What Annoys A Noise An Oyster?

Woods Hole Research Center

Team C

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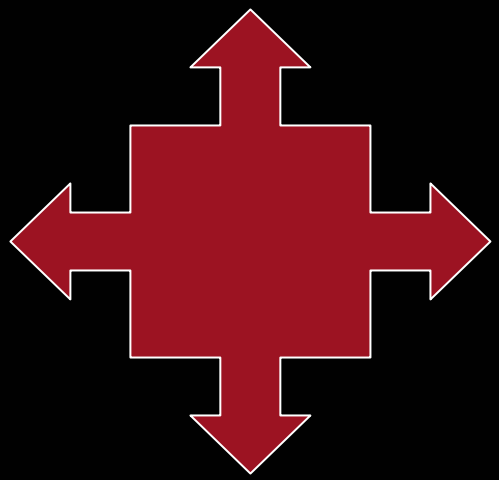
Why study acoustics?

Observations of building properties

- No “white / masking” noise
- Open plan / spatial volume
- Design intent
- Hard surfaces
- Acoustic abatement value engineered out

Hypothesis



Noise generated in the Commons area disturbs workers in adjacent offices.

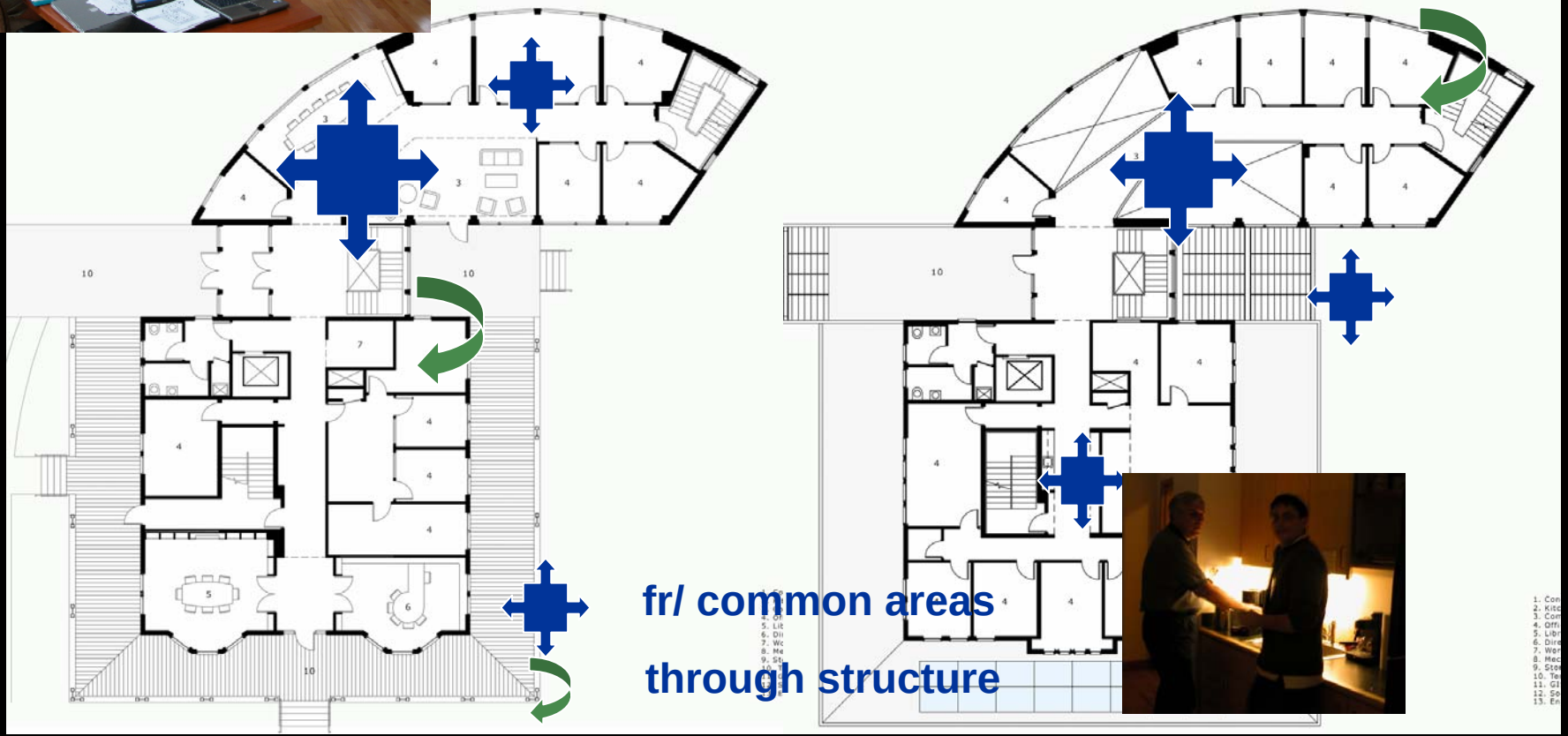
Methodology

- **Interviews**
- **Monitoring db levels over time in office space.**
- **Mapping of noise propagation in Commons area.**

