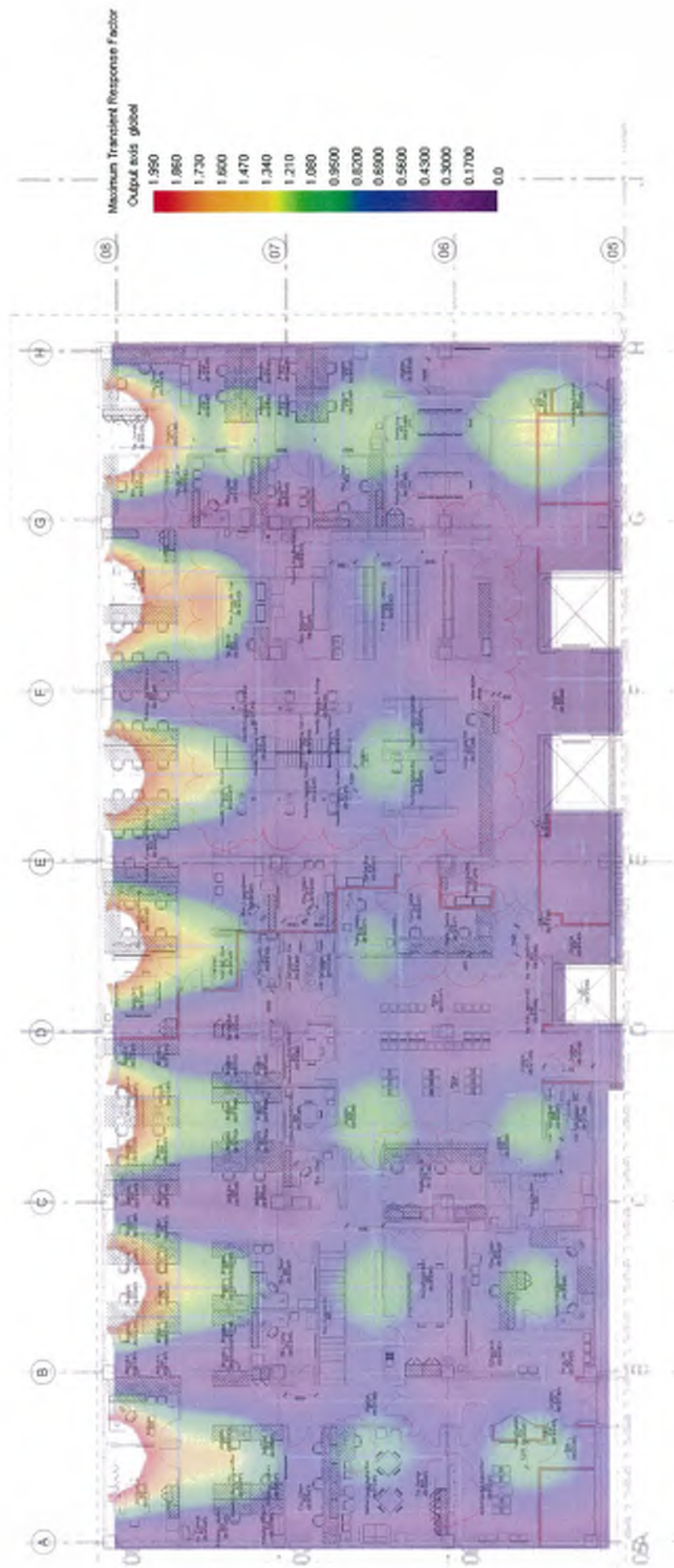




Room Excitation
Transient Analysis

1 Level 04 - 3B2 - FFE

PRELIMINARY



PROJECT
LISMORE BASE
HOSPITAL

15427 DD A25041 C 1:100

FF&E Level 4 3B2 NB

HEALTH
INFRASTRUCTURE

DATE
2018/08/06

BY
2018/08/06

SCALE
1:100

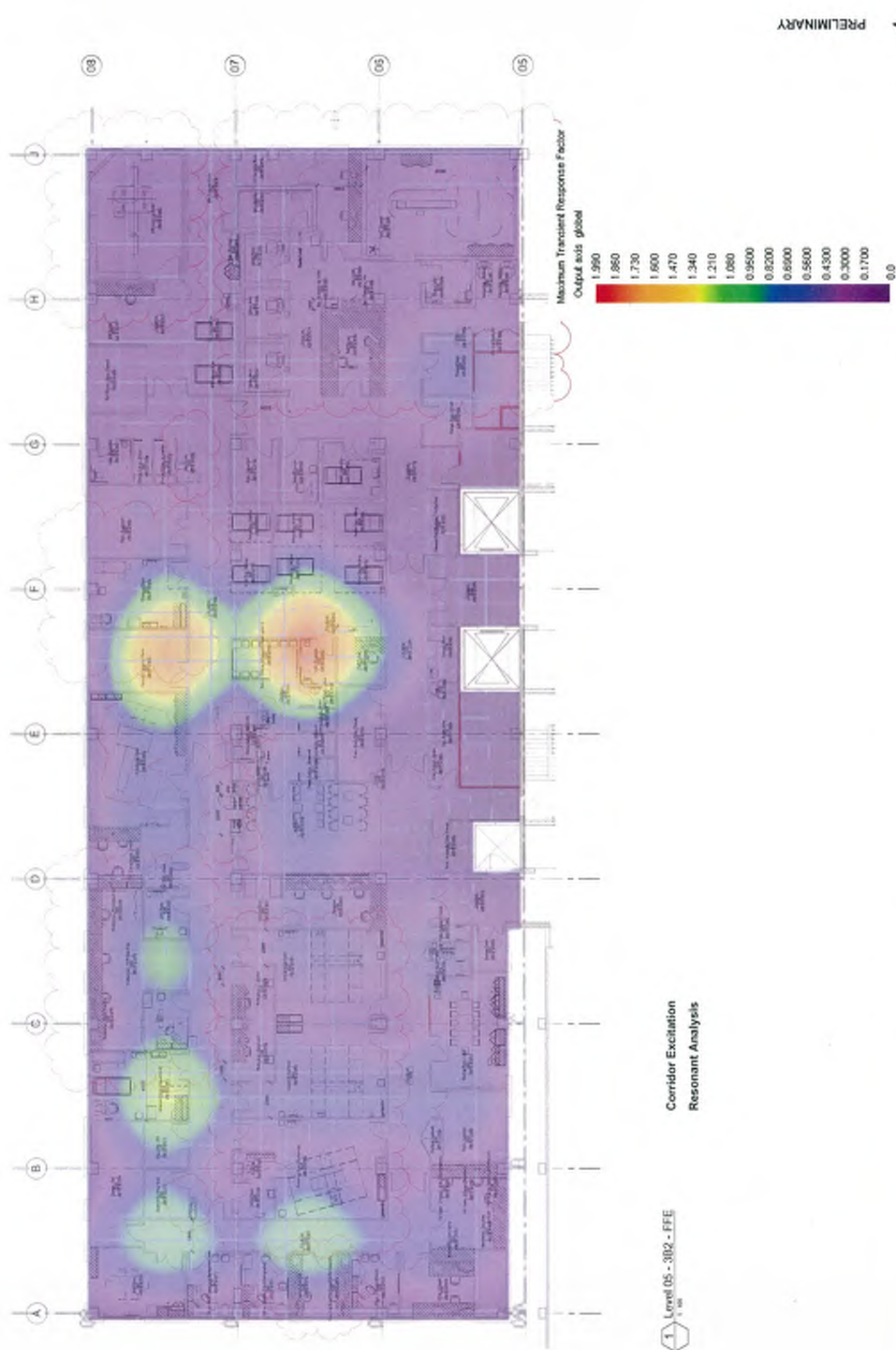
CONRAD
GARGET

Health
Infrastructure

NSW

aurora

John
Holland



Corridor Excitation
Resonant Analysis

1 Level 05 - 302 - FFE

PRELIMINARY



PROJECT
LISMORE BASE
HOSPITAL
15427 DD A26051 D 1:100

ANALYSIS
FF&E Level 5 302 NB

HEALTH
INFRASTRUCTURE

DATE
2020/05/14

SCALE
1:100

PROJECT
LISMORE BASE
HOSPITAL
15427 DD A26051 D 1:100

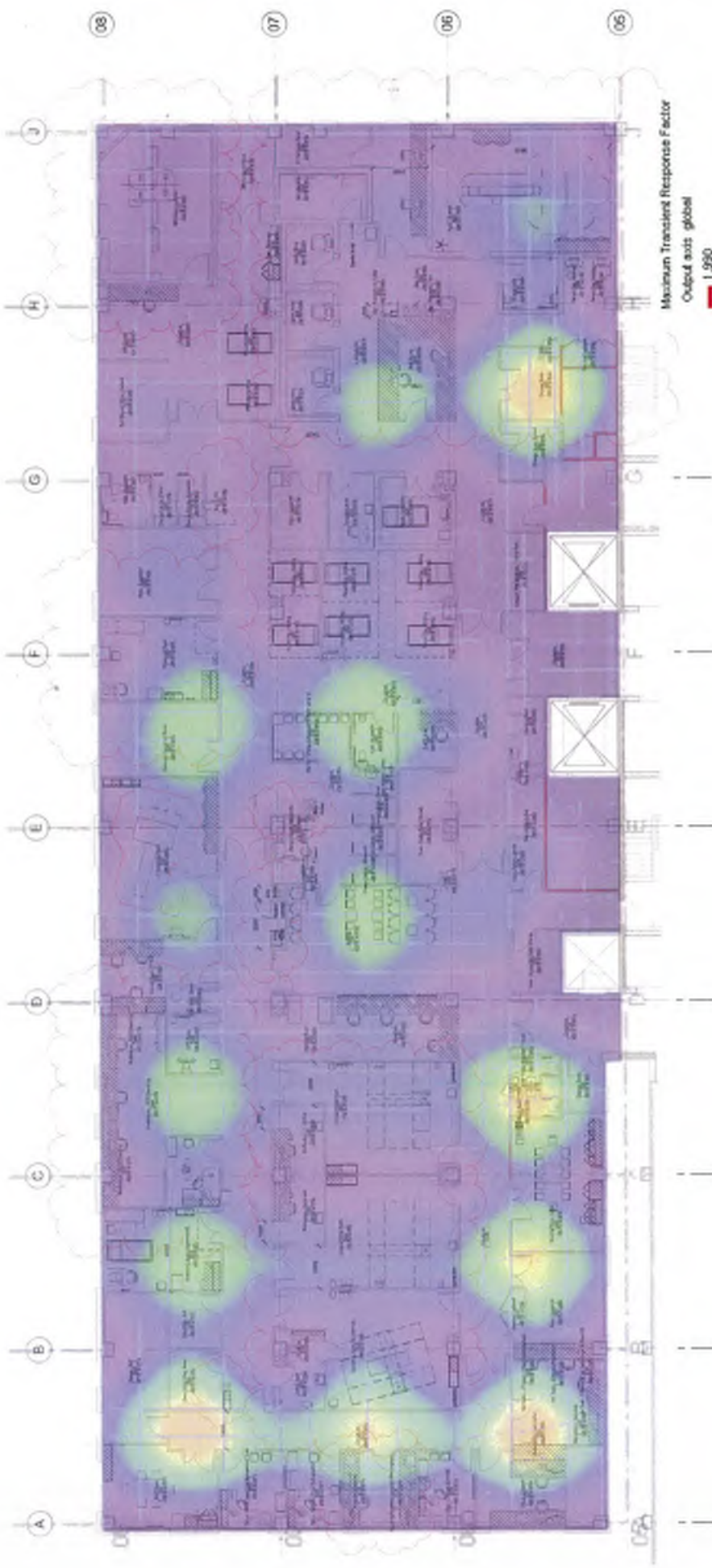
CONRAD
GARGETT

Health
Infrastructure

NSW

aurora

John
Holland

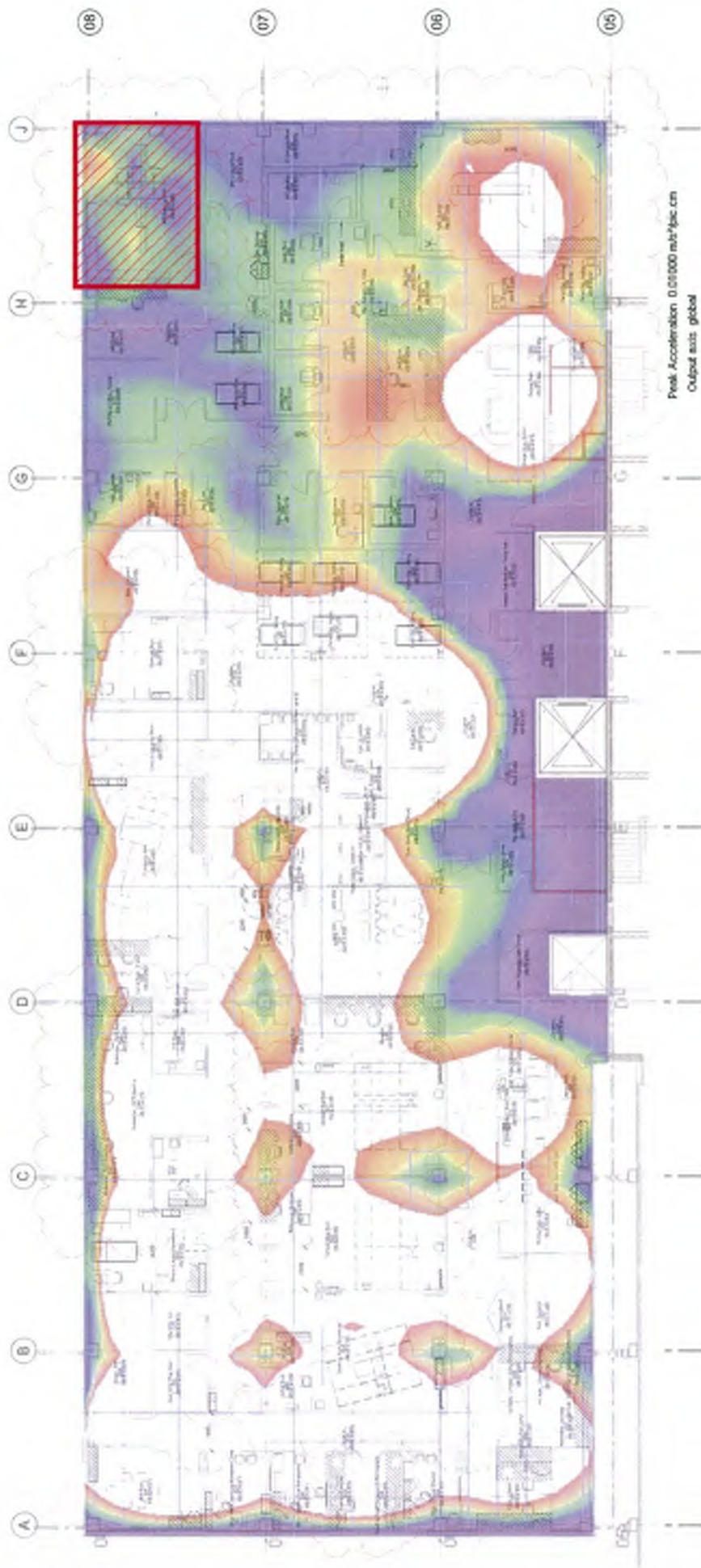


Corridor Excitation
Transient Analysis

1 Level 05 - 3B2 - FFE
1:100

