higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T190**(E)**(A2)T

NATIONAL CERTIFICATE: MULTI-DISCIPLINARY DRAWING OFFICE PRACTICE

BUILDING DRAUGHTING

(2050035)

2 April 2019 (X-Paper)
09:00–12:00

REQUIREMENTS: ONE A2 drawing sheet

Calculators, drawing instruments and CAD software may be used.

This question paper consists of 5 pages, 3 diagram sheets and 1 information sheet.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
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NATIONAL CERTIFICATE: MULTI-DISCIPLINARY DRAWING OFFICE PRACTICE
BUILDING DRAUGHTING
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. Read ALL the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Use both sides of the DRAWING SHEET.
5. A balanced layout is very important and candidates will be penalised for poor planning.
6. Draw a 15 mm border around the DRAWING SHEET (both sides).
7. Do ALL drawing work, including candidate information, in pencil.
8. ALL drawing work must comply with the SABS Recommended Code of Practice for Building Drawing as well as the SANS 10111-1990.
9. ALL building regulations must comply with the National Building Regulations SANS 10400-1990.
10. Take brick sizes as 220 × 110 × 75 mm.
11. ALL abbreviations and symbols must comply with the latest National Building Regulations and ALL relevant SANS (SABS) codes.
12. Work neatly.

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QUESTION 1

1.1 The table below shows the abbreviations of drainage fittings.

ABBREVIATION	DRAINAGE FITTINGS
G	
SWP	
WSP	
VP	
DP	

Redraw the table with the abbreviations in the first column and complete the names of the drainage fittings in the second column.

NOTE: ALL information must be printed freehand or stencilled 3 mm high. (5)

1.2 Draw, to scale 1:10, a typical vertical section through a round precast manhole.

Label ALL parts of the manhole. (10)
[15]

QUESTION 2

Your client, Mr Baloyi, has built a traditional rondavel (round house) with his grandmother when he was still a child.

Now that he is older, he wants to build a modern rondavel. The radius of the rondavel is 5 500 mm. The front half of the rondavel is the kitchen and living area. At the back of the rondavel there is two bedrooms (3 000 mm) with a passage (1 245 mm) in the middle between them. The passage leads to a full bathroom and a storeroom.

BRIEF SPECIFICATIONS	
Roof pitch	45°
Roof type	150 mm gum poles
Roof truss	gum poles
Roof cover	thatch
Roof overhang	600 mm
Ceiling height	29 brick courses
Exterior walls	1 brick wall, face-brick wall with 15 mm plaster on the interior sides
Interior walls	½ brick wall with 15 mm plaster both sides
Barge boards	N/A
MATERIAL AVAILABLE ON-SITE	
1 ×	2 100 mm aluminium sliding door
1 ×	steel frame with hardwood exterior door
4 ×	steel frame with hollow-core interior door
6 ×	1 500 × 900 aluminium window frame (15T9)
2 ×	900 × 600 aluminium window frame (9T6)

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You must design a face-brick rondavel by using what is already available on-site. Draw, to scale 1:100, a fully detailed working drawing of the floor-plan layout of the dwelling.

Indicate the following on the plan:

2.1	TWO bedrooms, a kitchen/living room, full bathroom and storeroom	(12)
2.2	Room names and floor finishes	(2)
2.3	ALL external, internal and wall dimensions	(7)
2.4	Window and door symbols (see DIAGRAM SHEET 1 (attached))	(2)
2.5	Sanitary installation symbols in accordance with the SABS Code of Practice for Building Drawing	(2)
2.6	Window codes (see DIAGRAM SHEET 1 (attached))	(1)
2.7	Section arrows	(2)
2.8	Title and scale	(2)
2.9	True north	(2)
		[32]

QUESTION 3

Draw, to scale 1:50, a section A-A through the middle of the dwelling.

