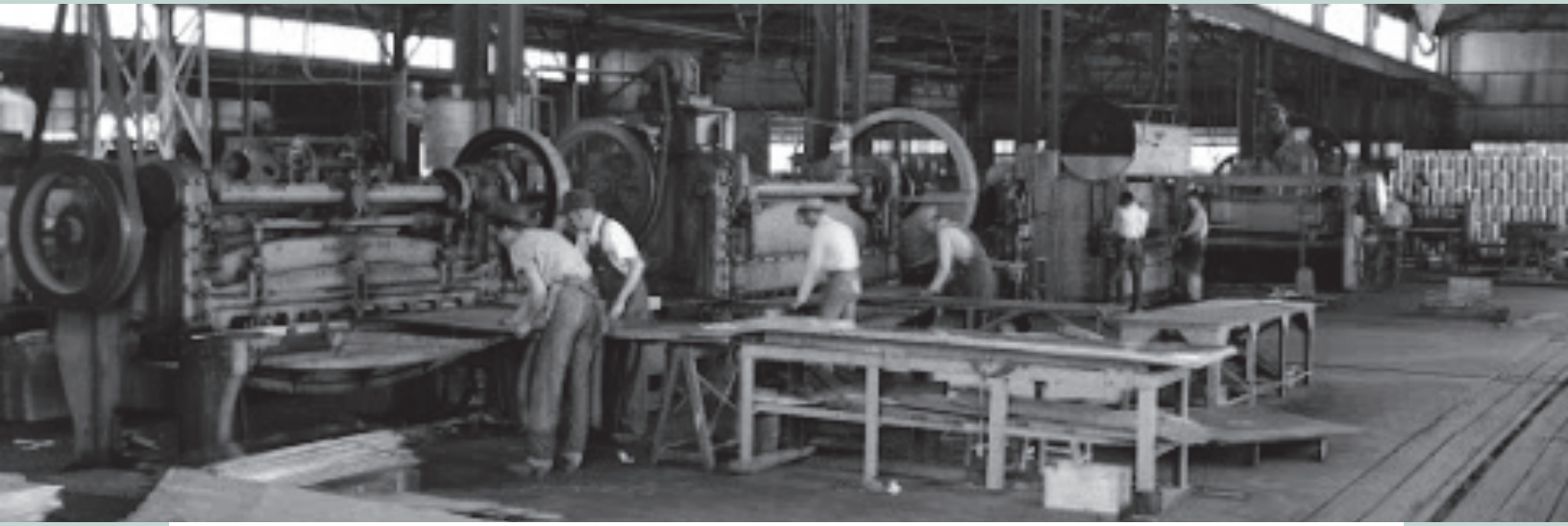

STEEL
HOUSE

the NUSSBAUM CENTER FOR ENTREPRENEURSHIP

THE STEELHOUSE



ADVANCING MANUFACTURING IN EAST GREENSBORO

The Steelhouse in East Greensboro will be the center of urban manufacturing and innovation. A one-of-a-kind ecosystem that spans 15 acres, housing small businesses and creating high paying jobs. The New Localism founder, Bruce Katz has deemed The Steelhouse a "transformative investment" that has the potential to "trigger profound ripple effects".

For nearly 85 years, The Steelhouse was the primary fabrication plant and world headquarters for Carolina Steel. Carolina Steel took steel from Southern mills to bend and modify for use in factories and commercial buildings. They pivoted to highways and bridge systems due to the growing demand In the late 1950s.

Iconic North Carolina buildings such as the Dean Dome and the Reynolds Building, a masterpiece of Art Deco design and detail, were fabricated at The Steelhouse. The Reynolds Building is well known for being a design inspiration for the much larger Empire State Building that was built in 1931 in New York City.

In addition to preserving and protecting the historic buildings and character of the fifteen-acre campus and serving as an incubator and supporter of entrepreneurs and small businesses, The Steelhouse will further the mission of The Nussbaum Center for Entrepreneurship to reduce small business failures in the City of Greensboro.