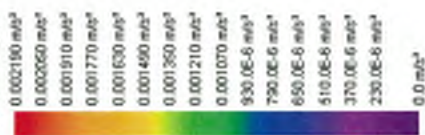
PRELIMINARY





Peak Acceleration 0.01000 m/s²/g cm

Output units: global



Case: A253 Footfall

MRI Room Acceleration - Peak Value

Corridor Excitation

Resonant Analysis

1 Level 05 - 382 - FFE

PRELIMINARY



PROJECT
LISMORE BASE
HOSPITAL

FF&E Level 5 382 NB

HEALTH
INFRASTRUCTURE

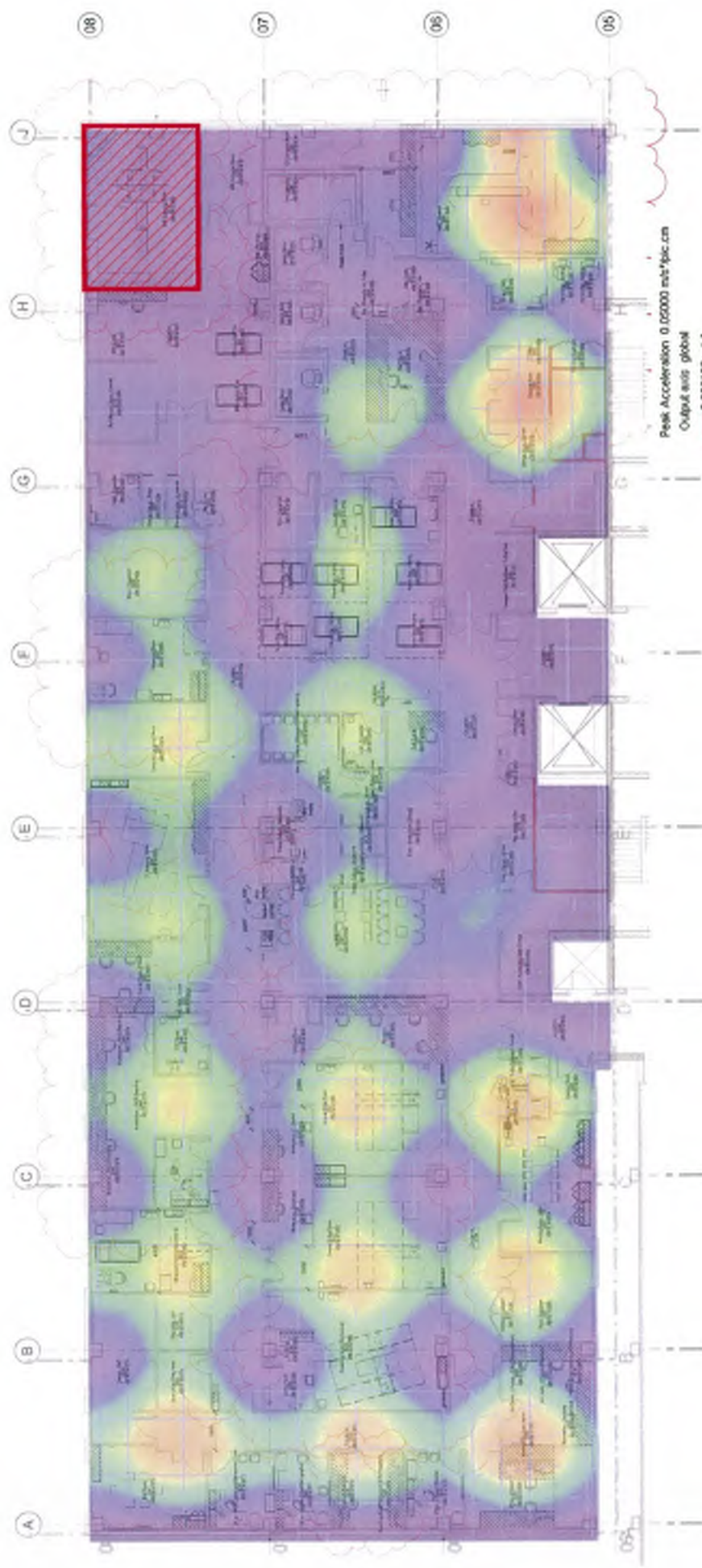
CONRAD
GARGENT

Health
Infrastructure

aurora
NSW

John
Holland

15427 DO A25051 D 1:100



Peak Acceleration 0.02000 m/s²/gpc/cm

Output axis global

0.006100 m/s²

0.002700 m/s²

0.003300 m/s²

0.004800 m/s²

0.004500 m/s²

0.004100 m/s²

0.003700 m/s²

0.003300 m/s²

0.002900 m/s²

0.002500 m/s²

0.002100 m/s²

0.001700 m/s²

0.001300 m/s²

0.000900 m/s²

0.000500 m/s²

0.000100 m/s²

0.000000 m/s²

0.000000 m/s²

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0.000000 m/s²