Interviewing

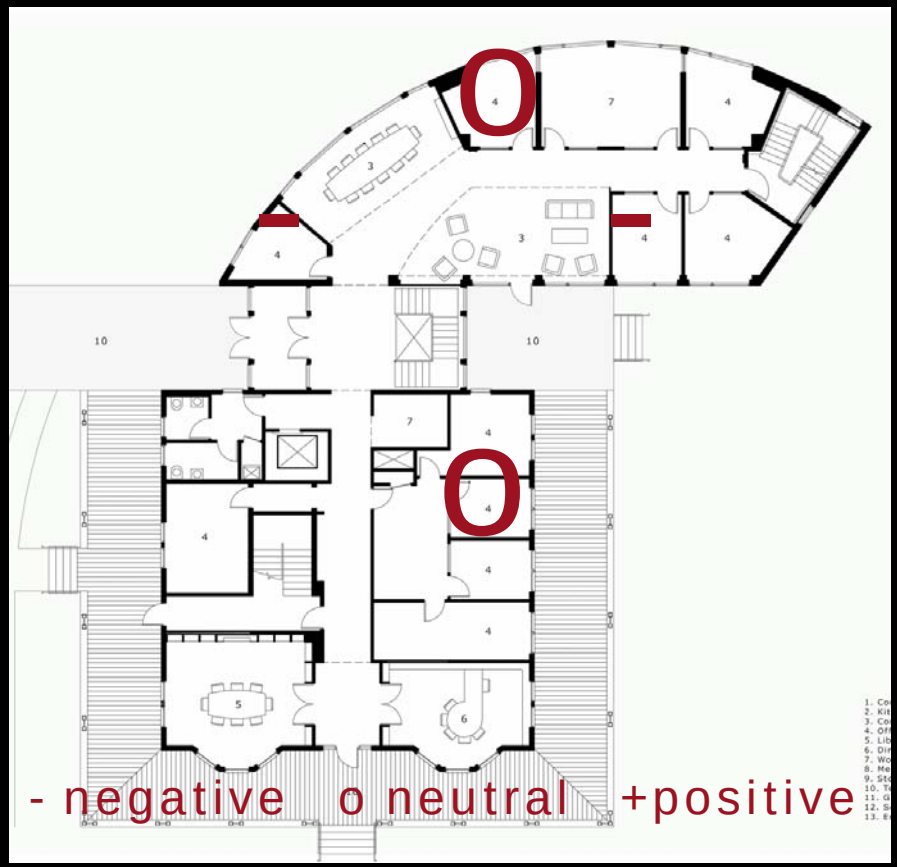
- **Noise events?**
- **Overall impression?**
- **Positive / negative?**
- **Modifications?**

Noise Production



Interviews: First floor

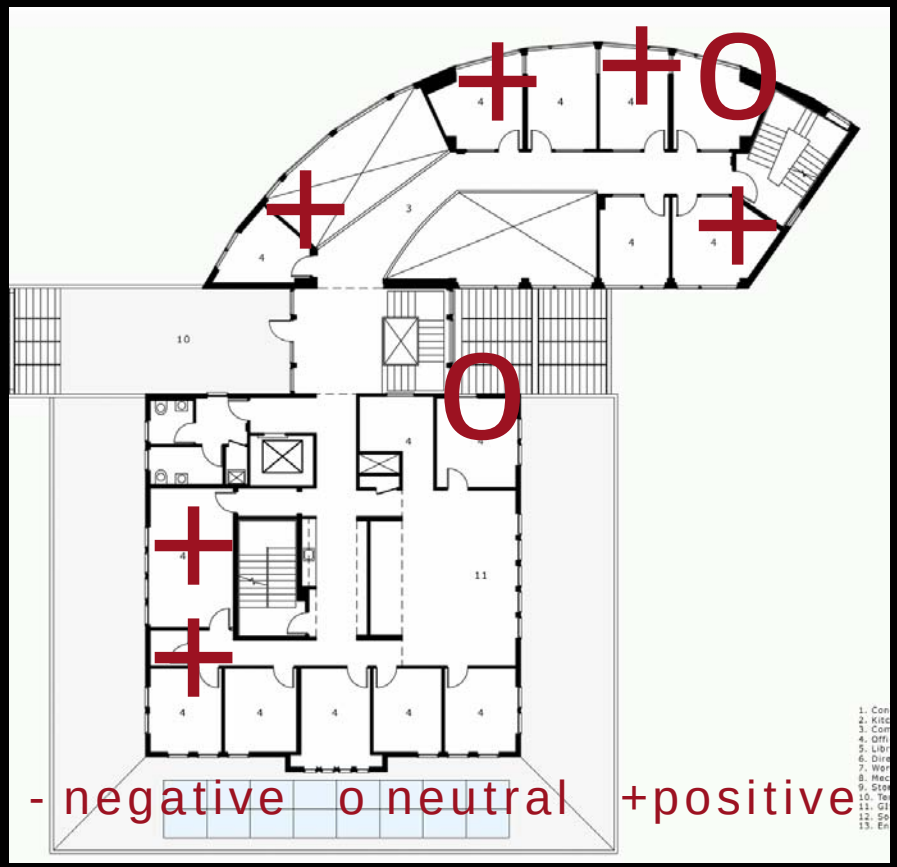
Overall Impression?



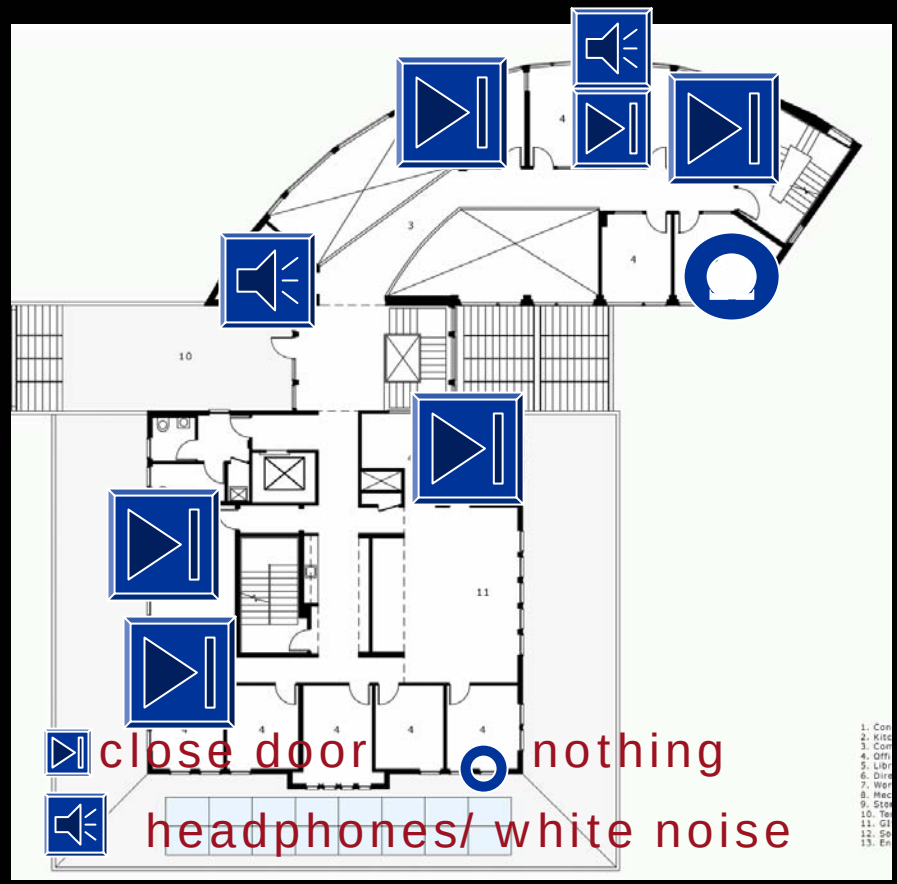
Modifications?