The Steelhouse will be a vibrant community comprised of entrepreneurs, small businesses, artisans and Entrepreneur Support Organizations that will leave a lasting legacy on our city.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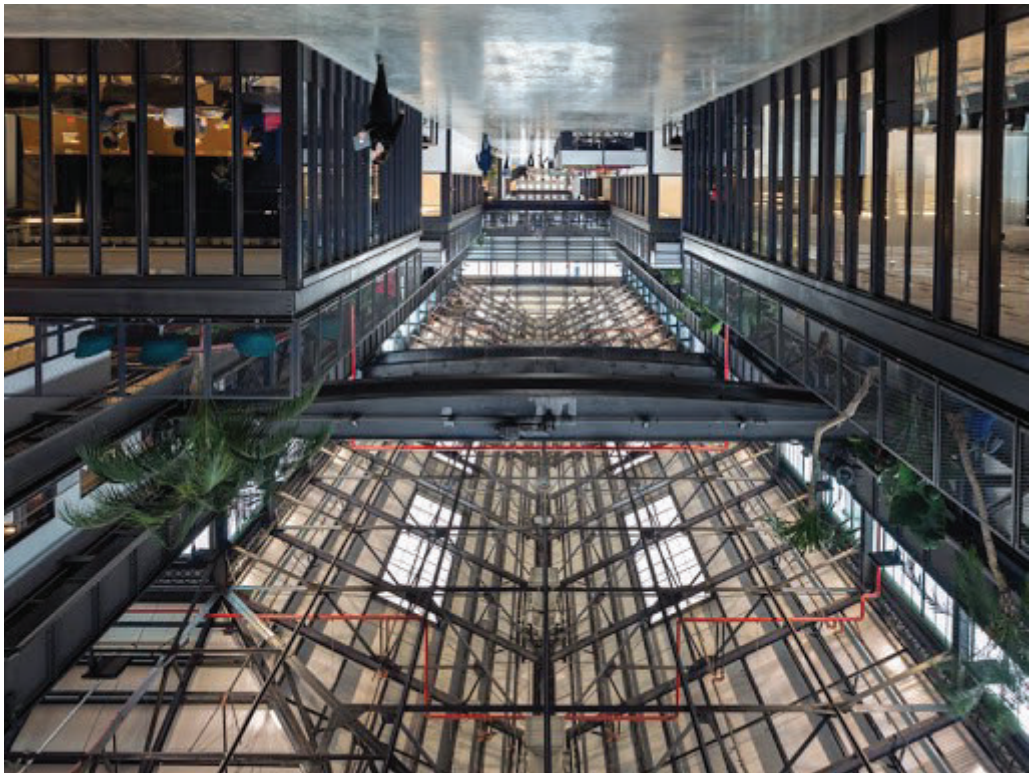

Carolina Steel House Building

Proposed Use and Feasibility Analysis

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Prepared for the Nussbaum Center for Entrepreneurship in coordination with the North Carolina Small Business Technology and Development Center (SBTDC) and the Winston-Salem State University MBA Program

Contents

1 INTRODUCTION

The Nussbaum Center for Entrepreneurship (NCFE) is a private non-profit corporation with a mission to attract, advise, and house start-up and early stage growth entrepreneurs in Greensboro, NC. NCFE owns and operates a building where entrepreneurs can come to receive business classes, counseling, and/or base their small business in a reasonably priced office space near downtown Greensboro. The building that NCFE currently occupies and operates was donated. Based on the successful operation of NCFE over recent years, the donors have decided to entrust more property so that NCFE may continue to spread their mission of helping entrepreneurs. This additional space which is located behind the current building is an 8.7 acre parcel with approximately 220,000 square foot (sf) of existing industrial building that was formerly used by Carolina Steel for steel manufacturing. While this building is almost completely vacant, utilities are connected throughout the building and can be turned on by contacting the utility companies.

2 POTENTIAL USES AND FLOOR LAYOUTS

2.1 THE NUSSBAUM CENTER MISSION – FOSTER NEW BUSINESS DEVELOPMENT

The Nussbaum Center has an important mission to foster and grow start-up businesses. It has been assisting small businesses for years and has provided an important service to the Greensboro/Triad economy. The new space should adhere to the Nussbaum Center mission of housing and growing small businesses in order to maintain synergy. To do this, the space will need to be able to house multiple tenants with different needs from various industries.

2.2 HISTORIC RELEVANCE – CAROLINA STEEL HOUSE ONCE A THRIVING MANUFACTURING CENTER

The manufacturing history of Greensboro is an interesting and important facet of this building. Greensboro was home to quite a few large industrial manufacturers such as Cone Mills, Burlington, Blue Bell, and Vicks Chemical. Similarly, Carolina Steel was one of the large manufacturers of the Triad and provided many jobs to the area. This important history should strengthen the argument to keep the

building and renovate it rather than tear it down for it just to be re-built. It is critical that the architect maintain the design of the space throughout renovation. Similar to the Revolution Mill project on the north side of Greensboro, the Carolina Steel House has potential to attract businesses and customers who appreciate the rich history of Greensboro as it is preserved through fresh renovation.

2.3 Mixed Use – Retail, Office, Manufacturing, Restaurant, and Arts

In light of the Nussbaum Center mission, the Carolina Steel House can be renovated to suit multiple industries and serve a wide variety of emerging businesses. Retail, office, industrial manufacturing, food preparation, and art studio spaces can all exist in a mixed use property.

