

Urban healthcare

Kevin Moore¹, Christian Dagg¹

¹Auburn University, Auburn, AL

ABSTRACT: Healthcare facilities have the potential to be active urban centers. They can be the generators of urban density and collect new forms of public space within their gravity, offering themselves up to the public as a new type of civic building. In 2013, students and faculty working in an undergraduate design studio developed schemes for an urban healthcare facility to be located in Birmingham, AL. In the past ten years, this city has dramatically reshaped its downtown by reclaiming industrial property as venues for recreation, exercise and sporting events. Medical facilities have a major influence in this rapidly changing district, and they act as catalysts for attracting other facilities and services. Here, the unique potential of an ongoing downtown revitalization at the edge of an influential medical district guides a specific intersection of design and health.

The studio proposed a “Super Clinic,” not a hospital but a new type of facility that anticipates important changes in our current healthcare system. Developed with input from a healthcare architect, the program addresses equitable access to healthcare. While developing options for this new typology, invited practitioners helped students adjust projects to practical constraints such as programmatic appropriateness, code compliance and structural efficiency. Case studies were assembled and adapted to Birmingham, and the results help position the multi-specialist clinic as an increasingly important civic institution. Because scales range from civic exteriors to individual exam rooms, the Super Clinic suggests numerous urban responses from street walls to civic courtyards to separate pavilions. More than 50 students participated in this studio, and the range of proposals can be categorized into nine types that are inherently mixed-use. Broadly categorized, the proposals prove a range of practical and suggestive options for urban healthcare.

KEYWORDS: Architecture, Healthcare, Mixed-use, Urban Design

INTRODUCTION

In the past 10 years, Birmingham—“The Magic City”—has begun a dramatic renaissance. Simultaneously an abandoned industrial city and a vital economic center, Birmingham is actively reshaping its downtown core. Medical facilities are a major economic influence in the rapidly changing south side, with Children’s Hospital and the University of Alabama Birmingham (UAB) School of Medicine acting as catalysts for attracting other facilities and services. Railroad Reservation Park and Regions Field—the Barons Baseball Stadium—are wildly successful new attractions. This combination of activities, healthcare and public recreation is a positive revitalization tool. A drastic remaking of the district is now possible. Originally home to warehouses and distribution centers, the area is transforming into a mixed-use neighborhood connecting UAB to downtown. Developers have broken ground on housing, and although they have resisted adding commercial or retail, the first grocery store in the area is scheduled to begin construction within the year. With large tracts of land owned by UAB and Children’s Hospital, healthcare could add an additional mixed-use component to the district. Traditionally understood as hermetic building types, inpatient and outpatient facilities can be reconceived as models for mixed-use, some supporting 24-hour activity.

The Urban Healthcare studio was run as a 20-week comprehensive design course in Fall 2013 and Spring 2014 amidst significant changes to healthcare in Birmingham. First, the federal Patient Protection and Affordable Care Act began initial enrollment in October 2013. In January of that year, however, Jefferson County reduced services at Cooper Green Mercy Hospital, a locally subsidized full service hospital for the poor and near-poor. As a result, 35,000 patients were left without primary care. Dr. Max Michael, Dean of the UAB School of Public Health, explained the significance to students:

You’ve got a major revolution in healthcare access [and] health insurance coverage in this country that is taking place [and] that will take place throughout, I suspect, most of your careers, and you’ve got a county that reflects exactly the kinds of things that are going on in this country—no resources, small tax base...and yet you’ve got to provide care for people.

As Dr. Michael suggests, primary care is increasingly a public health and civil rights issue. The Super Clinic was proposed in this context. We asked students to become optimistic about the ways in which the Affordable Care act will influence the design of healthcare facilities by extending the types of preventative services offered and increasing the scope of citizens with access to healthcare. The consensus is that we

are witnessing a healthcare revolution. Although the long-term implications for architecture are unclear, Birmingham is an excellent case for urban healthcare. The proposed Super Clinic adds mixed-use program on nine potential sites (Figure 1), and the choice of sites required students to analyze the district and connect healthcare architecture to a wider discussion of civic health.

