

BCA & DDA/ACCESS COMPLIANCE REVIEW

Armidale Secondary College Redevelopment



Armidale Secondary College

ISSUE FOR DA EIS

DATE 16TH OCTOBER 2018

PROJECT 17352

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ISSUED	REVIEW	ISSUED BY
Date. 16 th October 2018	Issued for DA-EIS	Trevor Eveleigh
Date. 25 th July 2018	Issued for Tender	Trevor Eveleigh
Date. 24 th July 2018	Updated with upgrade works to existing block B stairs	Trevor Eveleigh
Date. 23 rd July 2018	Updated for DA Issue	Trevor Eveleigh
Date. 6 th July 2018	Updated to include JV3 Compliance Report	Trevor Eveleigh
Date. 28 th June 2018	Title changed to Secondary College	Trevor Eveleigh
Date. 26 th June 2018	Issue for DA	Trevor Eveleigh
Date. 19 th June 2018	Draft 30% Issue for Review	Trevor Eveleigh
Date. 8 th May 2018	Draft 25% Issue for Review	Trevor Eveleigh
Date. 16 th January 2018	Draft Issue for Review	Trevor Eveleigh

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1.0 INTRODUCTION

1.1 GENERAL

NBRS Architecture have been engaged by NSW Department of Education to develop a Design for the redevelopment of the existing Armidale Secondary School campus to create the new Armidale Secondary College.

As part of the design process a review has been undertaken of the proposed design against current building regulations and to ensure that the design meets the appropriate building regulations, including the provision of equitable access for all occupants.

This report has been prepared to accompany the Planning Application and sets out the outcome of the BCA Compliance and Access review.

The review compares the proposed design, against the requirements set out in the following documents:

- The Building Code of Australia 2016 version (BCA) and
- The associated relevant standards

The proposed design for the development is represented in the following plans prepared by NBRS Architecture which have been used as part of this review.

Table 1

Drawing number	Issue	Drawing name	Date
17352-NBRS-DA-000	A	COVER PAGE A	xx.10.2018
17352-NBRS-DA-002	1	SITE ANALYSIS - PART 01	04.10.2018
17352-NBRS-DA-003	1	SITE ANALYSIS - PART 02	04.10.2018
17352-NBRS-DA-004	1	SITE CONSIDERATIONS	04.10.2018
17352-NBRS-DA-005	1	BUILDING ENVELOPE 3D	04.10.2018
17352-NBRS-DA-006	1	EXISTING SITE PLAN	04.10.2018
17352-NBRS-DA-011	1	TREE SUBMISSION	04.10.2018
17352-NBRS-DA-012	1	PROPOSED SITE PLAN	04.10.2018
17352-NBRS-DA-082	1	SITE CIRCULATION, VEHICLE & PEDESTRIAN PLAN	04.10.2018
17352-NBRS-DA-085	1	CONSTRAINTS DIAGRAM - COMBINED	04.10.2018
17352-NBRS-DA-100	1	SITE GENERAL ARRANGEMENT PLAN - LOWER GROUND	04.10.2018
17352-NBRS-DA-101	1	SITE GENERAL ARRANGEMENT PLAN - GROUND FLOOR	04.10.2018
17352-NBRS-DA-102	1	SITE GENERAL ARRANGEMENT PLAN - UPPER GROUND	04.10.2018
17352-NBRS-DA-103	1	SITE GENERAL ARRANGEMENT PLAN - FIRST FLOOR	04.10.2018
17352-NBRS-DA-104	1	SITE GENERAL ARRANGEMENT PLAN - SECOND FLOOR	04.10.2018
17352-NBRS-DA-105	1	SITE ROOF PLAN	04.10.2018
17352-NBRS-DA-300	1	ELEVATIONS	04.10.2018
17352-NBRS-DA-301	1	ELEVATIONS AND SECTIONS - ZONE1 & O BLOCK	04.10.2018
17352-NBRS-DA-400	1	ELEVATIONS AND SITE SECTIONS	04.10.2018
17352-NBRS-DA-401	1	NEW BUILD SECTIONS	04.10.2018

1.2 SITE DETAILS

The site for the existing school campus is 158 – 182 Butler Street Armidale, NSW 2350

The existing site includes the following lots;

- Lot 1151 DP 821627
- Lot 1 DP 196298
- Lot 1 DP 758032
- Lot 704 DP 755808
- Lot 1 Section 49 DP 758032
- Lot 2 DP 758032

The site is within the Armidale Regional Council Local Government area, which is Climate Zone 7.

BCA COMPLIANCE REVIEW – ARMIDALE SECONDARY COLLEGE.



1.3 THE PROPOSAL

The proposal is to redevelop and expand the existing buildings and construct new buildings on the site to cater for 1580 students in a 9 Stream facility.

The proposed development includes:

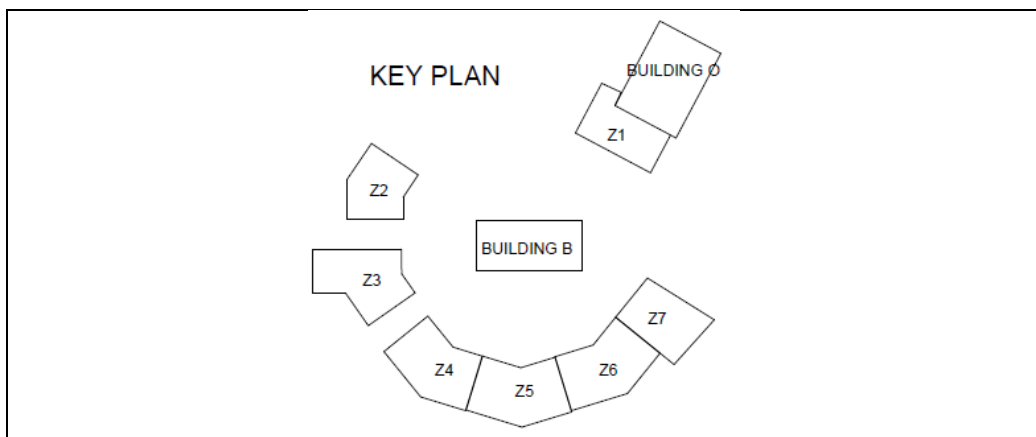
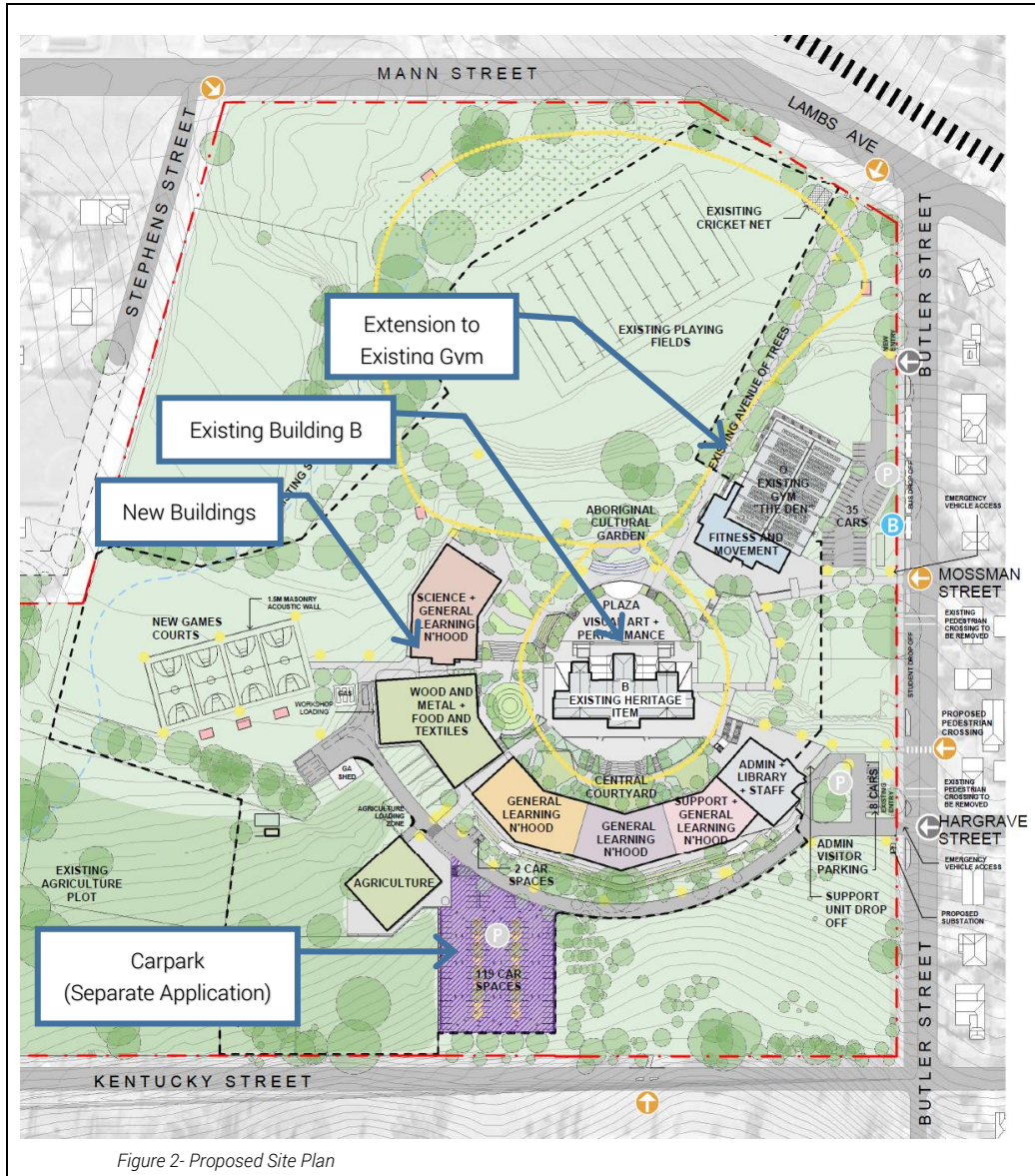
- **Building B** - Retention of the existing Heritage listed two storey central building(BlockB), to be:
 - o Canteen, Performing Arts rooms & GLA's on the ground floor level.
 - o Art classrooms & Workshops on the first floor level.
- **Zone 1 - Building O** - Construction of a new single storey extension to the existing Multipurpose hall and Gym, to include fitness area and movement studio.
- **Zone 2** - Construction of new two storey Science and classroom block separate from other buildings.
- **Zone 3** - Construction of new two storey specialist block including Wood & Metal and Food & Textiles areas separated from the other buildings
- **Zone 4 to Zone 6** – Construction of a new two storey classroom block attached to the adjacent Zone 7 building.
- **Zone 7** – Construction of a new three storey building including college main reception administration facilities on the ground floor, library on the first floor and staff areas on the third floor.
- **Agriculture Buildings** – Construction of a number of single storey building containing Agricultural educational building including classrooms and store areas.

The proposal also includes a space allocated for the future Performing Arts Facility (PAF) which will be part of a separate Development if proceeded with.

The new buildings are to be positioned in an arc separated from and around the existing heritage building,

Due to the large scale of the facility there will be one main classroom block separated from a second two storey classroom block and the Multipurpose Hall.

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1.4 BCA REQUIREMENTS

The Building Code of Australia (BCA) sets out number of Performance Requirements that a building solution must meet to achieve a reasonable level of safety, access to buildings, and functional performance.

Where due to the configuration within individual building or site applications, the detailed design does not meet the Deemed to Satisfy Provisions of the BCA, there is an opportunity for the design to be assessed as an Alternative Solution, against the Performance Requirements of the BCA.

Any Alternative Solutions will be subject to the approval of the Principal Certifying Authority.

The requirements for the building are based on the scale of the building, the number of occupants and the usage of the building.

1.5 BUILDING HEIGHT, RISE IN STOREYS & EFFECTIVE HEIGHT

The existing Heritage listed Building B is two storeys

The proposed buildings are a mix of One, two and three storeys.

2.0 BCA DEEMED TO SATISFY PROVISIONS
2.1 PART A – FIRE COMPARTMENTS AND FIRE RATINGS

The proposed building is considered as one Class 9b Education development with a few areas of Class 5 office use associated with the main class 9b use of the site.

The existing heritage listed central building is to be retained and will retain its current Class 9b Education Building usage as part of the development.

Based on the Class 9b use the type of construction of the buildings

Table 2

Use Details			BCA Use Class	Rise in storeys	Type of Construction
Existing Block B		Classroom Buildings (Education)	Class 9b	2	B
Existing Block O		Gym/Classrooms – (Education)	Class 9b	2	B
Zone 2	New	Science & Classroom Block - (Education)	Class 9b	2	B
Zone 3	New	Science & Classroom Block - (Education)	Class 9b	2	B
Zone 4 to 6	New	Science & Classroom Block - (Education)	Class 9b	2	Attached to Zone 7 = A
Zone 7	New	Administration Office (UGF) Library (FF) (Education) & Staff areas (SF)	Class 5 Class 9b & Class 5	3	A
Agricultural Buildings	New	Classrooms, Staff room Storage	Class 9b Class 5 & Class 7b	1	C
Agricultural Buildings	New	Chicken Coop, Shearing Shed & Pig Shed (Farm Buildings)	Class 7&8 Farm buildings	1	C

As Zones 4 to 7 are connected together, they are considered to be one building and of type A construction.

The other buildings are of 2 stories of class 9b use and therefore are required to be of Type B construction.

The Agricultural Classroom building is a mixture of class 5, 7b & 9b. As the main use is associated with Class 9b school function the building as a whole is considered to be a class 9b use. The building is a single storey, with a floor area of 250m² and therefore are of Type C construction.

The other agricultural buildings being the Chicken Coop(25m²), the Shearing Shed (62m²) and the Pig Shed (25m²) are all considered to be Farm Buildings under the BCA terms.

The following table sets out the relevant BCA classifications of proposed building and construction requirements:

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Table 3- Building Details

Armidaile Future Secondary School			Armidaile Future Secondary School		
NSW DOE		Butler Street Armidaile, NSW 2350	NSW DOE		Butler Street Armidaile, NSW 2350
Class	9b - School Building		Class	9b - School Building	
Rise in Storeys	3		Rise in Storeys	2	
Effective Height	-		Effective Height	-	
Building Floor Area	7700 M2		Building Floor Area	3000 M2	
Containing Atrium	No		Containing Atrium	No	
Place of Public Entertainment	No		Place of Public Entertainment	No	
Basement Car park	No		Basement Car park	No	
	0			0	
Class 9B Building Specific use			Class 9B Building Specific use		
	Zone			Zone	
Building Location Zone	Zone 7 Southern tablelands ACT		Building Location Zone	Zone 7 Southern tablelands ACT	
Type of Construction	A		Type of Construction	B	
Maximum Compartment			Maximum Compartment		
	Area 8000 M2			Area 5500 M2	
	Volume 48000 M3			Volume 33000 M3	

Armidaile Future Secondary School		
NSW DOE		Butler Street Armidaile, NSW 2350
Class	9b - School Building	
Rise in Storeys	1	
Effective Height	-	
Building Floor Area	250 M2	
Containing Atrium	No	
Place of Public Entertainment	No	
Basement Car park	No	
	0	
Class 9B Building Specific use		
	Zone	
Building Location Zone	Zone 7 Southern tablelands ACT	
Type of Construction	C	
Maximum Compartment		
	Area 3000 M2	
	Volume 18000 M3	

2.2 BUILDING FLOOR AREAS & COMPARTMENTATION

The building regulations limit the floor area of a building based on the use and the type of construction.

For buildings of Type B construction the maximum floor area is 5,500 m² or a volume of 33,000 m³.

For buildings of Type A construction the maximum floor area is 8000 m² or a volume of 48,000 m³.

The Zone 4 to 7 building will have a floor area of less than 8000m².

The Zone 2 & 3 buildings will have a floor area of less than 5500 m²

Therefore the building compartments will meet the Deemed to Satisfy Provision requirements for the maximum floor area for a building.

Each of the buildings will be separated from each other by a distance of at least 6m to effectively be separated buildings in Building Regulation terms.

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2.3 BOUNDARY SEPARATION

The proposed buildings are to be located away from the perimeter site boundaries, and therefore will not require specific fire separation requirements.

The buildings on the site are located at least 6m apart to reduce the fire separation requirements to the perimeter walls.

The structural elements such as columns located in the perimeter walls of building Zone 1, 2 & 3 will be within 18m of other buildings and therefore are required to have a FRL 120/30/-- structural fire rating

All structural elements within Zone 4 to 7 building are required to have a structural fire rating of FRL 120/60/30.

2.4 PART C- FIRE RESISTANCE

The Following table sets out the requirements for fire resistance dependent upon the classification and distance of the building from the site boundaries or other buildings, taken from Clause 3.1 and Table 3 of Specification C1.1.

Table 4- Required Fire ratings for Construction Type A (Three Stgoey)- Class 9b Usage

Fire Rating Required (Part C)				
External Walls (Including columns in walls)	Distance from Fire Source	Loadbearing	Distance from Fire source	Non-Loadbearing
	< 1.5 m	120/120/120	< 1.5 m	"-/120/120"
	1.5 to 3 m	120/90/90	1.5 to 3 m	"-/90/90"
	3 to 9 m	120/60/30	More than 3m	"-/--/--"
	9 to 18 m	120/60/30		
	More than 18 m	120/60/30		
	< 1.5 m	1.5 to 3 m	More than 3m	
External Columns	120/-/-	120/-/-	120/-/-	
Seperation of External Opeings	Adjacent Building on site	Adjacent Site Boundary	Fire Compartments vertical	
	Protect openings within 6m	Protect openings within 3m or within 6m of other side of road	Horizontal Compartment Seperation Required	
Horizontal Openings in Separate Fire Compartments	Select Angle between walls	Parallel	Horizontal line of sight distance	6m
	Generally	Top Floor Columns		
Internal Columns	120/-/-	-/-		-
Fire Wall	120/120/120			
Fire Stairs, lifts shafts	Loadbearing	120/120/120	Non Loadbearing	"-/120/120"
Walls to SOU, & Public Corridors	Loadbearing	120/-/-	Non Loadbearing	NA
Floors		120/120/120	Note: 60/60/60 Fire rated spandrel required at perimeter windows/openings unless sprinkler protected.	
Roofs		"-/--/--"		-
				-

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Table 5- Required Fire ratings for Construction Type B (Two Storey)- Class 9b Usage

Fire Rating Required (Part C)				
External Walls (Including columns in walls)	Distance from Fire Source	Loadbearing	Distance from Fire source	Non-Loadbearing
	< 1.5 m	120/120/120	< 1.5 m	"-/120/120"
	1.5 to 3 m	120/90/60	1.5 to 3 m	"-/90/60"
	3 to 9 m	120/30/30	More than 3m	"-/-/-"
	9 to 18 m	120/30/-		
	More than 18 m	"-/-/-"		
	< 1.5 m	1.5 to 3 m	More than 3m	
External Columns	120-//-	120-//-	"-/-/-"	
Seperation of External Opeings	Adjacent Building on site	Adjacent Site Boundary	Fire Compartments vertical	
	Protect opeings within 6m	Protect opeings within 3m or within 6m of other side of road	Floor Structural requirement	
Horizontal Openings in Separate Fire Compartments	Select Angle between walls	Parallel	Horizontal line of sight distance	6m
	Generally	Top Floor Columns		
Internal Columns	120-//-	"-/-/-"	-	
Fire Wall	120/120/120			
Fire Stairs, lifts shafts	Loadbearing	120/120/120	Non Loadbearing	"-/120/120"
Walls to SOU, & Public Corridors	Loadbearing	120-//-	Non Loadbearing	NA
Floors		30/30/30		
Roofs		"-/-/-"	-	
			-	

Table 6- Required Fire ratings for Construction Type C (One Storey)- Class 9b Usage

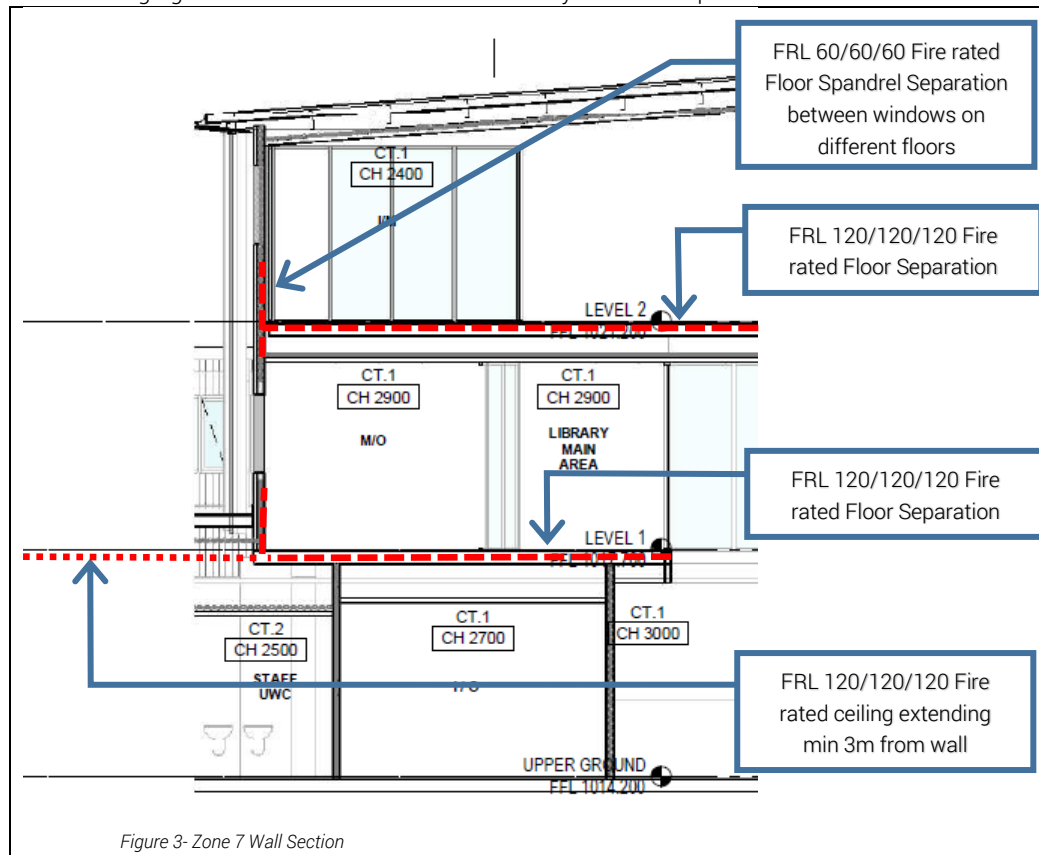
Fire Rating Required (Part C)				
External Walls	Distance from Fire Source	Loadbearing	Distance from Fire source	Non-Loadbearing
(Including columns in walls)	< 1.5 m	90/90/90	< 1.5 m	90/90/90
	1.5 to 3 m	60/60/60	1.5 to 3 m	60/60/60
	3 to 9 m	"--/--/--"	More than 3m	"--/--/--"
	9 to 18 m	"--/--/--"		
	More than 18 m	"--/--/--"		
	< 1.5 m	1.5 to 3 m	More than 3m	
External Columns	90/--/--	60/--/--	"--/--/--"	
Seperation of External Opeings	Adjacent Building on site	Adjacent Site Boundary	Fire Compartments vertical	
	Protect openings within 1.5m	Protect Openings within 1.5m of side/rear boundary.	No seperation Required	
	Horizontal Openings in Separate Fire Compartments	Select Angle between walls	Parallel	Horizontal line of sight distance
	Generally	Top Floor Columns		
Internal Columns	"--/--/--"	"--/--/--"	-	
Fire Wall	120/120/120			
Fire Stairs, lifts shafts	Loadbearing	120/120/120	Non Loadbearing	"--/120/120"
Walls to SOU, & Public Corridors	Loadbearing	120/--/--	Non Loadbearing	NA
Floors		"--/--/--"		
Roofs		"--/--/--"	-	
			-	

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2.4.1 VERTICAL SEPARATION OF OPENINGS

The Zone 4 to 7 building is to be of Type A construction and Clause C2.6 of the BCA requires openings in external walls that are located above each other to be provided with fire protection to prevent fire transfer from one floor to the next. This is either by way of a vertical fire rated spandrel or a horizontal fire rated projection above the lower opening.

The following figure shows the location of the floor by floor fire separation.



The existing Block B building is of Type B construction will have a fire rated plasterboard ceiling that also encases the structural steel supports for the floor. This is to be carried out as separate upgrade works.

2.4.2 EXTERNAL FAÇADE COMBUSTIBILITY.

The BCA identifies the external façade requirements based on the particular items and their locations, in two main ways as follows:

2.4.2.1 MAIN BUILDING FAÇADE

The main external façade in Type A & B constructions are required to be of non-combustible as set out in Clause 3.1 & 4.1 of BCA Specification C1.1.

2.4.2.2 CURRENT DESIGN

Within the proposed design the external facades are proposed to be of a mixture of the following materials, as indicated in the image below.;

- Brickwork,
- Metal cladding
- Glazed sections
- Metal Sun Screens

All of which will be classified as being Non-combustible and meeting the requirements of Specification C1.1 & internal linings meeting the requirements of Specification C1.10.

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TYPICAL NEIGHBORHOOD ENTRY

MATT COLORBOND ROOFING AND CLADDING:

- LOW EMBODIED ENERGY
- LOW MAINTENANCE
- SENSITIVITY TO HERITAGE SETTING THROUGH NEUTRAL/DARK BACKDROP
- LOW REFLECTIVITY/GLARE AND RECESSIVE NATURE AS ROOF VIEWED IS FROM KENTUCKY STREET TO THE SOUTH
- ARMIDALE REGION SUITED TO SOLAR ABSORPTION



Figure 4- External Facade

The existing Building B is of masonry construction and is expected to meet the general Non-combustible building requirements.

2.4.3 ENTERTAINMENT VENUE FIRE SEPARATION REQUIREMENTS.

The existing Multipurpose Hall / Gym and the new addition are not considered to be "Entertainment Venues", however the NSW DOE Education Facilities Standard and Guidelines (EFSG) sets out specific design requirements for School halls and Gyms, due to the potential for the facilities to be used by the community. This includes the requirement for store rooms to have a FRL 60/60/60 fire separation from other areas.

2.5 PART D – ACCESS AND EGRESS

The requirements for access to and egress from a building are dependent upon the number of occupants within the building and their characteristics.

The new facilities will be design for the 1580 students and approximately 150 associated staff.

2.5.1 SITE SECURITY AND EVACUATION PRINCIPLES

As part of the management of the college, an evacuation plan will be developed which is expected to include:

- Staff and teachers informed of an event that requires evacuation.
- Evacuation of the classes to a safe location at a distance away from the building, that is accessible from a public roadway.
- The evacuation would be undertaken by staff (Teachers)

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- In a school normally students are orderly evacuated by teachers and staff to the sports field as part of the evacuation process.

Within the proposed design the perimeter will be fenced with a security fence to 2100mm high and gates located at pedestrian and vehicle entry points.

The gates will have security control with the gates being closed and locked during operational hours.

There are a total of 6 gates to the perimeter of the site, of these the following gates are the main entry and exit gates that will be provided with secure access and egress.

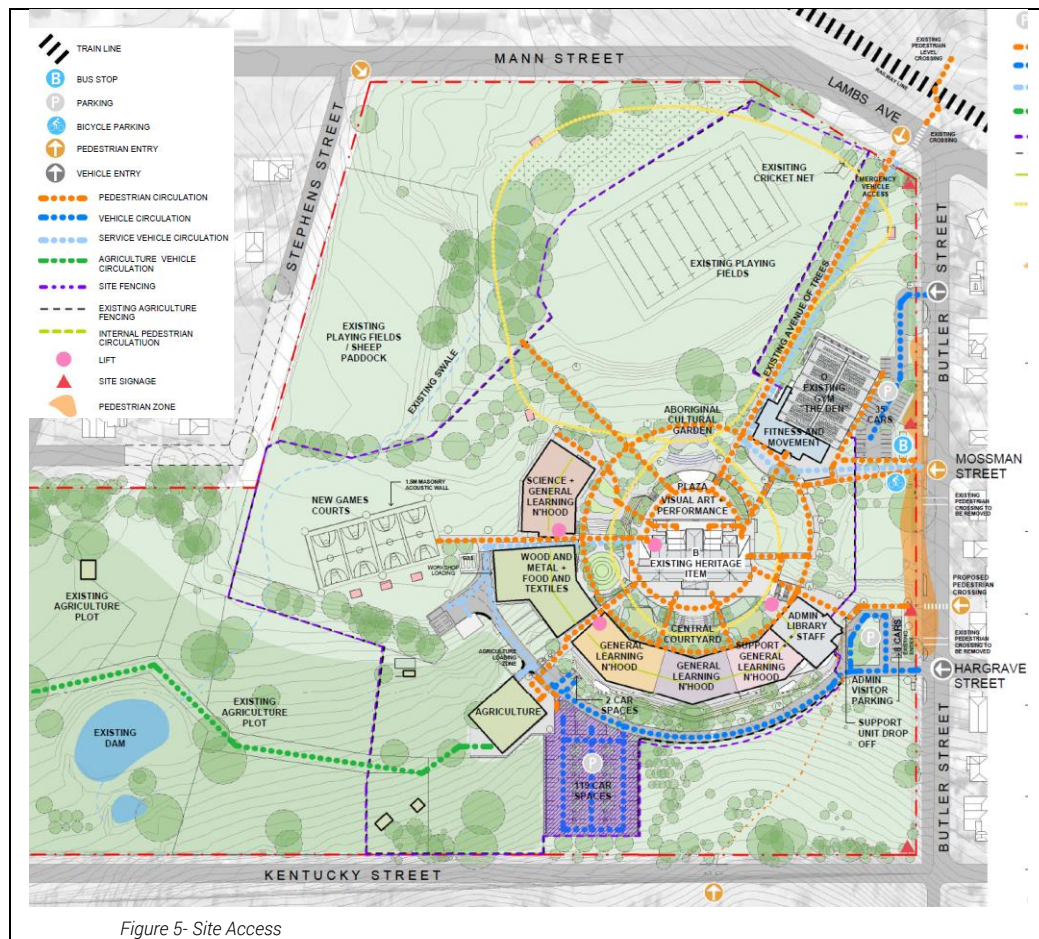
The proposed works also includes internal fences to provide separation between vehicle and student areas, with gates that will not be locked. To ensure free egress from the building.

All staff will be provided with security swipe access through these gates, which will ensure that they can exit the site at all times;

The sporting field will provide a safe space to evacuate to and enable management of the occupant evacuation. Following evacuation to the muster point all occupants will be able to evacuate through the gates to the adjacent road.

The building may be used by community groups out side of general operational hours. As part of normal procedures users of the facilities will be issued with swipe access to the building which will enable egress via identified entry gates at all times.

The following figure indicates the site perimeter fencing and the gate locations.



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2.5.2 NUMBER OF EXITS

A class 9b Educational building is required by Clause D1.2 to have at least two exits from each level. The proposed design includes the division of the buildings up into neighborhood Zones.

Each of the neighborhoods is to be provided with at least two exits either via a stair or directly to outside and to have a minimum clear exit width of:

- 2.5m for a neighborhood of 8 classrooms, with up to 260 occupants (240 students plus staff)
- 3m for a neighborhood of 9 classrooms, with up to 320 occupants.(270 students plus staff)

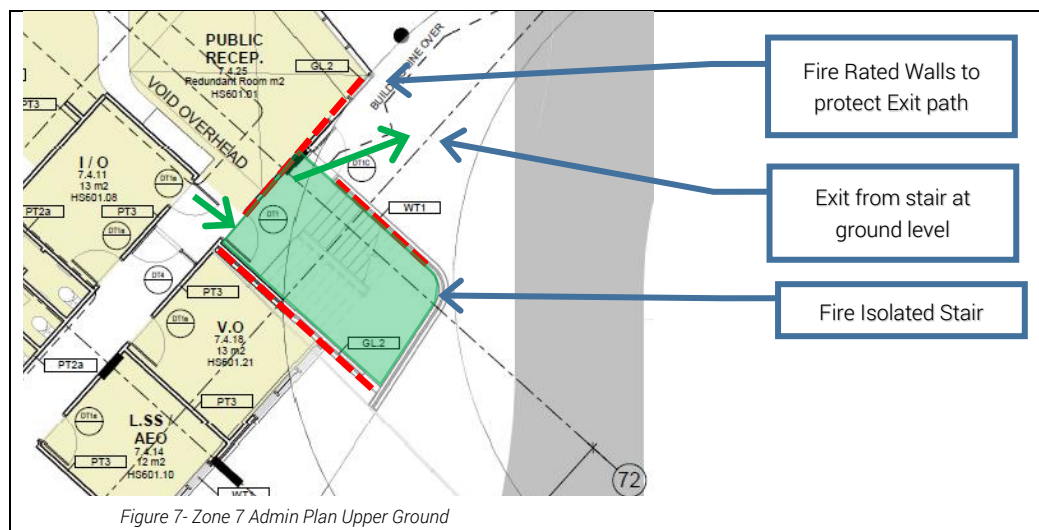
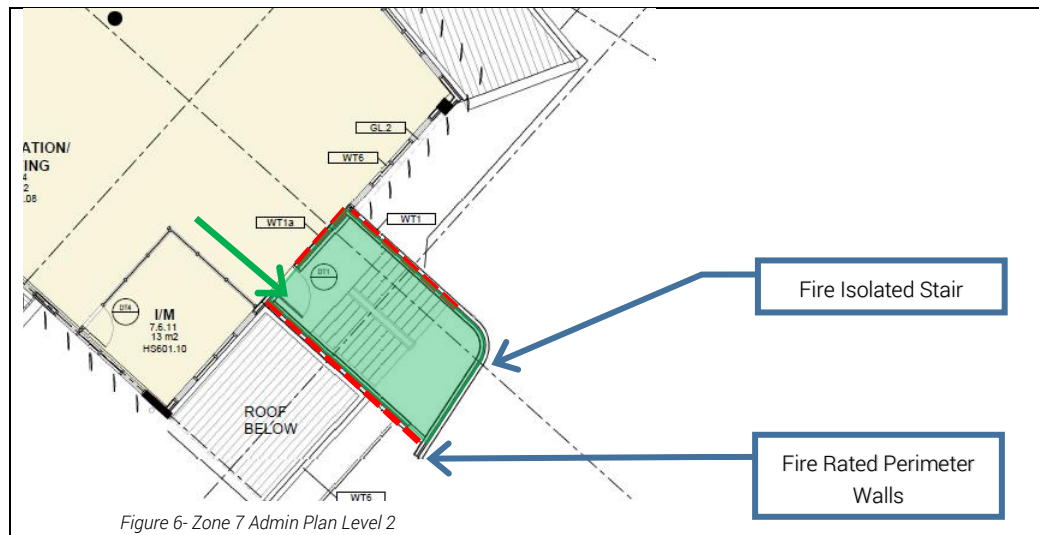
2.5.3 FIRE ISOLATION OF EXITS

Generally each level will be either at ground level or one level above ground level, therefore stairs can be open and not fire rated.

The exception to this is the administration building in Zone 7 which is three storeys and the stair connects all three levels.

2.5.3.1 ZONE 7 – ADMIN SOUTH SIDE STAIR

The stair to the southern side is to be fire isolated as required by Clause D1.3 of the BCA and clause D1.7 sets out the requirements for the locations of doors to a fire isolated stair, which is to be from a public corridor or the like.



2.5.3.2 ZONE 7 – ADMIN NORTH SIDE STAIR

The stair to the northern side of the building is to be either a fire isolated stair or an open stair in lieu of a fire isolated stair in line with Clause D1.8 of the BCA.

The following Figure shows the required treatments for an external stair in lieu of a fire isolated stair.

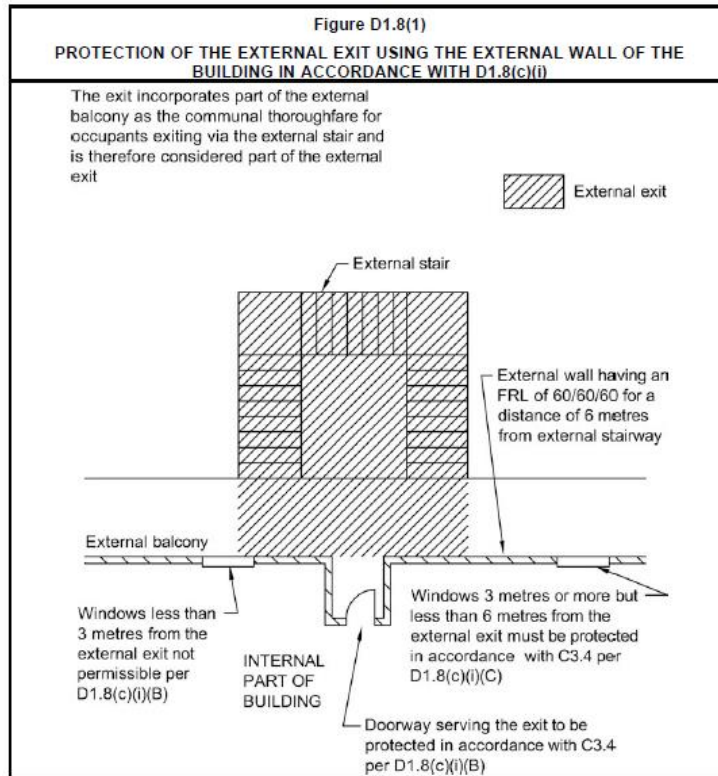
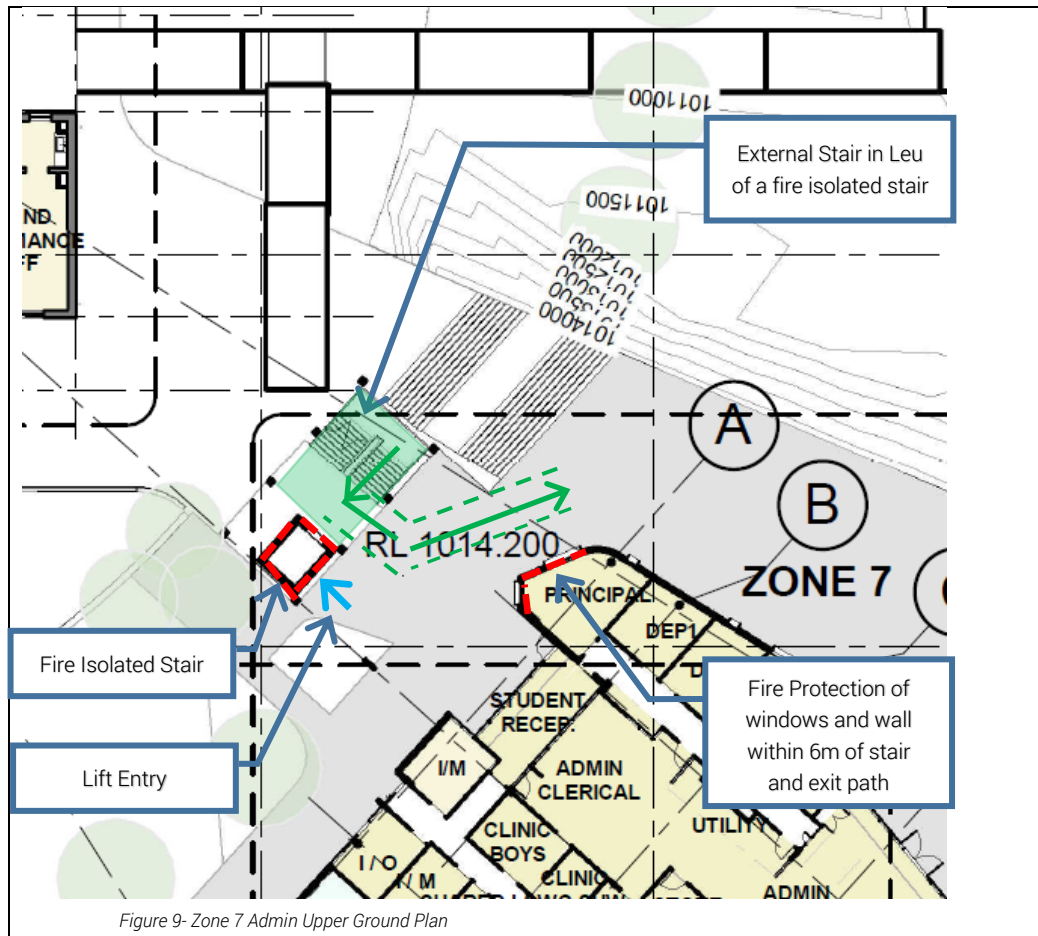


Figure 8- External Stair in Lieu of a Fire Isolated Stair Details



2.5.4 TRAVEL DISTANCE TO EXITS

Travel distances to exits is set by Clause D1.4 which requires the following:

General Areas

- No point on the floor of each level is to be more than 40m from one of two exits with travel to a point of choice of two exits within 20m.
- A maximum of 60 m between two exits measured through the point of choice.