Interviews: Second floor

Overall Impression?



Modifications?



Interviews: +

- open door policy
- questions answered w/o getting up
- absence of background noise
- commons good for meetings
- no echoes

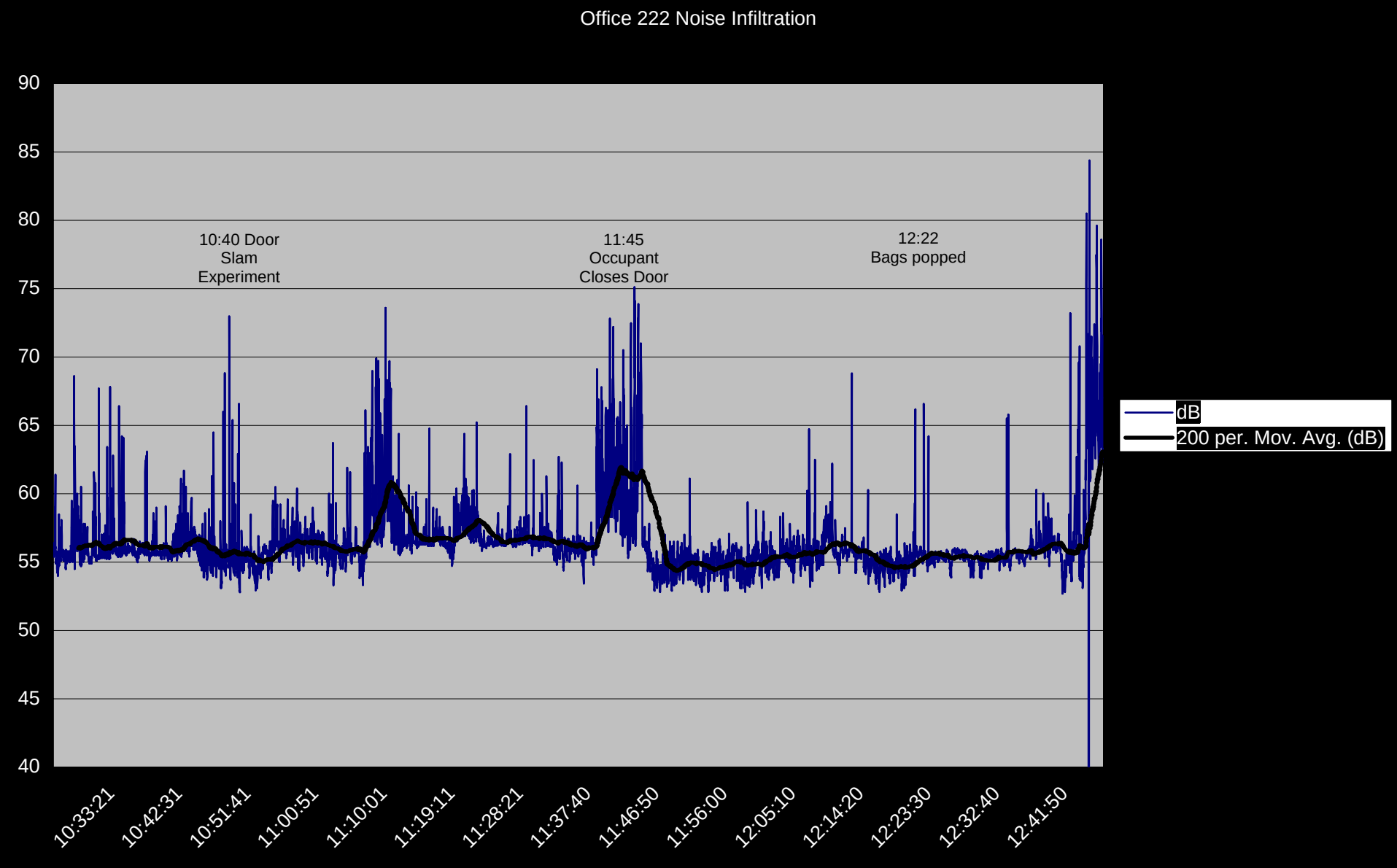
Interviews:

- overhearing personal conversation
- general lack of privacy
- conflicts between needing to have door open and wanting to close door

Office Monitoring

- Identified case study office with specific noise problems
- Product invention: manufactured cable to attach sound meter to HOBO for measurement over time.

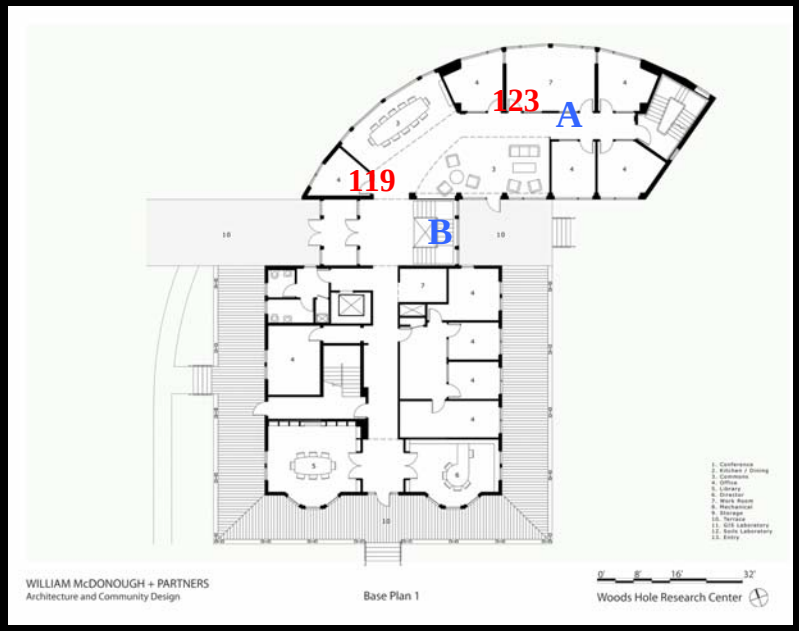
Jack Parchesky Rocks!

