ARUP

Department of Education (DoE)

New High School for Googong

Section J Deemed To Satisfy (DTS) Compliance Report

Reference: ESD-GHS-REP-001

REF Rev 2 | 5 February 2025

Job number 303786-00

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Document Verification

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			Prepared by	**Checked by**	**Approved by**
		Name	Enda Seyama-Heneghan	Alex Rosenthal	Alex Rosenthal
		Signature			
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			Prepared by	**Checked by**	**Approved by**
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		Signature			
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			Prepared by	**Checked by**	**Approved by**
		Name	Enda Seyama-Heneghan	Alex Rosenthal	Alex Rosenthal
		Signature			

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		Description	Minor updates to referencing of activity name.		
			Prepared by	**Checked by**	**Approved by**
		Name	Enda Seyama-Heneghan	Alex Rosenthal	Alex Rosenthal
		Signature			

Issue Document Verification with Document ✓

Contents

Appendices

1. Introduction

This Section J Deemed To Satisfy (DTS) Compliance Report has been prepared by Arup on behalf of the NSW Department of Education (DoE) to inform a Review of Environment Factors (REF) for the proposed construction of a new high school for Googong (the activity) located at 200 Wellsvale Drive, Googong, NSW (the site).

The activity relates to the construction and operation of a new educational establishment to serve the needs of the growing Googong township by accommodating up to 700 students from years 7 – 12. Specifically, the activity includes the following:

- Building A, a three to four-storey building in the northern portion of the site, fronting Glenrock Drive, which will accommodate learning spaces and administrative functions of the school.
- Building B, a three-storey building in the north-west portion of the site, fronting Observer Street, which will accommodate learning spaces and administrative functions of the school.
- Building C, fronting Glenrock Drive, which will accommodate a school hall / gymnasium and canteen.
- Outdoor recreation areas, cricket nets, playing court and playing field.
- Main pedestrian entry established from Glenrock Drive.
- Car park and accessible pedestrian entry from Wellsvale Drive.
- Service entry from Observer Street.
- Associated civil works, earthworks, servicing and landscaping.
- Associated off-site works such as the construction of pedestrian crossings, drop off and pick up bays and a bus stop.
- School identification and wayfinding signage.

The REF describes the activity, documents the examination and consideration of all matters affecting, or are likely to affect, the environment, and details safeguards to be implemented to mitigate impacts.

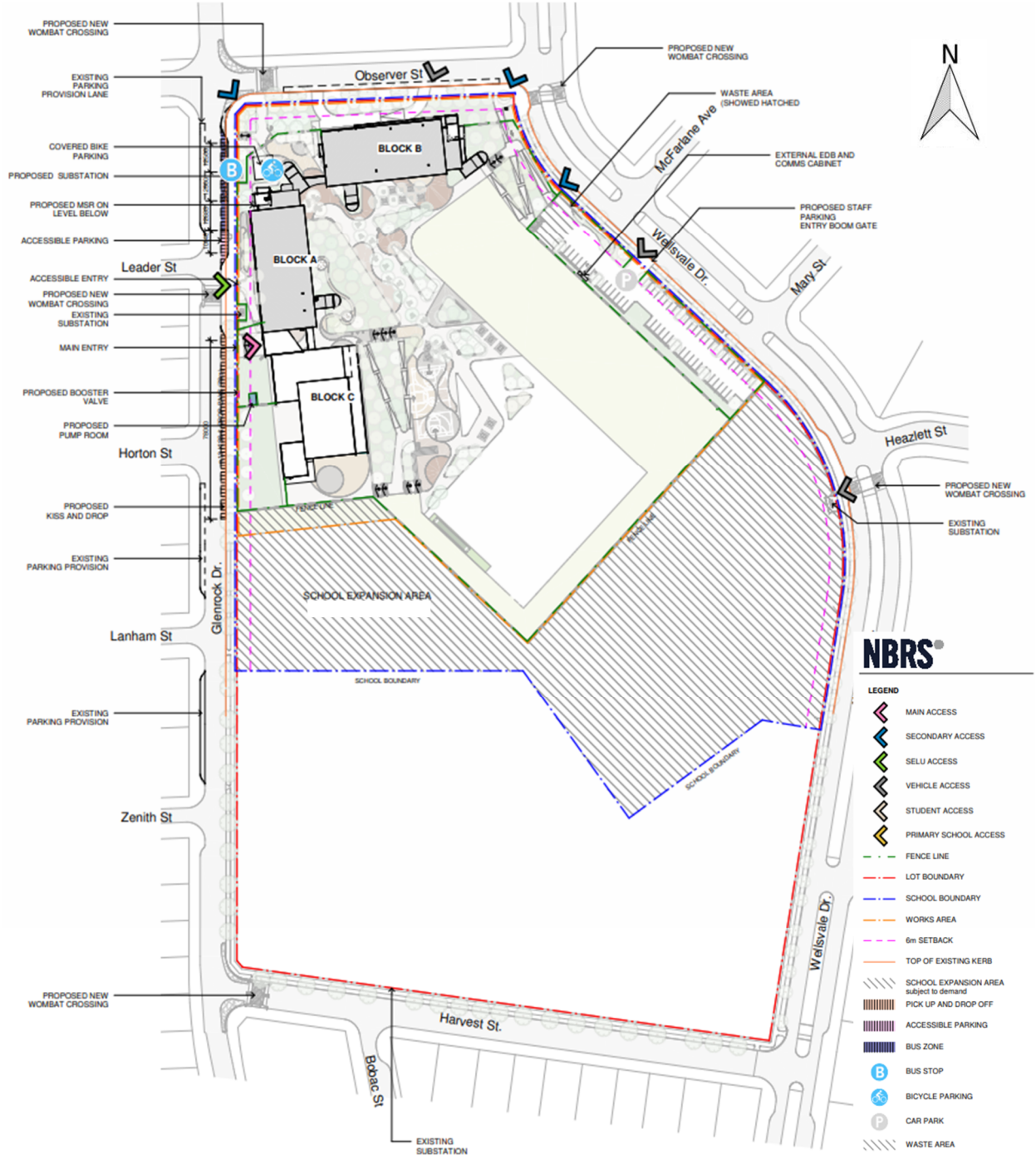
The Department of Education is the determining authority for the project under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.1 Site Description

The site is identified in Figure 1 and the activity is shown in Figure 2.

1. Figure 1– Site Location Plan

Source: Mecone



2. Figure 2 – New High School for Googong – indicative only, subject to detailed design

Source: NBRS, 29/011/2024

Googong is a new release area within the Queanbeyan-Palerang Local Government Area (LGA), located approximately eight kilometres south of Queanbeyan and 17 kilometres southeast of the Canberra Central Business District (CBD). Googong Reservoir, a significant waterbody, is located approximately 3 kilometres east of the subject site. Canberra Airport is located approximately 12 kilometres north of the subject site.

The site is legally described as Lot 829 in Deposited Plan 1277372. The proposed new high school site within this Lot has an area of approximately 5.84 hectares.

The site is currently zoned as R1 General Residential in the Queanbeyan Palerang Local Environmental Plan (LEP) 2022 and is located within Neighbourhood 2 of the Googong Masterplan, within the Googong DCP 2010.

The site is surrounded by low-density residential development, recreational areas and a future local centre adjoining the site to the north.

The site is currently vacant with no existing structures and has been cleared of all trees and native vegetation. The site has an approximately 12 metre fall from the southwest corner of the site at RL ~763.550m Australian Height Datum AHD to the northeast at RL ~751.570m AHD.

2. Purpose

Arup has undertaken an assessment of the activity against the National Construction Code (NCC) 2022 Section J.

The assessment proposes a set of minimum insulation and glazing performance requirements for the building to comply with the J1P1 requirements of Section J via Deemed-to-Satisfy (DTS) provisions.

3. Inputs and Assumptions

3.1 Scope

This report assesses the building envelope of the project against the requirements of NCC 2022 Section J Part J4 for Building Fabric and J5 for Building Sealing where relevant to the building envelope.

It is assumed in this report that building services comply with the requirements of Sections J5 – J8. This is to be certified by the services consultants.

3.2 Geometry

This assessment is based on the frozen architectural drawings set by NBRS, received on November 6th 2024 and NBRS Issue for Tender dated November 15th 2024. The REF drawings issued on November 20th 2024 are reflective of the drawings used in this assessment.

3.3 Building Classification

The building is being assessed as Building Code of Australia (BCA) Class 9b School/Hall and Class 5 Office. The teaching Blocks A and B have been treated as a single united building, and the hall building Block C as a single building. This assessment approach was confirmed by the BCA consultant.

3.4 Climate Zone

The site is located in Googong, NSW in NCC Climate Zone 7.

4. Part J4 Building Fabric

Minimum compliance requirements are presented in this section, with mark up of applicable areas in Appendix A.1. The minimum compliance DTS Calculator results are found in Appendix A.2.

4.1 Opaque Constructions

Minimum compliance requirements for the opaque elements of the current building design have been assessed in accordance with NCC 2022 Section J Part J4 DtS provisions.

Table 1 Opaque Construction Compliance Performance Values – Blocks A and B

Building element	DtS Compliance
External Opaque (cladded wall, fixed louvre with insulated backing, mechanical fixed louvre)	Min. R-value 1.4
Internal Walls	Min. R-value 1.4
Floor (with in-screed heating)	Floor: Min. R-value 3.25 (downward heat flow direction) Perimeter vertical edge: Not required
Floor (no in-screed heating)	Floor: Min. R-value 2.0 (downward heat flow direction) Perimeter vertical edge: Not required
Roof/Ceiling	Min. R-value 3.7 (downward heat flow direction) Max. Solar Absorptance 0.45

Table 2 Opaque Construction Compliance Performance Values – Block C

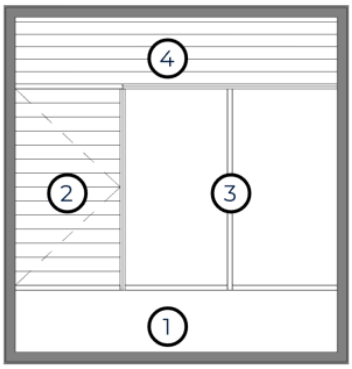
Building element	DtS Compliance
External Opaque (cladded wall, fixed louvres)	Min. R-value 1.4
Internal Walls	Min. R-value 1.4
Floor (no in-screed heating)	Floor: Min. R-value 2.0 (downward heat flow direction) Perimeter vertical edge: Not required
Roof/Ceiling	Min. R-value 3.7 (upward heat flow direction) Max. Solar Absorptance 0.45

Note that the above specified R-values in Table 1 should account for the total system including any cases of thermal bridging that may occur. For example, a steel stud wall system would need to take account of the thermal bridging impacts of the studs, so to achieve R 1.4 it may require more than R 1.4 insulation to offset thermal bridging, or may need thermal breaks.

4.1.1 Façade Louvres

The mechanical fixed louvres (shown as number 4 in Figure 3) are to be backed fully by an insulated surface, to achieve the minimum total system R-value required for external opaque areas. Penetrations as required by mechanical design are to be insulated in accordance with NCC2022 J6D6 and have non-return dampers per NCC J5.

Natural ventilation fixed louvres with insulated doors (shown as number 2 in Figure 3) is to be backed fully by an insulated surface to achieve the minimum total system R-value required for external opaque areas.



1. Cladding
2. Natural ventilation fixed louvre
3. Fixed glazing
4. Mechanical fixed louvre

Figure 3 Example Facade Module from SINSW Patternbook

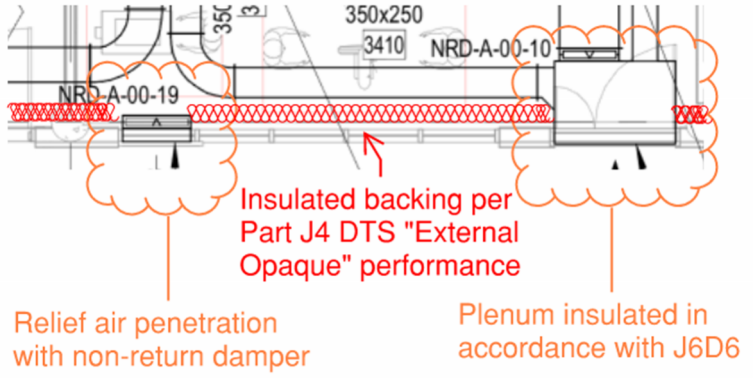


Figure 4 Insulation markup through Mechanical Fixed Louvre

4.1.2 Floor Construction

The floor of the Adult Change area is proposed to have an in-screed heating system. The minimum DtS compliant R-value of the floor total system is 3.25 m^2K/W for a downward direction of heat flow. As the in-screed heating system is used solely in a bathroom/amenity area, no vertical floor edge insulation is required for DtS compliance.

The remaining floor areas forming the envelope do not include in-slab/in-screed heating or cooling system. The minimum DtS compliant R-value of the floor total system is 2.0 m^2K/W for a downward direction of heat flow.