Indicate the following specifications:

3.1	The pitch, roof cover, truss and ceiling (see DIAGRAM SHEET 2 (attached))	(3)
3.2	Roof covering (eaves projection) = 600 mm	(2)
3.3	Strip foundation (to include sizes)	(2)
3.4	Concrete slab	(2)
3.5	Damp-proof course (to include minimum height above FGL)	(2)
3.6	Damp-proof membrane	(2)
3.7	Compacted fill	(2)
3.8	Screed	(2)
3.9	External and internal walls	(2)
3.10	Finished ground level and finished floor level	(2)

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3.11 Dimension the ceiling height, roof overhang, total height and minimum damp-proof course distance from the ground level (5)

3.12 Title and scale (2)
[28]

QUESTION 4

Draw, to scale 1:100, ALL the views (north, east, south and west) from the design of the complete dwelling.

Indicate the following on each elevation:

4.1 Wall finish (face brick with brick on edge window sill) (4)

4.2 Window and door codes (see DIAGRAM SHEET 1 (attached)) (4)

4.3 Title and scale (2)
[10]

QUESTION 5

Refer to FIGURE 3, DIAGRAM SHEET 3 (attached). Do NOT copy the given view, but draw, to scale 1:200, the site plan.

Indicate the following on the site plan:

5.1 Boundary lines and pegs (2)

5.2 Position of the driveway (carriageway crossing) (2)

5.3 Building lines (2)

5.4 Complete dwelling and double garage in the correct position (show the roof as seen from the top) (2)

5.5 Drainage system (2)

5.6 Direction of true north (2)

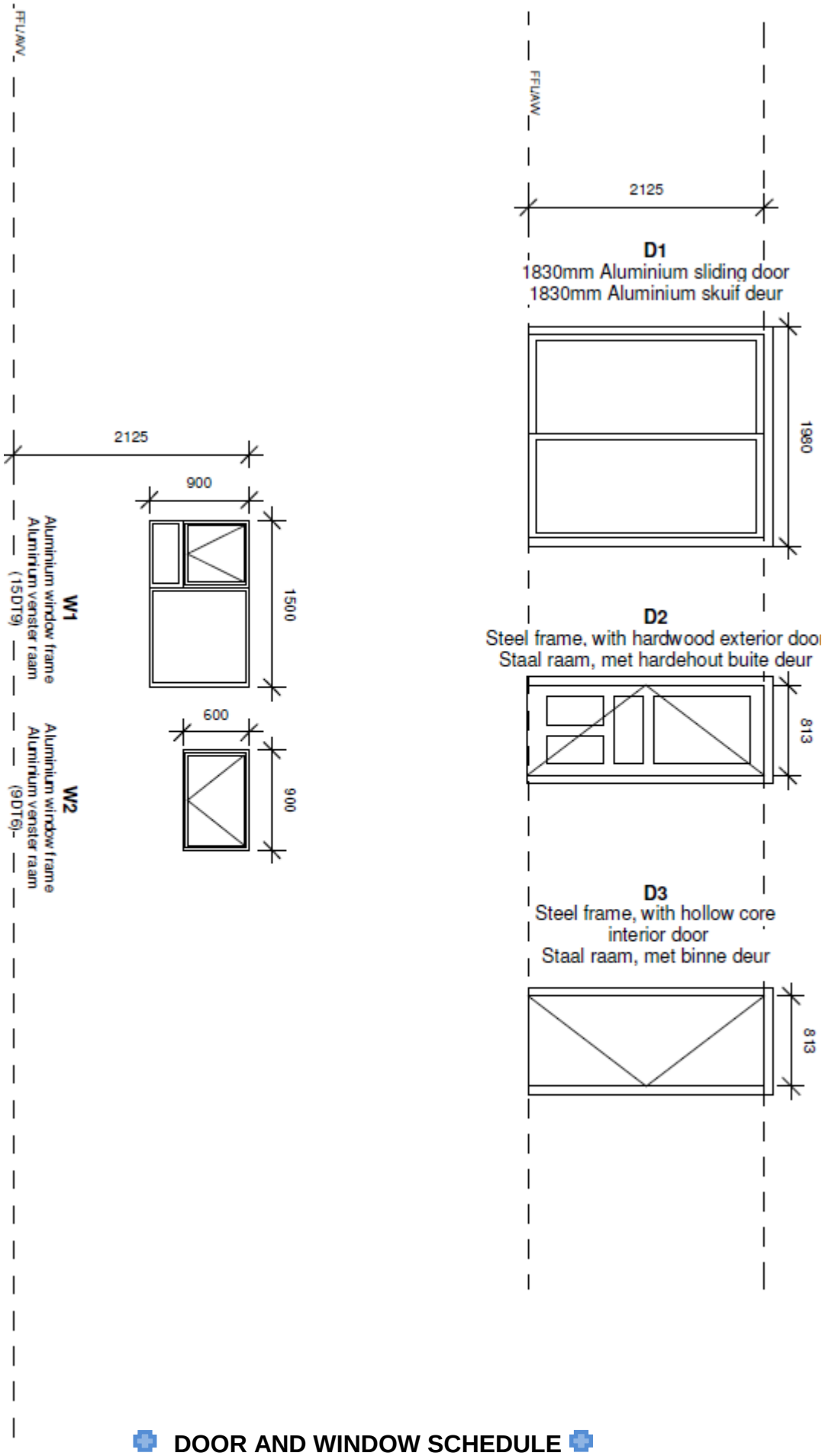
5.7 Title and scale (2)