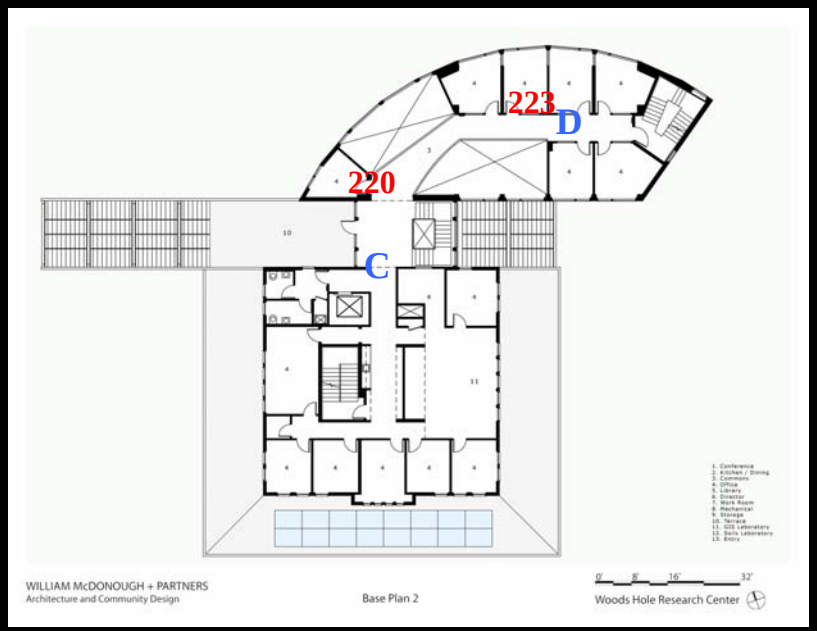

Office 222 Noise Infiltration
90
85
80
75
70
65
60
55
50
45
40
10:40 Door Slam Experiment
11:45 Occupant Closes Door
12:22 Bags popped
10:33:21
10:42:31
10:51:41
11:00:51
11:10:01
11:19:11
11:28:21
11:37:40
11:46:50
11:56:00
12:05:10
12:14:20
12:23:30
12:32:40
12:41:50
dB
200 per. Mov. Avg. (dB)

Noise Mapping

- Incidental noise
  - Walking
  - Book drop
  - Coughing
- Impromptu conversation
  - 2-6 people talking
- Large gatherings
  - Meetings
  - Lunch

INCIDENTAL **NOISE**


123
A
119
B
WILLIAM McDONOUGH + PARTNERS
Architecture and Community Design
Base Plan 1
Woods Hole Research Center


223
D
220
C
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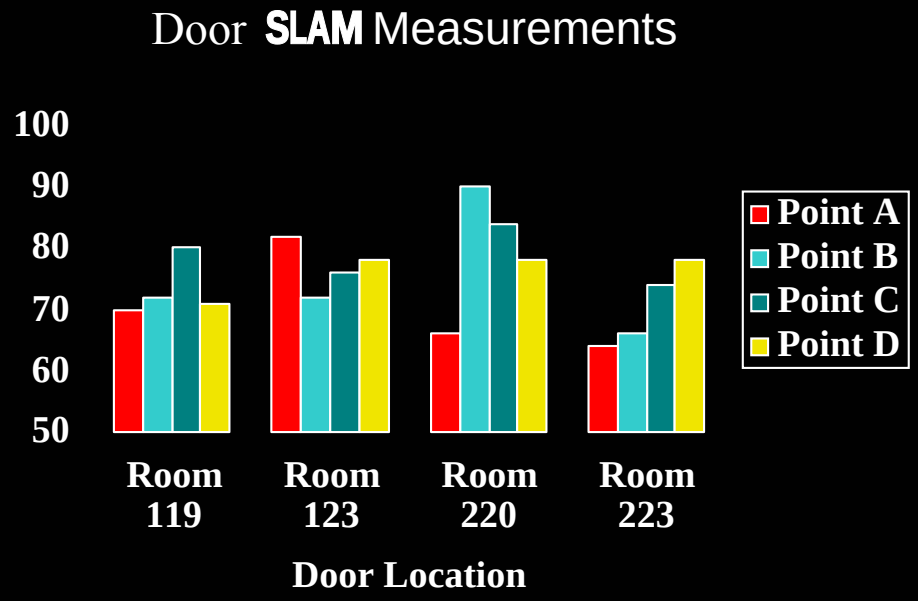
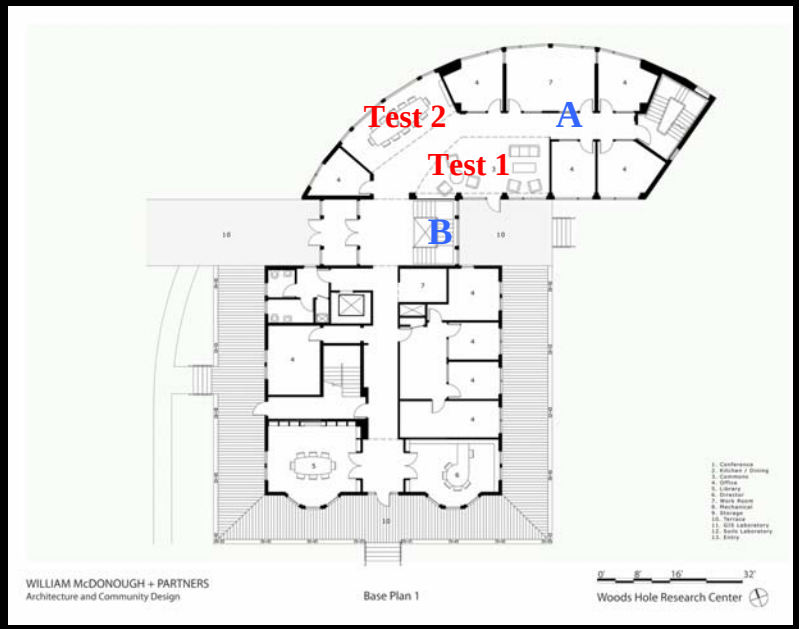
Architecture and Community Design
Base Plan 2
Woods Hole Research Center


Door SLAM Measurements
100
90
80
70
60
50
Room 119
Room 123
Room 220
Room 223
Door Location
Point A
Point B
Point C
Point D