2.5.4.1 EXIT WIDTH

The required exit width is based on the number of occupants within the area.

NSW D1.6 requires that exit widths in a class 9b Education building to be at least 1m wide for up to 100 occupants of an area plus 250mm for each additional 25 occupants above 100.

Where there are more than 200 occupants, D1.6 requires a width of 2m plus 0.5m per 60 occupants where the exit path involves steps.

Each neighborhood level is to be provided with two exits with combined width of 3m or more for up to 270 students plus teaches.

Refer to the floor plan diagrams in the Appendices for locations of exits and exit paths.

2.5.4.2 EXISTING BUILDING

The existing two storey classroom block will be upgraded as part of proposed development.

The existing building includes two stairways, one to each end of the building and therefore it is expected that the existing exits will provide sufficient exit width and travel distances to meet the requirements of the BCA. The proposed design and layouts for the building are to ensure that the

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travel distance to the exits are not extended beyond the Deemed to Satisfy Provisions of 20m to a point of choice and 40m to one of two exits.

2.5.5 CONSTRUCTION OF EXITS PART D2

The stairs and exit paths are to be designed to meet the requirements of Part D2 of the BCA, which will include

- Store rooms or other enclosed spaces if included under stairs are to be fire rated enclosures (FRL 60/60/60).
- Going lengths and riser heights for the new stair are to meet the following requirements.
 - Riser – Max 190mm high, - Min 115mm high.
 - Going – Max 355mm long, - Min 250mm long
 - $2 \times R + G$ – Max 700mm – Min 550mm.
- Conspicuous nosing to each of the stair treads.
- Threshold height at any external door to be less than 50mm. however to ensure that an accessible path is provided the change in level needs to be less than 6mm and threshold ramps should be included.
- Handrails to be provided to both sides of the new stair, with extensions at the ends to comply with AS1428.1.
- Door locks and latches are to be located between 900mm and 1100mm above the floor.
- Balustrades to edges of landings to be at least 1m high internally and 1.2m high externally.
- Tactile ground surface indicators will be required at the top and bottom of all stairs except enclosed fire stairs.
- Gaps in balustrades are to be a maximum of 120mm wide.
- Landings ramps and stairs to have the following slip resistant characteristics.

Table D2.14 SLIP-RESISTANCE CLASSIFICATION

APPLICATION	SURFACE CONDITIONS	
	DRY	WET
Ramp steeper than 1:14	P4 or R11	P5 or R12
Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11
Tread or landing surface	P3 or R10	P4 or R11
Nosing or landing edge strip	P3	P4

2.5.5.1 EXISTING BUILDING B STAIRS

The existing internal stairs to building B are to be upgraded as part of a separate approval process to comply with the current BCA requirements for egress.

2.5.6 PART D3.1 – GENERAL ACCESS REQUIREMENTS

Under the BCA requirements in Part D3.1, an access pathway is required to areas depending upon the usage of the area as indicated in the table below, except as permitted by Clause D3.4.

Applying this requirement to the proposed works, access is required to all areas as indicated in the following table.

Table 7 Access Requirements

USAGE TYPE	BCA REQUIREMENTS(D3.1)	APPLICATION TO DESIGN	COMPLIANCE
Class 9b Education building	To and within all other areas normally used by the occupants.	Access to be provided to all floor areas used by occupants, except for non-accessible toilet facilities. Access to the first floor is to be provided by the new lift installation.	Yes

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2.5.7 PART D3.2 GENERAL BUILDING ACCESS REQUIREMENTS

Part D3.2 of the BCA requires an accessible pathway to be provided from the main street frontage, at least 50% of all entries and the accessible parking space to the building.

Within the proposed design accessible pathways will be provided from the Butler street frontage, and the car parking area to the new and existing buildings to meet the Deemed to Satisfy requirements for the provision of an accessible pathway to the building under part D3.2.

2.5.8 PART D3.3 PARTS OF BUILDING TO BE ACCESSIBLE.

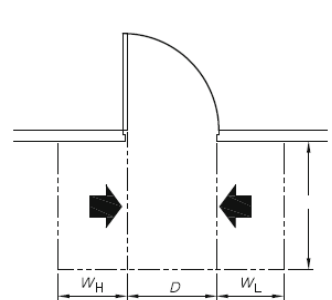
Under part D3.2 of the BCA, access is required to all areas normally used by the occupants and includes areas such as toilet facilities, meeting rooms and kitchens etc.

Access paths, door widths and door clearances are to comply with AS1428.1 - 2009

The current design for the room layouts indicate that access will be provided to all areas on all levels using the lifts indicated.

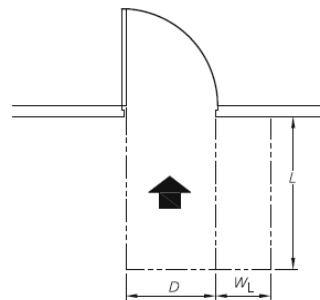
The following criteria from AS1428.1 sets out the requirements for providing access, that should be included within the detailed design:

- All doorways should be minimum 850mm clear (requires min. 920mm leaf doors)
- Provide side clearances to doors as per Figure 31 of AS1428.1 (refer below.)
- Provide lobbies with min 1450mm clear lengths to enable usability. (refer below)



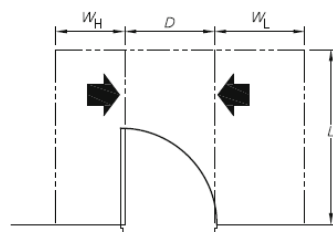
Dimension D	Dimension L	Dimension W _H	Dimension W _L
850	1240	560	660
900	1210	510	660
950	1175	460	660
1000	1155	410	660

(c) Either side approach, door opens away from user



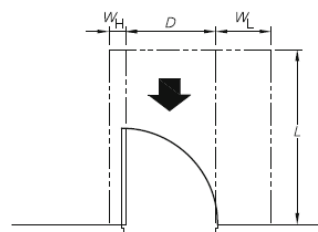
Dimension D	Dimension L	Dimension W _H	Dimension W _L
850	1450	0	510
900	1450	0	510
950	1450	0	510
1000	1450	0	510

(d) Front approach, door opens away from user



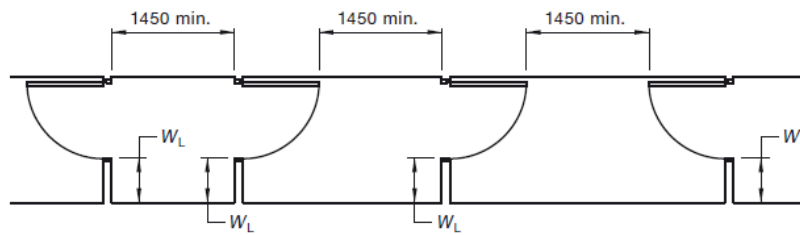
Dimension D	Dimension L	Dimension W _H	Dimension W _L
850	1670	660	900
900	1670	610	900
950	1670	560	900
1000	1670	510	900

(g) Either side approach, door opens towards user



Dimension D	Dimension L	Dimension W _H	Dimension W _L
850	1450	110	530
900	1450	110	530
950	1450	110	530
1000	1450	110	530

(h) Front approach, door opens towards user



(a) Continuous accessible path of travel

2.5.8.1 TIERED SEATING AREA DESIGN

The design includes tiered seating areas in the seminar spaces of each of the zones and as part of the playground.

Due to this, access for wheelchair bound occupants will not be provided to every level of the tiered seating areas. This would be compliant if the building was a class 9b Assembly building but Clause D 3.1 states different requirements for a Class 9b Education Building.

The Amphitheatre seating areas consist of seating steps with intermediate stairs in line with tiered seating requirements within Section NSW H101 of the BCA, therefore the steps are considered as individual stairs, two risers per tier. The arrangement of the steps, risers and landings are not in line with the requirements for a stair within section D of the BCA.

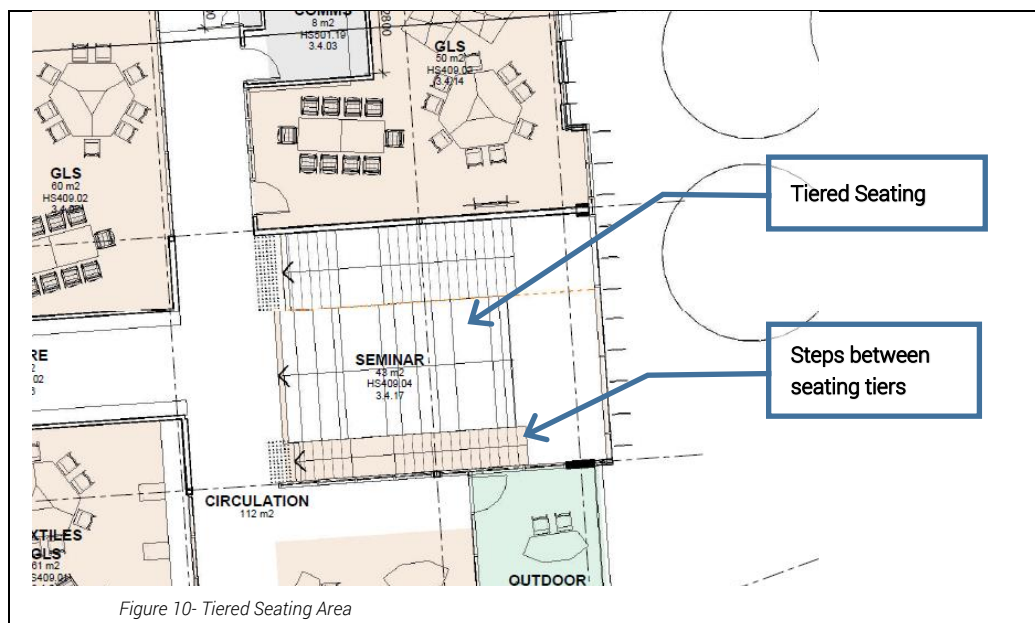
The principle of tiered seating area is that specific spaces are provided for wheel chair seating in a number of locations in the seating area, in accordance with the Section 18 of AS 1428.1 (2009). Not all the seating platforms provide space for a wheel chair and due to the dimensions of the platforms would be a hazard for a wheel chair user to be on. Therefore the seating platforms are considered to be inappropriate and a hazard for a wheel chair user and fall into the category of areas exempt under clause D3.4.

2.5.8.2 TIERED SEATING AREA HANDRAILS

The intervening steps to the tiered seating areas will have a handrail located to just one side of the stairs, to enable access from the stair onto the seating tiers on the opposing side of the stair, in line with the requirements as set out in Section NSW H101 of the BCA.

As not all the seating platforms are to be accessible then under D3.3 the stair to the platforms are not required to be accessible and not required to be designed in accordance with Clause 11 of AS1428.1. Therefore a handrail is not required to both sides of the stairs and the design as documented meets the deemed to satisfy provisions of the BCA for the provision of handrails in Clause D2.17.

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POTENTIAL NON-COMPLIANCE NO. 1

The design of the tiered seating area and steps is a non compliance to the requirements of Clause D3.1 & Table D3.1 as an accessible path will not be provided to all seating levels.

This is to be addressed as a Performance solution to show that the design meets the performance requirement of DP1. The performance solutions are permitted based on Clause A05 for the BCA 2016.

	Within Design	BCA DTS Clause	Performance Requirement	Comments
1	Tiered Seating area with seating platforms and steps that will prevent access to every platform.	D3.1 General building access requirements Buildings and parts of buildings must be <u>accessible</u> as required by Table D3.1 , unless exempted by D3.4 . Table D3.1 Class 9b <u>Schools and early childhood centres</u> To and within all areas normally used by the occupants	DP1 Access must be provided, to the degree necessary, to enable— (a) people to— (i) approach the building from the road boundary and from any <u>accessible</u> carparking spaces associated with the building; and (ii) approach the building from any <u>accessible</u> associated building; and (iii) access work and public spaces, accommodation and facilities for personal hygiene; and (b) identification of <u>accessways</u> at appropriate locations which are easy to find.	Performance Solution to be developed, based on the design being similar to a Class 9b Assembly areas.

2.5.9 LIFT

Lifts are included within the design, in a number of locations to provide access between the various levels and floors of the Building, to meet the DTS requirements for an accessible pathway through the building.

The lifts will travel less than 12m, therefore the lift car floor dimensions will need to be as set out in the following table.

Lift Requirements						
Lift Travel distance	Less than 12m		Depth	Width	Emergency Lift	Not Required
	Lift Required	Lift Car dimensions	1400mm	1100mm	Stretcher Facilities	Not Required

The existing building includes a lift that provides access between the levels.

It is noted that the Department of Education requires that a lift with a larger lift car floor area is to be provided to all new school lifts. Refer to the Educational Facilities Standards and Guidelines.

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2.5.10 ACCESSIBLE TOILET FACILITIES

The design is to include new accessible facilities provided adjacent to the location of other toilet facilities in each area and the documented detailed design of the facilities are to meet the planning requirements of AS1428.1-2009.

2.5.11 PART D3.5 CAR PARKING

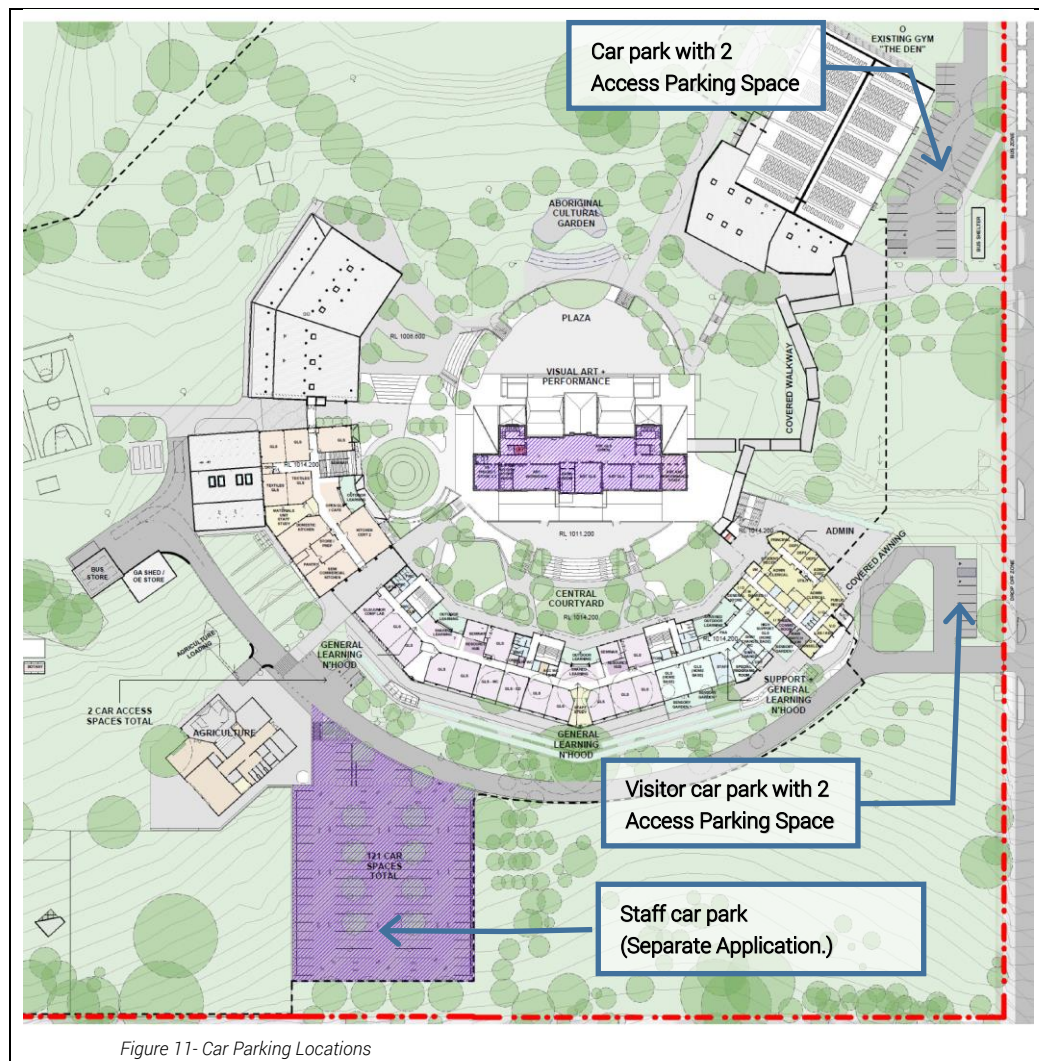
Where car parking is provided part D3.5 of the BCA requires a minimum of 1 accessible space per 50 car parking spaces is to be provided.

The current design includes three parking areas, two will be constructed as part of the works and a staff parking area that will be part of a separate application. On completion of these works, there will be a total of 43 Parking spaces, 4 of which are accessible spaces.

On completion of all the works, including the separate application there will be a total of 162 parking spaces, of which 4 will be accessible parking spaces.

Therefore within the design accessible parking spaces are provided to meet the requirements of Clause D3.5 of the BCA.

The layout of the spaces indicated in the design documents appear of sufficient size and layout to meet the requirements of Australian Standard AS 2890.6 for accessible parking spaces.



BCA COMPLIANCE REVIEW – ARMIDALE SECONDARY COLLEGE.**2.5.12 PART D3.6 IDENTIFICATION OF ACCESSIBLE FACILITIES, SERVICE AND FEATURES**

Part D3.6 requires signage complying with Specification D3.6 to be included within the building in, a number of locations to identify the following:

- All sanitary facilities
- Identification of exit (where exit signage is included.)
- Path of travel to the Lift if not evident from the main entry.

Signage is to be included as part of the detailed design.

2.5.13 PART D3.7 HEARING AUGMENTATION

Part D3.7 requires that where an amplification system within a meeting room of more than 100m² a hearing augmentation system is to be installed.

Within the design if sound amplification systems is included then a hearing augmentation system will be required.

PART D 3.8 TACTILE GROUND SURFACE INDICATORS

Part D3.8 of the BCA requires that tactile ground surface indicators (TGSIs) be installed at the top and bottom of open stairs and ramps to warn occupants of the associated hazard, where the area is to be accessible.

The detailed documented design is to include tactile indicators to the top and bottom of all stairs and ramps to meet the DTS requirements.

2.5.15 PART D3.9 WHEELCHAIR SEATING SPACES IN CLASS 9B ASSEMBLY BUILDINGS

Part D3.9 and table D3.9 sets out the requirements for the provision of seating spaces for wheel chairs where fixed seating is provided and requires that where there is up to 150 fixed seats at least 3 spaces for wheel chairs is provided.

Within the design where Amphitheatre seating is to be provided, a minimum of 3 seating spaces for wheel chair users is to be provided.

2.6 PART E – ESSENTIAL FIRE SAFETY MEASURES.

The Essential Fire Safety Measures to be installed in the building are based on the type size and scale of the building,

As the Agricultural Buildings are separate buildings with floor areas of less than 300m², only the following essential fire safety measures are required as set out in BCA Section H3:

- Fire Extinguishers or Fire Hose reel coverage

The following table sets out the essential fire safety measures that are to be installed.

It is noted that an exemption exists for classrooms to not be provided with fire hose reel coverage, therefore the proposed design includes a fire hose reel to be included in the Gym building O and Zone 7 building on all three levels.

The Current Design includes the following essential fire safety measures:

- Fire Hydrant coverage to all floor areas to AS2419.1.
- Fire hose reel coverage to the administration areas, library and hall but not to the classrooms as permitted under Clause E1.4 (iv).
- Emergency Lighting and illuminated Exit signage.
- Fire Extinguishers to areas not covered by Hose reels.

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Table 8 Essential Fire Safety Measures for Type B Construction

Essential Fire Safety Measures (Part E)			
Fire Hydrants	Not Required		
Fire Hose Reels	Not Required	Not required in School Classrooms	
Sprinkler Protection	No		
Carpark	-		
Fire Control Centre	Not Required		
Smoke Hazard Management			
	Above Ground Only Exits	Basement Level Exits	
Stair Pressurisation	No	-	
Smoke Detection	Not Required		
Smoke Exhaust System			
General Area	Not Required		
Exit Signs & Lighting	Exit signs & Emergency Lighting Required		
SSISEP	Not Required		
Sound Systems and Intercom Systems for Emergency Purposes			

Table 9 - Essential Fire Safety Measures for Type A Construction

Essential Fire Safety Measures (Part E)			
Fire Hydrants	Required	Located externally, in fire stairs or next to required stair	
Fire Hose Reels	Required	Within 4m of an Exit	Not required in School Classrooms
Sprinkler Protection	No	-	
Carpark	-		
Fire Control Centre	Not Required		
Smoke Hazard Management			
	Above Ground Only Exits	Basement Level Exits	
Stair Pressurisation	No	-	
Smoke Detection	Not Required		
Smoke Exhaust System			
General Area			
	-		
Exit Signs & Lighting	Exit signs & Emergency Lighting Required		
SSISEP	Not Required		
Sound Systems and Intercom Systems for Emergency Purposes			

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2.6.1 MECHANICAL SYSTEM SHUTDOWN

Within the Design, it is noted that a mechanical supply and exhaust systems are to be installed in a number of spaces while some of the other spaces are to have ducted heating. The systems ductwork will connect a number of rooms together.

The system would not be classified as a minor exhaust system under Clause 5 of AS 1668.1 or a Kitchen exhaust system under Clause 6 of AS1668.1 and therefore a detection system in line with Clause 5 of NSW BCA E2.2a would be required to initiate shutdown of the systems in the event of a fire to prevent smoke transfer between rooms.

Clause 5 c (ii) of NSW BCA E2.2a does not require the detection system to activate an occupant warning system.

2.7 PART F – HEALTH AND AMENITY

2.7.1 PART F1 – DAMP AND WEATHERPROOFING

Part F1 of the BCA requires that the external façade of the building be designed to maintain weatherproofing and prevent water ingress to the building.

This is to be included in the detailed design.

2.7.2 PART F2 – SANITARY AND OTHER FACILITIES

Part F2 of the BCA sets out the required number of toilets to be provided based on the number of people that will be catered for within the building and the use of the building.

Facilities are to be provided in each neighbourhood for up to 270 students plus staff as set out in the following table.

At least one ambulatory male and female cubicles are to be included in each group of facilities.

Table 10- Facilities to Each Neighbourhood

Toilet Requirements			Female		Male			Access
Occupants	Use for toilets	Split /Females	WC	HB	WC	U	HB	
270	H-School 9b - Students	50%	6	4	4	3	4	1
20	A-Class 3,5,6 & 9 other than school - Employees	50%	1	1	1	Not Req	1	1

2.7.2.1 TOTAL FACILITIES.

The total facilities to be provided across the campus are to be as set out in the following table for the total of 1680 students and approximately 150 staff.

Table 11- Total Facilities

Toilet Requirements			Female		Male			Access
Occupants	Use for toilets	Split /Females	WC	HB	WC	U	HB	
1680	H-School 9b - Students	50%	20	13	11	10	13	1
150	A-Class 3,5,6 & 9 other than school - Employees	50%	5	3	4	3	3	1

Within the design facilities are provided in the following parts of the building.

Location		Usage	Female WC	Female HB	Male WC	Male U	Male HB	Access
Zone 7								
Admin	UG	Staff and visitors	2	1	2	-	1	1
Library	L1	Staff	1	1	Unisex	-	-	1
		Students	-	-	-	-	-	1
Staff	L 2	Staff	2	2	2		2	1
Zone 6								
Support	UG	Students	1	1	1		1	(Incl)
Adjacent Support	UG	Students	3	2	2	1	2	1
	UG	Staff						1
Neighbd 1	L1		-	-	-	-	-	-
Zone 5								
Neighbd 2	UG	Students	3	2	2	1	2	1
	UG	Staff			Unisex			1

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Location		Usage	Female WC	Female HB	Male WC	Male U	Male HB	Access
Neighbd 3	L1	Students						
Zone 4								
Neighbd 4	UG	Students	3	2	2	1	2	1
	UG	Staff	1	1	Unisex			
Neighbd 5	L1							
Zone 3								
Wood & Metal	G	Students	3	2	2	1	2	1
	G	Staff			Unisex			1
Food & Text	UG							
Zone 2								
Science	LG	Students	3	2	2	1	2	1
	LG	Staff			Unisex			1
Neighbd 6	G	Students						
Zone 1								
O Block	Existing	Students	12	3	4	7	3	1**
	New	Students	1	1	1		1	
	Existing	Staff	1	1	Unisex			
B Block	UG	Students	3	3	3		3	1
	L1	Staff						1
Agriculture		Staff						1
Totals		Students (new)	20	15	15	5	15	7
		Existing	12	3	4	7	3	1
		Staff	5 + 2U	3 + 2U	4 + 2U		3 + 2U	9

2.7.3 STUDENT FACILITIES

The total of the proposed facilities for students would be sufficient for up to 1700 students, without considering the use of the existing Gymnasium (O block) toilets or the use of the proposed accessible toilets.

Toilet Requirements				Female		Male			
Occupants	Use for toilets		Split /Females	WC	HB	WC	U	HB	Access
1700	H-School 9b - Students		50%	20	13	11	10	13	1

If the accessible toilets were to also be included, as permitted under BCA Clause F2.2, with a split as 50% male and 50% female this would bring the total toilets provided sufficient for up to 2000 students.

Toilet Requirements				Female		Male			
Occupants	Use for toilets		Split /Females	WC	HB	WC	U	HB	
2000	H-School 9b - Students		50%	23	15	12	11	15	

The existing toilets to the Gymnasium Building (O Block) have not been considered in the number of toilets as due to their location being at a distance from the other buildings, the use of them by students would be difficult.

If the existing toilets located within the Gym building & the accessible facilities were included, the total number of facilities would be sufficient for up to 3200 students.

Toilet Requirements				Female		Male			
Occupants	Use for toilets		Split /Females	WC	HB	WC	U	HB	
3200	H-School 9b - Students		50%	35	23	18	17	23	

2.7.4 STAFF FACILITIES

The total of the proposed facilities for staff would be sufficient for up to 165 staff which is more than the expected number of staff at the college, assuming that the unisex facilities generally provided in the neighbourhoods are split as 50% male and 50% female designation.

Toilet Requirements				Female		Male			
Occupants	Use for toilets		Split /Females	WC	HB	WC	U	HB	
165	G-School 9b - Employees		50%	7	3	5	4	3	

2.8 PART F3 – ROOM SIZES

Part F3 of the BCA requires the following ceiling heights in certain rooms within a building:

- Airlocks bathrooms storerooms, tea prep areas and the like – 2.1m
- General area – 2.4m
- Above stairways, measured vertical above the nosing – 2m
- Auditoriums and corridors leading to auditoriums that accommodate more than 100 occupants – 2.7m

The design appears to be able to meet these requirements.

2.9 PART F4 – LIGHT & VENTILATION**2.9.1.1 LIGHTING**

Lighting is required to all rooms in the building. This can be achieved by either natural daylight, or other lighting methods. If daylight is used the area of windows is to be at least 10% of the floor area. Therefore an external window and the size of the windows are to be at least 10% of the floor area of the room served to meet the requirements of Clause F4.1

All classrooms are required to be provided with natural daylight via a window.

The current design indicates that sufficient windows are included to sufficient natural lighting to the general classrooms.

2.9.1.2 VENTILATION

Ventilation is to be provided to all rooms and this can be achieved by either natural ventilation through operable windows and doors or by mechanical ventilation to AS1668. If natural ventilation is to be used then the area of the operable windows should be at least 10% of the floor area of the room.

2.9.2 PART F5 – SOUND INSULATION

The BCA under Part F5 requires sound insulation of walls and floors that separate Sole Occupancy Units from other adjacent SOU's or other spaces within the building. Particularly in Class 2 & 3 buildings.

This does not apply to the proposed works which is of class 9b use.

2.10 PART H – SPECIAL USE BUILDINGS

Part H1 of the BCA applies to buildings which are used as Entertainment Venues and therefore does not apply to the proposed works.

2.11 PART H3 – FARM BUILDINGS

Part H3 of the BCA sets out the requirements for Farm Buildings and will apply to the following Agricultural buildings:

- Chicken Cop (25m2)
- Shearing Shed (62 m2)
- Pig Shed (25 m2)

The following requirements of Part H3 apply to these Farm Buildings.

The Agricultural Classroom building is considered to be of Class 9b and not a Farm Building.

2.11.1 PART H3.2 FIRE RESISTANCE

All three buildings area separated by a distance of more than 6m from other buildings and the allotment boundary, as required by Clause H3.2 of the BCA.

BCA COMPLIANCE REVIEW – ARMIDALE SECONDARY COLLEGE.**2.11.2 PART H3.6 THRESHOLDS**

Part H3.6 states that Farm Buildings are exempt from requiring to have accessible thresholds at doorways. As the farm buildings are on a school site it is recommended that accessible threshold requirements of Part D3 still apply to the buildings as they will be used by the school students.

2.11.3 PART H3.9 FIRE HYDRANTS

Part H3.9 sets out the fire hydrant requirements for farm buildings and states that a building with a floor area of less than 500m² is not required to be provided with fire hydrant coverage. This would apply to all three of the Farm buildings on the site.

2.11.4 PART H3.10 & H3.11 FIRE HOSE REELS & EXTINGUISHERS.

The three farm buildings are to be provided with either fire extinguishers in line with Part H3.11 or Fire Hose reel coverage.

2.11.5 PART H3.12 & H3.13 EMERGENCY LIGHTING AND EXIT SIGNS

Emergency Lighting and Exit signage is not required to the farm buildings as the buildings have a floor area of less than 300m².

2.11.6 H3.16 SANITARY FACILITIES

Part H3.16 states that farm buildings do not require sanitary facilities.

2.11.7 PART H3.17 HEIGHT OF ROOMS AND OTHER SPACES

Part H3.17 requires that the ceiling height in farm buildings be more than 2.1m
The current design for the buildings will meet or exceed this requirement.

2.12 PART J – ENERGY EFFICIENCY

Energy efficiency requirements of the BCA generally apply to part of a building that are air conditioned, which are not of Class 2 usage. NSW Basix legislation applies to the Residential Class 2 buildings

2.12.1 PART J1 – BUILDING FABRIC

The proposed building is class 9b use located in climate zone 7 and will require the following thermal performance of the various parts.

2.12.2 PART J1.2 THERMAL CONSTRUCTION

The installation of materials associated with the thermal performance of the building are to be in accordance with AS 4859.1.

Assuming that the roofing material colour is a mid to dark colour (Solar Absorbance of 0.6 or more) Then the following table shows the insulation requirements for the roof and ceiling combination for the various zones from Table J1.3a. These values assume that more than 99% of the roof area is insulated.

BCA COMPLIANCE REVIEW – ARMIDALE SECONDARY COLLEGE.

Table 12

Insulation Requirements (Part J)			External Walls	Suspended Slab if Open Under	Space above /below Encl & with <1.5 AC/hr		Insulation to Slab on Ground	
Zone 7	Roof & Ceiling	Internal envelope walls						
Roof Colour	R 3.7	space enclosed and vent <1.5AC = R1.5, otherwise R2.8	Total R2.8	R2.0	No Slab Heating	R1.5	No Slab Heating	R1.0
3- Paperbark®	Upwards			Downwards	With Slab Heating	R1.75	With Slab Heating	R1.25
	Allows for less than 0.5% of ceiling area to be uninsulated			Other Wall Options	Or where space is top hats, Total R1.4 & Glazing option B			
			Max SHG Value	Max total U Value	-			
Skylight Requirements	Shaft index	Skylight % of floor area			-			
	< 0.5	4 to 5%	0.34	3.4	-			

2.12.3 PART J1.3 ROOF AND CEILING INSULATION

The combined roof and ceiling insulation is to give a total R value of R3.7 or more. Refer to the JV3 Assessment report for further details of the proposed design.

2.12.4 PART J1.4 ROOF LIGHTS

Part J1.4 of the BCA sets out specific requirements for roof lights when the area exceeds 1.5% of the floor area and permits skylights to be up to 5% of the floor area.

Where roof lights or skylights are included their thermal performance will need to achieve minimum thermal performance criteria dependent upon the proportional area of the skylight to the space served. This is to be included in the detailed design.

2.12.5 PART J1.5 WALLS

External walls are required to achieve a minimum Total R-Value of at least R2.8.

The insulation is to be included in the detailed design. Refer to the project JV3 assessment report for further details.

2.12.6 PART J1.6 FLOORS

Specific thermal performance requirements are set out in Part J1.6 of the BCA for suspended floors with unenclosed perimeters on the lower levels.

As the building is in Zone 7 insulation of all ground floor is required with an R value for the combination of the concrete floor and the insulation of R1.25 where the floor has hydronic heating within the Special Education area and R1.0 to the rest of the floor areas.

This can be achieved by including the following:

1- For general floor area, R1.0

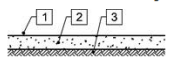
- o Inside air Film (still air) R 0.15
- o Concrete Slab(Nom. 100mm) R 0.07
- o Under slab insulation R 0.78 Minimum.
- Total R1.00

Options for insulation include – 25mm Extruded Polystyrene Foamular board (R 0.89)

2- For Special Education area with Hydronic heating, R1.25

- o Inside air Film (still air) R 0.15
- o Concrete Slab(Nom. 100mm) R 0.07
- o Under slab insulation R 1.03 Minimum.
- Total R1.25

Option for insulation include – Min 30mm Extruded Polystyrene Foamular board (R 1.07)

(e) 100 mm solid concrete slab-on-ground				
		1. Indoor air film (still air)	0.11	0.16
		2. Solid concrete (100 mm, 2400 kg/m³)	0.07	0.07
		3. Ground thermal resistance	-	-
		Total R-Value	0.18	0.23

2.12.7 PART J2 – EXTERNAL GLAZING**2.12.7.1 PART J2.4 GLAZING METHOD 2**

Compliance with Part J2.4 is achieved by analysis of the areas of the external façade and the proportional areas of the external glazing.

The analysis is undertaken during the detailed design to show compliance based on the building façade elements and will be required as part of the Construction Certificate documentation.

Where a design can not meet the Deemed to Satisfy Provisions of Part J2.4, an Alternative/ Performance Solution is to be developed using a JV3 model assessment.

A Preliminary JV3 model assessment has been undertaken of the proposed design and is included in The Appendix to this report.

2.13 PART J3 - BUILDING SEALING**2.13.1 PART J3.3 ROOFLIGHTS**

Any roof lights are to be sealed roof lights or if ventilated are to meet the requirements of Clause J3.3.

2.13.2 PART J3.4 WINDOWS AND DOORS

Part J3.4 of the BCA requires seals to be fitted to doors and windows that are part of the conditioned envelope.

Compliance is achieved by specifying new windows to comply with AS2047

2.13.3 PART 3.5 – EXHAUST FANS

Exhaust fans to conditioned spaces, where installed, are to be fitted with self closing dampers.

2.14 PART 3.6 - CONSTRUCTION OF ROOFS, WALLS AND FLOORS

Construction documented will comply if linings specified to internal surfaces with sealed junctions by caulking, skirting, architraves, cornices or the like.

2.15 PART 3.7 – EVAPORATIVE COOLERS

Any evaporative coolers installed in the building are to be fitted with self closing dampers to reduce heating loss when not used or during winter.

2.16 PART J5 – AIR CONDITIONING AND VENTILATION SYSTEMS

Compliance with Part J5 is not assessed in this review as the system is designed by the mechanical engineer, who will provide a detailed assessment of the design of the systems

2.17 PART J6 – ARTIFICIAL LIGHTING AND POWER

Compliance with Part J6 is not assessed in this review as the system is designed by the specialist engineer, who will provide a detailed assessment of the design of the systems

2.18 PART J7 – HEATED WATER SUPPLY AND SWIMMING POOL AND SPA PLANT.

Compliance with Part J7 is not assessed in this review as the system is designed by the specialist engineer, who will provide a detailed assessment of the design of the systems.

3.0 CONCLUSION & RECOMENDATIONS

Based on the review of the proposed design, as outlined in the assessment above, it is considered that the proposed design as indicated on the drawings generally will be able to meet the relevant Deemed to Satisfy Provisions of the Building Code of Australia 2016, subject to final detailed design, with the exception of the following that has been identified as being a non-compliance that is to be addressed as a Performance Solution.

	Within Design	BCA DTS Clause	Performance Requirement	Comments
1	Tiered Seating area with seating platforms and steps that will prevent access to every platform.	D3.1 General building access requirements Buildings and parts of buildings must be <i>accessible</i> as <i>required</i> by Table D3.1 , unless exempted by D3.4 . Table D3.1 Class 9b <i>Schools</i> and <i>early childhood centres</i> To and within all areas normally used by the occupants	DP1 Access must be provided, to the degree necessary, to enable— (a) people to— (i) approach the building from the road boundary and from any <i>accessible</i> carparking spaces associated with the building; and (ii) approach the building from any <i>accessible</i> associated building; and (iii) access work and public spaces, accommodation and facilities for personal hygiene; and (b) identification of <i>accessways</i> at appropriate locations which are easy to find.	Performance Solution to be developed, based on the design being similar to a Class 9b Assembly areas.