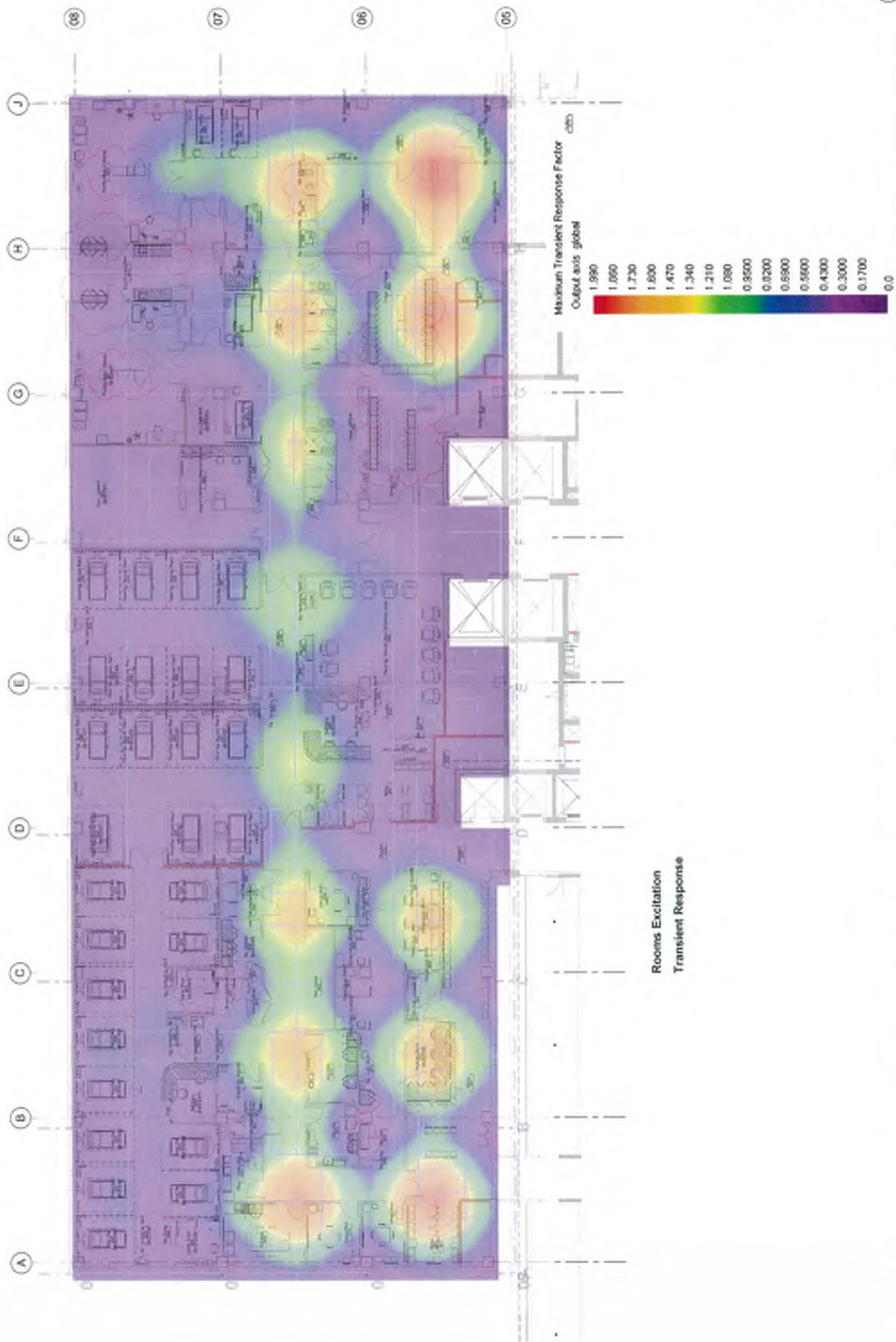
MRI Room Acceleration - RMS Value

Room Excitation

Resonant Analysis

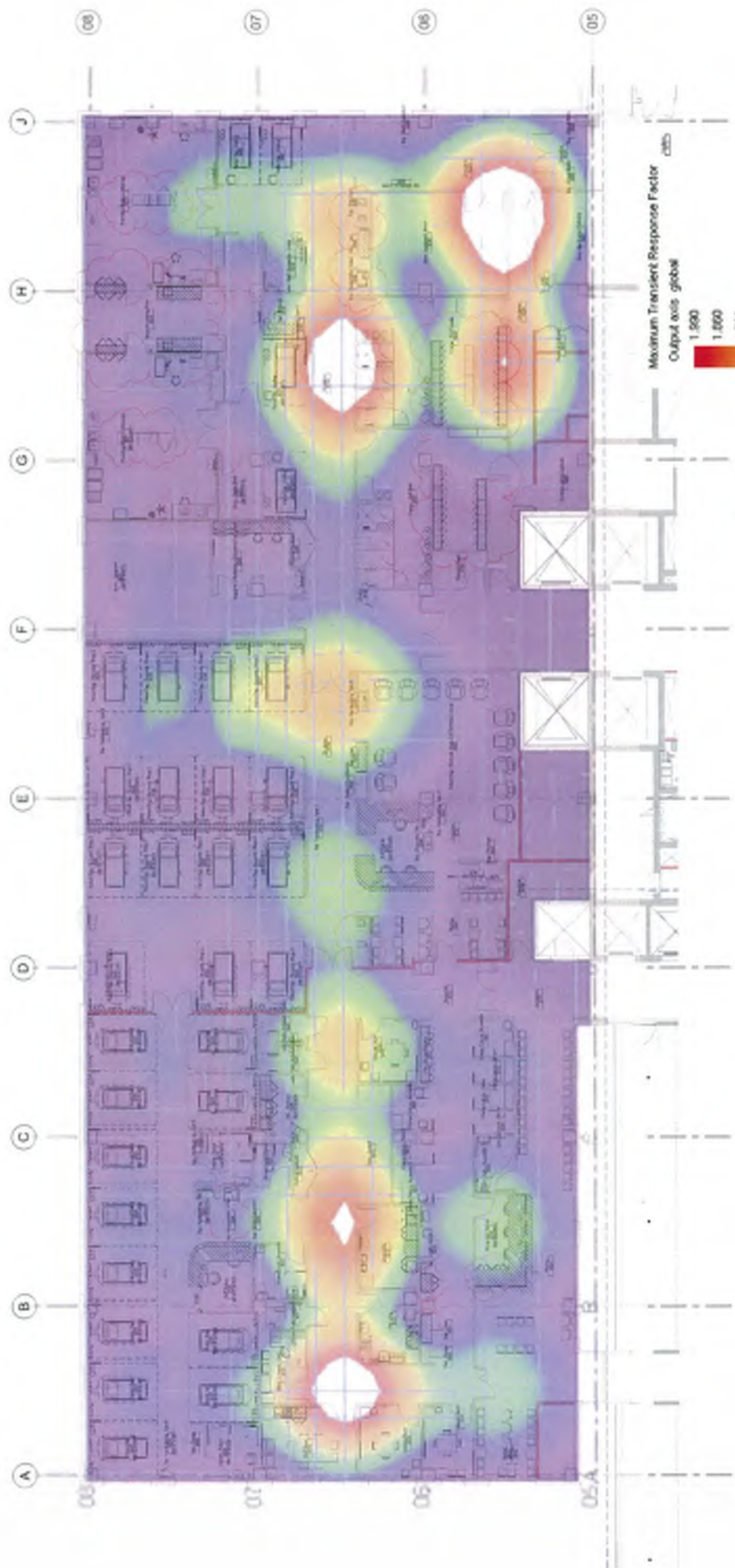
1 Level 05 - 382 - FFE

Case A252 Footfall / 1



PRELIMINARY





Level 7
Corridor Excitation
Resonant Response

PRELIMINARY



HEALTH
INFRASTRUCTURE

FFSE Level 6 3B2 North

LISMORE BASE
HOSPITAL

15427 DO A20063 D 1:100

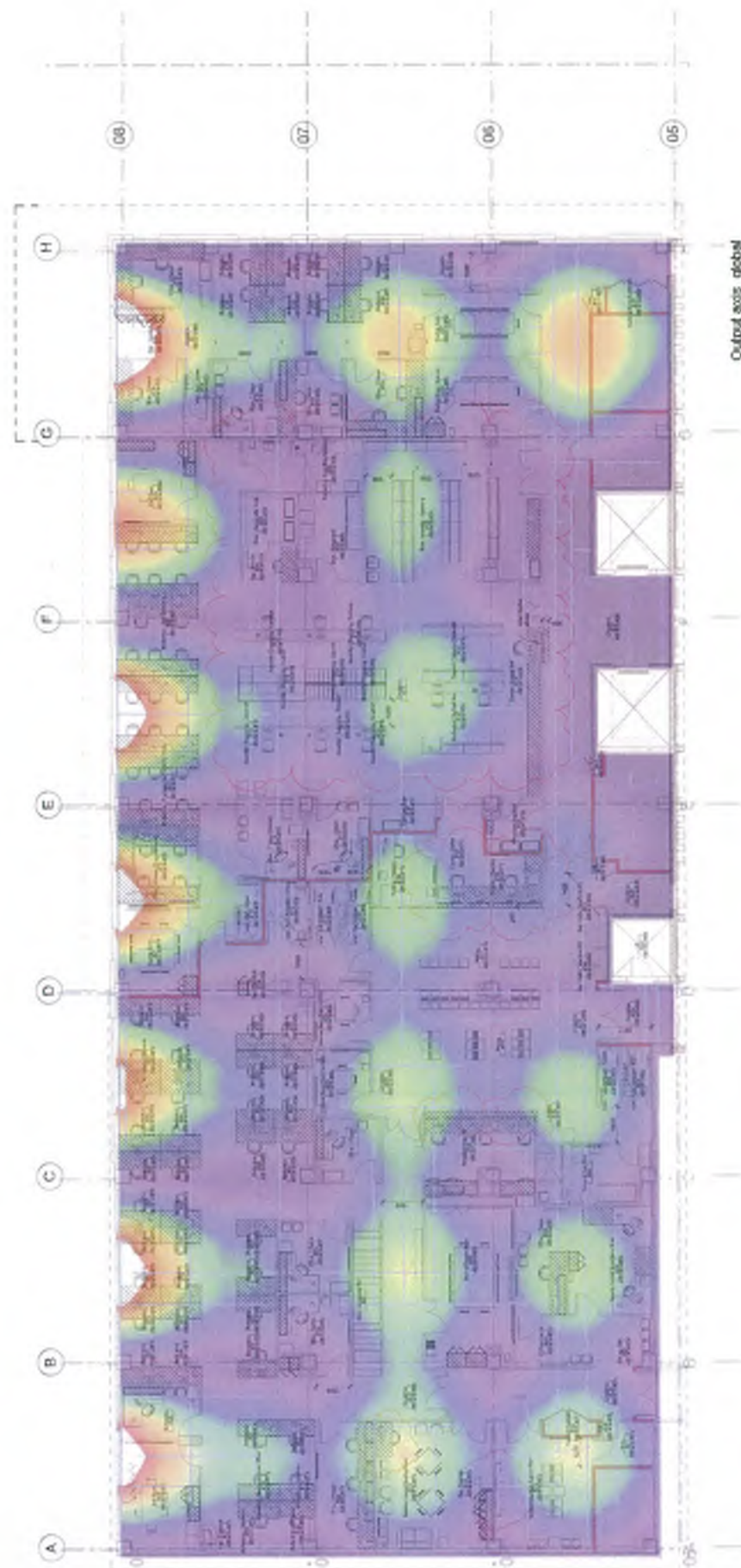
CONRAD
GARGET

Health
Infrastructure

aurora
NSW

John
Holland

PT Option



Output axis global



Corridor Excitation
Transient Analysis

1 Level 04 - 3B2 - FFE



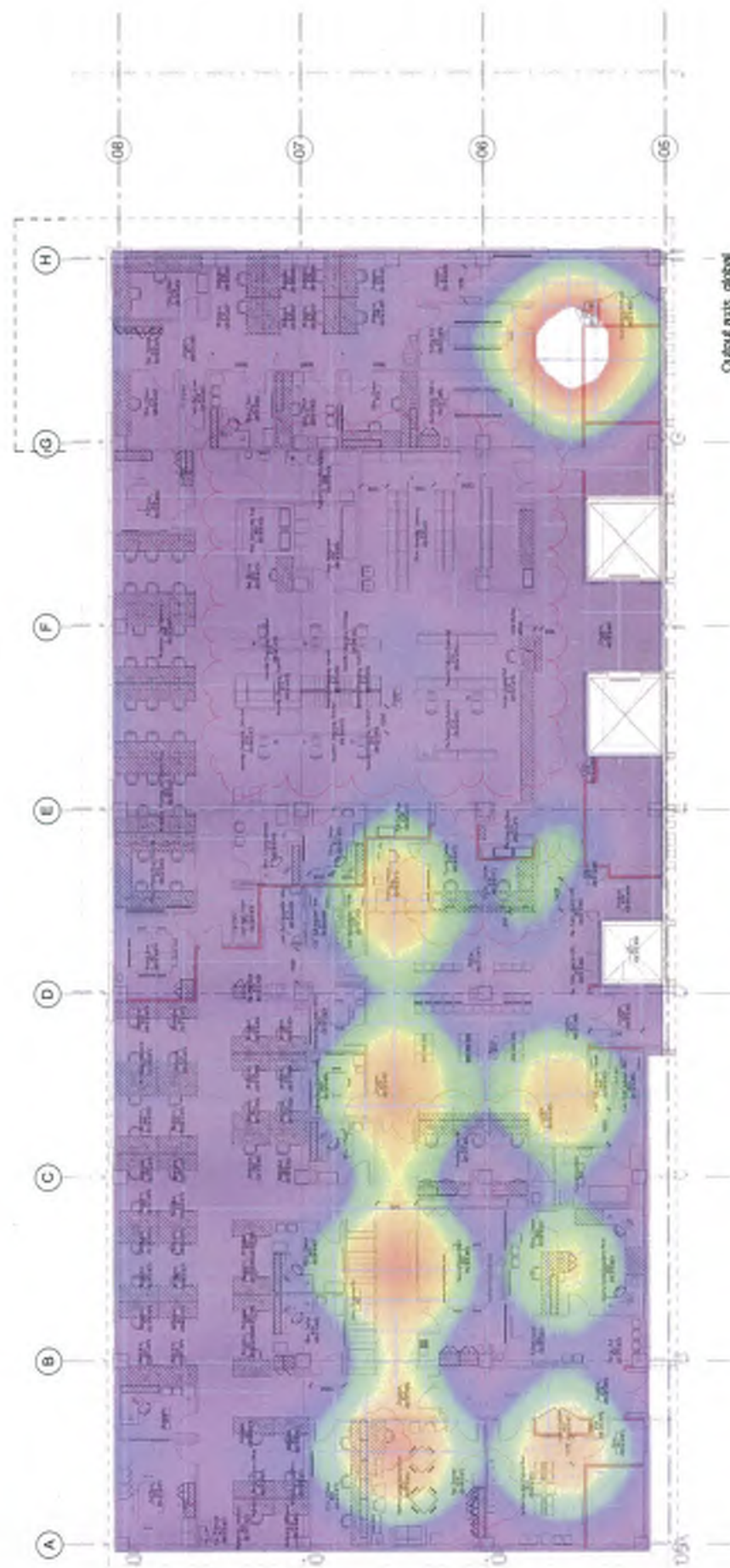
PRELIMINARY

HEALTH
INFRASTRUCTURE

FF&E Level 4 3B2 NB

LISMORE BASE
HOSPITAL

15427 DD A25041 C 1:100

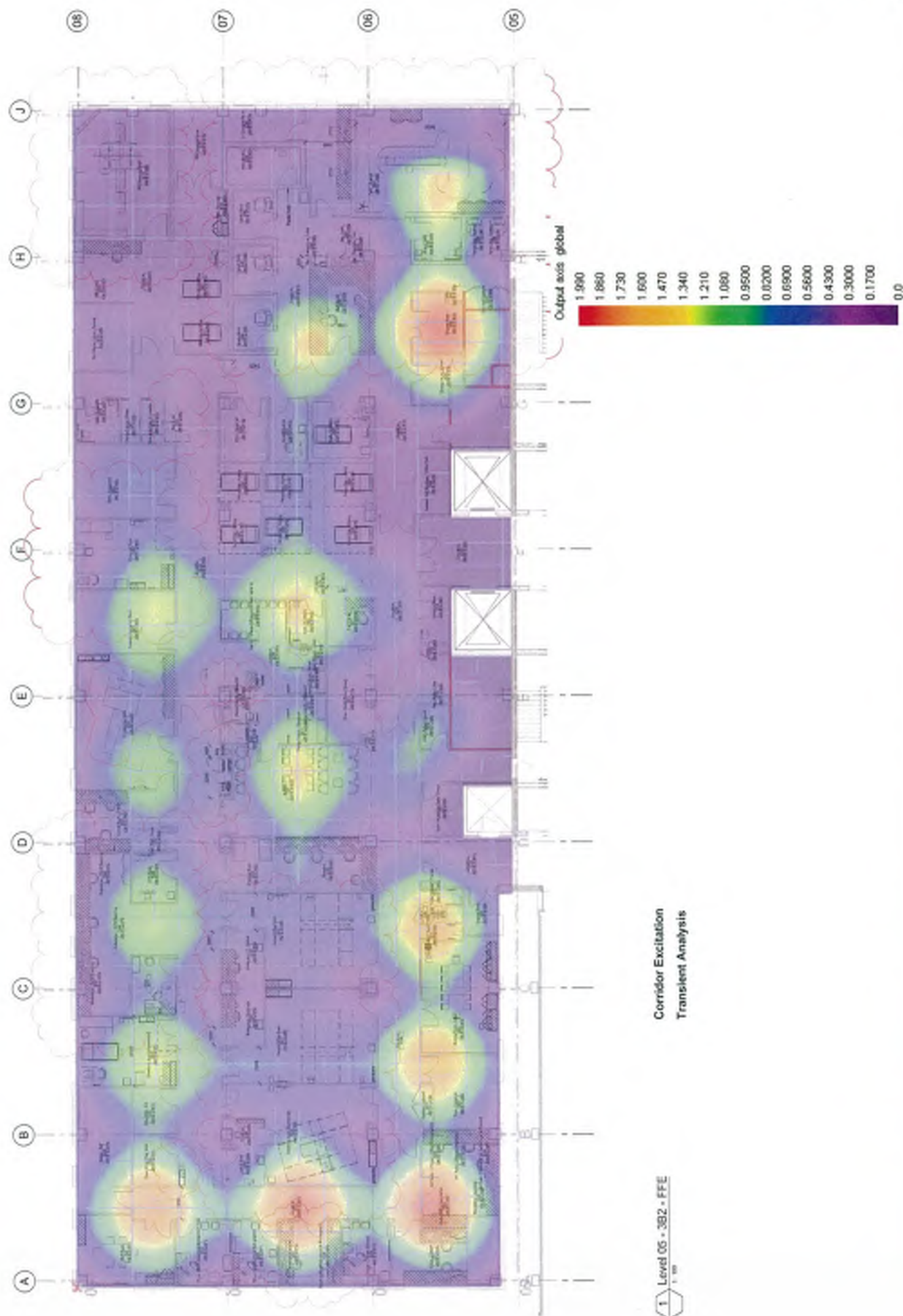


Output axis gbt/m²



Corridor Excitation
Transient Analysis

1 Level 04 - 3B2 - FFE



PRELIMINARY