4.2 Glazing Constructions

Minimum compliance requirements for the glazing elements of the current building design have been assessed in accordance with NCC 2022 Section J Part J4 DtS provisions.

For a Class 5 and 9b Building in Climate Zone 5, Section J DtS requires that all façade aspects have an overall wall-glazing solar admittance of no more than 0.13, and a U-value of less than 2.0 W/m^2K. This is the total system performance including elements such as glass, frame, and opaque walls. The DtS compliant minimum required to meet the overall wall-glazing performance within the project geometry, and in conjunction with wall performance noted in 4.1, are shown below. Specification 37 Method 2 was used to calculate compliance.

A minimum VLT has also been specified in line with the daylight requirements of the project.

Table 3 Glazing Construction Performances – Blocks A and B

	DtS Compliant max. Values
External Glazing	Max. U-value 3.9; Max. SHGC 0.47; Min. 60%

Table 4 Glazing Construction Performances – Block C

	DtS Compliant max. Values
External Glazing	Max. U-value 5.8; Max. SHGC 0.80; Min. 60%

5. Part J5 Building Sealing requirements

The activity is required to comply with Section J Part J5. A summary of key requirements for the envelop is listed below. Refer to NCC 2022 Section J Part J5 for a complete list of requirements. The Contractor shall ensure that the requirements of Part J5 are met through design finalisation.

- Doors and windows to conditioned spaces must be sealed to restrict air infiltration, as per J5D4 and J5D5.
- All entrance doors to conditioned spaces must have an airlock, self-closing door or the like unless the conditioned space has a floor area of less than 50 m^2.
- Ceilings, walls, floors and any opening such as a window frame, door frame, roof light frame or the like must be constructed to minimise air leakage in accordance with J5D7.
- Exhaust fans must be fitted with a sealing device such as a self-closing damper or the like when serving a conditioned space.

All façade mechanical fixed louvres and natural ventilation fixed louvres (Figure 3) must have sufficient sealing to minimise air leakage, in accordance with J5D7.

Within the canteen, the project proposes to comply with Section J Part J5D5 (4) by having a 3m deep un-conditioned zone between the shop-front openings and the space heated by radiators. The other door to the canteen must be a self-closing door.

6. Summary

This report presents the minimum building fabric performance to comply with the requirements of NCC 2022 Section J via deemed-to-satisfy provisions. The Main Contractor shall ensure that these requirements are met through detailed design of the façade and design finalisation. Should any individual fabric and glazing performances be adjusted through design development stage, the Main Contractor is responsible for demonstrating that the design is capable of achieving compliance through developing their own calculations following either NCC Section J DTS Provisions or Verification Methods J1V2 or J1V3, and provide an updated report and validated performance requirements for design finalisation.

The assessment found the activity would be unlikely to cause a significant impact on the environment subject to the implementation of appropriate mitigation measures as contained in this report.

6.1 Mitigation Measures

Table 5 Mitigation Measures

Mitigation Number/Name	Aspect/Section	Mitigation Measure	Reason for Mitigation Measure
Part J4 Compliance	Prior to commencement of any construction work	Assessment of For Construction building envelope performance for compliance against NCC 2022 Section J Part J4.	Ensure final wall build-ups and glazing selection are code compliant.
Part J5 Compliance	Prior to commencement of any construction work	Assessment of For Construction building sealing for compliance against NCC 2022 Section J Part J5.	Ensure final door and window selections are code compliant.
Design Changes	During design finalisation	Should any individual fabric and glazing performances be adjusted through design development stage, or any spaces have changes in conditioning strategy, the Main Contractor is responsible for demonstrating that all buildings of the activity are capable of achieving compliance through developing their own calculations following either NCC Section J DTS Provisions or Verification Methods J1V2 or J1V3, and provide an updated report and validated performance requirements for design finalisation.	Ensure final building design is code compliant.

A.1 DTS Markup

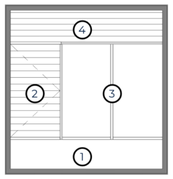
20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

- External Facade
- - External Opaque (cladded wall, fixed louvre with insulated backing, mechanical fixed louvre): Min. R1.4
  (See also 'Facade Louvres" note)
- - External Glazing: Min. U3.9; Max. SHGC 0.47; Min. VLT 60%
- Internal Wall: Min. R1.4
- Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)
- Floor (with in-slab heating): Min. R3.25 (downward heat flow direction)
- Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

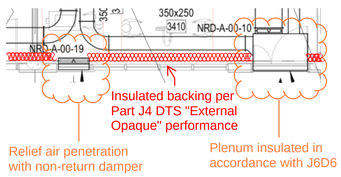
*Performance values shown above are for total system.
** Above minimum glazing performance requirements are more stringent than the performance included in the Patternbook

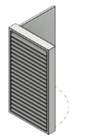
Facade Louvres

It is assumed that the mechanical fixed louvres (#4 in example panel type) is backed fully by an insulated surface, but with penetrations as required by the mechanical design (see below markup of mechanical drawing).



1. Cladding
2. Natural ventilation fixed louvre
3. Fixed glazing
4. Mechanical fixed louvre





Fixed louvre with insulated door behind

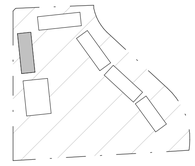
Natural ventilation fixed louvres with insulated doors (#2 in example panel type) are to be insulated per Part J4 DTS "External Opaque" performance.

In addition, all mechanical fixed louvres (#4) and natural ventilation fixed louvre with insulated door (#2) must have sufficient sealing to minimise air leakage, in compliance with J5D7.

The above is to be confirmed by the Architect.

NBRS

KEY PLAN



FOR CONTINUATION REFER TO DRWG:
GGHS-NBRS-B00B-GF-DR-A-11000

STRUCTURAL CONCRETE ELEMENTS

LEGEND

HS SERVICES

PRELIMINARY

Issue

No.	Date	Description	Chkd
4	27.08.2024	PROGRESS ISSUE	NBRS
5	06.09.2024	CONCEPT DESIGN ISSUE	RS
6	20.09.2024	CONCEPT DESIGN ISSUE	AA
7	03.10.2024	ISSUED FOR COORDINATION	AA
8	15.10.2024	ISSUED FOR COORDINATION	RS
9	24.10.2024	ISSUED FOR COORDINATION	RS
10	01.11.2024	FOR INFORMATION	AA
11	01.11.2024	ISSUE FOR REVIEW	AA
12	06.11.2024	FOR COORDINATION	RS

Changes to this Revision

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Drawing Title
BLOCK A - STAGE 1 - GROUND PLAN

Project
24136-Googong High school

at
200 Wellsvale Drive, Googong NSW 2620

for

NBRS
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Nominated Architects:
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NBRS & Partners Pty Ltd VIC 51197 ABN 16 002 247 565

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Drawing Reference GGHS-NBRS-B00A-GF-DR-A-11000
Revision 12

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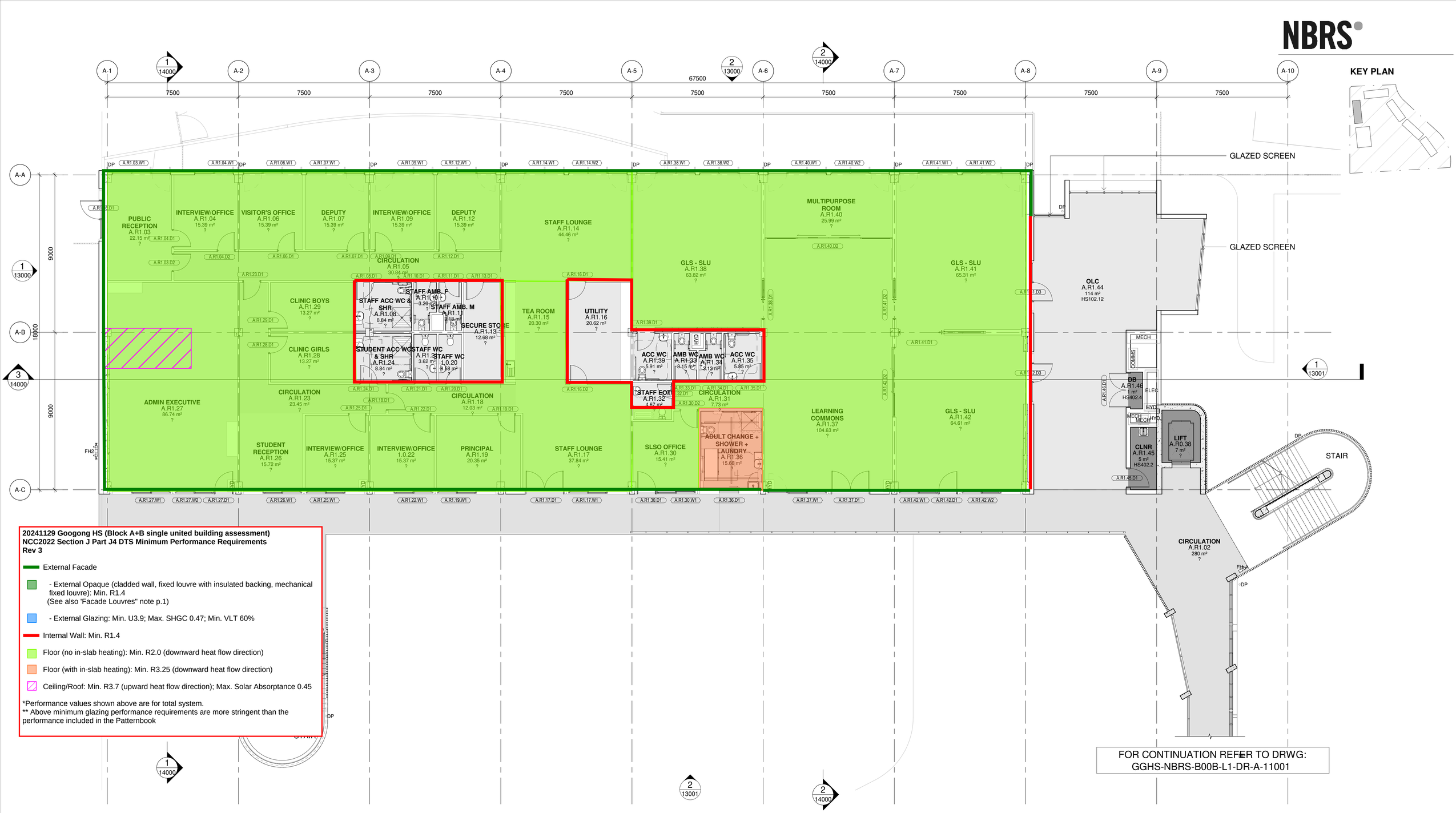

KEY PLAN

20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

- External Facade
- External Opaque (cladded wall, fixed louvre with insulated backing, mechanical fixed louvre): Min. R1.4
  (See also 'Facade Louvres" note p.1)
- External Glazing: Min. U3.9; Max. SHGC 0.47; Min. VLT 60%
- Internal Wall: Min. R1.4
- Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)
- Floor (with in-slab heating): Min. R3.25 (downward heat flow direction)
- Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

*Performance values shown above are for total system.
** Above minimum glazing performance requirements are more stringent than the performance included in the Patternbook

STRUCTURAL CONCRETE ELEMENTS

LEGEND

- HS 102 GENERAL LEARNING SPACES (SUPPORT)
- HS 201 ADMINISTRATION HUB
- HS 202 STAFF HUB
- HS CIRCULATION
- HS SERVICES

PRELIMINARY

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Drawing Title
BLOCK A - STAGE 1 - LEVEL 1 PLAN

Project
24136-Googong High school

at
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for

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Nominated Architects:
Andrew Duffin NSW 5602
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NBRS Project # 24136

