

**Energy Efficiency in Buildings**  
Building Design – Fenestration – Buildings with Natural Environmental Control

Occupancy:

Design Occupancy Time:  Hours per day  
 Days per week

Climatic Zone:

**Fenestration – Buildings with Natural Environmental Control Constants**

Conductance (C<sub>U</sub>) constant:

Solar Heat Gain (C<sub>SHGC</sub>) constant:

**Max. Conductance / Solar Heat Gain**

Ground Storey	Net Floor Area of Storey / Room: m <sup>2</sup>	<input type="text" value="391,000"/>	<b>NOTE !! NO FURTHER CALCULATION REQUIRED.</b>	Max. Conductance (C <sub>U</sub> ) for Storey / Room:	<input type="text" value="469,200"/>	Permissible
	Fenestration Area of Storey / Room: m <sup>2</sup>	<input type="text" value="19,426"/>		Max. Solar Heat Gain (C <sub>SHGC</sub> ) for Storey / Room:	<input type="text" value="58,650"/>	Permissible
	% Fenestration Area to Nett Floor Area: %	<input type="text" value="4,968"/>				

**Achieved Aggregate Conductance / Solar Heat Gain**

**Ground Storey**

Conductance (C<sub>U</sub>) for Storey / Room:

Solar Heat Gain (C<sub>SHGC</sub>) for Storey / Room:

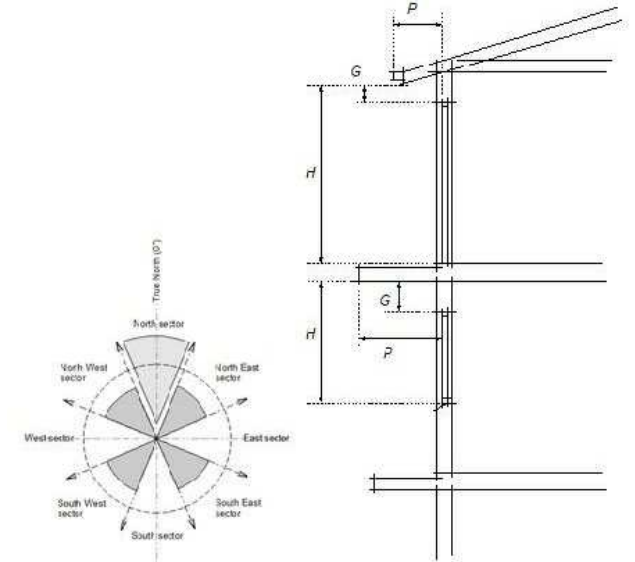
**Conductance / Solar Heat Gain Available**

Conductance (C<sub>U</sub>) for Storey / Room:

Solar Heat Gain (C<sub>SHGC</sub>) for Storey / Room:

**GLAZING ELEMENTS : FACTOR & CO-EFFICIENT SUMMARY**

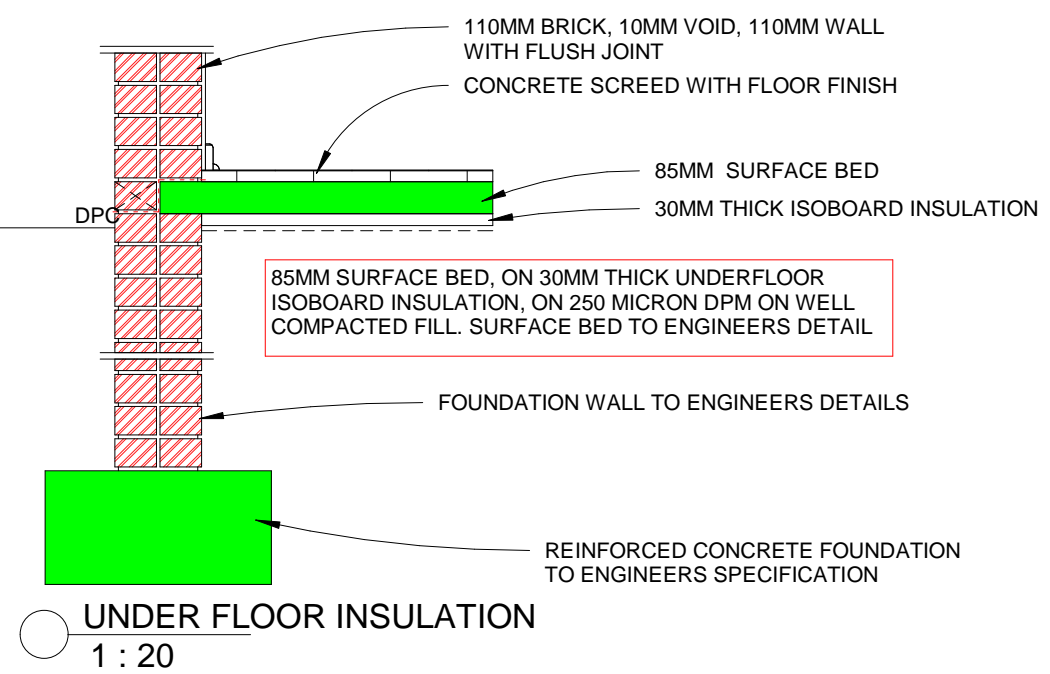
Storey Level	Glazing Elements				Glazing Element		Sector	Shading				Solar Exposure Factor (E)	Energy Constants			Multipliers	
	Identifier No:	No. of Units	Size w x h	Area (m <sup>2</sup> )	U-value	SHGC		Orientation	Projection (P)	Height (H)	Height (G)		P/H	C <sub>A</sub>	C <sub>B</sub>	C <sub>C</sub>	Heating S <sub>H</sub>
Ground Storey	w06	2	0.9 x 0.875	1,58	7,90	0,81	North	0,600	1,385	0,510	0,217	0,520				1,000	0,970
Ground Storey	w06	10	0.9 x 0.875	7,88	7,90	0,81	East	0,600	1,385	0,510	0,217	0,880				0,990	0,980
Ground Storey	w06	2	0.9 x 0.875	1,58	7,90	0,81	South	0,600	1,385	0,510	0,217	0,440				0,990	0,980
Ground Storey	w06	8	0.9 x 0.875	6,30	7,90	0,81	West	0,600	1,385	0,510	0,217	1,120				0,990	0,980
Ground Storey	w04	6	0.533 x 0.657	2,10	7,90	0,81	West	0,600	1,167	0,510	0,257	1,060				0,990	0,980



**ALL XA CALCULATIONS ARE COMPLIANT AND IN ACCORDANCE TO SANS 1400 PART XA**

**Refer to Electrical engineers and Mechanical engineers drawings for lighting layouts and calculations**

**ROOF INSULATION AS PER BUILDING SECTIONS ALL TO MECHANICAL ENGINEERS APPROVAL**



**Worst-case whole glazing element performance figures.**

Glass Description	Performance Values			
	Aluminium / Steel Framing		Timber / uPVC / *Aluminium Framing	
	Total U-value	SHGC	Total U-value	SHGC
Single – clear	7,9	0,31	5,6	0,77
Single – tinted	7,9	0,59	5,6	0,65
Single Low E	5,73	0,66	4,06	0,63
Clear Double (3/6/3)	4,23	0,72	3	0,68
Tinted Double	4,23	0,59	3	0,56
Clear Double Low E	3,4	0,66	2,41	0,62
Tinted Double Low E	3,4	0,54	2,41	0,51


(\* Thermal Break Framing)

No.	Description	Date
01	ISSUED FOR INFORMATION	26 / 10 / 2021

Owner/Client: \_\_\_\_\_

Owner/Client Signature: \_\_\_\_\_

Eng. Signature: \_\_\_\_\_

Arch. Signature: 

Arch. Council no.: 7812





**public works & infrastructure**

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Project Title:  
**Trompsburg Special Needs School Establishment of New Special Needs School in Trompsburg, Free State**

date : 26/10/2021 15:37:46	scale :
drawn : Author	1 : 20

Drawing Description:  
**THERAPY ROOM XA**

Sheet size: A3

ISSUED FOR INFORMATION:  ISSUED FOR CONSTRUCTION:  DATE ISSUE: Issue Date

Job No. <b>2020</b>	Drawing No. <b>TSNS_TR_XA</b>	Rev. <b>01</b>
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