Although speculative, the studio was carefully developed to anticipate practical considerations. With funding from the NCARB Prize, professionals from several overlapping fields including architecture, landscape architecture, engineering, evidence-based design and public health participated in the studio through lectures and workshops. The program was developed by Patrick Davis, FAIA, a professional healthcare architect with over 40 years of experience. The workshops helped students adjust projects to practical constraints such as floor area efficiency and travel distances for staff. Design choices were also based on current evidence-based design standards. Invited practitioners assured student work met fundamental requirements of life safety code, structural efficiency and building envelope performance. These professional standards add legitimacy to the range of options developed for the Super Clinic.

Integrating technical constraints into a studio dedicated to urban architecture is a particular pedagogical model. Cities are intensely collective endeavors, and the studio embraced the complexity of competing technical and cultural demands. As a hybrid type, healthcare also defies traditional urban models such as public institutions or housing. The Super Clinic, then, was proposed as an inclusive problem but focused on the anticipated need for multi-specialist clinics. In developing the studio, our invited practitioners encouraged us to include healthcare professionals and registered planners and landscape architects. All of these professions are committed to health, safety and welfare, and their combined impact can be understood in terms of civic health. We needed little convincing. The pedagogical goals, however, expanded the scope of the research. In studio, vibrant cities were discussed as integrated networks of people and infrastructure rather than accumulations of self-contained buildings.

In this case, Birmingham was investigated as a city defined by mixed-use, a city defined by landscape and a city defined by buildings. Students were challenged to develop an architectural response to urban healthcare, and case studies were carefully curated and adjusted to specific sites in Birmingham. More than 50 students participated in this studio, and the range of proposals can be categorized into nine types that are inherently mixed-use. Broadly categorized, the proposals prove a range of practical and suggestive options for urban healthcare

1.0 RESPONSE TO THE CITY

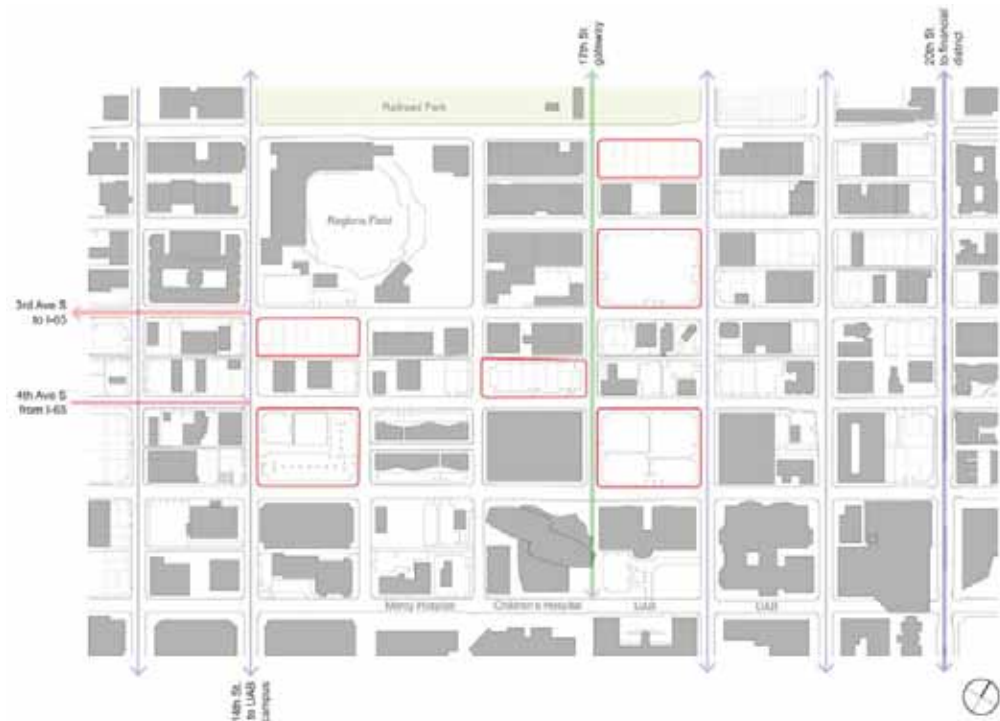


Figure 1: The Parkside district features a hierarchy of streets and avenues, forming a “weave” connecting the University of Alabama Birmingham (UAB) to the financial district. Nine potential 140’ x 400’ half block sites are denoted in red.