5.8 Name of the street (1)
[15]

TOTAL: 100

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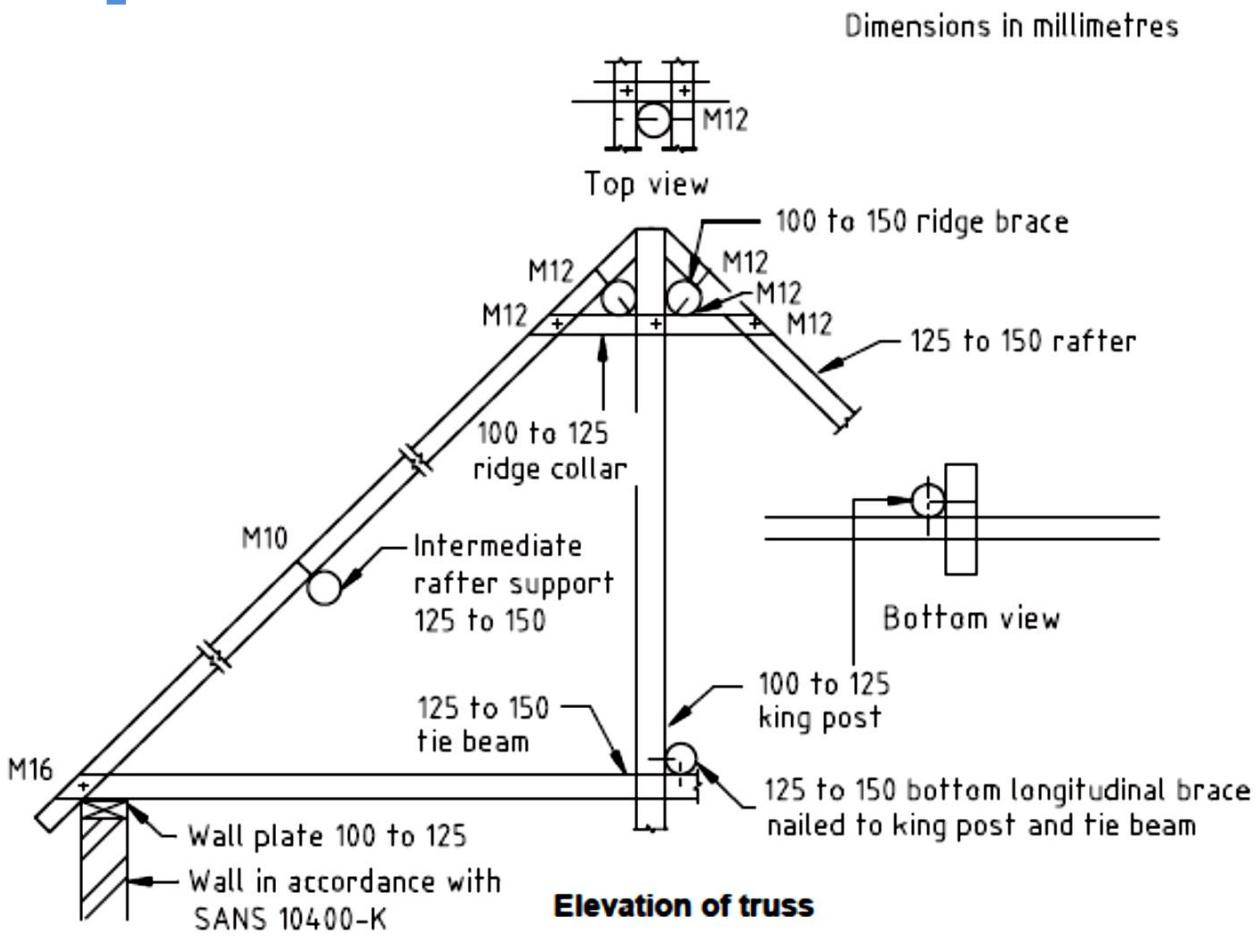
DIAGRAM SHEET 1