Test 2
A
Test 1
B
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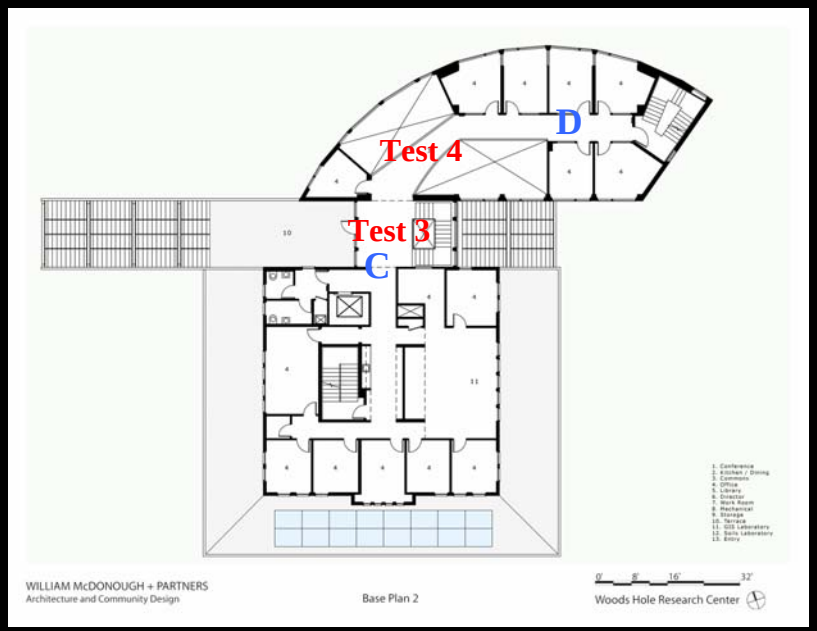
D
Test 4
Test 3
C
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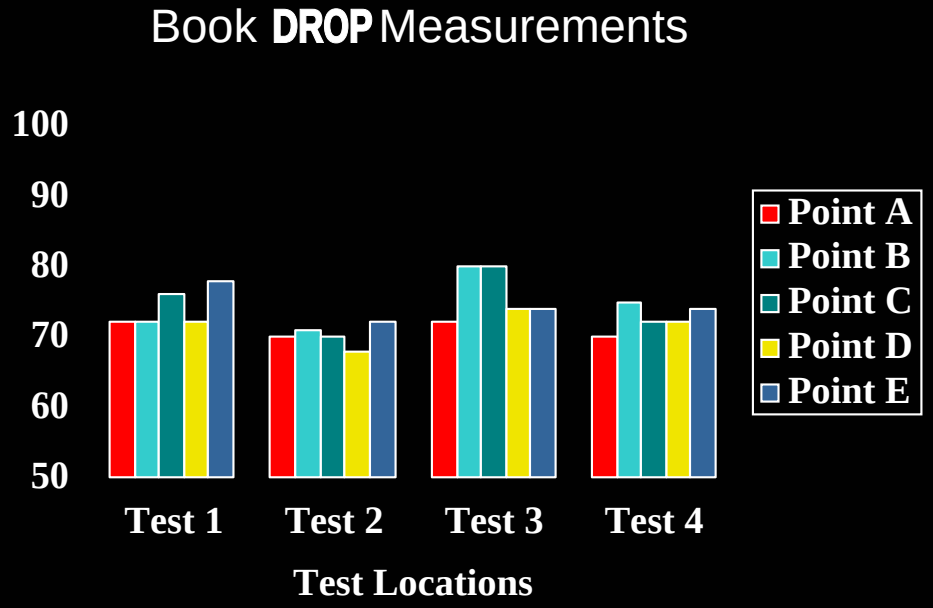
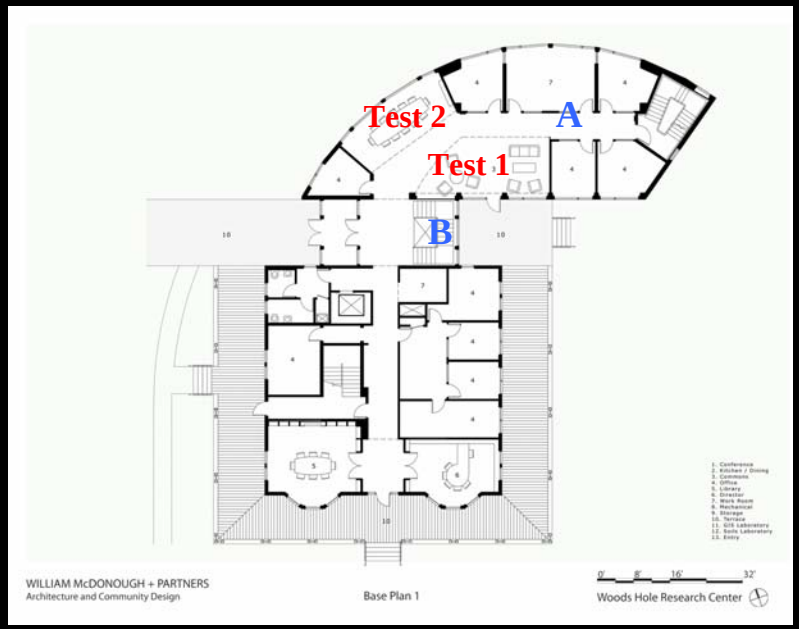

Book DROP Measurements
100
90
80
70
60
50
Test 1
Test 2
Test 3
Test 4
Test Locations
Point A
Point B
Point C
Point D
Point E


