



SOUTHERN  
AFRICAN  
DEVELOPMENT  
COMMUNITY

# LETTERING FOR ROAD TRAFFIC SIGNS

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**CHAPTER 11**



# CHAPTER 11: LETTERING FOR ROAD SIGNS

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#### Section 11.2 DIN 1451 PART 2 STYLE "A" LETTERS (Compressed Lettering – primarily used in WHITE and BLACK)



**Section 11.3 DIN 1451 PART 2 STYLE “B” LETTERS**  
(Standard Lettering – primarily used in WHITE, BLACK and YELLOW)

ABCDEFGHIJKLM  
 NOPQRSTUVWXYZ  
 abcdeêëfghijklmn  
 opqrstuvwxyz!?!/()  
 1234567890%-.‘:’;><&

**Section 11.4 “B” MODIFIED LETTERS**  
(Increased Stroke Width – used in BLACK only)

**ABCDEFGHIJKLM**  
**NOPQRSTUVWXYZ**  
**1234567890&**

**Section 11.5 CARDINAL DIRECTION LETTERS**  
(Used in YELLOW only)

*N S E W*

## CHAPTER 11: LETTERING FOR ROAD SIGNS

### 11.1 INTRODUCTION

#### 11.1.11 General

- 1 With an increase in speed and traffic density, the time to read and process information on road signs is often limited. On signs that use alphanumeric characters, the letters and numerals used have to comply with certain criteria in order to be understood as quickly as possible. Major factors which affect the legibility of lettering are size, graphic design, spacing, contrast between the letter and the sign background, and uniformity.
- 2 As a result of research in South Africa a decision was made in the late 1980's to adopt the German DIN 1451 Part 2 style of lettering for future use.
- 3 In recent times Germany found that the lettering style DIN 1451, which dates from 1925, did not fulfil all the criteria required to ensure maximum effectiveness. It was therefore decided to revise the DIN letter style. The new style had to be properly researched so that it had better legibility and aesthetics. The manufacturing techniques of the lettering style were also discussed.
- 4 This chapter gives information concerning the revised DIN 1451 Part 2 letter style, including details of standard letters, their sizes and spacings. Other benefits accruing from the choice of the DIN 1451 Part 2 letter style are covered in other chapters of the Manual.

#### 11.1.2 Research on an Improved Letter Style

- 1 The basic research was carried out by the *Bundesanstalt für Strassenwesen (BASt)* with the assistance of the Federation of Traffic Sign Manufacturers in Germany.
- 2 The research consisted of the evaluation of single letters under different viewing distances and lighting conditions. The letters were firstly displayed on a large visual display unit of a computer for evaluation because the dimensions of letters could be changed easily.
- 3 The second step was to compare the letters with one another. The letters were all placed on a large panel and examined to ensure that they all fitted into a well balanced design.
- 4 The third step was to evaluate the legibility of combinations of letters and words under different viewing distances and lighting conditions. This also included the evaluation of complete road signs.

#### 11.1.3 Letter Design Features

- 1 As has been stated the Part 2 design is based on the old DIN style. There are two letter styles, a normal width (Style "B") and a condensed width (Style "A"). The condensed width Style "A" may be used to reduce the length of long words and destination names as specified in the various sections relating to the use of letters on road signs, however, this will reduce the legibility distance of the particular message.
- 2 The new lettering style has the following features:
  - (a) the stroke width is normally 1/7 of the height for uppercase letters and is designated for signface design purposes by

- the letter "d";
- (b) the height of the lowercase letters is 5/7 of the height of the uppercase letters;
- (c) the nominal widths of letters are as follows:
  - (i) Style "A" uppercase letters - 3/7 of the height of uppercase letters;
  - (ii) Style "A" lowercase letters - 3/7 of the height of uppercase letters;
  - (iii) Style "B" uppercase - 5/7 of the height of uppercase letters;
  - (iv) Style "B" lowercase - 4/7 of the height of uppercase letters;
- (d) the width of letters are optically balanced and therefore do vary about the nominal width, some letters being of a greater width and some letters a lesser width - examples are shown in Figure 11.1;
- (e) letters which are rounded at the bottom and/or the top (e.g. the letter "O") are extended vertically as shown in Figure 11.2;
- (f) the inner spaces of open letters (e.g. "h", "m", "n" and "u") are smaller than enclosed spaces (e.g. "o"), to give an optically balanced letter style;
- (g) letters with central cross-bars (e.g. "B" and "E") have the cross-bar raised to the optical centre, which is higher than the geometric centre - examples are given in Figure 11.3;
- (h) on letters comprising an upper and a lower part (e.g. "B", "K", "S" and "X") the upper part is smaller than the lower part for better optical balance;
- (i) at sharply angled connections the bars of the letters are tapered to increase legibility - examples are given in Figure 11.4;
- (j) the horizontal and diagonal bars of the letters are thinner than the vertical ones - an example is given in Figure 11.5;
- (k) lower case letters which have ascenders or descenders have the same overall length as an uppercase letter, 2/7 of which lies above or below the normal lowercase 5/7 envelope;
- (l) so that the letter "S" does not appear to "fall" to the left its axis is inclined to the right and the top bend shortened and the bottom one lengthened - see Figure 11.6.

#### 11.1.4 Spacing of Letters

- 1 The spacing of letters within a word has a major influence on a drivers ability to read the word. The spacing for the DIN 1451 Part 2 lettering styles was investigated by the *BASt* and the tests were conducted as described in Subsection 11.1.2.
- 2 The spacing of letters and sizing of words is based on a BASIC LETTER HEIGHT of 112 mm. Letter to letter spacing i.e. "letter-plus-inter-letter" spaces, are given as a combined dimension in Tables 11.4 to 11.15. The widths of the letters on their own, which are required for the last letter in each word, are also given in these tables.

### 11.1.5 Dimensioning of Text

- 1 Individual letter, numeral and punctuation symbol widths are also given in Table 11.2 for the BASIC LETTER HEIGHT of 112 mm, whilst Figure 11.7 gives basic details of inter-word spacing and the relevance of the dimensions given in Table 11.1.
- 2 A principle of the DIN 1451 letter system is that all letters and inter-letter or inter-word spaces are fully proportional. The BASIC LETTER HEIGHT of 112 mm (uppercase) letters has therefore been chosen to be tabulated and all other information given on sizing has been related to this size of lettering. Dimensions are obtained for the required size of letter by factoring upwards, or downwards, from the 112 mm details by simple proportioning, e.g.:

$$\text{Factor} = \frac{\text{Required Letter Size}}{112} \text{ mm}$$

- 3 In theory the determination of any size of letter is possible by this method. However, for practical purposes some twenty six sizes are recommended in DIN 1451 Part 2, and in the Southern African context this has been rationalised to seven standard sizes above and including the BASIC LETTER HEIGHT of 112 mm. Smaller letter sizes may also be used as recommended throughout the Manual. Table 11.1 covers the dimensional details of the twenty six letter sizes, with the seven standard sizes in the Southern African system highlighted in bold type
- 4 Unless noted otherwise the letters detailed in Sections 11.2 to 11.4 are drawn full size for the 140 mm / 100 mm standard letter size. This means that they are equivalent to the 112 mm / 80 mm letter size factored up by 1,25. The letters are displayed on a grid of 3,5 mm x 3,5 mm squares to facilitate their enlargement or reduction for other sizes. The four-square dimension "b" should be enlarged or reduced so that it represents 1/10 of the required nominal letter size, e.g. to produce 112 mm letters the four-square dimension should be reduced from 14 mm ( 4 x 3,5 mm ), to 11,2 mm ( 4 x 2,8 mm ).
- 5 The spacing on signfaces between text and borders, between arrows and text, and between arrows and borders, has been related to "d" , the letter stroke width. In this way the whole signface has been made fully proportional to the letter stroke width "d", and thereby to the letter height chosen for the sign, given by the value "7d". This is illustrated in a simplified form in Figure 11.8. Full details of how this technique is used on the different categories of guidance sign are given in Chapters 4 to 7, and in Chapters 13 to 15 of this Volume.

### 11.1.6 "B MOD" Lettering

- 1 The SADC guidance sign system includes the possibility that signs may be used to indicate the name of the place that motorists have reached in the course of their journey. Such signs are classified as LOCATION signs and impart a "you are here" message. This message may also be incorporated into a DIRECTION (or FREEWAY DIRECTION) sign, normally in a panel on top of the sign. The message is displayed in a specific colour code involving the use of dark uppercase letters (or numerals in the case of an interchange "locational" number), on a light coloured background. The majority of such signs use

- BLACK letters on a WHITE background in these location panels.
- 2 There is a risk, with such a colour combination, that the legibility of a standard letter, of the design height chosen for a given sign, may be diminished by "overglow". This phenomenon has the effect of the apparent diminishing of the letter stroke width due to the brightness of an illuminated retroreflective white background. To combat this risk a special letter style, "B MOD", has been created. These letters have the same height, width and spacing characteristics as standard DIN 1451 Part 2 Style "B" letters, but have a stroke width which is 20% greater than that of normal Style "B" letters.
- 3 The "B MOD" uppercase letters and numerals are detailed in Section 11.4. Only uppercase letters and numerals are included because of the specific application of this group of letters to locational messages which are only displayed in uppercase letters. **A similar adaptation of lowercase letters is not recommended because the internal spaces of many of the letters are not large enough to absorb a broader stroke width without changing the overall size of the letters.**
- 4 It should be noted that due to the compact nature of STREET NAME signs GL1 uppercase DIN 1451 Part 2 Style "A" letters are normally specified. Style "A" letters are "compressed" in comparison to Style "B" letters and do not lend themselves to modification of the stroke width.

### 11.1.7 Cardinal Direction Letters

- 1 A limited number of sign types include an indication of the general direction taken by a route. This north, south, east or west "cardinal" direction is portrayed by specialised letters to differentiate them from those used for route number displays. These letters are only used as the last component of a route number "letter-number" group. For this reason cardinal direction letters should only be used in a yellow colour (see Section 11.5).

### 11.1.8 Determination of Word Lengths

- 1 The sizes of the various types of guidance signs detailed in this Manual can be determined once the letter size has been chosen and the lengths of the place names to appear as destinations on the sign are known. The process of determining the length of a place name has been computerised but if the necessary programs are not available the length may be determined from the information given in Tables 11.1 to 11.15.
- 2 The process of calculating the length of a destination name, or any other letter, number, or letter-number group is carried out at the BASIC LETTER HEIGHT of 112 mm / 80 mm and is then enlarged or decreased to the appropriate dimensions for the required letter size using the relevant factor from Table 11.3. The combined "letter-plus-inter-letter-space" dimensions are unique to each succeeding pair of letters and are given in the various tables. Once these are factored they may also be recorded to be used in the manufacture of the actual sign. An example of the factoring process is illustrated in Figure 11.9 for the destination "Cape Town" for a letter size of 350 mm / 250 mm, for both Style "A" and Style "B" letters.

(continued on page 11.1.6)

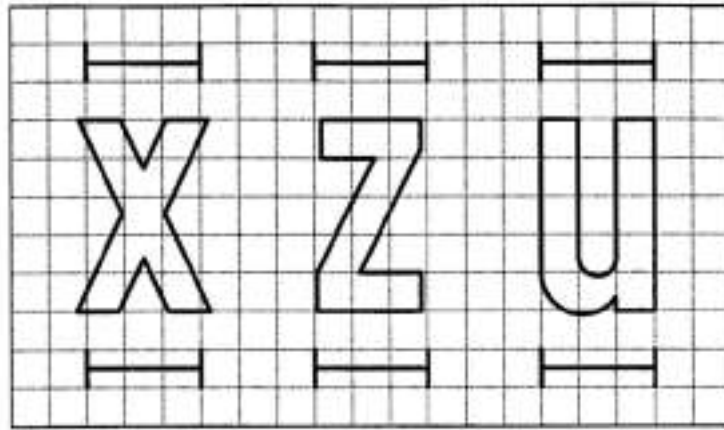


Fig 11.1 Variation in Letter Width

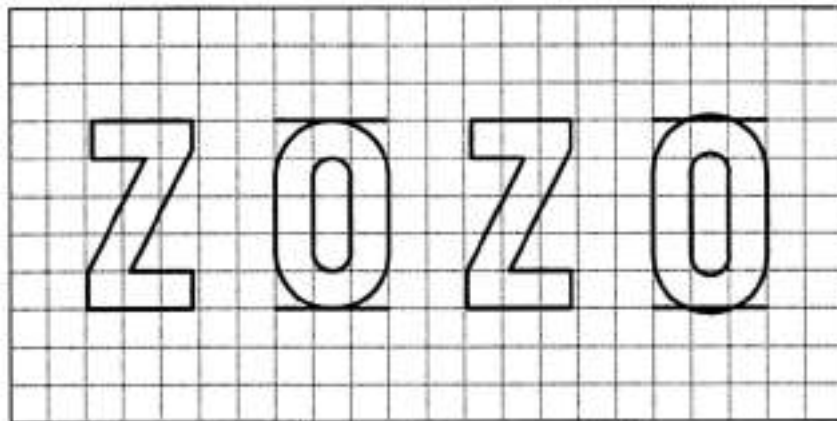


Fig 11.2 Variation in Letter Height

Optical Centre  
Geometric Centre

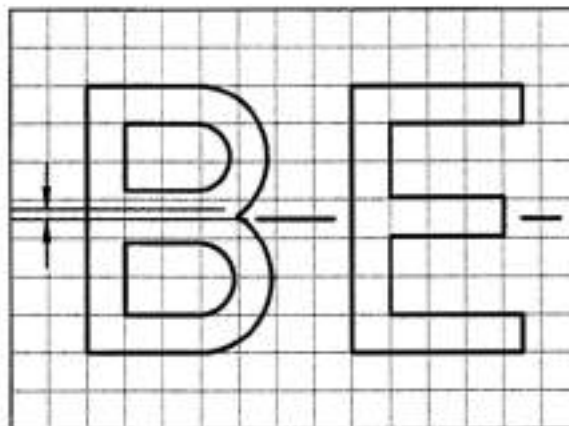


Fig 11.3 Variation in Letter Stroke Width

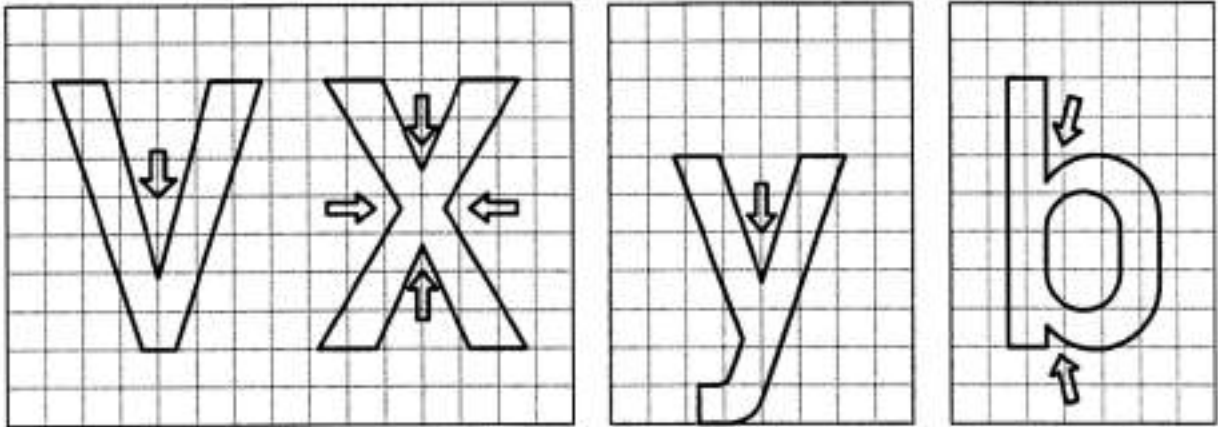


Fig 11.4 Tapering of letter Strokes

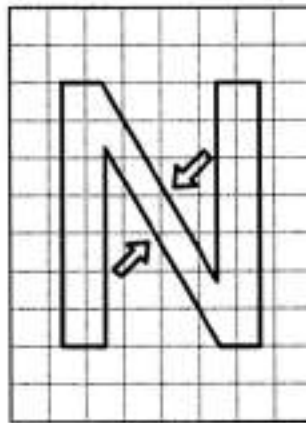


Fig 11.5 Reduction in Width of Diagonal Strokes

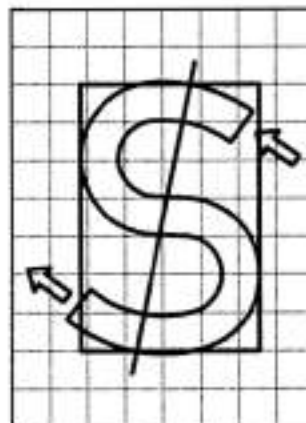


Fig 11.6 Tilting of letter "S"





Fig 11.7 Letter and Word Dimensioning and Spacing

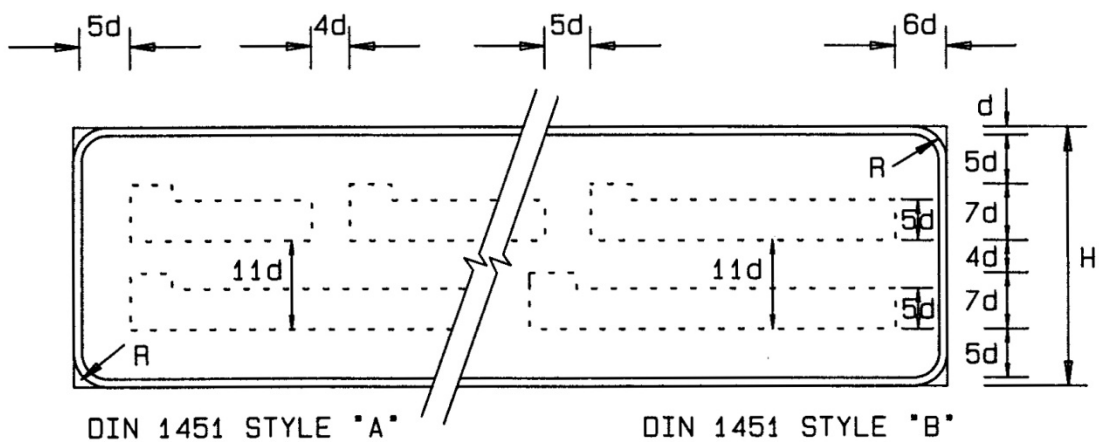


Fig 11.8 Basic Sign Dimensioning



Style A	(112/80)	60+64+62+48+64+54+56+94+48	550	550
				x 3,125
Style A	(350/250)	187+200+194+150+200+169+175+294+150		= 1719
Style B	(112/80)	93+88+84+66+80+81+78+30+64	764	764
				x 3,125
Style B	(350/250)	291+275+262+206+250+253+244+406+200		= 2387

Fig 11.9 Factoring of Letter / Word Spacing (all in mm)

(continued from page 11.1.2)

### 11.1.9 Dimension Tables

- 1 The following Tables 11.1 to 11.15 provide the necessary dimensional data to permit the spacing of any destination name, route number group, interchange (exit) number or other text required on a road signface.
- 2 The first three tables cover general data on letter sizes and spaces, and the factors required to obtain the data for a specific letter size from those given for the BASIC LETTER HEIGHT of 112 mm / 80mm.
- 3 The next six tables cover the various letter/letter, number/letter or number/number options for Style "A" letters commonly used in normal written text, including the more common punctuation marks. The subsequent six tables give the same information for Style "B" letters.<sup>4</sup>
- 4 There are a number of letter/letter or number/letter combinations which can occur but which are not common enough to warrant a full table. These include such combinations as:
  - (a) lowercase to uppercase letters as used in various languages e.g. uMkhelekehle or kwaMakhutha;
  - (b) upper case letter to number as used in route numbers e.g. N17 or R66;
  - (c) the addition of a specialised letter or symbol for a cardinal direction after a route number e.g. N4W. The spacing requirements for these special applications are listed below as usual for the 112 mm / 80 mm letter size.

