

# Surgery Expansion Phase 1

## Children's National Medical Center

111 Michigan Avenue, NW • Washington, DC 20010

Andrea Klein • Construction Management • Advised By Dr. Messner

## Project Overview

### Surgery Expansion Phase 1

#### Client Information

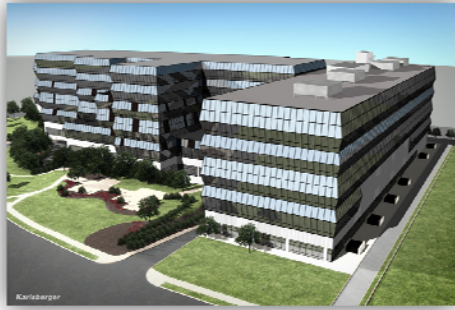
The Surgery Expansion Phase 1 project is an elemental piece of the grand plan for Children's National Medical Center (CNMC). With newer technologies and treatments being discovered, CNMC wants to be able to provide the best services from the best doctors. This renovation is not only a much needed update of older facilities, but also an expansion of capacity for a growing population. The two new operating rooms and support areas are accommodated by the new east addition patient center currently in the final stages of construction.

Cost concerns for this project are few, as the goal is to build top-of-the-line facilities with the best technology available. High quality is the main priority with cost following as a secondary issue. The schedule for this project the second major concern, as the ten (10) month schedule was pushed back repeatedly due to hazardous materials in the original construction. With the newest schedule recently provided, it will be both extremely important and difficult to maintain the schedule and finish the project on time.

Safety concerns for the project lie primarily with infection control and working within an occupied space. There is no exterior staging area so all the work must be performed within the building perimeter, and under the cleanest of conditions. Special considerations and procedures are already in place to prevent the infiltration of dust to the rest of the building, and to maintain a clean work site. Workers have distinct travel paths and operating procedures. To create a limited impact on the surrounding areas specific working hours have been arranged and any major shut-downs for tie-ins to the mechanical system will be performed during night hours.

Noise contamination is a large concern for this project as well. Some departments close to the construction include the Critical Intensive Care Unit (CICU) and the Neonatal Intensive Care Unit (NICU). Special demolition and installation procedures have been outlined in the contract to keep noise and vibration to a minimum in these areas.

The phases of the project are designed to reduce the congestion within the occupied hospital during construction. Phase 1A consists of two new operating rooms, locker rooms, and offices and supply areas to support the surgical staff. It also includes the fit-out and renovation of the new decontamination building to achieve occupancy. Phase 1B is the renovation of the on-call nurse's station, registration and reception areas, and waiting areas for the new surgical suites.



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### Project Locale

To limit the impact of construction on the hospital the surgery expansion project was split into two phases: 1A, 1B. Phase 1A includes the majority of square footage with the offices being converted to operating and locker rooms, and the decontamination building. Phase 1B contains the renovations being made to the on-call, reception and registration, and waiting areas designated on the second floor. The demolition for both phases will be completed at the same time to limit the hospital's exposure to dirt and dust. Please see **Figure B.1** for the phasing plan and **Table A.1** for more information on the square footage.

Figure B.1: Key Plan

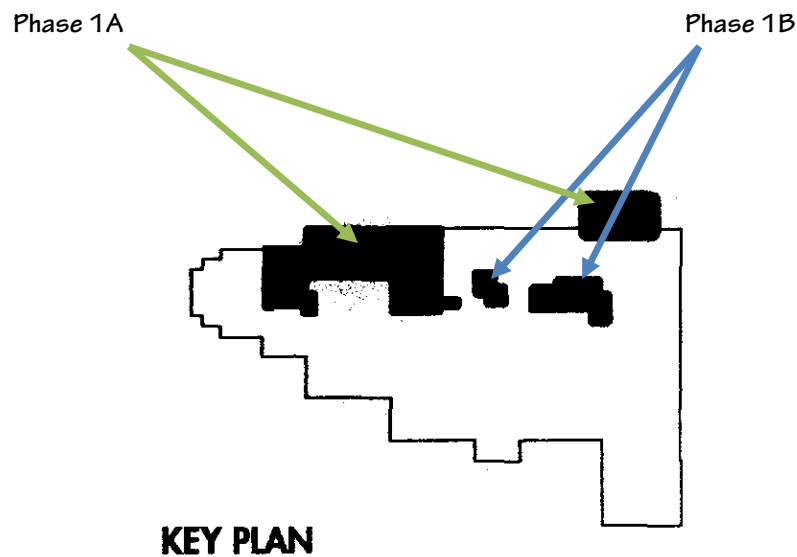
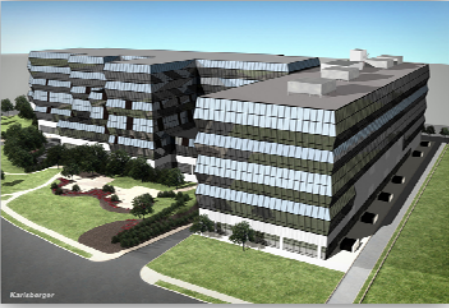