Test 2
A
Test 1
B
WILLIAM McDONOUGH + PARTNERS
Architecture and Community Design
Base Plan 1
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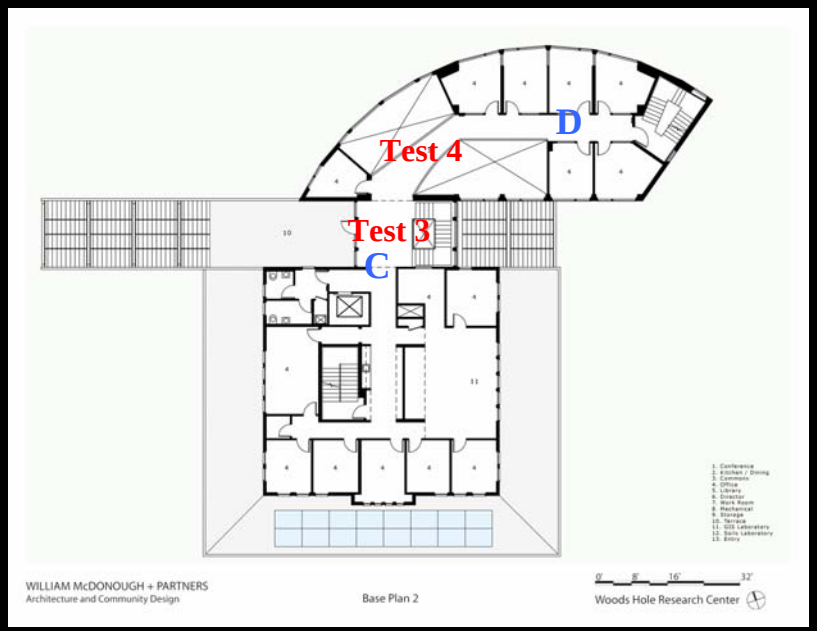
D
Test 4
Test 3
C
WILLIAM McDONOUGH + PARTNERS
Architecture and Community Design