#### APPLICATION

<b>Style "A"</b>	<b>mm</b>
<b>Lowercase letter to uppercase letter</b>	<b>= 12</b>
<b>Uppercase letter to number</b>	<b>= 16</b>
<b>Number to cardinal direction</b>	<b>= 16</b>
<b>Number to "m" (for metre)</b>	<b>= 32</b>
<b>Number to "km" (for kilometre)</b>	<b>= 32</b>
<b>Number to "t" (for tonne)<sup>(1)</sup></b>	<b>= +6</b>
<b>Number to "h" (for hour)<sup>(1)(2)</sup></b>	<b>= +8</b>

#### Style "B"

<b>mm</b>	
<b>Lowercase letter to uppercase letter</b>	<b>= 20</b>
<b>Uppercase letter to number</b>	<b>= 20</b>
<b>Number to cardinal direction</b>	<b>= 20</b>
<b>Number to "m" (for metre)</b>	<b>= 48</b>
<b>Number to "km" (for kilometre)</b>	<b>= 48</b>
<b>Number to "t" (for tonne)<sup>(1)</sup></b>	<b>= +8</b>
<b>Number to "h" (for hour)<sup>(1)(2)</sup></b>	<b>= +12</b>

#### NOTES:

- 1 The space given must be added to the "letter-plus-inter- letter" space from the table (Tables 11.7 and 11.13).
- 2 The letter "h" for "hour" should not be used in the 24-hour system.
- 3 The spacings for the above specific applications take precedence over any derived from Table 11.14.

Proportion	Dimension	†																									
Letter height (u/c) h	(7/7)h	21	28	35	42	49	56	63	70	77	84	98	105	112	126	140	175	210	245	280	315	350	385	420	490	560	630
Letter height (l/c) c	(5/7)h	15	20	25	30	35	40	45	50	55	60	70	75	80	90	100	125	150	175	200	225	250	275	300	350	400	450
Distance between base lines b	(11/7)h	33	44	55	66	77	88	99	110	121	132	154	165	176	198	220	275	330	385	440	495	550	605	660	770	880	990
Distance between words e*	(4/7)h	12	16	20	24	28	32	36	40	44	48	56	60	64	72	80	100	120	140	160	180	200	220	240	280	320	360
	(5/7)h	15	20	25	30	35	40	45	50	55	60	70	75	80	90	100	125	150	175	200	225	250	275	300	350	400	450
Stroke width d	(1/7)h	3	4	5	6	7	8	9	10	11	12	14	15	16	18	20	25	30	35	40	45	50	55	60	70	80	90

**NOTES :**

- 1 The stroke width of letters in the "B MOD" style is 20% greater than the values given for "d". Letter sizes are not affected.
- 2 e\* = (4/7)h for letter Style "A" and (5/7)h for letter Style "B".
- 3 u/c = uppercase letter height.
- 4 l/c = lowercase letter height.
- 5 † = BASIC LETTER HEIGHT - Letter width and spacing in Tables 11.4 to 11.15 refer to this letter height and should be factored for the required letter size (see Table 11.3).
- 6 Bold text refers to standard letter sizes.

**TABLE 11.1**

**DIMENSION PARAMETERS FOR DIN 1451 PART 2 LETTERIN**

**TABLE 11.1**

STYLE : B ( and "BMOD" )

A	96	a	64	1	32
B	78	b	64	2	64
C	79	c	64	3	66
D	80	d	64	4	72
E	72	e	66	5	64
F	72	f	40	6	64
G	80	g	64	7	64
H	80	h	64	8	68
I	17	i	16	9	64
J	65	j	30	0	64
K	88	k	70	?	60
L	72	l	28	!	20
M	96	m	112	/	48
N	84	n	64	(	31
O	80	o	66	)	31
P	78	p	64	%	64
Q	91	q	64	-	48
R	82	r	54	.	16
S	82	s	68	'	16
T	79	t	36	:	16
U	80	u	64	;	16
V	88	v	72	"	40
W	128	w	112	>	32
X	88	x	72	<	32
Y	84	y	72	&	80
Z	72	z	60		

STYLE : A

A	64	a	48	1	32
B	52	b	48	2	48
C	52	c	48	3	48
D	52	d	48	4	56
E	48	e	48	5	48
F	48	f	36	6	48
G	54	g	48	7	48
H	52	h	48	8	48
I	16	i	16	9	48
J	48	j	26	0	48
K	60	k	56	?	48
L	48	l	24	!	20
M	72	m	80	/	32
N	56	n	48	(	24
O	54	o	48	)	24
P	52	p	48	%	48
Q	63	q	48	-	48
R	58	r	37	.	16
S	55	s	48	'	16
T	54	t	34	:	16
U	52	u	48	;	16
V	60	v	56	"	32
W	88	w	84	>	32
X	62	x	56	<	32
Y	60	y	56	&	56
Z	48	z	44		

NOTES:

1. Sizes given are for the 112 mm / 80 mm BASIC LETTER HEIGHT and are in millimetres (see Table 11.3).
2. "B MOD" letter sizes are the same as Style "B" letters.

TABLE 11.2 WIDTHS OF LETTERS, NUMERALS AND PUNCTUATION SYMBOLS - 112 mm / 80 mm TABLE 11.2

h = 21 mm	k = 0,1875	h = 175 mm	k = 1,5625
h = 28 mm	k = 0,25	h = 210 mm	k = 1,875
h = 35 mm	k = 0,3125		
h = 42 mm	k = 0,375	h = 245 mm	k = 2,1875
h = 49 mm	k = 0,4375	h = 280 mm	k = 2,5
h = 56 mm	k = 0,5		
h = 63 mm	k = 0,5625	h = 315 mm	k = 2,8125
h = 70 mm	k = 0,625	h = 350 mm	k = 3,125
h = 77 mm	k = 0,6875		
h = 84 mm	k = 0,75	h = 385 mm	k = 3,4375
h = 98 mm	k = 0,875	h = 420 mm	k = 3,75
h = 105 mm	k = 0,9375		
<b>BASIC LETTER HEIGHT</b>			
<b>h = 112 mm</b>	<b>k = 1</b>	h = 490 mm	k = 4,375
h = 126 mm	k = 1,125	h = 560 mm	k = 5,0
h = 140 mm	k = 1,25	h = 630 mm	k = 5,625

**NOTES :**

1. The uppercase letter height "h" divided by 7 gives the letter stroke width "g" for each letter size.
2. Standard letter sizes are shown in bold type.
3. Any letter, number or symbol width for a specific height may be determined by multiplying the value for the width given in Table 11.2 by the appropriate factor "k" from this table.

**TABLE 11.3**

**LETTERS SIZING FACTORS "K"**

**TABLE 11.3**

LETTER WIDTH	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	/	-	.	‘	’	“	”	&		
64	72	76	72	76	76	76	72	76	76	76	76	76	76	76	76	76	72	76	76	76	70	66	62	64	72	60	88	62	60	48	32	48	16	24	56	
52	60	68	66	68	68	68	66	68	68	68	68	68	68	68	68	68	66	68	68	68	64	60	58	60	60	58	62	64	72	62	68	68	68	68		
52	60	66	64	66	66	66	64	66	66	66	66	66	66	66	66	66	64	66	66	66	62	58	58	60	60	58	60	60	68	62	64	66	66	66		
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48	58	64	60	64	64	64	60	64	64	64	64	64	64	64	64	64	60	64	64	64	58	58	58	58	58	58	60	60	68	60	64	64	64	64		
48	48	60	58	60	60	60	58	60	60	60	60	60	60	60	60	60	58	60	60	60	56	56	56	56	56	56	58	60	68	46	64	60	60	60		
54	62	70	68	70	70	70	68	70	70	70	70	70	70	70	70	68	70	70	70	66	62	68	60	62	62	60	64	62	70	64	66	70	64	66		
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16	28	34	32	34	34	34	32	34	34	34	34	34	34	34	34	32	34	34	34	30	26	32	28	28	28	26	30	28	36	30	32	34	34	34		
48	56	64	62	64	64	64	62	64	64	64	64	64	64	64	64	62	64	64	64	60	58	64	58	58	58	58	60	44	52	58	58	64	58	64		
60	68	70	66	70	70	70	66	70	70	70	70	70	70	70	70	66	70	66	70	64	64	68	64	66	68	64	70	72	80	70	76	70	76	70		
48	56	60	56	60	60	60	56	60	60	60	60	60	60	60	60	56	60	56	60	56	46	56	44	48	56	44	58	60	68	60	64	60	64	60		
72	84	90	88	90	90	90	88	90	90	90	90	90	90	90	88	90	88	90	88	82	88	82	84	84	82	86	84	92	86	84	92	86	88	90		
56	68	74	72	74	74	74	72	74	74	74	74	74	74	74	74	72	74	72	74	70	66	72	66	68	68	66	70	68	76	70	72	74	74	74	74	
54	62	70	68	70	70	70	68	70	70	70	70	70	70	70	68	70	68	70	68	66	62	68	60	62	62	60	64	62	70	64	66	70	64	66	70	
52	50	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	58	64	58	58	58	58	60	64	72	50	68	64	64	64	64	
63	69	73	71	73	73	73	71	73	73	73	73	73	73	73	73	71	73	71	73	71	63	71	65	65	71	63	73	71	79	73	75	73	73	73	73	
58	66	70	68	70	70	70	68	70	70	70	70	70	70	70	68	70	68	70	68	66	62	68	62	64	66	62	68	70	78	68	74	70	74	70		
55	61	69	67	69	69	69	67	69	69	69	69	69	69	69	67	69	67	69	67	65	61	69	61	63	63	61	65	61	71	65	65	69	69	69	69	
54	52	64	62	64	64	64	62	64	64	64	64	64	64	64	62	64	62	64	60	62	64	60	62	62	62	60	62	64	60	56	66	64	64	64	64	
52	60	68	66	68	68	68	66	68	68	68	68	68	68	68	66	68	66	68	66	64	62	68	60	62	62	60	64	64	68	62	66	68	68	68	68	
60	58	70	66	70	70	70	66	70	70	70	70	70	70	70	66	70	66	70	64	66	66	66	66	66	66	66	68	70	68	62	70	70	70	70	70	
88	88	100	96	100	100	100	96	100	100	100	100	100	100	100	96	100	96	100	96	94	96	98	94	94	96	98	98	96	90	98	100	98	100	100		
62	70	74	70	74	74	74	70	74	74	74	74	74	74	74	70	74	70	74	70	68	70	72	68	68	70	68	72	70	70	72	74	74	74	74	74	
60	56	70	66	70	70	70	66	70	70	70	70	70	70	70	66	70	66	70	66	66	66	66	66	66	66	66	68	70	68	56	70	70	70	70	70	
48	56	62	58	62	62	62	58	62	62	62	62	62	62	62	58	62	58	62	58	58	58	58	58	58	58	58	60	58	62	60	62	62	62	62	62	
32	32	44	40	44	44	44	40	44	44	44	44	44	44	44	40	44	40	44	40	36	42	44	42	42	42	40	42	32	32	32	32	32	32	32	32	
48	58	68	64	68	68	68	64	68	68	68	68	68	68	68	64	68	64	68	64	64	54	64	56	56	56	56	56	62	48	48	48	48	48	48	48	48
16	30	34	30	34	34	34	30	34	34	34	34	34	34	34	30	34	30	34	30	22	30	24	24	24	24	24	24	16	16	16	16	16	16	16	16	
24	36	40	36	40	40	40	36	40	40	40	40	40	40	40	36	40	36	40	36	34	36	34	34	34	34	34	34	24	24	24	24	24	24	24	24	
56	68	74	72	74	74	74	72	74	74	74	74	74	74	74	72	74	72	74	70	68	72	66	68	68	68	68	70	68	76	70	72	74	74	74	74	

TABLE 11.4 STYLE "A" LETTER SPACING - UPPERCASE LETTER TO UPPERCASE LETTER TABLE 11.4

LETTER WIDTH	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
64	72	76	72	74	72	74	76	74	76	74	76	74	76	74	76	74	76	74	76	74	76	74	76	74	76	74
52	64	68	66	68	66	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
52	60	66	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
52	64	68	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
48	60	64	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
48	56	60	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
54	68	70	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
52	68	70	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
16	30	34	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
48	62	64	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
60	66	70	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
48	56	60	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
72	86	90	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
56	70	74	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
54	66	70	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
52	60	64	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
63	69	73	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
58	64	70	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
55	67	69	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
54	54	64	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
52	66	68	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
60	64	68	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
88	94	98	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94
62	68	72	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
60	60	68	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
48	58	60	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58

TABLE 11.5 STYLE "A" LETTER SPACING - UPPERCASE LETTER TO LOWERCASE LETTER TABLE 11.5





LETTER WIDTH	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
48	67	68	65	65	64	64	66	68	66	66	67	69	69	69	66	68	69	68	66	63	68	61	61	61	61	63	0
32	56	54	52	52	50	51	52	54	52	54	53	55	53	53	52	52	56	52	53	48	52	45	45	45	45	47	1
48	67	65	63	63	62	64	64	65	64	63	65	67	67	67	64	65	66	65	64	61	65	59	58	61	59	63	2
48	69	68	65	65	64	64	66	68	66	66	67	69	69	69	66	68	69	68	66	63	68	61	61	61	61	63	3
56	75	73	71	71	70	72	72	73	72	74	73	75	75	75	72	73	74	73	72	72	71	67	66	67	67	71	4
48	67	68	65	65	64	64	66	68	66	66	67	69	69	69	66	68	69	68	66	63	68	61	61	61	61	63	5
48	67	68	65	65	64	64	66	68	66	66	67	69	69	69	66	68	69	68	66	61	65	59	58	59	59	61	6
48	56	63	59	63	61	61	68	63	62	59	63	64	60	60	59	59	59	59	59	59	59	64	64	64	64	61	7
48	67	68	65	65	64	64	66	68	66	66	67	69	69	67	66	68	69	68	66	63	68	61	61	61	61	63	8
48	64	65	61	61	60	67	62	65	64	63	65	67	64	64	62	63	64	63	62	63	63	61	61	61	61	61	9

TABLE 11.7

STYLE "A" LETTER SPACING - NUMBER TO UPPERCASE LETTER

LETTER WIDTH	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	
48	64	66	64	64	64	60	64	66	66	58	66	66	66	66	64	66	64	66	64	62	66	60	60	60	60	62	0
32	50	52	50	50	48	48	50	52	52	44	52	52	50	50	50	50	50	50	50	48	50	44	44	44	44	48	1
48	62	64	62	62	62	60	62	64	64	56	64	64	64	64	62	64	62	64	62	60	64	58	58	60	58	62	2
48	64	66	64	64	64	60	64	66	66	58	66	66	66	66	64	66	64	66	64	62	66	60	60	60	60	62	3
56	70	72	70	70	70	68	70	72	72	68	72	72	72	72	70	72	70	72	70	66	70	66	66	66	66	70	4
48	64	66	64	64	64	60	64	66	66	60	66	66	66	66	64	66	64	66	64	62	66	60	60	60	60	62	5
48	84	88	84	84	84	80	84	86	86	56	86	86	86	86	84	86	84	86	84	80	84	58	58	58	58	60	6
48	54	62	54	56	54	58	66	62	62	54	62	62	58	58	54	58	56	58	54	58	58	54	54	54	54	56	7
48	84	86	84	84	84	80	84	86	86	58	86	86	86	86	84	86	84	86	84	80	86	60	60	60	60	62	8
48	60	64	60	60	60	62	60	64	64	56	64	64	62	62	60	62	60	62	60	62	62	60	60	60	60	60	9

TABLE 11.8

STYLE "A" LETTER SPACING - NUMBER TO LOWERCASE LETTER



LETTER WIDTH	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	/	.	..	)	&		
96	108	112	106	112	112	112	106	112	112	104	112	112	112	106	112	106	112	106	112	104	90	106	90	92	106	90	108	90	112	118	108	106	
78	88	100	94	100	100	100	94	100	100	94	100	100	100	94	100	94	100	94	100	92	86	96	88	88	86	86	84	92	106	104	96	94	
79	87	99	95	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	93	85	97	85	87	87	85	93	87	103	89	91	95	
80	90	102	98	102	102	102	98	102	102	98	102	102	102	98	102	98	102	98	102	94	88	100	88	90	90	88	94	94	108	106	98	98	
72	84	94	88	94	94	94	88	94	94	88	94	94	94	88	94	88	94	88	94	88	84	82	84	86	84	84	90	86	100	98	90	88	
72	88	84	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	84	82	88	84	84	82	86	86	100	98	90	84	84	
80	90	102	98	102	102	102	98	102	102	98	102	102	102	98	102	98	102	98	102	94	88	100	88	90	90	88	94	88	104	100	92	98	
80	96	106	102	106	106	106	102	106	106	102	106	102	102	106	102	106	102	106	102	96	104	94	96	96	98	96	100	94	108	106	98	102	
17	33	43	39	43	43	43	39	43	43	31	43	43	43	39	43	39	43	39	43	35	33	41	31	33	33	33	37	31	45	43	35	39	
65	75	89	85	89	89	89	85	89	89	75	89	89	89	85	89	85	89	85	89	79	77	87	75	77	77	77	75	83	61	75	87	85	
88	98	104	96	104	104	104	96	104	104	96	104	104	104	96	104	96	104	96	104	94	96	98	94	94	96	94	102	102	116	114	106	96	
72	80	88	82	88	88	88	82	88	88	82	88	88	88	82	88	82	88	82	88	82	68	82	68	70	80	68	86	86	100	98	90	82	
96	112	122	118	122	122	122	118	122	122	110	122	122	122	118	122	118	122	118	122	114	112	120	110	112	112	112	116	110	124	122	114	118	
84	100	110	106	110	110	110	106	110	110	98	110	110	110	106	110	106	110	106	110	102	100	108	98	100	100	100	104	98	112	110	102	106	
80	90	102	96	102	102	102	96	102	102	90	102	102	102	96	102	96	102	96	102	94	88	100	88	90	90	88	94	88	104	100	92	98	
78	76	96	94	96	96	96	94	96	96	72	96	96	96	94	96	94	96	94	96	90	86	96	86	86	84	86	92	106	104	96	94	94	
91	97	107	101	107	107	107	101	107	107	99	107	107	107	101	107	101	107	101	107	103	89	101	89	91	97	89	103	99	115	111	103	101	
82	92	102	94	102	102	102	94	102	102	90	102	102	102	94	102	94	102	94	102	92	86	96	88	82	86	86	94	96	110	108	100	94	
82	90	102	96	102	102	102	96	102	102	90	102	102	102	96	102	96	102	96	102	96	90	100	90	90	92	90	96	86	100	104	92	98	
79	73	95	87	95	95	95	87	95	95	75	95	95	95	87	95	87	95	87	95	85	89	91	87	89	89	87	93	89	87	91	87	87	
80	90	104	100	104	104	104	100	104	104	90	104	104	104	100	104	100	104	100	104	94	92	102	90	82	92	90	98	90	104	100	94	100	
88	82	102	96	102	102	102	96	102	102	84	102	102	102	96	102	96	102	96	102	92	96	98	96	96	96	96	100	98	100	98	96	96	
128	124	144	138	144	144	144	138	144	144	128	144	144	144	138	144	138	144	138	144	134	138	140	136	136	136	136	140	138	140	138	138	138	
88	98	104	98	104	104	104	98	104	104	96	104	104	104	98	104	98	104	98	104	96	98	100	96	96	98	96	102	96	100	110	100	98	
84	78	100	92	100	100	100	92	100	100	80	100	100	100	92	100	92	100	92	100	88	92	94	92	92	92	92	96	94	94	96	94	92	
72	82	94	88	94	94	94	88	94	94	82	94	94	94	88	94	88	94	88	94	84	84	86	84	84	82	84	90	84	101	96	88	88	
48	42	62	56	62	62	62	56	62	62	44	62	62	62	56	62	56	62	56	62	52	58	58	58	58	56	58	60	48	48	48	56	7	
48	64	76	72	76	76	76	72	76	76	58	76	76	76	72	76	72	76	72	76	66	56	72	60	60	60	58	77	48	48	48	72	.	
16	38	42	36	42	42	42	36	42	42	42	38	42	42	36	42	36	42	36	42	38	24	36	28	28	38	28	40	16	16	16	36	..	
31	43	49	43	49	49	49	43	49	49	41	49	49	49	43	49	43	49	43	49	41	43	45	41	41	43	41	47	31	31	31	43	(	
80	90	102	96	102	102	102	96	102	102	90	102	102	102	96	102	96	102	96	102	94	88	100	88	90	90	88	94	88	104	100	92	98	&