Retail space refers to partitions of the building that would be set aside for consumer good sales. Anything from clothing to handmade jewelry to sporting goods to sundries could fall into this category. Most retail space is brightly lit to showcase products and is open to allow flexibility in product placement and shopper movement. These spaces are simply constructed with interior partitions, checkout desks, storage rooms, and oftentimes a glass storefront to offer more security during closed hours. Open-market retail would refer to stall type spaces where retailers would line up next to one another in one large space. Imagine a farmers' market or the famous Pike Place Market in Seattle. This type of space would not require a high level of finish on the interior partitions but would still require open spaces, bright lighting, and resilient flooring for high volumes of products and shoppers.

Conversely, office space is more closely partitioned. The individual spaces are smaller than retail and are designed for individuals to provide services rather than simply sales transactions. In addition to more interior partitions and finishes (including cubicles), more furnishings are required such as work desks, book shelves, tables, and chairs.

Food preparation space is somewhat open but contains a large amount of specialized equipment. Commercial grade refrigerators, freezers, ovens, and mixers fill the space and most of this equipment

requires specialized construction considerations such as larger electrical circuits, additional insulation, and built-in exhaust ducts.

Industrial manufacturing space and art studio space require the least amount of renovation. These spaces usually only require openness, ventilation, and power. Some interior partitions may be required but not to the level of finish that retail stores would expect, and they would be used primarily to secure one tenant space from another. Likewise, floors and cabinetry could be of lower quality than those found in a retail or office space.

Figure 1 shows the entire Carolina Steel building with a proposed floor layout of mixed use spaces. This floor layout shows the full mix of spaces and is configured in a way that keeps similar spaces together. Should the mix change as the strategy is further developed from pricing and demand, the floor layout can shift to allow for more manufacturing or more retail space as needed.

3 Cost Estimates

Construction costs estimates can be determined by full architectural, structural, civil, and MEP building plans. They can also be generalized based on rough square footage estimates when plans are not fully completed. In the case of the Steel House, the plans are not yet defined making the best cost estimates at this time come from square footage estimates. As a construction project manager in Greensboro, I have experience in estimating costs as well as access to historic construction costs from my employer, Windsor Commercial. In addition to historical data, I have referenced RS Means construction cost books to validate and fill in any gaps. RS Means compiles national construction costs annually and publishes them to estimating and design customers. In addition to construction costs of all types, RS Means provides adjustment factors to correct for the year and geographic location of specific projects. The books are available from the NC A&T library and I adjusted to the location of Greensboro, NC with a

factor of 0.75 from the national average and to the year 2015 with factors of 0.585 and 0.695 from the years 2000 and 2004 respectively. See Appendix A for historical cost support data.

3.1 Renovating Historic Buildings

Not all costs can be captured by square footage estimates. The building shell waterproofing, utility improvements, demolition, and site improvements must all be accounted for separately because they do not fit into a single space type. Table 1 shows estimated unit costs for each of these items along with estimated quantities.

Current building codes require continuous insulation ratings. This means buildings now have to be built with a non-stop layer of insulation (usually foam board) around the structure before waterproof wrap and exterior facade are installed. This limits an effect called “bridging” where structural members such as steel transfer heat through the wall and result in unnecessary energy loss. The problem with this requirement is trying to retro fit a metal curtain wall, such as we have at the Steel House, with continuous insulation. The foam board cannot be installed without taking down and replacing the sheet metal. Also the sheet metal exterior on this building does not appear to be in good enough condition to be taken down and reused. Therefore, the recommendation for this project would be to remove all of the metal building skin and replace it with similar galvanized metal on top of insulation. Should an architect elect to use a specialty system of providing insulation on the interior, these costs could be adjusted, however most specialty systems will carry a hefty cost and will offset most if not all of any savings found.

Some of the 220,000 square foot building will need to be demolished. As it currently stands, there is very little space on the property for parking area and landscaping. Current city zoning requirements will require more parking space as the property changes from heavy industrial (HI) to either a commercial (C-M/C-H) or business park (BP) district. Depending on the final determination of zoning space, the

required parking could be around 400 parking spaces for the entire building. In order to fit these spaces on the property, some of the building must be demolished. The areas shown in red on Figure 1 are currently designated for demolition. Demolition costs can vary quite a bit depending on the structure materials and the level of care needed to disassemble the building. In this case, the structure is simple, but a high level of care will be required when dismantling because we will be stopping demolition at designated points and will be re-building onto the structure at those points to seal it off. The estimate for demolition in this case is based on historical data from Windsor projects and should run approximately $2.00/sf of demolished area. This area will then be regraded and constructed as parking lot or landscaping. Figure 2 shows an anticipated layout of parking and landscaping around the property. Two types of asphalt pavement are necessary: light duty for regular car traffic and heavy duty for delivery truck traffic. The heavy duty pavement routes to the north of the building in anticipation of loading docks in that area. The estimated unit costs for light duty pavement, heavy duty pavement, and landscaping are $25.00/sy, $30.00/sy, and $14.00/sy respectively. These are also derived from historical Windsor projects in the Greensboro area.