Base Plan 2
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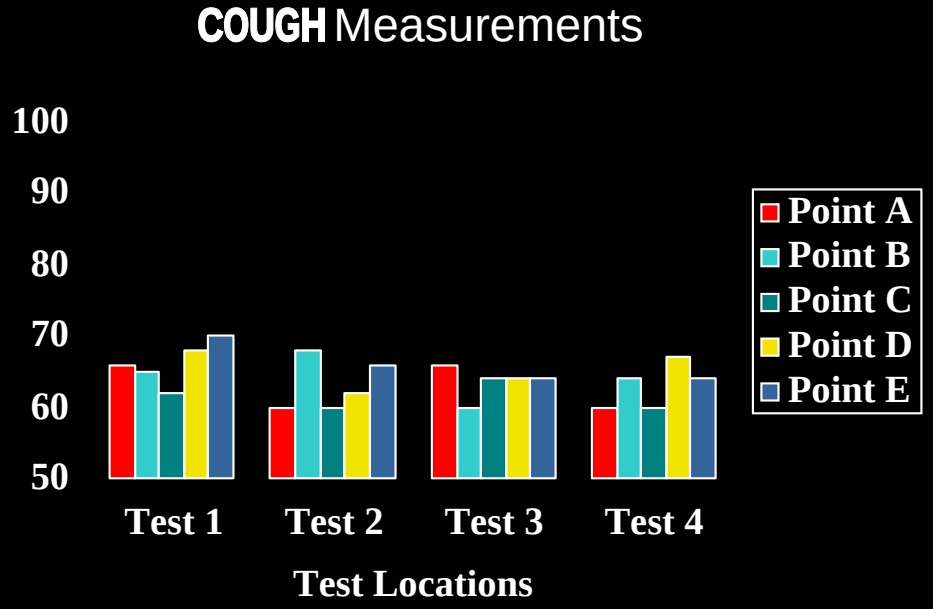
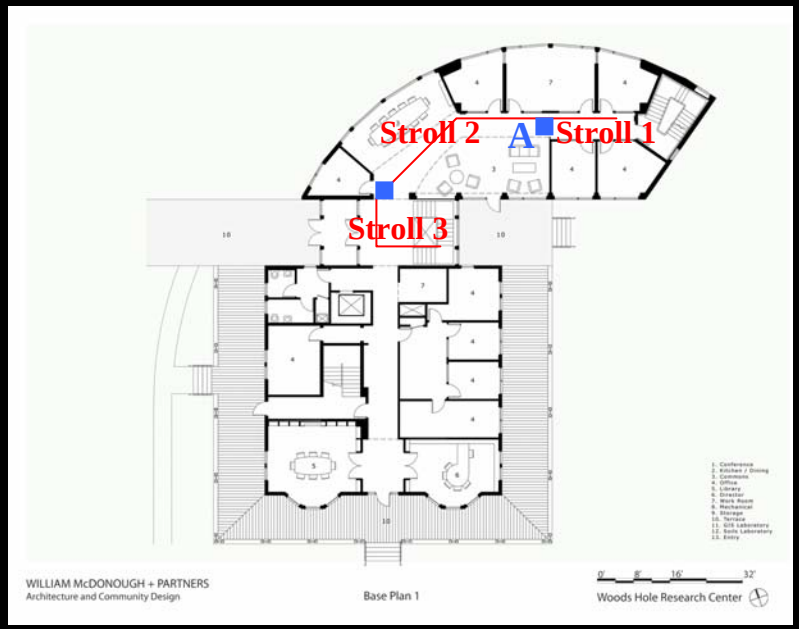
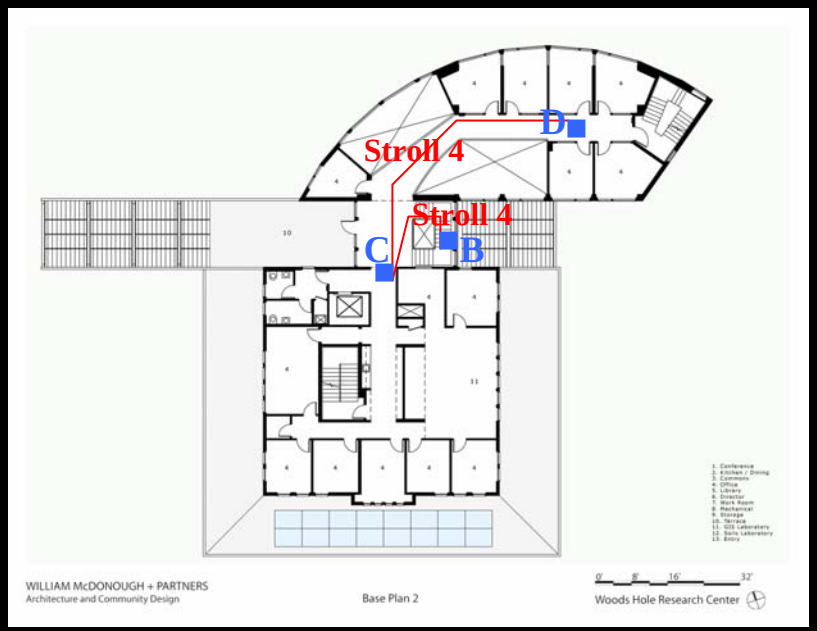
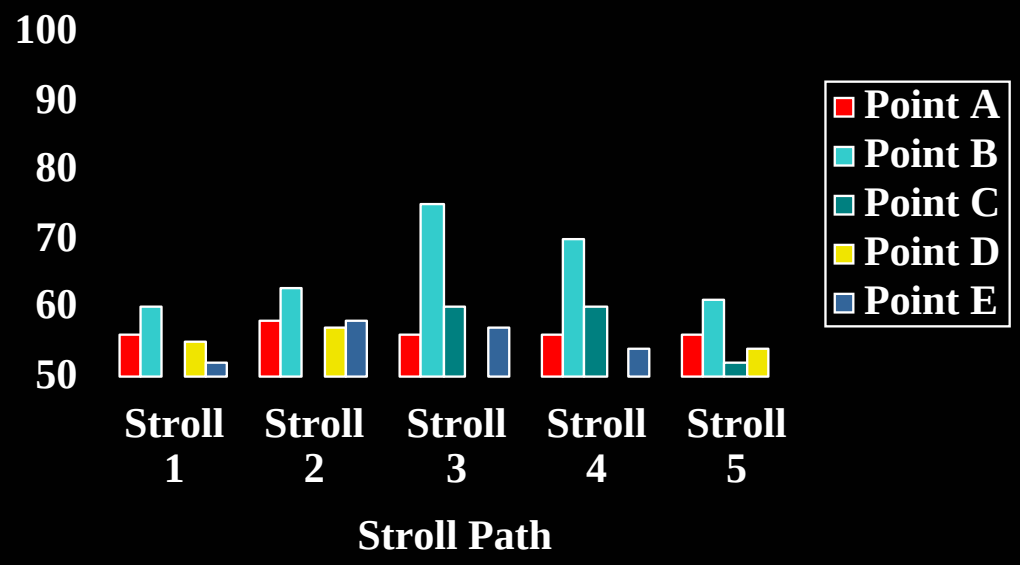
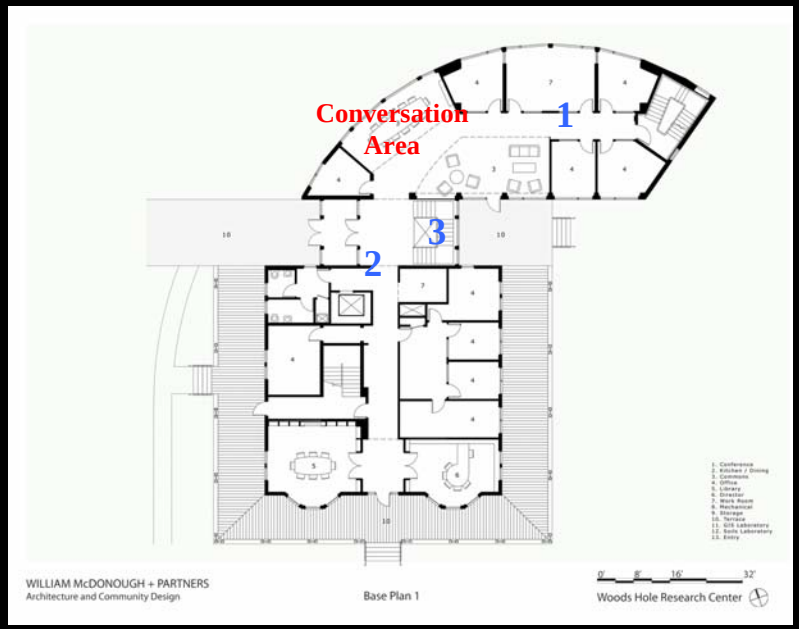