TABLE 11.10 STYLE "B" LETTER SPACING - UPPERCASE LETTER TO UPPERCASE LETTER TABLE 11.10

LETTER WIDTH	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
96	106	112	106	108	106	106	108	112	112	104	112	110	110	110	106	110	108	110	104	104	108	102	102	104	102	106
78	96	100	96	98	98	96	98	100	100	88	100	100	100	100	98	100	98	100	94	96	98	94	94	94	94	96
79	93	99	97	97	97	95	97	99	99	87	99	99	99	99	97	99	97	99	93	95	99	93	93	93	93	95
80	98	102	98	100	100	100	100	102	102	90	102	102	102	102	100	102	100	102	96	100	100	96	96	96	96	98
72	88	94	88	90	88	88	90	94	94	82	94	94	90	90	88	90	90	88	88	88	90	86	86	86	86	88
72	78	88	84	86	84	86	86	88	88	76	88	88	88	88	84	88	86	88	80	86	88	82	82	82	82	84
80	98	102	98	100	100	100	100	102	102	90	102	102	102	102	100	102	100	102	96	100	100	96	96	96	96	98
80	100	106	100	102	102	100	102	106	106	94	106	106	104	104	102	104	102	106	100	102	104	98	98	98	98	100
17	37	43	37	39	39	37	39	43	43	31	43	43	41	41	39	41	39	43	37	39	41	35	35	35	35	37
65	83	89	83	85	85	85	85	89	89	77	89	89	87	87	85	87	85	87	81	87	85	81	81	81	81	83
88	96	104	96	98	96	96	98	104	102	94	104	102	102	102	96	102	98	100	94	94	98	92	92	92	92	98
72	84	88	84	84	84	80	84	88	88	78	88	86	88	88	84	88	84	88	82	78	84	72	72	82	74	86
96	116	122	116	118	118	116	118	122	122	110	122	122	120	120	118	120	118	122	116	118	120	114	114	114	114	116
84	104	110	104	106	106	104	106	110	110	98	110	110	108	108	106	108	106	110	104	106	108	102	102	102	104	104
84	98	102	98	100	100	98	100	102	102	90	102	102	102	102	100	102	100	102	96	98	100	96	96	96	96	98
78	88	96	90	92	90	92	92	96	96	84	96	96	96	96	90	96	92	96	86	92	96	90	90	90	90	92
91	103	107	101	103	101	103	103	107	107	97	107	105	107	107	101	109	103	107	99	103	103	99	99	99	99	101
82	96	102	94	96	94	96	96	102	102	92	102	102	102	102	94	102	96	102	96	96	98	92	92	94	92	96
82	96	102	98	100	100	96	100	102	102	90	102	102	102	102	100	102	100	102	96	96	100	92	92	92	94	96
79	81	95	81	83	81	87	83	95	95	83	95	87	87	87	81	87	83	87	81	87	87	83	83	83	83	83
80	98	104	98	100	100	100	100	104	104	92	104	104	102	102	100	102	100	102	96	102	100	96	96	96	96	98
88	92	102	94	96	94	98	96	102	102	90	102	102	100	100	94	100	96	100	90	98	100	94	94	94	94	96
128	134	144	136	138	136	138	138	144	142	130	144	144	140	140	136	140	138	140	132	138	140	134	134	134	134	136
88	96	104	96	98	96	96	98	104	102	94	104	102	102	102	96	102	98	100	94	94	98	92	92	92	92	98
84	86	100	86	88	86	94	88	100	98	86	100	100	94	94	86	94	88	94	84	94	92	88	88	88	88	90
72	88	94	88	90	88	88	90	94	94	82	94	94	90	90	88	90	90	90	88	88	90	86	86	86	86	88

TABLE 11.11

STYLE "B" LETTER SPACING - UPPERCASE LETTER TO LOWERCASE LETTER

TABEL 11.11

LETTER WIDTH	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	/	-	..	)	&		
64	88	84	84	86	86	82	86	88	88	76	88	88	88	88	88	88	86	88	82	82	86	80	80	80	80	82	80	88	84	82	80		
64	86	82	84	84	80	84	86	86	86	86	86	86	86	86	84	86	84	86	80	80	86	78	78	78	80	76	88	80	78	78			
64	80	76	80	78	74	78	80	80	80	80	80	80	80	80	80	80	78	80	76	74	80	72	72	72	74	76	80	80	74	72			
64	84	84	86	86	86	86	86	88	88	90	90	88	88	88	86	88	86	88	84	86	88	82	82	82	82	84	80	87	84	82	82		
66	84	84	86	86	86	82	86	88	88	76	88	88	88	88	86	88	86	88	82	84	88	78	78	78	80	78	90	82	78	78			
40	52	60	52	54	54	54	60	60	60	48	60	58	58	58	54	58	54	58	52	54	56	52	52	52	54	42	56	50	56	52	f		
64	84	88	84	86	86	84	86	88	88	78	88	88	88	88	86	88	86	88	84	84	88	82	82	82	84	80	90	84	84	82	g		
64	82	88	84	86	86	82	86	88	88	76	88	88	88	88	86	88	86	88	82	82	86	80	80	80	80	82	80	88	84	82	80	h	
16	36	40	36	38	38	38	40	40	40	28	40	40	40	40	38	40	38	40	36	38	40	34	34	34	34	36	32	44	36	34	34	i	
30	50	54	50	52	52	52	54	54	54	48	54	54	54	54	52	54	52	54	50	52	54	48	48	48	48	50	46	56	50	48	48	j	
70	80	84	80	82	80	82	82	84	84	72	84	84	84	84	80	84	82	84	78	80	82	78	78	78	80	80	84	84	80	84	80	78	k
28	38	48	42	44	44	44	44	48	48	38	48	48	48	48	46	44	46	44	40	40	44	38	38	38	42	40	46	46	42	38	48	l	
112	130	136	132	134	134	130	134	136	136	124	136	136	136	136	134	136	134	136	130	130	134	128	128	128	130	128	136	132	130	128	128	m	
64	82	88	84	86	86	82	86	88	88	76	88	88	88	88	86	88	86	88	82	82	86	80	80	80	80	82	80	88	84	82	80	n	
66	84	88	84	86	86	82	86	88	88	76	88	88	88	88	86	88	86	88	82	82	86	80	80	80	80	82	80	88	84	82	80	o	
64	82	86	82	84	84	80	84	86	86	74	86	86	86	86	84	86	84	86	80	80	86	78	78	78	80	76	88	80	78	78	p		
64	84	88	84	86	86	84	86	88	88	80	88	88	88	88	86	88	86	88	84	84	88	82	82	82	82	84	80	90	84	84	82	q	
54	62	66	60	62	62	62	62	66	66	56	66	66	66	66	62	66	62	66	60	62	66	62	62	62	62	62	62	66	64	62	62	r	
68	84	88	84	86	86	82	86	88	88	76	88	88	88	88	86	88	86	88	82	82	86	80	80	80	80	82	80	88	84	80	80	s	
36	52	58	52	54	54	54	58	58	58	48	58	58	58	58	54	58	54	58	50	52	54	50	50	50	54	48	56	54	52	50	t		
64	84	88	84	86	86	84	86	88	88	76	88	88	88	88	86	88	86	88	84	84	88	82	82	82	82	84	80	90	84	82	82	u	
72	84	90	84	86	84	86	86	88	88	90	78	90	88	90	84	90	86	88	82	84	88	82	82	82	82	84	72	88	74	82	82	v	
112	124	130	124	126	124	126	130	130	130	118	130	128	130	130	124	130	126	128	122	124	128	122	122	122	124	114	128	116	122	122	w		
72	84	90	84	86	84	86	86	88	88	90	78	90	88	90	84	90	86	88	82	84	88	82	82	82	82	84	82	88	86	84	82	x	
72	84	90	84	86	84	86	86	88	88	90	78	90	88	90	84	90	86	88	82	84	88	82	82	82	82	84	72	88	74	82	82	y	
60	74	80	74	76	76	76	80	80	80	68	80	78	80	80	74	80	76	80	72	74	78	74	74	74	74	76	72	80	78	76	74	z	
48	64	60	60	64	60	60	64	64	64	64	58	60	64	64	60	64	60	64	60	60	64	48	50	58	48	60	48	48	48	48	48	l	
48	72	72	64	71	72	64	74	72	76	74	62	68	72	72	72	72	74	60	72	68	74	64	64	64	64	68	48	48	48	48	48	-	
16	38	42	38	38	38	36	42	42	42	32	42	40	42	42	38	42	38	42	38	42	38	34	38	28	40	16	16	16	16	28	..		
31	49	45	41	49	43	47	51	49	49	51	41	45	49	49	43	45	51	39	43	47	49	41	41	43	41	47	31	31	31	41	(		
80	84	90	84	86	84	86	86	88	88	90	78	90	88	90	84	90	86	88	82	84	88	82	82	82	82	84	72	88	74	82	82	&	

TABLE 11.12 STYLE "B" LETTER SPACING - LOWERCASE LETTER TO LOWERCASE LETTER TABLE 11.12

LETTER WIDTH	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
64	91	91	86	89	84	90	89	92	87	77	92	93	93	93	86	91	92	93	83	90	89	84	82	84	83	86	0
32	62	64	57	60	54	58	60	65	60	50	65	66	64	64	56	61	63	66	54	61	62	54	53	54	53	56	1
64	88	91	84	87	81	88	87	92	87	77	92	93	90	90	83	86	90	88	81	88	87	81	80	81	80	83	2
66	91	91	86	89	84	90	89	92	87	77	92	93	93	93	86	91	92	93	83	90	89	84	82	84	83	86	3
72	96	99	92	95	89	96	95	100	95	87	100	101	101	101	91	99	98	101	89	93	95	87	86	89	86	94	4
64	91	93	86	89	84	90	89	94	90	79	94	96	93	93	86	91	92	93	83	93	89	84	82	84	83	86	5
64	91	91	86	89	84	85	89	92	87	77	92	93	93	93	86	91	92	93	83	85	92	79	78	79	78	81	6
64	73	84	74	84	82	74	84	81	73	84	85	85	82	82	74	79	75	80	74	82	79	84	84	84	84	82	7
68	95	95	90	93	88	94	96	96	91	81	96	97	97	97	90	95	96	97	85	94	93	88	86	88	87	90	8
64	82	88	79	82	77	85	82	89	85	72	89	90	88	88	79	84	84	85	76	85	84	76	75	76	76	78	9

TABLE 11.13

STYLE "B" LETTER SPACING - NUMBER TO UPPERCASE LETTER

TABLE 11.13

NOTE: Specific spacing examples given on page 11.1.6 take precedence of Table 11.14

LETTER WIDTH	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	
64	82	85	82	84	82	84	84	86	86	84	86	86	86	86	82	86	84	86	80	84	84	80	80	80	80	82	0
32	52	58	52	54	52	52	54	58	58	48	58	58	56	56	52	56	54	58	60	54	56	50	50	50	50	52	1
64	80	86	80	82	80	82	82	86	86	74	86	86	84	84	80	82	82	82	78	82	82	78	78	78	78	80	2
66	82	86	82	84	82	84	84	86	86	74	86	86	86	86	82	86	84	86	80	84	84	80	80	80	80	82	3
72	88	94	88	90	88	90	90	94	94	84	94	94	94	94	88	94	90	94	86	88	90	84	84	86	84	90	4
64	82	88	82	84	82	84	84	88	88	76	88	88	86	86	82	86	84	86	80	86	84	80	80	80	80	82	5
64	82	86	82	84	82	80	84	86	86	74	86	86	86	86	82	86	84	86	80	80	86	76	76	76	76	78	6
64	70	80	70	72	70	78	72	80	80	68	80	80	78	78	70	76	72	76	68	78	76	70	70	70	70	72	7
66	86	90	86	88	86	88	90	90	90	78	90	90	90	90	86	90	88	90	82	88	88	84	84	84	84	86	8
64	76	84	76	78	76	80	78	84	84	70	84	84	82	82	76	80	78	80	74	80	80	74	74	74	74	76	9

TABLE 11.14

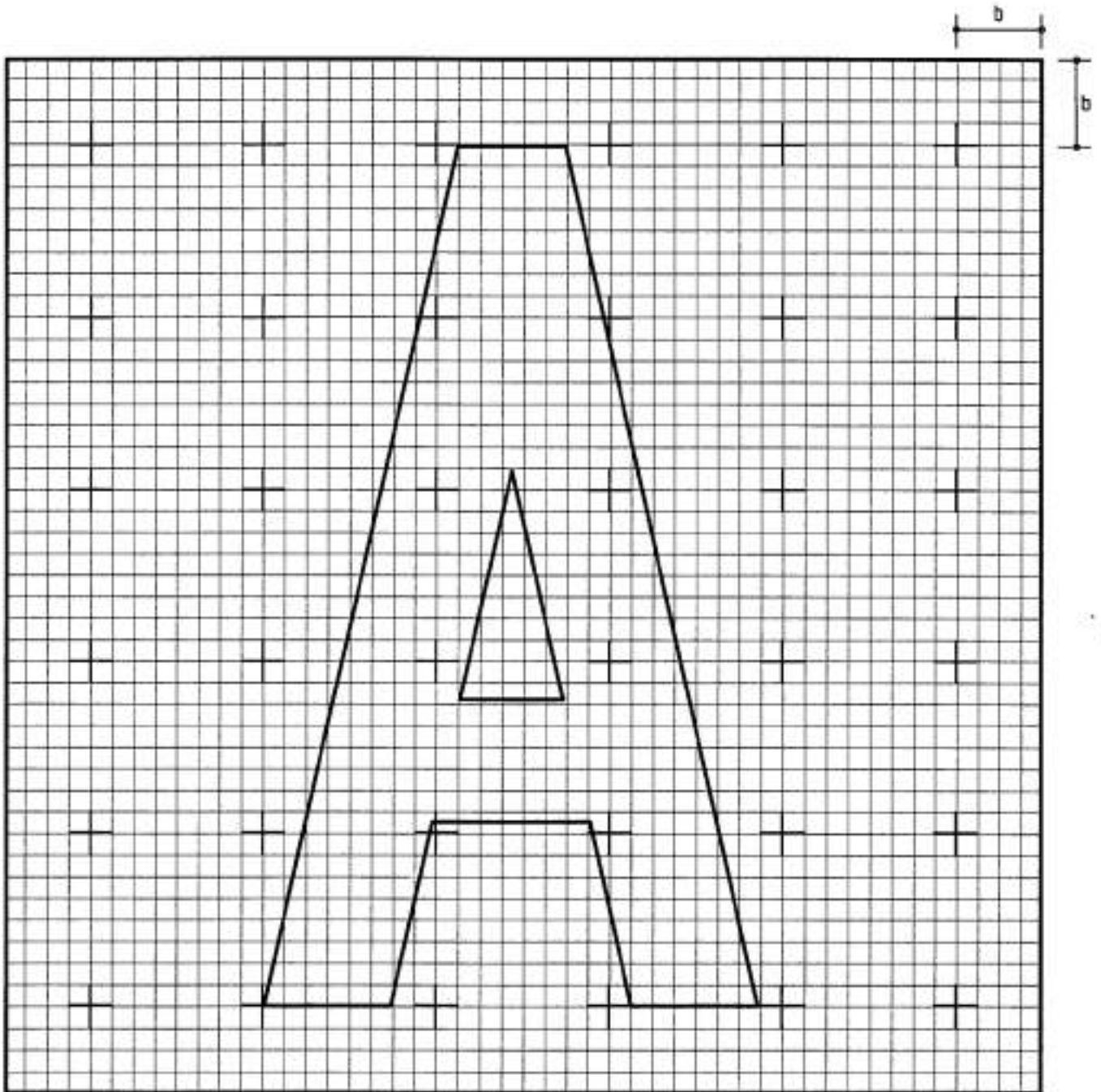
STYLE "B" LETTER SPACING - NUMBER TO LOWERCASE LETTER

