Project Number: 19060
Project Name: DOES 2020/21 Schools Programme

Planning Stage Compliance Note – Griffeen Community College Lucan

1. Part L Review

1.1 Introduction

With consideration to the EU Energy Performance of Buildings Directive (EPBD), the Building Regulations Technical Guidance Document, Part L (NZEB), for sustainable design and reductions in energy and carbon emissions, the building services design strategy for the proposed school development is to utilise sustainable design options and energy efficient systems that are technically, environmentally and economically feasible for a project of this kind.

The strategy targets low energy and environmentally friendly building. This report will demonstrate that the design philosophy for the proposed building should employ a holistic approach to the construction and integration of the building, its systems and its users. This philosophy is supported by the use of sustainable engineering solutions and energy efficient systems.

The Design Team recognises the need for the building to be designed and operated in a manner that reduces the energy consumption and carbon emission of the building. This objective will be achieved in an economical manner whilst maintaining an internal environment that is comfortable for both staff and students.

1.2 Energy & CO^2 Emissions

It is proposed to reduce the building energy demand and carbon emission by implementing both passive and active measures, which will be designed to reduce energy, carbon emission, and cost throughout the building's lifecycle.

A preliminary compliance assessment against the Building Regulation Part L requirements was carried out on the proposed development using IES software.

The CO^2 emission rate from the proposed building will be less than that of the reference building used in the Part L assessment. The calculated primary energy consumption rate of the proposed building will also be less than that of the reference building.

The following table demonstrates compliance and indicates the calculation results of the proposed building performance versus the reference building under the part L;

Energy Performance Coefficient (EPC)	0.84
Carbon Performance Coefficient (CPC)	0.84
Renewable Energy Rati (RER)	0.10

The calculated result of energy performance coefficient and the carbon performance coefficient of the proposed building does not exceed the maximum permitted under Part L. The design team will consider these as a minimum target to be achieved during the detailed design process.

In order to achieve the overall Nearly Zero Energy Performance criteria, a renewable energy target of 10 - 20% of its energy provided, must come from onsite or nearby renewables.

The preliminary building energy rating (BER) calculation indicates A3 being achieved for the proposed building.

1.3 Suggested Passive Measures

The approach to sustainable solutions and energy efficiency has considered the advantages of passive solar design and the improvement of building construction elements to reduce the requirements for energy.

- The provision of glazing also maximises use of solar heat gain during winter to reduce the space-heating load. The associated g-value of windows is carefully considered to minimise solar gains to reduce the overheating impact.

- The reduction of fabric losses from the proposed building will be achieved by using materials with U-values which are lower than those minimum the DoES backstop U-values demonstrating the energy efficient approach being adopted for this development. The following table figure indicate the list of targeted u-values and g-value proposed;

Building Element	DoES Backstop U-value (w/m²K)	Targeted u-value (w/m²K)
External Wall	0.21	0.16
Flat Roof	0.16	0.14
Floor	0.21	0.16
Windows	1.6 / 1.4	1.3(g-value 0.35)
Door	1.6	1.60
Internal Ceiling/Floor		1.08
Internal Ceiling/Floor Insulated (for unheated spaces)		0.20
Internal Partition		1.78
Internal Partition Insulated		0.20

- The high-performance construction materials including wall, roof and glazing are being considered and selected to minimise the heat transfer into internal spaces. The reduction of the heating loads affected by high-performance construction material design in the building results in the ability to reduce the capacity of the central heating. This has the net effect of reducing embodied energy consumption associated with the manufacture and transportation of the plant, as well as the reduced input for the national electricity and gas consumption.

- Consideration will be given to ensure the continuity of insulation and to limit local thermal bridging, e.g. around windows, doors and other wall openings, at junctions between elements and unheated rooms. Acceptable construction details will be adopted for all key junctions where appropriate (see Appendix D, Table D1 under building regulation Part L for non-dwelling) and/or other certified details.