1.1. City defined by mixed-use

Developed as an industrial city, the center of Birmingham is a regular grid of large blocks (300' x 400') aligned to the southwest-northeast topography of Jones Valley. A major railroad corridor bisects downtown into a financial district to the north and warehouse district to the south. The studio compared a 40-block area (1/2 mile x 1/2 mile) of the warehouse district to other urban centers. The blocks compare to the residential courtyard blocks of the French Quarter in New Orleans (330' x 330') or Cerdà's Eixample in Barcelona (380' x 380'). They also compare to the large commercial blocks of River North in Chicago (220' x 300') or the Tenderloin in San Francisco (275' x 410'). In this case, the large blocks are an asset; they open options for a mix of courtyard residential, large commercial and healthcare. UAB and Children's Hospital have collected property into large full and half-block parcels. As a result, the future grain of the district will likely be coarse as opposed to the original 25' wide parcels. As steel production moved from Birmingham and the central core was systematically erased or abandoned following the 1963 civil rights events, surface parking and undefined open space overtook the neighborhood. The recent completion of Regions Field and the iconic Benjamin Russell Hospital for Children, however, points to a civic dimension anchored by healthcare and entertainment.

Surprisingly, the sparse district is clearly defined. I-65 creates a largely impenetrable western edge, and 20th street, the historic north-south boulevard, is a clear but porous edge to the east. UAB and its medical center form the southern edge of downtown at the base of the Red Mountain. The bulk of the hospitals reinforces the mountain ridge in the background; it sets a clear visual boundary from long distances. Likewise, the raised railroad corridor is an unmistakable boundary to the north. The newly opened Railroad Park, a 30-acre public park designed by Tom Leader Studio, has transformed this industrial edge into a popular destination. Anchored by Railroad Park and the UAB hospitals, the area, now named Parkside, is understandable as a distinct "imageable" district (Lynch 1960).

The streets are clearly differentiated by traffic use (Figure 1). East-west avenues, especially those that connect to I-65, carry heavy traffic. They are poised for commercial activities in sections of their 400' length. North-south streets, on the other hand, typically terminate at UAB, Railroad Park or the newly opened Regions Field. These quieter 300' blocks are favorable for walkable residential streets. East-west alleys, although slowly disappearing, reinforce this stressed grid. If maintained, the original alleys can collect trash, loading, parking and additional stormwater and limit the grain of the district to 140' x 400' half-blocks. Most importantly, Parkside is the connection between the financial district and UAB. The streets of the district form a "weave" (or zig-zag) between these established nodes.

1.2. City defined by landscape

Although the neighborhood is "imageable," it is also productively open-ended. The large blocks accommodate light industrial, commercial and residential. The streets and avenues—an 80 foot right of way—are generous but not extravagant. In anticipation of the Super Clinic, students developed district plans to expand the increasingly active streetscape. Options developed by students prove tantalizing possibilities within limits. For example, sidewalk cafes, bicycle lanes, stormwater retention, street trees, parking and three lanes of existing traffic are all options but simply do not fit in a single right of way (Fig. 2).

Reconfiguring streets is often impossible, but the Children's Hospital and UAB are exerting their influence. The 17th Street Redevelopment is an example of a streetscape that will transform loading for warehouses into a walkable mixed-use corridor. This corridor connects Railroad Park to Children's Hospital and its properties along 17th Street, "establishing civic identity, and attracting new business developments, patrons and public activity" (Giattina Aycok 2009, 44). Driving and parking lanes are narrowed to extend sidewalks and accommodate street trees including an allée to the east (Fig. 2). Conceived as a "gateway" to Railroad Park, the streetscape continues the aesthetic tradition of European and American "great streets" (Jacobs 1993). Buildings are traditional background: "buildings maintain a consistent edge at property lines" with "awnings to provide pedestrian scale and cover" (Giattina Aycok 2009, 44).