PROJECT
LISMORE BASE
HOSPITAL

CHARTER
FF&E Level 5-382 NB

CLIENT
HEALTH
INFRASTRUCTURE

DATE
2018

REVISIONS
1.000

SCALE
1:100

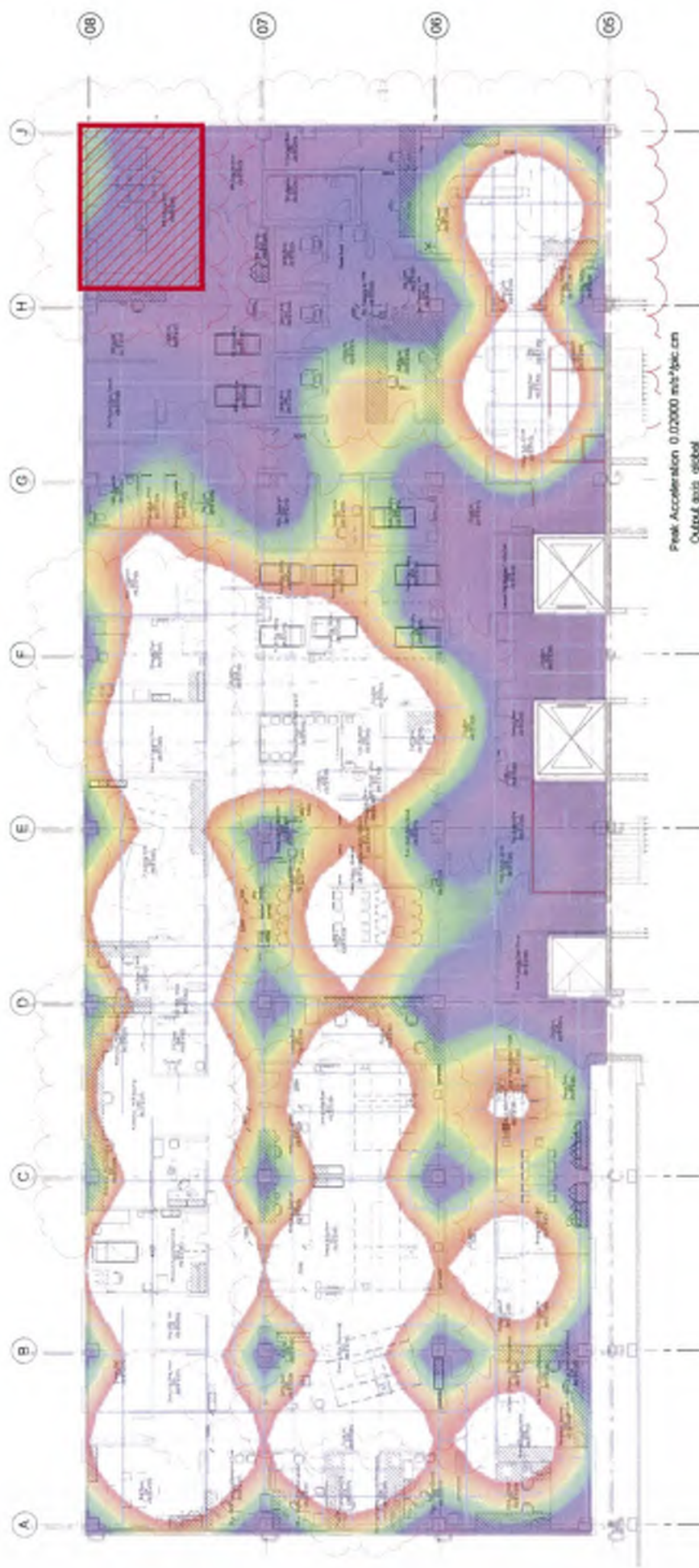
CONRAD
GARGET

Health
Infrastructure

aurora
NSW

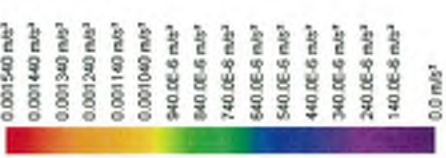
John
Holland

PROJECT NO. 15427 CD A26051 D 1:100



Peak Acceleration 0.02000 m/s²/g/cn

Output axis global

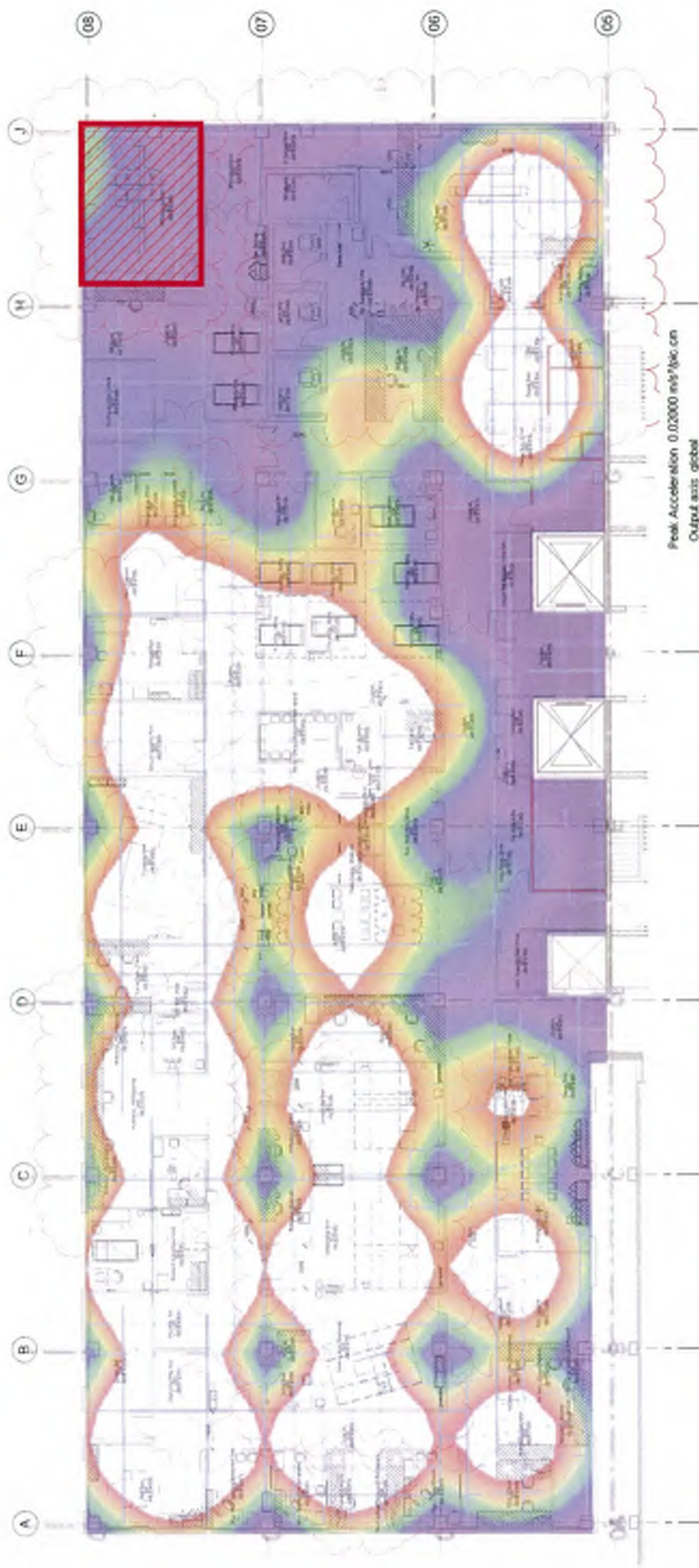


MRI Room Acceleration - Peak Value
Room Excitation
Resonant Analysis

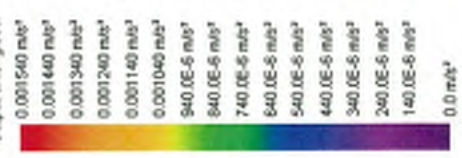
1 Level 05 - 382 - FFE

PRELIMINARY





Peak Acceleration 0.02000 m/s²/g/cn
Output axis global

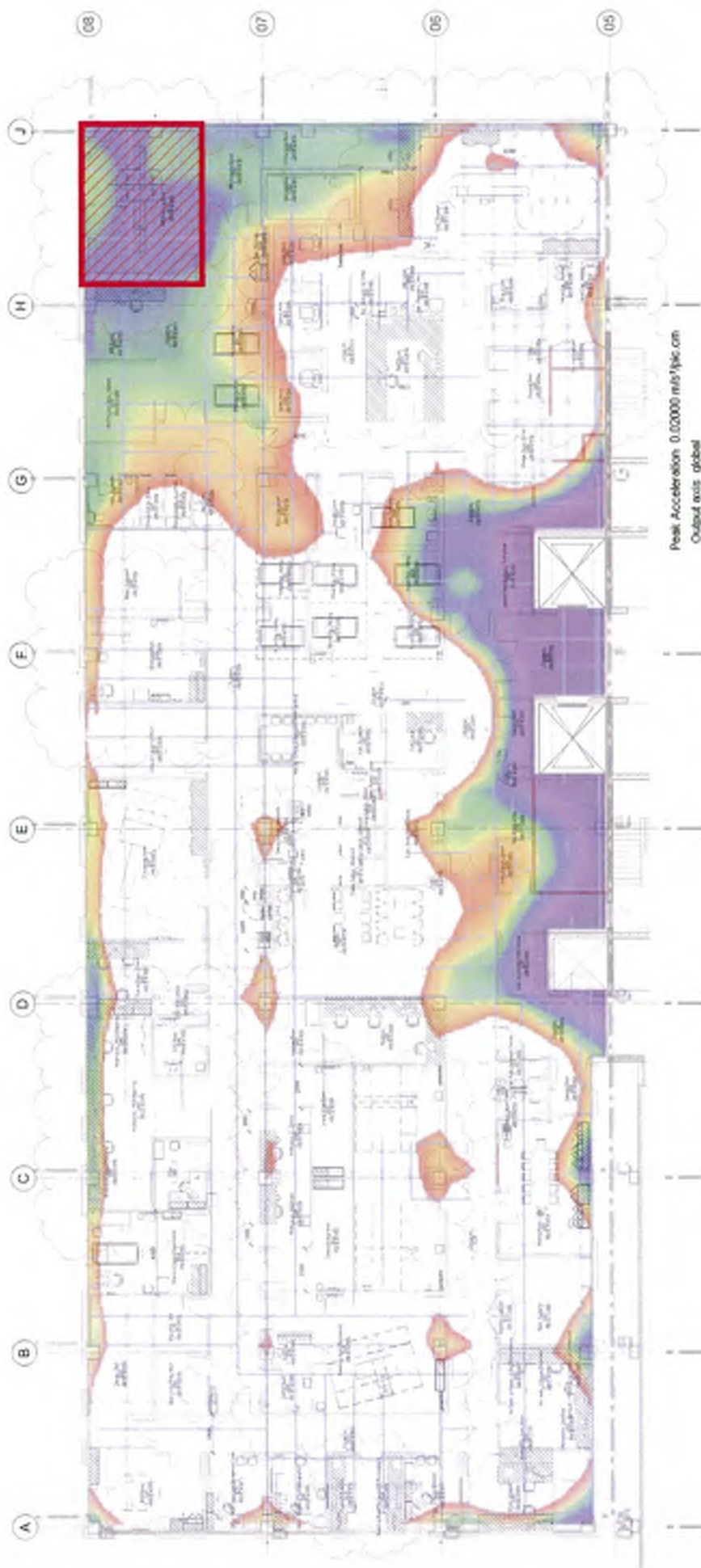


MRI Room Acceleration - Peak Value
Room Excitation
Resonant Analysis

1 Level 06 - 302 - FFE

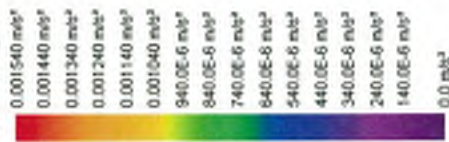
PRELIMINARY





Peak Acceleration 0.02000 m/s²/c cm

