaces between Design Pods function as view corridors, and double as snow pile areas during the winter; from a distance, the design pods roof slopes are designed to resemble the pointed mountain-scape around them, illustrated in Figure 15.

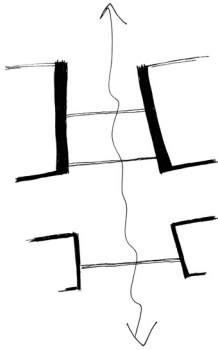


Figure 11: Parti illustrating transparent view corridor toward landscape

Negative spaces (outdoor rooms) on the north faces of the Design Pods function as outdoor deck space, and common social area between the group of firms. Southward negative space is also used for common outdoor space that breaks apart into pathways, taking users on meandering journeys through the natural landscape, or more direct paths to other buildings. Remaining negative space around the south façade of the building is preserved as a continuous viewport for work spaces and the circulation space. Paths outside are setback from the building to give users in the Design Center privacy, and offsetting the trails also strengthens the landscape presence from within. A plan view of the Design Center, and associated negative spaces can be seen in Figure 16.

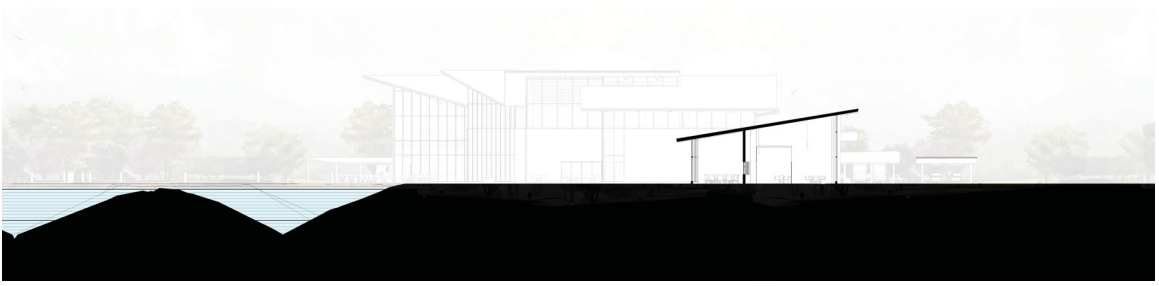


Figure 12: Section of wide hallway with view corridor to lake and meadow

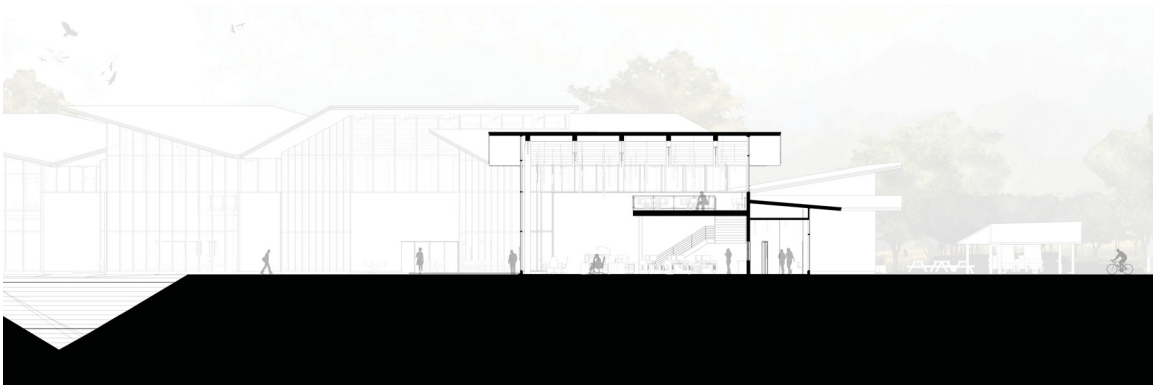


Figure 13: Section of Design Pod with view corridors to landscape



Figure 14: Rendering illustrating Design Pod space opening out to the landscape

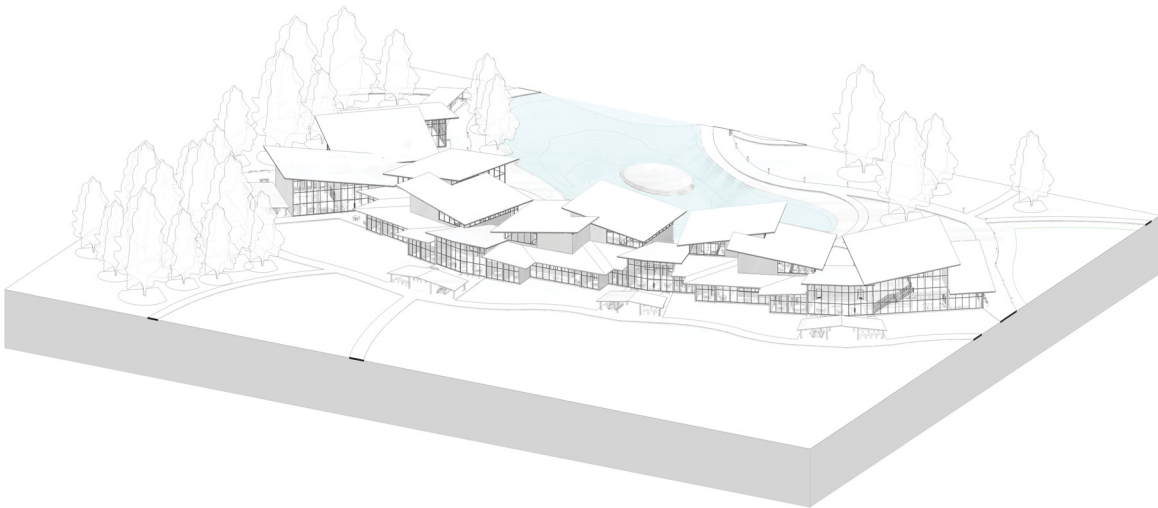


Figure 15: Axonometric drawing of the rooftops for the Design Center

Bike and golf shelters are located at main exits, and frame views, the outdoor pathways, and emulate the main buildings' roof slope as seen in Figure 17. Other campus buildings on site are designed in a similar style to the Design Center; single sloped roofs and glazing opening to landscape. Negative space is both used for outdoor program and view corridors in a comparable method to the Design Center.