- The building will comply with the Building Regulations in the provision of air tightness. An air tightness of 3m3/hr per m² in line with the recognised BSRIA (UK) standard for air tightness (BG 4 / 2006) for air-conditioned buildings.

- It is proposed to reduce the building energy demand by implementing these passive measures.

1.4 Suggested Active Measures

Active measures have been considered to ensure minimal energy requirements, robust design, optimal operation and minimal life cycle costs are achieved. The active energy measures considered include the following technologies:

- High-efficiency gas fired boilers to provide LPHW to low temperature surface radiators and sanitary hot water. The gas boilers are to be selected based upon the seasonal coefficient performance (sCOP) over 98%.

- Provision of natural daylight reduces the reliance on artificial lighting. The provision of glazing on the elevations maximise the use of natural daylight to enhance visual comfort, without compromising thermal performance.

- Mechanical exhaust system ductwork and fan are sized to facilitate low specific fan power and maximise the efficiencies of the system. The location of service risers should be optimised to minimise the ductwork and pipework runs. The specific fan power of exhaust fan is to be selected upon based rating of less than 0.2 w/l/s,

- Automatic daylight control (automatic dimming) complete with combined PIR detection. Intelligent lighting controls in teaching spaces and offices allow for electrical energy savings as well as increasing the occupant exposure to natural daylight. The following proposed on the lighting installed power and control identified in room types;

Room	Design Illuminance (Lux)	Installed Power Wattage (w/m2)	Control Type				
			Occupancy controls	Parasitic Power (w/m2)	Photoelectric	Sensor type	Parasitic Power (w/m2)
Teaching spaces	500	5	MAN-ON- AUTO-OFF	0.07	Dimming	Standalone	0.07
Circulation/Stairs	120	5	MAN-ON- AUTO-OFF	0.07	-	-	-
Toilet	120	5	MAN-ON- AUTO-OFF	0.07	-	-	-
Office	500	5	MAN-ON- AUTO-OFF	0.07	Dimming	Standalone	0.07
Plant	300	6	MAN-ON- AUTO-OFF	0.07	-	-	-
Library	500	7	MAN-ON- AUTO-OFF	0.07	Dimming	Standalone	0.07
PE Hall/ Social Area, General Dining	300	7	MAN-ON- AUTO-OFF	0.07	Dimming	Standalone	0.07
Staffroom	500	6	MAN-ON- AUTO-OFF	0.07	Dimming	Standalone	0.07
Kitchen	300	7	MAN-ON- AUTO-OFF	0.07			
Data Room	200	6	MAN-ON- AUTO-OFF	0.07			
Storage	200	5	MAN-ON- AUTO-OFF	0.07			0.07

- All spaces are to be fitted with presence detection automatic sensors to switch off the lighting when the room are unoccupied. All teaching spaces shall be fitted with automatic daylight control sensors to allow for the maximum use of daylight.

- Pressurised water services using variable-speed drive multi-stage booster pump sets. VSD technology can realise energy savings of up to 50% compared to standard fixed-speed pumps, as the pump motors ramp up & down to accurately match the load requirements.

- Central BEMS – check metering to monitor & optimise substantive energy use. The energy management system will continuously review and fine-tune the operational efficiencies and strategy for the various building services, significantly reducing clients' overall energy consumption and carbon footprint, and reducing energy costs.

- Water services will incorporate low-flow fittings and PIR occupancy sensing for urinals.

- Power factor correction on main electrical boards, correcting the power factor to 0.95 (a 5% saving on total electrical energy consumption).