Figure 2: 17th Street Redevelopment and sample streetscapes developed by students. Controlling multiple full and half block parcels in the district, the University of Alabama Birmingham (UAB) and Children's Hospital have begun to transform select streets from loading for warehouses to walkable mixed-use corridors.

1.3. City defined by buildings

With clear edges and paths, what is missing in the district is activity structured by buildings. In this case, healthcare provides a practical model for mixed-use infill. However, if large blocks limit social and economic diversity, large parcels exacerbate this condition (Jacobs 1961, 179-186). This has been the traditional complaint of medical districts: big buildings on bigger blocks. This is true in Birmingham, but the hospitals are limited to a perceivable edge. In Parkside, however, the high percentage of open space also means the district is spectacularly permeable. Glimpses of distant infrastructural and landscape edges persist throughout. The existing quality of the neighborhood is fascinating enough to resist a return to a traditional urban wall defined by consistent facades. Students discovered this nuance as they assembled case studies and tested them as options for a new “Super Clinic.”

2.0 RESPONSE TO THE PROGRAM

2.1. Healthcare case studies

The Super Clinic is a 133,000 square feet hybrid program including primary ambulatory care, mental health, medical oncology, public education and 50 skilled nursing rooms. The program assumes an increase in the number of newly insured patients, an increase in preventative education and an increase in procedures that do not require a physician’s attention. The combination of outpatient care, public space and long-term skilled nursing is an exemplary vehicle to evaluate primary objectives for urban architecture including the conflicting pressures of collective and individual access and identity. The goal was to connect the design of a healthcare building to a wider discussion of civic health including downtown revitalization and walkable mixed-use neighborhoods. Students were encouraged to conceive of the clinic as a civic endeavor—a well executed piece of urban architecture that provides public amenities as well as a physical and spatial urban presence.

In developing the Super Clinic, the studio assembled pertinent case studies. Case studies including floor plans are now widely published. *Architectural Record*, for example, publishes a yearly “Building Types Study” on healthcare (“Building Types Study” 2013). Several recent books including *Innovations in Hospital Architecture* by Stephen Verderber also rely on the case study method (Verderber 2010). These publications present a range of options for hospitals that are also intriguing urban and civic models. Clinics are underrepresented in the literature, and a significant outcome of the studio is the development of options for multi-specialist clinics based on published hospital case studies.

The case studies can be broadly categorized by corridor type and room type. Single and double-loaded housing types have been adapted for hospitals, especially in Europe. The “looped corridor,” with an island of internal support spaces, is more typical in North America. While limiting daylighting, looped corridors increase floor area efficiency, segregate public and services corridors, remove dead-end corridors and optimize nurse to patient interaction. Recent evidence-based design has focused on the patient room, and several practical options have emerged. Toilet rooms can be located on the exterior—“outboard”—or on the corridor—“inboard”—balancing visibility for medical staff with privacy for patients and families. Patient rooms can be “mirrored” to consolidate plumbing or “same-handed” in an attempt to reduce staff errors (Cahnman 2010). These options—looped, single and double-loaded corridors and inboard, outboard, mirrored and same-handed rooms—are identified for each case study (Fig. 3).

Less evidence exists to guide schematic decisions for clinics and skilled nursing; research dollars have simply not focused on these problems. However, the Mayo Clinic Center for Innovation recently developed a “Jack and Jill” clinic room to separate the exam space from the conversation space without significant changes to spatial layout (Mayo Clinic 2013). Designed for quick, efficient visits, most clinics rely on large lease spans with internal rooms. Daylighting is reserved for lobbies and waiting areas. Our invited expert on evidence-based design, Dr. Sheila Bosch, stressed the importance of an inspiring healthcare facility for patients, families and staff. For Dr. Bosch, the creation of captivating places is a professional obligation despite inconclusive scientific evidence of direct palliative benefits. Options for thoughtful healthcare architecture were guided by carefully curated case studies that represent a range of evidence-based design standards. Many case studies also add an engaging variety to the city through porous boundaries including courtyards, gardens, porches and partly defined open spaces. These strategies were redeployed by students to propose the Super Clinic as an active mixed-use urban building.