Trevor Eveleigh
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(M.FSE, Grad. Dip Build. Surv. & Assess)

4.0 APPENDIX A – ESSENTIAL FIRE SAFETY MEASURES SCHEDULE

Essential Fire Safety Measures

Project: Armidale Future Secondary School

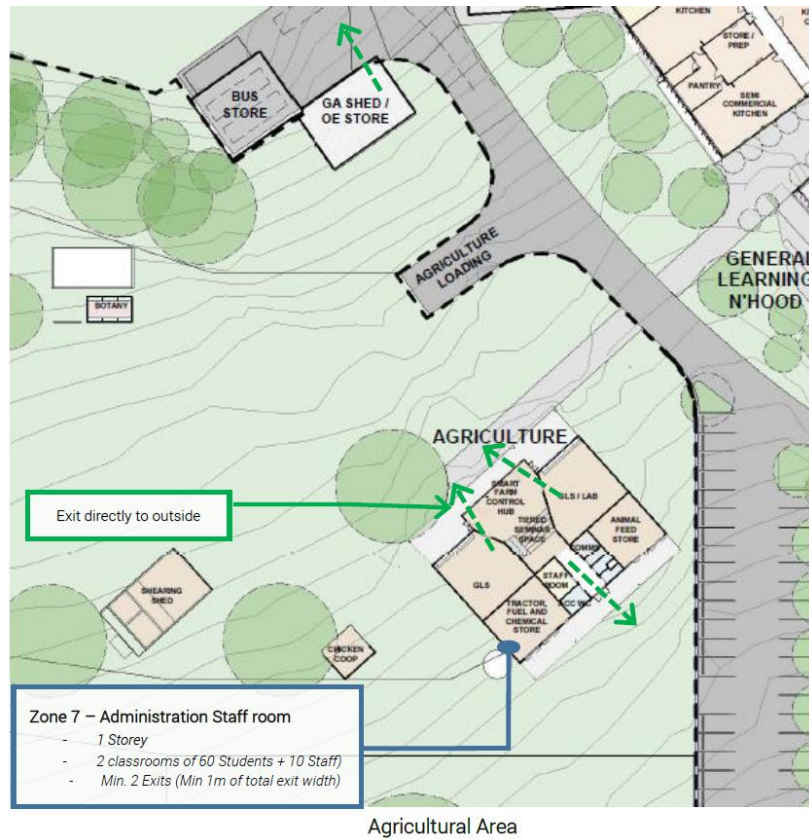
Client: NSW DOE

Location: Butler Street Armidale, NSW 2350

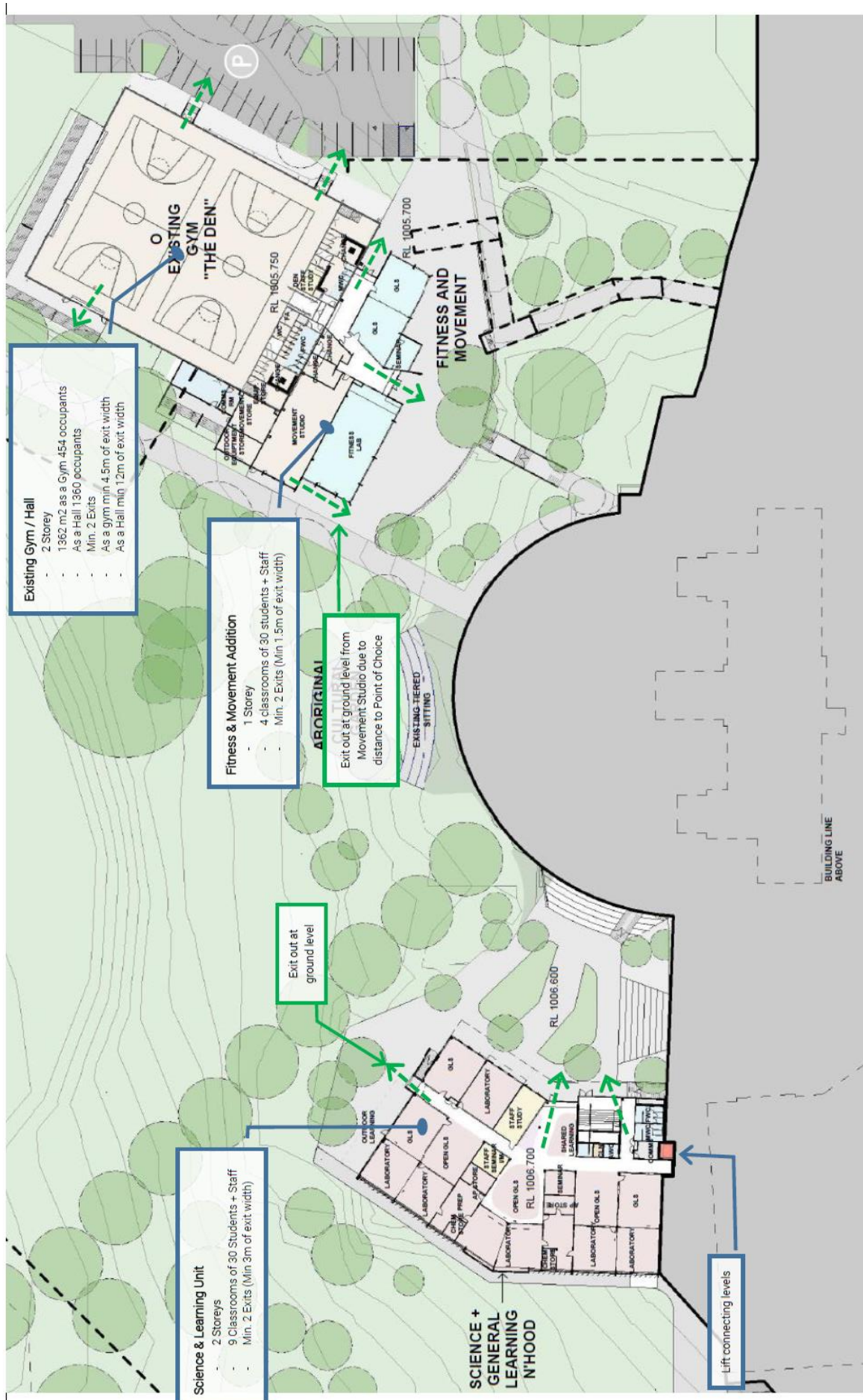
Date: 20th June 2018

Essential Fire Safety Measures			
Measure	Proposed	Existing	Standard installed to
Access Panels, Doors and hoppers to fire resisting shafts	Yes	No	AS 4072.1 – components for the protection of openings in fire resistant separating elements (2005)
Automatic Fire detection and alarm systems	Yes	No	Detection to initiate mechanical shutdown to Clause 5 of NSW BCA E2.2(a)
Automatic fire suppression systems	No	No	Not Applicable
Emergency Lighting	Yes	No	Emergency Lighting to BCA E4.2, E4.4, H101.20 & AS/NZS 2293.1(2005)
Exit Signs	Yes	No	Emergency Exit signs to AS/NZS 2293.1 (2005)
Fire Rated Doors	Yes	No	BCAC2.10, C2.12, C2.13, C3.3-3.8, C3.10, C3.11 AS/NZS 1905.1 (2005)
Fire Hydrant System	Yes	No	BCA E1.4 & AS 2419.1 (2005)
Fire Hose Reel	Yes	No	BCA C1.4&AS2441(2005) to non-classroom areas
Fire Seals protecting openings in fire resisting components	Yes	No	BCA C3.15 C3.12, Specification, AS 4072.1-2005
Lightweight Construction	Yes	No	BCA Specification C1.8
Mechanical Air Handling Systems	No	No	
Portable Fire Extinguishers	Yes	No	Portable Fire Extinguishers to AS 2444 (2001)

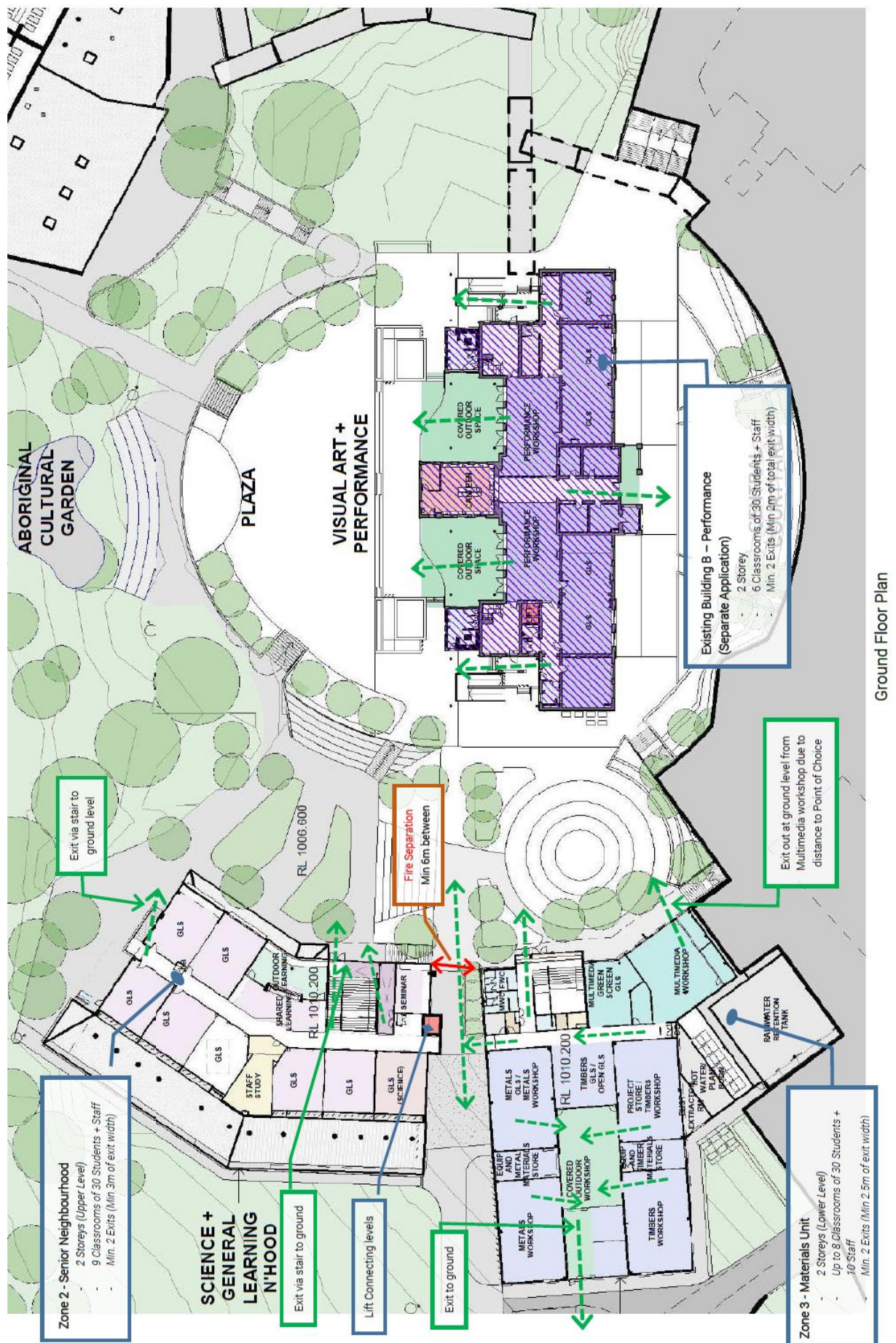
5.0 APPENDIX B – DIAGRAMITIC FLOOR PLANS



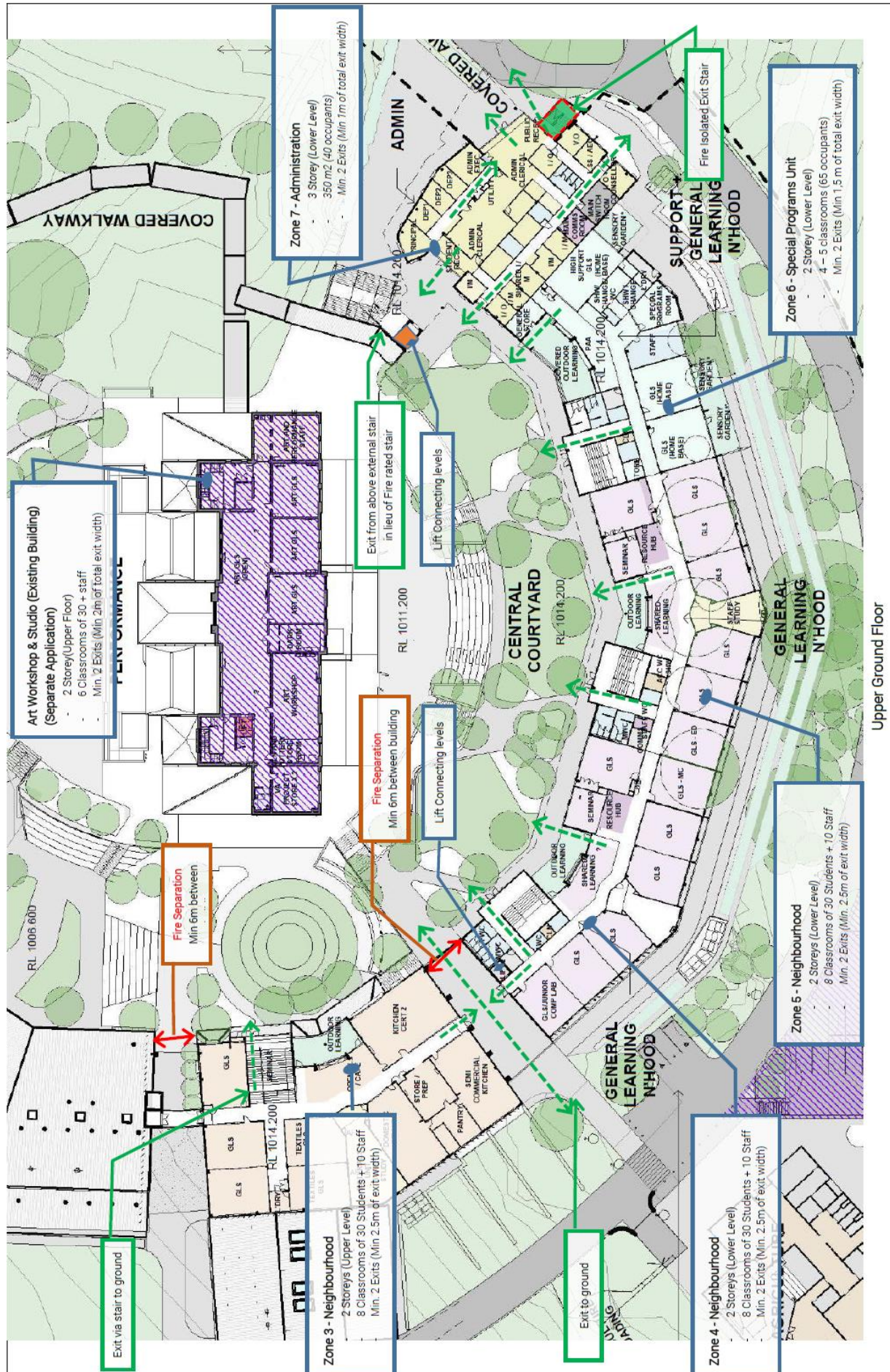
BCA COMPLIANCE REVIEW – ARMIDALE FUTURE SECONDARY COLLEGE

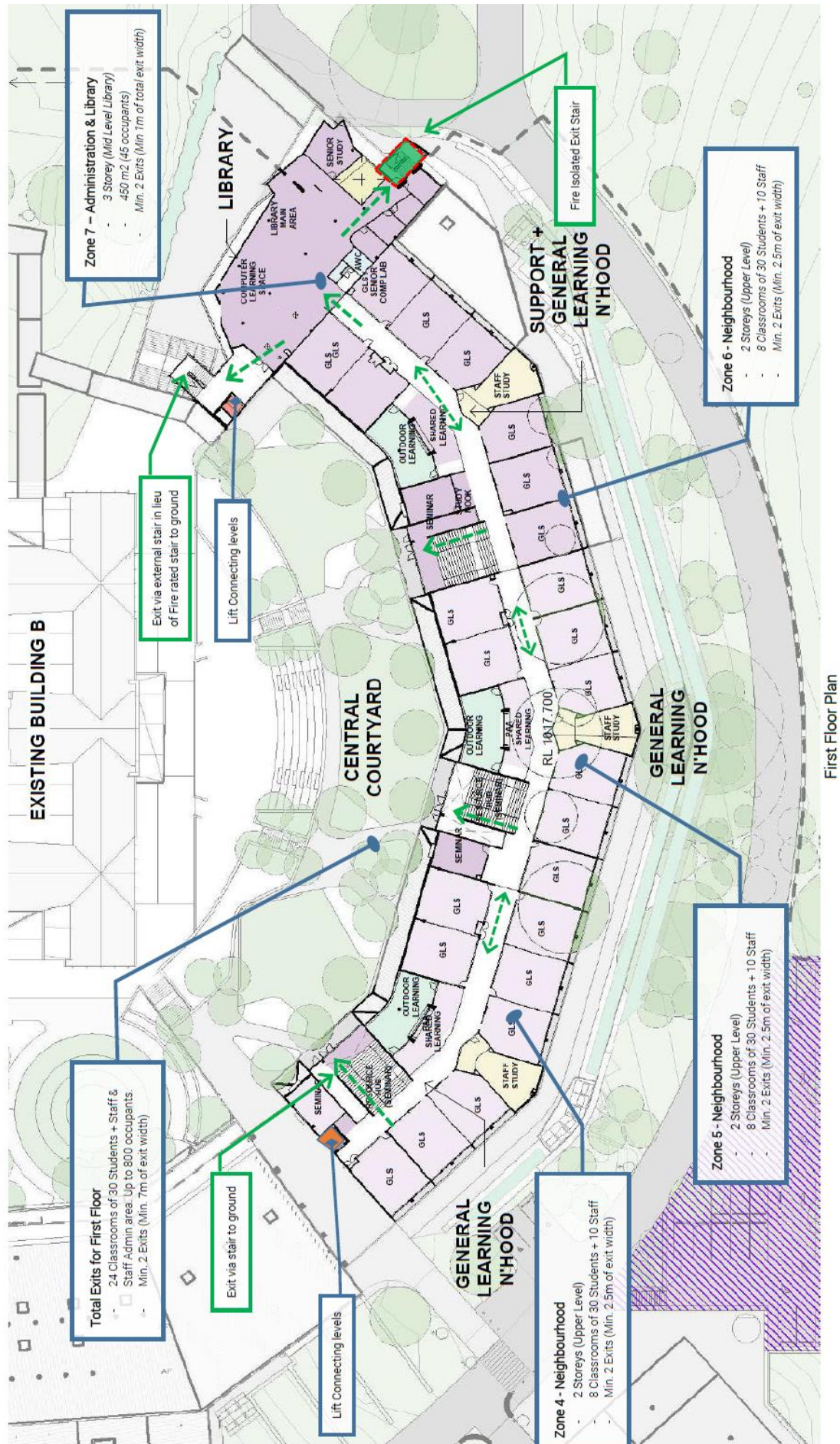


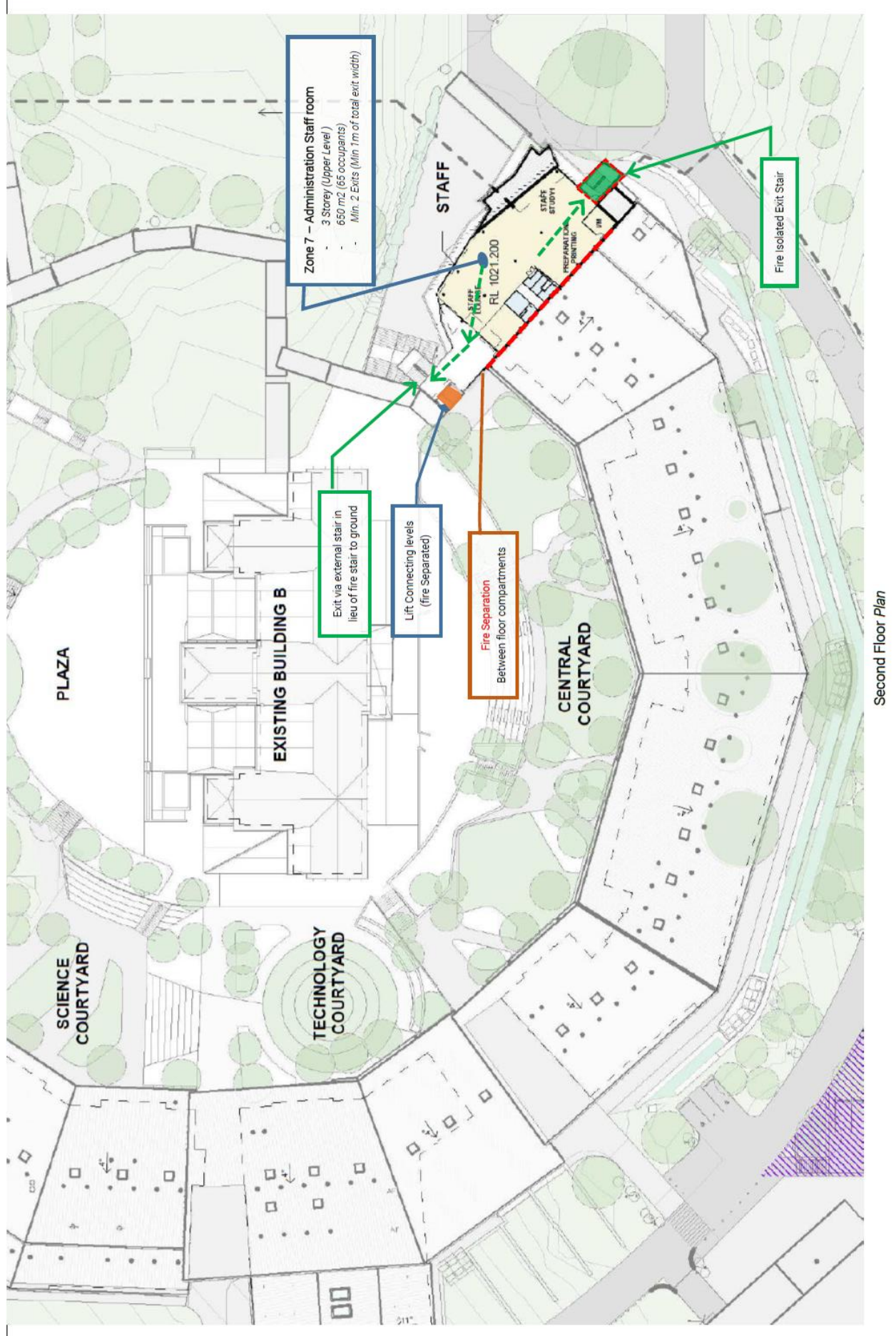
Lower Ground Floor Plan



BCA COMPLIANCE REVIEW – ARMIDALE FUTURE SECONDARY COLLEGE







1.0 APPENDIX C – BCA SECTION JV3 COMPLIANCE REPORT

**BCA SECTION JV3
COMPLIANCE REPORT
for**

**Armidale High School
Butler Street
ARMIDALE NSW 2350**

Project No:
MN10030

Architect:
NBRS Architecture

Prepared By:
Mehran Haratian
Marline Newcastle Pty Ltd

Report Details

Revision No.	Description:	Date:	Engineer:	Verified:
1	Issue For Review	27 June 2018	M Haratian	D White

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1. Project Outline

The project involves the construction of a school located at Butler Street, Armidale NSW 2350.

This report addresses all areas of Section J of the Building Code of Australia.

2. Referenced Documents

The report is based on the review of the following documents:

- ▶ Building Code of Australia 2016
- ▶ Architectural drawings (17352- NBRS-110 – 127 Issue date: 08.05.2018)

3. JV3 ALTERNATIVE SOLUTION OVERVIEW

In accordance with the Building Code of Australia (BCA) 2016 JP1 requirements, all buildings, including their services, must have features that facilitate the efficient use of energy appropriate to the following:

- ▶ the function and use of the building
- ▶ the internal environment, location and effects of nearby features such as topography, structures and buildings
- ▶ solar radiation utilised for heating and controlled to minimise energy for cooling
- ▶ the sealing of the building envelope against air leakage
- ▶ the utilisation of air movement to assist in heating and cooling
- ▶ the energy source of the services

Section J of the BCA 2016 outlines the measures required in a building's construction along with its environmental controls and services usage, in order to reduce energy consumption by the burning of fossil fuels and ultimately greenhouse gas emissions.

Clause A0.5 of the BCA2106 Volume One stipulates that the following assessment methods, or any combination of them, can be used to determine that a building solution complies with the performance requirements:

- ▶ Evidence to support that the use of a material, form of construction or design meets a Performance Requirement or Deemed-to-Satisfy Provision (DTS) as described in A2.2
- ▶ Verification Methods such as the Verification Methods in the BCA; or such other Verification Methods as the appropriate authority accepts for determining compliance with the Performance Requirements
- ▶ Comparison with the DTS Provisions
- ▶ Expert Judgement

For the Armidale High School we seek to demonstrate compliance with BCA 2016 Section J by using Verification Method JV3 as contained in BCA Volume One.

Verification Method JV3 requires a building to have an annual energy consumption not more than that predicted by computer simulation for a building using the DTS provisions. This report describes the compliance requirements of the proposed design and presents the methodology used for the modelling and the results from the simulations undertaken.

It remains the responsibility of the design team to ensure that the project meets the requirements of this report. The installing contractors will need to ensure that the installation

meets the design and where deviations are sought, the respective requirements of Section J of the BCA.

4. Limitations

This report comprises an assessment of the building against the BCA 2016, being the version of the BCA in force at the time of the assessment. Changes to the building facade after the certificate has been issued may change the compliance of the building in relation to Section J.

5. Building Characteristics

- ▶ BCA Classification: Class 9b
- ▶ Conditioned Spaces:
 - Lower Ground
 - Upper Ground
 - Level 1
 - Level 2

6. Climate Zone

The building is located in Climate Zone 7 in accordance with the BCA.

7. Section J Assessment Summary

Documentation to be upgraded for all items highlighted in yellow to enable the final Section J Certification to be produced.

BCA Section J	Applicable	Compliance Summary	Onsite Evidence Provided (Note 2)
JV3 b(i) on site renewable energy source	Yes	<u>Minimum 40kW PV Solar system to be provided.</u>	
J1.2 - Thermal Construction General	Yes	All works to comply with AS 4859.1	
J1.3 - Roof and Ceiling Construction	Yes	Bradford Anticon 130mm foil faced roof blanket c/w spacers(R3.0) or approved equal & reflective air gap for all new metal roofs 60mm Kooltherm-K10-Soffit-Board or approved equal & reflective air gap for all new solid concrete roofs	
J1.4 - Roof Lights	Yes	<u>JV3 – Alternative Solution</u> Skylights to have U-Value of 3.5 and SHGC of 0.64(6 Clear/ 12mm Air / 6 Clear)	
J1.5 - Walls	Yes	Bradford Gold Wall Batts – 75 mm (R1.5) & non-reflective air gap for all internal envelope walls. Bradford Gold Wall Batts – 90 mm (R2.5) & non-reflective air gap for all external envelope walls	
J1.6 - Floors	Yes	Floor Insulation R1 under the floor slab on the ground Floor Insulation R1.9 under the suspended slab.	
J2.4 - Glazing	Yes	<u>JV3 – Alternative Solution</u> All glazing is compliant as 6 Clear/ 12mm Air / 6 Clear	
J2.5 - Shading	Yes	As documented.	
J3.2 - Chimneys and Flues	No		

BCA Section J	Applicable	Compliance Summary	Onsite Evidence Provided (Note 2)
J3.3 - Roof Lights	Yes	Architect to reference J3.3 for all roof light ceiling requirements.	
J3.4 - External Windows and Doors	Yes	To be specified to comply with AS 2047 / Required to have self-closing door for rooms greater than 50 m² Or Alternative solution: Provide Read Switch c/w 60 second time delay to shut down air conditioning for all doors without self closer mechanisms.	
J3.6 - Construction of Roofs, Walls and Floors	Yes	Documentation to reflect sealing requirements	
J8.3 - Facilities for Energy Monitoring	Yes	Individual metering of air conditioning, lights, power, hot water, lifts and ancillary plant	

Notes:

1. Refer to Engineers Design Certificates for Sections J3.5, J3.7, J5.2, J5.3, J5.4, J6.2, J6.3, J6.4, J6.5, J6.6, J7.2, J7.3 and J7.4.
2. Tax invoices / receipts, complete with details of material provided, i.e. insulation R-Value, glazing performance details etc.

8. JV3 Verification

JV3 compliance modelling has been conducted by Marline Newcastle for the new Armidale High School located at Armidale. The building has been modelled in accordance with all JV3 verification requirements in order for the building to be assessed on an annual energy consumption basis rather than be compliant with the Deemed to Satisfy (DTS) requirements.

A Class 9b building is deemed to be compliant with the JP1 performance requirement when it is determined that the annual energy consumption of the proposed building with its proposed services is not more than the annual energy consumption of a reference building when:

- ▶ The proposed building is modelled with the proposed services; and
 - ▶ The proposed building is modelled with the same services as the reference building.
- The reference building was modelled with the DTS façade and glazing (refer Appendix C) and in accordance with the JV specification. The reference building with reference services was calculated to provide a baseline performance value in Kilo Watt Hours (kWhr) of energy consumed within one year. The proposed building was modelled with both the proposed mechanical services and the same services as modelled in the reference building. The annual energy consumption of these models was compared with the baseline reference building and compliance was achieved as the proposed building model consumes less energy than the baseline reference building.

Estimated Annual Generated Output of **40kW** solar panels as an on site renewable energy source = **71464 kWh** (Reference: LG Energy Solar System Output Calculator).

The table below indicates the annual energy consumption of the Proposed Building (with the Reference and Proposed Services) is not more than the baseline Reference building with its services. This verifies that the proposed building is compliant with JP1.

Model	Annual Energy Consumption (kWhr)	Refer to Appendix
JV3 Reference Building with Reference Services	1145184	A
JV3 Proposed Building with Reference Services	= 1197846 – 71464 = 1126382	B
JV3 Proposed Building with Proposed Services	To be completed later	C

- ▶ Roof solar absorptance has been increased from 0.7 to 0.75(0.70+0.05).
- ▶ External envelope wall solar absorptance has been increased from 0.6 to 0.65.
- ▶ All glazing is compliant as **6 Clear/ 12mm Air / 6 Clear**.
- ▶ 40kW solar system as an on site renewable energy must be used to achieve compliance

9. J1: Building Fabric

J1.3 Roof and Ceiling Construction

Minimum required Total R value of R3.7(upwnwards)

Typical Construction	
Building Element	R-Value
Outdoor air film	0.04
Metal Deck	0.00
Bradford Anticon 130 Blanket c/w spacers	3.00
Reflective air space	0.55
13 mm plasterboard	0.07
Indoor air film	0.12
Total	3.78

&

Typical Construction	
Building Element	R-Value
Outdoor air film	0.04
Solid Concrete	0.10
60mm Kooltherm-K10-Soffit-Board	3.00
Reflective air space	0.55
13 mm plasterboard	0.07
Indoor air film	0.12
Total	3.88

Compliance:

- ***Provide Bradford Anticon 130mm foil faced roof blanket c/w spacers(R3.0) or approved equal & reflective air gap for all new metal roofs.***
- &
- ***Provide 60mm Kooltherm-K10-Soffit-Board or approved equal & reflective air gap for all new solid concrete roofs.***

J1.4 Roof Lights

JV3 – Alternative Solution

Roof Lights has been modeled as part of the JV3 modelling as follows:

Glazing Type	U-Value	SHGC	Shading	Selection Guide
Roof Lights	3.5	0.64	As documented	6 Clear/ 12mm Air / 6 Clear/.

Compliance:

► ***Provide the performance requirements of the glazing as per table above.***

Note: Double glazing toughened glass may be required to comply with the BCA & Australian standards. The above glazing is only the minimum specification required to comply with section J.

J1.5 Walls

Internal Envelope Walls (Refer Appendix B Blue Walls)

- ▶ Climate Zone 7
- ▶ All internal envelope walls to have minimum R-Value of R1.5.

Typical Construction - Internal Envelope Walls	
Building Element	R-Value
Outdoor air film	0.04
Cladding / Block work	0.03 / 0.09
Bradford 75 mm Gold Wall Batts (R1.5)	1.50
10 mm Plasterboard	0.06
Indoor air film	0.12
Total	1.75 / 1.81

External Envelope Walls (Refer Appendix B Orange Walls)

- ▶ Requirement Table J1.5 a):
- ▶ Climate Zone 7 Option A
- ▶ Glazing Complying with Option A of Table J2.4a:
Minimum R Value = R2.8 for all walls.

Typical Construction - External Envelope Walls	
Building Element	R-Value
Outdoor air film	0.04
Cladding / Block work	0.03 / 0.09
Bradford 90 mm Gold Wall Batts (R2.5)	2.50
Non Reflective Air Gap (20-40 mm)	0.17
10 mm Plasterboard	0.06
Indoor air film	0.12
Total	2.92 / 2.98

Compliance:

- ▶ ***Provide Bradford Gold Wall Batts – 75 mm (R1.5) & non-reflective air gap for all internal envelope walls.***
- ▶ ***Provide Bradford Gold Wall Batts – 90 mm (R2.5) & non-reflective air gap for all external envelope walls.***

J1.6 Floors

The conditioned space has slab on ground floor & suspended slab. As such these floors require a minimum R-value of R1.0 & R2.0.

Typical Construction- Floor(slab on ground)	
Building Element	R-Value
Solid Concrete	0.10
Floor Insulation R1.0	1.00
Indoor air film	0.12
Total	1.22

&

Typical Construction- Floor(suspended slab)	
Building Element	R-Value
Indoor air film	0.04
40mm Kooltherm-K10-Soffit-Board	1.90
Solid Concrete	0.10
Indoor air film	0.12
Total	2.16

Compliance:

- ▶ **Provide Floor Insulation R1 under the floor slab on the ground.**
- ▶ **Provide Floor Insulation R1.9 under the suspended slab.**

10. J2: Glazing

J2.4, J2.5 Glazing and Shading

Glazing and shading requirements of J2.4 and J2.5 have been achieved as per the glazing calculator in Appendix A.

<u>JV3 – Alternative Solution</u>				
Glazing Type	U-Value	SHGC	Shading	Selection Guide
All Glazing	3.5	0.64	As documented	6mm Clear/12mm Air Gap/6mm Clear

Notes:

1. The above glazing selection is solely based on compliance with Section JV3 modelling only. All glazing is required to comply with the BCA and all relevant Australian Standards.
2. Glass selection based on Capral 419.
3. All glazing changes will be required to be remodelled to confirm compliance.

Compliance:

- ***Provide the performance requirements of the glazing as per table above.***

11. J3: Building Sealing

Requirement: Seals to be provided to all external windows and doors opening to the conditioned space. All works to comply with AS 2047.

Construction of all habitable rooms to be –

- ▶ enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions; or
- ▶ sealed by caulking, skirting, architraves, cornices or the like

An entrance to a building, if leading to a *conditioned space* must have an airlock, *self-closing* door, revolving door or the like, other than –

- ▶ where the *conditioned space* has a *floor area* of not more than 50 m²; or

A roof light is to be provided with a weatherproof seal and also provided with an imperforate ceiling diffuser at ceiling level.

All rooms greater than 50 m² with doors that open to outside, are to have self-closers installed. Refer to Appendix B for specific requirements.

Compliance:

- ▶ ***Provide the above requirements.***
- ▶ ***All entrance doors from the conditioned space to the non-conditioned space are to have a self-closing door.***

Or Alternative solution:

- ▶ ***Provide Read Switch c/w 60 second time delay to shut down air conditioning for all doors without self closer mechanisms.***

12. J4: Air Movements

Compliance:

- ▶ ***Not Applicable.***

13. J5: Air Conditioning and Ventilation Systems

Refer to Mechanical Design Certification.

14. J6: Artificial Lighting and Power

Refer to Electrical Design Certification.

15. J7: Hot Water Supply

Refer to Hydraulic Design Certification.

16. J8.3: Facilities for Energy Monitoring

- ▶ A building with a floor area of more than 500 m² and less than 2500 m² must have the facility to record the consumption of gas and electricity.
- ▶ A building with a floor area over 2500 m² is required to have the facility to record the energy consumption of:
 - i. air conditioning
 - ii. lighting
 - iii. appliance power
 - iv. hot water
 - v. lifts
 - vi. ancillary plant

Compliance:

- ▶ ***Documentation is to include individual metering to allow the energy consumption to be recorded.***

17. Appendix A: JV3 Verification Modelling Requirements

PART JV3 – Verification using a reference building

(a) For a Class 3,5,6,7,8 and 9 building, compliance is verified when it is determined that the annual energy consumption of the proposed building with its services is not more than the annual energy consumption of a reference building when:

- ▶ the proposed building is modelled with the proposed services and
 - ▶ the proposed building is modelled with the same services as the reference building.
- (c) The annual energy consumption has been calculated using a method that complies with the ABCB protocol for Building Energy Efficiency, namely Design Builder with Energy Plus.

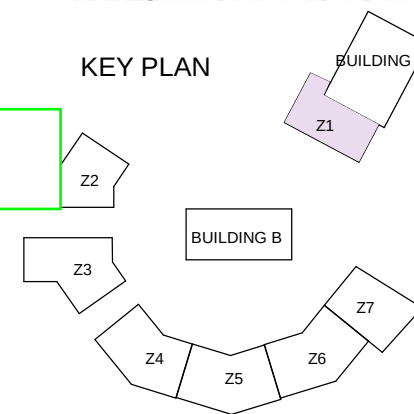
(d) (i) The annual energy consumption for the reference building has been calculated using:

- ▶ The Deemed-To-Satisfy (DTS) Provisions as per Part J1 to J7 below.
- ▶ Solar absorptance of 0.6 for the external walls and 0.7 for the roofs,
- ▶ The maximum illumination power density without any increase for adjustment factors
- ▶ Air-conditioning with the conditioned space temperature within the range of 18°C DB to 26°C DB for 98% of the plant operation time,
- ▶ The profiles for occupancy, air-conditioning, lighting, internal heat gains from people, appliances and equipment and hot water systems as per Specification JV,
- ▶ Infiltration values of 1.0 air changes per hour.