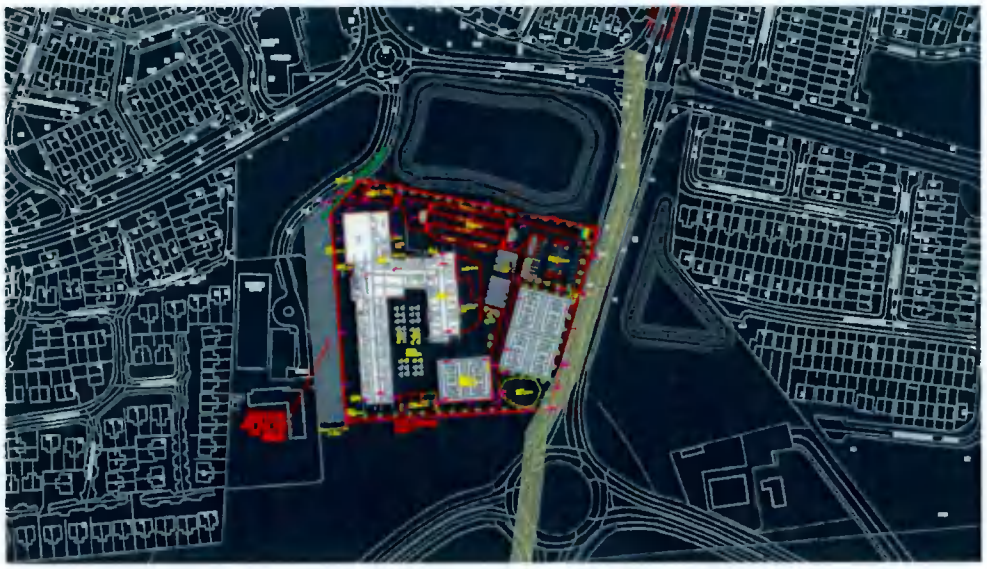
1.5 Suggested Renewable Measures

Renewable technologies have been considered to offset and exceed the requirements of building regulations Part L. An array of Solar PV panels is the primary technology considered for the generation of electricity on-site. It is estimated that a 400m^2 Solar PV array will be required at roof level, Southwest facing with an inclination angle no less than 15o degree.

2. Daylight Analysis

A preliminary daylight analysis has been carried out based on the mass and form of the building at planning stage.

There are existing residential buildings located in close vicinity to the proposed building. The following figure shows the site layout for the proposed development;



The distance to the nearest residential property from the proposed development is approximately 94m, there would be no impact on daylight or sunlight on the existing neighbouring properties or amenity space as a result of the development.

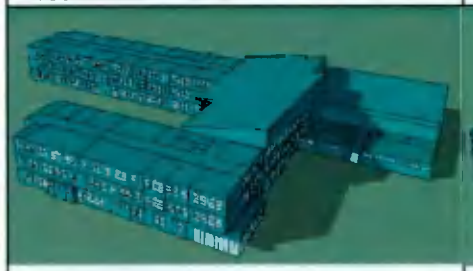
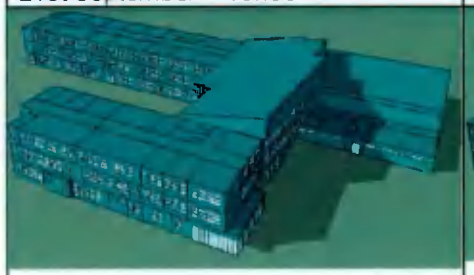
An initial shadow cast was carried out so that any high-level impacts could be observed due to the placement of the school building. The type of impact that is normally of concern are the result of self-shading of the proposed primary school.

This section illustrates the shadows cast for the proposed scheme for the following dates;