3.2 Food Preparation/Kitchen Space

It is anticipated that food preparation space could be used in a number of ways. Whether as a caterer, farm-to-table supplier, small restaurant, or a food manufacturer such as a distillery there are certain specialty items required in food preparation and special considerations during construction. Ease of clean-up, sanitary requirements, floor drains, and additional power requirements are just a few of the considerations. Historical Windsor projects that include various restaurants and a brewery were taken into account for estimating this area. When compared to RS Means sample projects for restaurants, we find that square footage costs widely vary. Two of the three historic projects were significantly under

the RS Means average costs. I elected to use the third historical cost which had the smallest deviation from RS Means data and actually came within the three figures at $110.59 sf.

3.3 Manufacturing Space

Again, manufacturing space requires the least amount of improvements. However, it still requires interior wall partitions, lighting, and electricity. Other tenant specific requirements could actually make this space quite costly (i.e. additional structural upgrades in flooring or crane systems). At this time those considerations are not taken into account because tenants are unknown, and specific tenants could be reasonably required to pay for their own upgrades. Due to a lack of historical data to estimate this category, the RS Means data prevails. The standard project for M.200 factory relates to this category well and indicates an upfit cost of $62.62/sf after we subtract the foundation, structure, walls, and roof costs.

3.4 Art Studios

Similar to warehouse areas, there is actually no historical data for art studio space. Also similar to warehouse area, art studio space requires little improvement beyond interior walls, lighting, and electricity. For this reason, I am using the same $62.62/sf estimate for art studio upfits.

3.5 Open Market Retail

The retail space historic costs that are on file both at Windsor and in RS Means is more specific to closed shop retail areas such as those found in shopping centers or stand-alone stores. As with the other space types, I have done my best to separate out structure and site costs from the upfit costs. Based on historical analysis and comparison to RS Means, we find that open retail upfit is somewhat higher than RS Means but not extraordinarily high, so we use the historical upfit cost as a conservative price of $69.86/sf.

3.6 Multi-Story Office Space

Windsor has ample historic data for office spaces. While some vary considerably due to specific circumstances of each project, the median costs compare quite closely to RS Means data. For the upfit of office space, we use the historic cost with the smallest difference from RS Means: $86.49/sf. Currently, the proposed office space is to be built on a second and third floor of one section of the steel house. There is no second or third floor currently, so that addition must be constructed before the office space can be completed. There are a few methods of constructing this structure: a) steel columns, beams, and joists with a metal pan and concrete floor; b) concrete columns with solid concrete slab floors; or c) concrete columns with separate concrete beams and cast-in-place concrete floor. The most economical option according to RS Means data is c) the concrete columns and beams with a cast-in-place concrete floor at $10.26/sf of elevated floor. This cost must be brought forward into the initial building renovation costs on Table 1 because it will not be feasible to construct during tenant upfit.

4 Construction Sequence

The construction sequence will initiate by hiring an architect who will begin by identifying zoning restrictions and designing the building layout in accordance with the Nussbaum Center's mixed use vision. Early on and concurrent to the design process, NCFE will need to work with the City of Greensboro to request rezoning of the property. The architect will also coordinate with civil, structural, electrical, and mechanical engineers to create the construction drawings. An architecture firm may provide the engineering in-house but another firm may choose to outsource; either setup can work as long as the design is well coordinated.

Upon completion of zoning and design, the plans will be sent out to contractors for bidding. The architect can assist in bid evaluation or NCFE can evaluate and choose a contractor on their own.

Following a notice to proceed from NCFE, the contractor and architect can initiate permitting and then begin construction once the city approves the plans.

The building shell renovations, utility improvements, and internal multi-story frame will need to be completed first. After the common areas are complete, the contractor can begin tenant area upfits. These areas can be completed all at once or can be broken into phases to allow for more manageable cash flow and/or allow for more tenants to sign leases. If the tenant upfit areas are broken into phases, care should be taken to layout phases in a manner that does not leave any one area of the building without construction access in the future. This will ensure that no business will have to be temporarily shut down while later phases are constructed.

5 Feasibility Analysis

With high construction costs, we need to understand the risk before proceeding with this project.