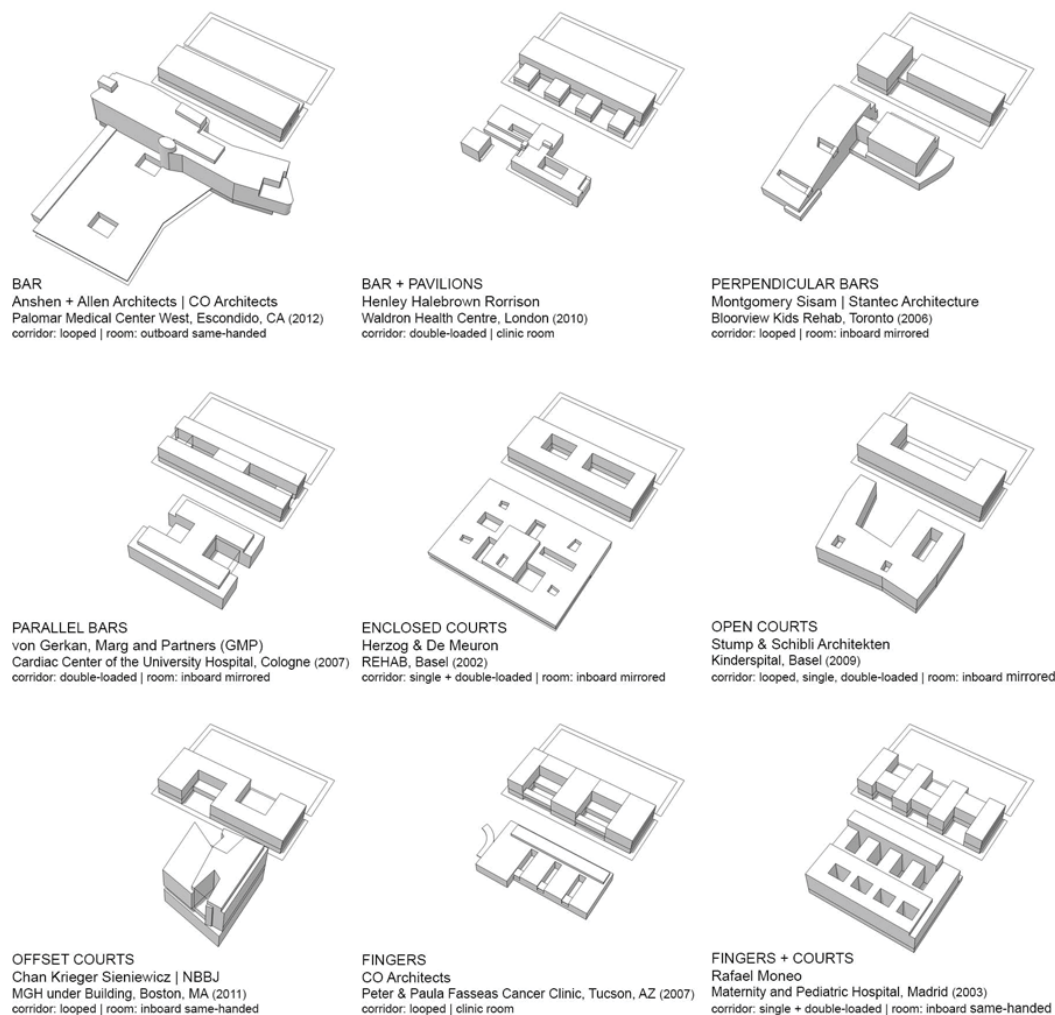


Figure 3: Healthcare case studies and Birmingham “Super Clinic” types as developed by students. Over 50 projects can each be described as one of these types, proving a range of options for healthcare as mixed-use urban buildings.

2.2. Super clinic types

The projects developed by students prove the case studies—mostly hospitals—can be adapted as a clinic for a Birmingham city block—specifically a 140' x 400' half block (Fig. 3). Students developed schemes with the help of architect practitioners integrated into the curriculum. Workshops assured student work met fundamental requirements of life safety code, structural efficiency and building envelope performance.