TABLE 11.14

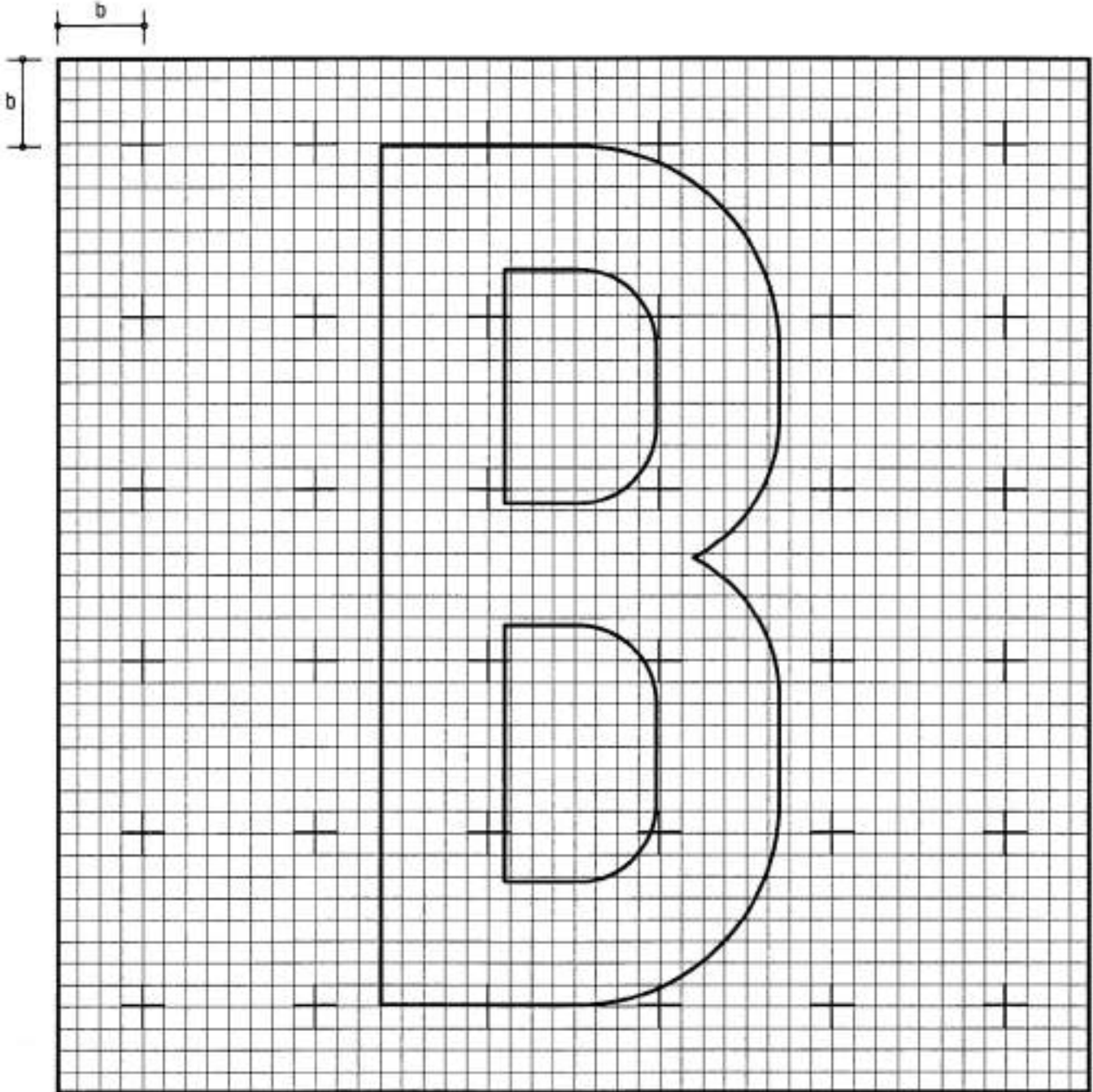




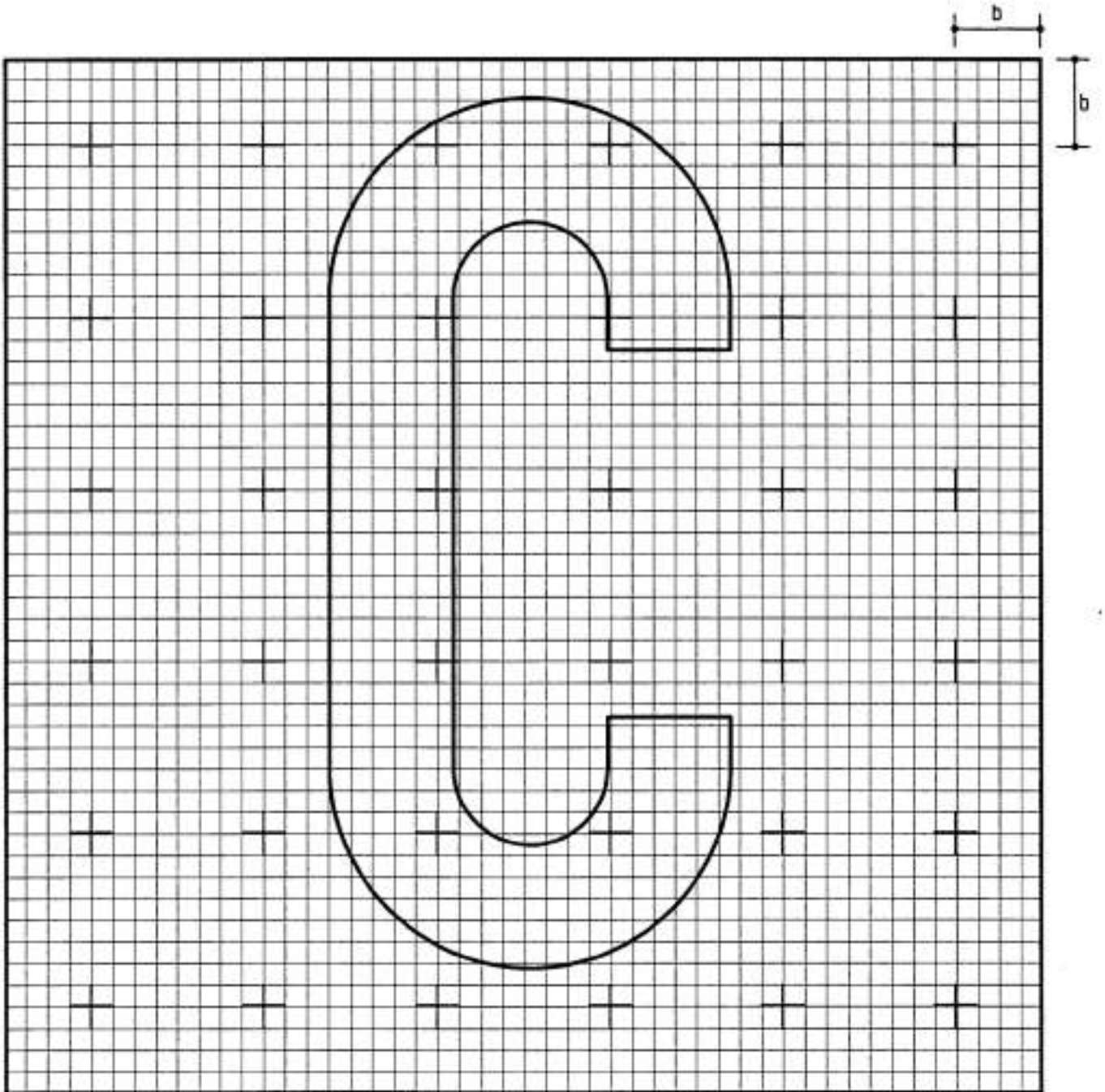




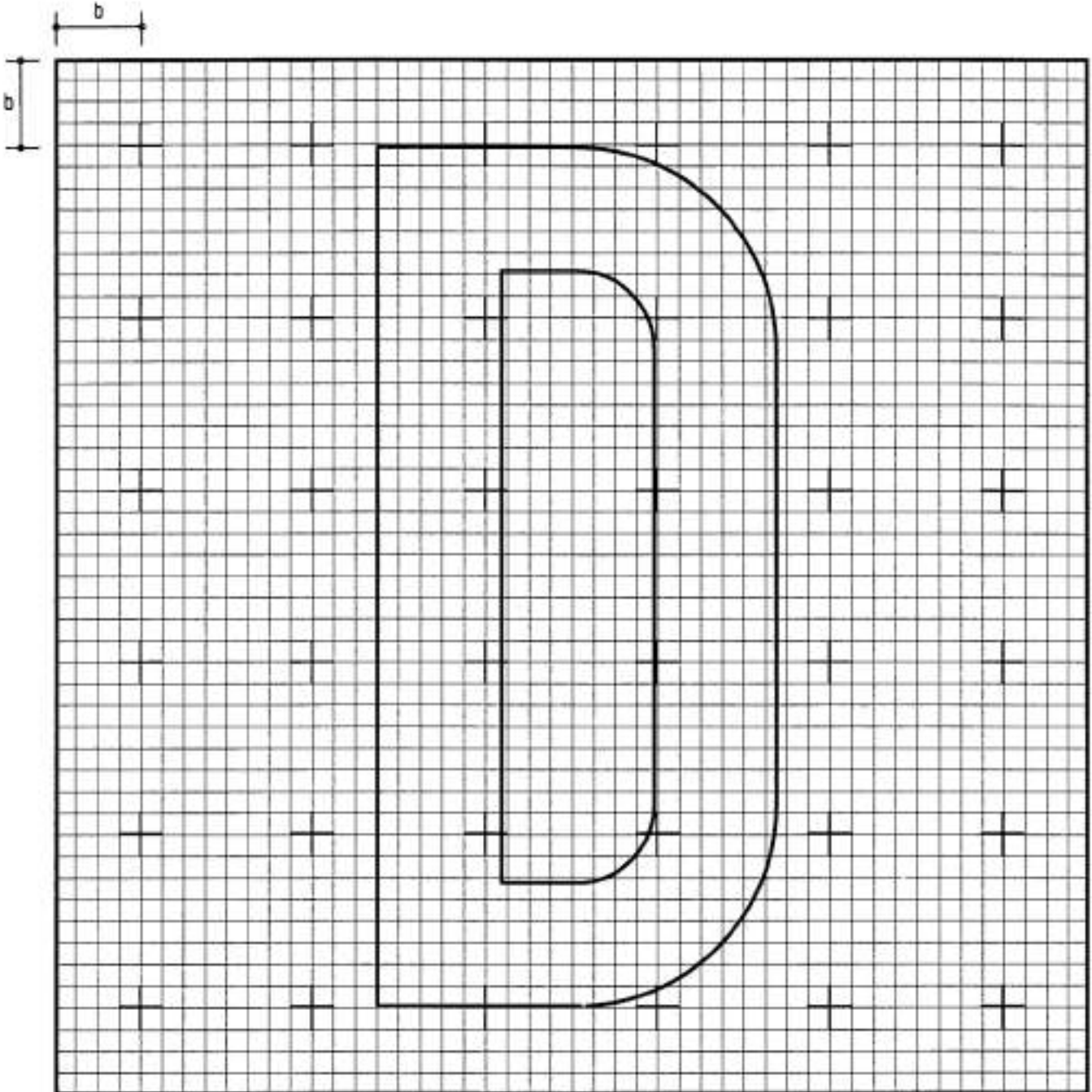
B

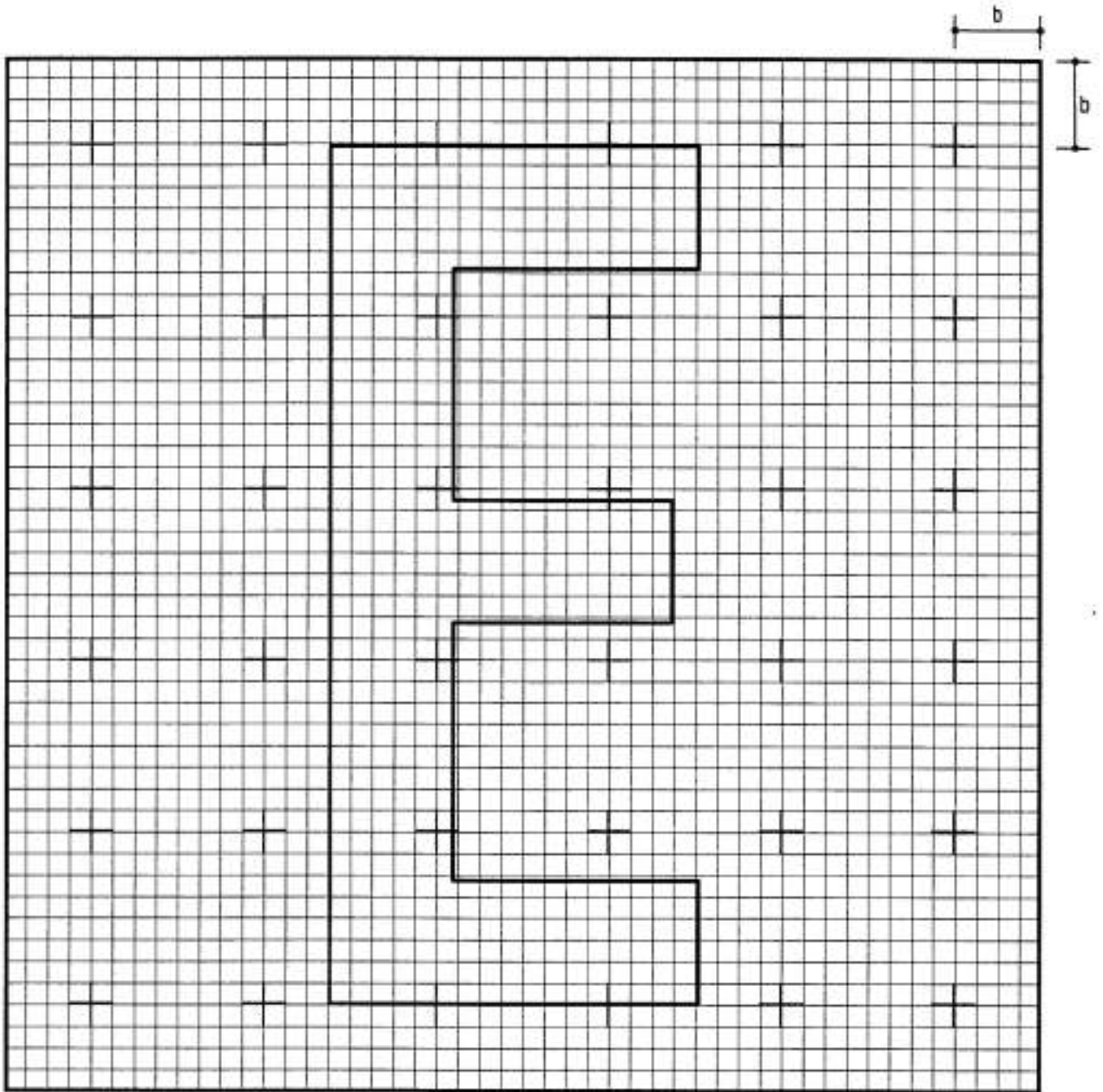


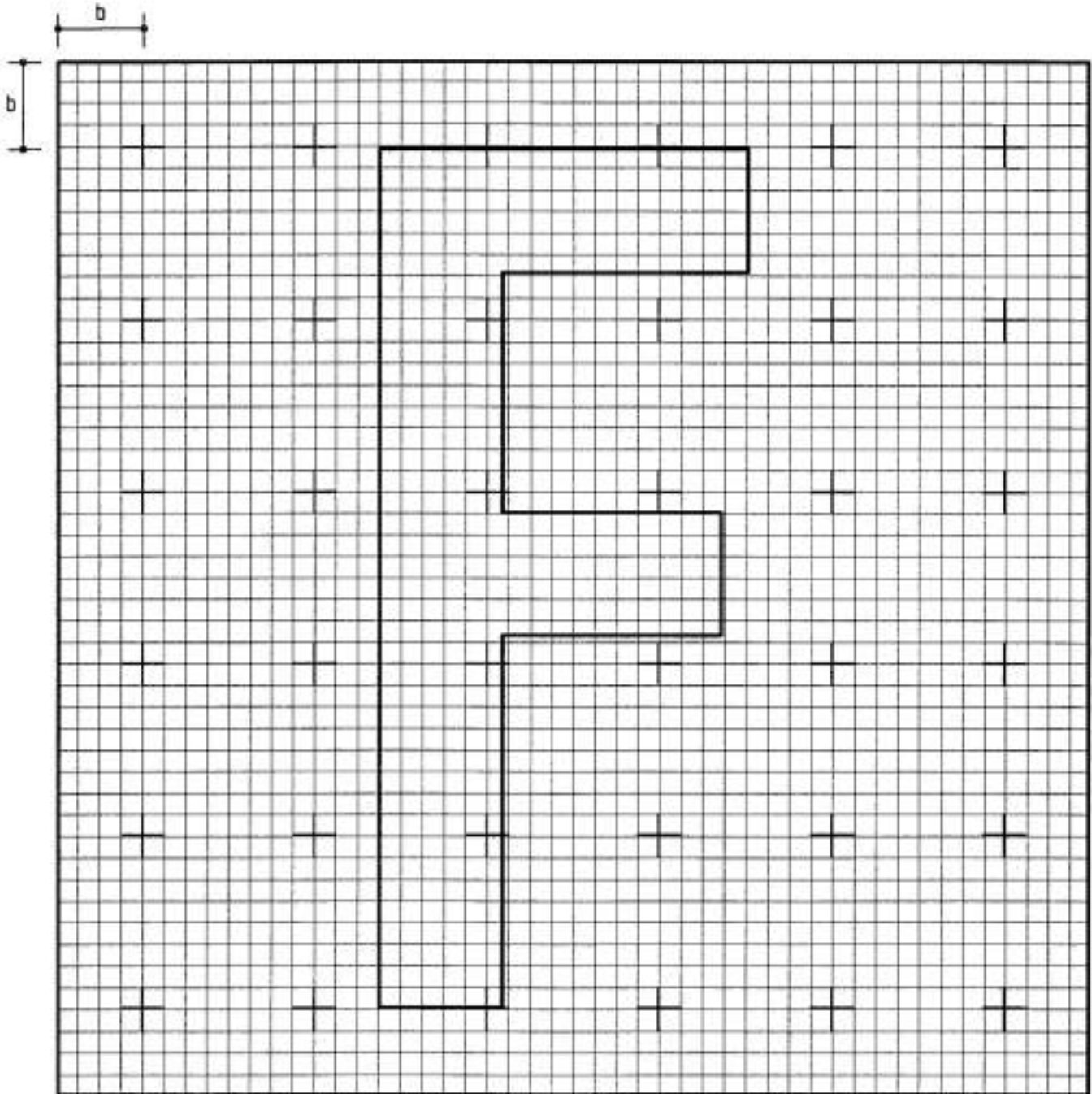
C



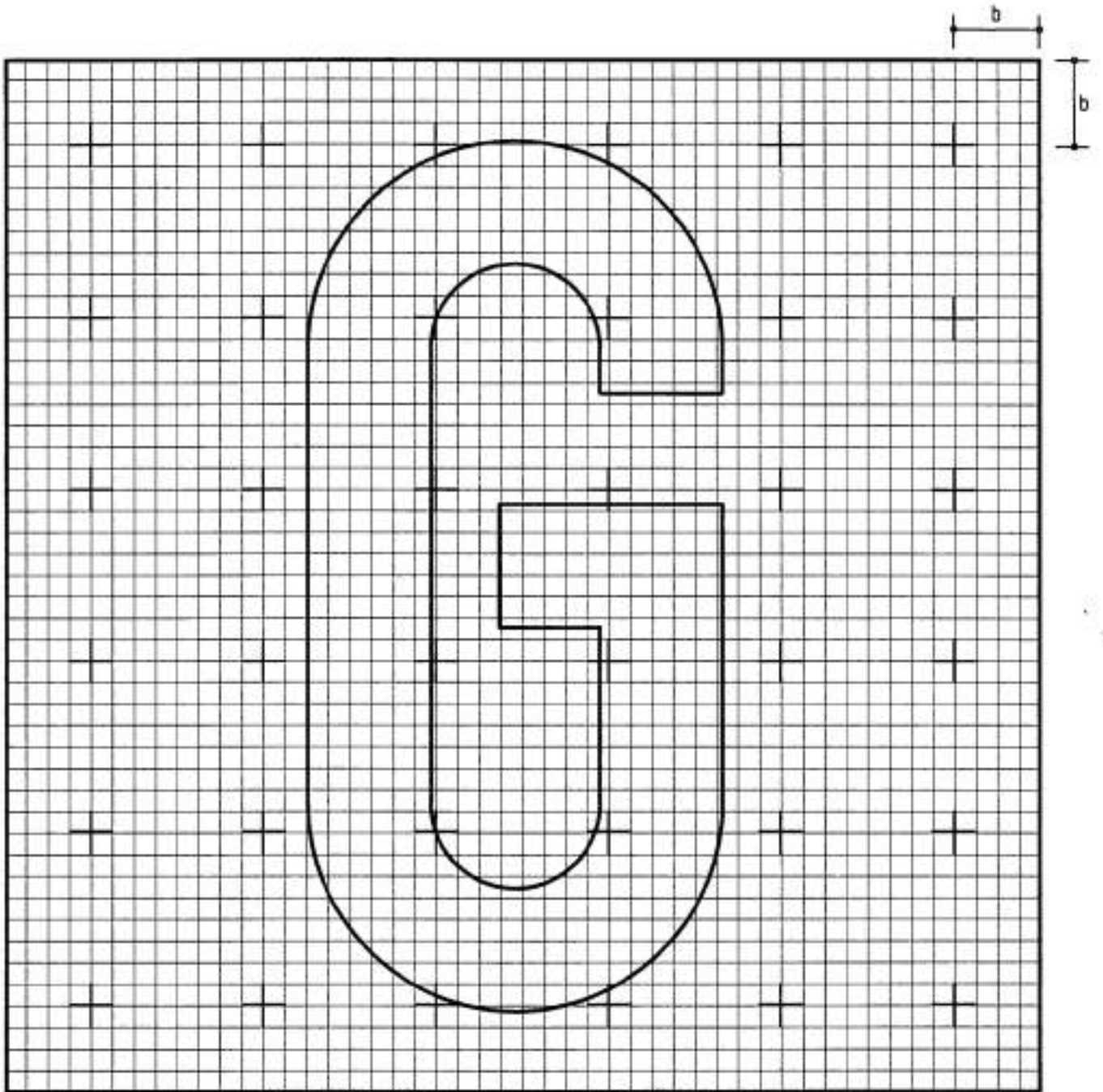
D