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Revision 12

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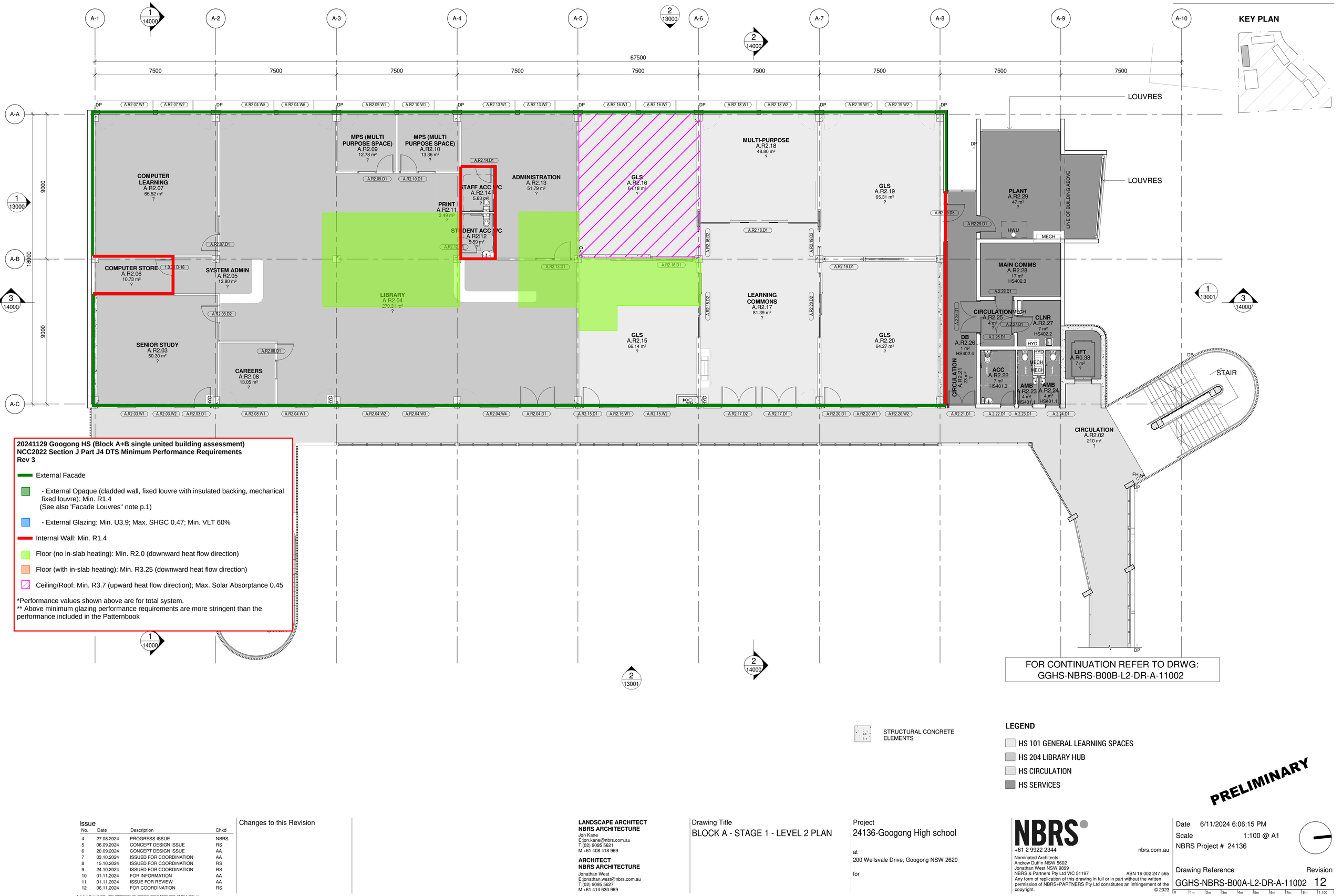
NBRS



20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

External Facade

- External Opaque (cladded wall, fixed louvre with insulated backing, mechanical fixed louvre): Min. R1.4
(See also 'Facade Louvres" note p.1)

- External Glazing: Min. U3.9; Max. SHGC 0.47; Min. VLT 60%

Internal Wall: Min. R1.4

Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)

Floor (with in-slab heating): Min. R3.25 (downward heat flow direction)

Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

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FOR CONTINUATION REFER TO DRWG:
GGHS-NBRS-B00B-L2-DR-A-11002

KEY PLAN

STRUCTURAL CONCRETE ELEMENTS

LEGEND

- HS 101 GENERAL LEARNING SPACES
- HS 204 LIBRARY HUB
- HS CIRCULATION
- HS SERVICES

PRELIMINARY

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Drawing Title
BLOCK A - STAGE 1 - LEVEL 2 PLAN

Project
24136-Googong High school

at
200 Wellsvale Drive, Googong NSW 2620

for

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Nominated Architects:
Andrew Duffin NSW 5602
Jonathan West NSW 9899
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Revision 12

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NBRS

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NCC2022 Section J Part J4 DTS Minimum Performance Requirements
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STRUCTURAL CONCRETE ELEMENTS

LEGEND

- HS 101 GENERAL LEARNING SPACES
- HS 305 HEALTH/PE LEARNING HUB
- HS 306 PERFORMING ARTS LEARNING HUB
- HS CIRCULATION
- HS SERVICES

PRELIMINARY

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BLOCK A - STAGE 1 - LEVEL 3 PLAN

Project
24136-Googong High school

at
200 Wellsvale Drive, Googong NSW 2620

for

NBRS
+61 2 9922 2344
nbrs.com.au
Nominated Architects:
Andrew Duffin NSW 5602
Jonathan West NSW 9899
NBRS & Partners Pty Ltd VIC 51197
ABN 16 002 247 565

Date 6/11/2024 6:06:51 PM
Scale 1:100 @ A1
NBRS Project # 24136

Drawing Reference GGHS-NBRS-B00A-L3-DR-A-11003
Revision 12

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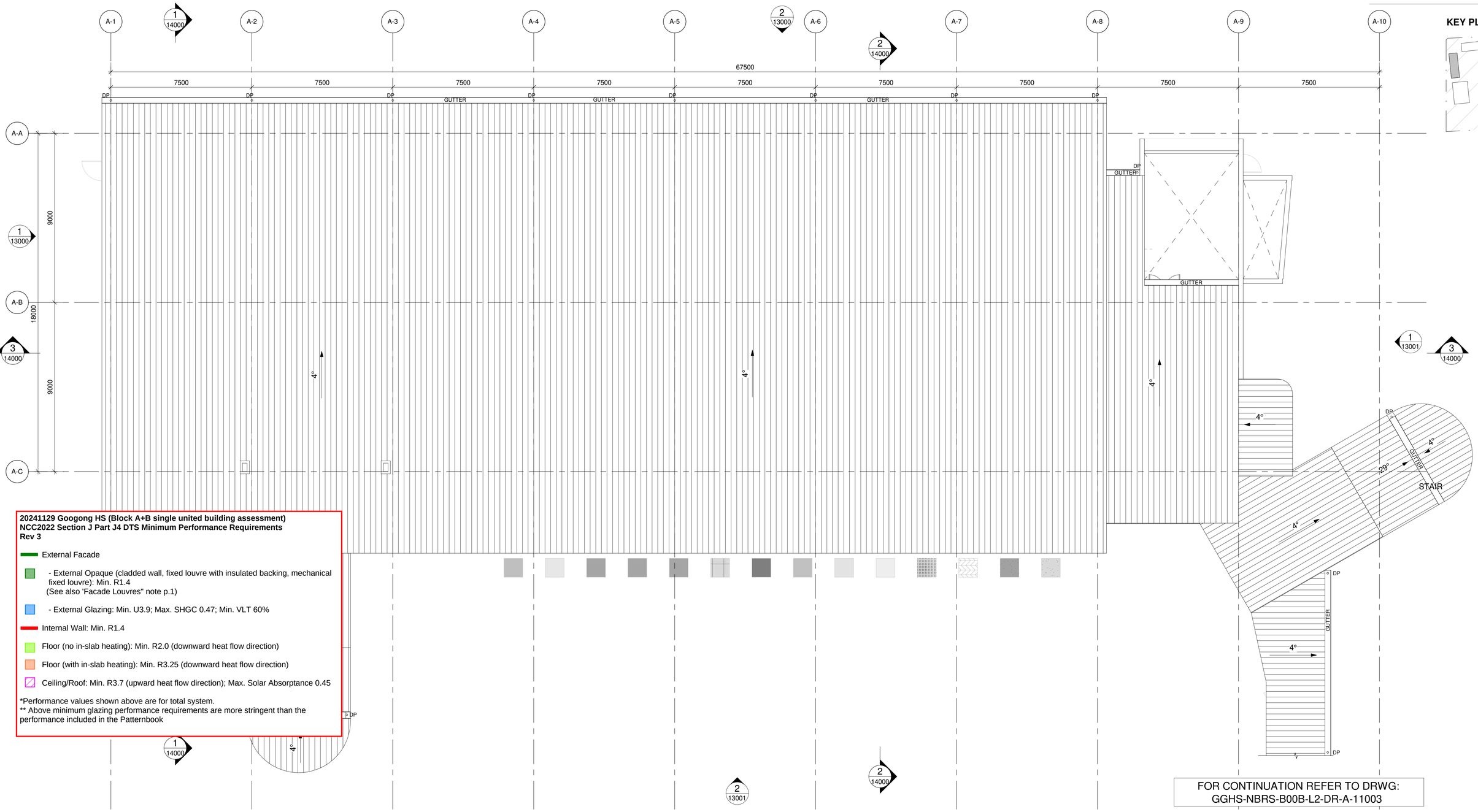
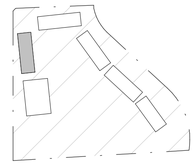
NBRS



KEY PLAN



20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

External Facade

- External Opaque (cladded wall, fixed louvre with insulated backing, mechanical fixed louvre): Min. R1.4
(See also 'Facade Louvres" note p.1)

- External Glazing: Min. U3.9; Max. SHGC 0.47; Min. VLT 60%

Internal Wall: Min. R1.4

Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)

Floor (with in-slab heating): Min. R3.25 (downward heat flow direction)

Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

*Performance values shown above are for total system.
** Above minimum glazing performance requirements are more stringent than the performance included in the Patternbook

PRELIMINARY

Issue

No.	Date	Description	Chkd
2	27.08.2024	PROGRESS ISSUE	NBRS
3	06.09.2024	CONCEPT DESIGN ISSUE	RS
4	20.09.2024	CONCEPT DESIGN ISSUE	AA
5	03.10.2024	ISSUED FOR COORDINATION	AA
6	15.10.2024	ISSUED FOR COORDINATION	RS
7	24.10.2024	ISSUED FOR COORDINATION	RS
8	01.11.2024	FOR INFORMATION	AA
9	01.11.2024	ISSUE FOR REVIEW	AA
10	06.11.2024	FOR COORDINATION	RS

Changes to this Revision

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Drawing Title
BLOCK A - STAGE 1 - ROOF PLAN

Project
24136-Googong High school

at
200 Wellsvale Drive, Googong NSW 2620

for

NBRS
+61 2 9922 2344 nbrs.com.au
Nominated Architects:
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Jonathan West NSW 9899
NBRS & Partners Pty Ltd VIC 51197 ABN 16 002 247 565

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NBRS Project # 24136

Drawing Reference
GGHS-NBRS-B00A-LR-DR-A-11004

Revision
10

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1 BUILDING A - STAGE 1 - ELEVATION 3 North

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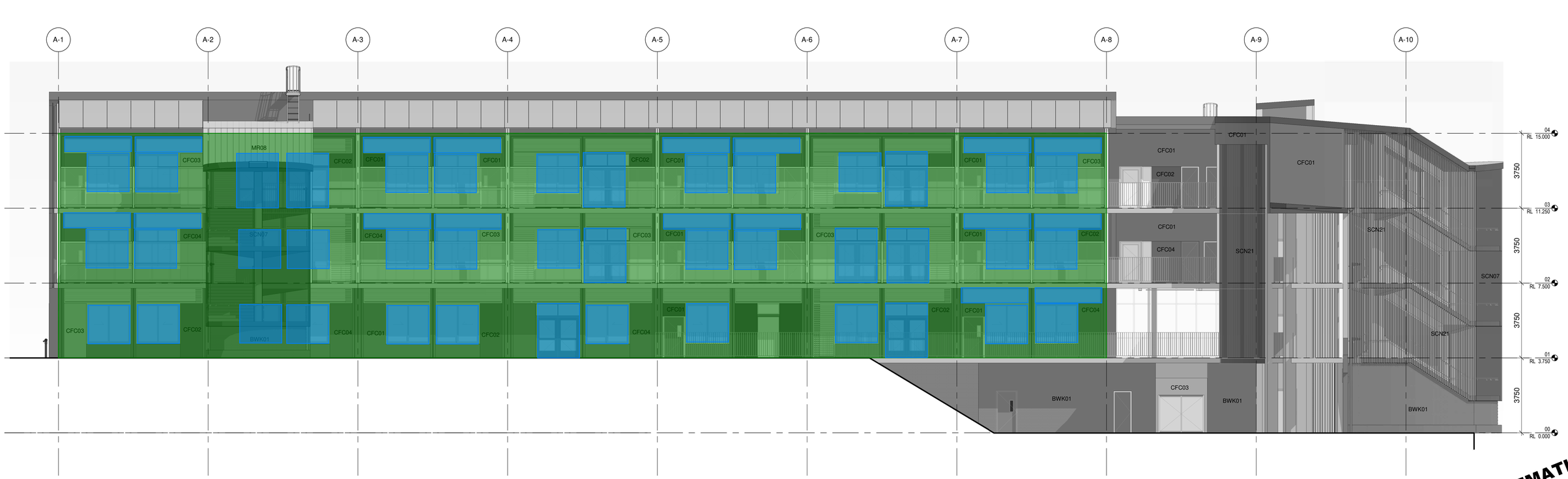