Output axis: global



MRI Room Acceleration - Peak Value
Room Excitation
Resonant Analysis

1 Level 05 - 382 - FFE
1:100

PRELIMINARY

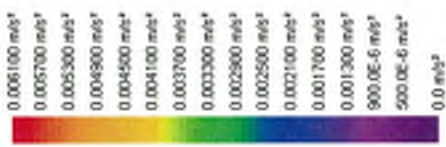
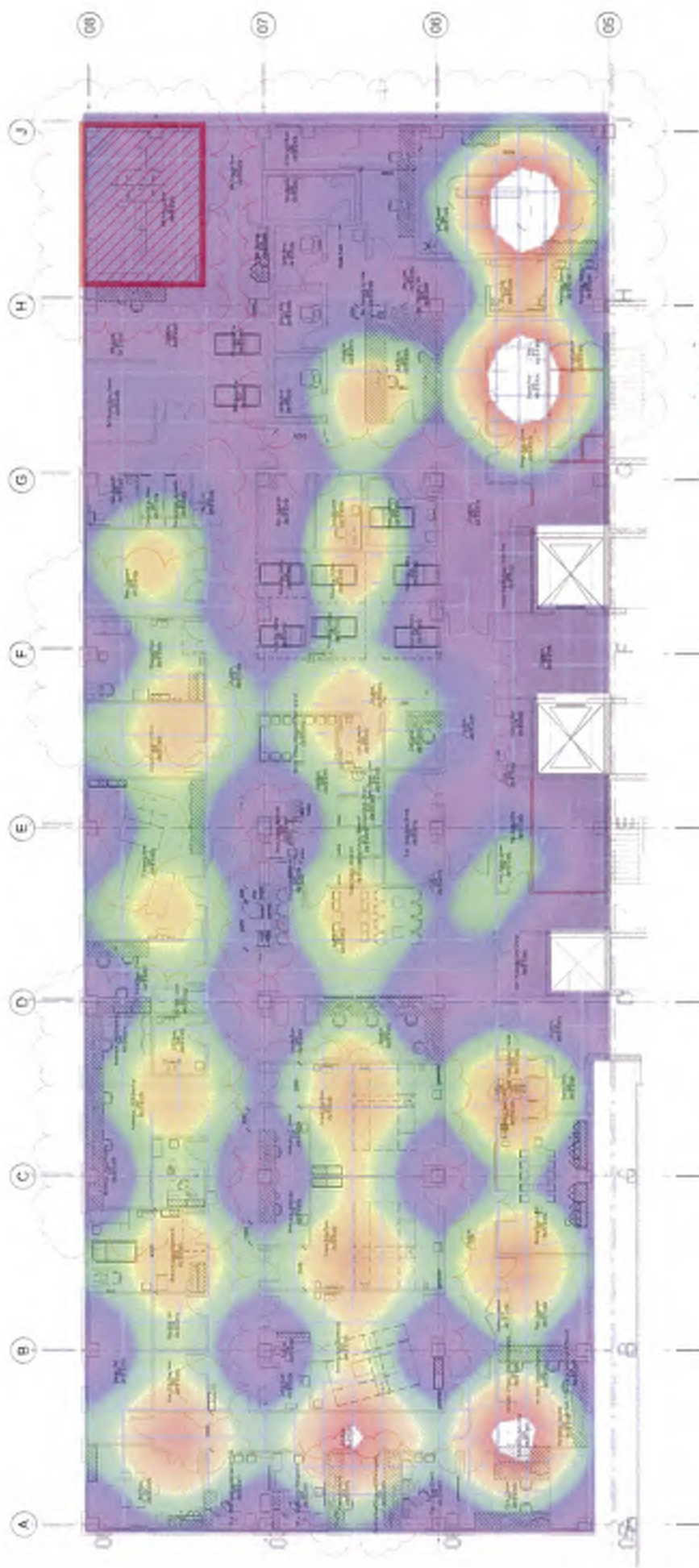


HEALTH
INFRASTRUCTURE

PF&E Level 5 382 NB

LISMORE BASE
HOSPITAL

15427 DO A26051 D 1:100

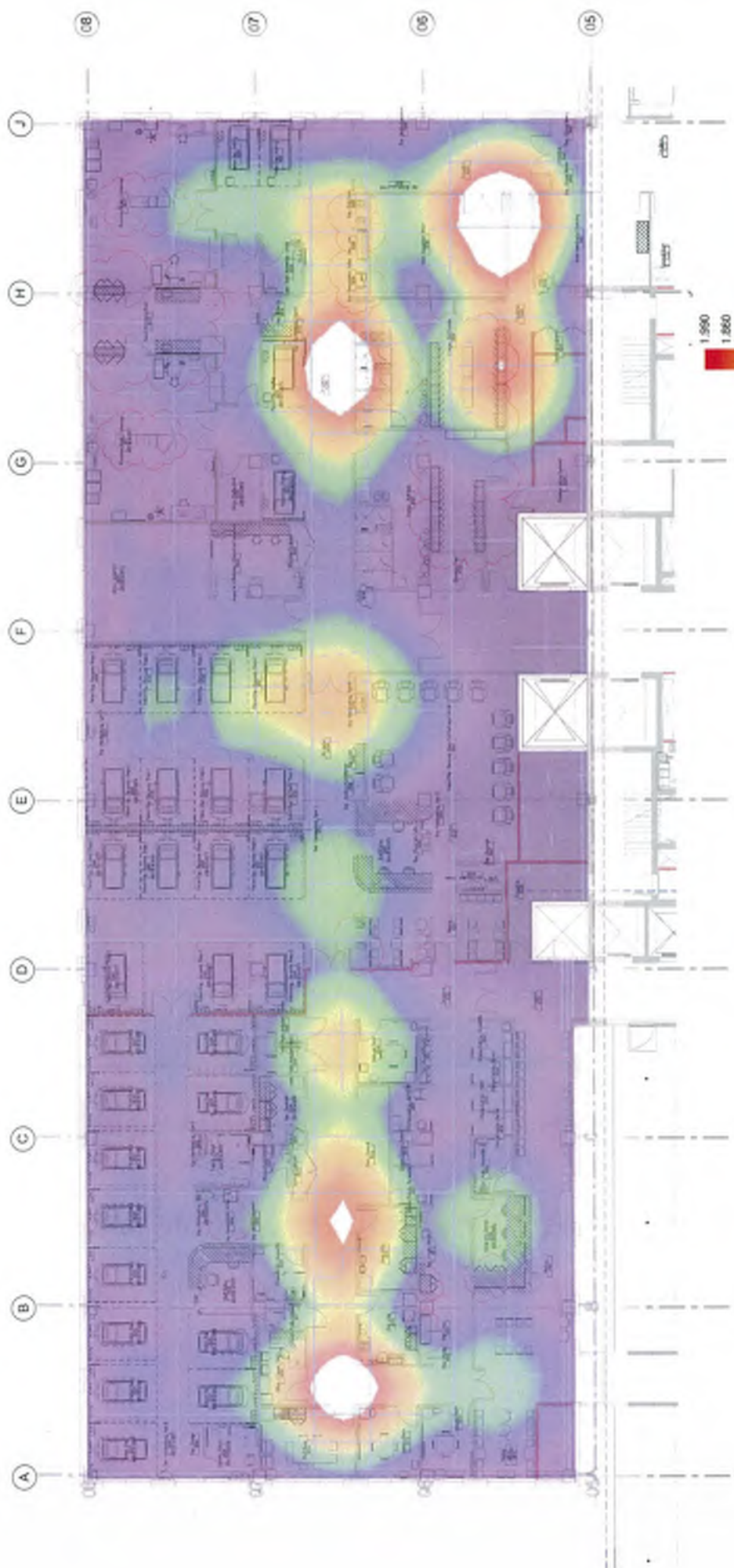


MRI Room Acceleration - RMS Value
Room Excitation
Transient Analysis

1 Level 05 - 3B2 - FFE

PRELIMINARY





Corridor Excitation
Resonant Analysis

PRELIMINARY



CLIENT
HEALTH
INFRASTRUCTURE

PROJECT
FF&E Level 6 382 North

PROJECT
LISMORE BASE
HOSPITAL

15427 DD A25063 D 1:100

Appendix B – Constants Used in Vibration Analysis

Concrete

- $f_c = 40\text{MPa}$
- Elastic modulus $E_c = 32\,800\text{MPa} = 3.28 \times 10^{11} \text{ Pa}$
- Poisson's ratio = 0.2
- Density = 2400 kg/m^3
- Concrete damping ratio = 2%
- Bending stiffness
 - PT: 95%
 - RC: 70%

Structural Steel

- $E = 200 \times 10^3 \text{ MPa} = 2 \times 10^{11} \text{ Pa}$
- Poisson's ratio = 0.28
- Density = 7850 kg/m^3
- Damping Ratio = 0%

General

- Footings: RL23
- Column Sizes = 600×600 typically
- Column Stiffness = 100% bending
- Lumped mass option
- Walker mass = 90kg
- Damping ratio = 3%
- Excitation force type = SCI P354

Loading

- Theatres: LL = 5kPa SDL = 2kPa
- MRI room: LL = 5kPa SDL = 2kPa
- Corridors: LL = 5kPa SDL = 2kPa
- % Loading used:
 - Live Load = 10%
 - Superimposed DL = 20%
- Self-weight of MRI scanner
 - Machine self-weight = 6100 kg (= 61kN). Room size = $42 \text{ m}^2 \rightarrow 1.45\text{kPa}$
 - Magnetic shielding = $46 \text{ kg/m}^2 (= 0.5\text{kPa})$
- Footfall frequency
 - Corridors: 1Hz to 2.2Hz
 - Rooms: 1Hz to 1.8Hz
- 150 modes have been adopted