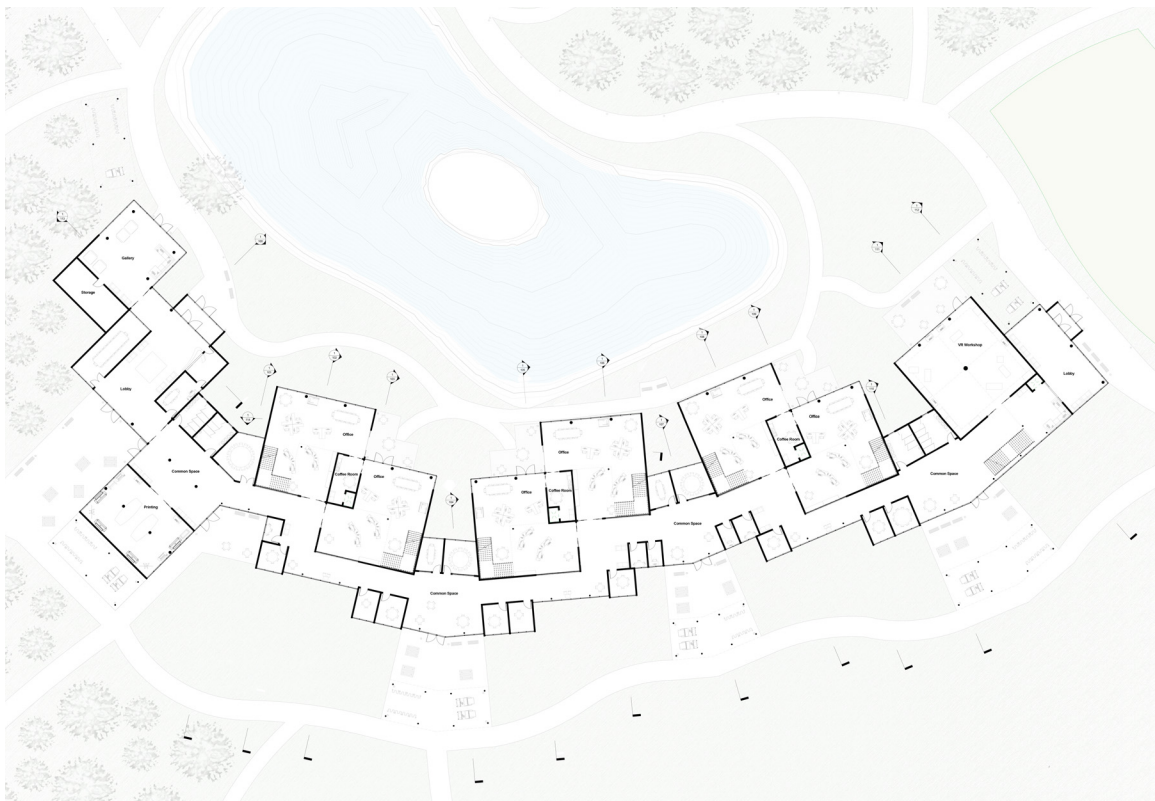


Figure 16: Plan of Design Center, illustrating pockets of negative space used for view corridors



Figure 17: South rendering of Design Center showing roof pitches working together

CHAPTER 7: RETROSPECTIVE

The Impact of Precedents

Looking back to the precedents which helped inspire the Creative Hub, we can further analyze their influences and relation to the project design. We began with Outside, which embodied the notion of a temporary work retreat. Its success was emblematic of a desire for productivity from a natural work environment, but its format left visiting professionals with a short memorable experience rather than truly changing the way they practice. This format was modified and adopted into the Creative Hub's formula through the decision to have work spaces leased by companies, rather than owned outright. In addition, the Creative Hub provided on-site housing for both full time and temporary users which would supplement the environment by a changing group of visiting professionals. Visitors would immerse themselves in the community and rural landscape of the Creative Hub and bring back those experiences to their businesses. By doing so, the Creative Hub would offer people a short-term opportunity to work in a new and unique environment or alternatively have a working vacation similar to the concept of Outside. The major difference being that if a visiting professional was truly inspired by the experience, they may potentially find permanent work at a Creative Hub.