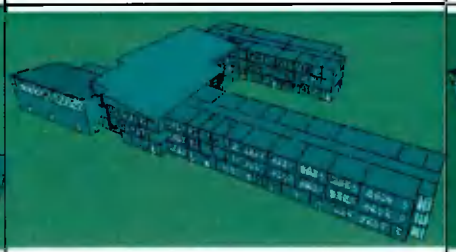
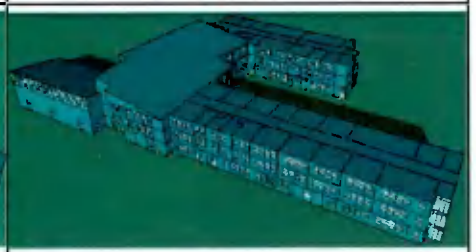
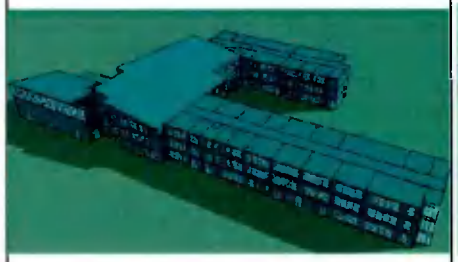
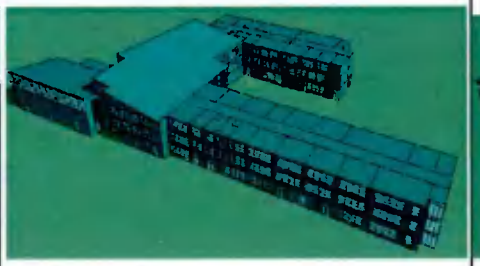
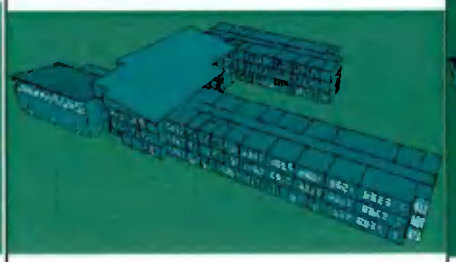
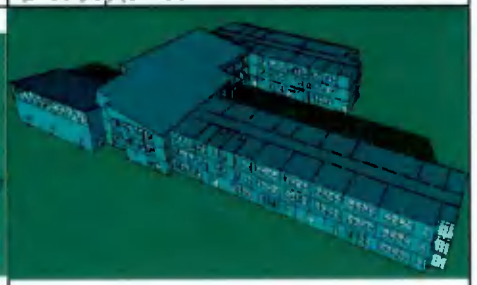
- Solar Shading images – 21st March
- Solar Shading images – 21st September

Aerial views/images of the shadows cast from any sun position, defined by date, time, orientation and site location are provided from 10am to 4pm for March and September

Northeast viewing position

21st March – 10h00	21st March – 12h00	21st March – 14h00	21st March – 16h00
			
21st September – 10h00	21st September – 12h00	21st September – 14h00	21st September – 16h00
			

Southwest viewing position.

21st March – 10h00	21st March – 12h00	21st March – 14h00	21st March – 16h00
			
21st September – 10h00	21st September – 12h00	21st September – 14h00	21st September – 16h00
			

The shadow analysis shows different shadows being cast at various times of the year. The classrooms located on the North facade experience shading in the morning between 10h00 to 16h00 in March and September. The rooms located on East facade experience shading from 14h00 to 16h00 in March and September. The classrooms located on the South façade experience small self-shading between 14h00 and 16h00. Classrooms locate on the west façade experience shading at 10h00.

3. Daylight Analysis

The average daylight factor of teaching spaces will be considered against the minimum 4.2% ADF target under Technical Guidance Document TGD-031. The following results have been established from the analysis. The daylight factor calculations were completed for a number of teaching spaces including the classrooms.