(d) (ii) The annual energy consumption for the reference building and the proposed building has been calculated using the same:

- ▶ Annual energy consumption method
- ▶ Location
- ▶ Adjacent structures and features (No adjacent shading was modelled)
- ▶ Environmental conditions
- ▶ Orientation
- ▶ Building form
- ▶ External doors
- ▶ Testing standards
- ▶ Thermal resistance of air films
- ▶ Dimensions of all walls
- ▶ Quality of insulation
- ▶ Assumptions and calculations relating to A/C zone boundaries
- ▶ Floor coverings
- ▶ Shading devices
- ▶ Range and type of services
- ▶ Internal artificial lighting
- ▶ Internal heat gains
- ▶ A/C system configuration
- ▶ Daily and annual occupancy and service profiles
- ▶ Hot water system (Assumed identical and were not modelled)
- ▶ Infiltration values
- ▶ Metabolic rate for people

18. Appendix B: Section J Envelope Requirements



PROVIDE (R1.0) FLOOR INSULATION UNDER
SLAB ON GROUND

PROVIDE (R3.0) INSULATION & REFLECTIVE AIR
GAP TO THE METAL DECK

PROVIDE R(1.5) INSULATION TO ALL THE
INTERNAL ENVELOPE BLUE WALLS

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1	02.05.2018	DRAFT 25% ISSUE FOR QS		
2	08.05.2018	25% SCHEMATIC DESIGN		

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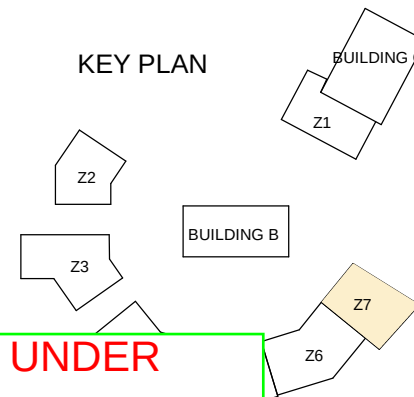
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NSW Department of Education

Drawing Title
GENERAL ARRANGEMENT PLAN -
ZONE 1 - LOWER GROUND

FITNESS AND MOVEMENT - O BLOCK

KEY PLAN



PROVIDE (R1.0) FLOOR INSULATION UNDER SLAB ON GROUND

DEPARTMENT

- MOVEMENT
- HS501 - LIBRARY
- HS601 - ADMINISTRATION
- HS602 - STAFF
- SERVICES
- SERVICES - HS611
- SSP430 - SUPPORT UNIT
- SSP602 - SUPPORT UNIT - STAFF
- SSP603 - SUPPORT UNIT - STUDENT AMENITIES
- SSP605 - SUPPORT UNIT - OUTDOOR
- SSP605 - SUPPORT UNIT

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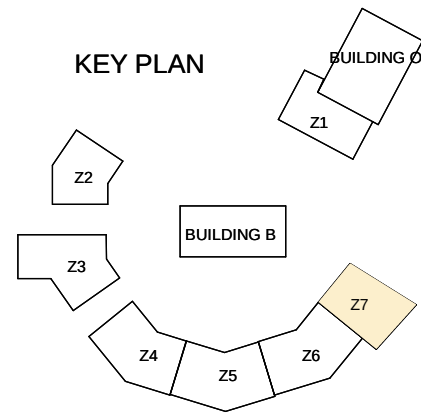
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ARRANGEMENT PLAN -
UPPER GROUND

ADMIN

KEY PLAN



DEPARTMENT

- MOVEMENT
- LIFT
- HS402 - SENIOR LEARNING UNIT - TYPE 1 (large school)
- HS501 - LIBRARY
- HS504 - OUTDOOR LEARNING
- HS602 - STAFF
- HS602 - STAFF (AMENITIES)
- STUDENT SERVICES - HS603

PROVIDE (R1.9) FLOOR INSULATION UNDER
SUSPENDED SLAB

PROVIDE R(2.5) INSULATION & NON
REFLECTIVE AIR GAP TO ALL THE
EXTERNAL ORANGE WALLS

PROVIDE R(1.5) INSULATION TO ALL THE
INTERNAL ENVELOPE BLUE WALLS

PROVIDE (R3.0) INSULATION & REFLECTIVE AIR
GAP TO THE METAL DECK

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ZONE 7 - LEVEL 1



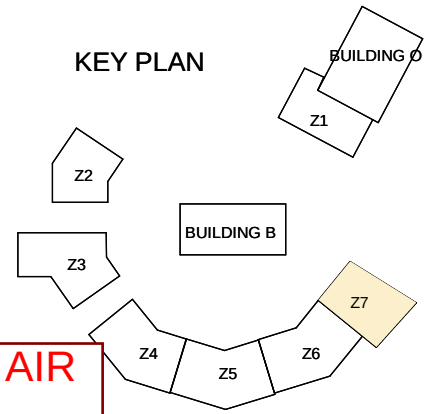
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Revision
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10 11 12 13 14 15 16 17 18 19 20

LIBRARY

KEY PLAN



DEPARTMENT

- LIFT
- HS602 - STAFF
- HS602 - STAFF (AMENITIES)
- SERVICES - HS611
- STAFF (AMENITIES) - HS602

Issue No.	Date	Description	Chkd
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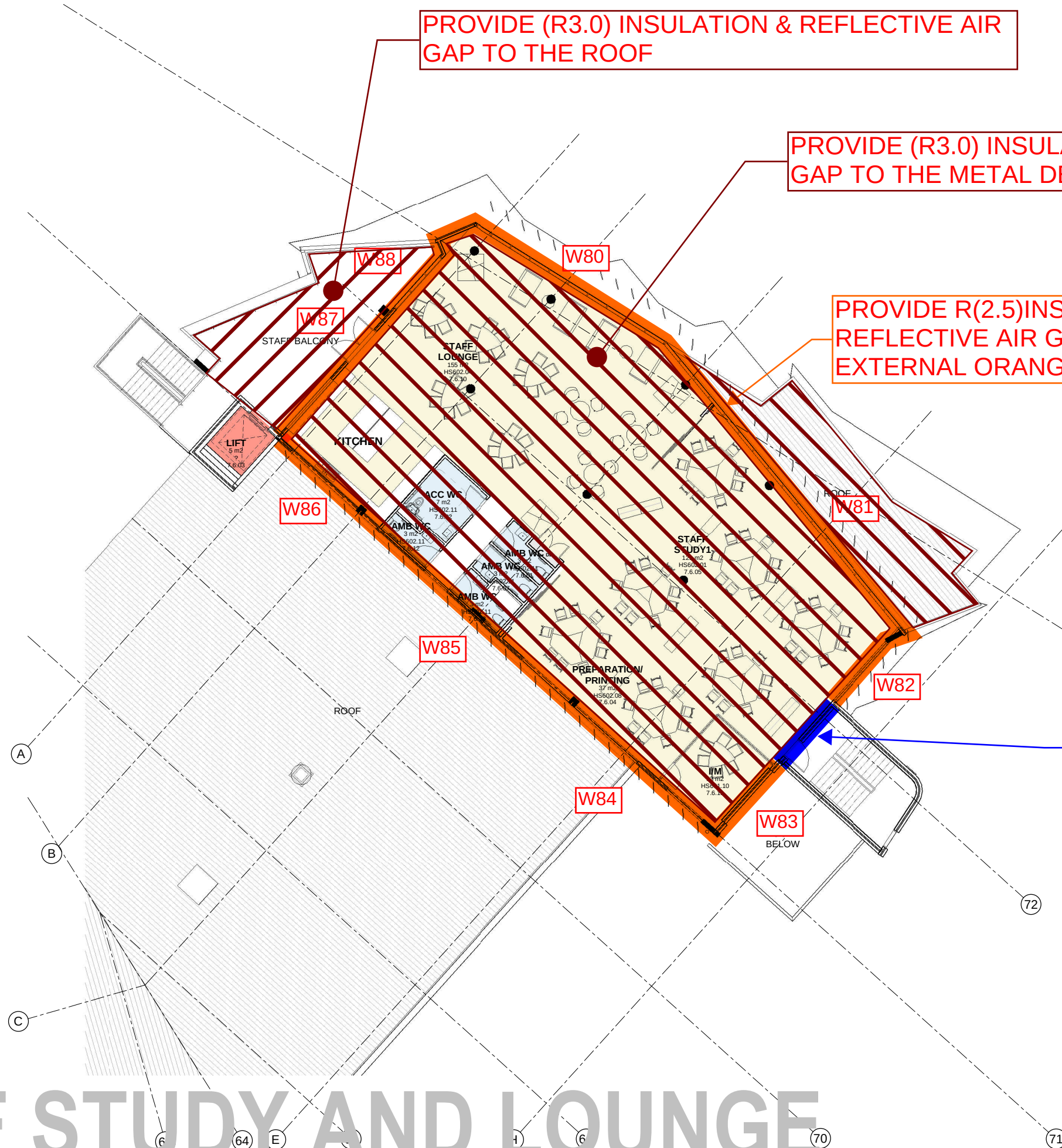
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PROVIDE (R3.0) INSULATION & REFLECTIVE AIR
GAP TO THE ROOF

PROVIDE (R3.0) INSULATION & REFLECTIVE AIR
GAP TO THE METAL DECK

PROVIDE R(2.5) INSULATION & NON
REFLECTIVE AIR GAP TO ALL THE
EXTERNAL ORANGE WALLS

PROVIDE R(1.5) INSULATION TO ALL THE
INTERNAL ENVELOPE BLUE WALLS



STAFF STUDY AND LOUNGE

PROVIDE (R1.0) FLOOR INSULATION UNDER
SLAB ON GROUND

Issue			
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Drawing Reference
17352- NBRS-114

Revision
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SUPPORT UNIT

PROVIDE (R3.0) INSULATION & REFLECTIVE AIR GAP TO THE METAL DECK

PROVIDE R(1.5) INSULATION TO ALL THE INTERNAL ENVELOPE BLUE WALLS

PROVIDE R(2.5) INSULATION & NON REFLECTIVE AIR GAP TO ALL THE EXTERNAL ORANGE WALLS

- HS401 - GENERAL LEARNING UNIT
- HS402 - SENIOR LEARNING UNIT - TYPE 1 (large school)
- HS501 - LIBRARY
- HS504 - OUTDOOR LEARNING
- HS602 - STAFF
- HS602 - STAFF (AMENITIES)
- STUDENT SERVICES - HS603
- SERVICES - HS611

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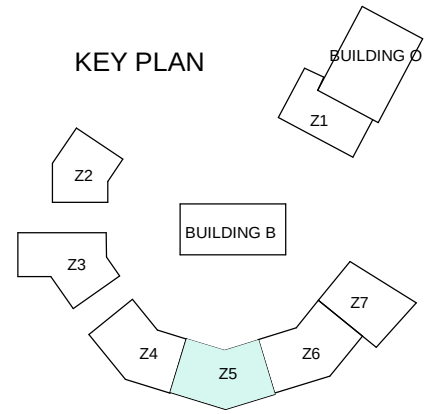
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ZONE 6 - LEVEL 1**

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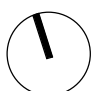
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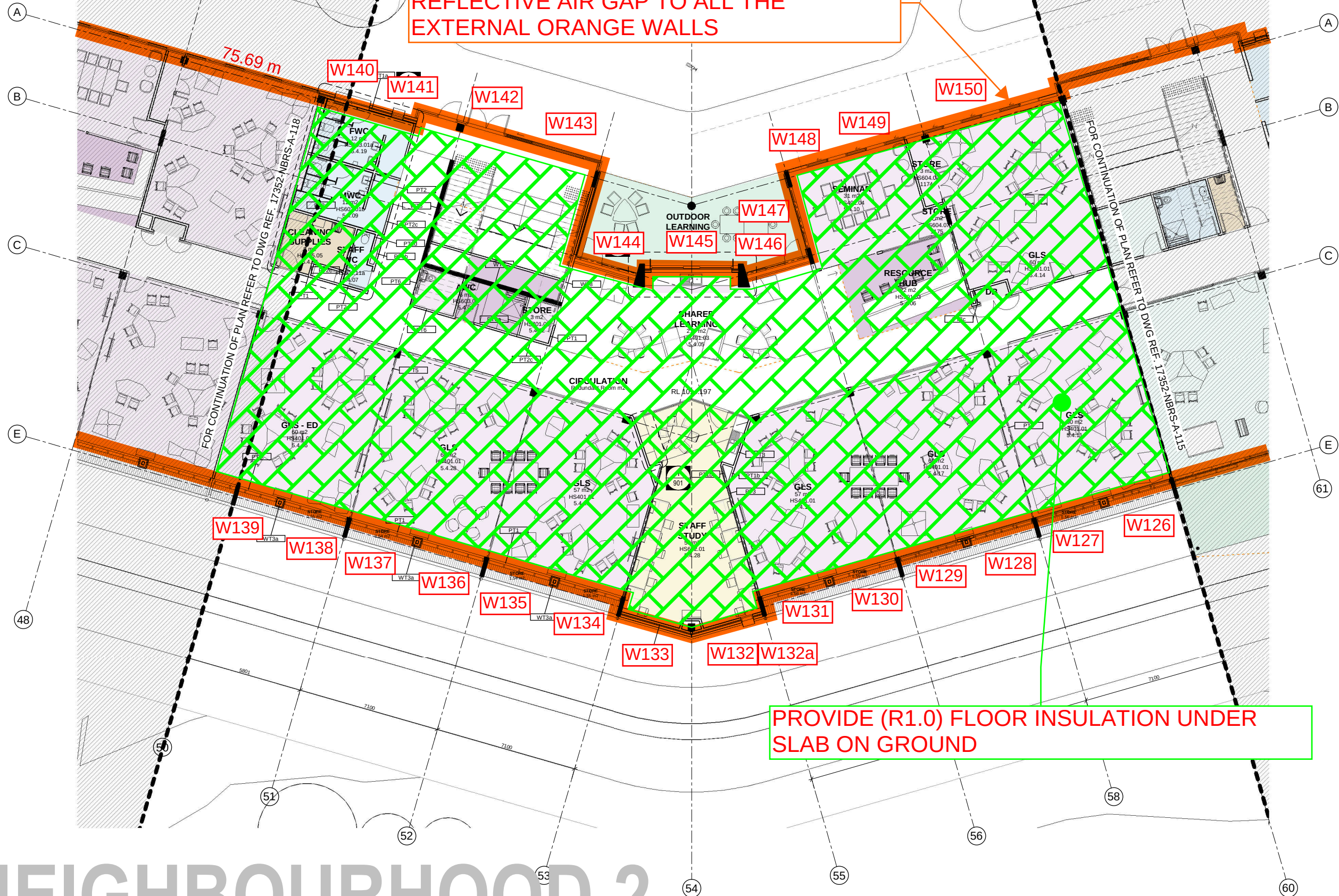


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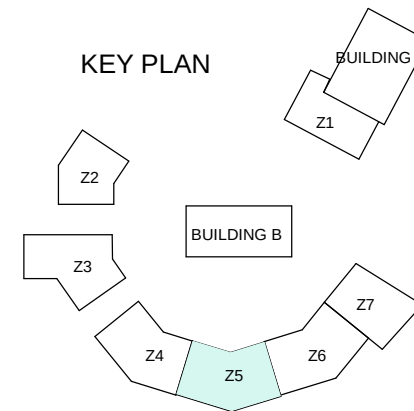
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17352- NBR-116
Revision
2

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NEIGHBOURHOOD 2



KEY PLAN



DEPARTMENT

- MOVEMENT
- HS401 - GENERAL LEARNING UNIT
- HS402 - SENIOR LEARNING UNIT - TYPE 1 (large school)
- HS501 - LIBRARY
- HS504 - OUTDOOR LEARNING
- HS602 - STAFF
- STUDENT SERVICES - HS603
- SERVICES - HS611

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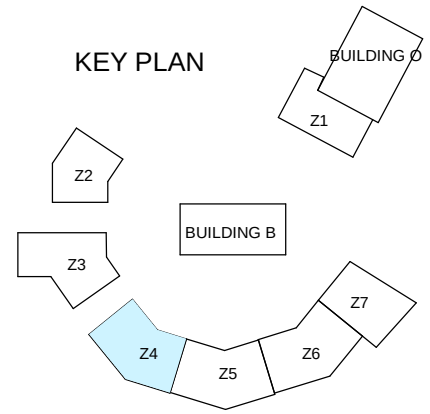
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PROVIDE (R3.0) INSULATION & REFLECTIVE AIR
GAP TO THE METAL DECK

PROVIDE R(2.5) INSULATION & NON
REFLECTIVE AIR GAP TO ALL THE
EXTERNAL ORANGE WALLS

NEIGHBOURHOOD 3

KEY PLAN



PROVIDE R(2.5) INSULATION & NON REFLECTIVE AIR GAP TO ALL THE EXTERNAL ORANGE WALLS

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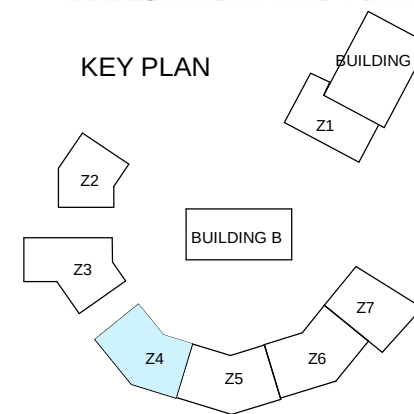
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**GENERAL ARRANGEMENT PLAN -
ZONE 4 - UPPER GROUND**

KEY PLAN



- LEARNING UNIT
- HS501 - LIBRARY
 - HS504 - OUTDOOR LEARNING
 - HS602 - STAFF
 - STUDENT SERVICES - HS603
 - SERVICES - HS611

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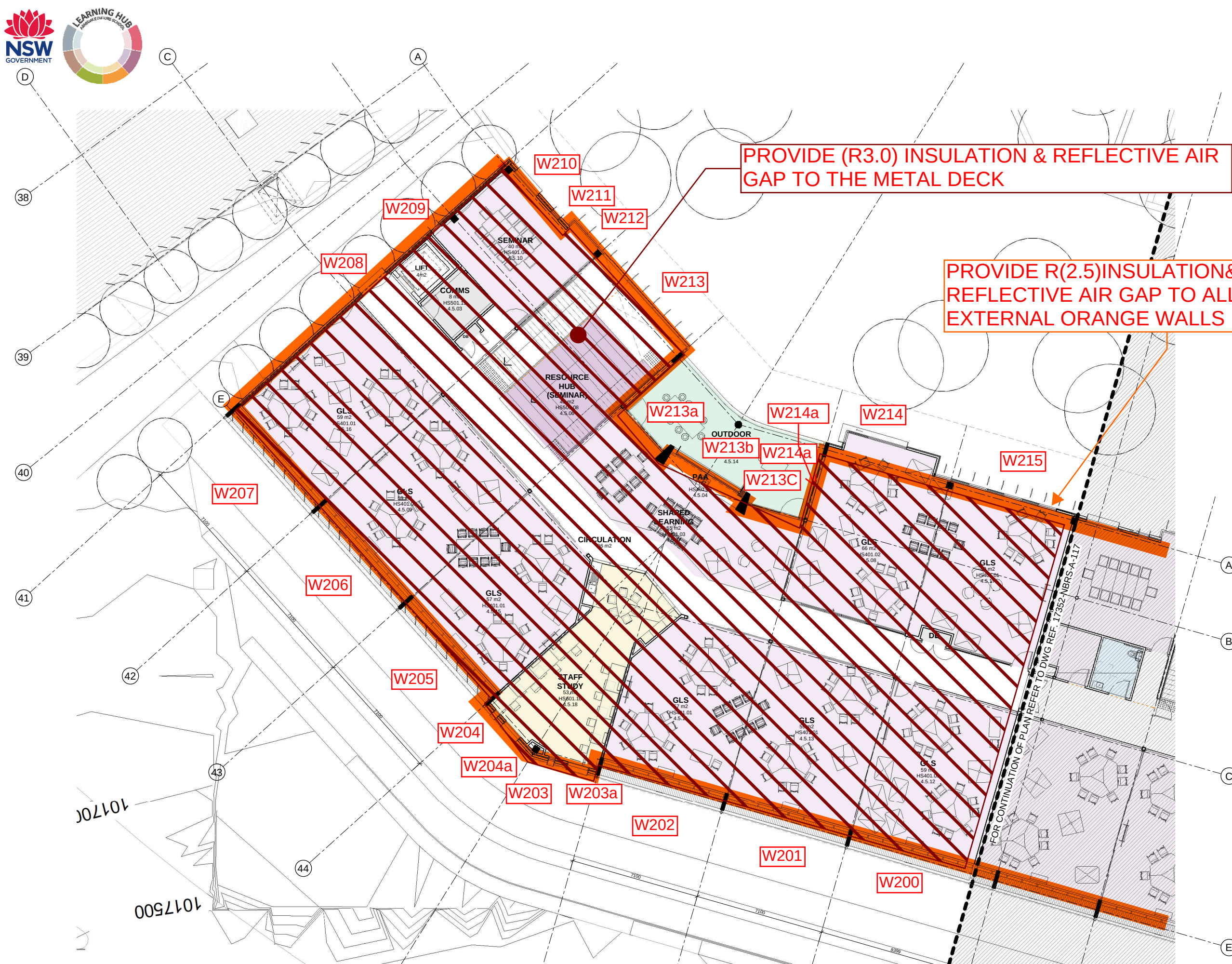
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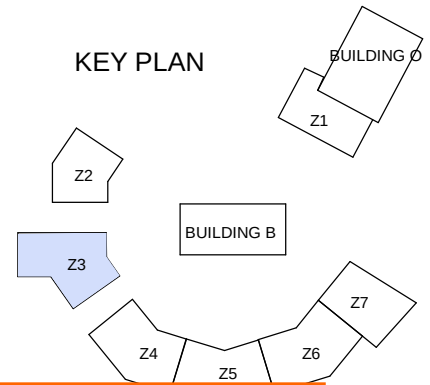
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ZONE 4 - LEVEL 1**

Date MAY 2018
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Drawing Reference 17352- NBR5-119
Revision 2

NEIGHBOURHOOD 5





PROVIDE R(2.5) INSULATION & NON REFLECTIVE AIR GAP TO ALL THE EXTERNAL ORANGE WALLS

Issue	No.	Date	Description	Chkd
1	02.05.2018	DRAFT 25% ISSUE FOR QS		
2	08.05.2018	25% SCHEMATIC DESIGN		

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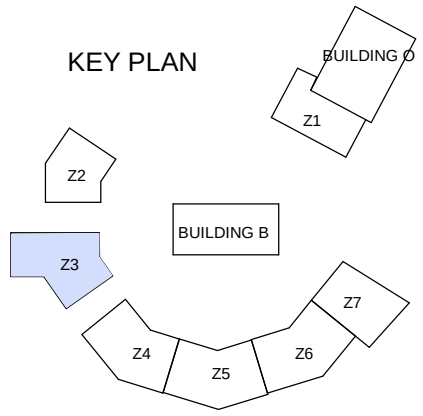
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Revision
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WOOD & METAL

KEY PLAN



DEPARTMENT

- MOVEMENT
- HS401 - GENERAL LEARNING UNIT
- HS414 - MATERIALS LEARNING UNIT TYPE 4 (FOOD TECH - SEMI COMMERCIAL)
- HS504 - OUTDOOR LEARNING
- HS602 - STAFF
- STUDENT SERVICES - HS603
- SERVICES - HS611

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2	08.05.2018	25% SCHEMATIC DESIGN	

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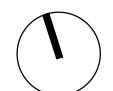
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Revision
2

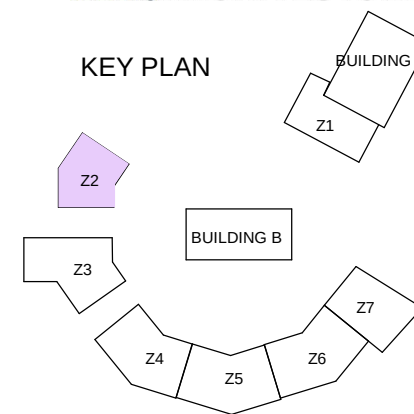


PROVIDE R(2.5)INSULATION& NON
REFLECTIVE AIR GAP TO ALL THE
EXTERNAL ORANGE WALLS

PROVIDE (R3.0) INSULATION & REFLECTIVE AIR
GAP TO THE METAL DECK

PROVIDE (R1.9) FLOOR INSULATION UNDER
SUSPENDED SLAB

FOOD AND TEXTILES



PROVIDE R(2.5) INSULATION & NON REFLECTIVE AIR GAP TO ALL THE EXTERNAL ORANGE WALLS

PROVIDE (R1.0) FLOOR INSULATION UNDER SLAB ON GROUND

PROVIDE (R3.0) INSULATION & REFLECTIVE AIR GAP TO THE METAL DECK

Issue No.	Date	Description	Chkd
1	02.05.2018	DRAFT 25% ISSUE FOR QS	
2	08.05.2018	25% SCHEMATIC DESIGN	

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Project
ARMIDALE SECONDARY COLLEGE

at
BUTLER STREET, ARMIDALE, NSW, 2350

for
NSW Department of Education

Drawing Title
GENERAL ARRANGEMENT PLAN -
ZONE 2 - LOWER GROUND

19. Appendix C: JV3 Verification Reference Building Glazing Calculator

NCC VOLUME ONE GLAZING CALCULATOR (first issued with NCC 2014)

Building name/description

MN10030 Armidale High School- Lower ground- Z1& Z2

Application

other

Climate zone

7

Storey

Lower Ground

Facade areas

Option A

Option B

Glazing area (A) 27.3m² 39.2m² 78.6m² 123m² 32.5m² 110m²

N	NE	E	SE	S	SW	W	NW	internal
	72.1m ²	51m ²	96.1m ²		125m ²	73.2m ²	160m ²	
								n/a

Number of rows preferred in table below

20 (as currently displayed)

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS									SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m ²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S _H)	Cooling (S _C)	Area used (m ²)	Element share of % of allowance used
1	W2	NW		1.50	5.30		1.9	0.15	1.800	1.500	1.20	0.00	0.02	0.35	7.95	9% of 94%
2	W3	NW		2.70	2.20		1.9	0.15	1.800	2.700	0.67	0.00	0.55	0.51	5.94	6% of 94%
3	W4-W6	NW		3.80	7.90		1.9	0.15	0.500	4.000	0.13	0.20	0.99	0.97	30.02	35% of 94%
4	W7-W9	NW		3.80	8.90		1.0	0.12	0.500	4.000	0.13	0.20	0.99	0.97	33.82	25% of 94%
5	W267-W270	NW		1.20	27.10		1.0	0.12				0.00	1.00	1.00	32.52	25% of 94%
6	W10-W13	SW		3.80	18.10		1.9	0.67	3.000	5.000	0.60	1.20	0.92	0.88	68.78	27% of 87%
7	W14	SW		2.70	4.50		1.9	0.67				0.00	1.00	1.00	12.15	4% of 87%
8	W15-W17	SW		2.70	13.70		2.0	0.64				0.00	1.00	1.00	37.17	6% of 87%
9	W18-W19	SW		2.70	1.60		1.9	0.67				0.00	1.00	1.00	20.16	3% of 87%
10	W20	SE		2.70	3.00		1.9	0.67				0.00	1.00	1.00	8.10	15% of 87%
11	W255-W258	SE		2.70	18.50		1.2	0.56				0.00	1.00	1.00	49.95	46% of 87%
12	W19-W22	E		2.70	14.50		1.0	0.12				0.00	1.00	1.00	39.15	100% of 99%
13	W23	NE		1.20	4.00		1.9	0.15	1.000	1.500	0.67	0.00	0.59	0.51	1.00	1% of 67%
14	W24	NE		1.20	3.60		1.9	0.15				0.00	1.00	1.00	4.32	1% of 67%
15	W251	NE		2.70	1.00		1.9	0.15				0.00	1.00	1.00	2.70	11% of 67%
16	W252	NE		1.20	3.60		1.9	0.15				0.00	1.00	1.00	4.32	18% of 67%
17	W253	NE		2.70	2.10		1.9	0.15				0.00	1.00	1.00	5.67	23% of 67%
18	W254	NE		1.20	3.60		1.9	0.15				0.00	1.00	1.00	4.32	18% of 67%
19	W263-W265	W		1.20	21.30		1.9	0.67				0.00	1.00	1.00	25.56	79% of 73%
20	W266	W		1.20	5.80		1.9	0.67				0.00	1.00	1.00	6.96	21% of 73%

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS									SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S _H)	Cooling (S _C)	Area used (m²)	Element share of % of allowance used

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THE GLAZING CALCULATOR

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if inputs are valid



REFERENCE BUILDING ONLY

- NOT FOR CONSTRUCTION

NCC VOLUME ONE GLAZING CALCULATOR (first issued with NCC 2014)

Building name/description

MN10030 Armidale High School- Ground Floor- Z2& Z3

Application

other

Climate zone

7

Storey

Ground

Facade areas

Option A

Option B

Glazing area (A)

N	NE	E	SE	S	SW	W	NW	internal
116m ²	54m ²	135m ²	59.1m ²	51.3m ²		172m ²	73.2m ²	
								n/a
4.8m ²	21.6m ²	106m ²	44.3m ²	4.8m ²		29.3m ²	29.3m ²	

Number of rows preferred in table below

17 (as currently displayed)

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS								SHADING		CALCULATED OUTCOMES OK (if inputs are valid)						
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S _H)	Cooling (S _C)	Area used (m²)	Element share of % of allowance used
1	W220	N		2.40	2.00		6.1	0.73				0.00	1.00	1.00	4.80	100% of 34%
2	W221			0.6	1.0		1.0	0.12				0.00	1.00	1.00	0.60	100% of 100%
3	W221a			1.0	0.0		1.0	0.12				0.00	1.00	1.00	0.00	100% of 100%
4	W222&W223			2.7	6.0		1.0	0.12				0.00	1.00	1.00	16.20	100% of 100%
5	W224-W225	E		2.70	8.00		1.0	0.12				0.00	1.00	1.00	21.60	21% of 100%
6	W226-W228	E		2.70	12.00		1.0	0.11				0.00	1.00	1.00	32.40	30% of 100%
7	W296a	E		2.70	3.20		1.0	0.12				0.00	1.00	1.00	8.64	8% of 100%
8	W296-W297	E		2.70	8.20		1.0	0.12				0.00	1.00	1.00	22.80	24% of 100%
9	W294	E		2.0	5.00		1.0	0.12				0.00	1.00	1.00	10.00	32% of 99%
10	W295	SE		2.00	3.00		1.0	0.12				0.00	1.00	1.00	6.00	20% of 99%
11	W295a	SE		2.70	3.00		1.0	0.12				0.00	1.00	1.00	8.10	18% of 99%
12	W295b	SE		2.70	4.50		1.0	0.12				0.00	1.00	1.00	12.15	27% of 99%
13	W291	NE		2.40	2.00		1.9	0.15				0.00	1.00	1.00	4.80	22% of 79%
14	W290,292&293	NE		1.20	14.00		1.9	0.15				0.00	1.00	1.00	16.80	78% of 79%
15	W299	S		2.40	2.00		6.1	0.73				0.00	1.00	1.00	4.80	100% of 70%
16	W300-W303	W		1.20	24.40		4.3	0.55				0.00	1.00	1.00	29.28	100% of 85%
17	W304-W307	NW		1.20	24.40		1.9	0.15				0.00	1.00	1.00	29.28	100% of 74%

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS									SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S _H)	Cooling (S _C)	Area used (m²)	Element share of % of allowance used

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if inputs are valid

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REFERENCE BUILDING ONLY

- NOT FOR CONSTRUCTION

NCC VOLUME ONE GLAZING CALCULATOR (first issued with NCC 2014)

Building name/description

MN10030 Armidale High School- Upper Ground Floor- Z3, Z4,Z5,Z6&Z7

Application

other

Climate zone

7

Storey

Upper Ground

Facade areas

Option A

Option B

Glazing area (A)

N	NE	E	SE	S	SW	W	NW	internal
247m ²	182m ²	160m ²	150m ²	146m ²	221m ²	153m ²	134m ²	
								n/a
99.7m ²	144m ²	84.8m ²	50m ²	90.1m ²	89.9m ²	66.3m ²	49m ²	

Number of rows preferred in table below

60 (as currently displayed)

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS									SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m ²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S _H)	Cooling (S _C)	Area used (m ²)	Element share of % of allowance used
1	W42-W43	NW		2.70	5.40		1.9	0.15				0.00	1.00	1.00	14.58	22% of 92%
2	W44	NW		2.70	6.10		1.9	0.15	DEVICE		2.00	0.00	0.00	0.29	16.47	23% of 92%
3	W100	NW		2.70	5.30		2.0	0.56				0.00	1.00	1.00	14.31	44% of 92%
4	W102	NW		1.20	3.00		2.0	0.56				0.00	1.00	1.00	3.60	11% of 92%
5	W41a	SW		1.20	2.60		4.3	0.55				0.00	1.00	1.00	3.12	8% of 98%
6	W45	SW		1.60	1.20		6.1	0.73				0.00	1.00	1.00	1.92	7% of 98%
7	W114-W115	S		1.20	21.20		2.6	0.56				0.00	1.00	1.00	25.44	10% of 92%
8	W116	S		0.61	10.05		6.1	0.73				0.00	1.00	1.00	6.11	4% of 98%
9	W116-W117	S		2.70	21.30		2.6	0.56				0.00	1.00	1.00	25.56	10% of 98%
10	W183-W184	SW		0.61	3.02		2.0	0.56				0.00	1.00	1.00	1.84	1% of 98%
11	W183a	SW		0.61	0.61		2.0	0.56				0.00	1.00	1.00	0.37	0.2% of 98%
12	W180-W182	SW		1.20	21.30		2.6	0.32				0.00	1.00	1.00	25.56	38% of 98%
13	W181	SW		2.70	2.00		2.0	0.73				0.00	1.00	1.00	5.40	10% of 98%
14	W182	N		1.20	2.60		2.0	0.56				0.00	1.00	1.00	3.12	10% of 92%
15	W183	N		2.70	9.20		2.9	0.56				0.00	1.00	1.00	24.84	18% of 92%
16	W97	N		0.61	1.81		1.9	0.15				0.00	1.00	1.00	1.10	1% of 92%
17	W98	N		0.61	0.61		1.9	0.15				0.00	1.00	1.00	0.37	0.3% of 92%
18	W99	N		2.70	8.80		1.9	0.15				0.00	1.00	1.00	23.76	17% of 92%
19	W145-W146	N		2.70	7.90		1.9	0.15				0.00	1.00	1.00	21.33	16% of 92%
20	W148-W150	N		1.20	12.00		1.9	0.15				0.00	1.00	1.00	14.40	10% of 92%
21	W188	N		2.40	2.00		2.0	0.56				0.00	1.00	1.00	4.80	13% of 92%

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS									SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S _H)	Cooling (S _C)	Area used (m²)	Element share of % of allowance used
22	W189	N		0.61	0.61		2.0	0.56				0.00	1.00	1.00	0.37	1% of 92%
23	W230	N		2.40	2.00		2.0	0.56				0.00	1.00	1.00	4.80	13% of 92%
24	W44a	NE		2.70	1.60		1.8	0.11	DEVICE		2.00	0.00	0.00	0.28	4.32	2% of 99%
25	W31	NE		1.81	0.61		1.8	0.11				0.00	1.00	1.00	1.10	1% of 99%
26	W31a	NE		0.61	2.05		1.8	0.11				0.00	1.00	1.00	1.25	1% of 99%
27	W32	NE		1.81	0.61		1.8	0.11				0.00	1.00	1.00	1.10	1% of 99%
28	W33	NE		1.40	1.40		1.8	0.11				0.00	1.00	1.00	1.96	2% of 99%
29	W140	NE		1.20	1.80		1.8	0.11				0.00	1.00	1.00	2.16	2% of 99%
30	W141	NE		1.81	0.61		1.8	0.11				0.00	1.00	1.00	1.10	1% of 99%
31	W142-W143	NE		2.70	9.40		1.8	0.11				0.00	1.00	1.00	25.38	21% of 99%
32	W144	NE		2.70	3.20		1.8	0.11	4.200	3.000	1.40	0.30	0.37	0.39	8.64	3% of 99%
33	W190	NE		1.21	0.61		1.8	0.11				0.00	1.00	1.00	0.74	1% of 99%
34	W190a	NE		0.61	0.61		1.8	0.11				0.00	1.00	1.00	0.37	0.3% of 99%
35	W191-W194	NE		2.70	9.40		1.8	0.11				0.00	1.00	1.00	25.38	21% of 99%
36	W194a-W194b	NE		2.70	12.00		1.8	0.11	4.000	3.000	1.33	0.30	0.37	0.39	31.40	13% of 99%
37	W195-W196	NE		2.70	14.10		1.8	0.11				0.00	1.00	1.00	31.07	32% of 99%
38	W147	W		2.70	3.20		1.8	0.11				0.00	1.00	1.00	8.64	12% of 99%
39	W241-W243	W		1.20	21.30		1.8	0.11				0.00	1.00	1.00	25.56	39% of 99%
40	W244-W245	W		1.20	3.62		1.8	0.11				0.00	1.00	1.00	4.34	7% of 99%
41	W244a-W245a	W		1.81	1.22		1.8	0.11				0.00	1.00	1.00	2.21	3% of 99%
42	W16	W		1.20	21.30		1.8	0.11				0.00	1.00	1.00	25.56	39% of 99%
43	W34	E		1.40	1.40		1.8	0.11				0.00	1.00	1.00	0.73	1% of 98%
44	W35-W37	E		1.70	8.80		1.8	0.11				0.00	1.00	1.00	17.16	28% of 98%
45	W231	E		1.21	1.81		1.8	0.11				0.00	1.00	1.00	2.19	3% of 98%
46	W232	E		1.81	0.61		1.8	0.11				0.00	1.00	1.00	1.10	1% of 98%
47	W233-W234	E		1.20	9.40		1.8	0.11				0.00	1.00	1.00	11.28	13% of 98%
48	W235-W236	E		2.70	11.60		1.8	0.11				0.00	1.00	1.00	31.32	37% of 98%
49	W237& W239	E		1.20	12.00		1.8	0.11				0.00	1.00	1.00	14.40	17% of 98%
50	W38	SE		2.70	2.60		2.0	0.56				0.00	1.00	1.00	7.02	10% of 98%
51	W39-W41	SE		2.70	9.00		2.0	0.56				0.00	1.00	1.00	24.30	33% of 98%
52	W90	SE		0.61	0.61		2.0	0.56				0.00	1.00	1.00	0.37	1% of 98%
53	W90a	SE		0.61	1.20		2.0	0.56				0.00	1.00	1.00	0.73	1% of 98%
54	W90b	SE		2.70	6.50		3.8	0.66				0.00	1.00	1.00	17.55	56% of 98%
55	W94-W95	S		2.70	14.20		2.0	0.56				0.00	1.00	1.00	38.34	15% of 96%
56	W92-W93	S		2.70	7.10		3.8	0.66				0.00	1.00	1.00	19.17	48% of 96%

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS									SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m ²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S _H)	Cooling (S _C)	Area used (m ²)	Element share of % of allowance used
57	W91	S		0.61	1.81		2.0	0.56				0.00	1.00	1.00	1.10	0.4% of 96%
58	W132&W132a	S		0.61	1.82		2.0	0.56				0.00	1.00	1.00	1.11	0.4% of 96%
59	W126-W131	S		1.20	21.30		2.0	0.56				0.00	1.00	1.00	25.56	10% of 96%
60	W240	S		2.40	2.00		6.1	0.73				0.00	1.00	1.00	4.80	26% of 96%

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- NOT FOR CONSTRUCTION

NCC VOLUME ONE GLAZING CALCULATOR (first issued with NCC 2014)

Building name/description

MN10030 Armidale High School- Level 1- Z4,Z5,Z6&Z7

Application

other

Climate zone

7

Storey

Level 1

Facade areas

Option A

Option B

Glazing area (A)

N	NE	E	SE	S	SW	W	NW	internal
195m ²	225m ²	15.4m ²	114m ²	144m ²	237m ²	19.4m ²	64m ²	
								n/a
114m ²	161m ²	6.96m ²	50.5m ²	59.1m ²	102m ²	11.6m ²	44.1m ²	

Number of rows preferred in table below

52 (as currently displayed)

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS									SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S _H)	Cooling (S _C)	Area used (m²)	Element share of % of allowance used
1	W214a	NW		2.70	4.20		1.8	0.11				0.00	1.00	1.00	11.34	30% of 96%
2	W122c	NW		2.70	3.30		1.8	0.11				0.00	1.00	1.00	8.91	24% of 96%
3	W123	NW		1.20	3.20		1.8	0.11				0.00	1.00	1.00	3.84	10% of 96%
4	W12	NW		1.20	3.00		1.0	0.11				0.00	1.00	1.00	3.60	11% of 96%
5	W69	NW		1.70	2.0		1.0	0.11				0.00	1.00	1.00	3.40	26% of 96%
6	W20-W20	SW		1.20	1.20		2.0	0.56				0.00	1.00	1.00	25.3	13% of 88%
7	W203&W204	SW		1.21	0.74		6.1	0.73				0.00	1.00	1.00	0.90	3% of 88%
8	W203a	SW		1.21	1.21		6.1	0.73				0.00	1.00	1.00	1.46	5% of 88%
9	W204a	SW		0.61	1.21		6.1	0.73				0.00	1.00	1.00	0.74	2% of 88%
10	W20-W20	SW		1.2	2.60		2.0	0.56				0.00	1.00	1.00	27.2	14% of 88%
11	W16	SW		1.6	1.21		6.1	0.73				0.00	1.00	1.00	0.94	3% of 88%
12	W16a	SW		1.21	0.37		6.1	0.73				0.00	1.00	1.00	0.44	1% of 88%
13	W165-W167	SW		1.20	20.20		2.0	0.56				0.00	1.00	1.00	24.24	12% of 88%
14	W122d	SW		2.70	3.60		2.0	0.56				0.00	1.00	1.00	9.72	5% of 88%
15	W61-W61	SW		1.50	7.20		6.1	0.73				0.00	1.00	1.00	10.80	40% of 88%
16	W208	N		1.21	1.81		1.9	0.15				0.00	1.00	1.00	2.19	2% of 97%
17	W209	N		1.81	0.61		1.9	0.15				0.00	1.00	1.00	1.10	1% of 97%
18	W172a-W172b	N		2.70	15.51		1.9	0.15				0.00	1.00	1.00	41.88	37% of 97%
19	W172	N		1.20	3.20		1.9	0.15				0.00	1.00	1.00	3.84	3% of 97%
20	W173	N		1.20	7.70		1.9	0.15				0.00	1.00	1.00	9.24	8% of 97%
21	W120-W121	N		2.70	9.20		1.9	0.15				0.00	1.00	1.00	24.84	22% of 97%

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS									SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S _H)	Cooling (S _C)	Area used (m²)	Element share of % of allowance used
22	W121a	N		1.21	1.81		1.9	0.15				0.00	1.00	1.00	2.19	2% of 97%
23	W121b	N		1.81	0.61		1.9	0.15				0.00	1.00	1.00	1.10	1% of 97%
24	W122a&W122b	N		2.70	8.00		1.9	0.15				0.00	1.00	1.00	21.60	19% of 97%
25	W50&W52	N		2.70	2.40		1.9	0.15				0.00	1.00	1.00	6.48	6% of 97%
26	W210	NE		1.21	1.81		1.8	0.11				0.00	1.00	1.00	2.19	2% of 82%
27	W211	NE		1.81	0.61		1.8	0.11				0.00	1.00	1.00	1.10	1% of 82%
28	W111&W112	NE		2.70	21.30		2.0	0.56				0.00	1.00	1.00	25.56	19% of 82%
29	W113	NE		1.21	0.61		2.0	0.56				0.00	1.00	1.00	0.74	6% of 82%
30	W114	NE		0.61	1.21		2.0	0.56				0.00	1.00	1.00	0.74	9% of 82%
31	W215	NE		1.50	6.00		1.8	0.11				0.00	1.00	1.00	9.00	7% of 82%
32	W168	NE		1.21	1.81		1.8	0.11				0.00	1.00	1.00	2.19	2% of 82%
33	W169	NE		1.81	0.61		1.8	0.11				0.00	1.00	1.00	1.10	1% of 82%
34	W170&W171	NE		2.70	21.30		1.8	0.11	4.000	3.000	1.33	0.30	0.47	0.47	5.91	10% of 82%
35	W172	NE		2.70	3.30		1.8	0.11				0.00	1.00	1.00	8.91	7% of 82%
36	W51	NE		2.70	1.80		2.0	0.56	DEVICE		2.00	0.00	0.00	0.28	7.26	1% of 82%
37	W53&W54	NE		2.70	4.70		1.8	0.11	DEVICE		2.00	0.00	0.00	0.28	12.69	5% of 82%
38	W172c	W		2.70	3.30		1.0	0.11	4.000	3.000	1.33	0.30	0.47	0.47	8.91	65% of 90%
39	W70	W		2.70	1.00		1.8	0.11				0.00	1.00	1.00	2.70	35% of 90%
40	W122	E		1.20	4.00		1.8	0.11	4.000	3.000	0.00	1.80	1.00	1.00	4.80	69% of 84%
41	W57	E		2.70	0.80		1.8	0.11				0.00	1.00	1.00	2.16	31% of 84%
42	W113	SE		1.21	0.61		2.0	0.56				0.00	1.00	1.00	0.74	1% of 88%
43	W114	SE		0.61	1.21		2.0	0.56				0.00	1.00	1.00	0.74	1% of 88%
44	W110-W112	SE		1.20	21.30		2.0	0.56				0.00	1.00	1.00	25.56	51% of 88%
45	W56	SE		2.70	1.00		2.0	0.56				0.00	1.00	1.00	2.70	5% of 88%
46	W59&W60	SE		2.70	7.70		2.0	0.56				0.00	1.00	1.00	20.79	41% of 88%
47	W160-W162	S		1.20	21.30		2.0	0.56				0.00	1.00	1.00	25.56	35% of 29%
48	W163	S		0.61	1.21		6.1	0.73				0.00	1.00	1.00	0.74	14% of 29%
49	W163a	S		1.21	0.37		6.1	0.73				0.00	1.00	1.00	0.45	8% of 29%
50	W117-W119	S		1.20	21.30		2.0	0.56				0.00	1.00	1.00	25.56	35% of 29%
51	W115&W116	S		1.21	1.58		2.0	0.56				0.00	1.00	1.00	1.91	3% of 29%
52	W58	S		2.70	1.80		2.0	0.56				0.00	1.00	1.00	4.86	7% of 29%

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS								SHADING		CALCULATED OUTCOMES OK (if inputs are valid)						
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S _H)	Cooling (S _C)	Area used (m²)	Element share of % of allowance used

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THE GLAZING CALCULATOR

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if inputs are valid

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REFERENCE BUILDING ONLY

- NOT FOR CONSTRUCTION

NCC VOLUME ONE GLAZING CALCULATOR (first issued with NCC 2014)

Building name/description

MN10030 Armidale High School- Level 2- Z7

Application

other

Climate zone

7

Storey

Level 2

Facade areas

N	NE	E	SE	S	SW	W	NW	internal
	27.3m²	45.6m²	23m²		70.7m²		30m²	
								n/a

Option A

Option B

Glazing area (A)

15m²

25.4m²

13.6m²

30.8m²

13.5m²

Number of rows preferred in table below7 (as currently displayed)

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS								SHADING		CALCULATED OUTCOMES OK (if inputs are valid)				
Glazing element		Facing sector		Size		Performance		P&H or device		Shading		Multipliers		Outcomes
Description (Option A)	Option B	Option A	Option B	Height (m)	Width (m)	Total System U-value (A) (W/m².K)	Total System SHGC (A) (A/m².K)	Shading Coefficient (H) (m²/m²)	Device (H) (m²/m²)	Shading Coefficient (G) (m²/m²)	Shading Coefficient (H) (m²/m²)	Shading Coefficient (S) (m²/m²)	Area used (m²)	Element share of allowance used
1 W88		NW		2.70	3.00	1.9	0.15			0.00	1.00	1.00	8.10	60% of 83%
2 W88		NW		2.70	3.00	1.9	0.15	Device		2.00	0.00	0.00	0.28	100% of 52%
3 W80		NE		1.50	10.00	1.9	0.15	Device		2.00	0.00	0.00	0.28	100% of 52%
4 W81		E		1.70	16.90	1.9	0.11	Device		2.00	0.00	0.00	0.28	100% of 52%
5 W83		S		1.70	3.00	1.9	0.17			0.00	1.00	1.00	9.72	72% of 59%
6 W83		S		1.70	3.00	1.9	0.17			0.00	1.00	1.00	3.80	28% of 59%
7 W84-W86		SW		2.00	15.40	2.0	0.56			0.00	1.00	1.00	30.80	100% of 40%

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if inputs are valid

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20. Appendix E: Reference Building / Reference Services JV3 Compliance Report

ACADS BSG Program

BEAVER SYSTEMS

Version Number 7.11.1

ACADS BSG advises that the program BEAVER is intended to be used only by persons who are proficient in its use and application and that these results should be verified independently. The results must not be used without acceptance of the ACADS-BSG's License Agreement for this program.