If a new type, the Super Clinic is amazingly familiar. Skilled nursing rooms can be arranged similarly to hospital patient rooms. Some arrangements are not dissimilar to housing, especially single and double-loaded corridors types that significantly reduce the percentage of internal rooms. Clinics are similar to procedural and diagnostic departments in hospitals. More efficient on large floorplates, clinics are also similar to a typical office lease span. On a 140' x 400' half block, floorplates are productively limited. Although the case studies vary in size, the clinic options developed by students prove they can be adjusted to anticipate compact urban healthcare. Most importantly, there is not a single way to occupy the block but a number of suggestive types.

With a range of practical options, the program of clinic and skilled nursing does not determine an urban response; it is a negotiation between the two. In this case, the urban and civic dimension is at least as important as programmatic imperatives. Potential activity in the city informed the public interiors and demanded careful access to private outpatient clinics and skilled nursing rooms. In many cases,

architectural organization promoted interaction between the street and the interior (Fig. 5). The adjusted types also outline options for public space—from porches and atriums to squares and courtyards—suggesting healthcare should be civic structures engaged with the city.

The range of options proves a Super Clinic is good model for mixed-use and suggests unique combinations of housing, assisted living, clinic and office. If one were to design a healthcare district from the ground up, this would be a potential model: the district is imageable but open-ended, and a range of options for streetscapes and buildings are possible within productive limits. A major hurdle facing Parkside is an almost pathological need for structured and surface parking. Luckily, a 140' x 400' half block seamlessly fits parking. More provocatively, each type can accommodate parking if limited to a 60' wide flat deck with a 20' speed ramp.

Birmingham is emerging from huge changes in industrial production and racial demographics. Its fragments are haunting and compelling. In this context, the studio tested concepts of civic health as an urban experience. The studio developed a range of types—options for conceiving of civic healthcare and permeable mixed use—as a series of guidelines for future development. This research may have agency in the future of Birmingham.



Figure 4: BAR + PAVILIONS Super Clinic type developed by student Michael Lewandowski.



Figure 5: FINGERS Super Clinic type developed by student Maggie Scott.

CONCLUSION

Stan Allen provocatively suggests:

Architects seem condemned to work on the surface of the city and not its structure. This is a situation that is historically determined and unlikely to change significantly as a result of anything that the architectural profession does. But it can also be argued that architects have yet to examine the consequences of this shift. If architecture has lost its historic capacity to fix and determine the limits of urban space and territory, are architects left to work exclusively with images? (Allen 2009, 59).

Working on the surface of the city, two positions for architecture have emerged. First, surface is not superficial. In case studies such as Kinderspital Basel and the Waldron in London, graphic building envelopes invite the public to engage fast but surprising effects such as extracted holes, saturated monotone materials and “precise but vague silhouettes” (Somol 2007, 34-35). These graphic shifts in scale happily camouflage a 400’ facade into the city. Second, buildings still structure urban space, but most profoundly as a local social geography. The coarse grain of Parkside demands that buildings adjust an immediate social landscape rather than propose entirely new urban forms.

Although adjusting case studies to prove options is a traditional studio method, the choices range across these debates in architecture. This research demonstrates the urban design and presence of healthcare facilities is at least as important as programmatic organization. Typically understood as anti-urban, these building types are now more important than ever in the economic and physical health of the city. The results of the studio are more mixed-use urban buildings than programmatic systems. Because of the site specificity of architectural practice, this studio is inseparable from the location of the work, in this case Birmingham, AL. An important achieved outcome of the studio is that it has produced potential guidelines for future development in the center of this city, which include a range of options for occupying the open, abandoned city blocks. It is important to understand that buildings establish both urban and aesthetic presence as well as programmatic opportunities. The Super Clinic is optimistic about the anticipated need for multi-specialist clinics and their role as mixed-use urban buildings. An alternate prediction is that healthcare will be distributed and miniaturized through technology, requiring smaller buildings and storefronts. In either case, healthcare is a civic health and civil rights issue intimately involved in the life of any city.

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