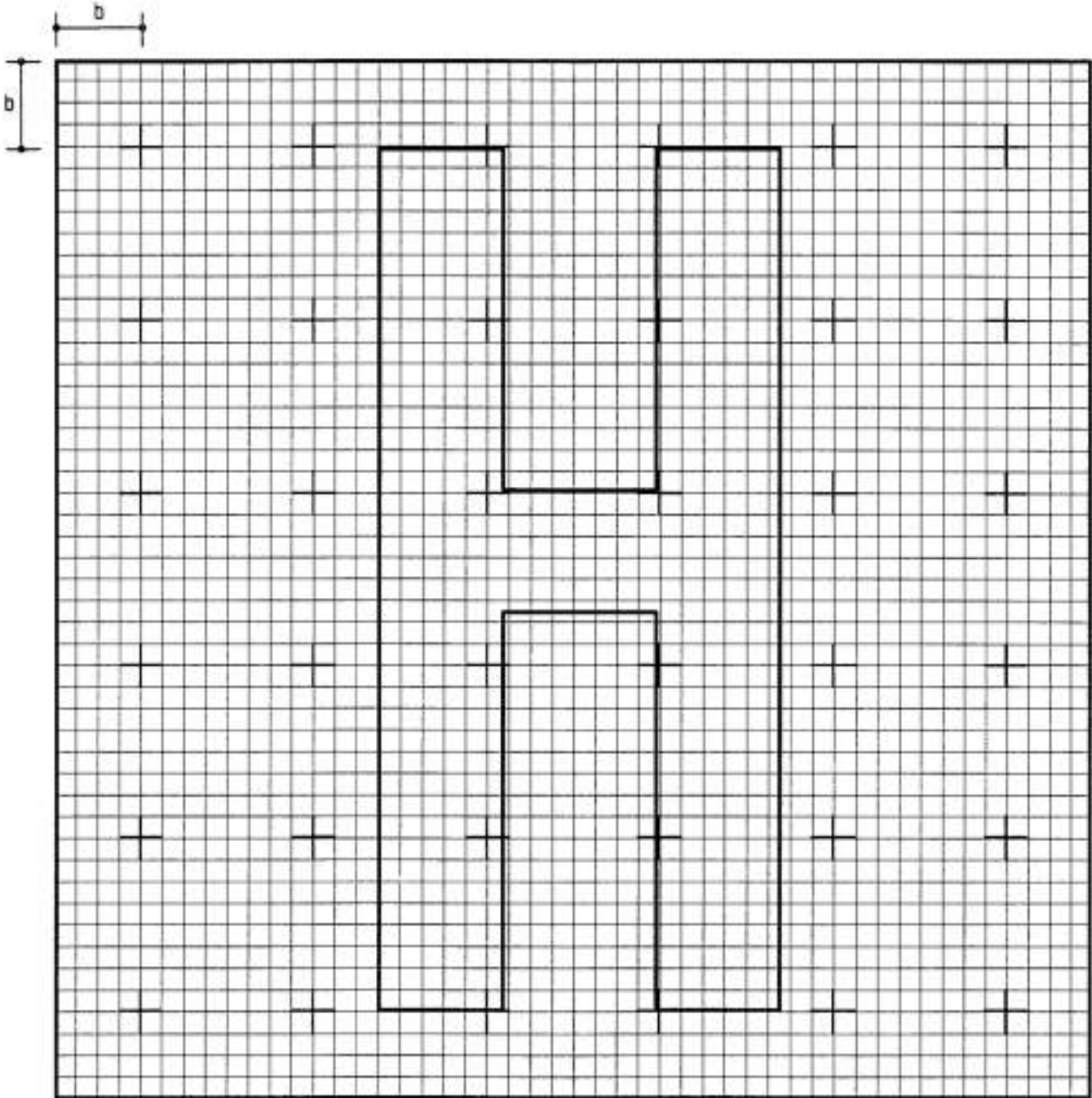




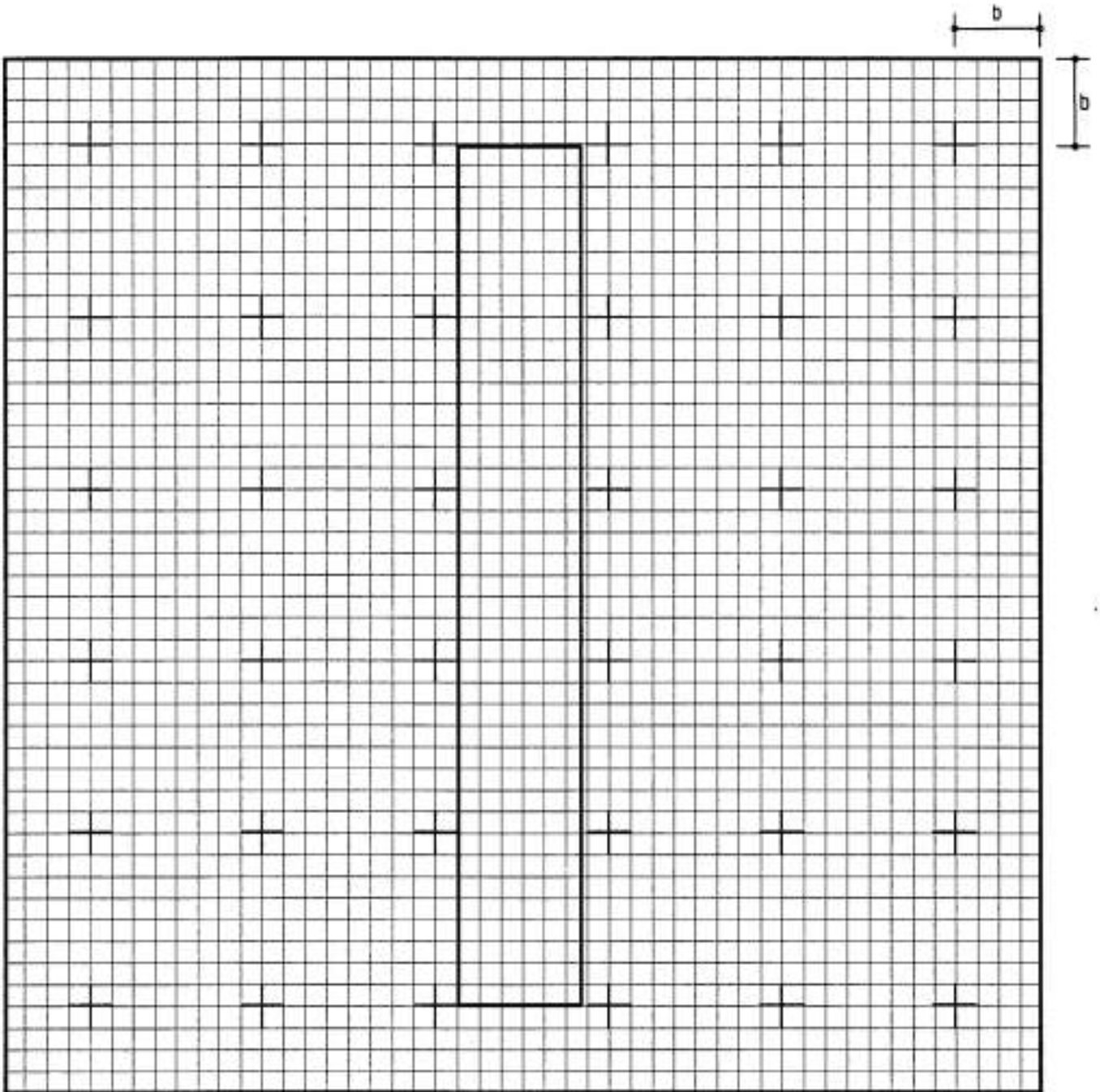
G

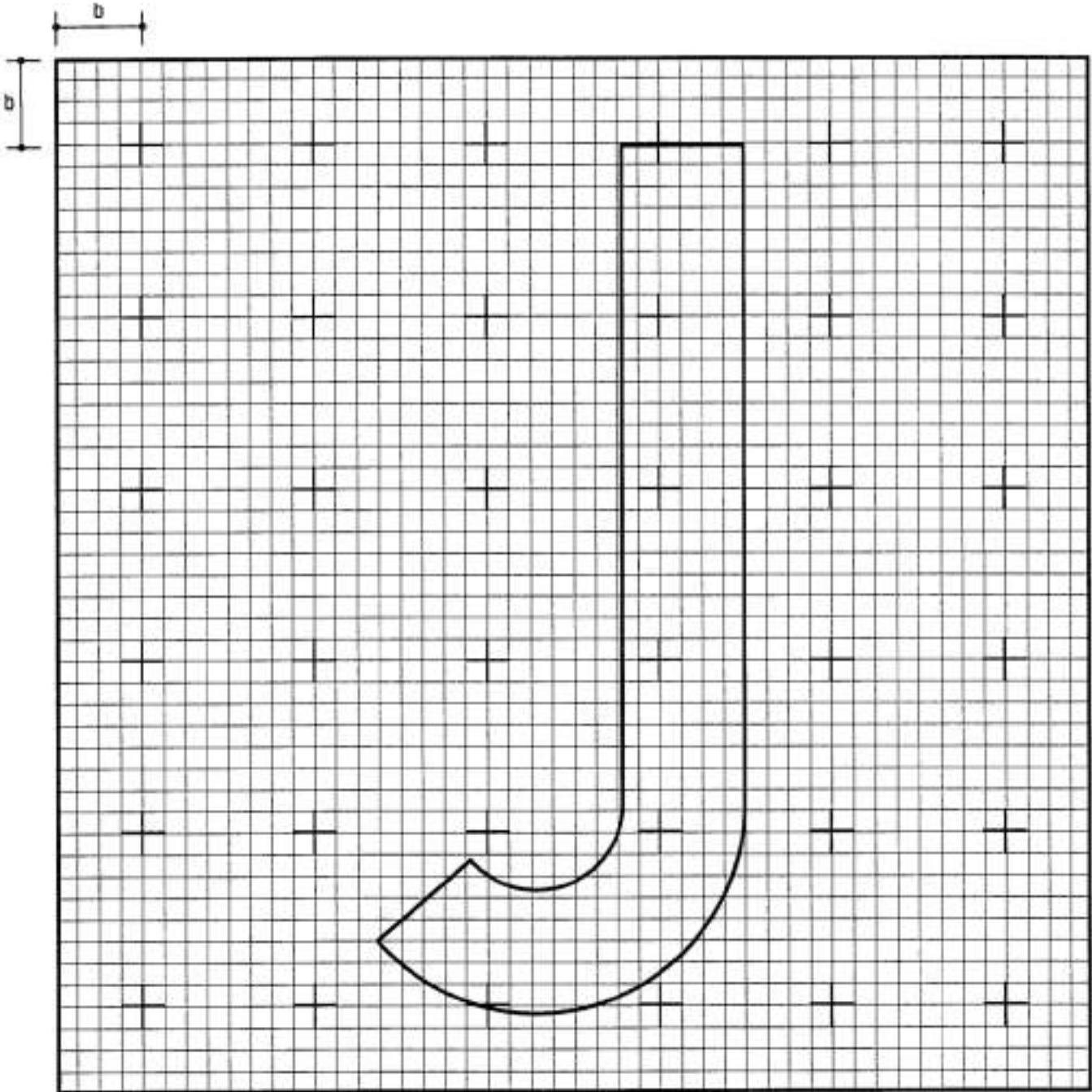


H

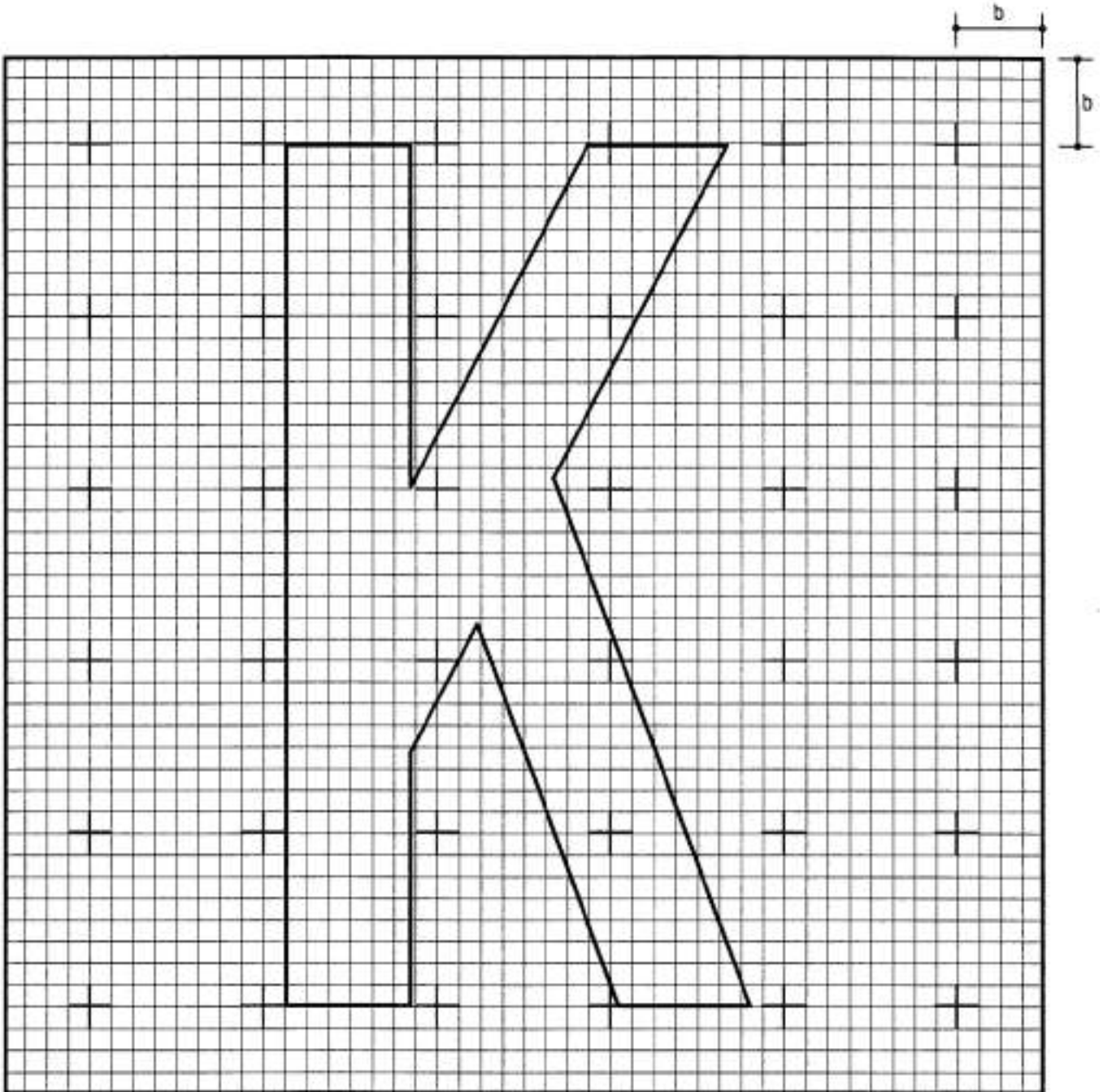


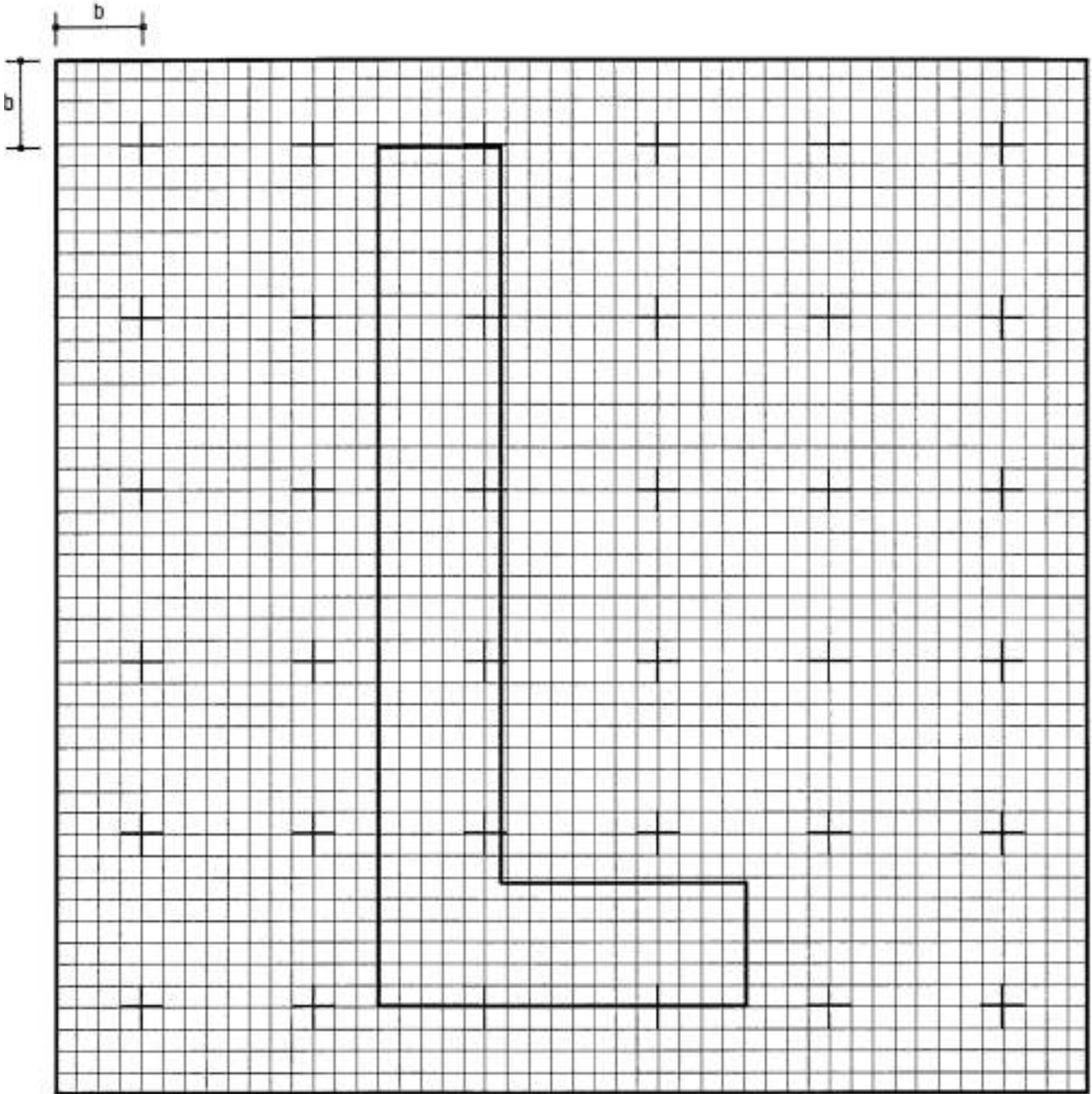


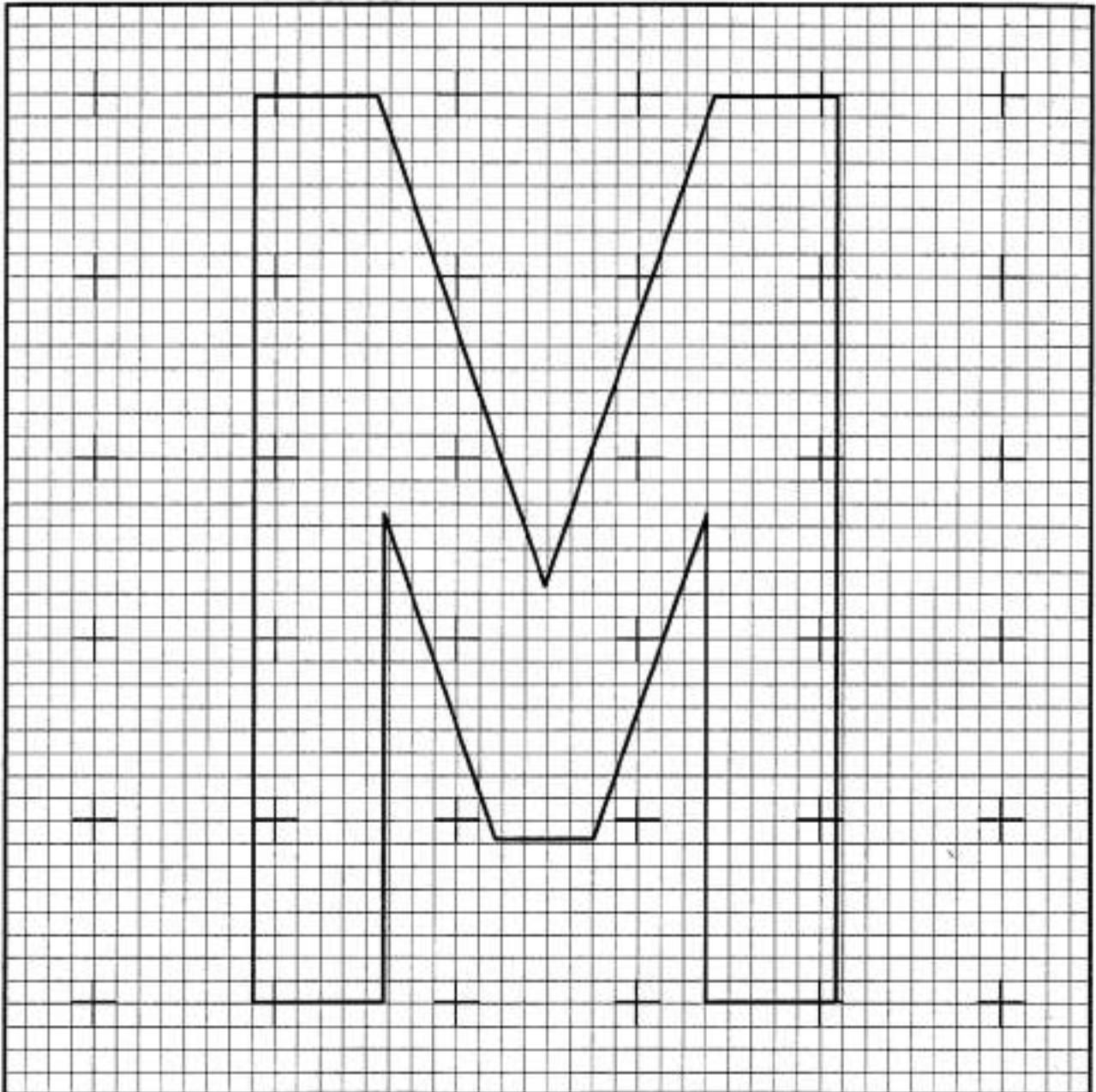
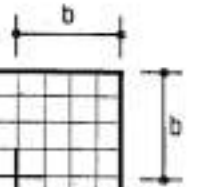