Next, the Chuckleberry precedent was used to illustrate the powerful effect of living in nature; growing food, integrating education and its cumulative effect on mental well-being. As a relatively unused plot of agricultural land, the site in Pemberton has a great deal of potential and a strong local community to resource for food production, as well as space to offer educational workshops. In the Creative Hub's design, a large portion of land is designated for growing food on site and offering the community a garden space to work in. This ensures an opportunity to connect with nature on an intimate level, and gives the working community a local activity for stress relief and entertainment as successfully illustrated in the Chuckleberry community.

Another inspiring precedent was the Hawaii Preparatory Academy Energy Lab. This building's design incorporated glass as a major element with a focused direction toward the powerful surrounding landscape. This simple and effective concept was used throughout buildings in the Creative Hub, as each structure was designed with large glass facades

oriented towards the most intense visual landscape elements, such as the river, lake, and mountains. Also drawing from the Energy Lab's design concept, the Creative Hub uses the natural precession to create a separation between the structures. This ensures the structures are not visible from each other by using strategic placement to create a visual buffer within the existing forest. Finally, the Energy Lab used an effective and innovative technological layout that put the bulk of the technological resources in a centralized zone, encouraging people to come together from different parts of the building and engage together. This concept, combined with a desire for economy, drove the Creative Hub's technological and workshop zones to be aggregated into large universal access areas.

The Arcosanti precedent was a successful rural work environment that had developed and grown within a modest landscape constraint, intent on harnessing a harmony between environment and habitat. Utilizing agriculture and education, while living and working on site Arcosanti inspired the scale and scope of the Creative Hub. The Creative Hub took inspiration in the Arcosanti program, showcasing a successful formula that's been working since the 70's. In addition, the project by Paolo Soleri was an off the grid endeavor, and likewise inspired the Creative Hub design to incorporate facilities which provide it with independent power, water, and sewer systems. It will be important to continue the design of the Creative Hub on a smaller scale, focusing on the details which contribute to efficiency and sustainability, going forward. In this way Arcosanti sets an important example in sustainability for a project of such scope and ambition working in the natural landscape setting.

Additionally, the company town typology is an important precedent for the Creative Hub because ultimately, the Hub is a landscape oriented version of a company town for the modern age. While traditional company towns have been large working environments for one specific company, the Creative Hub will accommodate many companies. Modern company towns such as technology based Facebook or Apple are focused on urban location, due to their need to be within proximity of industry. The Creative Hub is designed with a dependency on the internet that will replicate the benefits of living in an urban center. However, as stated earlier, it also depends on an established urban basepoint, or a Parent Firm. As such, the Creative Hub can be thought of as a sister campus for a larger, urban-based business. Unlike many company towns in developed urban areas, property

in rural towns is plentiful and comparatively less expensive. The Creative Hub designed within the rural landscape highly values its undeveloped natural space. Alternatively, this option is not possible for urban based businesses for economic reasons. When we consider the wellness and productivity benefits, incorporating acres of natural landscape make considerable sense when designing rurally. Therefore, the Creative Hub can be seen as a modern rural company town, or an environmentally focused research park in a rural location.

Moreover, the Artist Residences at Fogo island and Banff are another strong precedent that inspired the program of the Creative Hub. Similar to the concept of Outsite, these residences offer professionals and students a chance to work in a stunning landscape outside of the city core. While Outsite was focused on a narrow discipline, these Artist Residences are designed to accommodate a wide variety of professions, offering tools and training in many different creative fields. The success and acclaim of these residences informed the development of the Creative Hub to cater to a larger pool of creative professionals through an intentionally universal design which could be adapted and applied to several different fields. In addition, they highlight the role that privacy and solitude play in the creative professional's process. This manifested in the integration of intimate spaces located throughout the Design Center which could accommodate an individual or small team. As with the artist residences, these spaces all have unobstructed views orientated towards the natural green space offering complete privacy from the rest of the Creative Hub.

Finally, referencing H-Farm, which is a modern landscape work environment in a very similar vein as the Creative Hub. This precedent served primarily as a proof of concept, and together with the larger project H-Campus, helped inform the final program. H-Farm demonstrated an effective template and direction showcasing how to integrate an educational component into the Creative Hub. Situated in a rural location, the Creative Hub would offer underserved communities access to technology and programs that are often unavailable in smaller communities. As well, it would accommodate visiting students providing them a place to learn or intern in a natural landscape setting. H-Farm has attracted people from Italy, as well as other regions of the world to work in its landscape environment and become part of its community. By adopting this approach to education,

the Creative Hub offers businesses and employees an exemplary living and working experience, as well as a portal for students to learn and grow. The influx of people drawn to living and working in the Creative Hub offers a tangible benefit to the local and regional community where it is based.

