Catastrophe on Campus

Space Management Response to a Fire in a Major Academic Building on Dalhousie University Agricultural Campus

Presented by:
Nicola Embleton-Lake
B.Ed.S., M.Arch.,
CEFP.

1

Credit(s) earned on completion of this course will be reported to American Institute of Architects (AIA) Continuing Education Session (CES) for AIA members.

Certificates of Completion for both AIA members and non-AIA members are available upon request.

This course is registered with AIA CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

Questions to specific materials, methods or services will be addressed at the conclusion of this presentation.

2

Course Description

- The unexpected can happen at any time. In our case, it was a fire to our principle academic building on our agricultural campus late june of 2018. We needed to make temporary arrangements for the immediate summer term, for fall term starting in 10 weeks and for the rebuild. We had to create a plan keeping the overall mission of the institution at the for front while decisions were prioritized honestly, transparently and with respect for the loss suffered by the community.

3

Learning Objectives

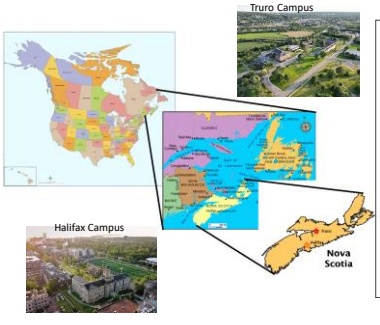
1. Provide you with an awareness of emergency response work from a space management perspective.
2. Review the context, core principles and space management stages related to our emergency response and rebuild.
3. Outline the steps we applied to our emergency so that you may adopt or adapt them to your organization.

AIA Approved Continuing Education

4

Who am I?

5



Where is Dalhousie University?

6

Dalhousie University

- **4 Campuses**
  - **3 urban** and **1 rural**
- **13 faculties**
  - **12** based across the urban campuses and **1** at the rural campus
  - Faculty = **1200**
  - Staff = **2200**
  - Student population of **22,000** students (4000 grad or PhD)
- Focusing on our **Agricultural Campus**
  - faculty=**86**
  - Staff = **66**
  - Student= **1000 (100 grad or PhD)**
  - **4** Departments –> **3** significantly impacted by the fire.

7

What Happened?

June 20, 2018 .

8

Where the fire occurred

9

Background about the Cox Institute

- Designed in 1960 consisted of two wings East and west wing.
- Was transferred to Dalhousie in 2012 by the Government.
- Still very much had the look and feel of high school or 60's community college
- Building is a 3 Level Steel structure, with brick envelope.

This building housed;

- Faculty, Staff and Instructors offices
- Classrooms and Instructional Labs
- Research Labs and Support space
- Registrar and student support services
- ITS
- Campus Bookstore
- Small Cafeteria.

10

- Unfortunately, it was worse than it looked….

11

MOULD !!

12

Incident occurs June 20, 2018

Crisis Management Plan Activated

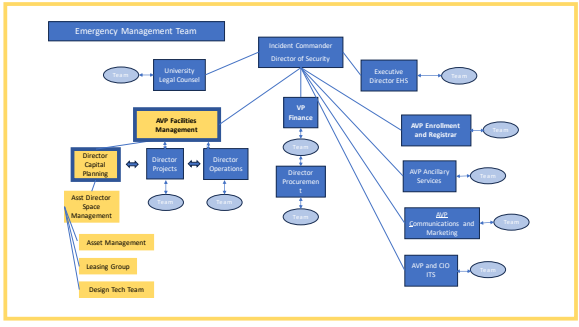
Response: Disaster

Group	Minor Emergency	Major Emergency	Disaster
Campus Security	Yes	Yes	Yes
Site Management Team	Yes	Yes	Yes
Emergency Operations Group	No Action	Yes	Yes
Executive Management Team	No Action	Yes – minimum team	Yes – full team

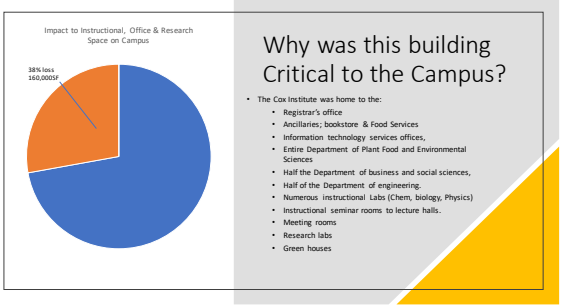
Hazard Classification: Major Emergency

Fire or explosion: Extensive injuries/death or damage to property disrupts operations in an area requiring a relocation of services or residents. All or a large portion of one or more facilities are affected with a long-term recovery period.