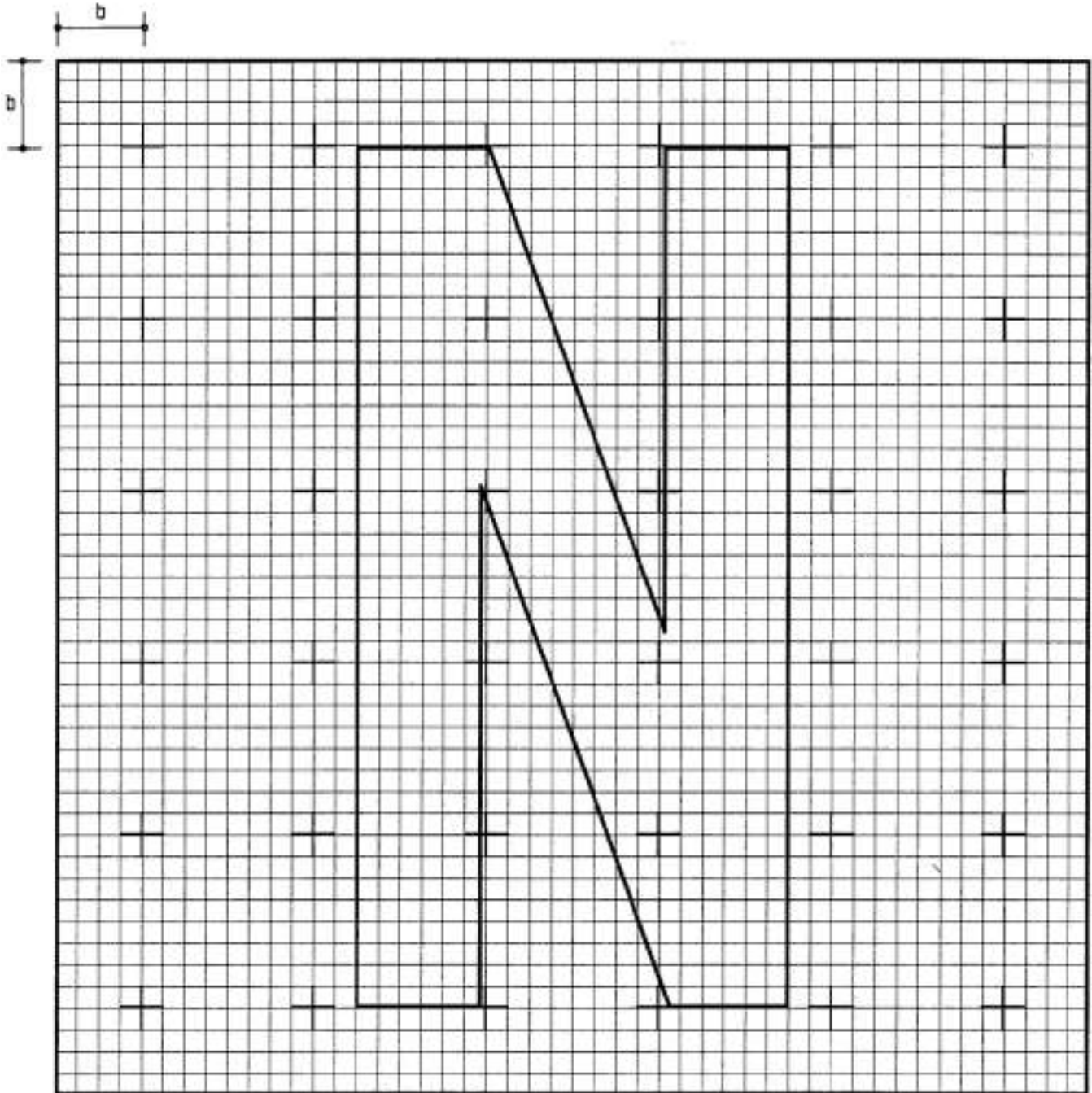
K

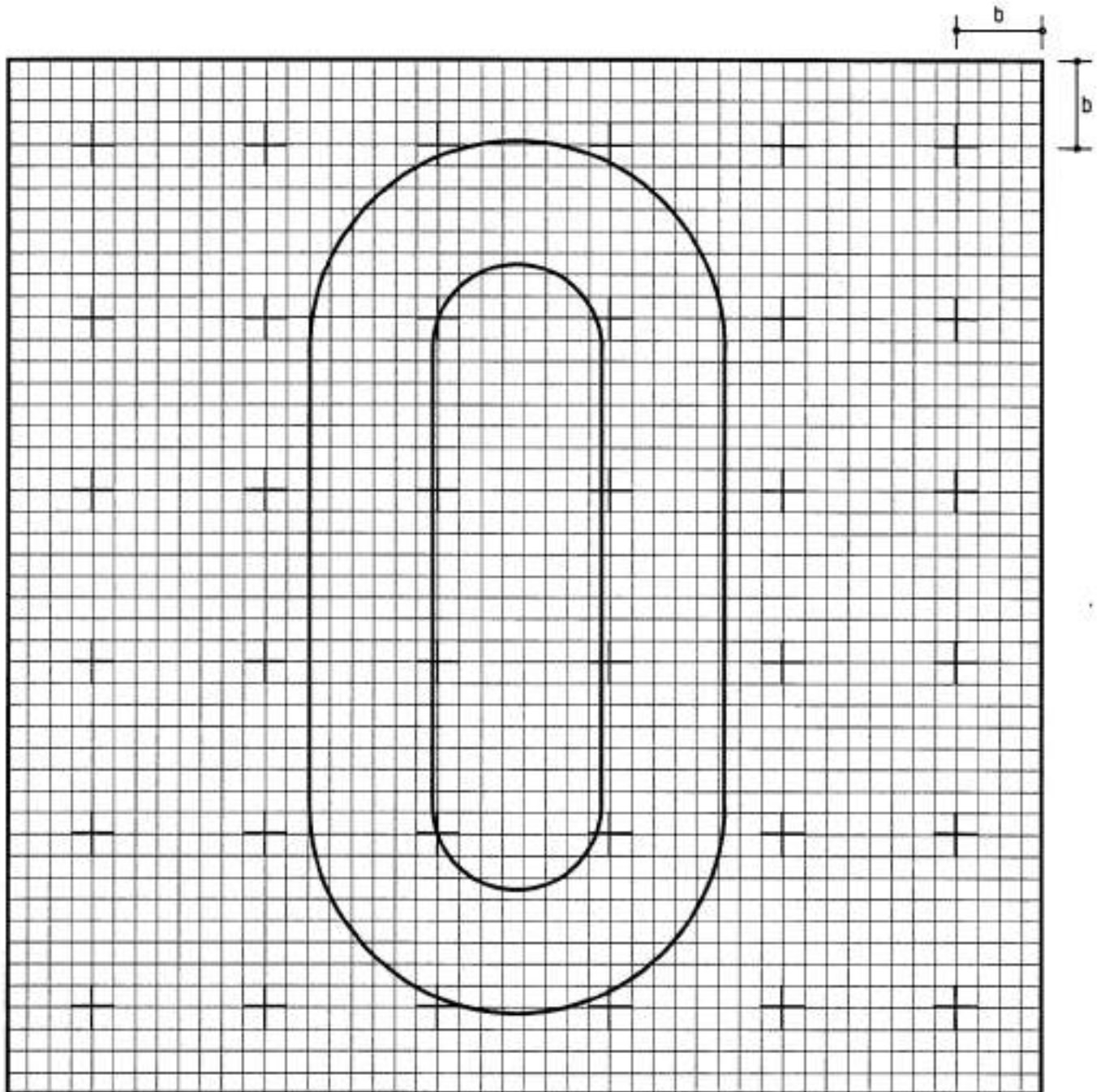




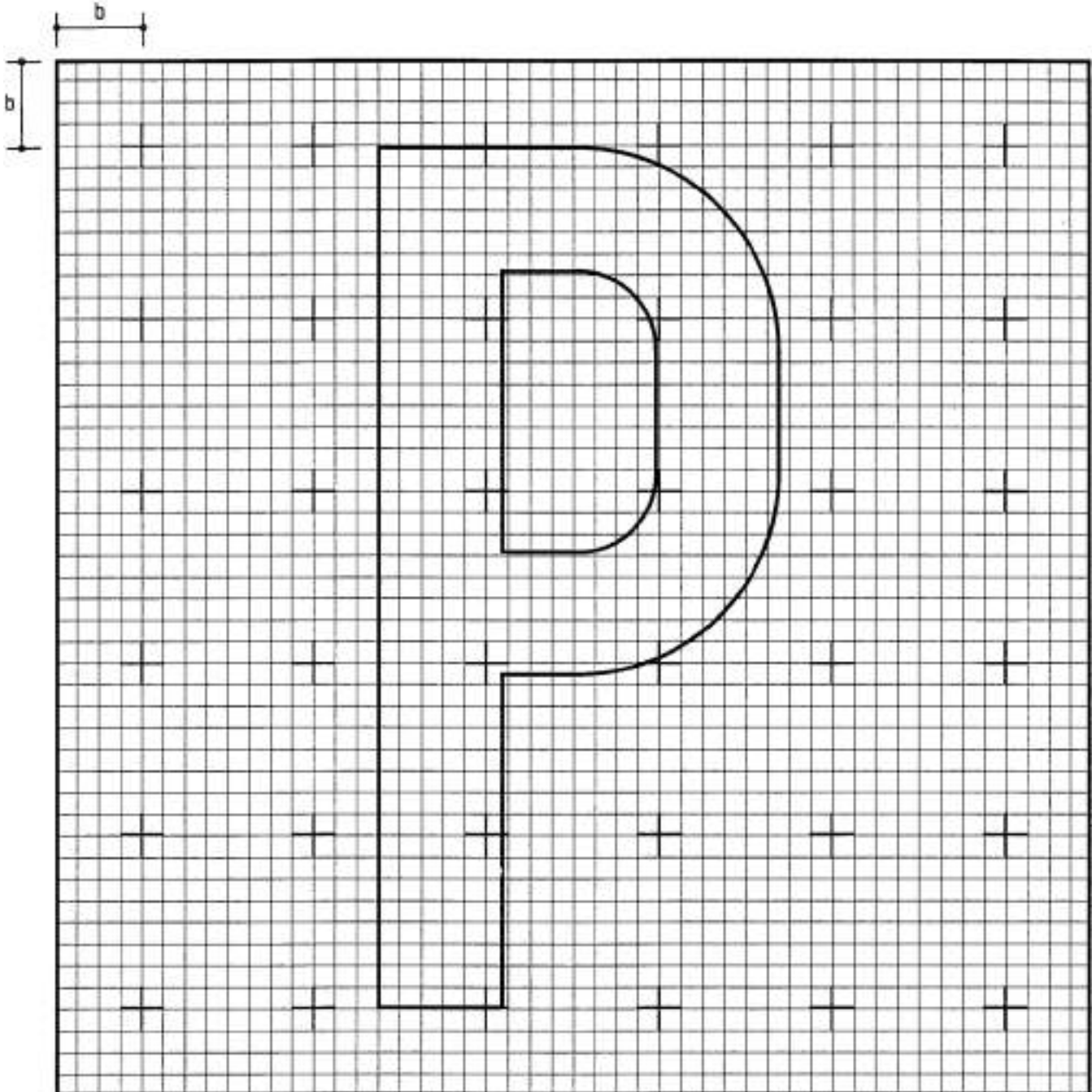


N

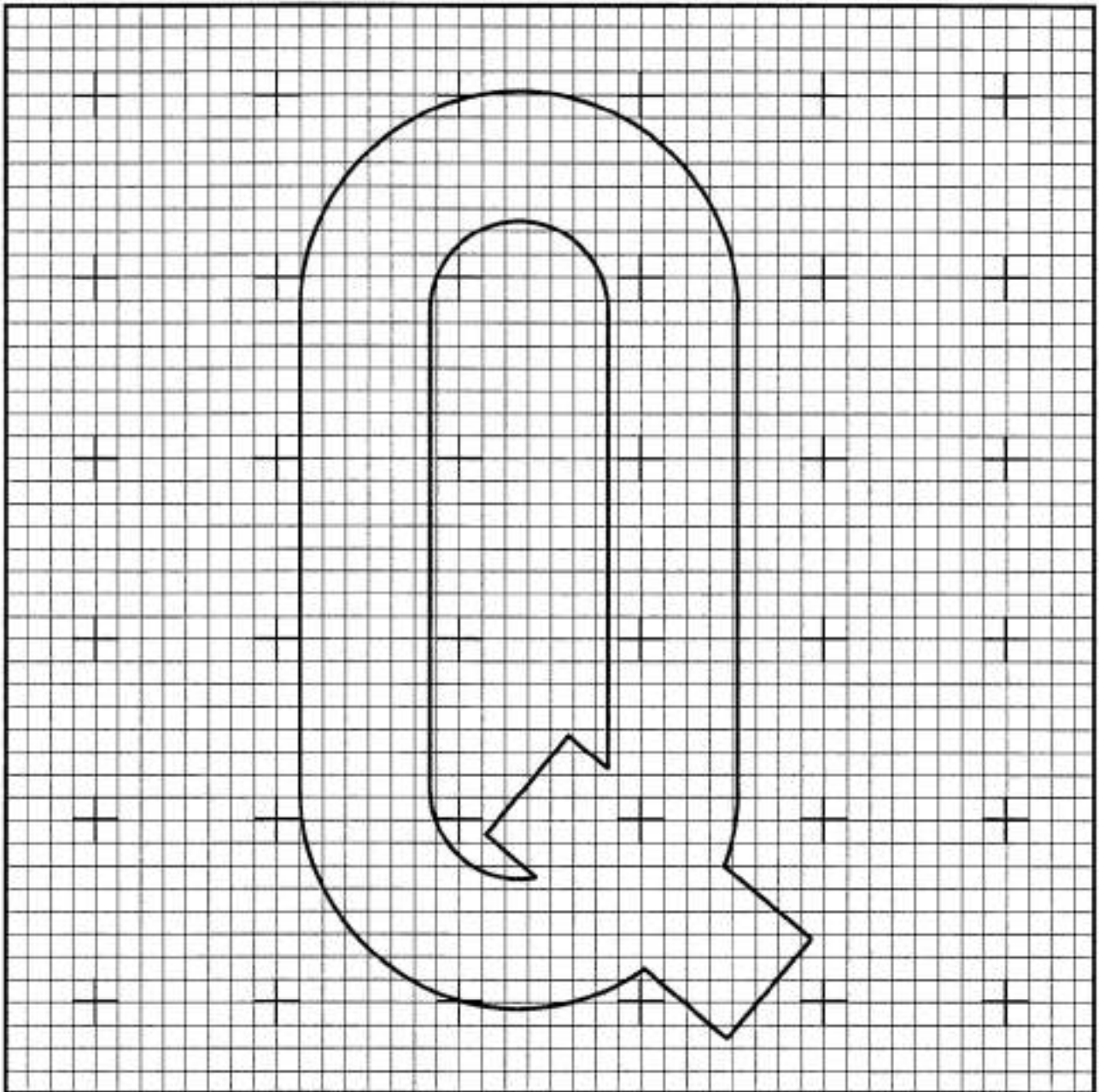
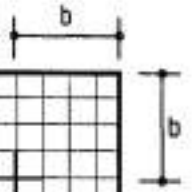




