

Research Crescent Informatics Building Studies





Research Crescent Informatics Building



ALABAMA AT BIRMINGHAM

Research Crescent Informatics Building





Research Crescent Informatics Building





Example of Multidisciplinary Building Stanford University

- Lots of Windows
- Open Atriums
- Glass banisters
- Easy viewing one area to another
- Design Encourages collaboration
- Close tie of inside to outside





Example of Multi-Disciplinary Building Georgia Tech and Rice University



Whitaker Hall Georgia Tech Duncan Hall Rice University





Scope Summary

- Fund SourcesPlant FundsIndirects from Research FundsGiftsFederal GrantsLease of Retail Space
- *Parking* Needs 167 parking spaces
- Size 2 Stories @ 15,000 GSF/Floor Data Center 30,000 GSF 6 Stories @ 16,300 GSF/Floor 97,800 GSF 127,800 GSF Total Cost \$24.5 million \$250/GSF Office x 97.800 GSF \$500/GSF Data Center x 30.000 GSF \$15.0 million Develop part of Piazza 18th St \$ 7.0 million Vacate and Develop 9th Ave Piazza \$10.0 million Total \$56.5 million
- **Spatial Opportunities:** Prime Frontage retail corner towards 18th St Piazza Secondary prime frontage corner towards 9th Ave Favorable views towards South to Vulcan Monument Urban lively views towards North and East



Scope Summary

Possible Programs	Included Infe Co Vir Glo Da Leo Re	ormatics Studies Various Topics/Subjects mputer Science Research tual Environments Research obal Studies Archaeology Research ta Center cture and Seminar Spaces, Interactive Spaces tail Lease Spaces – Coffee Shop
Security Levels	High =	Archaeology (NASA, DOD) Computer Science (FBI, CIA, Treasury) Virtual Environments (Various)
	Medium =	Informatics Various Types
	None =	Explorative Interactive Space Shared Lecture Seminar Retail Leases/Lounges
Secondary Impacts	Relocat Underg Relocat Build 18	e/Demo 912 Building (Public Health & Archaeology round Utilities 9 th Ave and 18 th Street e/Demo Nursing Subterranean Deck Parking 8 th Street Deck to serve the Research Crescent area





Informatics Research Building Scope Summary

Collaborative research space at an expanded level compared to UBOB

Secure Research Computer Labs and Spaces (but not classified) including ITAR work

A 1.5K-2K SF secure machine room keyed to high assurance storage and networks (raised floor, racks, heating, cooling, power)

Secure space for locking down data

A secure space - SCIF of 1K-1.5K square feet, depending on cost

Conference rooms for meeting and remote meetings Offices for Director, Associate Director and staff

Shared Classroom with tiered floors for Seminars Shared Classrooms for training (not schedule 25)



"Data Sciences Building" Ideas

Building Construction

- Build a shell that allows maximum design flexibility internally
- Internal structures should be easily reconfigurable
- Goals
 - Reduce the limitations that permanent structures have on internal design and configuration
 - Internal space should be as malleable as possible to support changing needs
 - Maximize opportunities for collaboration



"Data Sciences Building" Ideas

Physical characteristics

- Collaborative and integrative space with open feel is essential
 - One potential solution is to organize floors in groups of 2 with an open mezzanine between the two floors
 - The open area below the mezzanine serves as collaborative space
- There should be little or no structure blocking or separating the overall space
 - The elevators should not split the space
 - Spaces of varying size that are inviting of small group interaction
 - Use of glass or partially glass walls (modular, not permanent):
- Physical connection to other buildings

First Floor



Mezzanine Floors



Upper Solid Floors (every other floor?)





"Data Sciences Building" Ideas

Mezzanine











"Data Sciences Building" Ideas

Lounging / Informal Interaction











Informatics Research Building Committee Meeting # 3 "Data Sciences Building"



Flexible Workspaces







Specific Use Spaces

- Office space for single, double, and triple occupancy
- Classrooms ranging in size from 20-50
- Conference rooms ranging is size from 20-50
- Perhaps one larger lecture room to accommodate 75+ people
- Static spaces will be necessary such as kitchen/break room areas, locker room/shower, staging area for catering, etc.
- "Quiet Rooms"



"Data Sciences Building" Ideas

Technical Considerations

- Videoconferencing capabilities (for both on and off campus conferences)
- Ability to record presentations
- High bandwidth connectivity to desktops (1 Gbps)
- High bandwidth wireless access throughout
 - Including outside areas surrounding the building
- Power outlets should be available throughout all areas







Observation

/Survey

Theory Intuition???

Simulations

Experiments

Data Science/Bioinformatics/Informatics/Computational

Biology/Computational Science

Few Thoughts

On

High Performance Computing and

Cyberinfrastructure

Computational Simulations and Visualization





Research Areas

- Computational Science (Biology, Chemistry, Structural Biology, Cognitive Computing – Neuroscience, Fluid. Molecular Dynamics, Solid/Quantum Mechanics)
- Computational Engineering (Software Engineering, High Performance Computing)
- Data Mining/Fusion/Management/Storage
- Informatics (Bioinformatics, Social Systems Informatics,....)
- Visualization

Many new challenges in the life sciences require high performance computing, due either to the massive parallelism required by the problem or to the difficult optimization problems that are often combinatorial and NP-hard.

Scientific Data Doubles Every Year

Harder to extract Knowledge