The Creative Hub Experience

Visitors to the Creative Hub in Pemberton would arrive most likely by car. The single road leading into the site creates a powerful axis as they approach; with an open meadow on their left and a forest on the right, their view is focused straight ahead. Before the road turns towards parking, visitors can see directly through a clearing in the trees to the Design Center and mountains beyond. They will notice the offset sloping roofs of the Welcome Center and distant Design Center form a language that is reminiscent of the mountain vistas beyond them. On foot, they walk toward the Design Center along the dense forest towards the picturesque natural pond. The gently curved building follows the water's edge, and with each segment of the building wrapped in glass they can see the interaction of people working within or socializing outside, reminiscent of workers at a company town. Walking through the Design Center affords a consistent southward facing view to the meadow, forest, and mountain-scape beyond. As they walk through the long glass hallway, visitors can view the firm spaces on their right and see groups of people collaborating in private workspaces throughout the building. Exiting the Design Building on the opposite side, visitors will see a swath of agricultural fields and the garden which is tended by the community as in Chuckleberry. Walking alongside the green space they eventually approach the river, the path shifts into a gradual bend which parallels the river until it eventually re-enters the forested area. As they proceed through the forest along the arcing pathway, they will come across the entertainment building, the restaurant, and finally the services building before ultimately returning to the site entrance Welcome Center and the parking area. All buildings speak a similar language with plentiful glass facades facing the forest, strong unobstructed views over the river and beyond, and an offset sloping roof mirroring the mountainous landscape.

The site arrangement places the supplementary buildings perpendicular to the river, capturing optimal viewpoints, and the pathway between them, a simplified arc, mirroring the natural flow of the river on the site's boundary. The dense forest between each building obscures sight between, thereby giving each building privacy and an immersive landscape feeling

from within. The central Design Building is equidistant from each accompanying building, together they contribute to the feeling of a campus sensitively nestled in the BC landscape, drawing from the examples of H-Campus and Arcosanti. Services and emergency access to each building is kept simple and non-invasive due to the layout. A smaller network of meandering pathways is woven into the main access trails for more scenic views, riverside walks, or private introspective walks through the forest and meadows. Natural light fills each room, while concentrating on indirect north facing light in the primary work spaces, and treating the circulation and workspaces with the more direct south facing light. Spaces within the buildings are all oriented to the surrounding forests and fields, with carefully blocked sightlines from private spaces and other built structures, similar to the Artist's Residences and the Hawaii Preparatory Academy. The result is a feeling of total immersion into nature, the experiential polar opposite of an urban environment.

Reevaluating the Creative Hub

Upon analysis, after refining the design of a Creative Hub in a rural landscape setting, it has succeeded in harnessing powerful viewports, offers broad and flexible work spaces for varying creative professionals, gestates community through program and technological layout, and captures the essence of the rural landscape through the layout and utilization of fertile land and natural resources. Furthermore, the design has been sensitive to issues of privacy while providing spaces and mechanics for socialization and generating community. Through the process of recreating the amenities found in cities through technology and broad programmatic access, the project grew to be large and developed a community of its own. As a result, the project's cost may be of issue, and further study and cost analysis is needed to develop a practical means of implementation from an economic perspective.

In addition, this type of rural working infrastructure could be applied universally to a variety of professions who would benefit from working in a landscape focused environment with virtual connections to an urban core. Creative based professions requiring an inspirational environment could find purpose in this concept; some examples being automotive design, robotics, software design, and biotech. Adapting the Design Center to cater to other industries is a natural fit, as it was inspired from a variety of other projects that served a wider creative industry. The H-Farm precedent was focused on robotics, drones and software

development, and modern company towns are almost exclusively built by software giants looking to gestate creativity and inventive ideas in software and technology.

While creative industries seem a perfect fit for this design, professions such as law firms, engineering firms, and other non-creative businesses would also find benefits in the Creative Hub. Partnerships across a broader range of professions would benefit the Hub's universal design and contribute to the community on site. This may offer a stronger economic backbone for the creative hub than pure creative industries. Perhaps the most plausible and appropriate implementation of the Creative Hub is mixed professions, treating the Creative Hub as a research park. Regardless, it stands to improve the lives and productivity of its users, offers the rural community investment and education, uses technology to connect rural workers to urban centers across the globe, and simulates an urban social and productive atmosphere.

CHAPTER 8: CONCLUSION

Technology will unleash us from relying on the urban city with such dependence. Professions such as Architecture as well as other creative design fields want to explore the advantages of working in a Creative Hub rather than exclusively maintaining urban corporate offices for their staff. A new type of Design Firm is possible, one designed for the rural landscape setting. Every necessary component of a firm can be performed remotely when in partnership with a larger urban firm and using the many vehicles of modern technology. The resulting Creative Hub offers its users new opportunities, cheaper living, and all the mental health benefits of living and working in nature. While the concept may not be for everyone, there are many people who prefer a quiet, tranquil and inspirational environment in which to work, learn and design. The center provides benefits to the individual designer as well as the rural community in which it is built. This is a mutually beneficial situation offering resources to the community, and giving a boost to its local economy from creating new local high paying jobs. The creative hub can become a catalyst for rural growth and could help stem rural decline from its existing population. We can build a creative hub in a rural landscape setting that provides a healthy, social & creative atmosphere for living, working, and learning, The opportunity is here, all it needs is good partnerships, investment and for firms to want to experiment and offer their employees an alternative way to do inspirational work, in the best natural and sustainable environment.

APPENDICES

Appendix A

The reason is, there's proximity to a large client base as well as consultants, and partners who all physically aggregate toward the city. This is done for efficiency. There are social benefits as well for the proximity; people are more likely to meet when it's convenient, efficient, and physically close. Cities organize our society and are responsible for the social and economic efficiency that various industries depend upon. Design professions like Architecture, Interior and Industrial Design, offer many jobs in the city because of this efficiency. Thus, people in design professions have been forced to live in cities because that's where the jobs, clients and businesses have been. This is true with many professions outside of design, and true across the world.