Table A.1: Project Details

Floor	Square Footage	Height
1.5	77,200	7'-7"
2	45,312	14'-0"
2.5	77,200	7'-7"



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### Demolition

Due to the nature of this project as a renovation in an occupied space, demolition is a special issue. The materials being removed include but are not limited to drywall, finished floors, electrical conduit and panels, telecommunications installations, framework, and mechanical systems elements. A separate contractor was hired for demolition of the general elements, and each specialty contractor is responsible for demolition of materials within their respective bid package. Part of the demolition is to cut, cap and make safe any electrical wiring.

Prior to construction, testing was performed and asbestos was found in the building, which was originally built in the 1970s. The owner was responsible for hiring a certified contractor for abatement before the rest of the demolition and construction could commence.

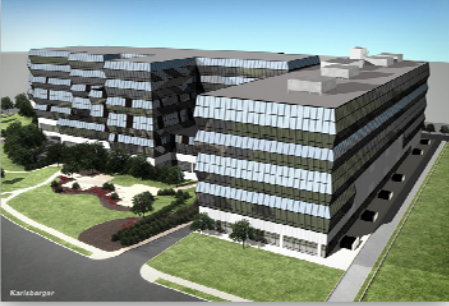
### New Mechanical Work

A large portion of the project is updated the mechanical systems to meet the requirements of operating rooms. The mechanical renovations for the surgery expansion project required the demolition and removal of all duct work, air devices, dampers, valves, fittings, hangers, insulation and piping unless noted. The contractor will cut, cap and make safe at the level of the metal decking any penetrations no longer in use. Most existing thermostats and connections are to be removed as well. The hot and chilled water lines, low pressure steam and medical gas lines are also being removed. Four air-conditioning units are being removed, and replacement for the nitrous oxide manifold is being considered.

All necessary duct work and piping required for the new layout will be installed. A new medium pressure steam line will be installed for sterilization purposes. Special focus will be on the installation of the new air-handling unit custom designed to for the decontamination area. The new unit has a maximum capacity of 17,000 CFM, but it is designed for future use, and will be operating at a maximum capacity of 8,500 CFM at occupancy. Four other new modular air-handling units will be installed for the surgical suites and the support areas.

### Local Conditions

**Parking** – Parking for construction on this site is difficult. No contractor vehicles are allowed to park in the garage below the building, and may park in the lay-down areas with permission from the GC. All contractors are encouraged to bring employees to site in large passenger vans, which there are spaces to park on most occasions. If any separate vehicles need parking, including the GC staff, there is a



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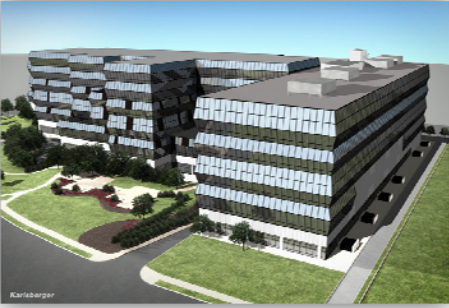
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public garage located adjacent to the Washington Hospital Center one block north. These garages have daily fees, but are usually reimbursable. Alternate metered parking is also located on First Street, NW between Michigan Avenue, NW and Channing Street.

**Recycling** –The materials recycled from site are glass, metal and wood. Each material is placed in a separate dumpster, and tipping fees depend on the amount of material being removed. Typically a thirty (30) yard dumpster costs \$440 dollars plus fuel and DC tax which is 5.74%. One company is paid to provide this service and is called one (1) day prior to date of dumpster replacement.

### *Project Schedule*

The detailed project schedule is supplied in **Appendix A**. The construction was originally scheduled from April 2007 to December 2007. Due to the asbestos found and the requisite abatement the schedule was adjusted to begin in October 2007 to September 2008.