2 BUILDING A - STAGE 1 - ELEVATION 4

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SCHEMATIC WIP

Issue

No.	Date	Description	Chkd
1	09.08.2024	PROGRESS ISSUE	NBRS
2	27.08.2024	PROGRESS ISSUE	NBRS
3	06.09.2024	CONCEPT DESIGN ISSUE	RS
4	20.09.2024	CONCEPT DESIGN ISSUE	AA
5	03.10.2024	ISSUED FOR COORDINATION	AA
6	01.11.2024	FOR INFORMATION	AA
7	01.11.2024	ISSUE FOR REVIEW	AA
8	06.11.2024	FOR COORDINATION	RS
T1	15.15.2024	ISSUE FOR TENDER	RS

Changes to this Revision

Autodesk Docs://24136 - (DC) GOOGONG HIGH SCHOOL/GGHS-NBRS-B00A-ZZ-M3-A-0001.rvt

20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

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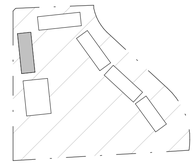

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Drawing Title
BLOCK A - STAGE 1 - ELEVATION 02

Project
24136-Googong High school

at
200 Wellsvale Drive, Googong NSW 2620

for

NBRS
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Nominated Architects:
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NBRS Project # 24136

Drawing Reference GGHS-NBRS-B00A-ZZ-DR-A-13001 Revision T1

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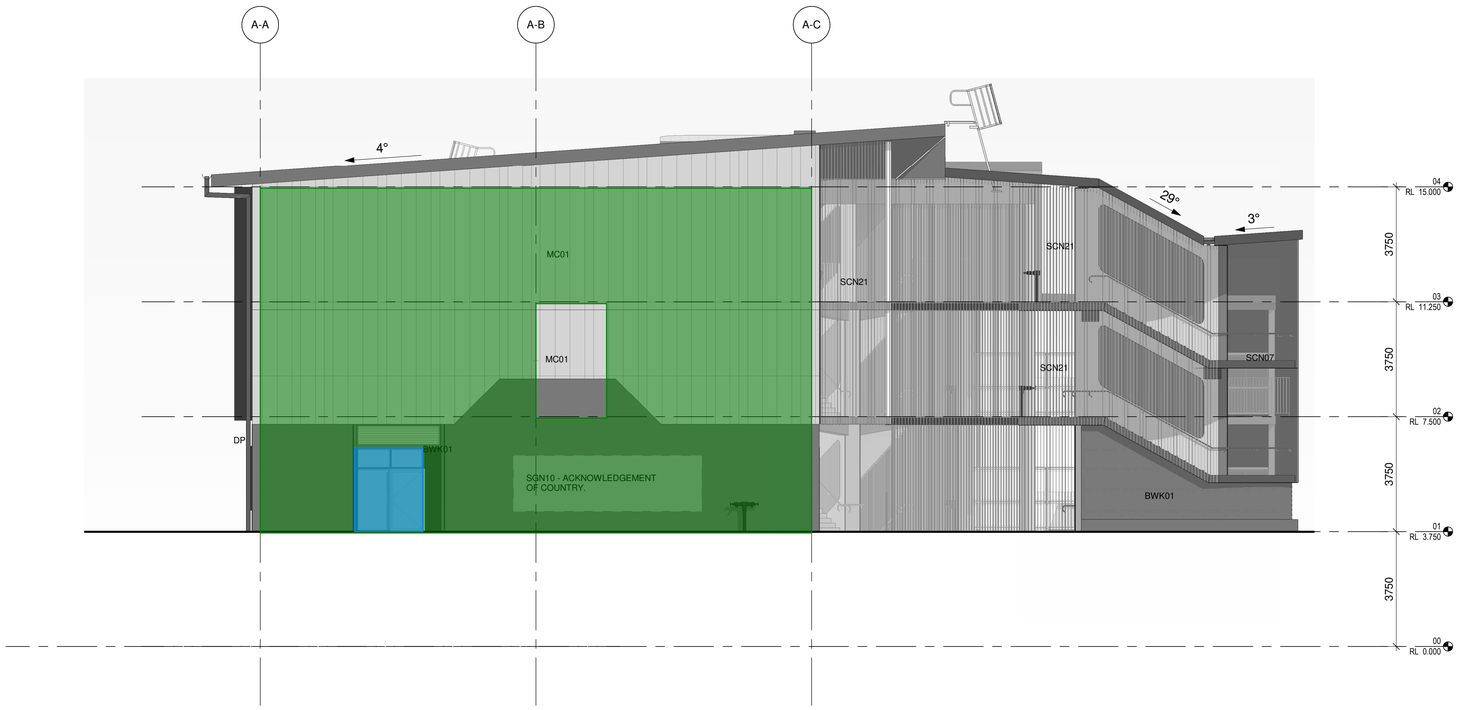
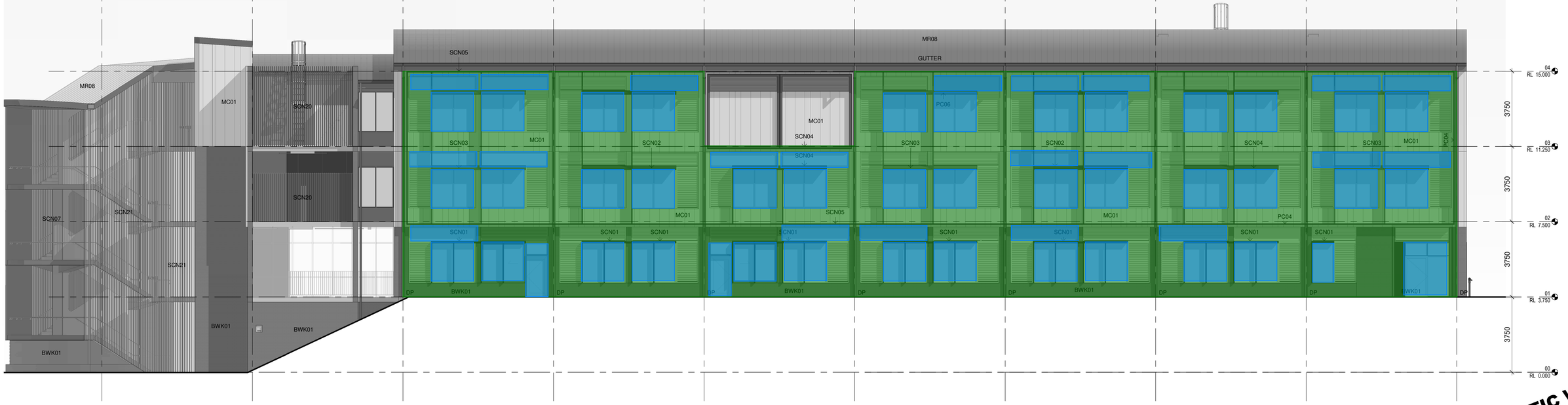


1 BUILDING A - STAGE 1 - ELEVATION 1 South

1 : 100



2 BUILDING A - STAGE 1 - ELEVATION 2 West

1 : 100

20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

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- - External Opaque (cladded wall, fixed louvre with insulated backing, mechanical fixed louvre): Min. R1.4 (See also 'Facade Louvres" note p.1)
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- Internal Wall: Min. R1.4
- Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)
- Floor (with in-slab heating): Min. R3.25 (downward heat flow direction)
- Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

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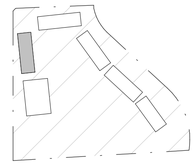
NBRS

KEY PLAN



SCHEMATIC WIP

Issue

No.	Date	Description	Chkd
1	09.08.2024	PROGRESS ISSUE	NBRS
2	27.08.2024	PROGRESS ISSUE	NBRS
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6	01.11.2024	FOR INFORMATION	AA
7	01.11.2024	ISSUE FOR REVIEW	AA
8	06.11.2024	FOR COORDINATION	RS
T1	15.15.2024	ISSUE FOR TENDER	RS

Changes to this Revision

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Drawing Title
BLOCK A - STAGE 1 - ELEVATION 01

Project
24136-Googong High school

at
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for

NBRS
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Nominated Architects:
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Jonathan West NSW 9899
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NBRS Project # 24136

Drawing Reference GGHS-NBRS-B00A-ZZ-DR-A-13000 Revision T1

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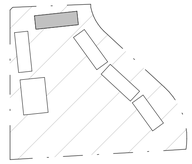
Autodesk Docs://24136 - (DC) GOOGONG HIGH SCHOOL/GGHS-NBRS-B00A-ZZ-M3-A-0001.rvt

NBRS

KEY PLAN



B-1 | B-2 | B-3 | B-4 | B-5 | B-6 | B-7 | B-8 | B-9

7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500

60000

B-A | B-B | B-C

9000 | 9000 | 18000

PERFORATED METAL SCREEN

HWU ROOM
B.R0.32
2 m²

KITCHEN
B.R0.22
100.78 m²
HS304.2

PREPARATION
B.R0.23
32.42 m²
HS304.5

STORE/PANTRY
B.R0.24
22.31 m²
HS304.6

WELDING BAY
B.R0.14
11.90 m²
HS303.3

MATERIALS STORE
B.R0.13
20.50 m²
HS303.4

MATERIALS STORE
B.R0.04
20.50 m²
HS303.4

DUST EXTRACTION ROOM
B.R0.03
7.01 m²

PROJECT STORE
B.R0.12
20.80 m²
HS303.5

PROJECT STORE
B.R0.05
20.80 m²
HS303.5

OUTDOOR COVERED WORKSHOP
B.R0.17
84 m²
HS303.8

OXYGEN STORE

LPG

MULTI-PURPOSE OR PREP AREA ON EXPANSION
B.R0.19
29.31 m²
HS304.4

LAUNDRY
B.R0.25
10.60 m²
HS304.7

BAG STORE
B.R0.11
13.58 m²
TBA

LASER + PRINTER ROOM
B.R0.08
17.30 m²
HS303.7

BAG STORE
B.R0.06
14.04 m²
TBA

DB
B.R0.30
1 m²
HS402.4

BCR
B.R0.31
9 m²
HS402.3

CIRCULATION
B.R0.29
6 m²

METAL WORKSHOP
B.R0.10
119.67 m²
HS303.2

WOOD WORKSHOP
B.R0.02
123.52 m²
HS303.2

AMENITIES
B.R0.28
25 m²
HS401.2

GLS - FTH
B.R0.21
64.27 m²
HS304.1

BISTRO
B.R0.20
65.11 m²
HS304.8

TEXTILE GLS
B.R0.18
65.11 m²
HS304.1

GLS - WMT
B.R0.09
64.14 m²
HS303.1

GLS - WMT
B.R0.07
65.44 m²
HS303.1

ACC
B.R0.26
6 m²
HS401.3

CLNR
B.R0.27
3 m²
HS402.2

STAIR

FH2

LINE OF WALKWAY ABOVE

STAIR

REFER TO DRWG: GGHS-NBRS-B00B-GF-DR-A-11000

20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

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LEGEND

- HS 303 WOOD + METAL TECHNOLOGY LEARNING HUB
- HS 304 FOOD + TEXTILES LEARNING HUB
- HS SERVICES
- STRUCTURAL CONCRETE ELEMENTS

PRELIMINARY

Issue

No.	Date	Description	Chkd
4	27.08.2024	PROGRESS ISSUE	NBRS
5	06.09.2024	CONCEPT DESIGN ISSUE	RS
6	20.09.2024	CONCEPT DESIGN ISSUE	AA
7	03.10.2024	ISSUED FOR COORDINATION	AA
8	15.10.2024	ISSUED FOR COORDINATION	RS
9	24.10.2024	FOR COORDINATION	RS
10	01.11.2024	FOR INFORMATION	AA
11	01.11.2024	FOR REVIEW	AA
12	06.11.2024	FOR COORDINATION	RS

Changes to this Revision

Autodesk Docs://24136 - (DC) GOOGONG HIGH SCHOOL/GGHS-NBRS-B00B-ZZ-M3-A-0001.rvt

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Drawing Title
BLOCK B - STAGE 1 - GROUND FLOOR

Project
24136-Googong High school

at
200 Wellsvale Drive, Googong NSW 2620

for

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Nominated Architects:
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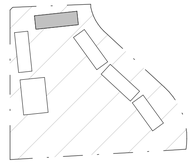
Jonathan West NSW 9899
NBRS & Partners Pty Ltd VIC 51197 ABN 16 002 247 565

Date 6/11/2024 6:22:09 PM
Scale 1:100 @ A1
NBRS Project # 24136

Drawing Reference GGHS-NBRS-B00B-GF-DR-A-21000
Revision 12

NBRS

KEY PLAN



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60000

B-A B-B B-C

9000 9000 9000

REFER TO DRWG: GGHS-NBRS-B00B-L1-DR-A-11001

MECH B.R1.18 7.49 m² ?

KITCHENETTE B.R1.16 4.57 m²

ACC WC B.R1.17 6.49 m² HS202.06

MEETING ROOM B.R1.15 14.39 m² HS202.03

STAFF B.R1.14 237.94 m² HS202.01

LEARNING COMMONS B.R1.12 131.73 m² HS101.03

FLEXIBLE SPACE B.R1.13 65.44 m² ?