Appendix B

The locations are also key to its appeal, they offer a quiet atmosphere in serene environments like the coast or mountains, importantly away from busy cities or downtown areas. This serene environment is what outside.co believes is what make people more productive. This key belief is widely agreed upon by medical professionals and will be covered later, in Chapter 3. Members of the company self-describe themselves as hippies and digital nomads, and all of them are relatively young.⁶⁷

Appendix C

The care for both indoor and outdoor spaces is evident upon analysis per the Living Building Challenge case study. The site affords plenty of open space and beautiful landscape, and by using strategically employed skylights and windows in the lab, the views are framed, enhanced, and cultivated to reduce glare and have a pleasantly lit interior.⁶⁸ In addition, there is a strong sense of community which is compounded by the open and flexible design of the lab, encouraging self-discovery and bridging creative/collaborative zones to open spaces, workshops and the outdoors.⁶⁹

67. Ibid, 17.

68. Ibid, 24.

69. Ibid.

Appendix D

Technology is distributed in a central organization, with a collection of screens in the center to empower students to learn in new ways and push teachers to teach in new ways, not constantly oriented toward a ‘front’.⁷⁰ The lab is peppered with video conferencing facilities in every room, encouraging remote collaboration in their research with partners around the world.⁷¹ The facility has plenty of innovative new technology such as research drones and control centers, a 3D printer and DNA cloning tools.⁷²

Appendix E

It connects its various programmatic nodes with equitable access to amenities, it also offers immediate access to open space, and nature to decompress the mind.⁷³ The environment is arranged in a dense and efficient way while focusing on pedestrian mobility, and no vehicle access aside from bicycles. This puts the ‘urban’ looking project at a human scale, despite covering a respectable area and serving its large visitor base.⁷⁴

Appendix F

The project features urban agriculture and greenhouses to get food onsite and year-round, and have worked to reduce water consumption through exploiting micro-climate conditions and water reclamation.⁷⁵ Its purpose is primarily for education, for demonstrating to visitors a type of utopia. The entire project is meant to be a holistic educational opportunity for visitors, and there are specific prototypes of laboratories constantly under refinement for a long-term goal of teaching about sustainability and the importance of the environment.⁷⁶

70. Ibid, 23.

71. Ibid.

72. Ibid.

73. Ibid, 38.

74. Ibid.

75. Ibid.

76. Ibid.

Appendix G

The intent of the dispersal of the studios and the houses is to help connect artists with the various permanent communities of the island.⁷⁷ Some types of projects garner collaboration with the community like film making and crafts, and artists are encouraged to share their work in the Fogo Island Gallery.⁷⁸ Art and education is offered to the community through collaborative projects, showcases and workshops; the scope of the work is typically local, and although the residency and exhibitions bring in people from around the world, the creative hub seeks to connect with clients and communities of a global scale. The wide variety of creatives at Fogo Island Residences from filmmakers, to dancers, makes its local scale much more appropriate compared to the creative hub.

Appendix H

The 30-hectare area opening in 2018 will house 2,000 students in a landscape setting along the Sile River in Roncade Italy.⁷⁹ The future campus capitalizes on digital opportunities and successful startups from H-Farm to offer several separate campuses ranging from those targeting primary and middle school children, to high school and college students, but also making itself available to people of all ages.⁸⁰ The focus on technology allows the hub to offer learning courses in innovative technology like virtual reality, 3D prototyping, projection mapping, robotics, etc.⁸¹ The school shepherds students through their education, then bridging into real world projects which could evolve into companies of their own.⁸² The Campus is a transformative and unconventional school, focusing on creativity, inventiveness, and a freedom of learning; when combined with the beautiful and natural environment, it makes for an appealing place to be.

77. Ibid, 53.

78. Ibid.

79. H-Campus, "H-Campus 0.1," accessed October 29, 2016, <https://h-campus.com/h-campus-0-1/?lang=en>

80. H-Campus and Giovanni Cotta, "The Hub by Camp Kimama – H-Campus New Collaboration Dedicated to Teenagers." H-Campus, accessed September 27, 2016, <https://h-campus.com/the-hub-by-camp-kimama-h-campus-new-collaboration-dedicated-to-teenagers/?lang=en>

81. Ibid, 63.

82. Ibid.

Appendix I

While rolling out broadband internet to rural areas is slow, expensive, and not evenly distributed, the practice itself will become utterly redundant and meaningless within 10 years. Wireless internet is the future, and while the current practice of installing radio towers is commonplace in rural areas, and will continue to be useful, there are new and more far reaching technologies coming. Future investments from Google and SpaceX, who have pledged billions of dollars into satellite infrastructure, intend to offer global internet access, for all corners of the world, barring political hurdles. Modern satellites and radio towers share the same technology known as 4th generation (4G) wireless spectrum. While some areas are still running older 3rd generation (3G) technology, together they account for most internet availability in North America and Europe. The 5G standard isn't currently formalized, but is intended to be by 2020.⁸³ The standard might change, but is currently expected to offer 1 GB / second up to 100 GB / second speeds, with a server ping of 1ms. This is fiber optic speed but wireless, and potentially could be put on satellites to cover the world. We can't say for sure this technology will arrive by a particular date and time, but we can expect it in the next 10 years.