13



14

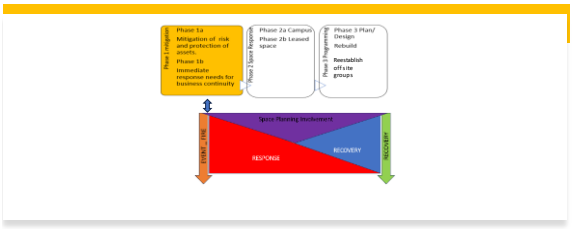


Why was this building Critical to the Campus?

- The Cox Institute was home to the:
  - Registrar's office
  - Ancillaries; bookstore & Food Services
  - Information technology services offices,
  - Entire Department of Plant Food and Environmental Sciences
  - Half the Department of business and social sciences,
  - Half of the Department of engineering.
  - Numerous instructional Labs (Chem, biology, Physics)
  - Instructional seminar rooms to lecture halls.
  - Meeting rooms
  - Research labs
  - Green houses

15

Emergency Response Steps – Phase 1A



16

DalSAFE

Phase 1a Mitigation of Risk & Protecting assets

- Community safety services, Fire, PD, Ambulance for immediate response.
- EHS provided information about risk to AHJ
- Under the direction of AHJ with Security and operations assisted with information as required.
- Security secured the area under direction of the AHJ for investigation after the fire was out.
- AHJ remained on site also.

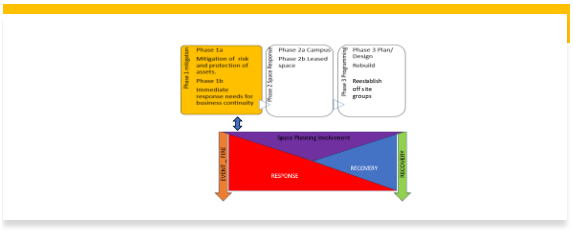
17

While **phase 1a mitigation of risk** was underway…

- **Space Management**
  - Gathered our space information;
  - Identified available spaces and potential use options for all types of spaces;
  - Worked with registrar on relocation of classes; information for immediate response for release.
  - Booked space to work out of in advance of travelling to rural campus;
  - Investigated options for largest lease space in immediate area for storage, and institutional use.
  - started work on short term needs (fall requirements).

18

Emergency Response Steps – Phase 1b



19

Short Term Requirements

Needs -

Teaching perspective

Instructional space.

Courses modifications

Offices

Grad students

Solution

Teaching perspective

Classes were redistributed to other rooms, large meetings rooms and community theater opened.

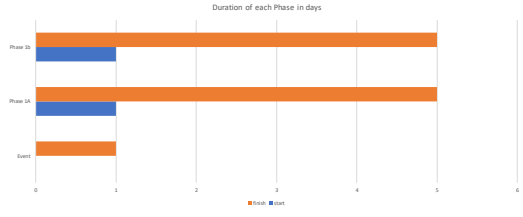
Courses where required were modified.

Determined with admin staff who could access internet and could work remotely and who could not and create shared computer area for them.

Grad student services needed to assess how impacted student were and impact to their graduation.

20

Duration of phase



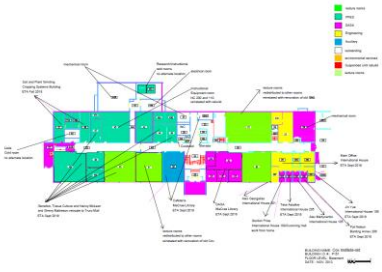
21

Emergency Response Steps Phase 2a & b

22

Phase 1b Immediate response by end of week 2

- Awaited - Evaluation of west wing
- Investigated what the impact of Fall schedule would be;
- Options for various needs were considered.
- Started to short list what could not be accommodated.



23

Phase 2a Space Response triage – immediate

- The impact of the fire was significant taking out 160,000SF of space for the summer.
  - Classrooms Utilizations were such that we could intensify bookings and we could do some shuffling – Registrar office managed.
  - Classroom Utilizations for fall scenario 1 -160,000SF and scenario 2 -80,000SF
  - Courses were modified with help of instructors to minimize lab needs to be able to share multiple labs.
  - Set up shared computer access areas.
  - Immediate need to find space for registrar, student recruitment
  - Immediate need for bookstore
  - Communicate to determine needs, plan and implement spaces to meet shortfall for offices, instructional research and grad student space.

24

Phase 2a – **Space** – Short Term – **on campus** – to be ready within 10 weeks.