BEAVER has been successfully validated against BESTEST. The conclusions obtained are listed in the User Guide

CALCULATION BUILD NUMBER 7.11.1BU

SUMMARY OF ENERGY

	kWhr	MJ	%
Lighting	47116	169616	16.8
Equipment	61371	220937	21.9
Unitary Cooling	95760	344738	34.2
Unitary Heating	2199	7917	0.8
Unitary Fans	73968	266286	26.4
TOTAL	280407	1009466	
per square metre	122	440	
project floor area (m2)	2296		
Condensate total (kl)	43.7		

Summary of Lighting, Equipment and Process Energy Use

Description	Energy kWhr	Energy Source
LIGHTING L1	47116	ELECTRICITY
EQUIPMENT E1	61371	ELECTRICITY

Max and Min Temperatures

During Occupied Period

HIGHEST Temperatures							LOWEST Temperatures						
Temp.	Date	No.of					Temp.	Date	No.Of				
(C)	Mo/Day/Hr	Occur					(C)	Mo/Day/Hr	Occur				
SYSTEM No. 1	Title - Z1-MOVEMENT STUD						No Off 1	(Op. Hours 2610)					
Space 1	23.9	12	31	11	0		21.4	7	19	8	0	Z1-MOVEMENT STUDIO	
SYSTEM No. 2	Title - Z1-FITNESS LAB						No Off 1	(Op. Hours 2610)					
Space 2	24.0	1	12	7	0		20.3	7	1	8	2	Z1-FITNESS LAB	
SYSTEM No. 3	Title - Z1-SEMINAR						No Off 1	(Op. Hours 2610)					
Space 3	24.1	12	14	7	1		21.4	7	19	8	0	Z1-SEMINAR	
SYSTEM No. 4	Title - Z1-CIRCULATION						No Off 1	(Op. Hours 2610)					
Space 4	24.0	1	11	7	0		21.4	7	19	8	0	Z1-CIRCULATION	

SYSTEM No. 5 Title - Z1-GLS INTERNAL	No Off 1 (Op. Hours 2610)	
Space 5 24.0 12 31 7 0 21.5 7 19 8 0		Z1-GLS INTERNAL
SYSTEM No. 6 Title - Z1-GLS EXTERNAL	No Off 1 (Op. Hours 2610)	
Space 6 24.0 12 14 7 0 21.4 7 19 8 0		Z1-GLS EXTERNAL
SYSTEM No. 7 Title - Z1-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 7 24.0 12 31 11 0 21.3 7 19 8 0		Z1-STAFF STUDY
SYSTEM No. 8 Title - Z2G-LAB 1	No Off 1 (Op. Hours 2610)	
Space 8 24.0 12 31 11 0 21.4 11 8 7 0		Z2G-LAB 1
SYSTEM No. 9 Title - Z2G-LAB 2	No Off 1 (Op. Hours 2610)	
Space 9 23.9 12 31 11 0 21.4 11 8 7 0		Z2G-LAB 2
SYSTEM No. 10 Title - Z2G-LAB 3	No Off 1 (Op. Hours 2610)	
Space 10 23.9 1 12 7 0 21.5 7 19 8 0		Z2G-LAB 3
SYSTEM No. 11 Title - Z2G-LAB 4	No Off 1 (Op. Hours 2610)	
Space 11 24.0 12 31 11 0 21.4 11 8 7 0		Z2G-LAB 4
SYSTEM No. 12 Title - Z2G-LAB 5	No Off 1 (Op. Hours 2610)	
Space 12 24.0 12 31 11 0 21.4 5 31 8 0		Z2G-LAB 5
SYSTEM No. 13 Title - Z2G-PREP 1	No Off 1 (Op. Hours 2610)	
Space 13 23.9 12 31 11 0 21.4 11 8 7 0		Z2G-PREP 1
SYSTEM No. 14 Title - Z2G-PREP 2	No Off 1 (Op. Hours 2610)	
Space 14 24.0 12 31 11 0 21.3 11 8 7 0		Z2G-PREP 2
SYSTEM No. 15 Title - Z2G-GLS 1	No Off 1 (Op. Hours 2610)	
Space 15 24.0 12 31 11 0 21.4 11 8 7 0		Z2G-GLS 1
SYSTEM No. 16 Title - Z2G-GLS 2	No Off 1 (Op. Hours 2610)	
Space 16 24.5 12 6 7 1 21.4 5 31 8 0		Z2G-GLS 2
SYSTEM No. 17 Title - Z2G-LAB 6	No Off 1 (Op. Hours 2610)	
Space 17 24.1 12 6 7 1 21.5 5 31 8 0		Z2G-LAB 6
SYSTEM No. 18 Title - Z2G-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 18 24.8 12 6 7 4 21.5 5 31 8 0		Z2G-STAFF STUDY
SYSTEM No. 19 Title - Z2G-OPEN GLS 1	No Off 1 (Op. Hours 2610)	
Space 19 24.0 12 31 11 0 21.4 11 8 7 0		Z2GOPEN GLS 1
SYSTEM No. 20 Title - Z2G-STAFF SEMINA	No Off 1 (Op. Hours 2610)	
Space 20 24.0 12 31 11 0 21.4 9 13 8 0		Z2G-STAFF SEMINAR
SYSTEM No. 21 Title - Z2G-OPEN GLS 2	No Off 1 (Op. Hours 2610)	
Space 21 24.0 12 31 11 0 21.4 9 13 8 0		Z2G-OPEN GLS 2
SYSTEM No. 22 Title - Z2G-CIRCULATION	No Off 1 (Op. Hours 2610)	
Space 22 23.9 12 31 11 0 21.5 5 31 8 0		Z2G-CIRCULATION
SYSTEM No. 23 Title - Z2G-SEMINAR	No Off 1 (Op. Hours 2610)	
Space 23 24.0 12 31 11 0 21.4 9 13 8 0		Z2G-SEMINAR
SYSTEM No. 24 Title - Z2G-OPEN GLS 3	No Off 1 (Op. Hours 2610)	
Space 24 23.9 12 31 11 0 21.5 11 8 7 0		Z2G-OPEN GLS 3
SYSTEM No. 25 Title - Z2G-GLS 3	No Off 1 (Op. Hours 2610)	
Space 25 24.0 12 31 11 0 21.4 11 8 7 0		Z2G-GLS 3
SYSTEM No. 26 Title - Z2F-GLS 1	No Off 1 (Op. Hours 2610)	
Space 26 24.0 12 31 11 0 21.4 7 19 8 0		Z2F-GLS 1
SYSTEM No. 27 Title - Z2F-GLS 2	No Off 1 (Op. Hours 2610)	
Space 27 24.0 12 31 11 0 21.4 7 19 8 0		Z2F-GLS 2
SYSTEM No. 28 Title - Z2F-GLS 3	No Off 1 (Op. Hours 2610)	
Space 28 24.0 12 31 11 0 21.4 7 19 8 0		Z2F-GLS 3
SYSTEM No. 29 Title - Z2F-GLS 4	No Off 1 (Op. Hours 2610)	
Space 29 24.0 1 12 7 0 21.4 7 19 8 0		Z2F-GLS 4

SYSTEM No. 30 Title - Z2F-GLS 5	No Off 1 (Op. Hours 2610)	
Space 30 24.0 12 14 7 0 21.4 7 19 8 0		Z2F-GLS 5
SYSTEM No. 31 Title - Z2F-GLS SCIENCE	No Off 1 (Op. Hours 2610)	
Space 31 24.0 1 12 7 0 21.4 7 19 8 0		Z2F-GLS SCIENCE
SYSTEM No. 32 Title - Z2F-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 32 24.0 1 12 7 0 21.4 7 19 8 0		Z2F-STAFF STUDY
SYSTEM No. 33 Title - Z2F-GLS 6	No Off 1 (Op. Hours 2610)	
Space 33 24.0 12 31 11 0 21.4 7 19 8 0		Z2F-GLS 6
SYSTEM No. 34 Title - Z2F-GLS 7	No Off 1 (Op. Hours 2610)	
Space 34 24.0 12 31 11 0 21.4 5 31 8 0		Z2F-GLS 7
SYSTEM No. 35 Title - Z2F-SEMINAR	No Off 1 (Op. Hours 2610)	
Space 35 24.0 12 24 7 0 21.3 7 19 8 0		Z2F-SEMINAR
SYSTEM No. 36 Title - Z2F-CIRCULATION	No Off 1 (Op. Hours 2610)	
Space 36 23.9 12 24 7 0 21.4 7 19 8 0		Z2F-CIRCULATION

Space Temperature Distribution Report

(Number of temperature occurrences)

During Occupied Period

SPACE ID	Degree classes BELOW thermostat low temp				Low TStat Temp.	Set Point (C)	High TStat Temp.	Degree classes ABOVE thermostat high temp				% In T'stat Range	% In Range 18-26
	>3.0	3.0	2.0	1.0				1.0	2.0	3.0	>3.0		
SYSTEM No. 1	Title - Z1-MOVEMENT STUD				432	22.5	2178	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 2	Title - Z1-FITNESS LAB				586	22.5	2022	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	2				0	0	0	0		
SYSTEM No. 3	Title - Z1-SEMINAR				315	22.5	2294	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				1	0	0	0		
SYSTEM No. 4	Title - Z1-CIRCULATION				171	22.5	2439	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 5	Title - Z1-GLS INTERNAL				513	22.5	2097	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 6	Title - Z1-GLS EXTERNAL				361	22.5	2249	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 7	Title - Z1-STAFF STUDY				241	22.5	2369	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 8	Title - Z2G-LAB 1				72	22.5	2538	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 9	Title - Z2G-LAB 2				37	22.5	2573	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 10	Title - Z2G-LAB 3				26	22.5	2584	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 11	Title - Z2G-LAB 4				42	22.5	2568	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 12	Title - Z2G-LAB 5				48	22.5	2562	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 13	Title - Z2G-PREP 1				113	22.5	2497	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 14	Title - Z2G-PREP 2				217	22.5	2393	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		
SYSTEM No. 15	Title - Z2G-GLS 1				31	22.5	2579	No Off 1 (Op. Hours 2610)				100	100
0	0	0	0	0				0	0	0	0		

SYSTEM No. 16 Title - Z2G-GLS 2											
16	0	0	0	0	48	22.5	2561	1	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 17 Title - Z2G-LAB 6											
17	0	0	0	0	13	22.5	2596	1	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 18 Title - Z2G-STAFF STUDY											
18	0	0	0	0	11	22.5	2595	4	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 19 Title - Z2G-OPEN GLS 1											
19	0	0	0	0	289	22.5	2321	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 20 Title - Z2G-STAFF SEMINA											
20	0	0	0	0	740	22.5	1870	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 21 Title - Z2G-OPEN GLS 2											
21	0	0	0	0	468	22.5	2142	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 22 Title - Z2G-CIRCULATION											
22	0	0	0	0	130	22.5	2480	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 23 Title - Z2G-SEMINAR											
23	0	0	0	0	438	22.5	2172	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 24 Title - Z2G-OPEN GLS 3											
24	0	0	0	0	119	22.5	2491	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 25 Title - Z2G-GLS 3											
25	0	0	0	0	456	22.5	2154	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 26 Title - Z2F-GLS 1											
26	0	0	0	0	177	22.5	2433	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 27 Title - Z2F-GLS 2											
27	0	0	0	0	98	22.5	2512	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 28 Title - Z2F-GLS 3											
28	0	0	0	0	98	22.5	2512	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 29 Title - Z2F-GLS 4											
29	0	0	0	0	106	22.5	2504	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 30 Title - Z2F-GLS 5											
30	0	0	0	0	107	22.5	2503	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 31 Title - Z2F-GLS SCIENCE											
31	0	0	0	0	148	22.5	2462	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 32 Title - Z2F-STAFF STUDY											
32	0	0	0	0	78	22.5	2532	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 33 Title - Z2F-GLS 6											
33	0	0	0	0	139	22.5	2471	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 34 Title - Z2F-GLS 7											
34	0	0	0	0	56	22.5	2554	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 35 Title - Z2F-SEMINAR											
35	0	0	0	0	168	22.5	2442	0	0	0	100
No Off 1 (Op. Hours 2610)											
SYSTEM No. 36 Title - Z2F-CIRCULATION											
36	0	0	0	0	232	22.5	2378	0	0	0	100
No Off 1 (Op. Hours 2610)											

Master Meter Energy Report

	ELECTRICITY		GAS		STEAM		TOTAL
	Peak Hourly kW	Total Monthly kWhr	Peak Hourly Cub. m	Total Monthly Cub. m	Peak Hourly kgs	Total Monthly kgs	Monthly kWhr
JAN	145.	25271	0.	0	0.	0	25271
FEB	142.	23873	0.	0	0.	0	23873

MAR	132.	26509	0.	0	0.	0	26509
APR	129.	23605	0.	0	0.	0	23605
MAY	121.	21178	0.	0	0.	0	21178
JUN	120.	21128	0.	0	0.	0	21128
JUL	113.	21200	0.	0	0.	0	21201
AUG	120.	21095	0.	0	0.	0	21095
SEP	122.	22140	0.	0	0.	0	22140
OCT	131.	22992	0.	0	0.	0	22992
NOV	132.	24028	0.	0	0.	0	24028
DEC	140.	27388	0.	0	0.	0	27388
Total Energy		280406	0	0	0	280407	
Per Sq.m.		122	0	0	0	122	

Floor Area for kW/m2 = 2296. m2
Conditioned Floor Area = 2296. m2

Sub-Meters Energy Report

METER NO 1 ELECTRIC UNITARY HEATING				METER NO 2 ELECTRIC UNITARY COOLING				METER NO 3 ELECTRIC UNITARY AUXILIARY			
Peak Hourly Demand		Total Monthly		Peak Hourly Demand		Total Monthly		Peak Hourly Demand		Total Monthly	
kWhr	Day/Hr	kWhr		kWhr	Day/Hr	kWhr		kWhr	Day/Hr	kWhr	
JAN	2.02	1	7	2	75.71	12	14	10504	0.00	0	0
FEB	0.88	25	7	1	72.45	4	14	9889	0.00	0	0
MAR	0.47	25	7	2	62.38	15	14	10491	0.00	0	0
APR	9.61	19	8	38	59.57	9	15	8229	0.00	0	0
MAY	32.19	31	8	228	51.77	18	15	6185	0.00	0	0
JUN	34.15	14	8	572	50.83	10	15	5217	0.00	0	0
JUL	45.92	19	8	670	43.61	6	15	5140	0.00	0	0
AUG	31.18	16	8	372	50.70	20	15	5332	0.00	0	0
SEP	27.64	13	8	196	52.87	23	15	6605	0.00	0	0
OCT	10.20	11	8	41	61.83	22	15	8186	0.00	0	0
NOV	28.98	8	7	61	62.76	5	14	8628	0.00	0	0
DEC	12.35	16	7	15	70.43	31	11	11355	0.00	0	0
Total Energy		2199			95761			0			
Per Sq.m.		1.0			41.7			0.0			

METER NO 4 ELECTRIC UNITARY FAN				METER NO 5 ELECTRIC AHU Fans				METER NO 6 ELECTRIC AHU Aux			
Peak Hourly Demand		Total Monthly		Peak Hourly Demand		Total Monthly		Peak Hourly Demand		Total Monthly	
kWhr	Day/Hr	kWhr		kWhr	Day/Hr	kWhr		kWhr	Day/Hr	kWhr	
JAN	28.34	1	7	5951	0.00	0	0	0	0.00	0	0
FEB	28.34	1	7	5668	0.00	0	0	0	0.00	0	0
MAR	28.34	1	7	6518	0.00	0	0	0	0.00	0	0
APR	28.34	1	8	6234	0.00	0	0	0	0.00	0	0
MAY	28.34	3	8	5951	0.00	0	0	0	0.00	0	0
JUN	28.34	1	8	6234	0.00	0	0	0	0.00	0	0
JUL	28.34	1	8	6234	0.00	0	0	0	0.00	0	0
AUG	28.34	2	8	6234	0.00	0	0	0	0.00	0	0
SEP	28.34	1	8	6234	0.00	0	0	0	0.00	0	0
OCT	28.34	1	8	5951	0.00	0	0	0	0.00	0	0
NOV	28.34	1	7	6234	0.00	0	0	0	0.00	0	0
DEC	28.34	1	7	6518	0.00	0	0	0	0.00	0	0
Total Energy		73964			0			0			
Per Sq.m.		32.2			0.0			0.0			

	METER NO 7 ELECTRIC				METER NO 8 ELECTRIC			
	All Lights				All equipment			
	Peak Hourly Demand			Total Monthly	Peak Hourly Demand			Total Monthly
	kwhr	Day	Day/Hr	kwhr	kwhr	Day	Day/Hr	kwhr
JAN	17.45	1	9	3827	23.69	1	9	4987
FEB	17.45	1	9	3611	23.69	1	9	4703
MAR	17.45	1	9	4126	23.69	1	9	5373
APR	17.45	1	10	3954	23.69	1	10	5150
MAY	17.45	3	10	3827	23.69	3	10	4987
JUN	17.45	1	10	3954	23.69	1	10	5150

JUL	17.45	1	10	3976	23.69	1	10	5180
AUG	17.45	2	10	3976	23.69	2	10	5180
SEP	17.45	1	10	3954	23.69	1	10	5150
OCT	17.45	1	10	3827	23.69	1	10	4987
NOV	17.45	1	9	3954	23.69	1	9	5150
DEC	17.45	1	9	4126	23.69	1	9	5373

Total Energy				47114				61368
Per Sq.m.				20.5				26.7

Master Meter Energy Report

	ELECTRICITY		GAS		STEAM		TOTAL
	Peak Hourly kW	Total Monthly kWhr	Peak Hourly Cub. m	Total Monthly Cub. m	Peak Hourly kgs	Total Monthly kgs	Monthly kWhr
JAN	145.	25271	0.	0	0.	0	25271
FEB	142.	23873	0.	0	0.	0	23873
MAR	132.	26509	0.	0	0.	0	26509
APR	129.	23605	0.	0	0.	0	23605
MAY	121.	21178	0.	0	0.	0	21178
JUN	120.	21128	0.	0	0.	0	21128
JUL	113.	21200	0.	0	0.	0	21201
AUG	120.	21095	0.	0	0.	0	21095
SEP	122.	22140	0.	0	0.	0	22140
OCT	131.	22992	0.	0	0.	0	22992
NOV	132.	24028	0.	0	0.	0	24028
DEC	140.	27388	0.	0	0.	0	27388
Total Energy		280406		0		0	280407
Per Sq.m.		122		0		0	122

Floor Area for kW/m2 = 2296. m2
Conditioned Floor Area = 2296. m2

Sub-Meters Energy Report

	METER NO 1 ELECTRIC UNITARY HEATING			METER NO 2 ELECTRIC UNITARY COOLING			METER NO 3 ELECTRIC UNITARY AUXILIARY		
	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr
JAN	2.02	1	7	75.71	12	14	0.00	0	0
FEB	0.88	25	7	72.45	4	14	0.00	0	0
MAR	0.47	25	7	62.38	15	14	0.00	0	0
APR	9.61	19	8	59.57	9	15	0.00	0	0
MAY	32.19	31	8	51.77	18	15	0.00	0	0
JUN	34.15	14	8	50.83	10	15	0.00	0	0
JUL	45.92	19	8	43.61	6	15	0.00	0	0
AUG	31.18	16	8	50.70	20	15	0.00	0	0
SEP	27.64	13	8	52.87	23	15	0.00	0	0
OCT	10.20	11	8	61.83	22	15	0.00	0	0
NOV	28.98	8	7	62.76	5	14	0.00	0	0
DEC	12.35	16	7	70.43	31	11	0.00	0	0
Total Energy			2199			95761			0
Per Sq.m.			1.0			41.7			0.0

	METER NO 4 ELECTRIC UNITARY FAN			METER NO 5 ELECTRIC AHU Fans			METER NO 6 ELECTRIC AHU Aux		
	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr
JAN	28.34	1	7	0.00	0	0	0.00	0	0
FEB	28.34	1	7	0.00	0	0	0.00	0	0
MAR	28.34	1	7	0.00	0	0	0.00	0	0
APR	28.34	1	8	0.00	0	0	0.00	0	0
MAY	28.34	3	8	0.00	0	0	0.00	0	0

JUN	28.34	1	8	6234	0.00	0	0	0	0.00	0	0	0
JUL	28.34	1	8	6234	0.00	0	0	0	0.00	0	0	0
AUG	28.34	2	8	6234	0.00	0	0	0	0.00	0	0	0
SEP	28.34	1	8	6234	0.00	0	0	0	0.00	0	0	0
OCT	28.34	1	8	5951	0.00	0	0	0	0.00	0	0	0
NOV	28.34	1	7	6234	0.00	0	0	0	0.00	0	0	0
DEC	28.34	1	7	6518	0.00	0	0	0	0.00	0	0	0

Total Energy				73964				0				0
Per Sq.m.				32.2				0.0				0.0

METER NO 7				ELECTRIC				METER NO 8				ELECTRIC			
All Lights								All equipment							
Peak Hourly				Total				Peak Hourly				Total			
Demand				Monthly				Demand				Monthly			
kWhr	Day/Hr			kWhr				kWhr	Day/Hr			kWhr			
JAN	17.45	1	9	3827				23.69	1	9		4987			
FEB	17.45	1	9	3611				23.69	1	9		4703			
MAR	17.45	1	9	4126				23.69	1	9		5373			
APR	17.45	1	10	3954				23.69	1	10		5150			
MAY	17.45	3	10	3827				23.69	3	10		4987			
JUN	17.45	1	10	3954				23.69	1	10		5150			
JUL	17.45	1	10	3976				23.69	1	10		5180			
AUG	17.45	2	10	3976				23.69	2	10		5180			
SEP	17.45	1	10	3954				23.69	1	10		5150			
OCT	17.45	1	10	3827				23.69	1	10		4987			
NOV	17.45	1	9	3954				23.69	1	9		5150			
DEC	17.45	1	9	4126				23.69	1	9		5373			

Total Energy				47114				61368
Per Sq.m.				20.5				26.7

ACADS BSG Program

BEAVER SYSTEMS

Version Number 7.11.1

ACADS BSG advises that the program BEAVER is intended to be used only by persons who are proficient in its use and application and that these results should be verified independently. The results must not be used without acceptance of the ACADS-BSG's License Agreement for this program.

BEAVER has been successfully validated against BESTEST. The conclusions obtained are listed in the User Guide

CALCULATION BUILD NUMBER 7.11.1BU

SUMMARY OF ENERGY

	kwhr	MJ	%
Lighting	152043	547356	17.6
Equipment	220664	794389	25.5
Unitary Cooling	277524	999085	32.1
Unitary Heating	7381	26571	0.9
Unitary Fans	207199	745917	24.0
TOTAL	864777	3113196	
per square metre	117	420	
project floor area (m2)	7409		
Condensate total (kl)	133		

Summary of Lighting, Equipment and Process Energy Use

Description	Energy kWhr	Energy Source
LIGHTING L1	152043	ELECTRICITY
EQUIPMENT E1	220664	ELECTRICITY

Max and Min Temperatures

During Occupied Period

HIGHEST Temperatures							LOWEST Temperatures						
Temp. (C)	Date Mo/Day/Hr	No.of Occur	Temp. (C)	Date Mo/Day/Hr	No.of Occur		Temp. (C)	Date Mo/Day/Hr	No.of Occur				
SYSTEM No. 1 Title - Z7G-PRINCIPAL													
Space 1	24.0	1 12 7	0	21.4	7 19 8	0							Z7G-PRINCIPAL
SYSTEM No. 2 Title - Z7G-DEPUTY DUCTE													
Space 2	23.9	12 31 11	0	21.4	11 8 7	0							Z7G-DEPUTY 1
Space 3	23.9	12 31 11	0	21.5	11 8 7	0							Z7G-DEPUTY 2
Space 4	23.9	5 19 11	0	21.5	6 22 8	0							Z7G-DEPUTY 3
Space 5	24.4	12 6 7	155	20.8	6 28 8	15							Z7G-ADMIN EXEC
Space 6	23.9	7 16 10	0	20.7	9 13 8	7							Z7G-STUDENT WAITING
SYSTEM No. 3 Title - Z7G-STUDENT RECE													
Space 7	23.9	12 31 11	0	21.4	7 19 8	0							Z7G-STUDENT RECEIPT

SYSTEM No. 4 Title - Z7G-I/M EXTERNAL	No Off 1 (Op. Hours 2610)	
Space 8 24.0 12 31 11 0 21.4 7 12 8 0		Z7G-I/M EXTERNAL
SYSTEM No. 5 Title - Z7G-I/O	No Off 1 (Op. Hours 2610)	
Space 9 24.0 4 8 16 0 21.5 7 19 8 0		Z7G-I/O
SYSTEM No. 6 Title - Z7G-INTERNAL OFF	No Off 1 (Op. Hours 2610)	
Space 10 23.9 7 16 10 0 21.3 11 1 7 0		Z7G-I/M INTERNAL 1
Space 11 23.8 7 16 10 0 21.3 11 8 7 0		Z7G-SHARED I/M
Space 12 23.9 12 31 11 0 20.8 11 8 7 3		Z7G-I/O COUNCIL
Space 13 23.9 7 16 10 0 21.3 11 1 7 0		Z7G-LSS/AEO
Space 14 24.3 12 6 7 3 20.6 7 1 8 27		Z7G-CORRIDOR
Space 15 23.8 12 31 11 0 21.2 11 1 7 0		Z7G-I/O INTERNAL
Space 16 24.0 12 31 12 0 20.1 11 8 7 29		Z7G-STORE
Space 17 23.9 4 23 8 0 21.5 11 1 7 0		Z7G-BOYS CLINIC
Space 18 23.9 4 23 8 0 21.5 11 1 7 0		Z7G-GIRLS CLINIC
SYSTEM No. 7 Title - Z7G-I/M 2	No Off 1 (Op. Hours 2610)	
Space 19 24.0 12 31 11 0 18.8 7 1 8 13		Z7G-I/M 2
SYSTEM No. 8 Title - Z7G-I/M 3	No Off 1 (Op. Hours 2610)	
Space 20 24.7 12 6 7 4 20.6 7 1 8 4		Z7G-I/M 3
SYSTEM No. 9 Title - Z7G-VO	No Off 1 (Op. Hours 2610)	
Space 21 25.7 12 6 7 17 21.4 7 12 8 0		Z7G-VO
SYSTEM No. 10 Title - Z7G-CLERICAL ADM	No Off 1 (Op. Hours 2610)	
Space 22 23.9 12 31 11 0 21.4 11 8 7 0		Z7G-CLERICAL ADMIN
SYSTEM No. 11 Title - Z7G-PUBLIC RECEP	No Off 1 (Op. Hours 2610)	
Space 23 24.0 12 31 11 0 20.0 7 1 8 3		Z7G-PUBLIC RECEPTION
SYSTEM No. 12 Title - Z7F-NW ZONE	No Off 1 (Op. Hours 2610)	
Space 24 24.0 12 31 11 0 17.3 7 1 8 17		Z7F-NW ZONE
SYSTEM No. 13 Title - Z7F-NE ZONE 1	No Off 1 (Op. Hours 2610)	
Space 25 24.0 12 31 11 0 20.7 7 1 8 2		Z7F-NE ZONE 1
SYSTEM No. 14 Title - Z7F-NE ZONE 2	No Off 1 (Op. Hours 2610)	
Space 26 24.0 12 31 11 0 19.4 7 1 8 6		Z7F-NE ZONE 2
SYSTEM No. 15 Title - Z7F-READING ROOM	No Off 1 (Op. Hours 2610)	
Space 27 24.0 12 31 11 0 18.7 7 1 8 6		Z7F-READING ROOM
SYSTEM No. 16 Title - Z7F-LIBRARY CENT	No Off 1 (Op. Hours 2610)	
Space 28 24.0 12 31 11 0 21.4 9 13 8 0		Z7F-LIBRARY CENTER 1
SYSTEM No. 17 Title - Z7F-LIBRARY CENT	No Off 1 (Op. Hours 2610)	
Space 29 24.0 12 31 11 0 21.4 11 8 7 0		Z7F-LIBRARY CENTER 2
SYSTEM No. 18 Title - Z7F-LIBRARY CENT	No Off 1 (Op. Hours 2610)	
Space 30 23.9 12 6 7 0 21.5 7 12 8 0		Z7F-LIBRARY CENTER 3
SYSTEM No. 19 Title - Z7F-M/O 1	No Off 1 (Op. Hours 2610)	
Space 31 24.0 12 31 11 0 21.4 9 13 8 0		Z7F-M/O 1
SYSTEM No. 20 Title - Z7F-M/O 2	No Off 1 (Op. Hours 2610)	
Space 32 24.0 12 31 11 0 21.4 9 13 8 0		Z7F-M/O 2
SYSTEM No. 21 Title - Z7F-SMALL LOUNGE	No Off 1 (Op. Hours 2610)	
Space 33 24.2 12 31 11 2 21.4 7 12 8 0		Z7F-SMALL LOUNGE
SYSTEM No. 22 Title - Z7F-LIBRARY SE	No Off 1 (Op. Hours 2610)	
Space 34 25.6 12 6 7 13 19.0 7 1 8 10		Z7F-LIBRARY SE
SYSTEM No. 23 Title - Z7S-STAFF LOINGE	No Off 1 (Op. Hours 2610)	
Space 35 24.0 12 31 11 0 21.4 7 19 8 0		Z7S-STAFF LOUNGE NW
SYSTEM No. 24 Title - Z7S-STAFF LOUNGE	No Off 1 (Op. Hours 2610)	
Space 36 24.0 12 31 11 0 20.8 7 19 8 1		Z7S-STAFF LOUNGE NE
SYSTEM No. 25 Title - Z7S-STAFF LGE CE	No Off 1 (Op. Hours 2610)	
Space 37 24.0 12 31 11 0 21.4 7 19 8 0		Z7S-STAFF LGE CENTER
SYSTEM No. 26 Title - Z7S-STAFF STDY N	No Off 1 (Op. Hours 2610)	
Space 38 24.0 12 31 11 0 19.8 7 1 8 6		Z7S-STAFF STDY NE

SYSTEM No. 27 Title - Z7S-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 39 24.0 12 31 11 0 21.4 7 19 8 0		Z7S-STAFF STUDY
SYSTEM No. 28 Title - Z7S-I/M	No Off 1 (Op. Hours 2610)	
Space 40 24.8 12 6 7 6 20.2 7 1 8 2		Z7S-I/M
SYSTEM No. 29 Title - Z6G-HS GLS	No Off 1 (Op. Hours 2610)	
Space 41 24.0 12 31 11 0 21.4 7 12 8 0		Z6G-HS GLS
SYSTEM No. 30 Title - Z6G-SPECIAL PROG	No Off 1 (Op. Hours 2610)	
Space 42 24.0 12 31 11 0 21.4 7 12 8 0		Z6G-SPECIAL PROG
SYSTEM No. 31 Title - Z6G-STAFF	No Off 1 (Op. Hours 2610)	
Space 43 24.0 12 31 11 0 21.4 7 12 8 0		Z6G-STAFF
SYSTEM No. 32 Title - Z6G-GLS 1	No Off 1 (Op. Hours 2610)	
Space 44 24.0 12 31 11 0 21.4 7 12 8 0		Z6G-GLS 1
SYSTEM No. 33 Title - Z6G-GLS 2	No Off 1 (Op. Hours 2610)	
Space 45 24.0 12 31 11 0 21.4 7 12 8 0		Z6G-GLS 2
SYSTEM No. 34 Title - Z6G-CIRCULATION	No Off 1 (Op. Hours 2610)	
Space 46 23.9 12 31 11 0 21.4 7 19 8 0		Z6G-CIRCULATION
SYSTEM No. 35 Title - Z6F-FOYER	No Off 1 (Op. Hours 2610)	
Space 47 24.0 4 23 15 0 21.3 7 19 8 0		Z6F-FOYER
SYSTEM No. 36 Title - Z6F-GLS9	No Off 1 (Op. Hours 2610)	
Space 48 23.9 1 12 7 0 21.4 7 19 8 0		Z6F-GLS9
SYSTEM No. 37 Title - Z6F-CIRCULATION	No Off 1 (Op. Hours 2610)	
Space 49 23.9 1 12 7 0 21.3 7 19 8 0		Z6F-CIRCULATION
SYSTEM No. 38 Title - Z6F-GLS 1	No Off 1 (Op. Hours 2610)	
Space 50 24.0 12 31 11 0 21.4 7 19 8 0		Z6F-GLS 1
SYSTEM No. 39 Title - Z6F-GLS 2	No Off 1 (Op. Hours 2610)	
Space 51 24.0 12 31 11 0 21.4 7 19 8 0		Z6F-GLS 2
SYSTEM No. 40 Title - Z6G-GLS 3	No Off 1 (Op. Hours 2610)	
Space 52 24.0 12 31 11 0 21.4 11 8 7 0		Z6F-GLS 3
SYSTEM No. 41 Title - Z6F-GLS 4	No Off 1 (Op. Hours 2610)	
Space 53 24.0 12 23 7 0 21.4 7 19 8 0		Z6F-GLS 4
SYSTEM No. 42 Title - Z6F-GLS 5	No Off 1 (Op. Hours 2610)	
Space 54 24.0 12 14 7 0 21.4 7 19 8 0		Z6F-GLS 5
SYSTEM No. 43 Title - Z6F-GLS 6	No Off 1 (Op. Hours 2610)	
Space 55 24.0 12 14 7 0 21.4 7 19 8 0		Z6F-GLS 6
SYSTEM No. 44 Title - Z6F-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 56 24.0 12 31 11 0 21.4 5 31 8 0		Z6F-STAFF STUDY
SYSTEM No. 45 Title - Z6F-GLS 7	No Off 1 (Op. Hours 2610)	
Space 57 24.0 12 31 11 0 21.4 7 19 8 0		Z6F-GLS 7
SYSTEM No. 46 Title - Z6F-GLS 8	No Off 1 (Op. Hours 2610)	
Space 58 24.0 12 31 11 0 21.4 7 19 8 0		Z6F-GLS 8
SYSTEM No. 47 Title - Z5G-CIRCULATION	No Off 1 (Op. Hours 2610)	
Space 59 23.8 12 31 11 0 21.4 9 13 8 0		Z5G-CIRCULATION
SYSTEM No. 48 Title - Z5G-SEMINAR	No Off 1 (Op. Hours 2610)	
Space 60 24.0 12 31 11 0 21.4 7 19 8 0		Z5G-SEMINAR
SYSTEM No. 49 Title - Z5G-GLS 1	No Off 1 (Op. Hours 2610)	
Space 61 24.0 12 31 11 0 21.4 11 8 7 0		Z5G-GLS 1
SYSTEM No. 50 Title - Z5G-GLS 2	No Off 1 (Op. Hours 2610)	
Space 62 24.0 12 31 11 0 21.5 5 31 8 0		Z5G-GLS 2
SYSTEM No. 51 Title - Z5G-GLS 3	No Off 1 (Op. Hours 2610)	
Space 63 24.0 12 31 11 0 21.5 5 31 8 0		Z5G-GLS 3