GLS B.R1.11 65.11 m² HS101.01

GLS B.R1.10 63.80 m² HS101.01

PROJECT & POTTERY STORE B.R1.08 38.27 m² HS302.4 + HS302.6

STORE ROOM B.R1.07 15.92 m² HS302.3

KILN B.R1.06 9.44 m² HS302.5

GREEN/MEDIA ROOM B.R1.09 26.16 m² TBA

VISUAL ARTS WORKSHOP B.R1.05 104.74 m² HS302.2

GLS - VAH B.R1.03 65.31 m² HS302.1

GLS - VAH B.R1.04 64.27 m² HS302.1

CIRCULATION B.R1.02 183 m² ?

PLANT B.R1.29 49 m² ?

LINE OF BUILDING ABOVE

LOUVRES

LOUVRES

DB B.R1.28 1 m² HS402.4

CIRCULATION B.R1.26 3 m² ?

BCR B.R1.27 9 m² HS402.3

STORE B.R1.25 2 m² ?

CLNR B.R1.24 6 m² HS402.2

MECH DB B.R1.23 2 m² HS402.4

CIRCULATION B.R1.19 30 m² ?

ACC B.R1.20 7 m² HS401.3

AMB B.R1.21 4 m² HS401.2

AMB B.R1.22 4 m² HS401.2

STAIR

1 24000 · 2 24000 · 3 24000 · 1 23001 · 2 23000 · 1 23000 · 3 24000 · 1 24000 · 2 24000

20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

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STRUCTURAL CONCRETE ELEMENTS

LEGEND

- HS 101 GENERAL LEARNING SPACES
- HS 101.03 LEARNING COMMONS
- HS 202 STAFF HUB
- HS 302 VISUAL ARTS LEARNING HUB
- HS CIRCULATION
- HS SERVICES

PRELIMINARY

Issue

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12	06.11.2024	FOR COORDINATION	RS

Changes to this Revision

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Drawing Title
BLOCK B - STAGE 1 - LEVEL 1

Project
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at
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for

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Nominated Architects:
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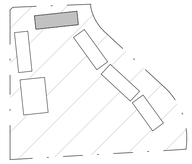
Date 6/11/2024 6:22:51 PM
Scale 1 : 100 @ A1
NBRS Project # 24136

Drawing Reference GGHS-NBRS-B00B-L1-DR-A-21001
Revision 12

Autodesk Docs://24136 - (DC) GOOGONG HIGH SCHOOL/GGHS-NBRS-B00B-ZZ-M3-A-0001.rvt

NBRS

KEY PLAN



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7500 7500 7500 7500 7500 7500 7500 7500

B-A B-B B-C

9000 10000 9000

1 24000 | 2 24000 | 3 24000 | 1 23001 | 2 23000 | 1 23000 | 2 24000 | 1 24000 | 3 24000

REFER TO DRWG: GGHS-NBRS-B00B-L2-DR-A-11002

MULTI-PURPOSE
B.R2.15
48.80 m²
HS101.05

GLS
B.R2.16
65.31 m²
HS101.01

GLS
B.R2.13
64.47 m²
HS101.01

MECH
B.R2.18
7.49 m²
?

LEARNING COMMONS
B.R2.14
61.39 m²
HS101.03

LEARNING COMMONS
B.R2.11
106.06 m²
HS101.03

SCIENCE PREPARATION & APPARATUS STORE
B.R2.07
31.51 m²
HS301.4 + HS301.6

APPARATUS STORE ROOM
B.R2.06
18.11 m²
HS301.5

CHEMICAL STORE
B.R2.08
12.96 m²
HS301.7

GLS - SCI
B.R2.03
65.64 m²
HS301.1

SCIENCE LAB
B.R2.10
100.23 m²
HS301.2

SCIENCE LAB
B.R2.05
100.30 m²
HS301.2

GLS
B.R2.17
65.31 m²
HS101.01

GLS
B.R2.12
64.81 m²
HS101.01

GLS - SCI
B.R2.04
68.64 m²
HS301.1

CIRCULATION
B.R2.02
183 m²
?

PLANT
B.R2.29
29 m²
?

DB
B.R2.28
1 m²
?

CIRCULATION
B.R2.26
3 m²
?

BCR
B.R2.27
9 m²
HS402.3

STORE
B.R2.25
2 m²
?

CLNR
B.R2.24
6 m²
HS402.2

MECH DB
B.R2.23
2 m²
HS402.4

CIRCULATION
B.R2.19
25 m²
?

ACC
B.R2.20
7 m²
HS407.3

AMB
B.R2.21
4 m²
HS401.2

AMB
B.R2.22
4 m²
HS401.2

VOID

LOUVRES

1500 HIGH WALL

LOUVRES

LPG GAS BOTTLE STORE
1.5m Wx1m D. 1.5m clear from door

STAIR

HWU HYD

20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

- External Facade
- External Opaque (cladded wall, fixed louvre with insulated backing, mechanical fixed louvre): Min. R1.4
  (See also 'Facade Louvres" note p.1)
- External Glazing: Min. U3.9; Max. SHGC 0.47; Min. VLT 60%
- Internal Wall: Min. R1.4
- Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)
- Floor (with in-slab heating): Min. R3.25 (downward heat flow direction)
- Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

*Performance values shown above are for total system.
** Above minimum glazing performance requirements are more stringent than the performance included in the Patternbook

STRUCTURAL CONCRETE ELEMENTS

LEGEND

- HS 101 GENERAL LEARNING SPACES
- HS 101.03 LEARNING COMMONS
- HS 301 SCIENCE LEARNING HUB
- HS CIRCULATION
- HS SERVICES

PRELIMINARY

Issue

No.	Date	Description	Chkd
4	27.08.2024	PROGRESS ISSUE	NBRS
5	06.09.2024	CONCEPT DESIGN ISSUE	RS
6	20.09.2024	CONCEPT DESIGN ISSUE	AA
7	03.10.2024	ISSUED FOR COORDINATION	AA
8	15.10.2024	ISSUED FOR COORDINATION	RS
9	24.10.2024	FOR COORDINATION	RS
10	01.11.2024	FOR INFORMATION	AA
11	01.11.2024	FOR REVIEW	AA
12	06.11.2024	FOR COORDINATION	RS

Changes to this Revision

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Drawing Title
BLOCK B - STAGE 1 - LEVEL 2

Project
24136-Googong High school

at
200 Wellsvale Drive, Googong NSW 2620

for

NBRS
+61 2 9922 2344 nbrs.com.au
Nominated Architects:
Andrew Duffin NSW 5602
Jonathan West NSW 9899
NBRS & Partners Pty Ltd VIC 51197 ABN 16 002 247 565

Date 6/11/2024 6:23:35 PM
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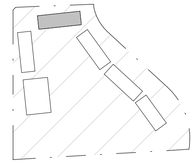
NBRS Project # 24136

Drawing Reference GGHS-NBRS-B00B-L2-DR-A-21002
Revision 12

Autodesk Docs://24136 - (DC) GOOGONG HIGH SCHOOL/GGHS-NBRS-B00B-ZZ-M3-A-0001.rvt

NBRS

KEY PLAN



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9000 18000 9000

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2 24000

4°

REFER TO DRWG: A-L3-DR-A-11004

DP

4°

29°

GUTTER

20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

External Facade

- External Opaque (cladded wall, fixed louvre with insulated backing, mechanical fixed louvre): Min. R1.4
(See also 'Facade Louvres" note p.1)

- External Glazing: Min. U3.9; Max. SHGC 0.47; Min. VLT 60%

Internal Wall: Min. R1.4

Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)

Floor (with in-slab heating): Min. R3.25 (downward heat flow direction)

Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

*Performance values shown above are for total system.
** Above minimum glazing performance requirements are more stringent than the performance included in the Patternbook

1 24000 1 23000 3 24000

PRELIMINARY

Issue

No.	Date	Description	Chkd
2	27.08.2024	PROGRESS ISSUE	NBRS
3	06.09.2024	CONCEPT DESIGN ISSUE	RS
4	20.09.2024	CONCEPT DESIGN ISSUE	AA
5	03.10.2024	ISSUED FOR COORDINATION	AA
6	15.10.2024	ISSUED FOR COORDINATION	RS
7	24.10.2024	FOR COORDINATION	RS
8	01.11.2024	FOR INFORMATION	AA
9	01.11.2024	FOR REVIEW	AA
10	06.11.2024	FOR COORDINATION	RS

Changes to this Revision

Autodesk Docs://24136 - (DC) GOOGONG HIGH SCHOOL/GGHS-NBRS-B00B-ZZ-M3-A-0001.rvt

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Drawing Title
BLOCK B - STAGE 1 - ROOF PLAN

Project
24136-Googong High school

at
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for

NBRS
+61 2 9922 2344 nbrs.com.au
Nominated Architects:
Andrew Duffin NSW 5602
Jonathan West NSW 9899
NBRS & Partners Pty Ltd VIC 51197 ABN 16 002 247 565

Date 6/11/2024 6:27:34 PM
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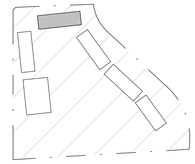
NBRS Project # 24136

Drawing Reference GGHS-NBRS-B00B-LR-DR-A-21003
Revision 10

NBRS

KEY PLAN



1 BLOCK B - STAGE 1 - ELEVATION 1 South

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20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

- External Facade
- External Opaque (cladded wall, fixed louvre with insulated backing, mechanical fixed louvre): Min. R1.4 (See also 'Facade Louvres" note p.1)
- External Glazing: Min. U3.9; Max. SHGC 0.47; Min. VLT 60%
- Internal Wall: Min. R1.4
- Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)
- Floor (with in-slab heating): Min. R3.25 (downward heat flow direction)
- Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

*Performance values shown above are for total system.
** Above minimum glazing performance requirements are more stringent than the performance included in the Patternbook

2 BLOCK B - STAGE 1 - ELEVATION 3 North

1 : 100

SCHEMATIC WIP

Issue

No.	Date	Description	Chkd
1	09.08.2024	PROGRESS ISSUE	NBRS
2	27.08.2024	PROGRESS ISSUE	NBRS
3	06.09.2024	CONCEPT DESIGN ISSUE	RS
4	20.09.2024	CONCEPT DESIGN ISSUE	AA
5	03.10.2024	ISSUED FOR COORDINATION	AA
6	01.11.2024	FOR INFORMATION	AA
7	01.11.2024	FOR REVIEW	AA
8	06.11.2024	FOR COORDINATION	RS
T1	15.11.2024	ISSUE FOR TENDER	RS

Changes to this Revision

Autodesk Docs://24136 - (DC) GOOGONG HIGH SCHOOL/GGHS-NBRS-B00B-ZZ-M3-A-0001.rvt

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Drawing Title
BLOCK B - STAGE 1 - ELEVATIONS 01

Project
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at
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for

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Nominated Architects:
Andrew Duffin NSW 5602
Jonathan West NSW 9899
NBRS & Partners Pty Ltd VIC 51197
ABN 16 002 247 565

Date 15/11/2024 5:22:05 PM
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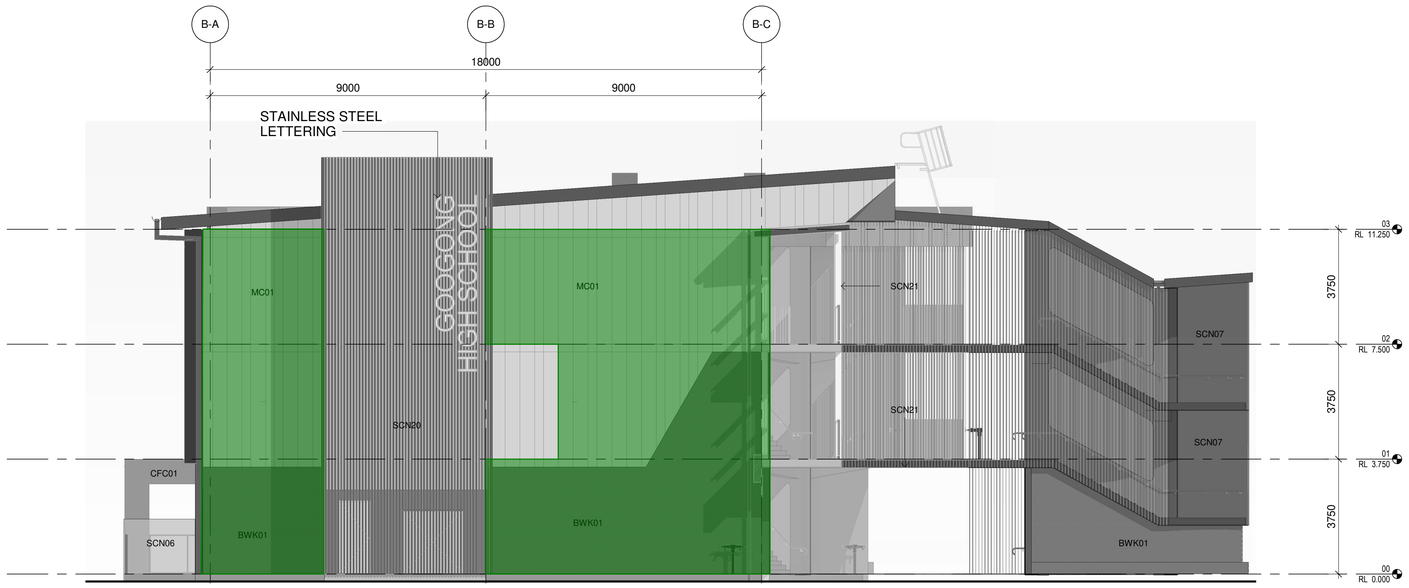
NBRS Project # 24136