Room ID	Location	Result_00	Minimum ADF Target >4.2%
Ground Floor	L00: General Purpose Hall	8.9	YES
	L00: Art Room 1	4.31	YES
	L00: Meditation Room	4.32	YES
	L00: Class Base 1	4.23	YES
	L00: Class Base 2	4.21	YES
	L00: Class Base 4	5.24	YES
	L00: Class Base 3	5.26	YES
	L00: Meditation Room	4.42	YES
First Floor	L01: Large Classroom 12	5.2	YES
	L01: Large Classroom 5	4.73	YES
	L01: Large Classroom 4	4.75	YES
	L01: Small Classroom 1	4.45	YES
	L01: Large Classroom 1	4.5	YES
	L01: Large Classroom 3	4.72	YES
	L01: Large Classroom 2	4.73	YES
	L01: Large Classroom 9	4.21	YES
	L01: Large Classroom 10	4.22	YES
	L01: Large Classroom 6	4.39	YES
	L01: Large Classroom 7	4.82	YES
	L01: Large Classroom 8	4.29	YES
	L01: Small Classroom 2	4.89	YES
	L01: Small Classroom 3	4.76	YES
	L01: Large Classroom 11	5.29	YES
Second Floor	L02: Large Classroom 27	5.23	YES
	L02: Large Classroom 17	4.72	YES
	L02: Large Classroom 16	4.76	YES
	L02: Small Classroom 4	4.43	YES
	L02: Large Classroom 13	4.6	YES
	L02: Large Classroom 15	4.7	YES
	L02: Large Classroom 14	4.73	YES
	L02: Large Classroom 23	4.23	YES
	L02: Large Classroom 24	4.4	YES
	L02: Library	5.83	YES
	L02: Large Classroom 20	5.07	YES
	L02: Large Classroom 21	5.04	YES
	L02: Large Classroom 22	4.3	YES
	L02: Small Classroom 9	4.88	YES
	L02: Small Classroom 10	4.77	YES

	L02: Large Classroom 26	5.29	YES
	L02: Small Classroom 8	4.41	YES
	L02: Small Classroom 7	4.39	YES
	L02: Large Classroom 25	4.42	YES
	L02: Art Room 2	4.6	YES
	L02: Small Classroom 5	4.46	YES
	L02: Large Classroom 18	5.09	YES
	L02: Large Classroom 19	4.88	YES
	L02: Small Classroom 6	4.37	YES

4. Overheating Analysis

A preliminary analysis has been carried out on a number of typical and high-risk rooms within the proposed building. The purpose of the analysis is to confirm compliance with Part F of the building regulations in terms of natural ventilation through opening windows and Part L in terms of the avoidance of over-heating.

The following table outlines the dry resultant temperature and the percentage hours within the applicable temperature range and the percentage of the free opening area within the proposed windows in the initial design.

Location	Dry resultant temperature (°C) - % hours in range					TGD-020 Criteria Max 5% of school year exceeded 25°C
	> 21.00	> 22.00	> 23.00	> 24.00	> 25.00	
L00: Construction Room 1	36.5	8	1.4	0.1	0	PASS
L00: GPH	33.8	14.4	1.5	0	0	PASS
L00: Art Room 1	36.4	5.1	0.5	0	0	PASS
L00: Engineering Room	39	9.2	2.3	0.1	0	PASS
L00: Technology Room 1	39.7	9.7	2.6	0.1	0	PASS
L00: Pastoral Office 01	79.7	4.6	0.2	0	0	PASS
L00: Construction Room 2	37	8.4	1.5	0.1	0	PASS
L00: Caretakers Office	79	3	0.2	0	0	PASS
L00: Meeting Room	75.2	4.7	0.1	0	0	PASS
L00: SNU Office	81	8.6	0.6	0	0	PASS
L00: Meditation Room	31.9	6.8	0.5	0	0	PASS
L00: Principals Office	80.7	4.7	0.1	0	0	PASS
L00: Admin	80.7	4.8	0.1	0	0	PASS
L00: Class Base 1	32.4	5.9	1.3	0.1	0	PASS
L00: Class Base 2	33	6.4	1.4	0.1	0	PASS
L00: Class Base 4	36.5	8.5	2.1	0	0	PASS
L00: Class Base 3	36.8	8.8	2.1	0	0	PASS
L01: Deputy Principals Office 1	81.6	9.7	1.1	0.1	0	PASS
L01: Music Room	49.4	4.2	0.4	0	0	PASS
L01: Large Classroom 12	38.4	9.9	1.4	0.1	0	PASS
L01: Pastoral Office 3	78.1	17.9	3.5	0.9	0.4	PASS
L01: Tech Graphics	38.8	6.4	1.2	0.1	0	PASS