SYSTEM No. 52 Title - Z5G-GLS 4	No Off 1 (Op. Hours 2610)	
Space 64 24.0 12 31 11	0 21.5 5 31 8 0	Z5G-GLS 4
SYSTEM No. 53 Title - Z5G-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 65 24.0 12 31 11	0 21.5 5 31 8 0	Z5G-STAFF STUDY
SYSTEM No. 54 Title - Z5G-GLS 5	No Off 1 (Op. Hours 2610)	
Space 66 24.0 12 14 7	0 21.5 5 31 8 0	Z5G-GLS 5
SYSTEM No. 55 Title - Z5G-GLS 6	No Off 1 (Op. Hours 2610)	
Space 67 24.0 12 14 7	0 21.5 5 31 8 0	Z5G-GLS 6
SYSTEM No. 56 Title - Z5G-GLS ED	No Off 1 (Op. Hours 2610)	
Space 68 24.0 12 14 7	0 21.5 5 31 8 0	Z5G-GLS ED
SYSTEM No. 57 Title - Z5F-SEMINAR	No Off 1 (Op. Hours 2610)	
Space 69 24.0 12 31 11	0 20.2 7 19 8 1	Z5F-SEMINAR
SYSTEM No. 58 Title - Z5F-RESOURCE HUB	No Off 1 (Op. Hours 2610)	
Space 70 23.9 12 31 11	0 21.3 7 19 8 0	Z5F-RESOURCE HUB
SYSTEM No. 59 Title - Z5F-CIRCULATION	No Off 1 (Op. Hours 2610)	
Space 71 23.9 12 31 11	0 21.4 7 19 8 0	Z5F-CIRCULATION
SYSTEM No. 60 Title - Z5F-GLS 1	No Off 1 (Op. Hours 2610)	
Space 72 24.0 12 31 11	0 21.4 7 19 8 0	Z5F-GLS 1
SYSTEM No. 61 Title - Z5F-GLS 2	No Off 1 (Op. Hours 2610)	
Space 73 24.0 12 31 11	0 21.3 7 19 8 0	Z5F-GLS 2
SYSTEM No. 62 Title - Z5F-GLS 3	No Off 1 (Op. Hours 2610)	
Space 74 24.0 12 31 11	0 21.4 7 19 8 0	Z5F-GLS 3
SYSTEM No. 63 Title - Z5F-GLS 4	No Off 1 (Op. Hours 2610)	
Space 75 24.0 12 31 11	0 21.4 7 19 8 0	Z5F-GLS 4
SYSTEM No. 64 Title - Z5F-GLS 5	No Off 1 (Op. Hours 2610)	
Space 76 24.0 12 31 11	0 21.4 7 19 8 0	Z5F-GLS 5
SYSTEM No. 65 Title - Z5F-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 77 24.0 12 31 11	0 21.4 7 19 8 0	Z5F-STAFF STUDY
SYSTEM No. 66 Title - Z5F-GLS 6	No Off 1 (Op. Hours 2610)	
Space 78 24.0 12 31 11	0 21.4 7 19 8 0	Z5F-GLS 6
SYSTEM No. 67 Title - Z5F-GLS 7	No Off 1 (Op. Hours 2610)	
Space 79 24.0 12 31 11	0 21.4 7 19 8 0	Z5F-GLS 7
SYSTEM No. 68 Title - Z5F-GLS 8	No Off 1 (Op. Hours 2610)	
Space 80 24.0 12 31 11	0 21.4 7 19 8 0	Z5F-GLS 8
SYSTEM No. 69 Title - Z4G-CIRCULATION	No Off 1 (Op. Hours 2610)	
Space 81 23.8 12 31 11	0 21.4 5 31 8 0	Z4G-CIRCULATION
SYSTEM No. 70 Title - Z4G-SEMINAR	No Off 1 (Op. Hours 2610)	
Space 82 24.0 12 31 11	0 21.4 7 19 8 0	Z4G-SEMINAR
SYSTEM No. 71 Title - Z4G-GLS 1	No Off 1 (Op. Hours 2610)	
Space 83 24.0 12 31 11	0 21.4 11 8 7 0	Z4G-GLS 1
SYSTEM No. 72 Title - Z4G-GLS 2	No Off 1 (Op. Hours 2610)	
Space 84 24.0 12 14 7	0 21.5 5 31 8 0	Z4G-GLS 2
SYSTEM No. 73 Title - Z4G-GLS 3	No Off 1 (Op. Hours 2610)	
Space 85 24.0 12 14 7	0 21.5 5 31 8 0	Z4G-GLS 3
SYSTEM No. 74 Title - Z4G-GLS 4	No Off 1 (Op. Hours 2610)	
Space 86 24.0 12 14 7	0 21.5 5 31 8 0	Z4G-GLS 4
SYSTEM No. 75 Title - Z4G-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 87 24.0 12 31 11	0 21.4 11 8 7 0	Z4G-STAFF STUDY
SYSTEM No. 76 Title - Z4G-GLS 5	No Off 1 (Op. Hours 2610)	
Space 88 24.0 12 14 7	0 21.5 5 31 8 0	Z4G-GLS 5

SYSTEM No. 77 Title - Z4G-GLS 6	No Off 1 (Op. Hours 2610)	
Space 89 24.0 12 14 7 0 21.5 5 31 8 0		Z4G-GLS 6
SYSTEM No. 78 Title - Z4G-GLS 7	No Off 1 (Op. Hours 2610)	
Space 90 24.0 12 14 7 0 21.4 5 31 8 0		Z4G-GLS 7
SYSTEM No. 79 Title - Z4F-SEMINAR	No Off 1 (Op. Hours 2610)	
Space 91 24.0 12 31 11 0 19.6 7 19 8 8		Z4F-SEMINAR
SYSTEM No. 80 Title - Z4F-RESOURCE HUB	No Off 1 (Op. Hours 2610)	
Space 92 23.9 12 31 11 0 20.8 7 19 8 1		Z4F-RESOURCE HUB
SYSTEM No. 81 Title - Z4F-CIRCULATION	No Off 1 (Op. Hours 2610)	
Space 93 23.9 12 31 11 0 21.4 7 19 8 0		Z4F-CIRCULATION
SYSTEM No. 82 Title - Z4F-GLS 1	No Off 1 (Op. Hours 2610)	
Space 94 24.0 12 31 11 0 21.4 7 19 8 0		Z4F-GLS 1
SYSTEM No. 83 Title - Z4F-GLS 2	No Off 1 (Op. Hours 2610)	
Space 95 24.0 12 31 11 0 21.3 7 19 8 0		Z4F-GLS 2
SYSTEM No. 84 Title - Z4F-GLS 3	No Off 1 (Op. Hours 2610)	
Space 96 24.0 12 14 7 0 21.4 7 19 8 0		Z4F-GLS 3
SYSTEM No. 85 Title - Z4F-GLS 4	No Off 1 (Op. Hours 2610)	
Space 97 24.0 12 14 7 0 21.4 7 19 8 0		Z4F-GLS 4
SYSTEM No. 86 Title - Z4F-GLS 5	No Off 1 (Op. Hours 2610)	
Space 98 24.0 1 12 7 0 21.4 7 19 8 0		Z4F-GLS 5
SYSTEM No. 87 Title - Z4F-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 99 24.0 1 12 7 0 21.4 7 19 8 0		Z4F-STAFF STUDY
SYSTEM No. 88 Title - Z4F-GLS 6	No Off 1 (Op. Hours 2610)	
Space 100 24.0 1 12 7 0 21.4 7 19 8 0		Z4F-GLS 6
SYSTEM No. 89 Title - Z4F-GLS 7	No Off 1 (Op. Hours 2610)	
Space 101 24.0 12 14 7 0 21.4 7 19 8 0		Z4F-GLS 7
SYSTEM No. 90 Title - Z4F-GLS 8	No Off 1 (Op. Hours 2610)	
Space 102 24.0 1 12 7 0 21.4 7 19 8 0		Z4F-GLS 8
SYSTEM No. 91 Title - Z3G-MULTIMEDIA W	No Off 1 (Op. Hours 2610)	
Space 103 24.0 12 31 10 0 21.5 5 31 8 0		Z3G-MULTIMEDIA WSHOP
SYSTEM No. 92 Title - Z3G-MULTIMEDIA G	No Off 1 (Op. Hours 2610)	
Space 104 24.0 12 31 10 0 21.5 5 31 8 0		Z3G-MULTIMEDIA GLS
SYSTEM No. 93 Title - Z3G-MULTIMEDIA S	No Off 1 (Op. Hours 2610)	
Space 105 24.0 12 31 11 0 21.4 11 8 7 0		Z3G-MULTIMEDIA STUD
SYSTEM No. 94 Title - Z3G-TIMBERS GLS	No Off 1 (Op. Hours 2610)	
Space 106 24.0 12 31 11 0 21.4 9 13 8 0		Z3G-TIMBERS GLS
SYSTEM No. 95 Title - Z3G-TIMBERS WSHO	No Off 1 (Op. Hours 2610)	
Space 107 24.1 12 31 12 2 19.6 7 19 8 9		Z3G-TIMBERS WSHOP
SYSTEM No. 96 Title - Z3G-PRO TIMBER W	No Off 1 (Op. Hours 2610)	
Space 108 24.5 12 31 11 4 21.5 11 8 7 0		Z3G-PRO TIMBER WS
SYSTEM No. 97 Title - Z3G-TIMBER EQ ST	No Off 1 (Op. Hours 2610)	
Space 109 25.3 12 31 12 5 16.8 7 1 8 51		Z3G-TIMBER EQ STORE
SYSTEM No. 98 Title - Z3G-METALS WSHOP	No Off 1 (Op. Hours 2610)	
Space 110 25.0 12 31 12 5 20.3 7 19 8 5		Z3G-METALS WSHOP
SYSTEM No. 99 Title - Z3G-METALS GLS W	No Off 1 (Op. Hours 2610)	
Space 111 24.1 12 31 11 2 21.3 11 8 7 0		Z3G-METALS GLS WSHOP
SYSTEM No. 100 Title - Z3G-METAL EQ STO	No Off 1 (Op. Hours 2610)	
Space 112 25.4 12 31 12 5 17.5 7 19 8 38		Z3G-METAL EQ STORE
SYSTEM No. 101 Title - Z3F-FOYER / CIRC	No Off 1 (Op. Hours 2610)	
Space 113 24.5 12 6 7 3 21.4 5 31 8 0		Z3F-FOYER / CIRC

SYSTEM No. 102 Title - Z3F-GLS 1	No Off 1 (Op. Hours 2610)	
Space 114 24.0 12 31 11	0 21.4 7 19 8 0	Z3F-GLS 1
SYSTEM No. 103 Title - Z3F-GLS 2	No Off 1 (Op. Hours 2610)	
Space 115 24.0 12 31 11	0 21.4 11 8 7 0	Z3F-GLS 2
SYSTEM No. 104 Title - Z3F-GLS 3	No Off 1 (Op. Hours 2610)	
Space 116 24.0 12 31 11	0 21.4 7 19 8 0	Z3F-GLS 3
SYSTEM No. 105 Title - Z3F-TEXTILES 1	No Off 1 (Op. Hours 2610)	
Space 117 24.0 12 31 11	0 21.4 7 19 8 0	Z3F-TEXTILES 1
SYSTEM No. 106 Title - Z3F-TEXTILES 2	No Off 1 (Op. Hours 2610)	
Space 118 24.0 12 31 11	0 21.4 9 13 8 0	Z3F-TEXTILES 2
SYSTEM No. 107 Title - Z3F-MAT STAFF ST	No Off 1 (Op. Hours 2610)	
Space 119 23.9 12 31 11	0 21.4 11 8 7 0	Z3F-MAT STAFF STUDY
SYSTEM No. 108 Title - Z3F-DOM KITCHEN	No Off 1 (Op. Hours 2610)	
Space 120 24.0 12 31 7	0 21.4 7 19 8 0	Z3F-DOM KITCHEN
SYSTEM No. 109 Title - Z3F-PANTRY	No Off 1 (Op. Hours 2610)	
Space 121 24.1 1 12 7	2 19.9 7 19 8 7	Z3F-PANTRY
SYSTEM No. 110 Title - Z3F-PREP/STORE	No Off 1 (Op. Hours 2610)	
Space 122 23.8 12 31 11	0 20.2 11 8 7 4	Z3F-PREP/STORE
SYSTEM No. 111 Title - Z3F-SEMI KITCHEN	No Off 1 (Op. Hours 2610)	
Space 123 24.0 1 12 7	0 21.4 7 19 8 0	Z3F-SEMI KITCHEN
SYSTEM No. 112 Title - Z3F-KITCHEN CERT	No Off 1 (Op. Hours 2610)	
Space 124 24.0 12 14 7	0 21.4 7 19 8 0	Z3F-KITCHEN CERT 2
SYSTEM No. 113 Title - Z3F-OPEN GLS	No Off 1 (Op. Hours 2610)	
Space 125 23.9 12 6 7	0 21.4 5 31 8 0	Z3F-OPEN GLS

Space Temperature Distribution Report

(Number of temperature occurrences)

During Occupied Period

SPACE ID	Degree classes BELOW thermostat low temp				Low TStat Temp.	Set Point (C)	High TStat Temp.	Degree classes ABOVE thermostat high temp				% In T'stat Range	% In Range 18-26
	>3.0	3.0	2.0	1.0				1.0	2.0	3.0	>3.0		
SYSTEM No. 1 Title - Z7G-PRINCIPAL													
1	0	0	0	0	247	22.5	2363	0	0	0	0	100	100
SYSTEM No. 2 Title - Z7G-DEPUTY DUCTE													
2	0	0	0	0	206	22.5	2404	0	0	0	0	100	100
3	0	0	0	0	187	22.5	2423	0	0	0	0	100	100
4	0	0	0	0	194	22.5	2416	0	0	0	0	100	100
5	0	0	0	15	211	22.5	2229	155	0	0	0	93	100
6	0	0	0	7	192	22.5	2411	0	0	0	0	100	100
SYSTEM No. 3 Title - Z7G-STUDENT RECE													
7	0	0	0	0	733	22.5	1877	0	0	0	0	100	100
SYSTEM No. 4 Title - Z7G-I/M EXTERNAL													
8	0	0	0	0	825	22.5	1785	0	0	0	0	100	100
SYSTEM No. 5 Title - Z7G-I/O													
9	0	0	0	0	568	22.5	2042	0	0	0	0	100	100
SYSTEM No. 6 Title - Z7G-INTERNAL OFF													
10	0	0	0	0	319	22.5	2291	0	0	0	0	100	100
11	0	0	0	0	329	22.5	2281	0	0	0	0	100	100
12	0	0	0	3	354	22.5	2253	0	0	0	0	100	100
13	0	0	0	0	324	22.5	2286	0	0	0	0	100	100
14	0	0	0	27	364	22.5	2216	3	0	0	0	99	100
15	0	0	0	0	353	22.5	2257	0	0	0	0	100	100
16	0	0	0	29	365	22.5	2216	0	0	0	0	99	100
17	0	0	0	0	298	22.5	2312	0	0	0	0	100	100

18	0	0	0	0	298	22.5	2312	0	0	0	0	100	100
SYSTEM No. 7 Title - Z7G-I/M 2 No Off 1 (Op. Hours 2610)													
19	0	1	5	7	798	22.5	1799	0	0	0	0	100	100
SYSTEM No. 8 Title - Z7G-I/M 3 No Off 1 (Op. Hours 2610)													
20	0	0	0	4	638	22.5	1964	4	0	0	0	100	100
SYSTEM No. 9 Title - Z7G-VO No Off 1 (Op. Hours 2610)													
21	0	0	0	0	277	22.5	2316	15	2	0	0	99	100
SYSTEM No. 10 Title - Z7G-CLERICAL ADM No Off 1 (Op. Hours 2610)													
22	0	0	0	0	53	22.5	2557	0	0	0	0	100	100
SYSTEM No. 11 Title - Z7G-PUBLIC RECEP No Off 1 (Op. Hours 2610)													
23	0	0	0	3	612	22.5	1995	0	0	0	0	100	100
SYSTEM No. 12 Title - Z7F-NW ZONE No Off 1 (Op. Hours 2610)													
24	2	4	5	6	753	22.5	1840	0	0	0	0	99	100
SYSTEM No. 13 Title - Z7F-NE ZONE 1 No Off 1 (Op. Hours 2610)													
25	0	0	0	2	624	22.5	1984	0	0	0	0	100	100
SYSTEM No. 14 Title - Z7F-NE ZONE 2 No Off 1 (Op. Hours 2610)													
26	0	0	3	3	720	22.5	1884	0	0	0	0	100	100
SYSTEM No. 15 Title - Z7F-READING ROOM No Off 1 (Op. Hours 2610)													
27	0	1	2	3	532	22.5	2072	0	0	0	0	100	100
SYSTEM No. 16 Title - Z7F-LIBRARY CENT No Off 1 (Op. Hours 2610)													
28	0	0	0	0	165	22.5	2445	0	0	0	0	100	100
SYSTEM No. 17 Title - Z7F-LIBRARY CENT No Off 1 (Op. Hours 2610)													
29	0	0	0	0	145	22.5	2465	0	0	0	0	100	100
SYSTEM No. 18 Title - Z7F-LIBRARY CENT No Off 1 (Op. Hours 2610)													
30	0	0	0	0	290	22.5	2320	0	0	0	0	100	100
SYSTEM No. 19 Title - Z7F-M/O 1 No Off 1 (Op. Hours 2610)													
31	0	0	0	0	551	22.5	2059	0	0	0	0	100	100
SYSTEM No. 20 Title - Z7F-M/O 2 No Off 1 (Op. Hours 2610)													
32	0	0	0	0	546	22.5	2064	0	0	0	0	100	100
SYSTEM No. 21 Title - Z7F-SMALL LOUNGE No Off 1 (Op. Hours 2610)													
33	0	0	0	0	599	22.5	2009	2	0	0	0	100	100
SYSTEM No. 22 Title - Z7F-LIBRARY SE No Off 1 (Op. Hours 2610)													
34	0	1	2	7	417	22.5	2170	9	4	0	0	99	100
SYSTEM No. 23 Title - Z7S-STAFF LOINGE No Off 1 (Op. Hours 2610)													
35	0	0	0	0	324	22.5	2286	0	0	0	0	100	100
SYSTEM No. 24 Title - Z7S-STAFF LOUNGE No Off 1 (Op. Hours 2610)													
36	0	0	0	1	519	22.5	2090	0	0	0	0	100	100
SYSTEM No. 25 Title - Z7S-STAFF LGE CE No Off 1 (Op. Hours 2610)													
37	0	0	0	0	509	22.5	2101	0	0	0	0	100	100
SYSTEM No. 26 Title - Z7S-STAFF STDY N No Off 1 (Op. Hours 2610)													
38	0	0	2	4	587	22.5	2017	0	0	0	0	100	100
SYSTEM No. 27 Title - Z7S-STAFF STUDY No Off 1 (Op. Hours 2610)													
39	0	0	0	0	446	22.5	2164	0	0	0	0	100	100
SYSTEM No. 28 Title - Z7S-I/M No Off 1 (Op. Hours 2610)													
40	0	0	0	2	436	22.5	2166	6	0	0	0	100	100
SYSTEM No. 29 Title - Z6G-HS GLS No Off 1 (Op. Hours 2610)													
41	0	0	0	0	90	22.5	2520	0	0	0	0	100	100
SYSTEM No. 30 Title - Z6G-SPECIAL PROG No Off 1 (Op. Hours 2610)													
42	0	0	0	0	147	22.5	2463	0	0	0	0	100	100
SYSTEM No. 31 Title - Z6G-STAFF No Off 1 (Op. Hours 2610)													

43	0	0	0	0	194	22.5	2416	0	0	0	0	100	100
SYSTEM No. 32 Title - Z6G-GLS 1													
44	0	0	0	0	109	22.5	2501	0	0	0	0	100	100
SYSTEM No. 33 Title - Z6G-GLS 2													
45	0	0	0	0	109	22.5	2501	0	0	0	0	100	100
SYSTEM No. 34 Title - Z6G-CIRCULATION													
46	0	0	0	0	376	22.5	2234	0	0	0	0	100	100
SYSTEM No. 35 Title - Z6F-FOYER													
47	0	0	0	0	319	22.5	2291	0	0	0	0	100	100
SYSTEM No. 36 Title - Z6F-GLS9													
48	0	0	0	0	245	22.5	2365	0	0	0	0	100	100
SYSTEM No. 37 Title - Z6F-CIRCULATION													
49	0	0	0	0	346	22.5	2264	0	0	0	0	100	100
SYSTEM No. 38 Title - Z6F-GLS 1													
50	0	0	0	0	454	22.5	2156	0	0	0	0	100	100
SYSTEM No. 39 Title - Z6F-GLS 2													
51	0	0	0	0	162	22.5	2448	0	0	0	0	100	100
SYSTEM No. 40 Title - Z6G-GLS 3													
52	0	0	0	0	72	22.5	2538	0	0	0	0	100	100
SYSTEM No. 41 Title - Z6F-GLS 4													
53	0	0	0	0	82	22.5	2528	0	0	0	0	100	100
SYSTEM No. 42 Title - Z6F-GLS 5													
54	0	0	0	0	84	22.5	2526	0	0	0	0	100	100
SYSTEM No. 43 Title - Z6F-GLS 6													
55	0	0	0	0	76	22.5	2534	0	0	0	0	100	100
SYSTEM No. 44 Title - Z6F-STAFF STUDY													
56	0	0	0	0	188	22.5	2422	0	0	0	0	100	100
SYSTEM No. 45 Title - Z6F-GLS 7													
57	0	0	0	0	92	22.5	2518	0	0	0	0	100	100
SYSTEM No. 46 Title - Z6F-GLS 8													
58	0	0	0	0	125	22.5	2485	0	0	0	0	100	100
SYSTEM No. 47 Title - Z5G-CIRCULATION													
59	0	0	0	0	212	22.5	2398	0	0	0	0	100	100
SYSTEM No. 48 Title - Z5G-SEMINAR													
60	0	0	0	0	191	22.5	2419	0	0	0	0	100	100
SYSTEM No. 49 Title - Z5G-GLS 1													
61	0	0	0	0	50	22.5	2560	0	0	0	0	100	100
SYSTEM No. 50 Title - Z5G-GLS 2													
62	0	0	0	0	31	22.5	2579	0	0	0	0	100	100
SYSTEM No. 51 Title - Z5G-GLS 3													
63	0	0	0	0	31	22.5	2579	0	0	0	0	100	100
SYSTEM No. 52 Title - Z5G-GLS 4													
64	0	0	0	0	34	22.5	2576	0	0	0	0	100	100
SYSTEM No. 53 Title - Z5G- STAFF STUDY													
65	0	0	0	0	129	22.5	2481	0	0	0	0	100	100
SYSTEM No. 54 Title - Z5G-GLS 5													
66	0	0	0	0	27	22.5	2583	0	0	0	0	100	100
SYSTEM No. 55 Title - Z5G-GLS 6													
67	0	0	0	0	25	22.5	2585	0	0	0	0	100	100
SYSTEM No. 56 Title - Z5G-GLS ED													
No Off 1 (Op. Hours 2610)													

68	0	0	0	0	25	22.5	2585	0	0	0	0	100	100
SYSTEM No. 57 Title - Z5F-SEMINAR No Off 1 (Op. Hours 2610)													
69	0	0	0	1	526	22.5	2083	0	0	0	0	100	100
SYSTEM No. 58 Title - Z5F-RESOURCE HUB No Off 1 (Op. Hours 2610)													
70	0	0	0	0	324	22.5	2286	0	0	0	0	100	100
SYSTEM No. 59 Title - Z5F-CIRCULATION No Off 1 (Op. Hours 2610)													
71	0	0	0	0	378	22.5	2232	0	0	0	0	100	100
SYSTEM No. 60 Title - Z5F-GLS 1 No Off 1 (Op. Hours 2610)													
72	0	0	0	0	449	22.5	2161	0	0	0	0	100	100
SYSTEM No. 61 Title - Z5F-GLS 2 No Off 1 (Op. Hours 2610)													
73	0	0	0	0	187	22.5	2423	0	0	0	0	100	100
SYSTEM No. 62 Title - Z5F-GLS 3 No Off 1 (Op. Hours 2610)													
74	0	0	0	0	129	22.5	2481	0	0	0	0	100	100
SYSTEM No. 63 Title - Z5F-GLS 4 No Off 1 (Op. Hours 2610)													
75	0	0	0	0	110	22.5	2500	0	0	0	0	100	100
SYSTEM No. 64 Title - Z5F-GLS 5 No Off 1 (Op. Hours 2610)													
76	0	0	0	0	112	22.5	2498	0	0	0	0	100	100
SYSTEM No. 65 Title - Z5F-STAFF STUDY No Off 1 (Op. Hours 2610)													
77	0	0	0	0	215	22.5	2395	0	0	0	0	100	100
SYSTEM No. 66 Title - Z5F-GLS 6 No Off 1 (Op. Hours 2610)													
78	0	0	0	0	112	22.5	2498	0	0	0	0	100	100
SYSTEM No. 67 Title - Z5F-GLS 7 No Off 1 (Op. Hours 2610)													
79	0	0	0	0	110	22.5	2500	0	0	0	0	100	100
SYSTEM No. 68 Title - Z5F-GLS 8 No Off 1 (Op. Hours 2610)													
80	0	0	0	0	110	22.5	2500	0	0	0	0	100	100
SYSTEM No. 69 Title - Z4G-CIRCULATION No Off 1 (Op. Hours 2610)													
81	0	0	0	0	197	22.5	2413	0	0	0	0	100	100
SYSTEM No. 70 Title - Z4G-SEMINAR No Off 1 (Op. Hours 2610)													
82	0	0	0	0	203	22.5	2407	0	0	0	0	100	100
SYSTEM No. 71 Title - Z4G-GLS 1 No Off 1 (Op. Hours 2610)													
83	0	0	0	0	85	22.5	2525	0	0	0	0	100	100
SYSTEM No. 72 Title - Z4G-GLS 2 No Off 1 (Op. Hours 2610)													
84	0	0	0	0	31	22.5	2579	0	0	0	0	100	100
SYSTEM No. 73 Title - Z4G-GLS 3 No Off 1 (Op. Hours 2610)													
85	0	0	0	0	31	22.5	2579	0	0	0	0	100	100
SYSTEM No. 74 Title - Z4G-GLS 4 No Off 1 (Op. Hours 2610)													
86	0	0	0	0	33	22.5	2577	0	0	0	0	100	100
SYSTEM No. 75 Title - Z4G-STAFF STUDY No Off 1 (Op. Hours 2610)													
87	0	0	0	0	123	22.5	2487	0	0	0	0	100	100
SYSTEM No. 76 Title - Z4G-GLS 5 No Off 1 (Op. Hours 2610)													
88	0	0	0	0	33	22.5	2577	0	0	0	0	100	100
SYSTEM No. 77 Title - Z4G-GLS 6 No Off 1 (Op. Hours 2610)													
89	0	0	0	0	31	22.5	2579	0	0	0	0	100	100
SYSTEM No. 78 Title - Z4G-GLS 7 No Off 1 (Op. Hours 2610)													
90	0	0	0	0	65	22.5	2545	0	0	0	0	100	100
SYSTEM No. 79 Title - Z4F-SEMINAR No Off 1 (Op. Hours 2610)													
91	0	0	1	7	531	22.5	2071	0	0	0	0	100	100
SYSTEM No. 80 Title - Z4F-RESOURCE HUB No Off 1 (Op. Hours 2610)													
92	0	0	0	1	308	22.5	2301	0	0	0	0	100	100
SYSTEM No. 81 Title - Z4F-CIRCULATION No Off 1 (Op. Hours 2610)													

93	0	0	0	0	348	22.5	2262	0	0	0	0	100	100
SYSTEM No. 82 Title - Z4F-GLS 1 No Off 1 (Op. Hours 2610)													
94	0	0	0	0	449	22.5	2161	0	0	0	0	100	100
SYSTEM No. 83 Title - Z4F-GLS 2 No Off 1 (Op. Hours 2610)													
95	0	0	0	0	187	22.5	2423	0	0	0	0	100	100
SYSTEM No. 84 Title - Z4F-GLS 3 No Off 1 (Op. Hours 2610)													
96	0	0	0	0	119	22.5	2491	0	0	0	0	100	100
SYSTEM No. 85 Title - Z4F-GLS 4 No Off 1 (Op. Hours 2610)													
97	0	0	0	0	99	22.5	2511	0	0	0	0	100	100
SYSTEM No. 86 Title - Z4F-GLS 5 No Off 1 (Op. Hours 2610)													
98	0	0	0	0	103	22.5	2507	0	0	0	0	100	100
SYSTEM No. 87 Title - Z4F-STAFF STUDY No Off 1 (Op. Hours 2610)													
99	0	0	0	0	222	22.5	2388	0	0	0	0	100	100
SYSTEM No. 88 Title - Z4F-GLS 6 No Off 1 (Op. Hours 2610)													
100	0	0	0	0	103	22.5	2507	0	0	0	0	100	100
SYSTEM No. 89 Title - Z4F-GLS 7 No Off 1 (Op. Hours 2610)													
101	0	0	0	0	99	22.5	2511	0	0	0	0	100	100
SYSTEM No. 90 Title - Z4F-GLS 8 No Off 1 (Op. Hours 2610)													
102	0	0	0	0	133	22.5	2477	0	0	0	0	100	100
SYSTEM No. 91 Title - Z3G-MULTIMEDIA W No Off 1 (Op. Hours 2610)													
103	0	0	0	0	7	22.5	2603	0	0	0	0	100	100
SYSTEM No. 92 Title - Z3G-MULTIMEDIA G No Off 1 (Op. Hours 2610)													
104	0	0	0	0	10	22.5	2600	0	0	0	0	100	100
SYSTEM No. 93 Title - Z3G-MULTIMEDIA S No Off 1 (Op. Hours 2610)													
105	0	0	0	0	115	22.5	2495	0	0	0	0	100	100
SYSTEM No. 94 Title - Z3G-TIMBERS GLS No Off 1 (Op. Hours 2610)													
106	0	0	0	0	594	22.5	2016	0	0	0	0	100	100
SYSTEM No. 95 Title - Z3G-TIMBERS WSHO No Off 1 (Op. Hours 2610)													
107	0	0	2	7	512	22.5	2087	2	0	0	0	100	100
SYSTEM No. 96 Title - Z3G-PRO TIMBER W No Off 1 (Op. Hours 2610)													
108	0	0	0	0	39	22.5	2567	4	0	0	0	100	100
SYSTEM No. 97 Title - Z3G-TIMBER EQ ST No Off 1 (Op. Hours 2610)													
109	9	8	16	18	984	22.5	1570	4	1	0	0	98	100
SYSTEM No. 98 Title - Z3G-METALS WSHOP No Off 1 (Op. Hours 2610)													
110	0	0	0	5	485	22.5	2115	5	0	0	0	100	100
SYSTEM No. 99 Title - Z3G-METALS GLS W No Off 1 (Op. Hours 2610)													
111	0	0	0	0	177	22.5	2431	2	0	0	0	100	100
SYSTEM No. 100 Title - Z3G-METAL EQ STO No Off 1 (Op. Hours 2610)													
112	4	6	10	18	870	22.5	1697	3	2	0	0	98	100
SYSTEM No. 101 Title - Z3F-FOYER / CIRC No Off 1 (Op. Hours 2610)													
113	0	0	0	0	272	22.5	2335	3	0	0	0	100	100
SYSTEM No. 102 Title - Z3F-GLS 1 No Off 1 (Op. Hours 2610)													
114	0	0	0	0	533	22.5	2077	0	0	0	0	100	100
SYSTEM No. 103 Title - Z3F-GLS 2 No Off 1 (Op. Hours 2610)													
115	0	0	0	0	453	22.5	2157	0	0	0	0	100	100
SYSTEM No. 104 Title - Z3F-GLS 3 No Off 1 (Op. Hours 2610)													
116	0	0	0	0	161	22.5	2449	0	0	0	0	100	100
SYSTEM No. 105 Title - Z3F-TEXTILES 1 No Off 1 (Op. Hours 2610)													
117	0	0	0	0	134	22.5	2476	0	0	0	0	100	100
SYSTEM No. 106 Title - Z3F-TEXTILES 2 No Off 1 (Op. Hours 2610)													

118	0	0	0	0	463	22.5	2147	0	0	0	0	100	100
SYSTEM No. 107 Title - Z3F-MAT STAFF ST No Off 1 (Op. Hours 2610)													
119	0	0	0	0	328	22.5	2282	0	0	0	0	100	100
SYSTEM No. 108 Title - Z3F-DOM KITCHEN No Off 1 (Op. Hours 2610)													
120	0	0	0	0	54	22.5	2556	0	0	0	0	100	100
SYSTEM No. 109 Title - Z3F-PANTRY No Off 1 (Op. Hours 2610)													
121	0	0	2	5	621	22.5	1980	2	0	0	0	100	100
SYSTEM No. 110 Title - Z3F-PREP/STORE No Off 1 (Op. Hours 2610)													
122	0	0	0	4	410	22.5	2196	0	0	0	0	100	100
SYSTEM No. 111 Title - Z3F-SEMI KITCHEN No Off 1 (Op. Hours 2610)													
123	0	0	0	0	84	22.5	2526	0	0	0	0	100	100
SYSTEM No. 112 Title - Z3F-KITCHEN CERT No Off 1 (Op. Hours 2610)													
124	0	0	0	0	33	22.5	2577	0	0	0	0	100	100
SYSTEM No. 113 Title - Z3F-OPEN GLS No Off 1 (Op. Hours 2610)													
125	0	0	0	0	109	22.5	2501	0	0	0	0	100	100

Master Meter Energy Report

	ELECTRICITY		GAS		STEAM		TOTAL
	Peak Hourly kW	Total Monthly kWhr	Peak Hourly Cub. m	Total Monthly Cub. m	Peak Hourly kgs	Total Monthly kgs	Monthly kWhr
JAN	437.	77022	0.	0	0.	0	77022
FEB	428.	72813	0.	0	0.	0	72813
MAR	404.	81197	0.	0	0.	0	81197
APR	394.	72838	0.	0	0.	0	72838
MAY	372.	66128	0.	0	0.	0	66128
JUN	372.	66332	0.	0	0.	0	66333
JUL	350.	66609	0.	0	0.	0	66609
AUG	369.	66031	0.	0	0.	0	66031
SEP	373.	68565	0.	0	0.	0	68565
OCT	400.	70414	0.	0	0.	0	70414
NOV	403.	73476	0.	0	0.	0	73476
DEC	430.	83351	0.	0	0.	0	83351
Total Energy		864774		0		0	864777
Per Sq.m.		117		0		0	117

Floor Area for kW/m2 = 7409. m2
Conditioned Floor Area = 7409. m2

Sub-Meters Energy Report

	METER NO 1 ELECTRIC UNITARY HEATING			METER NO 2 ELECTRIC UNITARY COOLING			METER NO 3 ELECTRIC FAN		
	Peak Hourly Demand kWhr	Day/Hr	Total Monthly kWhr	Peak Hourly Demand kWhr	Day/Hr	Total Monthly kWhr	Peak Hourly Demand kWhr	Day/Hr	Total Monthly kWhr
JAN	6.84	1 7	8	216.62	12 14	30067	79.37	1 7	16667
FEB	6.57	25 7	11	207.00	4 14	28362	79.37	1 7	15874
MAR	2.73	26 7	10	183.29	15 14	30296	79.37	1 7	18255
APR	35.56	19 8	158	172.70	9 15	23940	79.37	1 8	17461
MAY	111.20	31 8	739	151.26	18 15	18442	79.37	3 8	16667
JUN	110.42	14 8	1727	151.20	10 15	15865	79.37	1 8	17461
JUL	144.88	19 8	2035	129.11	6 15	15655	79.37	1 8	17461
AUG	111.65	16 8	1280	148.54	20 15	15831	79.37	2 8	17461
SEP	107.50	13 8	798	152.44	23 15	19026	79.37	1 8	17461
OCT	44.58	11 8	242	178.84	26 15	23225	79.37	1 8	16667
NOV	106.41	8 7	302	182.06	5 14	24434	79.37	1 7	17461
DEC	49.82	16 7	71	209.55	31 11	32389	79.37	1 7	18255
Total Energy			7381			277531			207151

Per Sq.m.	1.0			37.5			28.0		
	METER NO 4 ELECTRIC UNITARY AUXILIARY			METER NO 5 ELECTRIC AF FANS			METER NO 6 ELECTRIC AX AUXILIARY		
	Peak Hourly Demand	Hourly	Total Monthly	Peak Hourly Demand	Hourly	Total Monthly	Peak Hourly Demand	Hourly	Total Monthly
	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr
JAN	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
FEB	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
MAR	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
APR	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
MAY	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
JUN	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
JUL	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
AUG	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
SEP	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
OCT	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
NOV	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
DEC	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
Total Energy			0			0			0
Per Sq.m.			0.0			0.0			0.0

	METER NO 7 ELECTRIC L1EL			METER NO 8 ELECTRIC E1 EQUIPMENT		
	Peak Hourly Demand	Hourly	Total Monthly	Peak Hourly Demand	Hourly	Total Monthly
	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr
JAN	56.31	1 9	12350	85.19	1 9	17931
FEB	56.31	1 9	11653	85.19	1 9	16913
MAR	56.31	1 9	13316	85.19	1 9	19321
APR	56.31	1 10	12762	85.19	1 10	18518
MAY	56.31	3 10	12350	85.19	3 10	17931
JUN	56.31	1 10	12762	85.19	1 10	18518
JUL	56.31	1 10	12833	85.19	1 10	18626
AUG	56.31	2 10	12833	85.19	2 10	18626
SEP	56.31	1 10	12762	85.19	1 10	18518
OCT	56.31	1 10	12350	85.19	1 10	17931
NOV	56.31	1 9	12762	85.19	1 9	18518
DEC	56.31	1 9	13316	85.19	1 9	19321
Total Energy			152048			220668
Per Sq.m.			20.5			29.8

Master Meter Energy Report

	ELECTRICITY		GAS		STEAM		TOTAL
	Peak Hourly kW	Total Monthly kWhr	Peak Hourly Cub. m	Total Monthly Cub. m	Peak Hourly kgs	Total Monthly kgs	Monthly kWhr
JAN	437.	77022	0.	0	0.	0	77022
FEB	428.	72813	0.	0	0.	0	72813
MAR	404.	81197	0.	0	0.	0	81197
APR	394.	72838	0.	0	0.	0	72838
MAY	372.	66128	0.	0	0.	0	66128
JUN	372.	66332	0.	0	0.	0	66333
JUL	350.	66609	0.	0	0.	0	66609
AUG	369.	66031	0.	0	0.	0	66031
SEP	373.	68565	0.	0	0.	0	68565
OCT	400.	70414	0.	0	0.	0	70414
NOV	403.	73476	0.	0	0.	0	73476
DEC	430.	83351	0.	0	0.	0	83351
Total Energy		864774		0		0	864777
Per Sq.m.		117		0		0	117

Floor Area for kW/m2 = 7409. m2
Conditioned Floor Area = 7409. m2

Sub-Meters Energy Report

	METER NO 1 ELECTRIC			METER NO 2 ELECTRIC			METER NO 3 ELECTRIC		
	UNITARY HEATING			UNITARY COOLING			UNITARY FAN		
	Peak	Hourly	Total	Peak	Hourly	Total	Peak	Hourly	Total
	Demand		Monthly	Demand		Monthly	Demand		Monthly
	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr
JAN	6.84	1 7	8	216.62	12 14	30067	79.37	1 7	16667
FEB	6.57	25 7	11	207.00	4 14	28362	79.37	1 7	15874
MAR	2.73	26 7	10	183.29	15 14	30296	79.37	1 7	18255
APR	35.56	19 8	158	172.70	9 15	23940	79.37	1 8	17461
MAY	111.20	31 8	739	151.26	18 15	18442	79.37	3 8	16667
JUN	110.42	14 8	1727	151.20	10 15	15865	79.37	1 8	17461
JUL	144.88	19 8	2035	129.11	6 15	15655	79.37	1 8	17461
AUG	111.65	16 8	1280	148.54	20 15	15831	79.37	2 8	17461
SEP	107.50	13 8	798	152.44	23 15	19026	79.37	1 8	17461
OCT	44.58	11 8	242	178.84	26 15	23225	79.37	1 8	16667
NOV	106.41	8 7	302	182.06	5 14	24434	79.37	1 7	17461
DEC	49.82	16 7	71	209.55	31 11	32389	79.37	1 7	18255
Total Energy			7381			277531			207151
Per Sq.m.			1.0			37.5			28.0

	METER NO 4 ELECTRIC			METER NO 5 ELECTRIC			METER NO 6 ELECTRIC		
	UNITARY AUXILIARY			AF FANS			AX AUXILIARY		
	Peak	Hourly	Total	Peak	Hourly	Total	Peak	Hourly	Total
	Demand		Monthly	Demand		Monthly	Demand		Monthly
	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr
JAN	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
FEB	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
MAR	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
APR	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
MAY	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
JUN	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
JUL	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
AUG	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
SEP	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
OCT	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
NOV	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
DEC	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
Total Energy			0			0			0
Per Sq.m.			0.0			0.0			0.0

	METER NO 7 ELECTRIC			METER NO 8 ELECTRIC		
	L1EL			E1 EQUIPMENT		
	Peak	Hourly	Total	Peak	Hourly	Total
	Demand		Monthly	Demand		Monthly
	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr
JAN	56.31	1 9	12350	85.19	1 9	17931
FEB	56.31	1 9	11653	85.19	1 9	16913
MAR	56.31	1 9	13316	85.19	1 9	19321
APR	56.31	1 10	12762	85.19	1 10	18518
MAY	56.31	3 10	12350	85.19	3 10	17931
JUN	56.31	1 10	12762	85.19	1 10	18518
JUL	56.31	1 10	12833	85.19	1 10	18626
AUG	56.31	2 10	12833	85.19	2 10	18626
SEP	56.31	1 10	12762	85.19	1 10	18518
OCT	56.31	1 10	12350	85.19	1 10	17931
NOV	56.31	1 9	12762	85.19	1 9	18518
DEC	56.31	1 9	13316	85.19	1 9	19321
Total Energy			152048			220668
Per Sq.m.			20.5			29.8

21. Appendix F: Proposed Building / Reference Services JV3 Compliance Report

ACADS BSG Program

BEAVER SYSTEMS

Version Number 7.11.1

ACADS BSG advises that the program BEAVER is intended to be used only by persons who are proficient in its use and application and that these results should be verified independently. The results must not be used without acceptance of the ACADS-BSG's License Agreement for this program.