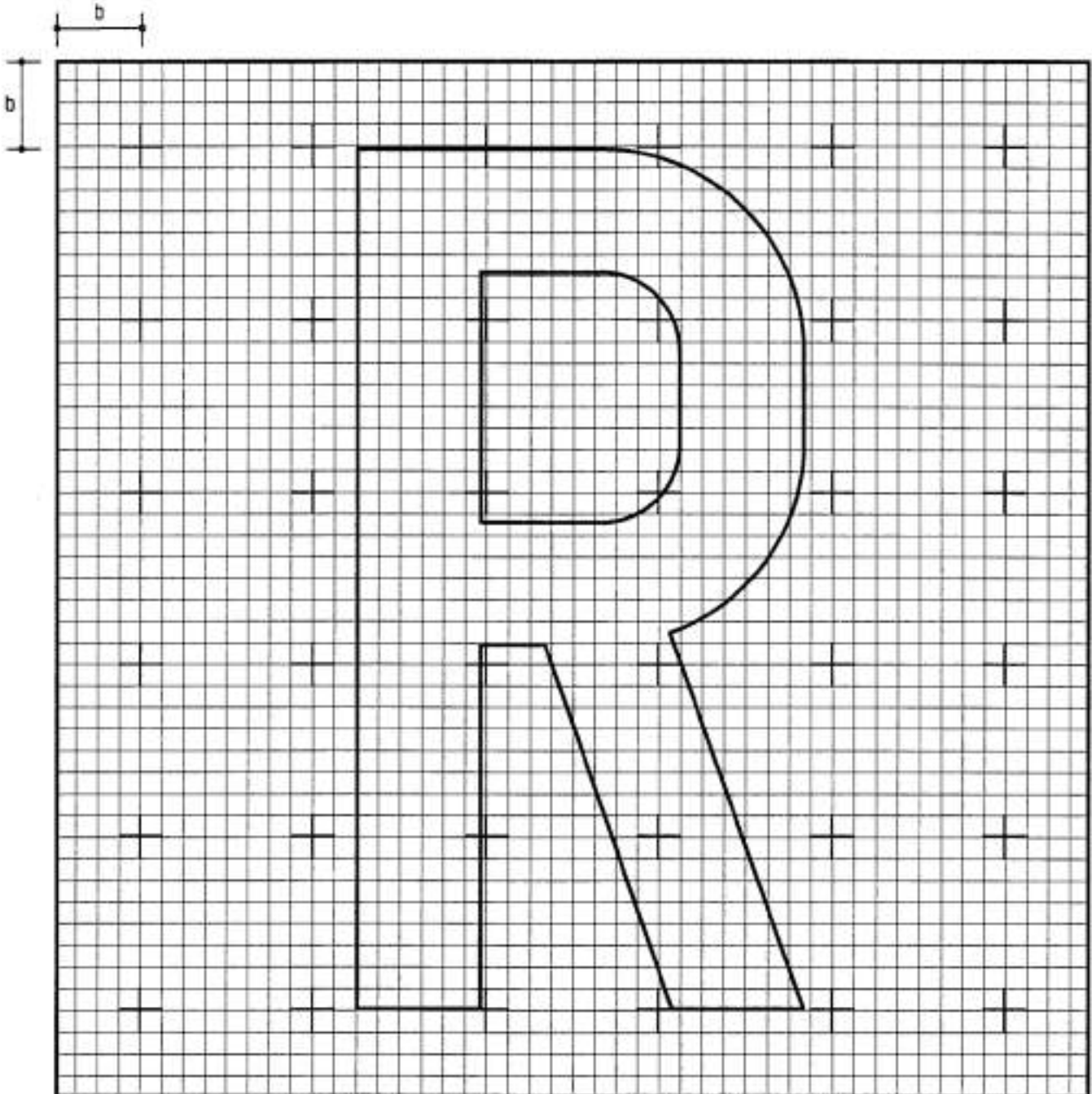
P



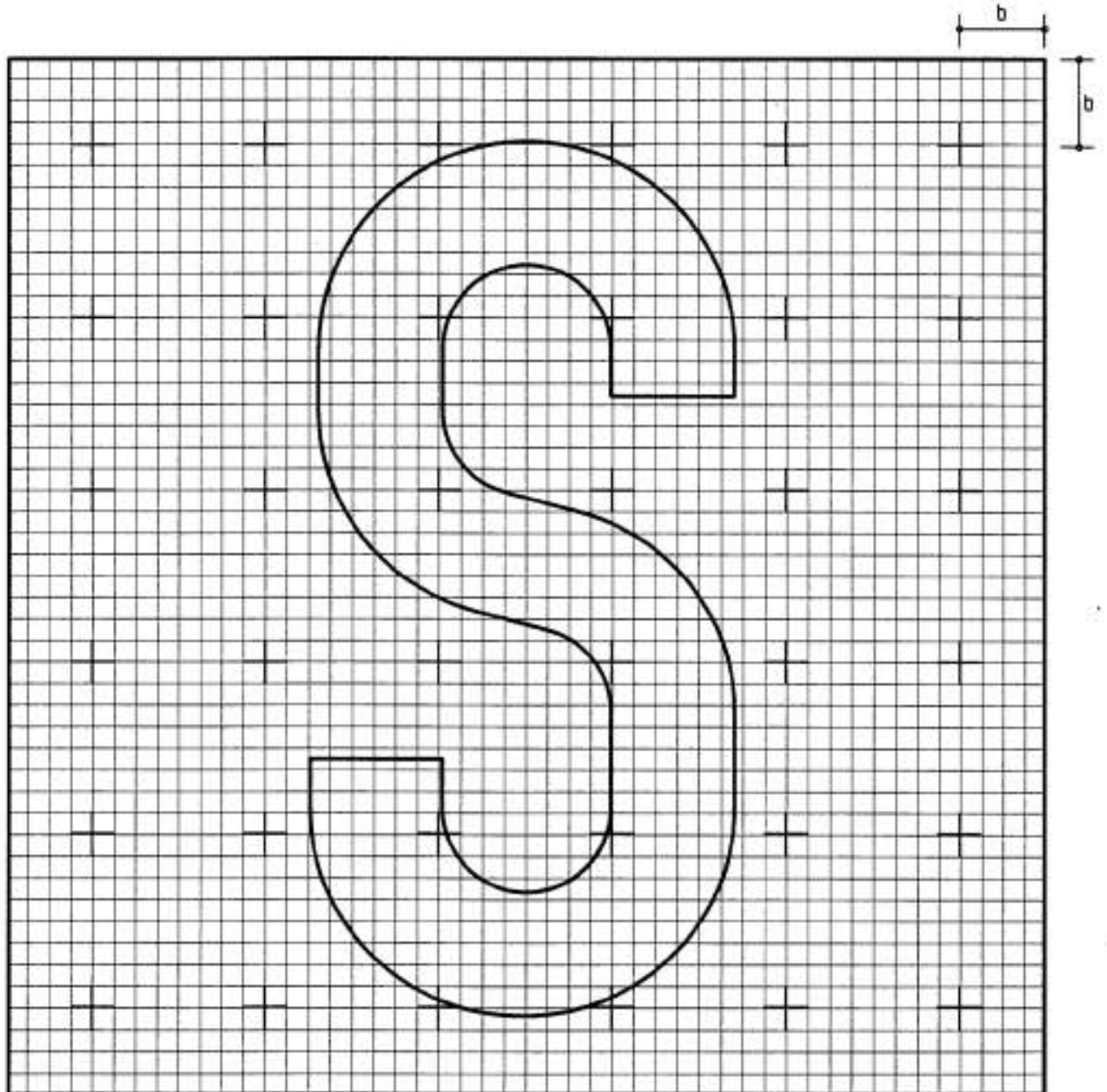


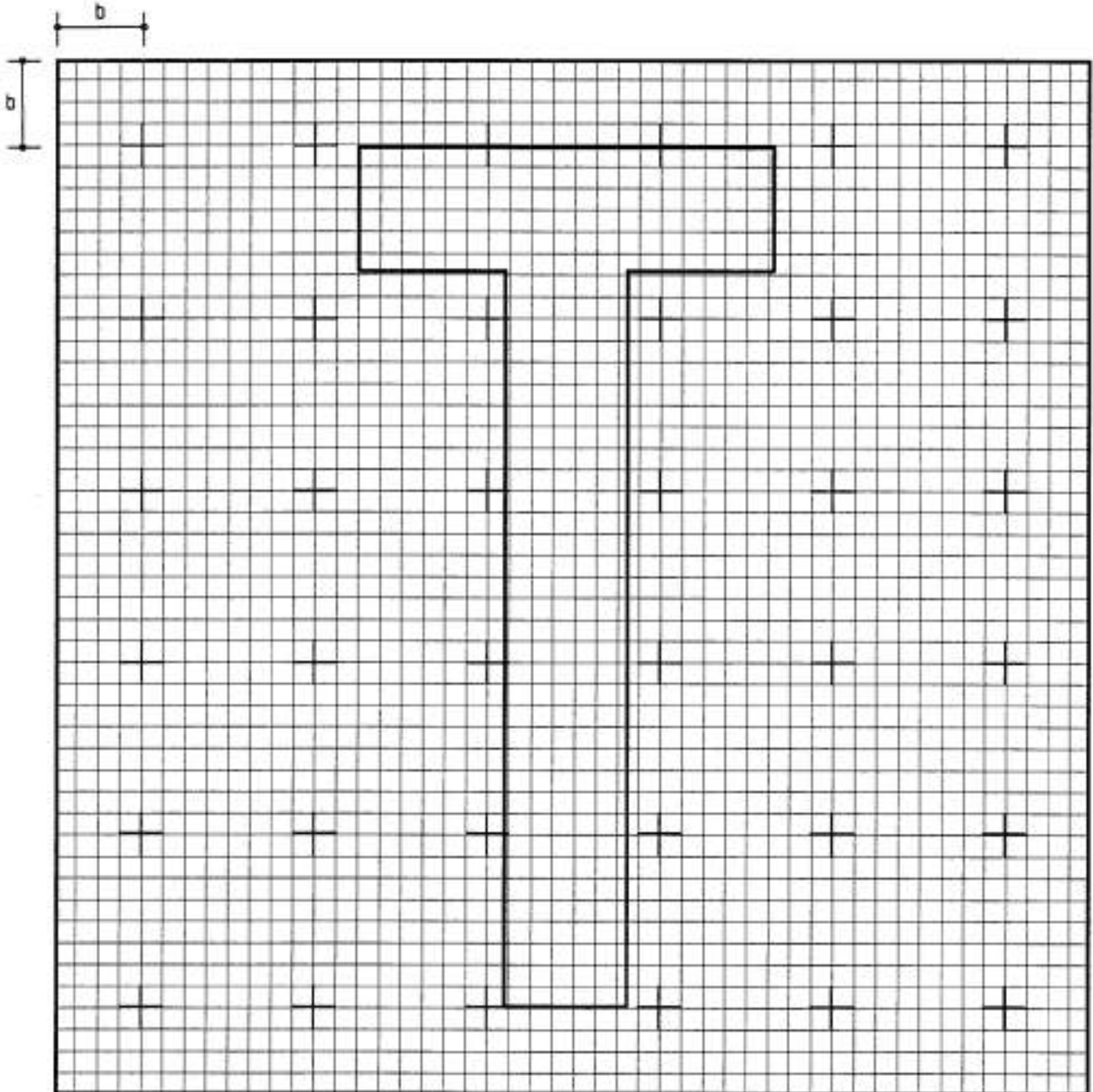


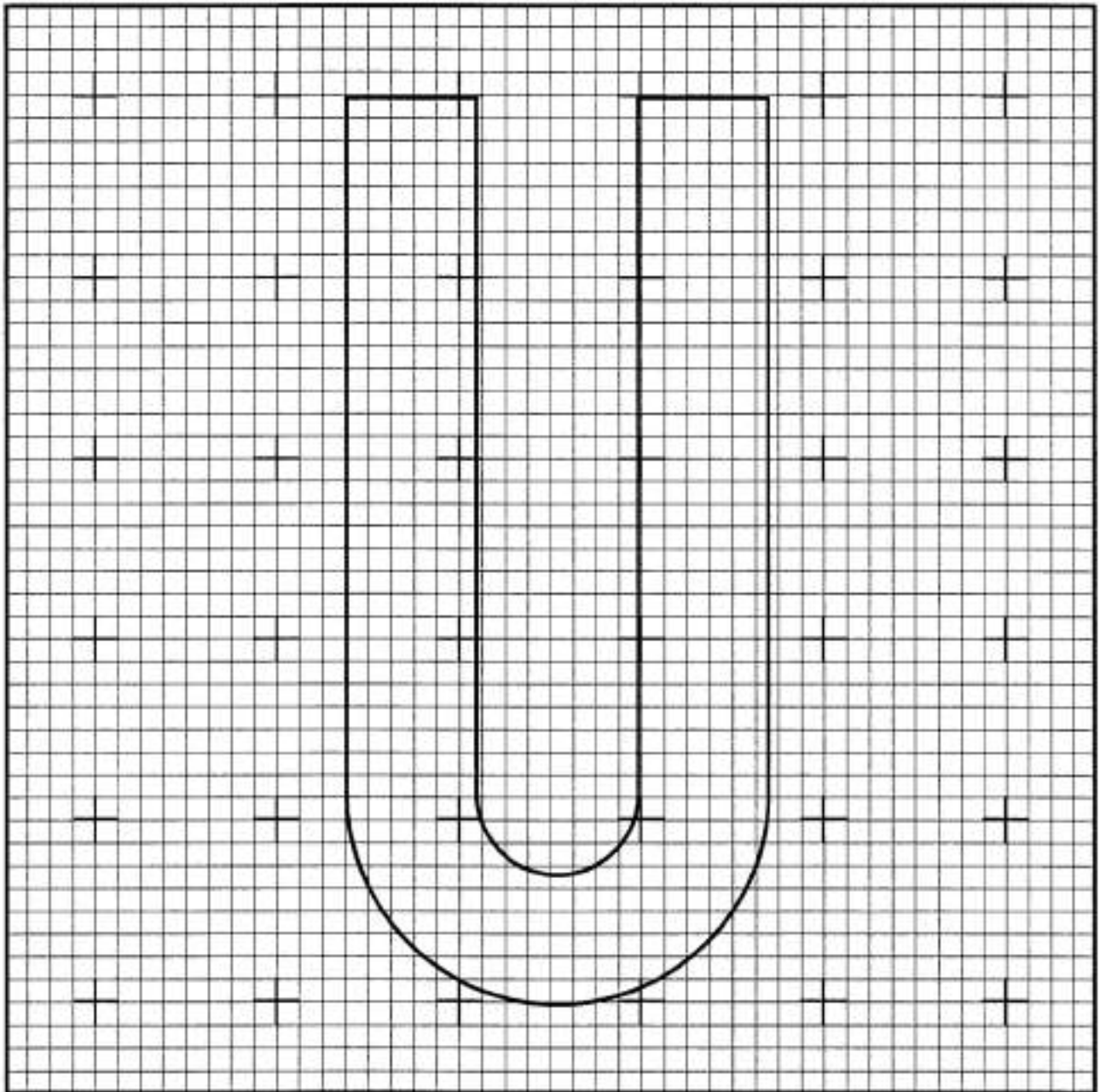
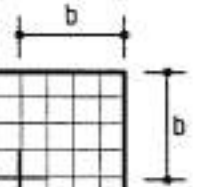
R

