DESIGN:

TOTAL STAIR RISE (TSR) IS THE VERTICAL DISTANCE BETWEEN SURFACE FINISHES OF FLOORS:

/NOTE: MOSTLY IT IS EQUAL TO STRUCTURAL HEIGHT, NONETHELESS IT SHOULD BE DETERMINED PROPERLY./

TSR = "CEILING HEIGHT"+"TOTAL FLOOR THICKNESS" = 3000mm

WHERE: "TOTAL FLOOR THICKNESS" = "SUBFLOOR OR SLAB"+"FLOORING"

RECOMMENDED RISE OF A STEP H':

/NOTE: THE VALUE IS BASED ON THE FOLLOWING FORMULAE 2*H'+W' = <600,650>mm./

H' = 160mm

NUMBER OF STEPS REQUIRED N:

N = TSR/H' = 3000/160 = 18.75 = 18- (AFTER ROUNDING TO NATURAL NUMBERS).

DESIGNED RISE OF A STEP H:

H = TSR/N = 3000/18 = 166.66mm

DESIGNED RUN OF A STEP W:

2*H+W = 630 mm => W = 630-2*H = 630-2*166.67 = 296.66mm

W = 290mm (AFTER ROUNDING)

VERIFICATION:

PITCH OF STAIRCASE FLIGHT:

$tg(\alpha) = H/W = 166.66/290 = 0.574 \Rightarrow \alpha = 29° \in <25°,35°> \rightarrow$ CONDITION MET

RUN OF FLIGHT L:

L = (N'-1)*W = (N/2-1)*W = (18/2-1)*290 = 8*290 = 2320mm

WIDTH OF FLIGHT B = BP:

REQUIREMENT 900mm. OUR CHOICE B = 1200mm

DEPTH OF HALF LANDING DHL:

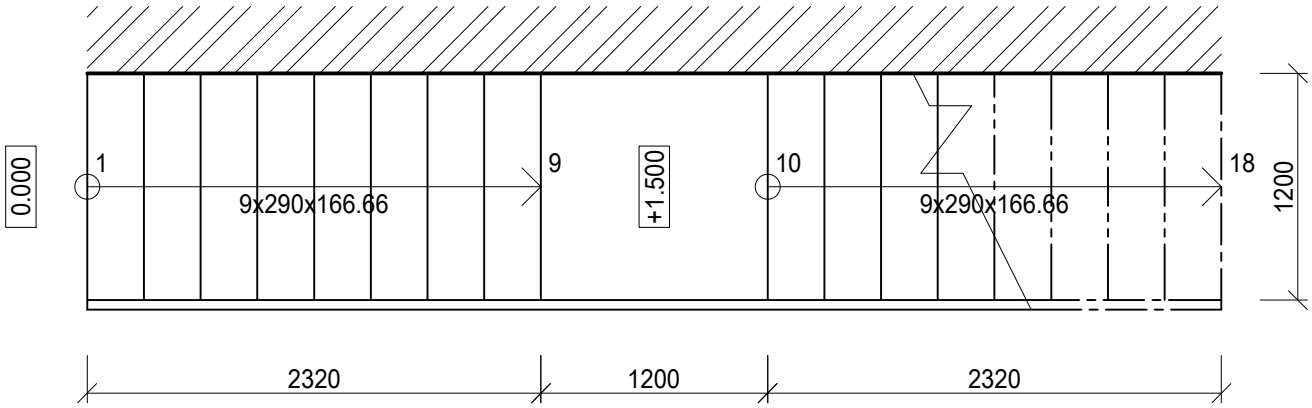
MIN DHL = WIDTH OF FLIGTH B ➡ DHL = 1200mm;

HEADROOM HR:

HR = 1500+750/cos(α) = 1500+750/cos(29°) = 2357mm >= 2100mm → CONDITION MET

CLEARANCE CL:

CL = 750+1500*cos(α) = 750+1500*cos(29°) = 2061mm >= 1900mm → CONDITION MET



COURSE	BH052 BUILDING CONSTRUCTIONS 2
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STUDY TITLE	S02 STRAIGHT TWO FLIGHT STAIR WITH HALF LANDING

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