BEAVER has been successfully validated against BESTEST. The conclusions obtained are listed in the User Guide

CALCULATION BUILD NUMBER 7.11.1BU

SUMMARY OF ENERGY

	kwhr	MJ	%
Lighting	47116	169616	16.1
Equipment	61371	220937	21.0
Unitary Cooling	107457	386845	36.8
Unitary Heating	2261	8139	0.8
Unitary Fans	73968	266286	25.3
TOTAL	292165	1051795	
per square metre	127	458	
project floor area (m2)	2296		
Condensate total (kl)	43.9		

Summary of Lighting, Equipment and Process Energy Use

Description	Energy kWhr	Energy Source
LIGHTING L1	47116	ELECTRICITY
EQUIPMENT E1	61371	ELECTRICITY

Max and Min Temperatures

Spaces with a high temperature

(More than 50 deg C)

Spaces in systems

SPACE 2

During Occupied Period

HIGHEST Temperatures							LOWEST Temperatures										
Temp. (C)	Date Mo/Day/Hr	No.of Occur					Temp. (C)	Date Mo/Day/Hr	No.Of Occur								
SYSTEM No. 1	Title - Z1-MOVEMENT STUD						No Off	1 (Op. Hours 2610)									
Space 1	24.0	4	9	17	0		21.4	7	19	8	0						
SYSTEM No. 2	Title - Z1-FITNESS LAB						No Off	1 (Op. Hours 2610)									
Space 2	24.0	12	14	7	0		19.5	7	1	8	4						
SYSTEM No. 3	Title - Z1-SEMINAR						No Off	1 (Op. Hours 2610)									
Space 3	24.4	12	14	7	1		20.9	7	1	8	1						

SYSTEM No. 4 Title - Z1-CIRCULATION	No Off 1 (Op. Hours 2610)	
Space 4 24.4 1 11 7	4 21.4 7 19 8 0	Z1-CIRCULATION
SYSTEM No. 5 Title - Z1-GLS INTERNAL	No Off 1 (Op. Hours 2610)	
Space 5 24.0 12 31 7	0 21.4 7 19 8 0	Z1-GLS INTERNAL
SYSTEM No. 6 Title - Z1-GLS EXTERNAL	No Off 1 (Op. Hours 2610)	
Space 6 24.0 12 6 7	0 20.0 7 1 8 2	Z1-GLS EXTERNAL
SYSTEM No. 7 Title - Z1-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 7 24.0 12 6 7	0 21.4 7 19 8 0	Z1-STAFF STUDY
SYSTEM No. 8 Title - Z2G-LAB 1	No Off 1 (Op. Hours 2610)	
Space 8 24.0 12 31 11	0 21.4 5 31 8 0	Z2G-LAB 1
SYSTEM No. 9 Title - Z2G-LAB 2	No Off 1 (Op. Hours 2610)	
Space 9 24.0 12 31 11	0 21.4 5 31 8 0	Z2G-LAB 2
SYSTEM No. 10 Title - Z2G-LAB 3	No Off 1 (Op. Hours 2610)	
Space 10 24.0 1 12 7	0 21.4 7 19 8 0	Z2G-LAB 3
SYSTEM No. 11 Title - Z2G-LAB 4	No Off 1 (Op. Hours 2610)	
Space 11 24.6 12 14 7	7 21.4 5 31 8 0	Z2G-LAB 4
SYSTEM No. 12 Title - Z2G-LAB 5	No Off 1 (Op. Hours 2610)	
Space 12 24.5 12 14 7	2 21.4 7 19 8 0	Z2G-LAB 5
SYSTEM No. 13 Title - Z2G-PREP 1	No Off 1 (Op. Hours 2610)	
Space 13 24.0 12 31 11	0 21.4 7 19 8 0	Z2G-PREP 1
SYSTEM No. 14 Title - Z2G-PREP 2	No Off 1 (Op. Hours 2610)	
Space 14 24.0 1 12 7	0 21.3 7 19 8 0	Z2G-PREP 2
SYSTEM No. 15 Title - Z2G-GLS 1	No Off 1 (Op. Hours 2610)	
Space 15 24.0 12 31 11	0 21.4 11 8 7 0	Z2G-GLS 1
SYSTEM No. 16 Title - Z2G-GLS 2	No Off 1 (Op. Hours 2610)	
Space 16 24.9 12 6 7	5 21.4 5 31 8 0	Z2G-GLS 2
SYSTEM No. 17 Title - Z2G-LAB 6	No Off 1 (Op. Hours 2610)	
Space 17 24.0 12 6 7	1 21.5 7 12 8 0	Z2G-LAB 6
SYSTEM No. 18 Title - Z2G-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 18 24.5 12 6 7	3 21.4 7 12 8 0	Z2G-STAFF STUDY
SYSTEM No. 19 Title - Z2G-OPEN GLS 1	No Off 1 (Op. Hours 2610)	
Space 19 24.0 12 31 11	0 21.4 11 8 7 0	Z2GOPEN GLS 1
SYSTEM No. 20 Title - Z2G-STAFF SEMINA	No Off 1 (Op. Hours 2610)	
Space 20 24.0 12 31 11	0 21.4 9 13 8 0	Z2G-STAFF SEMINAR
SYSTEM No. 21 Title - Z2G-OPEN GLS 2	No Off 1 (Op. Hours 2610)	
Space 21 24.0 12 31 11	0 21.4 9 13 8 0	Z2G-OPEN GLS 2
SYSTEM No. 22 Title - Z2G-CIRCULATION	No Off 1 (Op. Hours 2610)	
Space 22 24.0 12 6 7	0 21.5 5 31 8 0	Z2G-CIRCULATION
SYSTEM No. 23 Title - Z2G-SEMINAR	No Off 1 (Op. Hours 2610)	
Space 23 24.0 12 31 11	0 21.4 9 13 8 0	Z2G-SEMINAR
SYSTEM No. 24 Title - Z2G-OPEN GLS 3	No Off 1 (Op. Hours 2610)	
Space 24 23.9 12 31 11	0 21.5 11 8 7 0	Z2G-OPEN GLS 3
SYSTEM No. 25 Title - Z2G-GLS 3	No Off 1 (Op. Hours 2610)	
Space 25 24.0 12 31 11	0 21.4 11 8 7 0	Z2G-GLS 3
SYSTEM No. 26 Title - Z2F-GLS 1	No Off 1 (Op. Hours 2610)	
Space 26 24.0 12 31 11	0 21.4 7 19 8 0	Z2F-GLS 1
SYSTEM No. 27 Title - Z2F-GLS 2	No Off 1 (Op. Hours 2610)	
Space 27 24.0 12 31 11	0 21.4 7 19 8 0	Z2F-GLS 2
SYSTEM No. 28 Title - Z2F-GLS 3	No Off 1 (Op. Hours 2610)	
Space 28 24.0 12 31 11	0 21.4 7 19 8 0	Z2F-GLS 3

SYSTEM No. 29 Title - Z2F-GLS 4	No Off 1 (Op. Hours 2610)	
Space 29 24.0 12 14 7 0 21.4 7 19 8 0		Z2F-GLS 4
SYSTEM No. 30 Title - Z2F-GLS 5	No Off 1 (Op. Hours 2610)	
Space 30 24.0 12 14 7 0 21.4 7 19 8 0		Z2F-GLS 5
SYSTEM No. 31 Title - Z2F-GLS SCIENCE	No Off 1 (Op. Hours 2610)	
Space 31 24.0 12 14 7 0 21.4 7 19 8 0		Z2F-GLS SCIENCE
SYSTEM No. 32 Title - Z2F-STAFF STUDY	No Off 1 (Op. Hours 2610)	
Space 32 24.2 12 14 7 2 21.4 7 19 8 0		Z2F-STAFF STUDY
SYSTEM No. 33 Title - Z2F-GLS 6	No Off 1 (Op. Hours 2610)	
Space 33 24.5 12 6 7 4 21.4 7 19 8 0		Z2F-GLS 6
SYSTEM No. 34 Title - Z2F-GLS 7	No Off 1 (Op. Hours 2610)	
Space 34 24.1 12 6 7 1 21.4 7 19 8 0		Z2F-GLS 7
SYSTEM No. 35 Title - Z2F-SEMINAR	No Off 1 (Op. Hours 2610)	
Space 35 27.3 12 6 7 37 21.3 7 19 8 0		Z2F-SEMINAR
SYSTEM No. 36 Title - Z2F-CIRCULATION	No Off 1 (Op. Hours 2610)	
Space 36 24.3 12 6 7 1 21.4 7 19 8 0		Z2F-CIRCULATION

Space Temperature Distribution Report

(Number of temperature occurrences)

During Occupied Period

SPACE ID	Degree classes BELOW thermostat low temp				Low TStat Temp.	Set Point (C)	High TStat Temp.	Degree classes ABOVE thermostat high temp				% In T'stat Range	% In Range 18-26
	>3.0	3.0	2.0	1.0				1.0	2.0	3.0	>3.0		
SYSTEM No. 1	Title - Z1-MOVEMENT STUD						No Off 1 (Op. Hours 2610)						
0	0	0	0	0	271	22.5	2339	0	0	0	0	100	100
SYSTEM No. 2	Title - Z1-FITNESS LAB						No Off 1 (Op. Hours 2610)						
0	0	0	2	2	562	22.5	2044	0	0	0	0	100	100
SYSTEM No. 3	Title - Z1-SEMINAR						No Off 1 (Op. Hours 2610)						
0	0	0	0	1	354	22.5	2254	1	0	0	0	100	100
SYSTEM No. 4	Title - Z1-CIRCULATION						No Off 1 (Op. Hours 2610)						
0	0	0	0	0	195	22.5	2411	4	0	0	0	100	100
SYSTEM No. 5	Title - Z1-GLS INTERNAL						No Off 1 (Op. Hours 2610)						
0	0	0	0	0	553	22.5	2057	0	0	0	0	100	100
SYSTEM No. 6	Title - Z1-GLS EXTERNAL						No Off 1 (Op. Hours 2610)						
0	0	0	0	2	411	22.5	2197	0	0	0	0	100	100
SYSTEM No. 7	Title - Z1-STAFF STUDY						No Off 1 (Op. Hours 2610)						
0	0	0	0	0	117	22.5	2493	0	0	0	0	100	100
SYSTEM No. 8	Title - Z2G-LAB 1						No Off 1 (Op. Hours 2610)						
0	0	0	0	0	44	22.5	2566	0	0	0	0	100	100
SYSTEM No. 9	Title - Z2G-LAB 2						No Off 1 (Op. Hours 2610)						
0	0	0	0	0	37	22.5	2573	0	0	0	0	100	100
SYSTEM No. 10	Title - Z2G-LAB 3						No Off 1 (Op. Hours 2610)						
0	0	0	0	0	27	22.5	2583	0	0	0	0	100	100
SYSTEM No. 11	Title - Z2G-LAB 4						No Off 1 (Op. Hours 2610)						
0	0	0	0	0	49	22.5	2554	7	0	0	0	100	100
SYSTEM No. 12	Title - Z2G-LAB 5						No Off 1 (Op. Hours 2610)						
0	0	0	0	0	59	22.5	2549	2	0	0	0	100	100
SYSTEM No. 13	Title - Z2G-PREP 1						No Off 1 (Op. Hours 2610)						
0	0	0	0	0	101	22.5	2509	0	0	0	0	100	100
SYSTEM No. 14	Title - Z2G-PREP 2						No Off 1 (Op. Hours 2610)						

14	0	0	0	0	200	22.5	2410	0	0	0	0	100	100
SYSTEM No. 15 Title - Z2G-GLS 1					No Off 1 (Op. Hours 2610)								
15	0	0	0	0	17	22.5	2593	0	0	0	0	100	100
SYSTEM No. 16 Title - Z2G-GLS 2					No Off 1 (Op. Hours 2610)								
16	0	0	0	0	73	22.5	2532	5	0	0	0	100	100
SYSTEM No. 17 Title - Z2G-LAB 6					No Off 1 (Op. Hours 2610)								
17	0	0	0	0	59	22.5	2550	1	0	0	0	100	100
SYSTEM No. 18 Title - Z2G-STAFF STUDY					No Off 1 (Op. Hours 2610)								
18	0	0	0	0	71	22.5	2536	3	0	0	0	100	100
SYSTEM No. 19 Title - Z2G-OPEN GLS 1					No Off 1 (Op. Hours 2610)								
19	0	0	0	0	288	22.5	2322	0	0	0	0	100	100
SYSTEM No. 20 Title - Z2G-STAFF SEMINA					No Off 1 (Op. Hours 2610)								
20	0	0	0	0	740	22.5	1870	0	0	0	0	100	100
SYSTEM No. 21 Title - Z2G-OPEN GLS 2					No Off 1 (Op. Hours 2610)								
21	0	0	0	0	468	22.5	2142	0	0	0	0	100	100
SYSTEM No. 22 Title - Z2G-CIRCULATION					No Off 1 (Op. Hours 2610)								
22	0	0	0	0	117	22.5	2493	0	0	0	0	100	100
SYSTEM No. 23 Title - Z2G-SEMINAR					No Off 1 (Op. Hours 2610)								
23	0	0	0	0	438	22.5	2172	0	0	0	0	100	100
SYSTEM No. 24 Title - Z2G-OPEN GLS 3					No Off 1 (Op. Hours 2610)								
24	0	0	0	0	119	22.5	2491	0	0	0	0	100	100
SYSTEM No. 25 Title - Z2G-GLS 3					No Off 1 (Op. Hours 2610)								
25	0	0	0	0	458	22.5	2152	0	0	0	0	100	100
SYSTEM No. 26 Title - Z2F-GLS 1					No Off 1 (Op. Hours 2610)								
26	0	0	0	0	106	22.5	2504	0	0	0	0	100	100
SYSTEM No. 27 Title - Z2F-GLS 2					No Off 1 (Op. Hours 2610)								
27	0	0	0	0	61	22.5	2549	0	0	0	0	100	100
SYSTEM No. 28 Title - Z2F-GLS 3					No Off 1 (Op. Hours 2610)								
28	0	0	0	0	58	22.5	2552	0	0	0	0	100	100
SYSTEM No. 29 Title - Z2F-GLS 4					No Off 1 (Op. Hours 2610)								
29	0	0	0	0	64	22.5	2546	0	0	0	0	100	100
SYSTEM No. 30 Title - Z2F-GLS 5					No Off 1 (Op. Hours 2610)								
30	0	0	0	0	69	22.5	2541	0	0	0	0	100	100
SYSTEM No. 31 Title - Z2F-GLS SCIENCE					No Off 1 (Op. Hours 2610)								
31	0	0	0	0	97	22.5	2513	0	0	0	0	100	100
SYSTEM No. 32 Title - Z2F-STAFF STUDY					No Off 1 (Op. Hours 2610)								
32	0	0	0	0	37	22.5	2571	2	0	0	0	100	100
SYSTEM No. 33 Title - Z2F-GLS 6					No Off 1 (Op. Hours 2610)								
33	0	0	0	0	120	22.5	2486	4	0	0	0	100	100
SYSTEM No. 34 Title - Z2F-GLS 7					No Off 1 (Op. Hours 2610)								
34	0	0	0	0	82	22.5	2527	1	0	0	0	100	100
SYSTEM No. 35 Title - Z2F-SEMINAR					No Off 1 (Op. Hours 2610)								
35	0	0	0	0	189	22.5	2384	22	8	5	2	99	100
SYSTEM No. 36 Title - Z2F-CIRCULATION					No Off 1 (Op. Hours 2610)								
36	0	0	0	0	237	22.5	2372	1	0	0	0	100	100

Master Meter Energy Report

ELECTRICITY		GAS		STEAM		TOTAL
Peak Hourly	Total Monthly	Peak Hourly	Total Monthly	Peak Hourly	Total Monthly	Monthly

	kw	kwhr	Cub. m	Cub. m	kgs	kgs	kwhr
JAN	153.	26438	0.	0	0.	0	26438
FEB	148.	24980	0.	0	0.	0	24980
MAR	138.	27694	0.	0	0.	0	27694
APR	136.	24649	0.	0	0.	0	24649
MAY	127.	21921	0.	0	0.	0	21921
JUN	127.	21657	0.	0	0.	0	21657
JUL	118.	21749	0.	0	0.	0	21749
AUG	127.	21911	0.	0	0.	0	21912
SEP	129.	23072	0.	0	0.	0	23072
OCT	138.	24134	0.	0	0.	0	24134
NOV	139.	25169	0.	0	0.	0	25169
DEC	146.	28790	0.	0	0.	0	28790
Total Energy		292164		0		0	292165
Per Sq.m.		127		0		0	127

Floor Area for kw/m2 = 2296. m2
Conditioned Floor Area = 2296. m2

Sub-Meters Energy Report

	METER NO 1 ELECTRIC UNITARY HEATING			METER NO 2 ELECTRIC UNITARY COOLING			METER NO 3 ELECTRIC UNITARY FAN		
	Peak Hourly Demand	Total Monthly	kwhr	Peak Hourly Demand	Total Monthly	kwhr	Peak Hourly Demand	Total Monthly	kwhr
	kwhr	Day/Hr		kwhr	Day/Hr		kwhr	Day/Hr	
JAN	2.24	1 7	2	83.41	12 14	11671	28.34	1 7	5951
FEB	0.85	25 7	2	78.77	4 14	10996	28.34	1 7	5668
MAR	0.41	25 7	2	68.11	15 14	11675	28.34	1 7	6518
APR	7.67	19 8	41	66.73	9 15	9270	28.34	1 8	6234
MAY	33.44	31 8	234	57.95	18 15	6923	28.34	3 8	5951
JUN	33.55	14 8	618	57.17	10 15	5700	28.34	1 8	6234
JUL	48.87	19 8	719	48.36	8 15	5639	28.34	1 8	6234
AUG	25.27	16 8	361	57.39	20 15	6160	28.34	2 8	6234
SEP	20.41	13 8	176	59.74	24 15	7557	28.34	1 8	6234
OCT	7.18	11 8	36	68.91	22 15	9334	28.34	1 8	5951
NOV	25.49	8 7	56	69.57	5 14	9774	28.34	1 7	6234
DEC	10.32	16 7	13	76.86	31 11	12759	28.34	1 7	6518
Total Energy			2261			107457			73964
Per Sq.m.			1.0			46.8			32.2

	METER NO 4 ELECTRIC UNITARY AUXILIARY			METER NO 5 ELECTRIC AHU Fans			METER NO 6 ELECTRIC AHU Aux		
	Peak Hourly Demand	Total Monthly	kwhr	Peak Hourly Demand	Total Monthly	kwhr	Peak Hourly Demand	Total Monthly	kwhr
	kwhr	Day/Hr		kwhr	Day/Hr		kwhr	Day/Hr	
JAN	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
FEB	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
MAR	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
APR	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
MAY	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
JUN	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
JUL	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
AUG	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
SEP	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
OCT	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
NOV	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
DEC	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0
Total Energy			0			0			0
Per Sq.m.			0.0			0.0			0.0

	METER NO 7 ELECTRIC All Lights			METER NO 8 ELECTRIC All equipment		
	Peak Hourly Demand	Total Monthly	kwhr	Peak Hourly Demand	Total Monthly	kwhr
	kwhr	Day/Hr		kwhr	Day/Hr	
JAN	17.45	1 9	3827	23.69	1 9	4987
FEB	17.45	1 9	3611	23.69	1 9	4703

MAR	17.45	1	9	4126	23.69	1	9	5373
APR	17.45	1	10	3954	23.69	1	10	5150
MAY	17.45	3	10	3827	23.69	3	10	4987
JUN	17.45	1	10	3954	23.69	1	10	5150
JUL	17.45	1	10	3976	23.69	1	10	5180
AUG	17.45	2	10	3976	23.69	2	10	5180
SEP	17.45	1	10	3954	23.69	1	10	5150
OCT	17.45	1	10	3827	23.69	1	10	4987
NOV	17.45	1	9	3954	23.69	1	9	5150
DEC	17.45	1	9	4126	23.69	1	9	5373
Total Energy				47114	61368			
Per Sq.m.				20.5	26.7			

Master Meter Energy Report

	ELECTRICITY		GAS		STEAM		TOTAL
	Peak Hourly kW	Total Monthly kWhr	Peak Hourly Cub. m	Total Monthly Cub. m	Peak Hourly kgs	Total Monthly kgs	Monthly kWhr
JAN	153.	26438	0.	0	0.	0	26438
FEB	148.	24980	0.	0	0.	0	24980
MAR	138.	27694	0.	0	0.	0	27694
APR	136.	24649	0.	0	0.	0	24649
MAY	127.	21921	0.	0	0.	0	21921
JUN	127.	21657	0.	0	0.	0	21657
JUL	118.	21749	0.	0	0.	0	21749
AUG	127.	21911	0.	0	0.	0	21912
SEP	129.	23072	0.	0	0.	0	23072
OCT	138.	24134	0.	0	0.	0	24134
NOV	139.	25169	0.	0	0.	0	25169
DEC	146.	28790	0.	0	0.	0	28790
Total Energy		292164	0		0		292165
Per Sq.m.		127	0		0		127

Floor Area for kW/m2 = 2296. m2
Conditioned Floor Area = 2296. m2

Sub-Meters Energy Report

	METER NO 1 ELECTRIC UNITARY HEATING			METER NO 2 ELECTRIC UNITARY COOLING			METER NO 3 ELECTRIC UNITARY FAN		
	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr
JAN	2.24	1 7	2	83.41	12 14	11671	28.34	1 7	5951
FEB	0.85	25 7	2	78.77	4 14	10996	28.34	1 7	5668
MAR	0.41	25 7	2	68.11	15 14	11675	28.34	1 7	6518
APR	7.67	19 8	41	66.73	9 15	9270	28.34	1 8	6234
MAY	33.44	31 8	234	57.95	18 15	6923	28.34	3 8	5951
JUN	33.55	14 8	618	57.17	10 15	5700	28.34	1 8	6234
JUL	48.87	19 8	719	48.36	8 15	5639	28.34	1 8	6234
AUG	25.27	16 8	361	57.39	20 15	6160	28.34	2 8	6234
SEP	20.41	13 8	176	59.74	24 15	7557	28.34	1 8	6234
OCT	7.18	11 8	36	68.91	22 15	9334	28.34	1 8	5951
NOV	25.49	8 7	56	69.57	5 14	9774	28.34	1 7	6234
DEC	10.32	16 7	13	76.86	31 11	12759	28.34	1 7	6518
Total Energy			2261	107457			73964		
Per Sq.m.			1.0	46.8			32.2		
	METER NO 4 ELECTRIC UNITARY AUXILIARY			METER NO 5 ELECTRIC AHU Fans			METER NO 6 ELECTRIC AHU Aux		
	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr	Peak Hourly Demand kW	Hourly Day/Hr	Total Monthly kWhr
JAN	0.00	0 0	0	0.00	0 0	0	0.00	0 0	0

FEB	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
MAR	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
APR	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
MAY	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
JUN	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
JUL	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
AUG	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
SEP	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
OCT	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
NOV	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
DEC	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0

Total Energy		0		0		0
Per Sq.m.		0.0		0.0		0.0

METER NO 7 ELECTRIC				METER NO 8 ELECTRIC			
All Lights				All equipment			
Peak Hourly Demand				Peak Hourly Demand			
Total Monthly				Total Monthly			
kWhr	Day/Hr		kWhr	kWhr	Day/Hr		kWhr
JAN	17.45	1	9	3827	23.69	1	9
FEB	17.45	1	9	3611	23.69	1	9
MAR	17.45	1	9	4126	23.69	1	9
APR	17.45	1	10	3954	23.69	1	10
MAY	17.45	3	10	3827	23.69	3	10
JUN	17.45	1	10	3954	23.69	1	10
JUL	17.45	1	10	3976	23.69	1	10
AUG	17.45	2	10	3976	23.69	2	10
SEP	17.45	1	10	3954	23.69	1	10
OCT	17.45	1	10	3827	23.69	1	10
NOV	17.45	1	9	3954	23.69	1	9
DEC	17.45	1	9	4126	23.69	1	9

Total Energy		47114		61368
Per Sq.m.		20.5		26.7

ACADS BSG Program

BEAVER SYSTEMS

Version Number 7.11.1

ACADS BSG advises that the program BEAVER is intended to be used only by persons who are proficient in its use and application and that these results should be verified independently. The results must not be used without acceptance of the ACADS-BSG's License Agreement for this program.

BEAVER has been successfully validated against BESTEST. The conclusions obtained are listed in the User Guide

CALCULATION BUILD NUMBER 7.11.1BU

SUMMARY OF ENERGY

	kwhr	MJ	%
Lighting	152043	547356	16.8
Equipment	220664	794389	24.4
Unitary Cooling	320656	1154362	35.4
Unitary Heating	5155	18559	0.6
Unitary Fans	207199	745917	22.9
TOTAL	905681	3260453	
per square metre	122	440	
project floor area (m2)	7409		
Condensate total (kl)	134		

Summary of Lighting, Equipment and Process Energy Use

Description	Energy kWhr	Energy Source
LIGHTING L1	152043	ELECTRICITY
EQUIPMENT E1	220664	ELECTRICITY

Max and Min Temperatures

Spaces with a high temperature

(More than 50 deg C)

Spaces in systems

SPACE 9 SPACE 34 SPACE 47 SPACE 82 SPACE 104

During Occupied Period

HIGHEST Temperatures										LOWEST Temperatures									
Temp.		Date		No.of		Temp.		Date		No.Of		Temp.		Date		No.Of			
(C)		Mo/Day/Hr		Occur		(C)		Mo/Day/Hr		Occur		(C)		Mo/Day/Hr		Occur			
SYSTEM No. 1 Title - Z7G-PRINCIPAL																			
Space	1	24.0	12	14	7	0	21.4	7	19	8	0	Z7G-PRINCIPAL							
SYSTEM No. 2 Title - Z7G-DEPUTY DUCTE																			
Space	2	24.2	12	31	11	20	21.5	5	31	8	0	Z7G-DEPUTY 1							
Space	3	24.1	12	31	11	3	21.5	11	8	7	0	Z7G-DEPUTY 2							
Space	4	24.3	8	16	11	853	21.6	6	1	8	0	Z7G-DEPUTY 3							
Space	5	24.5	12	6	7	285	20.5	6	28	8	25	Z7G-ADMIN EXEC							
Space	6	23.9	7	16	10	0	20.4	9	13	8	19	Z7G-STUDENT WAITING							

SYSTEM No. 3 Title - Z7G-STUDENT RECE	No Off 1 (Op. Hours 2610)	
Space 7 24.0 12 31 12 1 21.4 7 19 8 0		Z7G-STUDENT RECEIPT
SYSTEM No. 4 Title - Z7G-I/M EXTERNAL	No Off 1 (Op. Hours 2610)	
Space 8 24.0 12 31 11 0 21.4 5 31 8 0		Z7G-I/M EXTERNAL
SYSTEM No. 5 Title - Z7G-I/O	No Off 1 (Op. Hours 2610)	
Space 9 24.7 4 9 17 13 21.5 7 19 8 0		Z7G-I/O
SYSTEM No. 6 Title - Z7G-INTERNAL OFF	No Off 1 (Op. Hours 2610)	
Space 10 23.9 7 16 10 0 21.3 11 1 7 0		Z7G-I/M INTERNAL 1
Space 11 23.9 7 16 11 0 21.3 11 8 7 0		Z7G-SHARED I/M
Space 12 23.9 12 31 11 0 20.9 11 8 7 3		Z7G-I/O COUNCIL
Space 13 23.9 7 16 11 0 21.3 11 1 7 0		Z7G-LSS/AEO
Space 14 24.3 12 6 7 3 20.5 7 1 8 37		Z7G-CORRIDOR
Space 15 23.8 12 31 11 0 21.3 11 1 7 0		Z7G-I/O INTERNAL
Space 16 24.0 12 31 12 0 20.1 11 8 7 28		Z7G-STORE
Space 17 23.9 9 15 8 0 21.5 11 1 7 0		Z7G-BOYS CLINIC
Space 18 23.9 9 15 8 0 21.5 11 1 7 0		Z7G-GIRLS CLINIC
SYSTEM No. 7 Title - Z7G-I/M 2	No Off 1 (Op. Hours 2610)	
Space 19 24.0 12 31 11 0 19.6 7 1 8 7		Z7G-I/M 2
SYSTEM No. 8 Title - Z7G-I/M 3	No Off 1 (Op. Hours 2610)	
Space 20 25.4 12 6 7 10 19.9 7 1 8 5		Z7G-I/M 3
SYSTEM No. 9 Title - Z7G-VO	No Off 1 (Op. Hours 2610)	
Space 21 26.3 12 6 7 29 21.4 7 12 8 0		Z7G-VO
SYSTEM No. 10 Title - Z7G-CLERICAL ADM	No Off 1 (Op. Hours 2610)	
Space 22 23.9 12 31 11 0 21.4 11 8 7 0		Z7G-CLERICAL ADMIN
SYSTEM No. 11 Title - Z7G-PUBLIC RECEP	No Off 1 (Op. Hours 2610)	
Space 23 26.0 1 12 14 105 20.9 7 1 8 1		Z7G-PUBLIC RECEPTION
SYSTEM No. 12 Title - Z7F-NW ZONE	No Off 1 (Op. Hours 2610)	
Space 24 24.5 4 9 17 44 18.5 7 19 8 6		Z7F-NW ZONE
SYSTEM No. 13 Title - Z7F-NE ZONE 1	No Off 1 (Op. Hours 2610)	
Space 25 27.5 1 12 14 436 21.4 5 31 8 0		Z7F-NE ZONE 1
SYSTEM No. 14 Title - Z7F-NE ZONE 2	No Off 1 (Op. Hours 2610)	
Space 26 24.3 12 31 11 2 20.7 7 1 8 4		Z7F-NE ZONE 2
SYSTEM No. 15 Title - Z7F-READING ROOM	No Off 1 (Op. Hours 2610)	
Space 27 25.8 1 12 14 8 19.5 7 1 8 3		Z7F-READING ROOM
SYSTEM No. 16 Title - Z7F-LIBRARY CENT	No Off 1 (Op. Hours 2610)	
Space 28 24.0 12 31 11 0 21.4 9 13 8 0		Z7F-LIBRARY CENTER 1
SYSTEM No. 17 Title - Z7F-LIBRARY CENT	No Off 1 (Op. Hours 2610)	
Space 29 24.0 12 31 11 0 21.4 11 8 7 0		Z7F-LIBRARY CENTER 2
SYSTEM No. 18 Title - Z7F-LIBRARY CENT	No Off 1 (Op. Hours 2610)	
Space 30 24.0 12 6 7 0 21.4 7 12 8 0		Z7F-LIBRARY CENTER 3
SYSTEM No. 19 Title - Z7F-M/O 1	No Off 1 (Op. Hours 2610)	
Space 31 24.0 12 31 11 0 21.4 9 13 8 0		Z7F-M/O 1
SYSTEM No. 20 Title - Z7F-M/O 2	No Off 1 (Op. Hours 2610)	
Space 32 24.0 12 31 11 0 21.4 9 13 8 0		Z7F-M/O 2
SYSTEM No. 21 Title - Z7F-SMALL LOUNGE	No Off 1 (Op. Hours 2610)	
Space 33 24.4 12 31 11 4 20.9 7 1 8 2		Z7F-SMALL LOUNGE
SYSTEM No. 22 Title - Z7F-LIBRARY SE	No Off 1 (Op. Hours 2610)	
Space 34 26.1 12 6 7 46 17.9 7 1 8 14		Z7F-LIBRARY SE
SYSTEM No. 23 Title - Z7S-STAFF LOINGE	No Off 1 (Op. Hours 2610)	
Space 35 24.0 1 12 7 0 21.4 7 19 8 0		Z7S-STAFF LOUNGE NW
SYSTEM No. 24 Title - Z7S-STAFF LOUNGE	No Off 1 (Op. Hours 2610)	
Space 36 24.4 12 31 11 79 21.4 5 31 8 0		Z7S-STAFF LOUNGE NE
SYSTEM No. 25 Title - Z7S-STAFF LGE CE	No Off 1 (Op. Hours 2610)	

Space 37	24.0	12	31	11	0	21.4	7	19	8	0	Z7S-STAFF LGE CENTER
SYSTEM No. 26 Title - Z7S-STAFF STDY N											
Space 38	26.0	12	6	7	390	21.2	6	23	8	0	Z7S-STAFF STDY NE
SYSTEM No. 27 Title - Z7S-STAFF STUDY											
Space 39	24.0	12	14	7	0	21.4	7	19	8	0	Z7S-STAFF STUDY
SYSTEM No. 28 Title - Z7S-I/M											
Space 40	25.0	1	12	7	7	19.1	7	1	8	6	Z7S-I/M
SYSTEM No. 29 Title - Z6G-HS GLS											
Space 41	24.0	12	31	11	0	21.4	7	12	8	0	Z6G-HS GLS
SYSTEM No. 30 Title - Z6G-SPECIAL PROG											
Space 42	24.0	12	31	11	0	21.4	7	12	8	0	Z6G-SPECIAL PROG
SYSTEM No. 31 Title - Z6G-STAFF											
Space 43	24.0	12	31	11	0	21.4	7	12	8	0	Z6G-STAFF
SYSTEM No. 32 Title - Z6G-GLS 1											
Space 44	24.0	12	31	11	0	21.4	7	12	8	0	Z6G-GLS 1
SYSTEM No. 33 Title - Z6G-GLS 2											
Space 45	24.0	12	31	11	0	21.4	7	12	8	0	Z6G-GLS 2
SYSTEM No. 34 Title - Z6G-CIRCULATION											
Space 46	23.9	12	31	11	0	21.4	7	19	8	0	Z6G-CIRCULATION
SYSTEM No. 35 Title - Z6F-FOYER											
Space 47	27.7	5	26	15	445	21.4	7	19	8	0	Z6F-FOYER
SYSTEM No. 36 Title - Z6F-GLS9											
Space 48	24.0	12	6	7	0	21.4	7	19	8	0	Z6F-GLS9
SYSTEM No. 37 Title - Z6F-CIRCULATION											
Space 49	24.2	1	11	7	3	21.3	7	19	8	0	Z6F-CIRCULATION
SYSTEM No. 38 Title - Z6F-GLS 1											
Space 50	24.0	6	10	15	0	21.4	7	19	8	0	Z6F-GLS 1
SYSTEM No. 39 Title - Z6F-GLS 2											
Space 51	24.4	12	14	7	2	21.4	7	19	8	0	Z6F-GLS 2
SYSTEM No. 40 Title - Z6G-GLS 3											
Space 52	24.0	6	10	15	0	21.4	7	19	8	0	Z6F-GLS 3
SYSTEM No. 41 Title - Z6F-GLS 4											
Space 53	24.0	12	6	7	0	21.4	7	19	8	0	Z6F-GLS 4
SYSTEM No. 42 Title - Z6F-GLS 5											
Space 54	24.0	12	14	7	0	21.4	7	19	8	0	Z6F-GLS 5
SYSTEM No. 43 Title - Z6F-GLS 6											
Space 55	24.0	12	23	7	0	21.4	7	19	8	0	Z6F-GLS 6
SYSTEM No. 44 Title - Z6F-STAFF STUDY											
Space 56	24.0	12	24	7	0	21.4	7	19	8	0	Z6F-STAFF STUDY
SYSTEM No. 45 Title - Z6F-GLS 7											
Space 57	24.0	12	31	11	0	21.4	7	19	8	0	Z6F-GLS 7
SYSTEM No. 46 Title - Z6F-GLS 8											
Space 58	24.0	12	31	11	0	21.4	7	19	8	0	Z6F-GLS 8
SYSTEM No. 47 Title - Z5G-CIRCULATION											
Space 59	23.9	12	31	11	0	21.4	7	19	8	0	Z5G-CIRCULATION
SYSTEM No. 48 Title - Z5G-SEMINAR											
Space 60	26.8	6	10	16	101	21.4	7	19	8	0	Z5G-SEMINAR
SYSTEM No. 49 Title - Z5G-GLS 1											
Space 61	24.0	6	10	15	0	21.4	5	31	8	0	Z5G-GLS 1
SYSTEM No. 50 Title - Z5G-GLS 2											
No Off 1 (Op. Hours 2610)											

Space 62	24.0	12	31	11	0	21.4	5	31	8	0	Z5G-GLS 2
SYSTEM No. 51 Title - Z5G-GLS 3											
Space 63	24.0	12	31	11	0	21.4	5	31	8	0	Z5G-GLS 3
SYSTEM No. 52 Title - Z5G-GLS 4											
Space 64	24.0	12	31	11	0	21.4	5	31	8	0	Z5G-GLS 4
SYSTEM No. 53 Title - Z5G- STAFF STUDY											
Space 65	24.0	12	31	11	0	21.5	5	31	8	0	Z5G-STAFF STUDY
SYSTEM No. 54 Title - Z5G-GLS 5											
Space 66	24.0	12	14	7	0	21.5	5	31	8	0	Z5G-GLS 5
SYSTEM No. 55 Title - Z5G-GLS 6											
Space 67	24.0	12	14	7	0	21.5	5	31	8	0	Z5G-GLS 6
SYSTEM No. 56 Title - Z5G-GLS ED											
Space 68	24.0	12	14	7	0	21.5	5	31	8	0	Z5G-GLS ED
SYSTEM No. 57 Title - Z5F-SEMINAR											
Space 69	24.0	12	31	11	0	20.5	7	19	8	1	Z5F-SEMINAR
SYSTEM No. 58 Title - Z5F-RESOURCE HUB											
Space 70	24.1	6	10	15	2	21.4	7	19	8	0	Z5F-RESOURCE HUB
SYSTEM No. 59 Title - Z5F-CIRCULATION											
Space 71	24.0	12	31	11	0	21.4	7	19	8	0	Z5F-CIRCULATION
SYSTEM No. 60 Title - Z5F-GLS 1											
Space 72	24.0	12	31	11	0	21.4	7	19	8	0	Z5F-GLS 1
SYSTEM No. 61 Title - Z5F-GLS 2											
Space 73	24.0	6	10	15	0	21.4	7	19	8	0	Z5F-GLS 2
SYSTEM No. 62 Title - Z5F-GLS 3											
Space 74	24.0	12	31	11	0	21.4	7	19	8	0	Z5F-GLS 3
SYSTEM No. 63 Title - Z5F-GLS 4											
Space 75	24.0	12	31	11	0	21.4	7	19	8	0	Z5F-GLS 4
SYSTEM No. 64 Title - Z5F-GLS 5											
Space 76	24.0	12	31	11	0	21.4	7	19	8	0	Z5F-GLS 5
SYSTEM No. 65 Title - Z5F-STAFF STUDY											
Space 77	24.0	12	31	11	0	21.4	7	19	8	0	Z5F-STAFF STUDY
SYSTEM No. 66 Title - Z5F-GLS 6											
Space 78	24.0	12	31	11	0	21.4	7	19	8	0	Z5F-GLS 6
SYSTEM No. 67 Title - Z5F-GLS 7											
Space 79	24.0	12	31	11	0	21.4	7	19	8	0	Z5F-GLS 7
SYSTEM No. 68 Title - Z5F-GLS 8											
Space 80	24.0	12	31	11	0	21.4	7	19	8	0	Z5F-GLS 8
SYSTEM No. 69 Title - Z4G-CIRCULATION											
Space 81	23.9	12	31	11	0	21.5	5	31	8	0	Z4G-CIRCULATION
SYSTEM No. 70 Title - Z4G-SEMINAR											
Space 82	24.8	8	19	12	281	21.4	5	31	8	0	Z4G-SEMINAR
SYSTEM No. 71 Title - Z4G-GLS 1											
Space 83	24.5	4	23	11	159	21.4	5	31	8	0	Z4G-GLS 1
SYSTEM No. 72 Title - Z4G-GLS 2											
Space 84	24.0	12	14	7	0	21.4	5	31	8	0	Z4G-GLS 2
SYSTEM No. 73 Title - Z4G-GLS 3											
Space 85	24.0	12	14	7	0	21.4	5	31	8	0	Z4G-GLS 3
SYSTEM No. 74 Title - Z4G-GLS 4											
Space 86	24.0	12	14	7	0	21.4	5	31	8	0	Z4G-GLS 4
SYSTEM No. 75 Title - Z4G-STAFF STUDY											
No Off 1 (Op. Hours 2610)											