Drawing Reference
GGHS-NBRS-B00B-ZZ-DR-A-23000

Revision
T1



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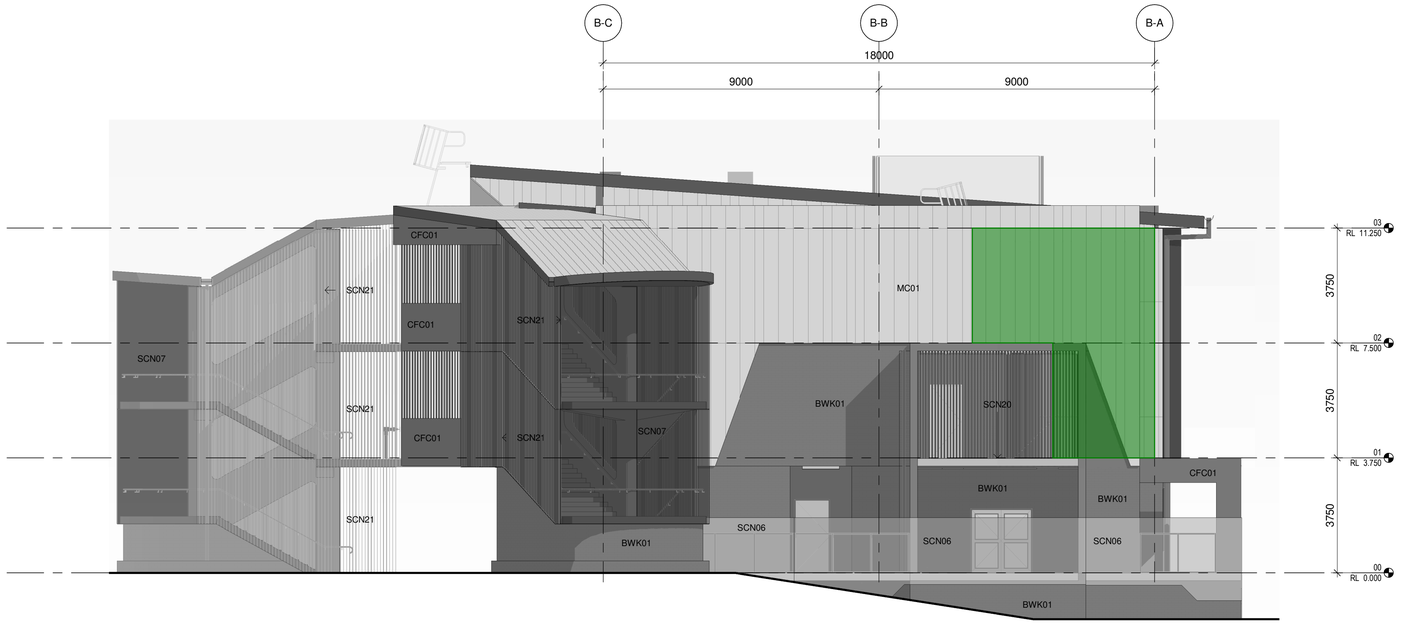


2 BLOCK B - STAGE 1 - ELEVATION 4 East

1 : 100

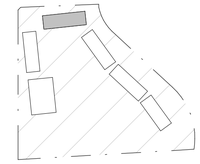
20241129 Googong HS (Block A+B single united building assessment)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

- External Facade
- External Opaque (cladded wall, fixed louvre with insulated backing, mechanical fixed louvre): Min. R1.4
  (See also "Facade Louvres" note p.1)
- External Glazing: Min. U3.9; Max. SHGC 0.47; Min. VLT 60%
- Internal Wall: Min. R1.4
- Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)
- Floor (with in-slab heating): Min. R3.25 (downward heat flow direction)
- Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

*Performance values shown above are for total system.
** Above minimum glazing performance requirements are more stringent than the performance included in the Patternbook

NBRS

KEY PLAN



SCHEMATIC WIP

Issue

No.	Date	Description	Chkd
1	09.08.2024	PROGRESS ISSUE	NBRS
2	27.08.2024	PROGRESS ISSUE	NBRS
3	06.09.2024	CONCEPT DESIGN ISSUE	RS
4	20.09.2024	CONCEPT DESIGN ISSUE	AA
5	03.10.2024	ISSUED FOR COORDINATION	AA
6	01.11.2024	FOR INFORMATION	AA
7	01.11.2024	FOR REVIEW	AA
8	06.11.2024	FOR COORDINATION	RS
T1	15.11.2024	ISSUE FOR TENDER	RS

Changes to this Revision

Autodesk Docs://24136 - (DC) GOOGONG HIGH SCHOOL/GGHS-NBRS-B00B-ZZ-M3-A-0001.rvt

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Drawing Title
BLOCK B - STAGE 1 - ELEVATIONS 02

Project
24136-Googong High school

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for

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Date 15/11/2024 5:19:10 PM
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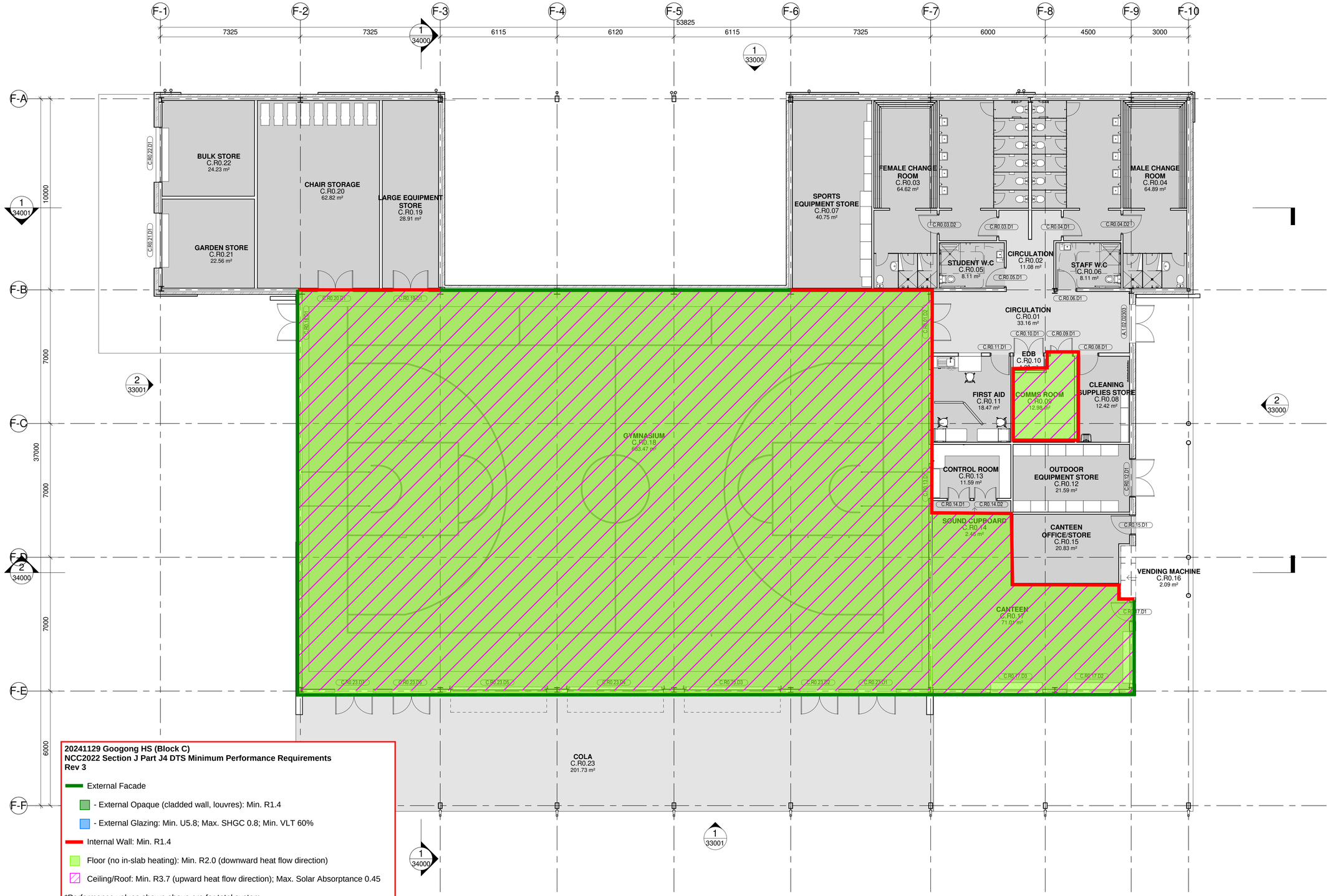
NBRS Project # 24136

Drawing Reference GGHS-NBRS-B00B-ZZ-DR-A-23001
Revision T1



20241129 Googong HS (Block C)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

- External Facade
- - External Opaque (cladded wall, louvres): Min. R1.4
- - External Glazing: Min. U5.8; Max. SHGC 0.8; Min. VLT 60%
- Internal Wall: Min. R1.4
- Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)
- Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

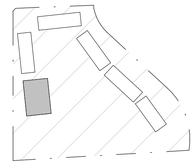
*Performance values shown above are for total system.

LEGEND

- HS 203 GYMNASIUM + CANTEEN
- HS 501 OUTDOOR AREAS
- HS CIRCULATION
- SERVICES

NBRS

KEY PLAN



PRELIMINARY

Issue

No.	Date	Description	Chkd
2	15.08.2024	PROGRESS ISSUE	NBRS
3	21.08.2024	PROGRESS ISSUE	NBRS
4	27.08.2024	PROGRESS ISSUE	NBRS
5	06.09.2024	CONCEPT DESIGN ISSUE	RS
6	20.09.2024	CONCEPT DESIGN ISSUE	AA
7	03.10.2024	ISSUED FOR COORDINATION	AA
8	24.10.2024	FOR COORDINATION	RS
9	01.11.2024	ISSUE FOR REVIEW	AA
10	06.11.2024	FOR COORDINATION	RS

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Drawing Title
BLOCK C - STAGE 1 - GROUND FLOOR

Project
24136-Googong High school

at
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for

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Jonathan West NSW 9899
NBRS & Partners Pty Ltd VIC 51197 ABN 16 002 247 565