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### Project Estimates

**\*\*Note: All cost/square foot calculations use the square foot measurement from Level 2 ONLY.\*\***

### Actual Building Construction Cost

Construction Cost (CC) = **\$8,425,866**

Construction Cost/Square Foot (CC/SF) = \$185.95/sf

**\*\*Note: This does not include permitting and asbestos abatement costs.\*\***

### Total Project Cost

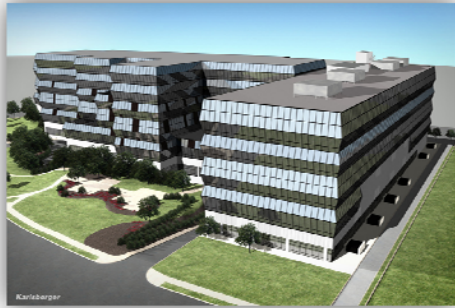
Total Cost (TC) = **\$10,200,215**

Total Cost/Square Foot (TC/SF) = \$225.11/sf

**\*Note: TC=CC+ overhead +fee + contingency + profit.\***

### Building Systems Cost

- Mechanical & Plumbing = **\$3,165,325**  
Cost/sf = \$69.86/sf
- Interior Finishes = **\$1,043,463**  
Cost/sf = \$23.03/sf
- Electrical = **\$2,223,262**  
Cost/sf = \$49.07/sf
- Fire Protection & Spray Fireproofing = **\$395,202**  
Cost/sf = \$8.72/sf
- Structural and Miscellaneous Metals = **\$127,641**  
Cost/sf = \$2.82/sf
- Demolition and Temporary Partitions = **\$298,046**  
Cost/sf = \$6.58/sf



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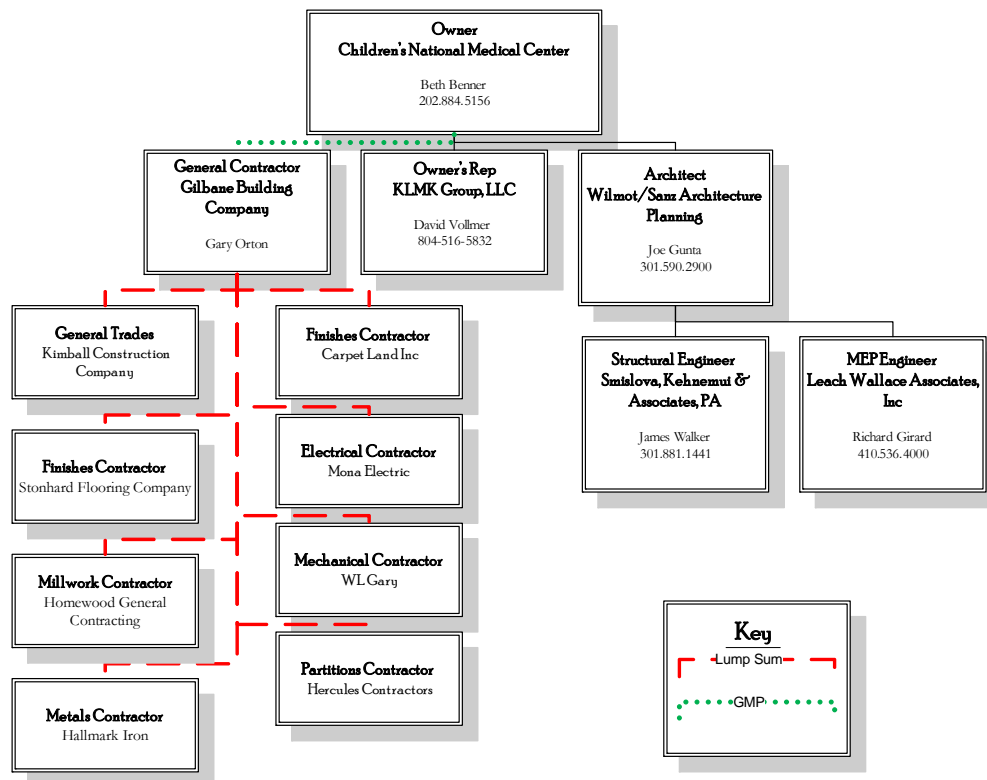
### Project Delivery System

The surgery expansion project is a design-bid-build delivery method. Gilbane put in a bid to Children's National Medical Center and was awarded the project in the spring of 2007. Negotiations for a GMP contract commenced, while Gilbane bid the thirteen (13) various packages to trade contractors. All of the contracts with trade contractors are lump sum contracts. Children's National Medical Center has an owner's representative of KLMK Group, LLC, specializing in hospital construction, to oversee all of its projects. Prior to construction asbestos was discovered, and the hospital holds a separate contract for the abatement process not shown on the following chart, **Figure C.1**

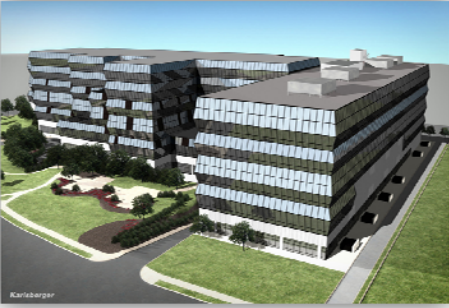
Figure C.1: Contracts Chart

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### Staffing Plan

The staffing situation on the surgery expansion project is unique. Gilbane Building Company currently has two projects underway at Children's National Medical Center. Both projects share the exact same staff except for the Assistant Superintendent. The temporary offices are located within the available shell space in the hospital, making it easy for the project staff to oversee the construction. No work is self-performed by Gilbane. Please see **Figure D.1** below for the staff organization.

Figure D.1: Staffing Organization Chart

## Gilbane Building Company

### Staffing Plan

#### CNMC Surgery Expansion Project Phase 1