L01: Large Classroom 5	42.7	12.2	2.8	0.4	0.1	PASS
L01: Large Classroom 4	42.6	12.3	2.9	0.4	0.1	PASS
L01: Small Classroom 1	41.2	8.1	1.5	0.1	0	PASS
L01: Large Classroom 1	39.4	10.6	2.2	0.4	0.1	PASS
L01: Large Classroom 3	42.9	12.4	2.9	0.4	0.1	PASS
L01: Large Classroom 2	42.6	12.2	2.9	0.4	0.1	PASS
L01: Large Classroom 9	53.1	15.5	5.9	0.6	0.1	PASS
L01: Large Classroom 10	50.7	14.2	4.9	0.7	0.1	PASS
L01: Guidance Office 02	82.9	13.9	1.7	0.1	0	PASS
L01: Science Lab 4	81.9	26.7	9.2	1.2	0.2	PASS
L01: Science Lab 3	81.9	27	9.7	1.1	0.2	PASS
L01: Staffroom	74.5	69.5	12.6	0	0	PASS
L01: Tech Graphics 1	40.1	7.8	1.2	0	0	PASS
L01: Science Lab 1	82.9	32.1	12.3	2	0.1	PASS
L01: Science Lab 2	82.9	32.2	12	1.7	0.1	PASS
L01: Pastoral Office 02	83.1	14.7	1.1	0	0	PASS
L01: Large Classroom 6	43.7	13.6	4	0.1	0	PASS
L01: Large Classroom 7	42.9	13	3.7	0.3	0	PASS
L01: Large Classroom 8	41.8	12.5	3.1	0.2	0	PASS
L01: Science Lab 5	83.1	34.1	14.4	2.6	0.4	PASS
L01: Guidance Office 1	83.1	18.5	2.8	0.2	0	PASS
L01: Science Lab 6	83.2	34.7	15.1	2.9	0.4	PASS
L01: Small Classroom 2	44.7	10.8	2.4	0.1	0	PASS
L01: Small Classroom 3	44	11.1	2.5	0.1	0	PASS
L01: Large Classroom 11	42.9	13.9	4	0.3	0	PASS
L02: Deputy Principals Office 02	81.8	9	1.1	0	0	PASS
L02: Multimedia Room 1	40.4	8.4	1.2	0.1	0	PASS
L02: Large Classroom 27	35.5	9	1.1	0.1	0	PASS
L02: Pastoral Office 4	77.8	17.2	3.3	0.8	0.4	PASS
L02: Textiles	39	8.9	1.5	0.2	0	PASS
L02: Large Classroom 17	41.8	11.5	2.6	0.4	0.1	PASS
L02: Large Classroom 16	41.7	11.5	2.6	0.4	0.1	PASS
L02: Small Classroom 4	39.5	7.4	1.3	0.1	0	PASS
L02: Large Classroom 13	39	9.9	1.8	0.3	0.1	PASS
L02: Large Classroom 15	42.5	11.6	2.6	0.4	0.1	PASS
L02: Large Classroom 14	41.6	11.3	2.2	0.4	0.1	PASS
L02: Large Classroom 23	54.7	16.2	6.2	1	0.2	PASS
L02: Large Classroom 24	53.7	14.4	5.5	0.7	0.1	PASS
L02: Pastoral Office 05	82.2	9.8	1.4	0	0	PASS
L02: Library	39.2	13.4	2.6	0.3	0	PASS
L02: Large Classroom 20	42.9	13.4	4	0.1	0	PASS
L02: Large Classroom 21	43.4	12.6	3.7	0.2	0	PASS
L02: Large Classroom 22	42.1	12.5	3.1	0.3	0	PASS
L02: Small Classroom 9	43.7	10.7	2.1	0.1	0	PASS
L02: Small Classroom 10	44.9	10.6	2.1	0.1	0	PASS
L02: Large Classroom 26	42.1	12.2	3.6	0.1	0	PASS