5.1 Comparable Properties

I used the comparables method of lease valuation for each of the tenant space types in the Steel House. By finding the lease rates of similar spaces in similar locations, we can estimate lease rates that are appropriate for planning purposes. I found comparable data at LoopNet.com for retail, office, and warehouse spaces and at other sites for comparable art studio space (see Appendix B). Based on these comparables, I determined the anticipated lease rates shown in Table 2 to be slightly lower than average due to the Steel House location and the current lack of an anchor tenant. These rates are in-line with the information gathered from conversations with Andy Zimmerman and Nick Piornack, two commercial developers in Greensboro. Highlights from each of their conversations with be can be found in Appendix C. Nick suggested lease rates for the respective space types very much in line with what I have found in the comparables, and Andy suggested keeping rates on the low end due to the location being slightly outside of the downtown limits.

The lease rates shown in Table 2 are for retail space at $10.00/sf/yr, office space at $9.00/sf/yr, manufacturing space at $3.75/sf/yr, art studio space at $1.60/sf/yr, and food preparation space (which leases slightly higher than warehouse space) at $4.50/sf/yr.

5.2 SUSTAINABILITY

To determine whether or not this project is feasible, we need to do a break-even analysis. To find the break-even point we can use the total construction and design costs as initial fixed costs and divide by the contribution margin. The contribution margin, in this case, is the anticipated lease revenues from the rates above minus a monthly variable cost. We can average the monthly costs somewhere around $5,000 for utilities, maintenance, and property management. We should also adjust the anticipated lease revenues because it is rare to fill all spaces all of the time. Therefore, we may assume an 80% occupancy rate and use the following formula:

$$BEP = \frac{FC}{((80\% \; x \; Revenues) - VC)} = \frac{\$20{,}859{,}303}{(80\% \; x \; \$97{,}538) - \$5{,}000} = 286 \; Months = 23.8 \; Years$$

As Table 2 shows, the anticipated break-even point of this scenario is nearly 24 years. Most real estate developers look for a 10 year break-even point. One problem with this simplistic analysis is that it does not take into account construction loan interest.

Another analysis commonly used by real estate developers is the break-even occupancy ratio. This ratio uses interest rates to determine loan servicing and then determines the minimum occupancy required to cover expenses. Again Table 2 shows that, with a 5% interest rate, annual costs and revenues compare as such:

$$Ratio = \frac{(Debt \; service + VC)}{Revenues} = \frac{\$1{,}042{,}965 + \$60{,}000}{\$1{,}170{,}461} = 94\% \; Occupany \; Required$$

Ninety-four percent occupancy is a high number to maintain. By factoring in the interest rate for construction loans, we start to run dangerously high on the required occupancy rate.

5.3 Potential Tenants/Partners

The Nussbaum Center has been very successful in housing and supporting small business start-ups in the current building and there is still a growing demand for small business support. The spaces in the Steel House will offer a unique solution for businesses that require unique spaces such as manufacturing, food preparation, and art studios. The current drawback of this layout is the lack of an anchor tenant. An anchor tenant would be able to draw sustained traffic and would drive up demand for the other spaces. Andy Zimmerman suggested capitalizing on the cheapest upfit type and focusing on manufacturing type of collaborative or "maker space" for the industrial start-up. While certainly a unique idea, there aren't many models to reference. One alteration of this idea could be to partner with another manufacturing school or technical school to manage the manufacturing space while NCFE retains management of the other spaces. Such a partnership could reduce risk and possibly solve the anchor tenant conundrum.

Potential organizations that could fill this role in the Greensboro area include schools such as GTCC, NC A&T, ECPI or other manufacturing industries such as truck manufacturing, metal working, or furniture manufacturing. The manufacturing space, food preparation space, or art studio space would work great as apprentice training areas that transition into start-up spaces.

6 Conclusion

Table 1 shows a breakdown of construction costs and indicates a total construction value of $20.9 M to renovate approximately 180,000 square feet of abandoned steel house into a mixture of manufacturing, retail, food preparation, art studio, and office space. This is a cost of roughly $110 per square foot. As developers are aware, this correlates to a fairly high estimate for renovation. Most developers would

ball park low end costs around $50 per square foot, however that would not necessarily account for the additional insulation and site work required for this project. Regardless, this $110 per square foot estimate has been derived largely from historical data in the Greensboro area and should be considered a fairly conservative cost estimate. With value engineering (VE) ideas implemented by the architect or contractor, actual tenant square footage costs could be in the $45 - $85 per square foot range, reducing costs significantly.