Date 6/11/2024 5:52:18 PM
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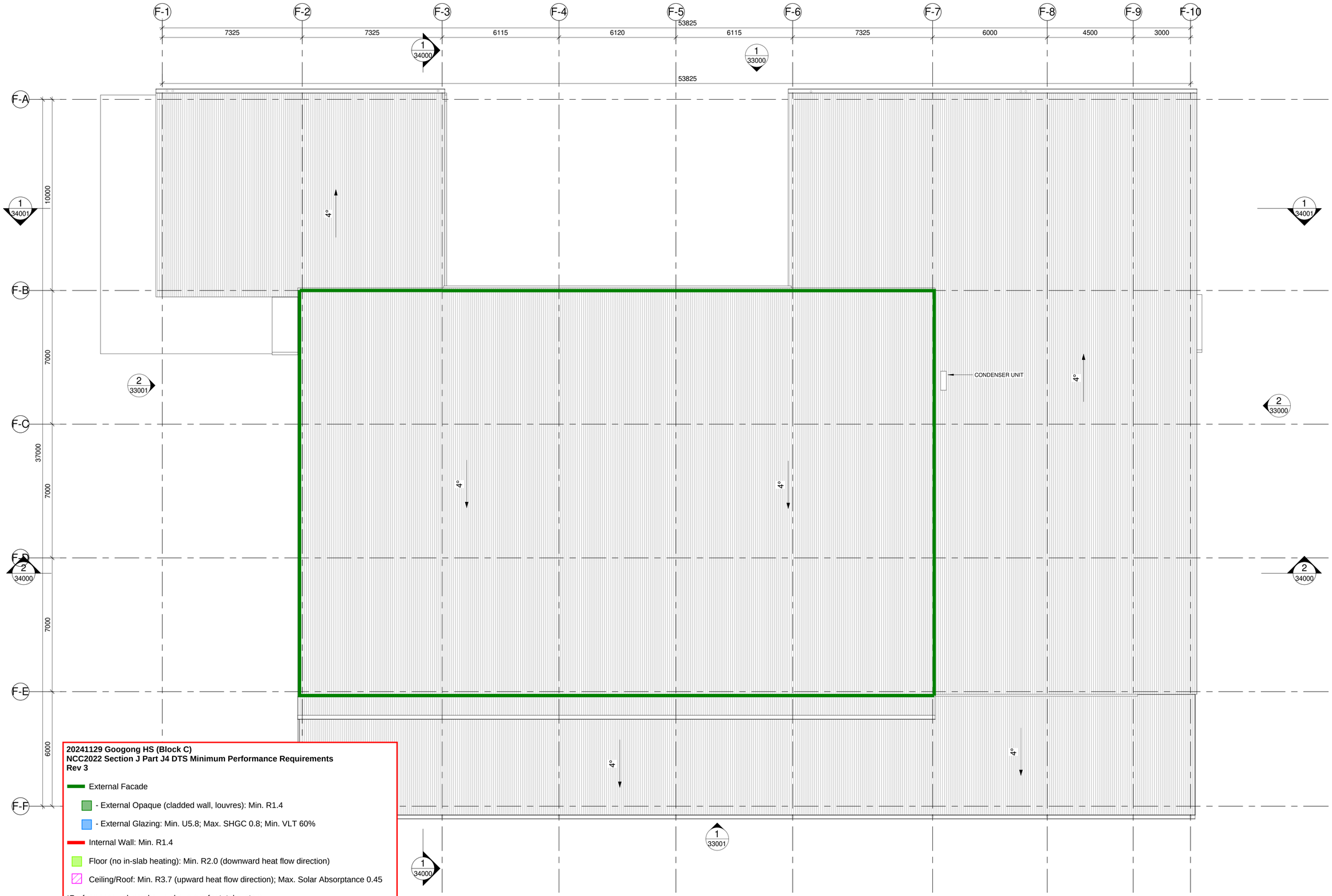
NBRS Project # 24136

Drawing Reference GGHS-NBRS-B00C-GF-DR-A-31000
Revision 10



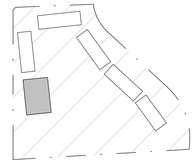
20241129 Googong HS (Block C)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

- External Facade
  - External Opaque (cladded wall, louvres): Min. R1.4
  - External Glazing: Min. U5.8; Max. SHGC 0.8; Min. VLT 60%
- Internal Wall: Min. R1.4
- Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)
- Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

*Performance values shown above are for total system.

NBRS

KEY PLAN



PRELIMINARY

Issue

No.	Date	Description	Chkd
1	27.08.2024	PROGRESS ISSUE	NBRS
2	06.09.2024	CONCEPT DESIGN ISSUE	RS
3	20.09.2024	CONCEPT DESIGN ISSUE	AA
4	03.10.2024	ISSUED FOR COORDINATION	AA
5	24.10.2024	FOR COORDINATION	RS
6	01.11.2024	ISSUE FOR REVIEW	AA
7	06.11.2024	FOR COORDINATION	RS

Changes to this Revision

Autodesk Docs://24136 - (DC) GOOGONG HIGH SCHOOL/GGHS-NBRS-B00C-ZZ-M3-A-0001.rvt

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Drawing Title
BLOCK C - STAGE 1 - ROOF FLOOR

Project
24136-Googong High school

at
200 Wellsvale Drive, Googong NSW 2620

for

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+61 2 9922 2344
nbrs.com.au
Nominated Architects:
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Jonathan West NSW 9899
NBRS & Partners Pty Ltd VIC 51197
ABN 16 002 247 565

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Drawing Reference
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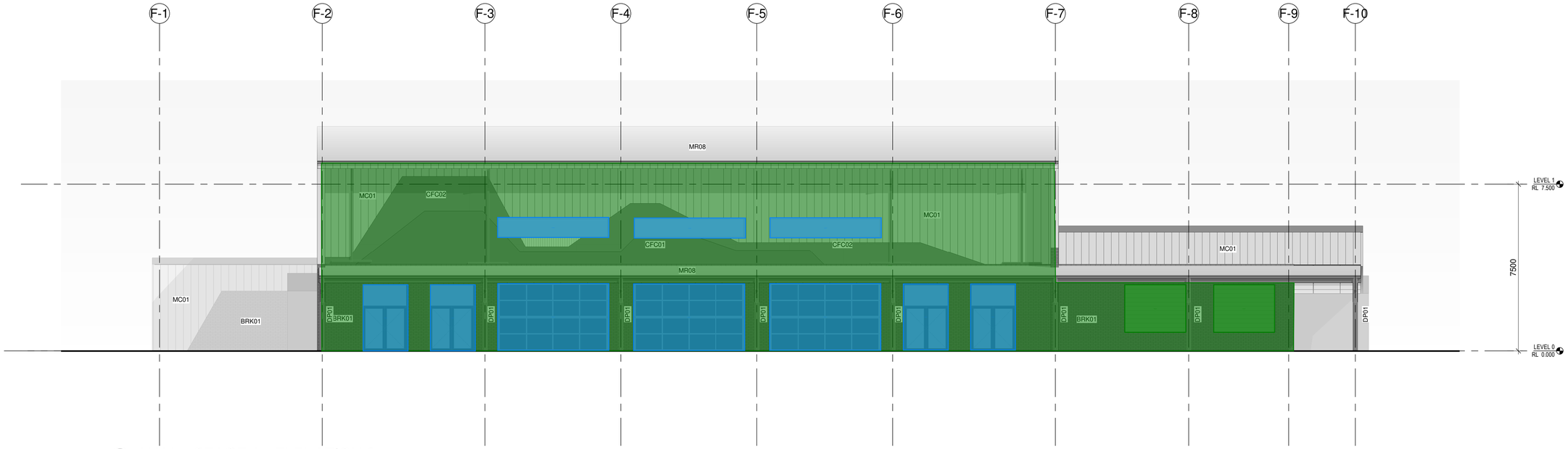
Revision
7



1 HALL - STAGE 1 - ELEVATION 3 East

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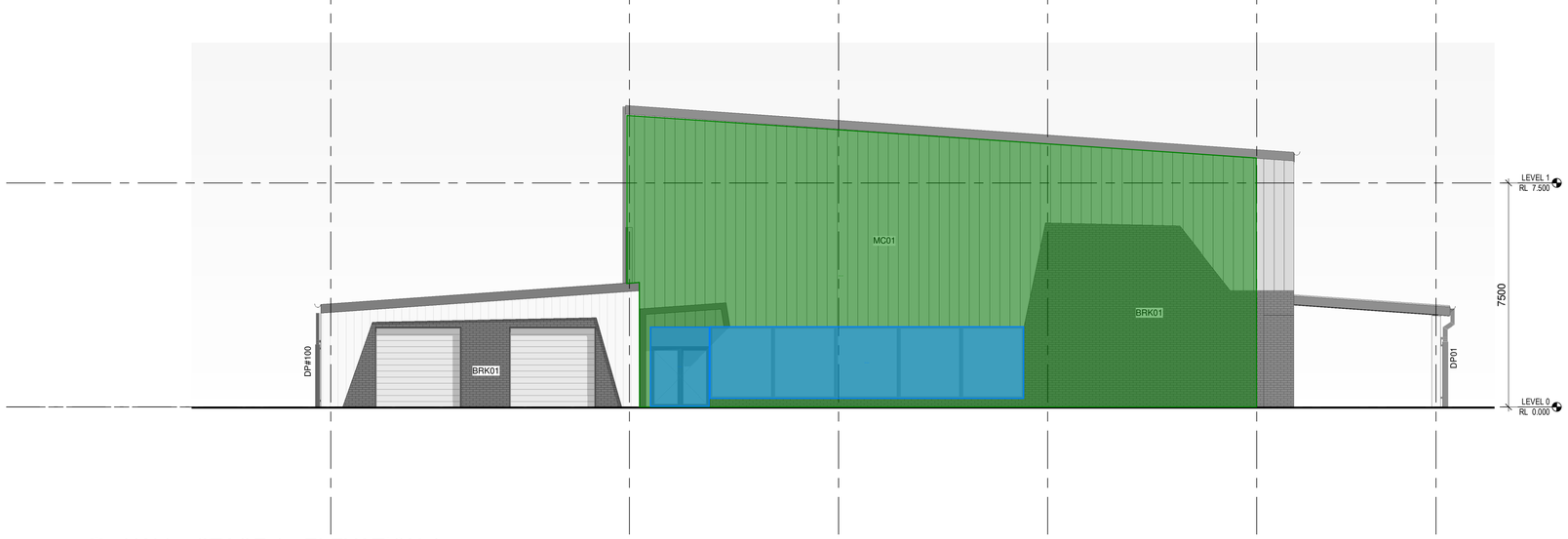

2 HALL - STAGE 1 - ELEVATION 4 South

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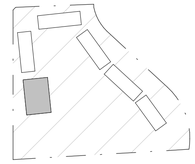
NBRS

KEY PLAN



20241129 Googong HS (Block C)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

- External Facade
  - External Opaque (cladded wall, louvres): Min. R1.4
  - External Glazing: Min. U5.8; Max. SHGC 0.8; Min. VLT 60%
- Internal Wall: Min. R1.4
- Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)
- Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

*Performance values shown above are for total system.

SCHEMATIC WIP

Issue

No.	Date	Description	Chkd
1	27.08.2024	PROGRESS ISSUE	NBRS
2	06.09.2024	CONCEPT DESIGN ISSUE	RS
3	20.09.2024	CONCEPT DESIGN ISSUE	AA
4	03.10.2024	ISSUED FOR COORDINATION	AA
5	01.11.2024	ISSUE FOR REVIEW	AA
6	06.11.2024	FOR COORDINATION	RS
T1	15.11.2024	ISSUE FOR TENDER	RS

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Drawing Title
BLOCK C - STAGE 1 - ELEVATIONS 2

Project
24136-Googong High school

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for

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Nominated Architects:
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NBRS & Partners Pty Ltd VIC 51197 ABN 16 002 247 565

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NBRS Project # 24136

Drawing Reference GGHS-NBRS-B00C-ZZ-DR-A-33001 Revision T1

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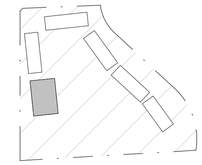
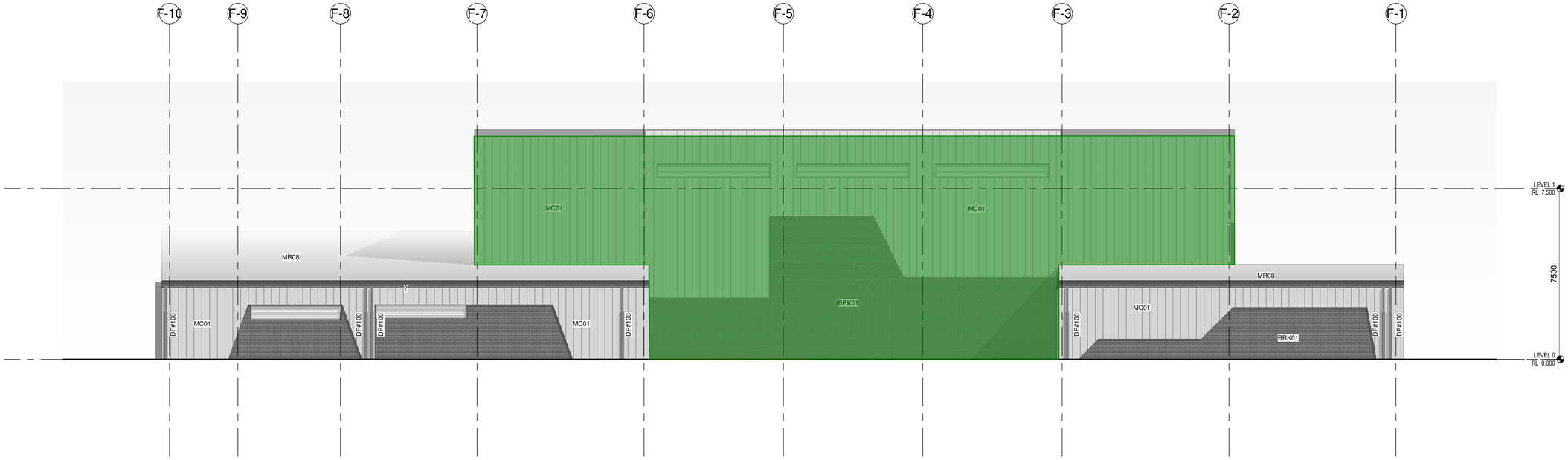
NBRS