Space 87	24.0	12	31	11	0	21.4	11	8	7	0	Z4G-STAFF STUDY
SYSTEM No. 76 Title - Z4G-GLS 5	No Off 1 (Op. Hours 2610)										
Space 88	24.0	12	14	7	0	21.4	5	31	8	0	Z4G-GLS 5
SYSTEM No. 77 Title - Z4G-GLS 6	No Off 1 (Op. Hours 2610)										
Space 89	24.0	12	14	7	0	21.4	5	31	8	0	Z4G-GLS 6
SYSTEM No. 78 Title - Z4G-GLS 7	No Off 1 (Op. Hours 2610)										
Space 90	24.0	12	14	7	0	21.4	7	19	8	0	Z4G-GLS 7
SYSTEM No. 79 Title - Z4F-SEMINAR	No Off 1 (Op. Hours 2610)										
Space 91	24.0	12	31	11	0	20.2	7	19	8	2	Z4F-SEMINAR
SYSTEM No. 80 Title - Z4F-RESOURCE HUB	No Off 1 (Op. Hours 2610)										
Space 92	24.5	12	6	7	4	21.4	7	19	8	0	Z4F-RESOURCE HUB
SYSTEM No. 81 Title - Z4F-CIRCULATION	No Off 1 (Op. Hours 2610)										
Space 93	24.0	12	6	7	0	21.4	5	31	8	0	Z4F-CIRCULATION
SYSTEM No. 82 Title - Z4F-GLS 1	No Off 1 (Op. Hours 2610)										
Space 94	24.0	12	31	11	0	21.4	7	19	8	0	Z4F-GLS 1
SYSTEM No. 83 Title - Z4F-GLS 2	No Off 1 (Op. Hours 2610)										
Space 95	24.0	6	10	15	0	21.4	7	19	8	0	Z4F-GLS 2
SYSTEM No. 84 Title - Z4F-GLS 3	No Off 1 (Op. Hours 2610)										
Space 96	24.0	12	14	7	0	21.4	7	19	8	0	Z4F-GLS 3
SYSTEM No. 85 Title - Z4F-GLS 4	No Off 1 (Op. Hours 2610)										
Space 97	24.0	12	14	7	0	21.4	7	19	8	0	Z4F-GLS 4
SYSTEM No. 86 Title - Z4F-GLS 5	No Off 1 (Op. Hours 2610)										
Space 98	24.0	12	14	7	0	21.4	7	19	8	0	Z4F-GLS 5
SYSTEM No. 87 Title - Z4F-STAFF STUDY	No Off 1 (Op. Hours 2610)										
Space 99	24.0	1	12	7	0	21.4	7	19	8	0	Z4F-STAFF STUDY
SYSTEM No. 88 Title - Z4F-GLS 6	No Off 1 (Op. Hours 2610)										
Space 100	24.0	12	14	7	0	21.4	7	19	8	0	Z4F-GLS 6
SYSTEM No. 89 Title - Z4F-GLS 7	No Off 1 (Op. Hours 2610)										
Space 101	24.0	12	14	7	0	21.4	7	19	8	0	Z4F-GLS 7
SYSTEM No. 90 Title - Z4F-GLS 8	No Off 1 (Op. Hours 2610)										
Space 102	24.0	12	14	7	0	21.4	7	19	8	0	Z4F-GLS 8
SYSTEM No. 91 Title - Z3G-MULTIMEDIA W	No Off 1 (Op. Hours 2610)										
Space 103	24.0	3	19	11	0	21.5	5	31	8	0	Z3G-MULTIMEDIA WSHOP
SYSTEM No. 92 Title - Z3G-MULTIMEDIA G	No Off 1 (Op. Hours 2610)										
Space 104	24.2	12	6	7	1	21.5	5	31	8	0	Z3G-MULTIMEDIA GLS
SYSTEM No. 93 Title - Z3G-MULTIMEDIA S	No Off 1 (Op. Hours 2610)										
Space 105	24.0	12	31	11	0	21.4	11	8	7	0	Z3G-MULTIMEDIA STUD
SYSTEM No. 94 Title - Z3G-TIMBERS GLS	No Off 1 (Op. Hours 2610)										
Space 106	24.0	12	31	11	0	21.4	9	13	8	0	Z3G-TIMBERS GLS
SYSTEM No. 95 Title - Z3G-TIMBERS WSHO	No Off 1 (Op. Hours 2610)										
Space 107	24.0	12	31	12	0	21.0	7	19	8	0	Z3G-TIMBERS WSHOP
SYSTEM No. 96 Title - Z3G-PRO TIMBER W	No Off 1 (Op. Hours 2610)										
Space 108	24.5	12	31	11	4	21.5	11	8	7	0	Z3G-PRO TIMBER WS
SYSTEM No. 97 Title - Z3G-TIMBER EQ ST	No Off 1 (Op. Hours 2610)										
Space 109	24.8	12	31	12	3	18.3	7	12	8	24	Z3G-TIMBER EQ STORE
SYSTEM No. 98 Title - Z3G-METALS WSHOP	No Off 1 (Op. Hours 2610)										
Space 110	24.6	12	31	12	4	21.1	9	13	8	0	Z3G-METALS WSHOP
SYSTEM No. 99 Title - Z3G-METALS GLS W	No Off 1 (Op. Hours 2610)										
Space 111	24.1	12	31	11	2	21.3	11	8	7	0	Z3G-METALS GLS WSHOP
SYSTEM No. 100 Title - Z3G-METAL EQ STO	No Off 1 (Op. Hours 2610)										

Space 112	24.8	12	31	12	3	18.9	7	19	8	16	Z3G-METAL EQ STORE
SYSTEM No. 101 Title - Z3F-FOYER / CIRC No Off 1 (Op. Hours 2610)											
Space 113	28.3	12	6	7	738	21.4	5	31	8	0	Z3F-FOYER / CIRC
SYSTEM No. 102 Title - Z3F-GLS 1 No Off 1 (Op. Hours 2610)											
Space 114	25.0	12	6	7	8	21.4	7	19	8	0	Z3F-GLS 1
SYSTEM No. 103 Title - Z3F-GLS 2 No Off 1 (Op. Hours 2610)											
Space 115	24.0	12	31	11	0	21.4	11	8	7	0	Z3F-GLS 2
SYSTEM No. 104 Title - Z3F-GLS 3 No Off 1 (Op. Hours 2610)											
Space 116	24.3	1	12	7	2	21.4	7	19	8	0	Z3F-GLS 3
SYSTEM No. 105 Title - Z3F-TEXTILES 1 No Off 1 (Op. Hours 2610)											
Space 117	24.2	12	14	7	2	21.4	7	19	8	0	Z3F-TEXTILES 1
SYSTEM No. 106 Title - Z3F-TEXTILES 2 No Off 1 (Op. Hours 2610)											
Space 118	24.0	12	31	11	0	21.4	9	13	8	0	Z3F-TEXTILES 2
SYSTEM No. 107 Title - Z3F-MAT STAFF ST No Off 1 (Op. Hours 2610)											
Space 119	24.0	1	12	7	0	21.4	7	19	8	0	Z3F-MAT STAFF STUDY
SYSTEM No. 108 Title - Z3F-DOM KITCHEN No Off 1 (Op. Hours 2610)											
Space 120	24.0	12	14	7	0	21.5	7	19	8	0	Z3F-DOM KITCHEN
SYSTEM No. 109 Title - Z3F-PANTRY No Off 1 (Op. Hours 2610)											
Space 121	24.2	12	14	7	2	21.2	7	19	8	0	Z3F-PANTRY
SYSTEM No. 110 Title - Z3F-PREP/STORE No Off 1 (Op. Hours 2610)											
Space 122	23.8	12	31	11	0	20.2	11	8	7	4	Z3F-PREP/STORE
SYSTEM No. 111 Title - Z3F-SEMI KITCHEN No Off 1 (Op. Hours 2610)											
Space 123	24.0	1	12	7	0	21.4	7	19	8	0	Z3F-SEMI KITCHEN
SYSTEM No. 112 Title - Z3F-KITCHEN CERT No Off 1 (Op. Hours 2610)											
Space 124	24.3	12	6	7	3	21.4	5	31	8	0	Z3F-KITCHEN CERT 2
SYSTEM No. 113 Title - Z3F-OPEN GLS No Off 1 (Op. Hours 2610)											
Space 125	24.4	12	6	7	1	21.4	5	31	8	0	Z3F-OPEN GLS

Space Temperature Distribution Report

(Number of temperature occurrences)

During Occupied Period

SPACE ID	Degree classes BELOW thermostat low temp				Low TStat Temp.	Set Point (C)	High TStat Temp.	Degree classes ABOVE thermostat high temp				% In T'stat Range	% In Range 18-26	
	>3.0	3.0	2.0	1.0				1.0	2.0	3.0	>3.0			
SYSTEM No. 1 Title - Z7G-PRINCIPAL No Off 1 (Op. Hours 2610)														
1	0	0	0	0	135	22.5	2475	0	0	0	0	100	100	
SYSTEM No. 2 Title - Z7G-DEPUTY DUCTE No Off 1 (Op. Hours 2610)														
2	0	0	0	0	121	22.5	2469	20	0	0	0	99	100	
3	0	0	0	0	115	22.5	2492	3	0	0	0	100	100	
4	0	0	0	0	108	22.5	1649	853	0	0	0	67	100	
5	0	0	0	25	140	22.5	2160	285	0	0	0	88	100	
6	0	0	0	19	126	22.5	2465	0	0	0	0	99	100	
SYSTEM No. 3 Title - Z7G-STUDENT RECE No Off 1 (Op. Hours 2610)														
7	0	0	0	0	367	22.5	2242	1	0	0	0	100	100	
SYSTEM No. 4 Title - Z7G-I/M EXTERNAL No Off 1 (Op. Hours 2610)														
8	0	0	0	0	500	22.5	2110	0	0	0	0	100	100	
SYSTEM No. 5 Title - Z7G-I/O No Off 1 (Op. Hours 2610)														
9	0	0	0	0	250	22.5	2347	13	0	0	0	100	100	
SYSTEM No. 6 Title - Z7G-INTERNAL OFF No Off 1 (Op. Hours 2610)														
10	0	0	0	0	324	22.5	2286	0	0	0	0	100	100	
11	0	0	0	0	332	22.5	2278	0	0	0	0	100	100	
12	0	0	0	3	356	22.5	2251	0	0	0	0	100	100	
13	0	0	0	0	329	22.5	2281	0	0	0	0	100	100	

14	0	0	0	37	362	22.5	2208	3	0	0	0	98	100
15	0	0	0	0	357	22.5	2253	0	0	0	0	100	100
16	0	0	0	28	374	22.5	2208	0	0	0	0	99	100
17	0	0	0	0	306	22.5	2304	0	0	0	0	100	100
18	0	0	0	0	306	22.5	2304	0	0	0	0	100	100
SYSTEM No. 7 Title - Z7G-I/M 2 No Off 1 (Op. Hours 2610)													
19	0	0	3	4	716	22.5	1887	0	0	0	0	100	100
SYSTEM No. 8 Title - Z7G-I/M 3 No Off 1 (Op. Hours 2610)													
20	0	0	1	4	613	22.5	1982	9	1	0	0	99	100
SYSTEM No. 9 Title - Z7G-VO No Off 1 (Op. Hours 2610)													
21	0	0	0	0	276	22.5	2305	22	6	1	0	99	100
SYSTEM No. 10 Title - Z7G-CLERICAL ADM No Off 1 (Op. Hours 2610)													
22	0	0	0	0	53	22.5	2557	0	0	0	0	100	100
SYSTEM No. 11 Title - Z7G-PUBLIC RECEP No Off 1 (Op. Hours 2610)													
23	0	0	0	1	206	22.5	2298	102	2	1	0	96	100
SYSTEM No. 12 Title - Z7F-NW ZONE No Off 1 (Op. Hours 2610)													
24	0	1	3	2	459	22.5	2101	44	0	0	0	98	100
SYSTEM No. 13 Title - Z7F-NE ZONE 1 No Off 1 (Op. Hours 2610)													
25	0	0	0	0	218	22.5	1956	423	8	3	2	83	100
SYSTEM No. 14 Title - Z7F-NE ZONE 2 No Off 1 (Op. Hours 2610)													
26	0	0	0	4	424	22.5	2180	2	0	0	0	100	100
SYSTEM No. 15 Title - Z7F-READING ROOM No Off 1 (Op. Hours 2610)													
27	0	0	1	2	310	22.5	2289	4	4	0	0	100	100
SYSTEM No. 16 Title - Z7F-LIBRARY CENT No Off 1 (Op. Hours 2610)													
28	0	0	0	0	165	22.5	2445	0	0	0	0	100	100
SYSTEM No. 17 Title - Z7F-LIBRARY CENT No Off 1 (Op. Hours 2610)													
29	0	0	0	0	145	22.5	2465	0	0	0	0	100	100
SYSTEM No. 18 Title - Z7F-LIBRARY CENT No Off 1 (Op. Hours 2610)													
30	0	0	0	0	309	22.5	2301	0	0	0	0	100	100
SYSTEM No. 19 Title - Z7F-M/O 1 No Off 1 (Op. Hours 2610)													
31	0	0	0	0	551	22.5	2059	0	0	0	0	100	100
SYSTEM No. 20 Title - Z7F-M/O 2 No Off 1 (Op. Hours 2610)													
32	0	0	0	0	553	22.5	2057	0	0	0	0	100	100
SYSTEM No. 21 Title - Z7F-SMALL LOUNGE No Off 1 (Op. Hours 2610)													
33	0	0	0	2	583	22.5	2021	4	0	0	0	100	100
SYSTEM No. 22 Title - Z7F-LIBRARY SE No Off 1 (Op. Hours 2610)													
34	1	2	7	4	420	22.5	2130	37	8	1	0	98	100
SYSTEM No. 23 Title - Z7S-STAFF LOINGE No Off 1 (Op. Hours 2610)													
35	0	0	0	0	243	22.5	2367	0	0	0	0	100	100
SYSTEM No. 24 Title - Z7S-STAFF LOUNGE No Off 1 (Op. Hours 2610)													
36	0	0	0	0	227	22.5	2304	79	0	0	0	97	100
SYSTEM No. 25 Title - Z7S-STAFF LGE CE No Off 1 (Op. Hours 2610)													
37	0	0	0	0	487	22.5	2123	0	0	0	0	100	100
SYSTEM No. 26 Title - Z7S-STAFF STDY N No Off 1 (Op. Hours 2610)													
38	0	0	0	0	238	22.5	1982	375	15	0	0	85	100
SYSTEM No. 27 Title - Z7S-STAFF STUDY No Off 1 (Op. Hours 2610)													
39	0	0	0	0	444	22.5	2166	0	0	0	0	100	100
SYSTEM No. 28 Title - Z7S-I/M No Off 1 (Op. Hours 2610)													
40	0	0	2	4	462	22.5	2135	7	0	0	0	100	100
SYSTEM No. 29 Title - Z6G-HS GLS No Off 1 (Op. Hours 2610)													
41	0	0	0	0	118	22.5	2492	0	0	0	0	100	100
SYSTEM No. 30 Title - Z6G-SPECIAL PROG No Off 1 (Op. Hours 2610)													

42	0	0	0	0	161	22.5	2449	0	0	0	0	100	100
SYSTEM No. 31 Title - Z6G-STAFF					No Off 1 (Op. Hours 2610)								
43	0	0	0	0	120	22.5	2490	0	0	0	0	100	100
SYSTEM No. 32 Title - Z6G-GLS 1					No Off 1 (Op. Hours 2610)								
44	0	0	0	0	150	22.5	2460	0	0	0	0	100	100
SYSTEM No. 33 Title - Z6G-GLS 2					No Off 1 (Op. Hours 2610)								
45	0	0	0	0	150	22.5	2460	0	0	0	0	100	100
SYSTEM No. 34 Title - Z6G-CIRCULATION					No Off 1 (Op. Hours 2610)								
46	0	0	0	0	269	22.5	2341	0	0	0	0	100	100
SYSTEM No. 35 Title - Z6F-FOYER					No Off 1 (Op. Hours 2610)								
47	0	0	0	0	73	22.5	2092	278	142	20	5	83	99
SYSTEM No. 36 Title - Z6F-GLS9					No Off 1 (Op. Hours 2610)								
48	0	0	0	0	258	22.5	2352	0	0	0	0	100	100
SYSTEM No. 37 Title - Z6F-CIRCULATION					No Off 1 (Op. Hours 2610)								
49	0	0	0	0	220	22.5	2387	3	0	0	0	100	100
SYSTEM No. 38 Title - Z6F-GLS 1					No Off 1 (Op. Hours 2610)								
50	0	0	0	0	327	22.5	2283	0	0	0	0	100	100
SYSTEM No. 39 Title - Z6F-GLS 2					No Off 1 (Op. Hours 2610)								
51	0	0	0	0	84	22.5	2524	2	0	0	0	100	100
SYSTEM No. 40 Title - Z6G-GLS 3					No Off 1 (Op. Hours 2610)								
52	0	0	0	0	32	22.5	2578	0	0	0	0	100	100
SYSTEM No. 41 Title - Z6F-GLS 4					No Off 1 (Op. Hours 2610)								
53	0	0	0	0	91	22.5	2519	0	0	0	0	100	100
SYSTEM No. 42 Title - Z6F-GLS 5					No Off 1 (Op. Hours 2610)								
54	0	0	0	0	101	22.5	2509	0	0	0	0	100	100
SYSTEM No. 43 Title - Z6F-GLS 6					No Off 1 (Op. Hours 2610)								
55	0	0	0	0	84	22.5	2526	0	0	0	0	100	100
SYSTEM No. 44 Title - Z6F-STAFF STUDY					No Off 1 (Op. Hours 2610)								
56	0	0	0	0	188	22.5	2422	0	0	0	0	100	100
SYSTEM No. 45 Title - Z6F-GLS 7					No Off 1 (Op. Hours 2610)								
57	0	0	0	0	105	22.5	2505	0	0	0	0	100	100
SYSTEM No. 46 Title - Z6F-GLS 8					No Off 1 (Op. Hours 2610)								
58	0	0	0	0	136	22.5	2474	0	0	0	0	100	100
SYSTEM No. 47 Title - Z5G-CIRCULATION					No Off 1 (Op. Hours 2610)								
59	0	0	0	0	163	22.5	2447	0	0	0	0	100	100
SYSTEM No. 48 Title - Z5G-SEMINAR					No Off 1 (Op. Hours 2610)								
60	0	0	0	0	70	22.5	2439	92	3	6	0	96	100
SYSTEM No. 49 Title - Z5G-GLS 1					No Off 1 (Op. Hours 2610)								
61	0	0	0	0	23	22.5	2587	0	0	0	0	100	100
SYSTEM No. 50 Title - Z5G-GLS 2					No Off 1 (Op. Hours 2610)								
62	0	0	0	0	39	22.5	2571	0	0	0	0	100	100
SYSTEM No. 51 Title - Z5G-GLS 3					No Off 1 (Op. Hours 2610)								
63	0	0	0	0	39	22.5	2571	0	0	0	0	100	100
SYSTEM No. 52 Title - Z5G-GLS 4					No Off 1 (Op. Hours 2610)								
64	0	0	0	0	42	22.5	2568	0	0	0	0	100	100
SYSTEM No. 53 Title - Z5G- STAFF STUDY					No Off 1 (Op. Hours 2610)								
65	0	0	0	0	107	22.5	2503	0	0	0	0	100	100
SYSTEM No. 54 Title - Z5G-GLS 5					No Off 1 (Op. Hours 2610)								
66	0	0	0	0	37	22.5	2573	0	0	0	0	100	100
SYSTEM No. 55 Title - Z5G-GLS 6					No Off 1 (Op. Hours 2610)								

67	0	0	0	0	34	22.5	2576	0	0	0	0	100	100
SYSTEM No. 56 Title - Z5G-GLS ED No Off 1 (Op. Hours 2610)													
68	0	0	0	0	34	22.5	2576	0	0	0	0	100	100
SYSTEM No. 57 Title - Z5F-SEMINAR No Off 1 (Op. Hours 2610)													
69	0	0	0	1	402	22.5	2207	0	0	0	0	100	100
SYSTEM No. 58 Title - Z5F-RESOURCE HUB No Off 1 (Op. Hours 2610)													
70	0	0	0	0	126	22.5	2482	2	0	0	0	100	100
SYSTEM No. 59 Title - Z5F-CIRCULATION No Off 1 (Op. Hours 2610)													
71	0	0	0	0	263	22.5	2347	0	0	0	0	100	100
SYSTEM No. 60 Title - Z5F-GLS 1 No Off 1 (Op. Hours 2610)													
72	0	0	0	0	361	22.5	2249	0	0	0	0	100	100
SYSTEM No. 61 Title - Z5F-GLS 2 No Off 1 (Op. Hours 2610)													
73	0	0	0	0	117	22.5	2493	0	0	0	0	100	100
SYSTEM No. 62 Title - Z5F-GLS 3 No Off 1 (Op. Hours 2610)													
74	0	0	0	0	141	22.5	2469	0	0	0	0	100	100
SYSTEM No. 63 Title - Z5F-GLS 4 No Off 1 (Op. Hours 2610)													
75	0	0	0	0	117	22.5	2493	0	0	0	0	100	100
SYSTEM No. 64 Title - Z5F-GLS 5 No Off 1 (Op. Hours 2610)													
76	0	0	0	0	120	22.5	2490	0	0	0	0	100	100
SYSTEM No. 65 Title - Z5F-STAFF STUDY No Off 1 (Op. Hours 2610)													
77	0	0	0	0	217	22.5	2393	0	0	0	0	100	100
SYSTEM No. 66 Title - Z5F-GLS 6 No Off 1 (Op. Hours 2610)													
78	0	0	0	0	120	22.5	2490	0	0	0	0	100	100
SYSTEM No. 67 Title - Z5F-GLS 7 No Off 1 (Op. Hours 2610)													
79	0	0	0	0	117	22.5	2493	0	0	0	0	100	100
SYSTEM No. 68 Title - Z5F-GLS 8 No Off 1 (Op. Hours 2610)													
80	0	0	0	0	117	22.5	2493	0	0	0	0	100	100
SYSTEM No. 69 Title - Z4G-CIRCULATION No Off 1 (Op. Hours 2610)													
81	0	0	0	0	93	22.5	2517	0	0	0	0	100	100
SYSTEM No. 70 Title - Z4G-SEMINAR No Off 1 (Op. Hours 2610)													
82	0	0	0	0	50	22.5	2279	281	0	0	0	89	100
SYSTEM No. 71 Title - Z4G-GLS 1 No Off 1 (Op. Hours 2610)													
83	0	0	0	0	16	22.5	2435	159	0	0	0	94	100
SYSTEM No. 72 Title - Z4G-GLS 2 No Off 1 (Op. Hours 2610)													
84	0	0	0	0	43	22.5	2567	0	0	0	0	100	100
SYSTEM No. 73 Title - Z4G-GLS 3 No Off 1 (Op. Hours 2610)													
85	0	0	0	0	43	22.5	2567	0	0	0	0	100	100
SYSTEM No. 74 Title - Z4G-GLS 4 No Off 1 (Op. Hours 2610)													
86	0	0	0	0	46	22.5	2564	0	0	0	0	100	100
SYSTEM No. 75 Title - Z4G-STAFF STUDY No Off 1 (Op. Hours 2610)													
87	0	0	0	0	127	22.5	2483	0	0	0	0	100	100
SYSTEM No. 76 Title - Z4G-GLS 5 No Off 1 (Op. Hours 2610)													
88	0	0	0	0	46	22.5	2564	0	0	0	0	100	100
SYSTEM No. 77 Title - Z4G-GLS 6 No Off 1 (Op. Hours 2610)													
89	0	0	0	0	43	22.5	2567	0	0	0	0	100	100
SYSTEM No. 78 Title - Z4G-GLS 7 No Off 1 (Op. Hours 2610)													
90	0	0	0	0	79	22.5	2531	0	0	0	0	100	100
SYSTEM No. 79 Title - Z4F-SEMINAR No Off 1 (Op. Hours 2610)													
91	0	0	0	2	372	22.5	2236	0	0	0	0	100	100
SYSTEM No. 80 Title - Z4F-RESOURCE HUB No Off 1 (Op. Hours 2610)													

92	0	0	0	0	126	22.5	2480	4	0	0	0	100	100
SYSTEM No. 81 Title - Z4F-CIRCULATION No Off 1 (Op. Hours 2610)													
93	0	0	0	0	182	22.5	2428	0	0	0	0	100	100
SYSTEM No. 82 Title - Z4F-GLS 1 No Off 1 (Op. Hours 2610)													
94	0	0	0	0	361	22.5	2249	0	0	0	0	100	100
SYSTEM No. 83 Title - Z4F-GLS 2 No Off 1 (Op. Hours 2610)													
95	0	0	0	0	117	22.5	2493	0	0	0	0	100	100
SYSTEM No. 84 Title - Z4F-GLS 3 No Off 1 (Op. Hours 2610)													
96	0	0	0	0	128	22.5	2482	0	0	0	0	100	100
SYSTEM No. 85 Title - Z4F-GLS 4 No Off 1 (Op. Hours 2610)													
97	0	0	0	0	111	22.5	2499	0	0	0	0	100	100
SYSTEM No. 86 Title - Z4F-GLS 5 No Off 1 (Op. Hours 2610)													
98	0	0	0	0	111	22.5	2499	0	0	0	0	100	100
SYSTEM No. 87 Title - Z4F-STAFF STUDY No Off 1 (Op. Hours 2610)													
99	0	0	0	0	221	22.5	2389	0	0	0	0	100	100
SYSTEM No. 88 Title - Z4F-GLS 6 No Off 1 (Op. Hours 2610)													
100	0	0	0	0	111	22.5	2499	0	0	0	0	100	100
SYSTEM No. 89 Title - Z4F-GLS 7 No Off 1 (Op. Hours 2610)													
101	0	0	0	0	111	22.5	2499	0	0	0	0	100	100
SYSTEM No. 90 Title - Z4F-GLS 8 No Off 1 (Op. Hours 2610)													
102	0	0	0	0	144	22.5	2466	0	0	0	0	100	100
SYSTEM No. 91 Title - Z3G-MULTIMEDIA W No Off 1 (Op. Hours 2610)													
103	0	0	0	0	5	22.5	2605	0	0	0	0	100	100
SYSTEM No. 92 Title - Z3G-MULTIMEDIA G No Off 1 (Op. Hours 2610)													
104	0	0	0	0	8	22.5	2601	1	0	0	0	100	100
SYSTEM No. 93 Title - Z3G-MULTIMEDIA S No Off 1 (Op. Hours 2610)													
105	0	0	0	0	115	22.5	2495	0	0	0	0	100	100
SYSTEM No. 94 Title - Z3G-TIMBERS GLS No Off 1 (Op. Hours 2610)													
106	0	0	0	0	594	22.5	2016	0	0	0	0	100	100
SYSTEM No. 95 Title - Z3G-TIMBERS WSHO No Off 1 (Op. Hours 2610)													
107	0	0	0	0	387	22.5	2223	0	0	0	0	100	100
SYSTEM No. 96 Title - Z3G-PRO TIMBER W No Off 1 (Op. Hours 2610)													
108	0	0	0	0	39	22.5	2567	4	0	0	0	100	100
SYSTEM No. 97 Title - Z3G-TIMBER EQ ST No Off 1 (Op. Hours 2610)													
109	0	4	10	10	846	22.5	1737	3	0	0	0	99	100
SYSTEM No. 98 Title - Z3G-METALS WSHOP No Off 1 (Op. Hours 2610)													
110	0	0	0	0	383	22.5	2223	4	0	0	0	100	100
SYSTEM No. 99 Title - Z3G-METALS GLS W No Off 1 (Op. Hours 2610)													
111	0	0	0	0	177	22.5	2431	2	0	0	0	100	100
SYSTEM No. 100 Title - Z3G-METAL EQ STO No Off 1 (Op. Hours 2610)													
112	0	1	5	10	763	22.5	1828	3	0	0	0	99	100
SYSTEM No. 101 Title - Z3F-FOYER / CIRC No Off 1 (Op. Hours 2610)													
113	0	0	0	0	150	22.5	1722	686	46	5	1	72	100
SYSTEM No. 102 Title - Z3F-GLS 1 No Off 1 (Op. Hours 2610)													
114	0	0	0	0	382	22.5	2220	7	1	0	0	100	100
SYSTEM No. 103 Title - Z3F-GLS 2 No Off 1 (Op. Hours 2610)													
115	0	0	0	0	445	22.5	2165	0	0	0	0	100	100
SYSTEM No. 104 Title - Z3F-GLS 3 No Off 1 (Op. Hours 2610)													
116	0	0	0	0	94	22.5	2514	2	0	0	0	100	100
SYSTEM No. 105 Title - Z3F-TEXTILES 1 No Off 1 (Op. Hours 2610)													

117	0	0	0	0	79	22.5	2529	2	0	0	0	100	100
SYSTEM No. 106 Title - Z3F-TEXTILES 2 No Off 1 (Op. Hours 2610)													
118	0	0	0	0	456	22.5	2154	0	0	0	0	100	100
SYSTEM No. 107 Title - Z3F-MAT STAFF ST No Off 1 (Op. Hours 2610)													
119	0	0	0	0	275	22.5	2335	0	0	0	0	100	100
SYSTEM No. 108 Title - Z3F-DOM KITCHEN No Off 1 (Op. Hours 2610)													
120	0	0	0	0	20	22.5	2590	0	0	0	0	100	100
SYSTEM No. 109 Title - Z3F-PANTRY No Off 1 (Op. Hours 2610)													
121	0	0	0	0	444	22.5	2164	2	0	0	0	100	100
SYSTEM No. 110 Title - Z3F-PREP/STORE No Off 1 (Op. Hours 2610)													
122	0	0	0	4	406	22.5	2200	0	0	0	0	100	100
SYSTEM No. 111 Title - Z3F-SEMI KITCHEN No Off 1 (Op. Hours 2610)													
123	0	0	0	0	41	22.5	2569	0	0	0	0	100	100
SYSTEM No. 112 Title - Z3F-KITCHEN CERT No Off 1 (Op. Hours 2610)													
124	0	0	0	0	19	22.5	2588	3	0	0	0	100	100
SYSTEM No. 113 Title - Z3F-OPEN GLS No Off 1 (Op. Hours 2610)													
125	0	0	0	0	69	22.5	2540	1	0	0	0	100	100

Master Meter Energy Report

	ELECTRICITY		GAS		STEAM		TOTAL
	Peak Hourly kW	Total Monthly kWhr	Peak Hourly Cub. m	Total Monthly Cub. m	Peak Hourly kgs	Total Monthly kgs	Monthly kWhr
JAN	459.	80737	0.	0	0.	0	80738
FEB	445.	76407	0.	0	0.	0	76407
MAR	423.	85359	0.	0	0.	0	85360
APR	413.	76830	0.	0	0.	0	76831
MAY	390.	69177	0.	0	0.	0	69177
JUN	392.	68494	0.	0	0.	0	68494
JUL	369.	68684	0.	0	0.	0	68684
AUG	390.	69134	0.	0	0.	0	69134
SEP	393.	71871	0.	0	0.	0	71871
OCT	420.	74168	0.	0	0.	0	74168
NOV	423.	77153	0.	0	0.	0	77153
DEC	448.	87665	0.	0	0.	0	87666
Total Energy		905678		0		0	905681
Per Sq.m.		122		0		0	122

Floor Area for kW/m2 = 7409. m2
Conditioned Floor Area = 7409. m2

Sub-Meters Energy Report

	METER NO 1 ELECTRIC UNITARY HEATING			METER NO 2 ELECTRIC UNITARY COOLING			METER NO 3 ELECTRIC UNITARY AUXILIARY		
	Peak Hourly Demand kWhr	Hourly Day/Hr	Total Monthly kWhr	Peak Hourly Demand kWhr	Hourly Day/Hr	Total Monthly kWhr	Peak Hourly Demand kWhr	Hourly Day/Hr	Total Monthly kWhr
JAN	5.79	1 7	6	237.75	12 14	33784	0.00	0 0	0
FEB	2.94	25 7	4	224.59	3 14	31963	0.00	0 0	0
MAR	0.96	1 7	3	202.08	15 14	34466	0.00	0 0	0
APR	20.69	19 8	72	192.33	9 15	28018	0.00	0 0	0
MAY	107.21	31 8	469	169.59	18 15	21760	0.00	0 0	0
JUN	92.85	14 8	1349	170.78	10 15	18404	0.00	0 0	0
JUL	139.51	19 8	1559	148.19	6 15	18206	0.00	0 0	0
AUG	81.04	16 8	824	169.27	20 15	19391	0.00	0 0	0
SEP	81.37	13 8	505	171.97	23 15	22625	0.00	0 0	0
OCT	27.15	5 8	112	199.48	26 15	27109	0.00	0 0	0
NOV	91.51	8 7	203	202.55	5 14	28209	0.00	0 0	0

DEC	39.96	16	7	49	227.59	31	11	36726	0.00	0	0	0
Total Energy				5155				320662				0
Per Sq.m.				0.7				43.3				0.0
	METER NO 4			ELECTRIC	METER NO 5			ELECTRIC	METER NO 6			ELECTRIC
	UNITARY			FAN	AF FANS				AX AUXILIARY			
	Peak Hourly			Total	Peak Hourly			Total	Peak Hourly			Total
	Demand			Monthly	Demand			Monthly	Demand			Monthly
	kWhr Day/Hr			kWhr	kWhr Day/Hr			kWhr	kWhr Day/Hr			kWhr
JAN	79.37	1	7	16667	0.00	0	0	0	0.00	0	0	0
FEB	79.37	1	7	15874	0.00	0	0	0	0.00	0	0	0
MAR	79.37	1	7	18255	0.00	0	0	0	0.00	0	0	0
APR	79.37	1	8	17461	0.00	0	0	0	0.00	0	0	0
MAY	79.37	3	8	16667	0.00	0	0	0	0.00	0	0	0
JUN	79.37	1	8	17461	0.00	0	0	0	0.00	0	0	0
JUL	79.37	1	8	17461	0.00	0	0	0	0.00	0	0	0
AUG	79.37	2	8	17461	0.00	0	0	0	0.00	0	0	0
SEP	79.37	1	8	17461	0.00	0	0	0	0.00	0	0	0
OCT	79.37	1	8	16667	0.00	0	0	0	0.00	0	0	0
NOV	79.37	1	7	17461	0.00	0	0	0	0.00	0	0	0
DEC	79.37	1	7	18255	0.00	0	0	0	0.00	0	0	0
Total Energy				207151				0				0
Per Sq.m.				28.0				0.0				0.0
	METER NO 7			ELECTRIC	METER NO 8			ELECTRIC				
	L1EL				E1 EQUIPMENT							
	Peak Hourly			Total	Peak Hourly			Total				
	Demand			Monthly	Demand			Monthly				
	kWhr Day/Hr			kWhr	kWhr Day/Hr			kWhr				
JAN	56.31	1	9	12350	85.19	1	9	17931				
FEB	56.31	1	9	11653	85.19	1	9	16913				
MAR	56.31	1	9	13316	85.19	1	9	19321				
APR	56.31	1	10	12762	85.19	1	10	18518				
MAY	56.31	3	10	12350	85.19	3	10	17931				
JUN	56.31	1	10	12762	85.19	1	10	18518				
JUL	56.31	1	10	12833	85.19	1	10	18626				
AUG	56.31	2	10	12833	85.19	2	10	18626				
SEP	56.31	1	10	12762	85.19	1	10	18518				
OCT	56.31	1	10	12350	85.19	1	10	17931				
NOV	56.31	1	9	12762	85.19	1	9	18518				
DEC	56.31	1	9	13316	85.19	1	9	19321				
Total Energy				152048				220668				
Per Sq.m.				20.5				29.8				

Master Meter Energy Report

	ELECTRICITY		GAS		STEAM		TOTAL
	Peak Hourly kW	Total Monthly kWhr	Peak Hourly Cub. m	Total Monthly Cub. m	Peak Hourly kgs	Total Monthly kgs	Monthly kWhr
JAN	459.	80737	0.	0	0.	0	80738
FEB	445.	76407	0.	0	0.	0	76407
MAR	423.	85359	0.	0	0.	0	85360
APR	413.	76830	0.	0	0.	0	76831
MAY	390.	69177	0.	0	0.	0	69177
JUN	392.	68494	0.	0	0.	0	68494
JUL	369.	68684	0.	0	0.	0	68684
AUG	390.	69134	0.	0	0.	0	69134
SEP	393.	71871	0.	0	0.	0	71871
OCT	420.	74168	0.	0	0.	0	74168
NOV	423.	77153	0.	0	0.	0	77153
DEC	448.	87665	0.	0	0.	0	87666
Total Energy		905678		0		0	905681
Per Sq.m.		122		0		0	122

Floor Area for kW/m2 = 7409. m2
Conditioned Floor Area = 7409. m2

Sub-Meters Energy Report

	METER NO 1 ELECTRIC			METER NO 2 ELECTRIC			METER NO 3 ELECTRIC		
	UNITARY HEATING			UNITARY COOLING			UNITARY AUXILIARY		
	Peak	Hourly	Total	Peak	Hourly	Total	Peak	Hourly	Total
	Demand		Monthly	Demand		Monthly	Demand		Monthly
	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr
JAN	5.79	1 7	6	237.75	12 14	33784	0.00	0 0	0
FEB	2.94	25 7	4	224.59	3 14	31963	0.00	0 0	0
MAR	0.96	1 7	3	202.08	15 14	34466	0.00	0 0	0
APR	20.69	19 8	72	192.33	9 15	28018	0.00	0 0	0
MAY	107.21	31 8	469	169.59	18 15	21760	0.00	0 0	0
JUN	92.85	14 8	1349	170.78	10 15	18404	0.00	0 0	0
JUL	139.51	19 8	1559	148.19	6 15	18206	0.00	0 0	0
AUG	81.04	16 8	824	169.27	20 15	19391	0.00	0 0	0
SEP	81.37	13 8	505	171.97	23 15	22625	0.00	0 0	0
OCT	27.15	5 8	112	199.48	26 15	27109	0.00	0 0	0
NOV	91.51	8 7	203	202.55	5 14	28209	0.00	0 0	0
DEC	39.96	16 7	49	227.59	31 11	36726	0.00	0 0	0

Total Energy	5155	320662	0
Per Sq.m.	0.7	43.3	0.0

	METER NO 4 ELECTRIC			METER NO 5 ELECTRIC			METER NO 6 ELECTRIC		
	UNITARY FAN			AF FANS			AX AUXILIARY		
	Peak	Hourly	Total	Peak	Hourly	Total	Peak	Hourly	Total
	Demand		Monthly	Demand		Monthly	Demand		Monthly
	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr
JAN	79.37	1 7	16667	0.00	0 0	0	0.00	0 0	0
FEB	79.37	1 7	15874	0.00	0 0	0	0.00	0 0	0
MAR	79.37	1 7	18255	0.00	0 0	0	0.00	0 0	0
APR	79.37	1 8	17461	0.00	0 0	0	0.00	0 0	0
MAY	79.37	3 8	16667	0.00	0 0	0	0.00	0 0	0
JUN	79.37	1 8	17461	0.00	0 0	0	0.00	0 0	0
JUL	79.37	1 8	17461	0.00	0 0	0	0.00	0 0	0
AUG	79.37	2 8	17461	0.00	0 0	0	0.00	0 0	0
SEP	79.37	1 8	17461	0.00	0 0	0	0.00	0 0	0
OCT	79.37	1 8	16667	0.00	0 0	0	0.00	0 0	0
NOV	79.37	1 7	17461	0.00	0 0	0	0.00	0 0	0
DEC	79.37	1 7	18255	0.00	0 0	0	0.00	0 0	0

Total Energy	207151	0	0
Per Sq.m.	28.0	0.0	0.0

	METER NO 7 ELECTRIC			METER NO 8 ELECTRIC		
	L1EL			E1 EQUIPMENT		
	Peak	Hourly	Total	Peak	Hourly	Total
	Demand		Monthly	Demand		Monthly
	kWhr	Day/Hr	kWhr	kWhr	Day/Hr	kWhr
JAN	56.31	1 9	12350	85.19	1 9	17931
FEB	56.31	1 9	11653	85.19	1 9	16913
MAR	56.31	1 9	13316	85.19	1 9	19321
APR	56.31	1 10	12762	85.19	1 10	18518
MAY	56.31	3 10	12350	85.19	3 10	17931
JUN	56.31	1 10	12762	85.19	1 10	18518
JUL	56.31	1 10	12833	85.19	1 10	18626
AUG	56.31	2 10	12833	85.19	2 10	18626
SEP	56.31	1 10	12762	85.19	1 10	18518
OCT	56.31	1 10	12350	85.19	1 10	17931
NOV	56.31	1 9	12762	85.19	1 9	18518
DEC	56.31	1 9	13316	85.19	1 9	19321

Total Energy	152048	220668
Per Sq.m.	20.5	29.8

22. Appendix G: Proposed Building / Proposed Services JV3 Compliance Report

To be completed later