Table 2 shows the feasibility of this project and while it indicates that the project can be profitable, the break-even occupancy ratio indicates a slim margin for error. I believe that the scenario shown in these tables is the conservative scenario. Actual construction costs could be lower than shown, actual lease rates could be greater, and NCFE is likely familiar with funding sources and grants that would reduce the effective interest rate for construction costs. If any of these scenarios are true, the result would be a larger margin of acceptance for the project. However, as it stands with these figures, the risk for the project is too high. An anchor tenant or partner provides the best solution for mediating the risk here. If the Nussbaum Center can partner with one of the local technical/vocational schools, the project then becomes more feasible and has a higher likelihood of success.

Table 1
Steel House Renovation
Construction Costs Estimate

Building/Site Renovation	Units		Unit Rate	Cost
Demolition	32,855	SF	$2.50	$82,138
Exterior Curtain Wall	60,987	SF	$14.00	$853,818
Underground Utilities	1	LS	$140,000	$140,000
Slab Rehabilitation	54,726	SF	$12.00	$656,712
Elevated Floors	42,476	SF	$12.00	$509,712
Elevator	1	LS	$102,500	$102,500
Parking, Light Duty Asphalt	8,502	SY	$30.00	$255,060
Parking, Heavy Duty Asphalt	2,850	SY	$42.00	$119,700
Site Grading and Erosion Control	13,977	SY	$4.00	$55,908
Landscape	2,625	SY	$16.00	$42,000
Sprinkler System	1		$ 1,200,000	$1,200,000
Roof/Guttering	200,000		$ 7.00	$1,400,000
Site work Sub-total				$5,417,548
Tenant Area Upfits				
Food Preparation / Kitchen Area	37,201	SF	$152.00	$5,654,552
Office Area	42,476	SF	$96.00	$4,077,696
Open-Air Retail Area	41,000	SF	$79.00	$3,239,000
Manufacturing	74,681	SF	$72.00	$5,377,032
Art Studio	16,760	SF	$72.00	$1,206,720
Common Access Areas/Restrooms	21,238	SF	$55.00	$1,168,090
Tenant Space Sub-total				$20,723,090
Construction Sub-total				$26,140,638
Design / Soft Costs /GC Fee				
Design/Soft /GC Cost Sub-total				$4,725,315
Contingency			15%	$4,629,893
Project Total				$35,495,845

Table 2
Steel House Renovation
Lease Rate and Break-Even Estimate

Tenant Area Lease Rates	Unit		Unit Rate	Yearly Income	=> Monthly Income*
Food Preparation/Kitchen Area	37,201	SF/YR	$16.00	$595,216	$49,601
Office Area	42,476	SF/YR	$21.00	$891,996	$74,333
Open-Air Retail Area	41,000	SF/YR	$14.00	$574,000	$47,833
Manufacturing	74,681	SF/YR	$6.50	$485,427	$40,452
Art Studio	16,760	SF/YR	$10.00	$167,600	$13,967
Common Access Areas/Restrooms	21,238	SF/YR	$0.00	$0	$0
Sub-total	233,356			$2,714,239	$226,187

*Assume a straight line break down from yearly income to monthly income

Break-Even Analysis

Assume a monthly cost for utilities, cleaning, and maintenance = $15,000 / month

Assume the Steel House can maintain a 80% leased rate

$$BEP = FC / (R - VC) = \frac{\$35,495,845}{(80\% \times \$226,187) - \$15,000} = 213.90 \text{ months}$$