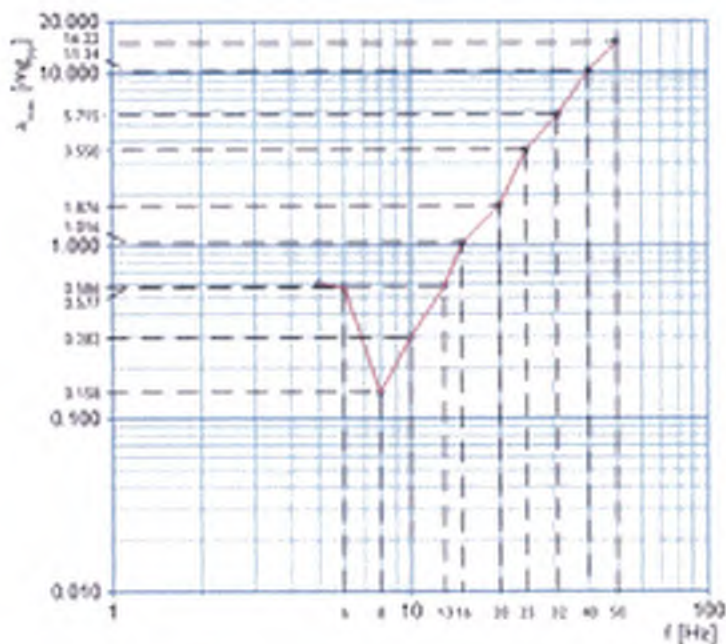
- Mass participation = 77% approx.. Greater participation will not be required as the vibration frequencies will be very high which have far less stringent vibration requirements

Restraints

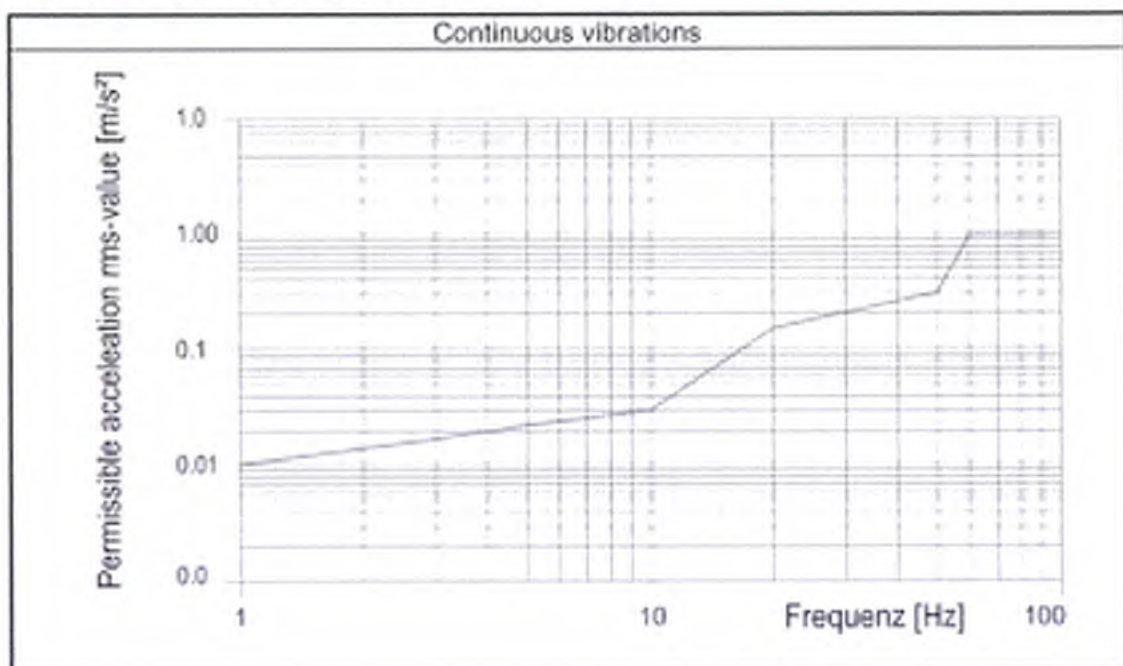
- Base of columns: Rx, Ry, Rz, Mx, My, Mz
- Core walls: Rx, Ry, Rz, Mx, My, Mz
- Horizontal restraint has been assumed at each level, as only vertical vibration is being checked here. Lateral systems will be designed for wind and earthquake loading.
- In some locations, the façade has been input around the perimeter to share load between storeys.

Appendix C – Constants Used in Vibration Analysis

MRI requirements as per “Philips Ingenia 3.0T OmegaHP” specification (dated 01-10-2014)



Vibration requirements adopted for medical equipment areas as per specification for “SOMATOM Definition Flash” (dated 27-06-2012)



Appendix D – Assumed Location of Corridors

DESIGNED AS CORRIDOR
FOOTBALL SEQUENCES.

WOODS BAGOT
ARCHITECTS

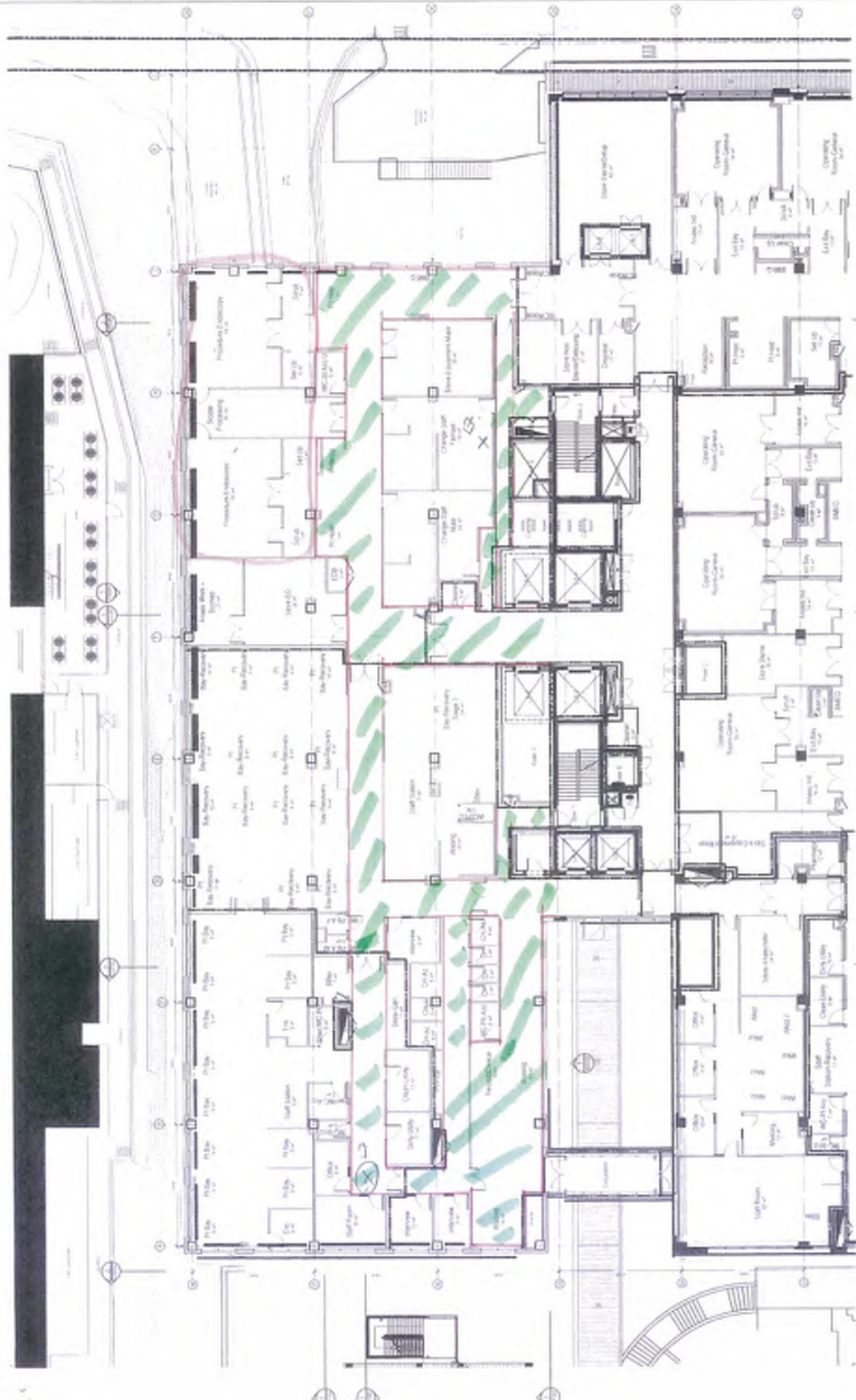
GENERAL ARRANGEMENT -
LEVEL 05 NORTH - 30

DATE: 02/05/2017
DRAWN: J. K. 02/05/2017
CHECKED: J. K. 02/05/2017
PROJECT: TUMOR BASE HOSPITAL
REVISION: 1

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1. CORRIDOR
2. STAIRS
3. LIFT
4. ELEVATOR
5. LOBBY
6. WAITING AREA
7. CONSULTATION
8. EXAMINATION
9. TREATMENT
10. SURGERY
11. INTENSIVE CARE
12. ICU
13. CCU
14. CCU
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100. CCU

1. CORRIDOR
2. STAIRS
3. LIFT
4. ELEVATOR
5. LOBBY
6. WAITING AREA
7. CONSULTATION
8. EXAMINATION
9. TREATMENT
10. SURGERY
11. INTENSIVE CARE
12. ICU
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WOODS BAGOT
ARCHITECTS

GENERAL ARRANGEMENT - LEVEL 1B NORTH - 30'