L02: Multimedia Room 2	40.1	8.3	1.2	0.2	0	PASS
L02: Small Classroom 8	38.3	7.5	1.2	0.1	0	PASS
L02: Small Classroom 7	41.1	8.2	1.7	0.2	0	PASS
L02: Large Classroom 25	41.2	11.3	2.6	0.4	0.1	PASS
L02: Home Economics 2	44.6	7.8	1.1	0	0	PASS
L02: Art Room 2	44.1	8.1	1.2	0	0	PASS
L02: Small Classroom 5	44.9	8.1	1	0	0	PASS
L02: Home Economics 1	45.1	8.5	1.1	0	0	PASS
L02: Large Classroom 18	44.2	13.5	4.2	0.1	0	PASS
L02: Large Classroom 19	44	13	3.8	0.1	0	PASS
L02: Small Classroom 6	44.3	9.8	1.8	0.1	0	PASS

To be compliant with the area of purge ventilation requirement under the Part F building regulation - window opening should be at least 1/20th (5%) of the floor area of the room. The following detail opening distance for top hung windows identified in teaching spaces;

- 250mm for lower section
- 350mm for upper section
- 350mm for upper and lower section for North façade in Library and Staffroom

Based on the window opening types and opening distance identified in proposed rooms within development show all rooms to be in compliant with a maximum target of 5% under the Part F building regulation.

Space # (Real)	Floor Area (m^2) (Real)	External Window area (m^2)	Window Opening section (m^2)	AOV requirement under Part F. 1/20th floor area)	Ext. Window Orifice Area (m^2)	Compliant with Part F –1/20th (5%) of the floor area
L00: Office	16.276	4.538	2.21	0.81	2.64	YES
L00: Admin	28	2.888	1.92	1.40	1.52	YES
L00: Art Room 1	118.5	25.446	16.99	5.93	5.99	YES
L00: Caretakers Office	18.599	2.887	1.92	0.93	1.09	YES
L00: Class Base 1	70	16.102	8.49	3.50	3.91	YES
L00: Class Base 2	70	16.102	8.49	3.50	3.91	YES
L00: Class Base 3	70	16.102	8.49	3.50	3.91	YES
L00: Class Base 4	70	16.102	8.49	3.50	3.91	YES
L00: Construction Room 1	148	30.951	16.99	7.40	7.48	YES
L00: Construction Room 2	148	30.951	16.99	7.40	7.48	YES
L00: Daily Living Skills	20	2.887	1.92	1.00	1.09	YES
L00: Engineering Room	148	30.951	16.99	7.40	7.92	YES
L00: GPH	300	196.167	34.01	15.00	15.04	YES
L00: Meditation Room	35	5.67	3.77	1.75	1.90	YES
L00: Meeting Room	32	12.371	8.42	1.60	1.63	YES
L00: Pastoral Office 01	15.8	2.888	1.92	0.79	1.09	YES
L00: Principals Office	18.4	5.67	3.78	0.92	1.29	YES
L00: SNU Office	25	2.887	1.92	1.25	1.32	YES
L00: Technology Room 1	148	30.951	16.99	7.40	7.48	YES