or

17.82 years

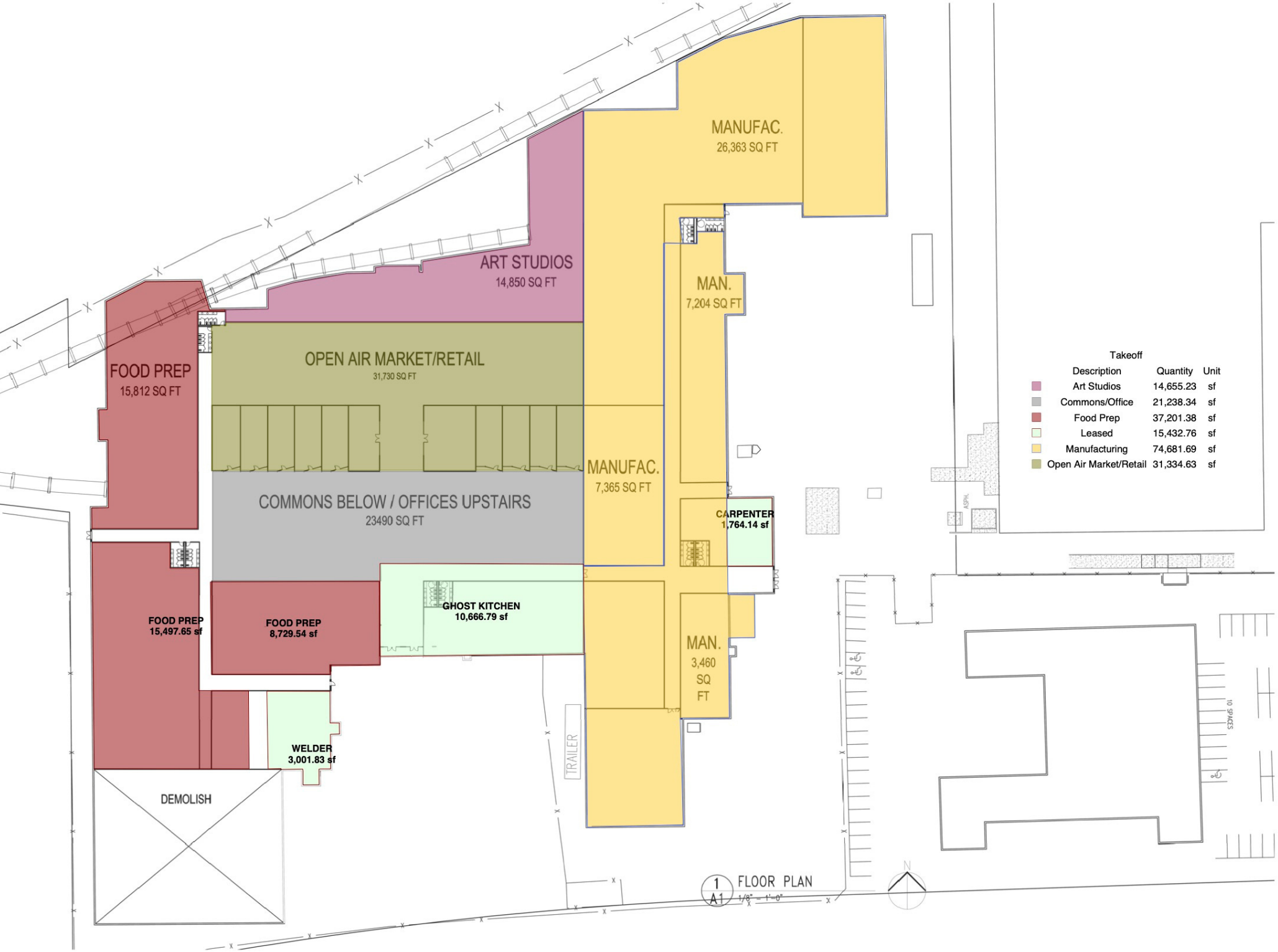
*Does not account for construction loan interest rates

Break-Even Occupancy Ratio

Used to determine the minimum occupancy rate to break even

	Annual Figures	
Construction Loan Rate (i) =	5%	
Debt Servicing (D) =	$354,958	Based on 30-yr loan at above rate for 10% of project cost
Operation Costs (VC) =	$180,000	Assumed for utilities, maintenance and management
Revenue (R) =	$2,714,239	

Ratio = (D + VC) / R = 0.20 occupancy required to Break-even


MANUFAC.
26,363 SQ FT
ART STUDIOS
14,850 SQ FT
MAN.
7,204 SQ FT
FOOD PREP
15,812 SQ FT
OPEN AIR MARKET/RETAIL
31,730 SQ FT
MANUFAC.
7,365 SQ FT
COMMONS BELOW / OFFICES UPSTAIRS
23490 SQ FT
CARPENTER
1,764.14 sf
FOOD PREP
15,497.65 sf
FOOD PREP
8,729.54 sf
GHOST KITCHEN
10,666.79 sf
MAN.
3,460
SQ
FT
WELDER
3,001.83 sf
TRAILER
DEMOLISH
1
A1
FLOOR PLAN
1/8" = 1'-0"
N
ASPH.
10 SPACES
Takeoff
Description Quantity Unit
Art Studios 14,655.23 sf
Commons/Office 21,238.34 sf
Food Prep 37,201.38 sf
Leased 15,432.76 sf
Manufacturing 74,681.69 sf
Open Air Market/Retail 31,334.63 sf