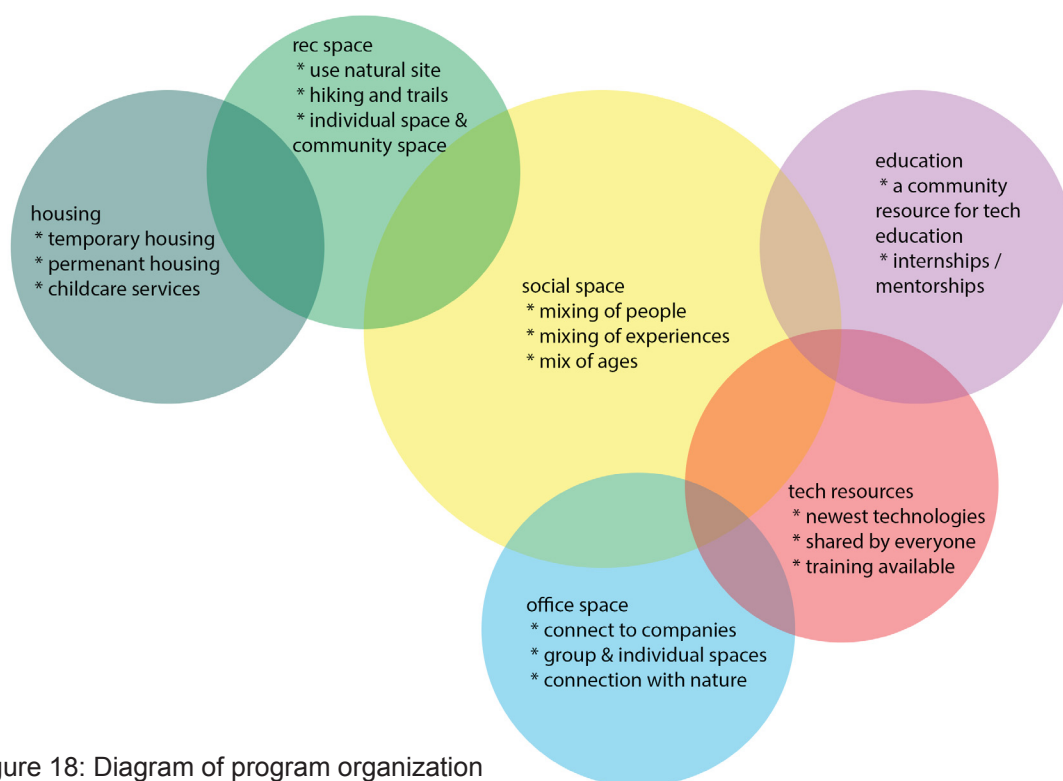


Figure 18: Diagram of program organization

83. Ed Ram, "How Will the 5G Network Change the World." BBC, accessed April 18, 2017, <http://www.bbc.com/news/technology-30224853>



Figure 19: Rendering of site plan showing buildings integrated with forest



Figure 20: Rendering of site plan showing buildings integrated with forest



Figure 21: Rendering of Design Pod in Design Center



Figure 22: Rendering of transparent hallways in Design Center



Figure 23: Rendering of Services building



Figure 24: Rendering of Break building



Figure 25: Rendering of Restaurant building



Figure 26: Interior of Restaurant illustrating transparency and connection with nature