USAMRIID BUILDING REDEVELOPMENT

LEGEND

- LABORATORY
- OFFICE
- STORAGE
- JANITOR
- MECHANICAL
- ELECTRICAL
- PLUMBING
- HAZARDOUS WASTE
- NON-HAZARDOUS WASTE
- LANDSCAPE
- EXTERIOR
- INTERIOR
- STAIR
- ELEVATOR
- ENTRY
- LOBBY
- RECEPTION
- CONFERENCE
- TRAINING
- RESTROOM
- LOCKER
- SHOWERS
- CHANGING
- STORAGE
- MECHANICAL
- ELECTRICAL
- PLUMBING
- HAZARDOUS WASTE
- NON-HAZARDOUS WASTE
- LANDSCAPE
- EXTERIOR
- INTERIOR
- STAIR
- ELEVATOR
- ENTRY
- LOBBY
- RECEPTION
- CONFERENCE
- TRAINING
- RESTROOM
- LOCKER
- SHOWERS
- CHANGING

NOTES

1. SEE GENERAL ARRANGEMENT - LEVEL 1A NORTH - 30' FOR DETAILS OF LEVEL 1A NORTH.
2. SEE GENERAL ARRANGEMENT - LEVEL 1C NORTH - 30' FOR DETAILS OF LEVEL 1C NORTH.
3. SEE GENERAL ARRANGEMENT - LEVEL 1D NORTH - 30' FOR DETAILS OF LEVEL 1D NORTH.
4. SEE GENERAL ARRANGEMENT - LEVEL 1E NORTH - 30' FOR DETAILS OF LEVEL 1E NORTH.
5. SEE GENERAL ARRANGEMENT - LEVEL 1F NORTH - 30' FOR DETAILS OF LEVEL 1F NORTH.
6. SEE GENERAL ARRANGEMENT - LEVEL 1G NORTH - 30' FOR DETAILS OF LEVEL 1G NORTH.
7. SEE GENERAL ARRANGEMENT - LEVEL 1H NORTH - 30' FOR DETAILS OF LEVEL 1H NORTH.
8. SEE GENERAL ARRANGEMENT - LEVEL 1I NORTH - 30' FOR DETAILS OF LEVEL 1I NORTH.
9. SEE GENERAL ARRANGEMENT - LEVEL 1J NORTH - 30' FOR DETAILS OF LEVEL 1J NORTH.
10. SEE GENERAL ARRANGEMENT - LEVEL 1K NORTH - 30' FOR DETAILS OF LEVEL 1K NORTH.
11. SEE GENERAL ARRANGEMENT - LEVEL 1L NORTH - 30' FOR DETAILS OF LEVEL 1L NORTH.
12. SEE GENERAL ARRANGEMENT - LEVEL 1M NORTH - 30' FOR DETAILS OF LEVEL 1M NORTH.
13. SEE GENERAL ARRANGEMENT - LEVEL 1N NORTH - 30' FOR DETAILS OF LEVEL 1N NORTH.
14. SEE GENERAL ARRANGEMENT - LEVEL 1O NORTH - 30' FOR DETAILS OF LEVEL 1O NORTH.
15. SEE GENERAL ARRANGEMENT - LEVEL 1P NORTH - 30' FOR DETAILS OF LEVEL 1P NORTH.
16. SEE GENERAL ARRANGEMENT - LEVEL 1Q NORTH - 30' FOR DETAILS OF LEVEL 1Q NORTH.
17. SEE GENERAL ARRANGEMENT - LEVEL 1R NORTH - 30' FOR DETAILS OF LEVEL 1R NORTH.
18. SEE GENERAL ARRANGEMENT - LEVEL 1S NORTH - 30' FOR DETAILS OF LEVEL 1S NORTH.
19. SEE GENERAL ARRANGEMENT - LEVEL 1T NORTH - 30' FOR DETAILS OF LEVEL 1T NORTH.
20. SEE GENERAL ARRANGEMENT - LEVEL 1U NORTH - 30' FOR DETAILS OF LEVEL 1U NORTH.
21. SEE GENERAL ARRANGEMENT - LEVEL 1V NORTH - 30' FOR DETAILS OF LEVEL 1V NORTH.
22. SEE GENERAL ARRANGEMENT - LEVEL 1W NORTH - 30' FOR DETAILS OF LEVEL 1W NORTH.
23. SEE GENERAL ARRANGEMENT - LEVEL 1X NORTH - 30' FOR DETAILS OF LEVEL 1X NORTH.
24. SEE GENERAL ARRANGEMENT - LEVEL 1Y NORTH - 30' FOR DETAILS OF LEVEL 1Y NORTH.
25. SEE GENERAL ARRANGEMENT - LEVEL 1Z NORTH - 30' FOR DETAILS OF LEVEL 1Z NORTH.

DATE: 10/1/2010

BY: J. BAGOT

APP'D: J. BAGOT

SCALE: 1/8" = 1'-0"

PROJECT: USAMRIID BUILDING REDEVELOPMENT

SHEET: 101

TOTAL SHEETS: 101

APPENDIX E

6.13 Structural Drawing List

S000	COVER SHEET & DRAWING INDEX
S001	STANDARD NOTES SHEET 1
S002	STANDARD NOTES SHEET 2
S003	STANDARD NOTES SHEET 3
S004	STANDARD NOTES SHEET 4
S005	STANDARD NOTES SHEET 5
S006	STANDARD NOTES SHEET 6
S007	STANDARD NOTES SHEET 7
S008	STANDARD NOTES SHEET 8
S010	STEELWORK MEMBER SCHEDULE
S101	LEVEL 3 FOUNDATION PLAN
S102	LEVEL 3 SLAB PLAN
S111	LEVEL 3 TO LEVEL 4 STEEL FRAMING ELEVATIONS SHEET 1
S112	LEVEL 3 TO LEVEL 4 STEEL FRAMING ELEVATIONS SHEET 2
S115	LEVEL 3 TO LEVEL 4 STEEL DETAILS SHEET 1
S116	LEVEL 3 TO LEVEL 4 STEEL DETAILS SHEET 2
S117	LEVEL 3 TO LEVEL 4 STEEL DETAILS SHEET 3
S121	LEVEL 3 FOUNDATION DETAILS - SHEET 1
S122	LEVEL 3 FOUNDATION DETAILS - SHEET 2
S123	LEVEL 3 FOUNDATION DETAILS - SHEET 3
S201	LEVEL 4 GENERAL ARRANGEMENT PLAN
S202	LEVEL 5 GENERAL ARRANGEMENT PLAN
S203	LEVEL 6 GENERAL ARRANGEMENT PLAN
S204	LEVEL 7 GENERAL ARRANGEMENT PLAN
S205	NORTH TOWER EXTENSION LEVEL 7 MODIFICATIONS
S206	NORTH TOWER EXTENSION LEVEL 8 GENERAL ARRANGEMENT PLAN
S207	NORTH TOWER EXTENSION LEVEL 9 GENERAL ARRANGEMENT PLAN
S208	NORTH TOWER EXTENSION LEVEL 10 GENERAL ARRANGEMENT PLAN
S209	NORTH TOWER EXTENSION LEVEL 11 GENERAL ARRANGEMENT PLAN
S211	LEVEL 3 LOADING PLAN
S212	LEVEL 4 LOADING PLAN
S213	LEVEL 5 LOADING PLAN
S214	LEVEL 6 LOADING PLAN
S215	LEVEL 7 LOADING PLAN
S216	NORTH TOWER EXTENSION LEVEL 8 LOADING PLAN
S217	NORTH TOWER EXTENSION LEVEL 9 LOADING PLAN
S218	NORTH TOWER EXTENSION LEVEL 10 LOADING PLAN
S219	NORTH TOWER EXTENSION LEVEL 11 LOADING PLAN
S221	SOUTH BUILDING LEVEL 6 & 7 INFILL SLAB PLANS & DETAILS
S222	SOUTH BUILDING LEVEL 6 & 7 REINFORCEMENT PLANS & DETAILS
S225	SOUTH BUILDING LEVEL 7 TOPPING SLAB PLAN
S231	BLOCK A REFURBISHMENT SPEED PANEL LAYOUT & DETAILS
S232	BLOCK A LEVEL 3 DEMOLITION PLAN

S233 BLOCK A LEVEL 4 DEMOLITION PLAN
S234 BLOCK A LEVEL 4 ROOF FRAMING PLAN & DETAILS
S241 BLOCK A STEEL STAIR SLAB PLAN & DETAILS
S242 BLOCK A STEEL STAIR FRAMING DETAILS
S251 BLOCK C LEVEL 5 HOIST INFILL SLABS PLAN & DETAIL
S401 LEVEL 4 SECTIONS SHEET 1
S402 LEVEL 4 SECTIONS SHEET 2
S411 LEVEL 5 SECTIONS
S421 LEVEL 6 SECTIONS
S431 LEVEL 7 SECTIONS
S441 NORTH TOWER EXTENSION SECTIONS
S501 COLUMN SCHEDULE SHEET 1
S502 COLUMN SCHEDULE SHEET 2
S503 NORTH TOWER EXTENSION COLUMN SCHEDULE
S511 COLUMN DETAILS SHEET 1
S601 CORE WALL ELEVATIONS SHEET 1
S602 CORE WALL ELEVATIONS SHEET 2
S603 NORTH TOWER EXTENSION CORE WALL ELEVATIONS SHEET 1
S604 NORTH TOWER EXTENSION CORE WALL ELEVATIONS SHEET 2
S610 RC WALL DETAILS SHEET 1
S621 BLOCKWALL DETAILS SHEET 1
S651 NORTH BUILDING WESTERN FACADE ELEVATION
S652 NORTH BUILDING EASTERN FACADE ELEVATION
S653 NORTH BUILDING NORTHERN FACADE ELEVATION - SHEET 1
S654 NORTH BUILDING NORTHERN FACADE ELEVATION - SHEET 2
S655 NORTH TOWER EXTENSION WESTERN FACADE ELEVATION
S656 NORTH TOWER EXTENSION EASTERN FACADE ELEVATION
S657 NORTH TOWER EXTENSION SOUTHERN FACADE ELEVATION
S658 NORTH TOWER EXTENSION NORTHERN FACADE ELEVATION SHEET 1
S659 NORTH TOWER EXTENSION NORTHERN FACADE ELEVATION SHEET 2
S661 FACADE DETAILS SHEET 1
S662 FACADE DETAILS SHEET 2
S802 NORTH TOWER EXTENSION ROOF STEEL FRAMING PLAN
S811 NORTH TOWER EXTENSION ROOF STEEL FRAMING SECTION &
DETAILS