- Teaching
  - Community Theater --> repurposed as instructional theater
  - Maximize dividing in some classrooms.
  - Repurpose shared research labs to suitable instructional space.
- Library
  - bookable event space modified into instructional space
  - faculty computer access area provided.
- Research
  - A Deactivated lab off campus -- repurposed into general soil and sample processing space.
  - Identify who could share with who.
- Student Services
  - Large meeting room and foyer space in Admin bldg --> converted to student services area.
- Ancillary space
  - Relocate bookstore to Ancillary space near dining room
  - Recent food services was completed in Library no replacement required
- Office Space
  - 1st floor of residence building --> converted into office space for displaced faculty.
- Green House
  - Install a new hoop green house to meet instructional production needs and instructional needs for fall term.
- Vertical Circulation
  - Introduce a new elevator in main lobby for chemical movement between floors. This was started but took to end of Sept to have ready.

25

Phase 2b – **Space** – Short Term – **off campus** – to be ready within 10 weeks.

30,000SF Leased Space for what could not be accommodated on campus this included;

- **22 offices,**
- **1 large genetic research lab,**
- **1 biology and plant instructional room,**
- **1 large teaching room,**
- **20 graduate student desk and break out space**
- **kitchen**
- **washrooms**

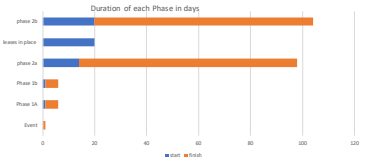
20,000 SF Lease Storage Space for equipment and material damage in fire that needed to be cleaned and assessed storage located in a nearby town as it was the nearest option.

26

DIRTT Construction Systems | Modular Interior Construction

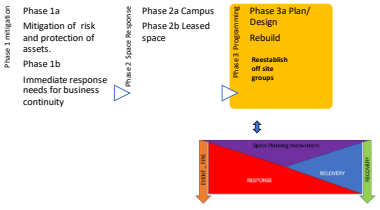
27

Duration of Phase 2a & 2b



28

Emergency Response Steps Phase 3a & b



29

Defining Context for Rebuild

Strategic: Had to meet the Faculty's strategic direction.

Functional: The space had to allow the Faculty to meet its strategic plan.

Physical: Had to remain within the existing footprint of the building.

Financial: We were asked to design in a fiscally responsible manner, fiscal oversight was provided by FM to the Steering Committee along with reasoning as for modification from original layout.

*All space is University space.

**The Old Cox rebuild will meet current fire and building codes.

30

Principles

- University Space Guidelines will be used to allocate space;
- Common spaces will be shared across departments/units;
- Meeting and instructional spaces will be communal except for specialized spaces;
- Core facilities will be used where possible;
- Central chemical storage will be accommodated;
- Offices for instructors will be near labs and prep spaces;
- Floor plans will provide efficient and effective use of space;
- All space will be flexible to accommodate future multi-purpose needs; and
- Supports financial responsibility.

31

Design Objectives to Ensure a Functional Space

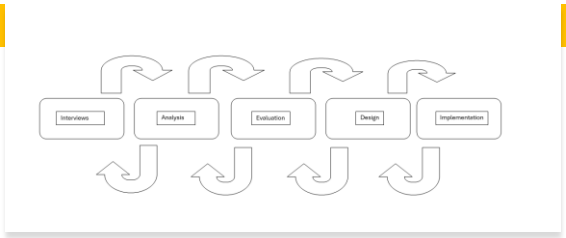
- Accessible- CSAB651-18
- Aesthetics –Warm inviting Timeless
- Cost Effective - Standardize
- Functional operation- energy conservation
- Productive – reliable materials
- Secure/Safe – fire and life safety codes priority
- Sustainability – considered as a whole

32

Phase 3 – **Program** for Rebuild of East wing

- As previously mentioned throughout all the meetings we gather information that would be needed for the rebuild, slowly developing a program for the rebuild.
- Information was reviewed and confirmed multiple times.
- We needed to separate the needs from the wants.
- We applied the approved context of the rebuild and the design principles and objectives into a space program.

33

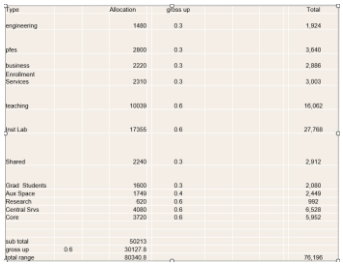


User Centered Design Model

- We wanted to optimize the rebuild for the users, we needed the building to work for them

34

Overview of the space Breakdown



Type	Allocation	gross up	Total
engineering	1480	0.3	1,924
pfes	2800	0.3	3,640
business	2220	0.3	2,886
Enrollment Services	2310	0.3	3,003
teaching	10039	0.6	16,062
Inst Lab	17355	0.6	27,768
Shared	2240	0.3	2,912
Grad Students	1600	0.3	2,080
Aux Space	1749	0.4	2,449
Research	620	0.6	992
Central Srvs	4080	0.6	6,528
Core	3720	0.6	5,952
sub total	50213		
gross up	0.6	30127.8	
total range		80340.8	76,196