COUGH Measurements
100
90
80
70
60
50
Test 1
Test 2
Test 3
Test 4
Test Locations
Point A
Point B
Point C
Point D
Point E

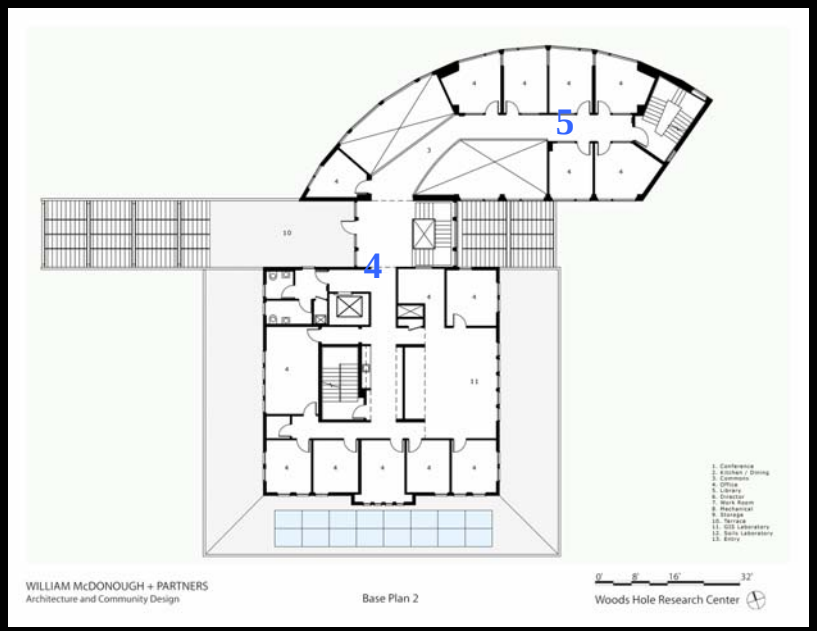




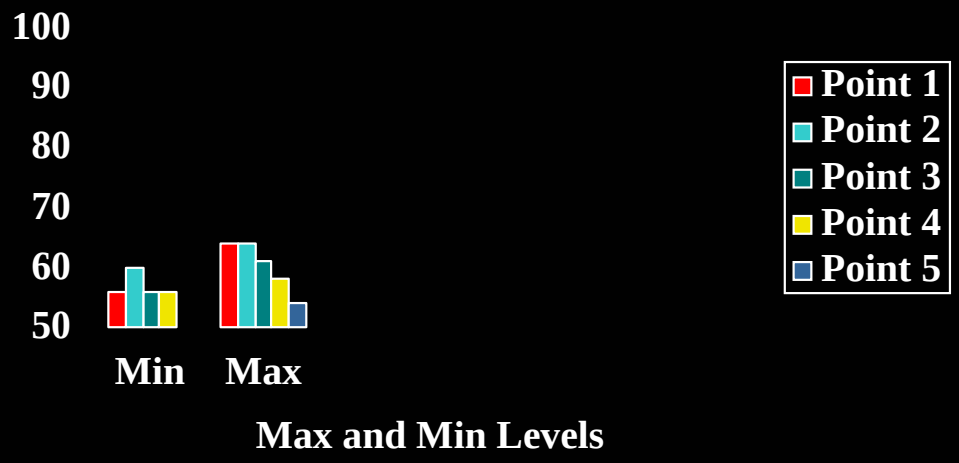
WALKING Measurements

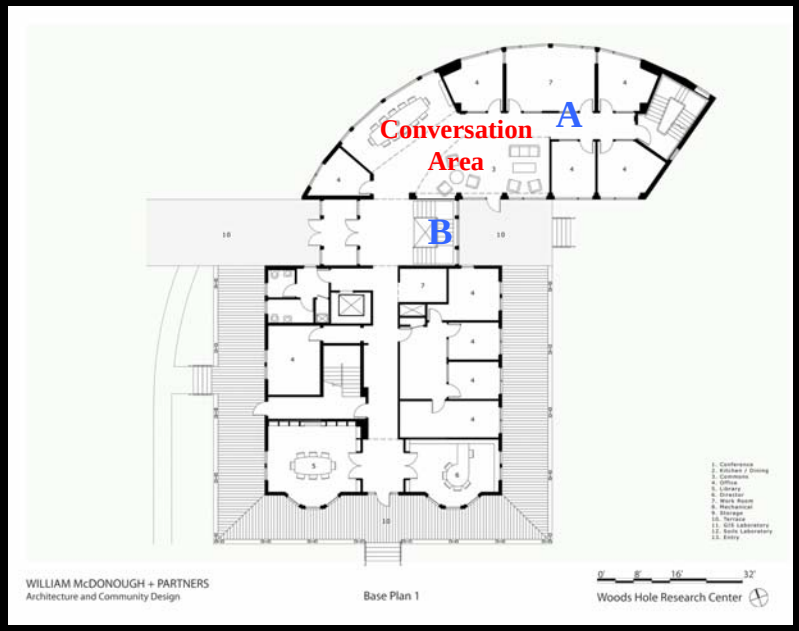


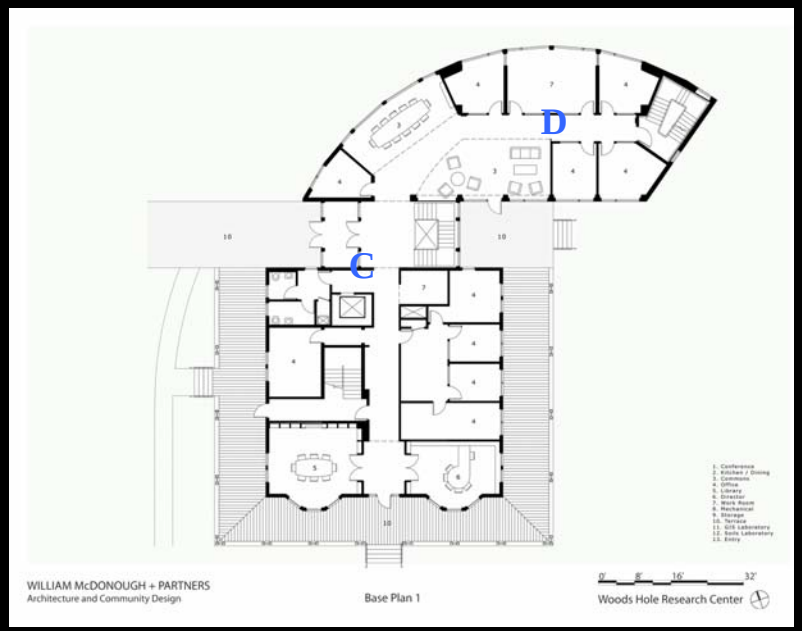




Conference Room **CONVERSATION** Measurements







Lunchtime Conversation Measurements

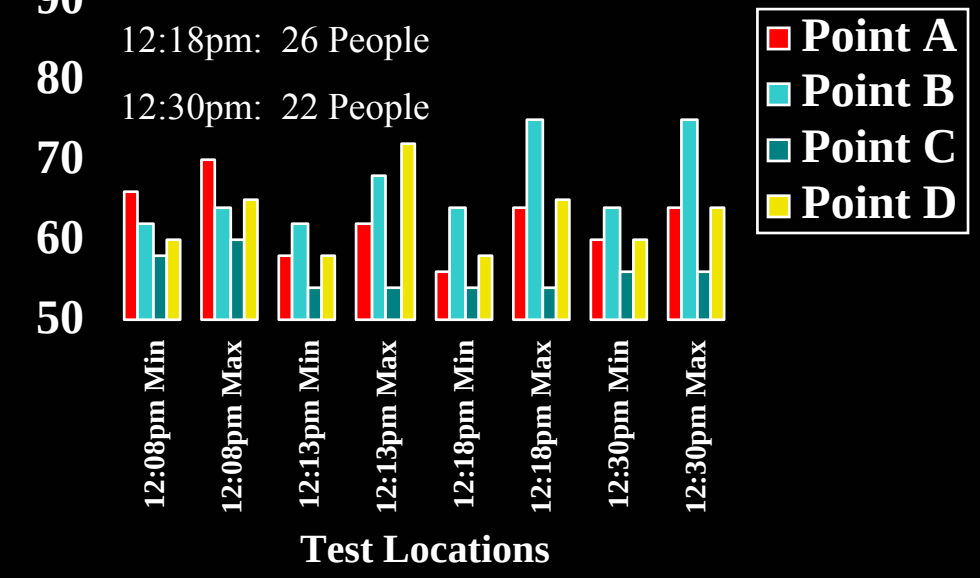
People:

12:08pm: 16-19 People

12:13pm: 25 People

12:18pm: 26 People

12:30pm: 22 People



Events:

12:08pm:	People arriving (Point A)
	Typing audible from room 123 (Point D)
12:13pm:	Soda can opened – 80 dB (Point B) –70 dB (Point A)
	Laughter – 75 dB (Point B)
12:15pm:	119 door closes (Point A)
	125 door closes (Point A)
	222 door closes (Point D)
12:18pm:	223 door closes (Point D)
12:22pm:	2 Bags pop –78dB, 80 dB
12:30pm:	Typing audible again (Point D)

Conclusions:

PARTY ON WOODS HOLE!

- Does noise generated in the commons area disturb the work of the center?
- OSHA standards
- Noise Criteria Curves