L01: Deputy Principals Office 1	14.9	5.714	3.78	0.75	1.29	YES
L01: Guidance Office 02	14.9	2.881	1.92	0.75	0.76	YES
L01: Guidance Office 1	14.9	2.872	1.92	0.75	0.76	YES
L01: Large Classroom 1	58.6	12.723	8.49	2.93	2.99	YES
L01: Large Classroom 10	58.6	12.723	8.49	2.93	2.99	YES
L01: Large Classroom 11	58.6	12.723	8.49	2.93	2.99	YES
L01: Large Classroom 12	58.6	12.723	8.49	2.93	2.99	YES
L01: Large Classroom 2	58.6	12.723	8.49	2.93	2.99	YES
L01: Large Classroom 3	58.6	12.723	8.49	2.93	2.99	YES
L01: Large Classroom 4	58.6	12.723	8.49	2.93	2.99	YES
L01: Large Classroom 5	58.6	12.723	8.49	2.93	2.99	YES
L01: Large Classroom 6	58.6	12.723	8.49	2.93	2.99	YES
L01: Large Classroom 7	58.6	12.723	8.49	2.93	2.99	YES
L01: Large Classroom 8	58.6	12.723	8.49	2.93	2.99	YES
L01: Large Classroom 9	58.6	12.723	8.49	2.93	2.99	YES
L01: Music Room	88.6	18.15	11.34	4.43	4.57	YES
L01: Pastoral Office 02	14.9	2.888	1.92	0.75	0.88	YES
L01: Science Lab 1	88.6	19.085	12.74	4.43	4.57	YES
L01: Science Lab 2	88.6	19.085	12.74	4.43	4.57	YES
L01: Science Lab 3	88.6	19.085	12.74	4.43	4.57	YES
L01: Science Lab 4	88.6	19.085	12.74	4.43	4.57	YES
L01: Science Lab 5	88.6	19.05	12.74	4.43	4.57	YES
L01: Science Lab 6	88.6	18.468	12.74	4.43	4.57	YES
L01: Small Classroom 1	38.5	7.938	5.29	1.93	1.93	YES
L01: Small Classroom 2	38.5	9.234	6.16	1.93	1.94	YES
L01: Small Classroom 3	38.5	9.234	6.16	1.93	1.94	YES
L01: Staffroom	185	55.935	21.56	9.25	9.54	YES
L01: Tech Graphics	88.6	15.585	10.41	4.43	4.72	YES
L01: Tech Graphics 1	88.6	19.085	12.74	4.43	4.84	YES
L01: Pastoral Office 3	19	10.484	1.95	0.95	0.98	YES
L02: Art Room 2	118.5	19.81	13.21	5.93	5.99	YES
L02: Deputy Principals Office 2	18.454	5.714	3.80	0.92	1.52	YES
L02: Home Economics 1	118.5	21.39	14.28	5.93	6.02	YES
L02: Home Economics 2	118.5	22.64	15.12	5.93	6.09	YES
L02: Large Classroom 13	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 14	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 15	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 16	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 17	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 18	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 19	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 20	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 21	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 22	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 23	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 24	58.6	12.723	8.49	2.93	2.99	YES

L02: Large Classroom 25	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 26	58.6	12.723	8.49	2.93	2.99	YES
L02: Large Classroom 27	58.6	12.723	8.49	2.93	2.99	YES
L02: Library	185	55.935	21.56	9.25	9.54	YES
L02: Multimedia Room 1	88.6	18.15	11.34	4.43	4.57	YES
L02: Multimedia Room 2	88.6	19.085	11.34	4.43	4.57	YES
L02: Pastoral Office 05	14.9	2.881	1.92	0.75	0.76	YES
L02: Pastoral Office 4	17.223	10.484	1.95	0.86	0.98	YES
L02: Small Classroom 10	38.5	9.234	6.16	1.93	1.94	YES
L02: Small Classroom 4	38.5	7.938	5.29	1.93	1.93	YES
L02: Small Classroom 5	38.5	7.865	5.29	1.93	1.93	YES
L02: Small Classroom 6	38.5	7.865	5.29	1.93	1.93	YES
L02: Small Classroom 7	38.5	8.4	5.61	1.93	1.94	YES
L02: Small Classroom 8	38.5	8.4	5.61	1.93	1.94	YES
L02: Small Classroom 9	38.5	9.234	6.16	1.93	1.94	YES
L02: Textiles	88.5	15.585	10.41	4.43	4.66	YES