NEED TO HAVE SHOWN AS A02, PARKING RELOS
NEED PLANS TO OBTAIN QUOTES
UP ABOVE PROJECT
UP AS A BAY DEVELOPMENT / MAYTIME

PHASE II
MANU FACTURING

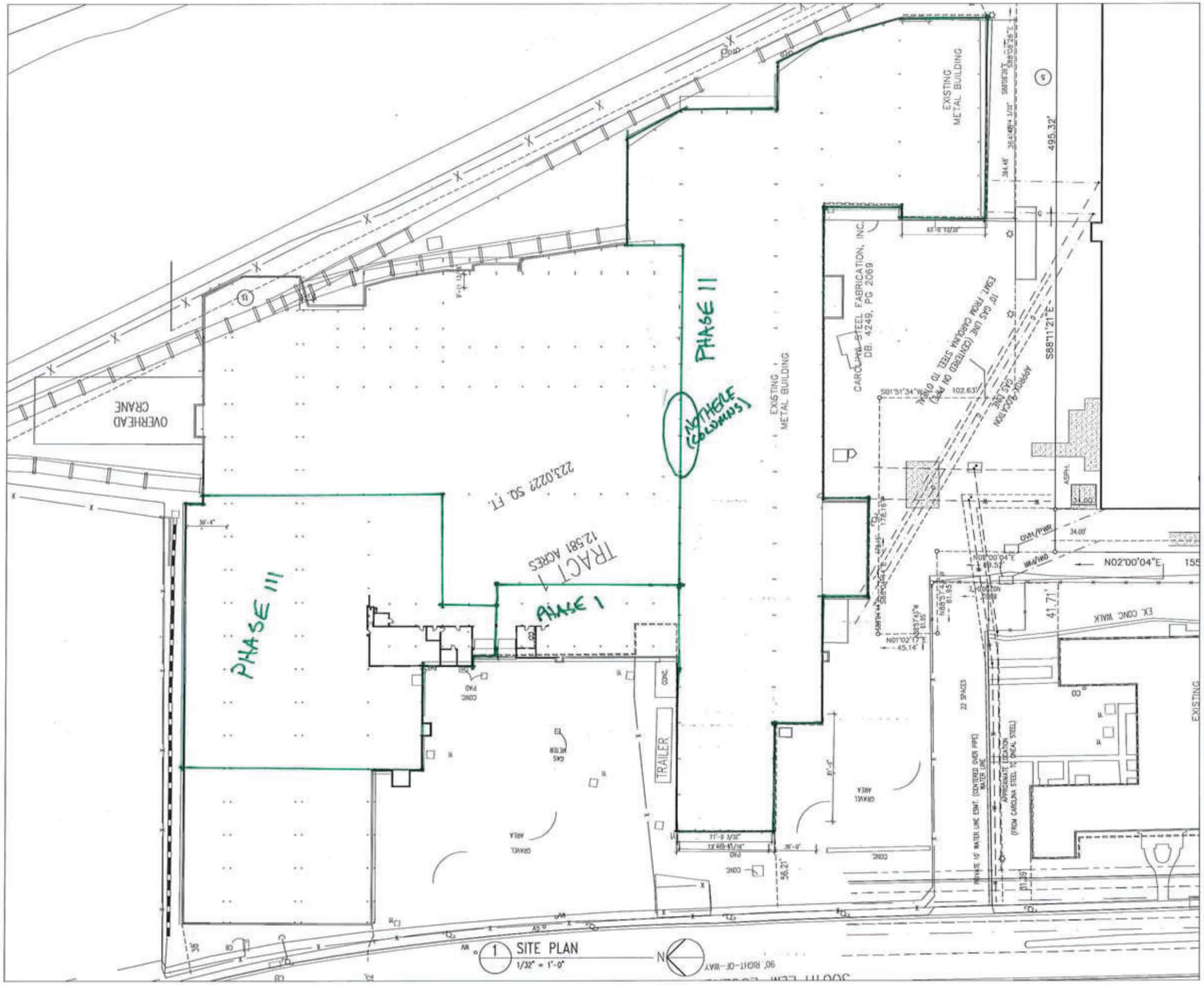
78,500 SF

DATA SKETCHES.
SPACE PLANNING
BUILDING/DOOR LABELING TO HELP ORGANIZE
POSSIBLE BOX CAR LOADING OFF BACK

EXTERIOR WALLS
ROOF
FIRE SUPPRESSION
ROLL UP DOORS
BATHROOMS.
CONDITIONED/HVAC
PARKING - SHORT / LONG TERM

73,400 SF BUILDING RENOVATION
1431 S. Elm-Eugene St., Greensboro, NC

NEED TO HAVE THE LOADING DOCK AVAILABLE TO ENTIRE BUILDING POSSIBLY THROUGH ROLL UP DOOR OR WHAT.



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STEEL HOUSE RENOVATIONS

1449 S. ELM EUGENE ST., GREENSBORO, NC 27406

PROJECT No.:	15102
DRAWN BY:	
DATE:	JAN. 5,2015
REVISIONS:	
SHEET TITLE	
SHEET No.	C-1

APRIL 8,