35

Prepared Detailed Space Breakdowns for each unit

- Engineering
- PFES
- Business
- Environmental Services
- Teaching spaces
- Instructional Labs
- Shared spaces
- Graduate Student Spaces
- Research units
- Ancillary services
- Central Services
- Core Services

36

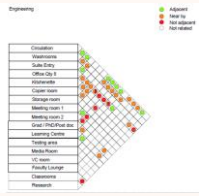
Ex: Engineering

Overall Needs

Engineering

type	Qty	SF	total
Office	8	120	960
Stationary Rm	1	64	64
Kitchenette	1	48	48
Photocopier Meeting Room for 6	1	48	48
	2	180	360
Subtotal			1480
Gross up Factor 0.3			444
Total			1924

Space Association matrix



37

Room Data Sheet for each type of space

38

115 page Principles and Space Program document released.

39

What did we achieve in the rebuild?

- Separated Functions
- Improved Safety
- Created CORE services areas
- Improve Teaching spaces
- Improved student services space, study space and supports
- Increased the number of offices

40

Level 1

Pre Fire

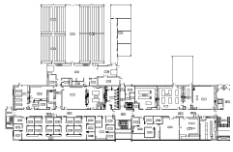
Rebuild

41

Level 2

Pre Fire

Rebuild

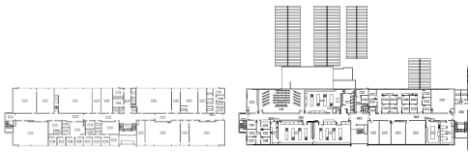


42

Level 3

Pre Fire

Rebuild



43

The Transformation

Before:



After:



44

The Transformation Continued

Before:



After:



45

The Transformation Continued

Before:

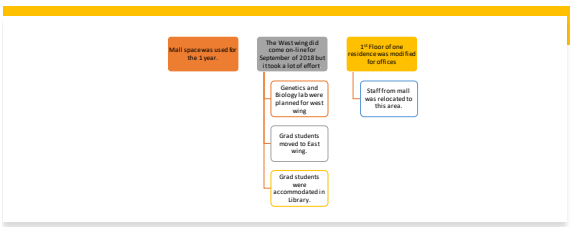


After:



46

Return of offsite personnel and spaces



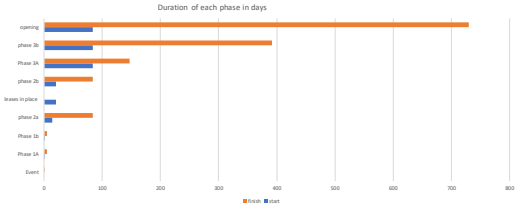
47

Lessons Learned

- Communication is key
- Designate a lead for each group
- Do not underestimate your need for security
- Shock is real! Ensure HR has supports on site. Be ready for emotions.
- Do not underestimate the hours that your team will be needed. Communicate this to the rest of campus!
- Clarify responsibilities early – everyone stays in their swim lane.
- There may be additional staff required in our case we hired Fire Response Coordinator, storekeeper, administrative assistant for equipment calibration.
- Additional funds were allocated to support instructors until the rebuild was completed.
- FM Leader, support, encourage and trust your team.
- Document everything!

48

Duration of Phase 3a & 3b



49

This concludes The American Institute of Architects Continuing Education Systems Course

Approved Continuing Education

50

bldg name	GSF	new	was empty and put into service	%	SF impact	% of space that was shared with multiple users	summer space used over summer	fall/winter used over fall and winter	Comment
International house	1663		yes				1663	1663	
Humanities House	1664			25	691		1664	1664	
Rural research center	1653			20	2918		1653	1653	
Elgaram	1650		yes				1650	1650	
Banking bldg	93854			10	9385.4		9385.4	0	
Banking Annex	1777			20	355.8		355.8	355.8	
Tree house	1044			50	522		1044	1044	
Dairy Bldg	9265			25			2316.25	300	
Ad Ing	27028			5	0		0	1351.4	
shopping systems bldg	2886			25	721		0	721	
Cumming hall	34989						2000	4000	intensified use for teaching
Haley institute	75560						18915	0	intensified use for teaching & research
Bolden Building	12728				0		0	700	
Jenkins	23508						600	600	
Langille	40,003							800	
Cox Institute	164,000				0		0	81,200	intensified use for teaching & research
CDI	1268		yes				1268	240	
stairs	50000	rented						50000	
macular library	39165						13055	9916.5	intensified use for teaching
hoop house	1008	yes			1008		1008	1008	
					66086.8		50217.05	132629.3	

Note summer space was possible as a lot of researchers were in the field or chose to work from home.
Note Buildings in fall and winter where we have intensified teaching and or research functions will have an increased traffic count of 25% or more

51