DOOR AND WINDOW SCHEDULE

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DIAGRAM SHEET 2



Elevation of truss

Member	Size
Rafters	100 mm to 125 mm for truss clear spans ≤ 4 m 125 mm to 150 mm for truss clear spans > 4 m but < 6 m
Ridge brace	125 mm to 150 mm
Ridge collar	100 mm to 125 mm
King post	100 mm to 125 mm
Bottom chord	125 mm to 150 mm (tie beam)
Rafter brace	125 mm to 150 mm
NOTE Pitch = 45°.	

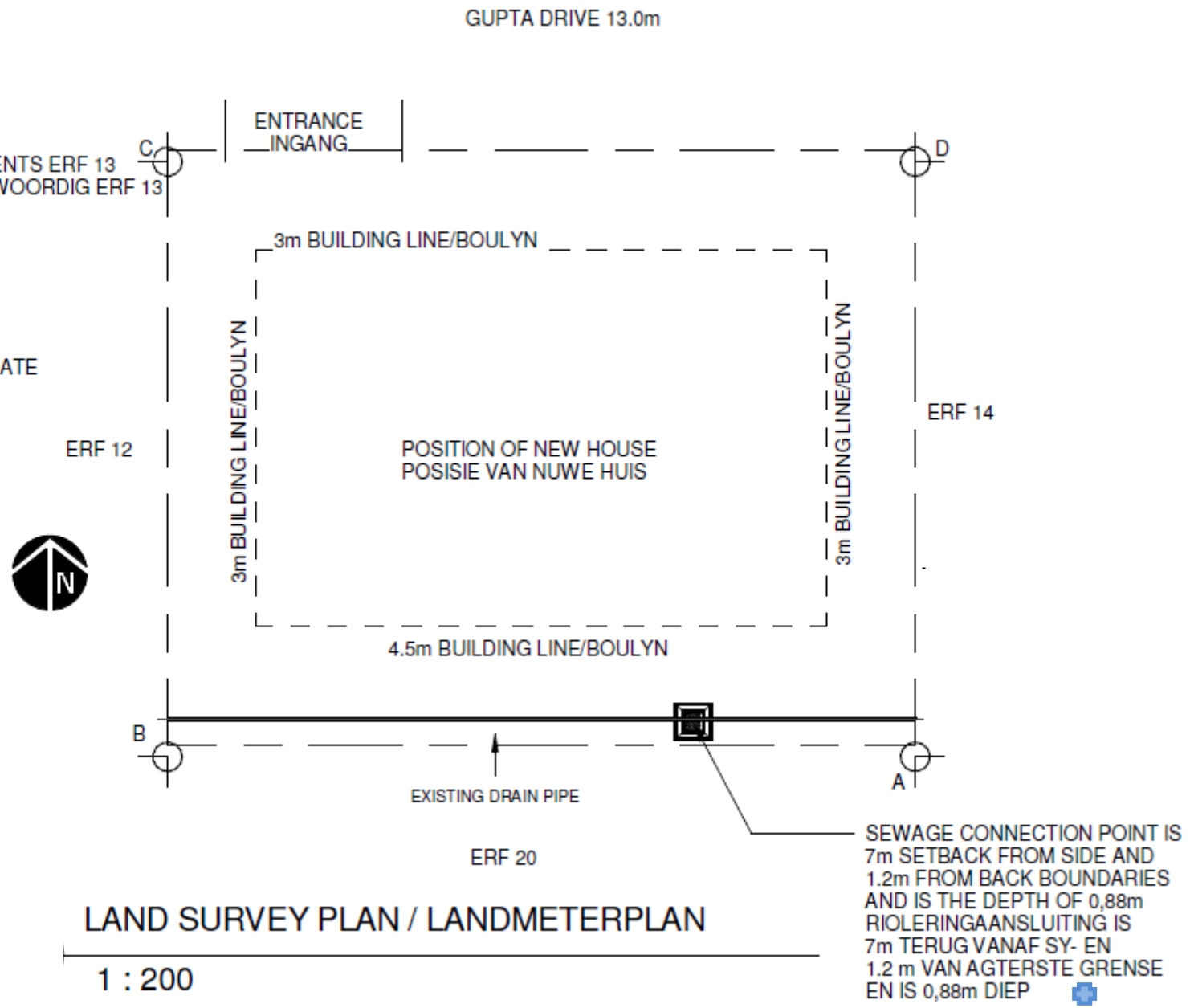
SANS 10400-L: 201

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DIAGRAM SHEET 3

THIS FIGURE ABCD REPRESENTS ERF 13
DIE FIGUUR ABCD VERTEENWOORDIG ERF 13
SITUATED IN CAPE TOWN
GELEE IN KAAPSTAD
SURVEYED ON 08 - 2000
OPGEMEET OP
LAND SURVEYOR
LANDMETER

LAND SURVEYOR'S CERTIFICATE
LANDMETERSERTIFIKAAT
SIDES/SYE
AB = 25,58 m
BC = 20,36 m
CD = 25,58 m
DA = 20,36 m



LAND SURVEY PLAN / LANDMETERPLAN

1 : 200

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INFORMATION SHEET

TABLE 1: ROOM AREA		
Type of occupancy	**Room**	**Minimum plan area**
All occupancies	Any habitable room other than kitchen, scullery and laundry	6 m² with no linear dimension of less than 2 m
B, D or J	Change rooms and dining rooms	Population 1–15: 0,8 m² per person but not less than 6 m² Population 16–100: 0,6 m² per person but not less than 12 m² Population more than 100: 0,5 m² per person but not less than 60 m²

Table 2: ROOMS AND THEIR DIMENSIONS	
Room or space	**Minimum height**
Bedroom	2,4 m above a floor area of at least 6 m² with a clear height of at least 1,8 m at any point more than 0,75 m from the edge of the floor space
Any other habitable room in a dwelling house or a dwelling unit	2,4 m above a minimum of 70% of the floor area and not less than 2,1 m above the remaining floor area
ALL habitable rooms other than those listed above	2,4 m
Passage or entrance hall	2,1 m
Bathroom, shower room, laundry or room containing a toilet pan	2,1 m above any area where a person would normally be in a standing position
Open mezzanine floor which has an area not exceeding 25% of the area of the floor immediately below it	2,1 m above and below the mezzanine floor

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