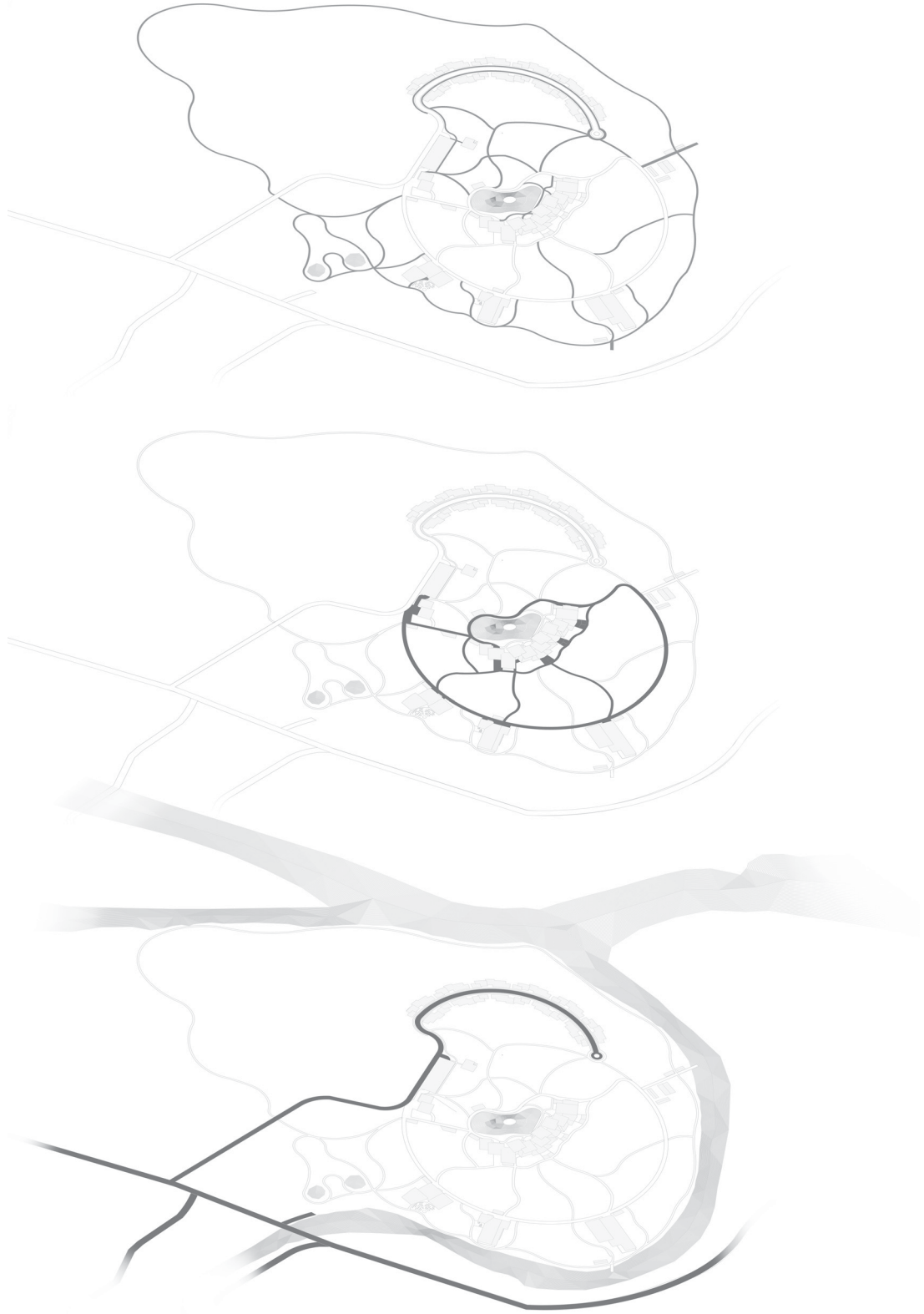


Figure 27: Paths diagram showing layers of access on site. Bottom is car access, middle is bike, golf cart, and pedestrian access. Top is specifically pedestrian and bike access.

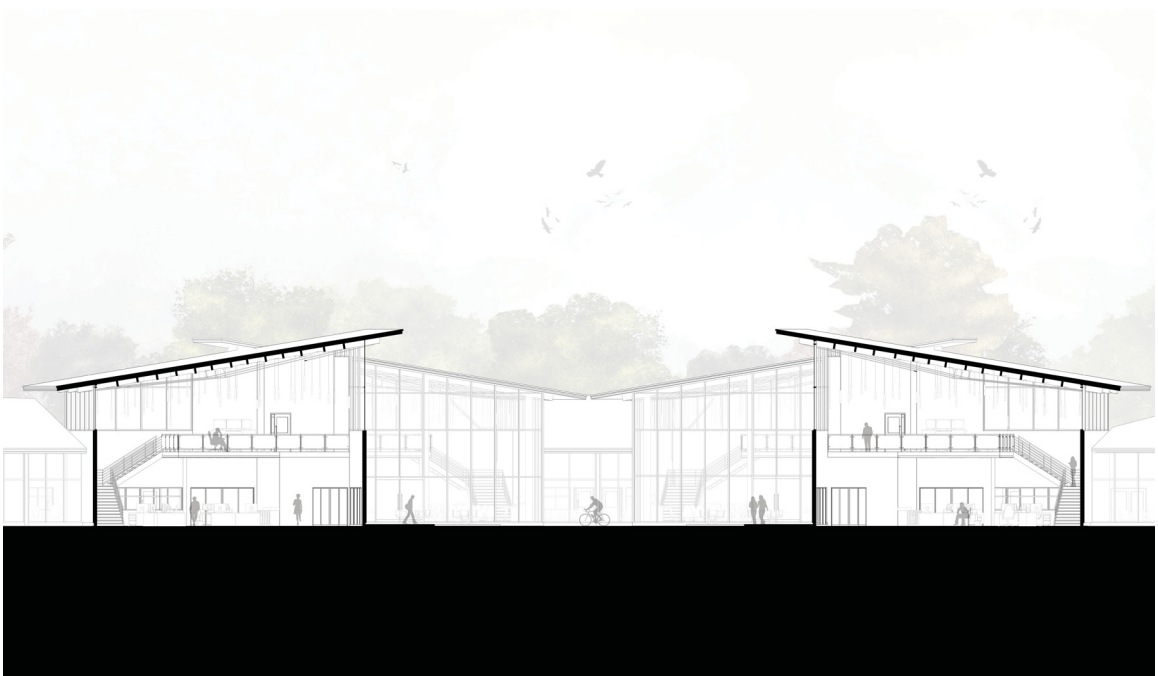


Figure 28: Sectional drawing of Design Pods, illustrating the outdoor room created through their repetition.



Figure 29: Sectional drawing of lobby in Design Center, showing transparency to the landscape.