KEY PLAN





1 HALL - STAGE 1 - ELEVATION 1 West

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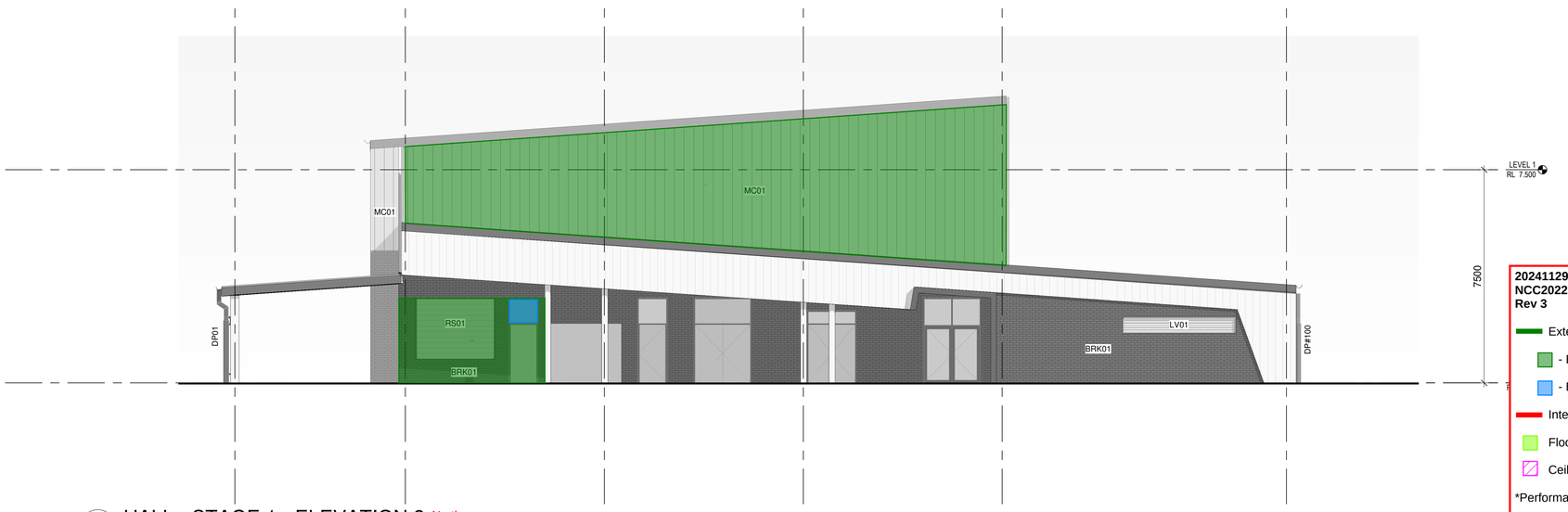

2 HALL - STAGE 1 - ELEVATION 2 North

1 : 100

20241129 Googong HS (Block C)
NCC2022 Section J Part J4 DTS Minimum Performance Requirements
Rev 3

- External Facade
  - External Opaque (cladded wall, louvres): Min. R1.4
  - External Glazing: Min. U5.8; Max. SHGC 0.8; Min. VLT 60%
- Internal Wall: Min. R1.4
- Floor (no in-slab heating): Min. R2.0 (downward heat flow direction)
- Ceiling/Roof: Min. R3.7 (upward heat flow direction); Max. Solar Absorptance 0.45

*Performance values shown above are for total system.

SCHEMATIC WIP

Issue

No.	Date	Description	Chkd
1	27.08.2024	PROGRESS ISSUE	NBRS
2	06.09.2024	CONCEPT DESIGN ISSUE	RS
3	20.09.2024	CONCEPT DESIGN ISSUE	AA
4	03.10.2024	ISSUED FOR COORDINATION	AA
5	01.11.2024	ISSUE FOR REVIEW	AA
6	06.11.2024	FOR COORDINATION	RS
T1	15.11.2024	ISSUE FOR TENDER	RS

Changes to this Revision

Autodesk Docs://24136 - (DC) GOOGONG HIGH SCHOOL/GGHS-NBRS-B00C-ZZ-M3-A-0001.rvt

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Drawing Title
BLOCK C - STAGE 1 - ELEVATIONS 1

Project
24136-Googong High school

at
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for

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Nominated Architects:
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Jonathan West NSW 9899
NBRS & Partners Pty Ltd VIC 51197 ABN 16 002 247 565

Date 15/11/2024 5:30:19 PM
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NBRS Project # 24136

Drawing Reference GGHS-NBRS-B00C-ZZ-DR-A-33000 Revision T1

A.2 DTS Calculator

Façade

Report

Calculator

Project Summary

Date
27/11/2024

Name
Googong HS

Company
Arup

Position
Consultant

Building Name / Address
Block A and B
0

Building State

NSW

Climate Zone
Climate Zone 7 - Cool temperate

Building Classification

Class 9b - schools

Storeys Above Ground
3

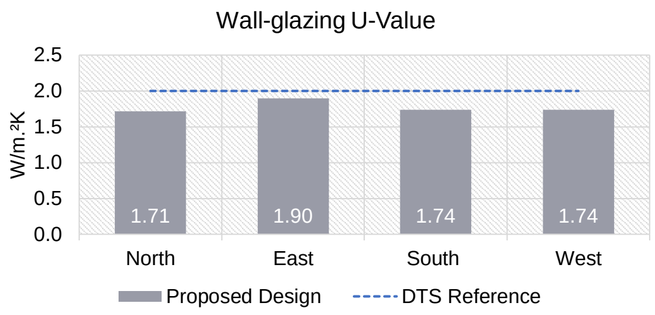
Tool Version
1.2 (June 2020)

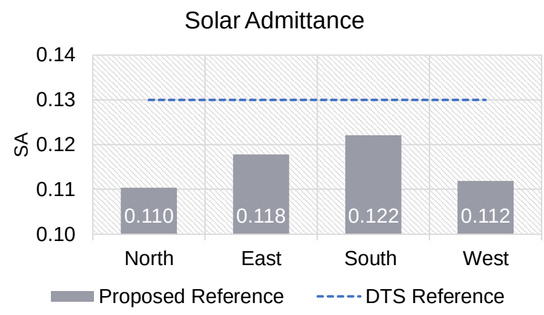
The summary below provides an overview of where compliance has been achieved for Specification J1.5a - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

Compliant Solution =
Non-Compliant Solution =

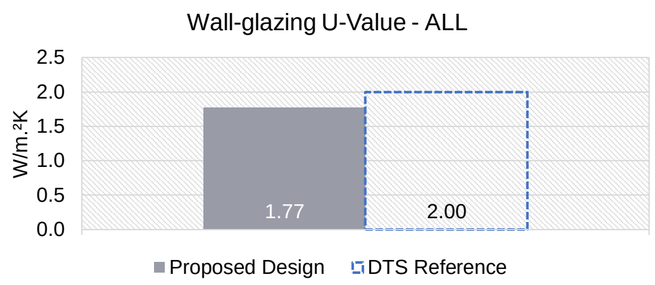
	Method 1				Method 2
	North	East	South	West	All
Wall-glazing U-Value (W/m².K)	1.71	1.90	1.74	1.74	1.77
Solar Admittance	0.11	0.12	0.12	0.11	
AC Energy Value					501

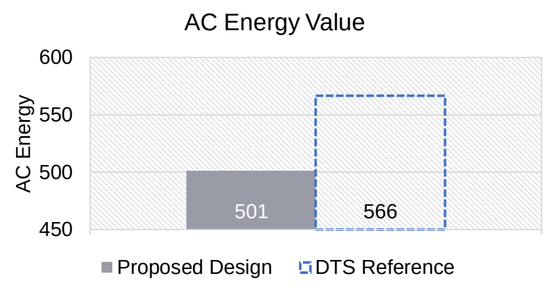
Method 1





Method 2





Project Details

	North	East	South	West
Glazing Area (m²)	139.6	232.5	252.5	226
Glazing to Façade Ratio	31%	37%	32%	32%
Glazing References	DTS U3.9 SHGC0.47_1 DTS U3.9 SHGC0.47_2 DTS U3.9 SHGC0.47_3	DTS U3.9 SHGC0.47_1 DTS U3.9 SHGC0.47_2 DTS U3.9 SHGC0.47_3	DTS U3.9 SHGC0.47_1 DTS U3.9 SHGC0.47_2 DTS U3.9 SHGC0.47_3 DTS U3.9 SHGC0.47_4	DTS U3.9 SHGC0.47_1 DTS U3.9 SHGC0.47_2 DTS U3.9 SHGC0.47_3
Glazing System Types	0	0	0	0
Glass Types	0	0	0	0
Frame Types	0	0	0	0
Average Glazing U-Value (W/m².K)	3.90	3.90	3.90	3.90
Average Glazing SHGC	0.47	0.47	0.47	0.47
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m²)	305.4	393.5	533.4	478
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	DTS Wall	DTS Wall	DTS Wall	DTS Wall
Wall Thickness	0	0	0	0
Average Wall R-value (m².K/W)	1.40	1.40	1.40	1.40
Solar Absorptance				

Façade

Report

Calculator

Project Summary

Date
27/11/2024

Name
Googong HS

Company
Arup

Position
Consultant

Building Name / Address
Block C
0

Building State
NSW

Climate Zone
Climate Zone 7 - Cool temperate

Building Classification
Class 9b - schools

Storeys Above Ground
3

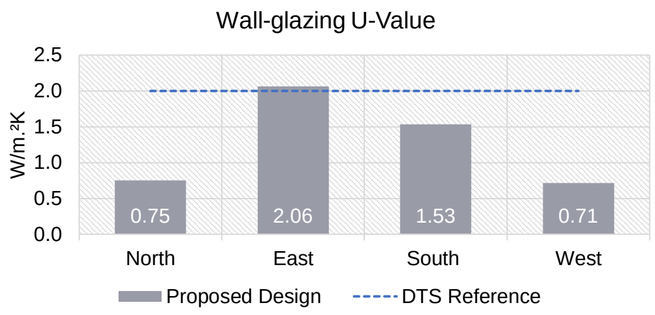
Tool Version
1.2 (June 2020)

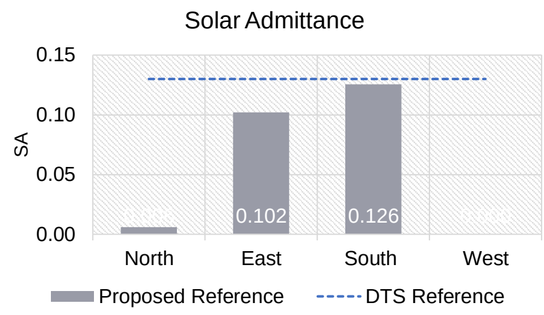
The summary below provides an overview of where compliance has been achieved for Specification J1.5a - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

Compliant Solution =
Non-Compliant Solution =

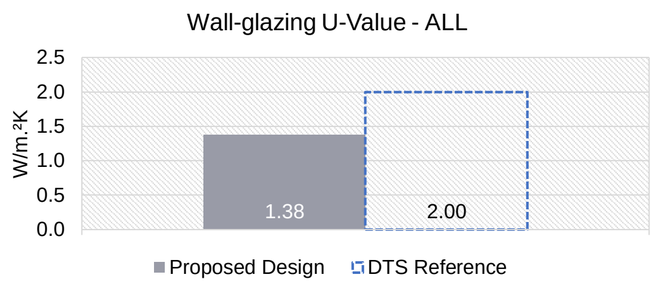
	Method 1				Method 2
	North	East	South	West	All
Wall-glazing U-Value (W/m².K)	0.75	2.06	1.53	0.71	1.38
Solar Admittance	0.01	0.10	0.13		
AC Energy Value					59

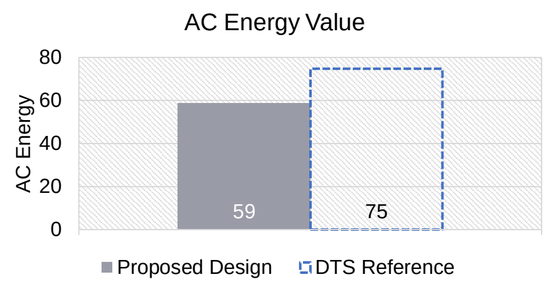
Method 1





Method 2





Project Details

	North	East	South	West
Glazing Area (m²)	0.8	82.8	30.4	0
Glazing to Façade Ratio	1%	27%	16%	0%
Glazing References	DTS U5.8 SHGC0.8_1	DTS U5.8 SHGC0.8_1 DTS U5.8 SHGC0.8_2	DTS U5.8 SHGC0.8_1 DTS U5.8 SHGC0.8_2	
Glazing System Types	0	0	0	
Glass Types	0	0	0	
Frame Types	0	0	0	0
Average Glazing U-Value (W/m².K)	5.80	5.80	5.80	
Average Glazing SHGC	0.80	0.80	0.80	0.00
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m²)	103	229.3	158.7	263.9
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	DTS Wall	DTS Wall	DTS Wall	DTS Wall
Wall Thickness	0	0	0	0
Average Wall R-value (m².K/W)	1.40	1.40	1.40	1.40
Solar Absorptance				