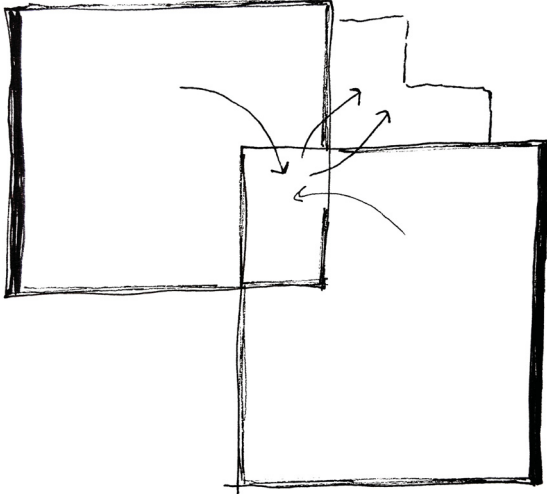


Figure 30: Parti diagram showing shared social spaces between Design Pods

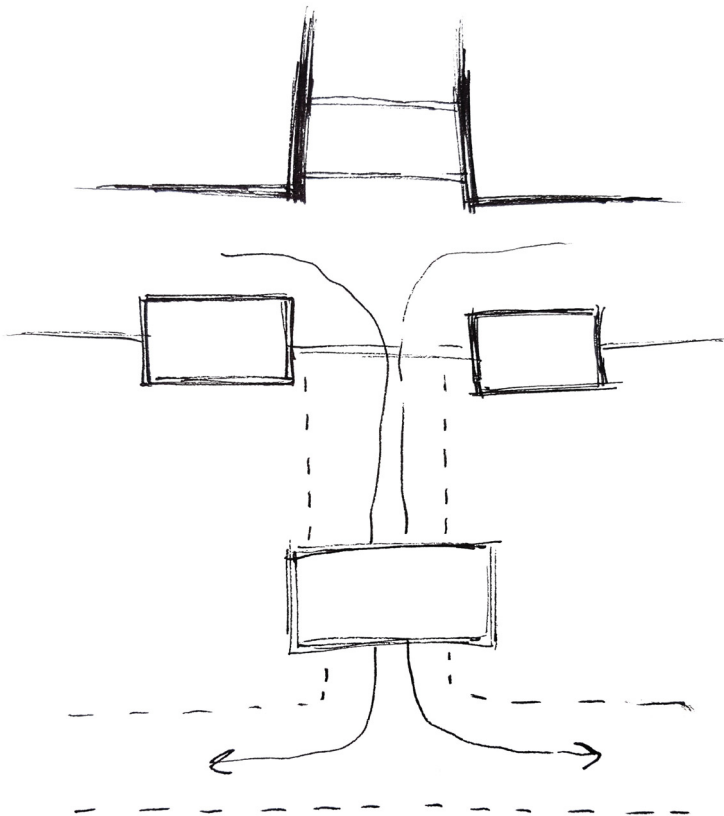


Figure 31: Parti diagram showing procession from Design Center to southernmost pathways, through bike and golf cart storage.

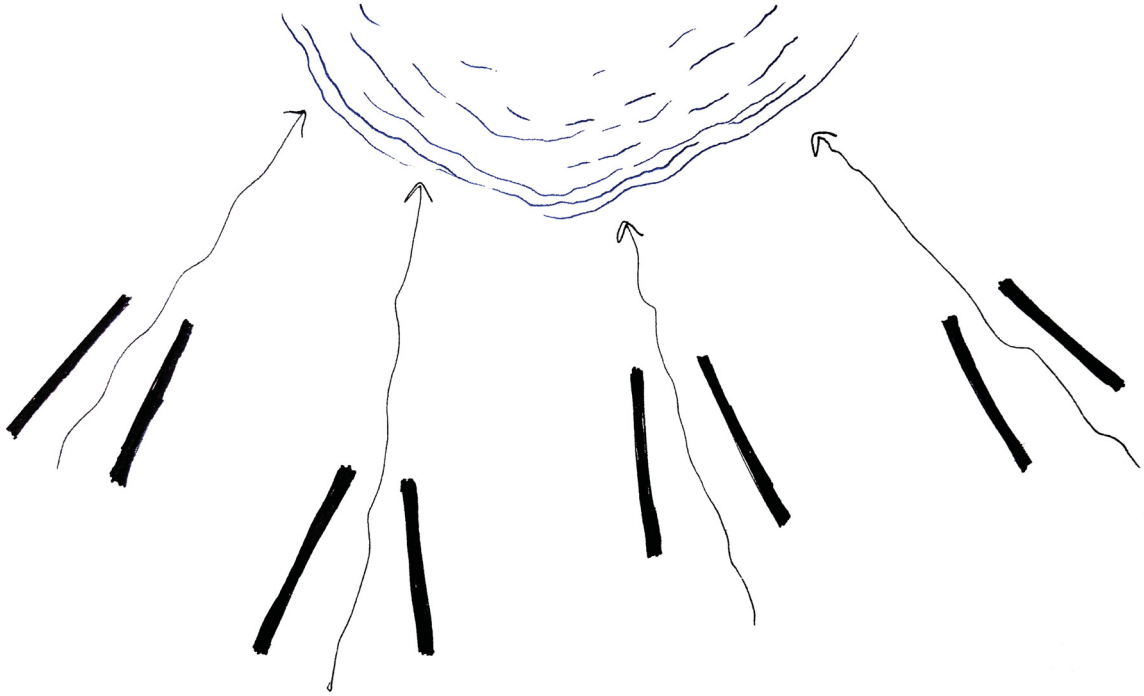


Figure 32: Parti diagram illustrating directional nature of viewports and orientation of workspaces and Design Pods.

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