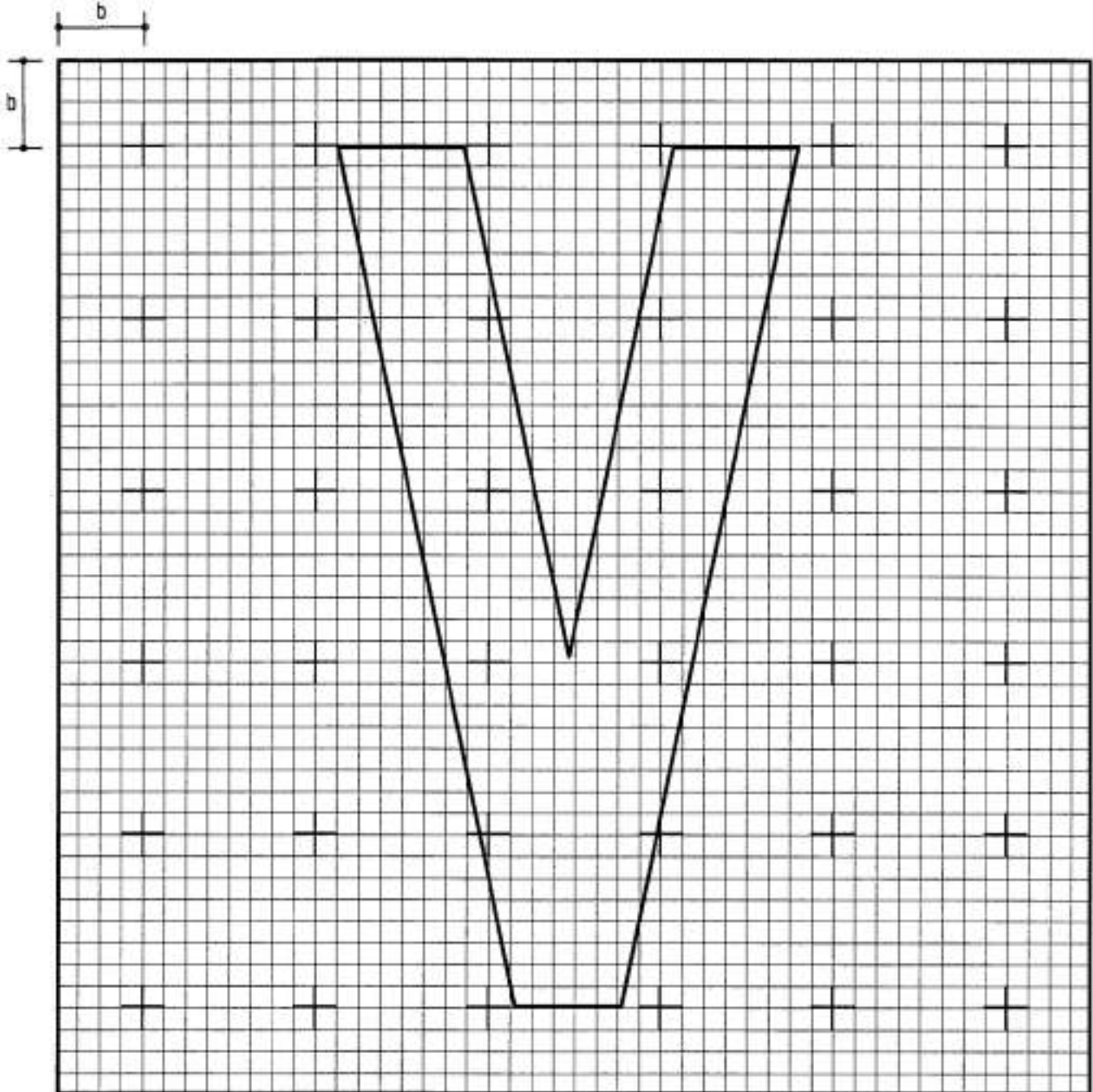


S

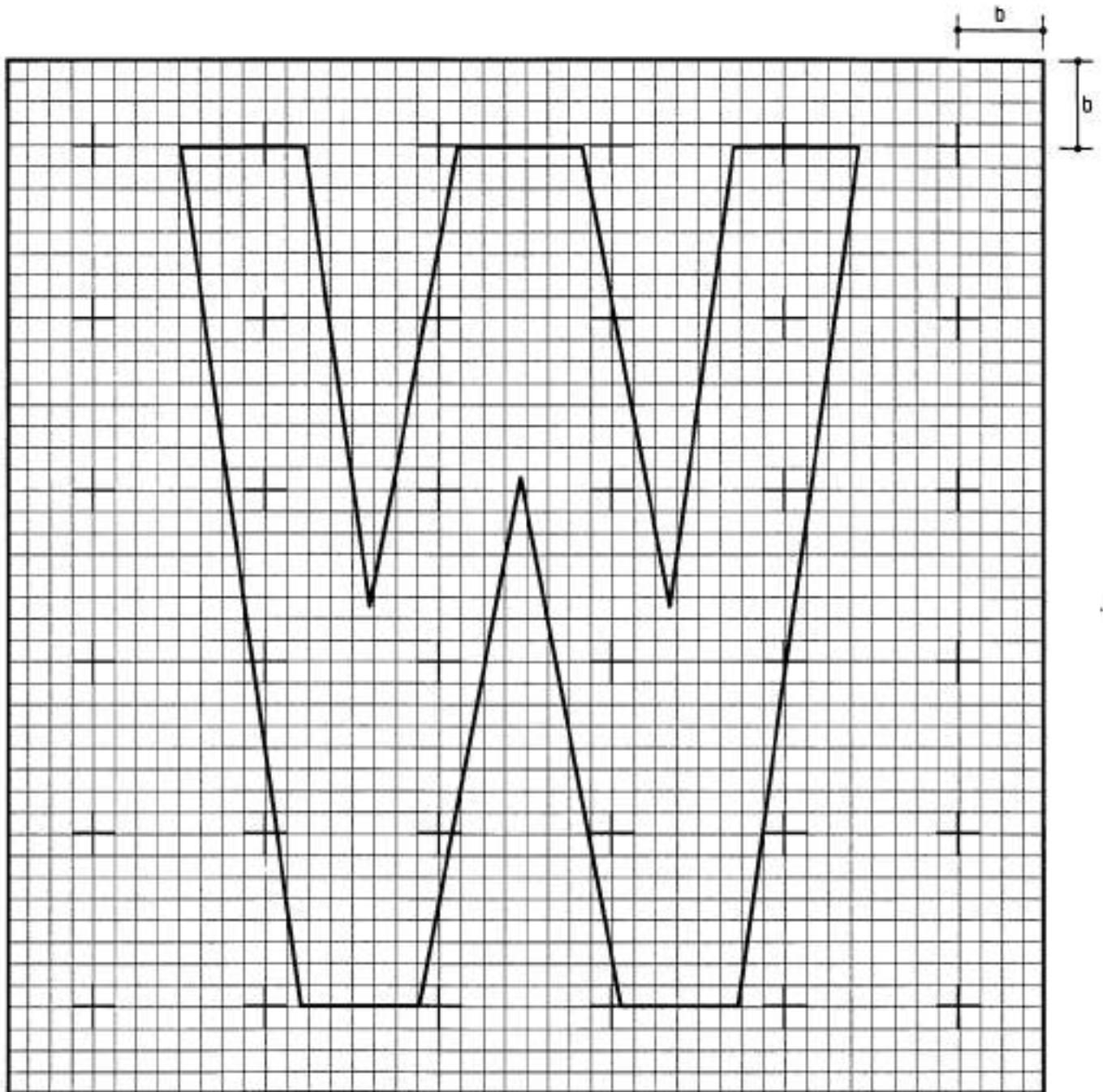


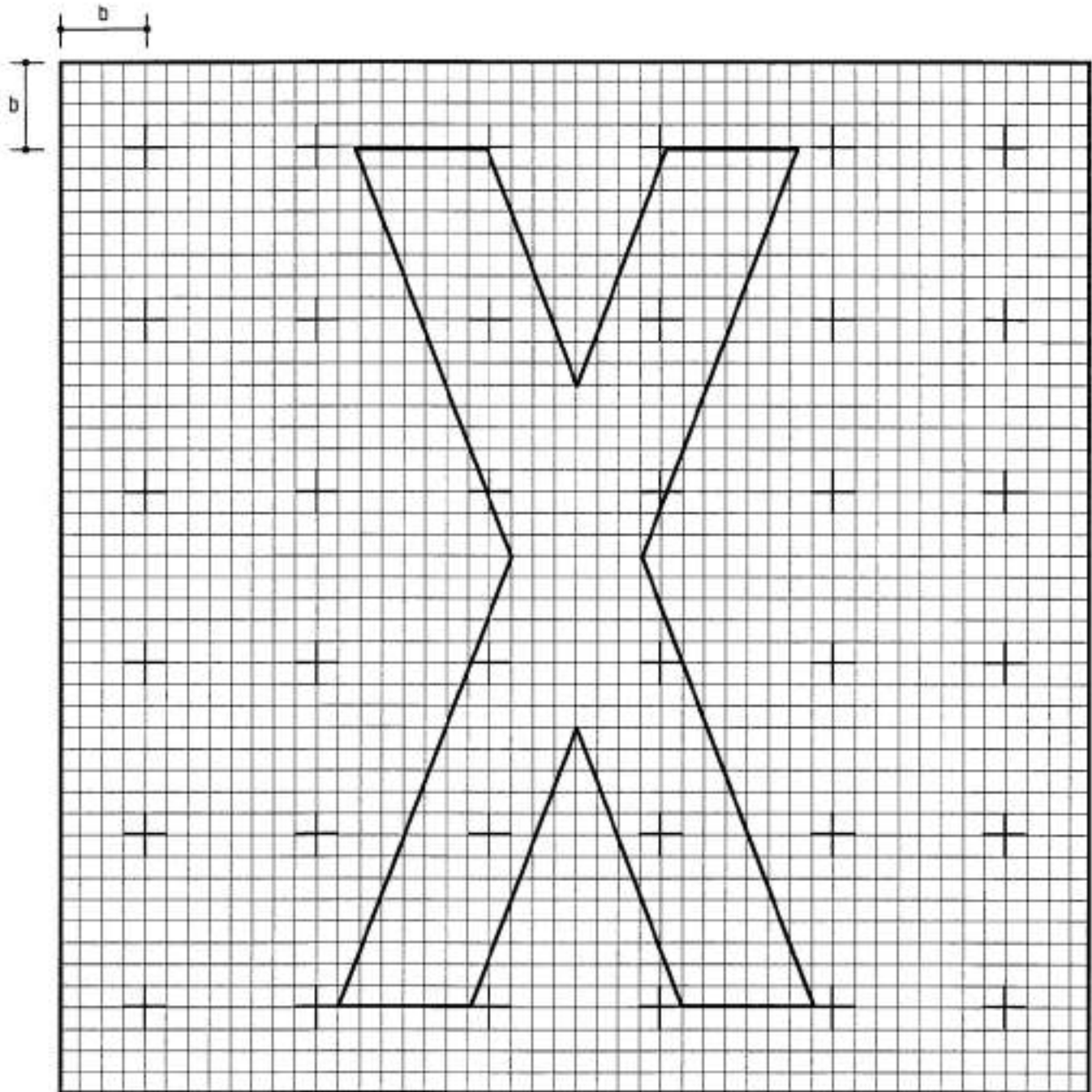




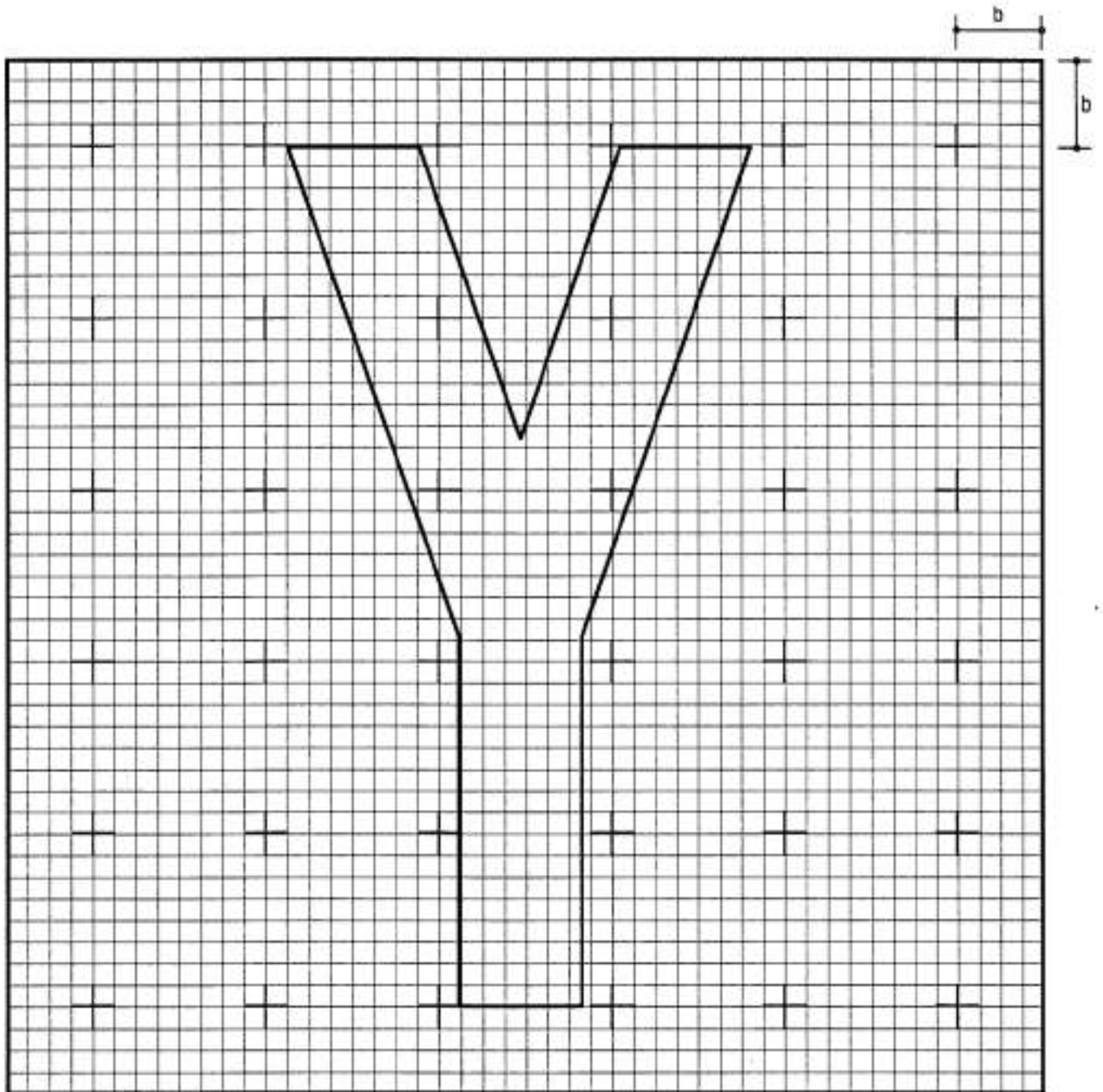


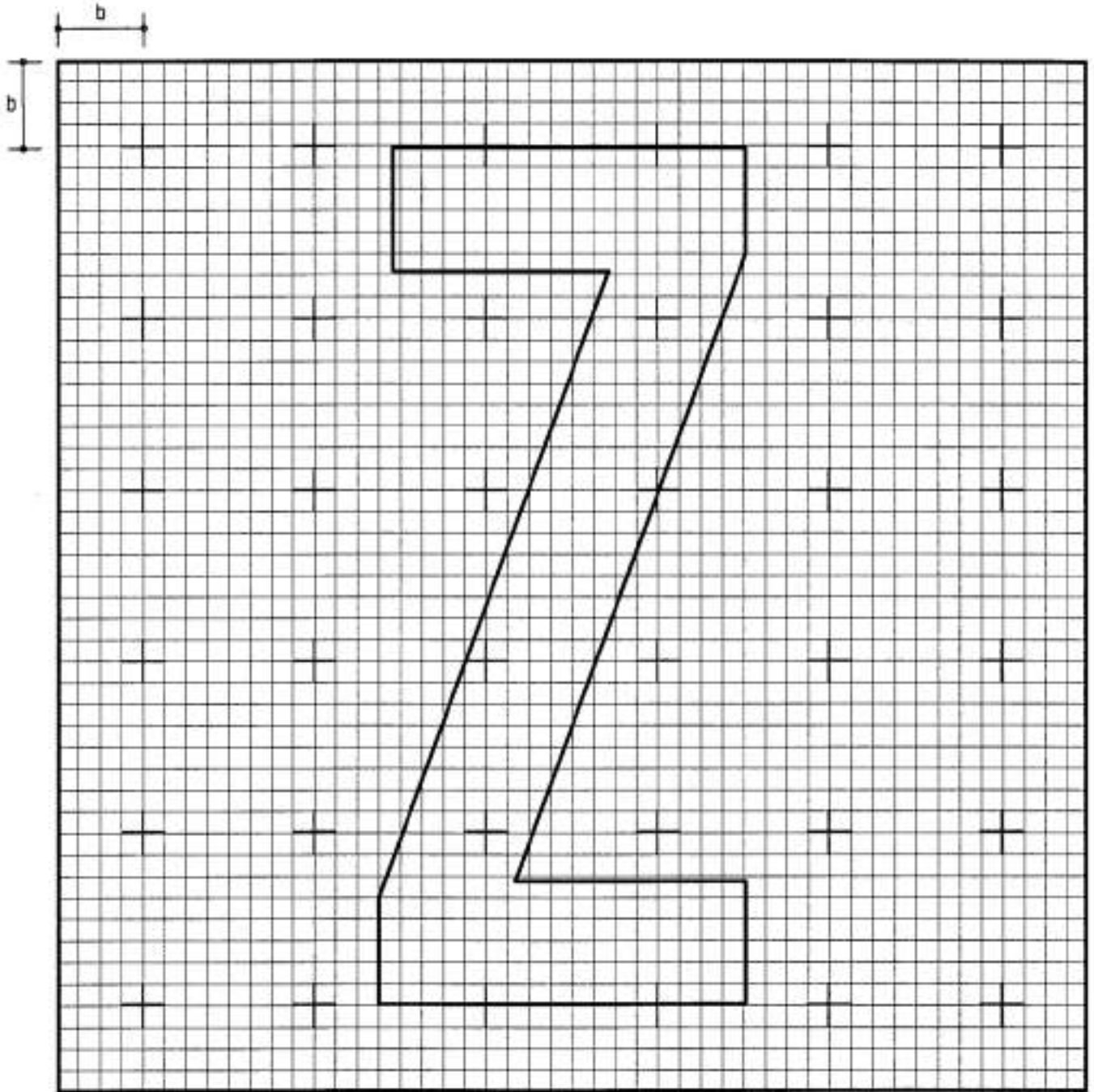
W



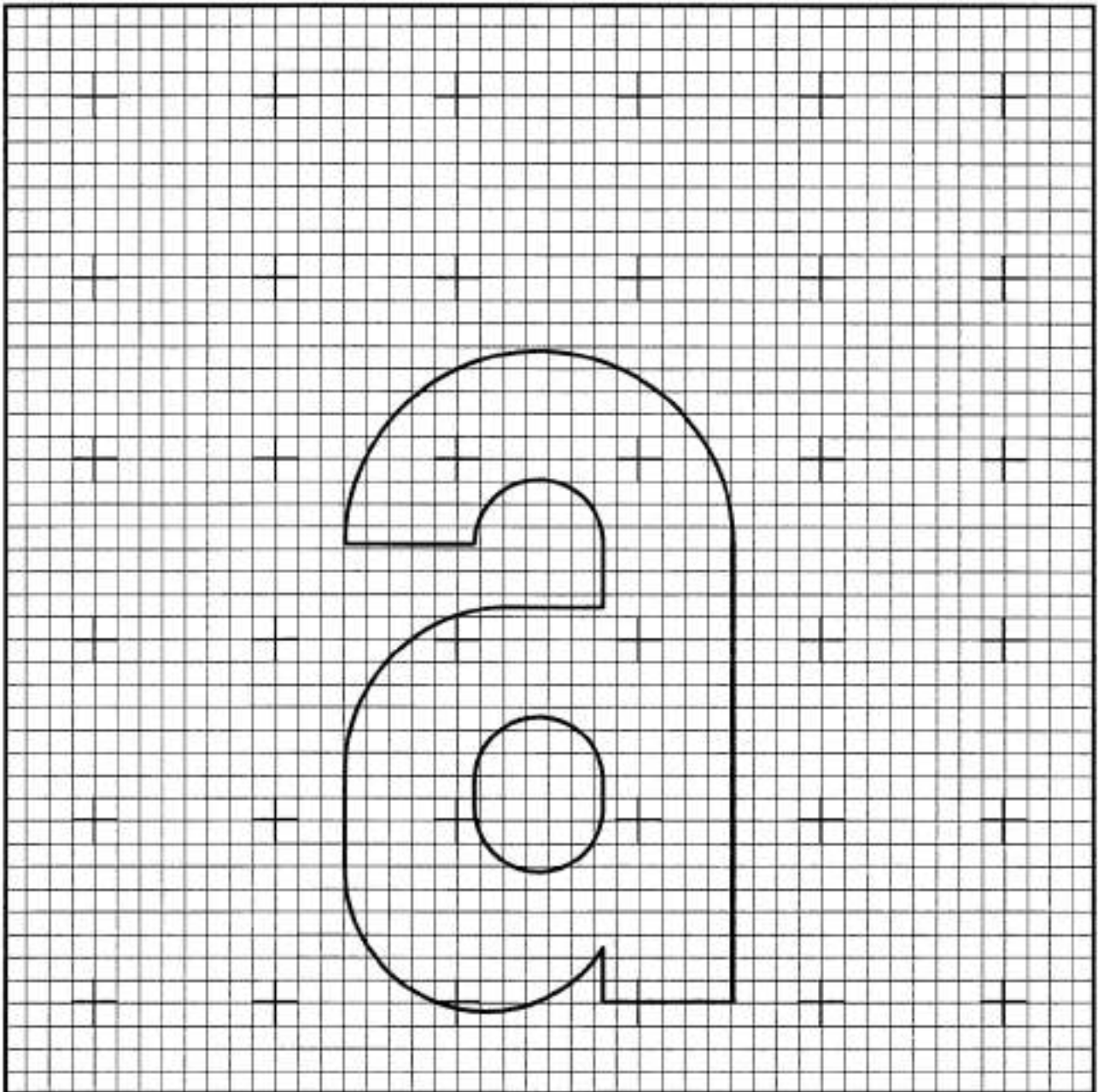
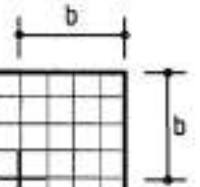




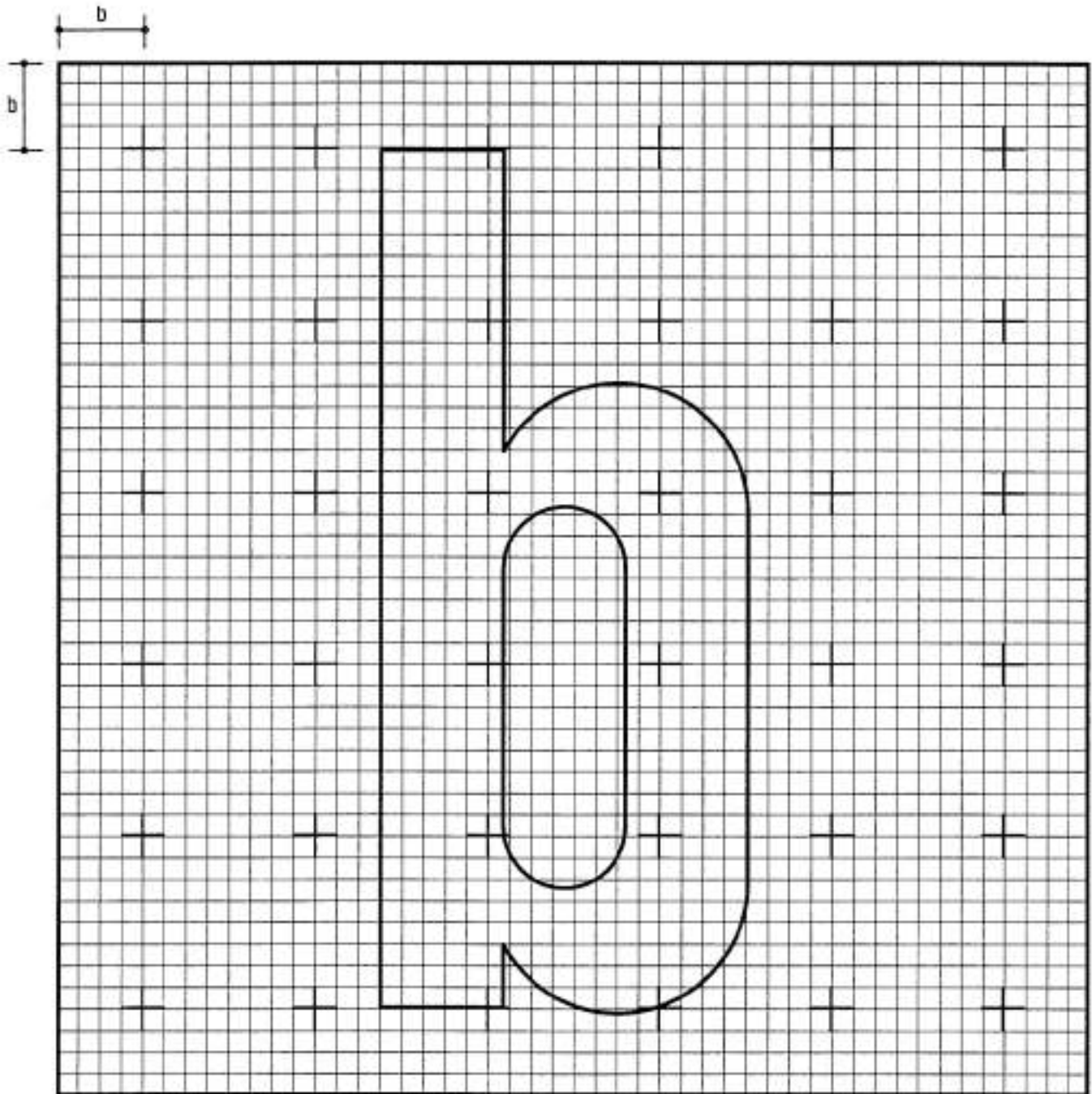




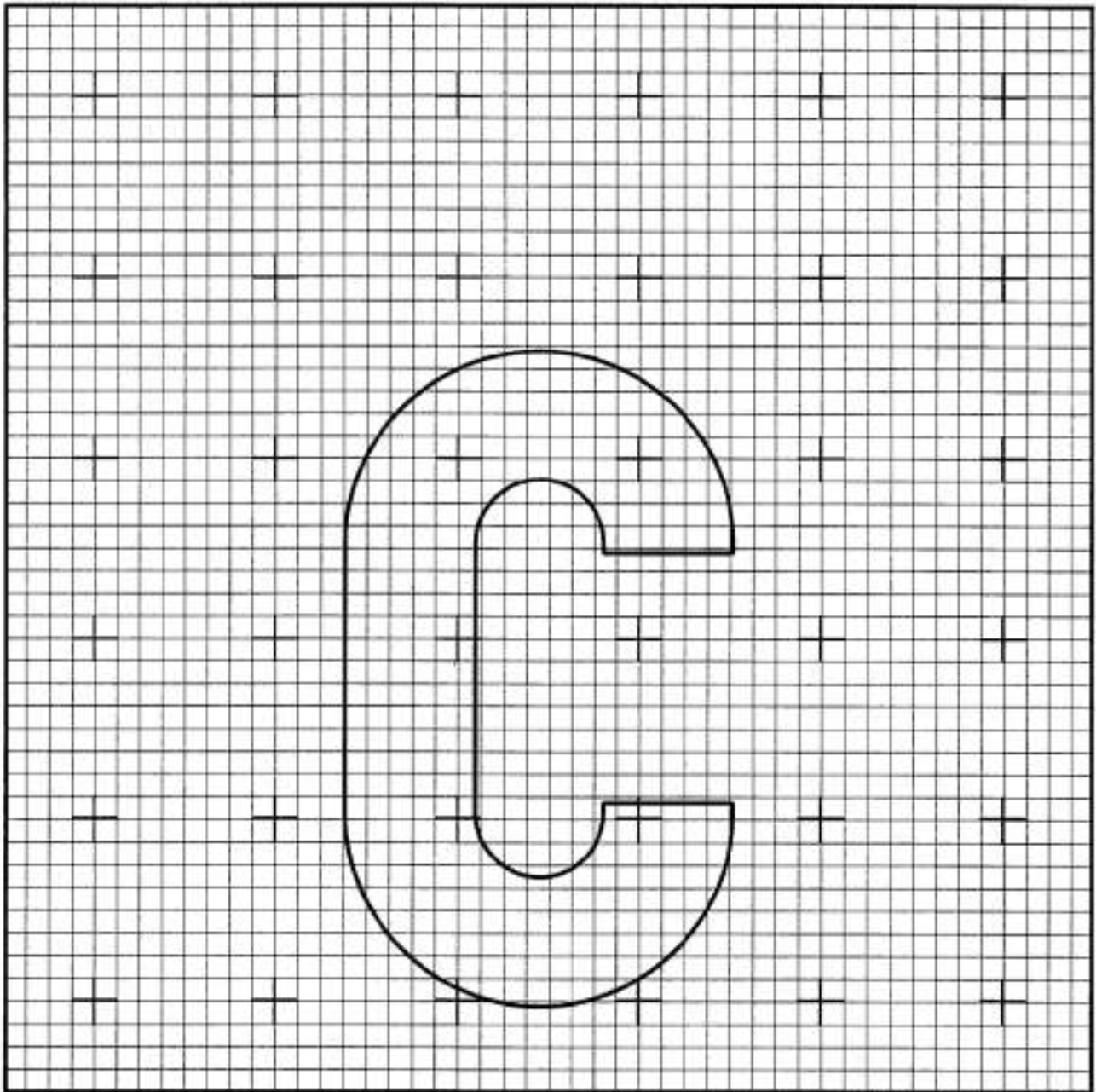
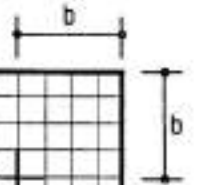
a



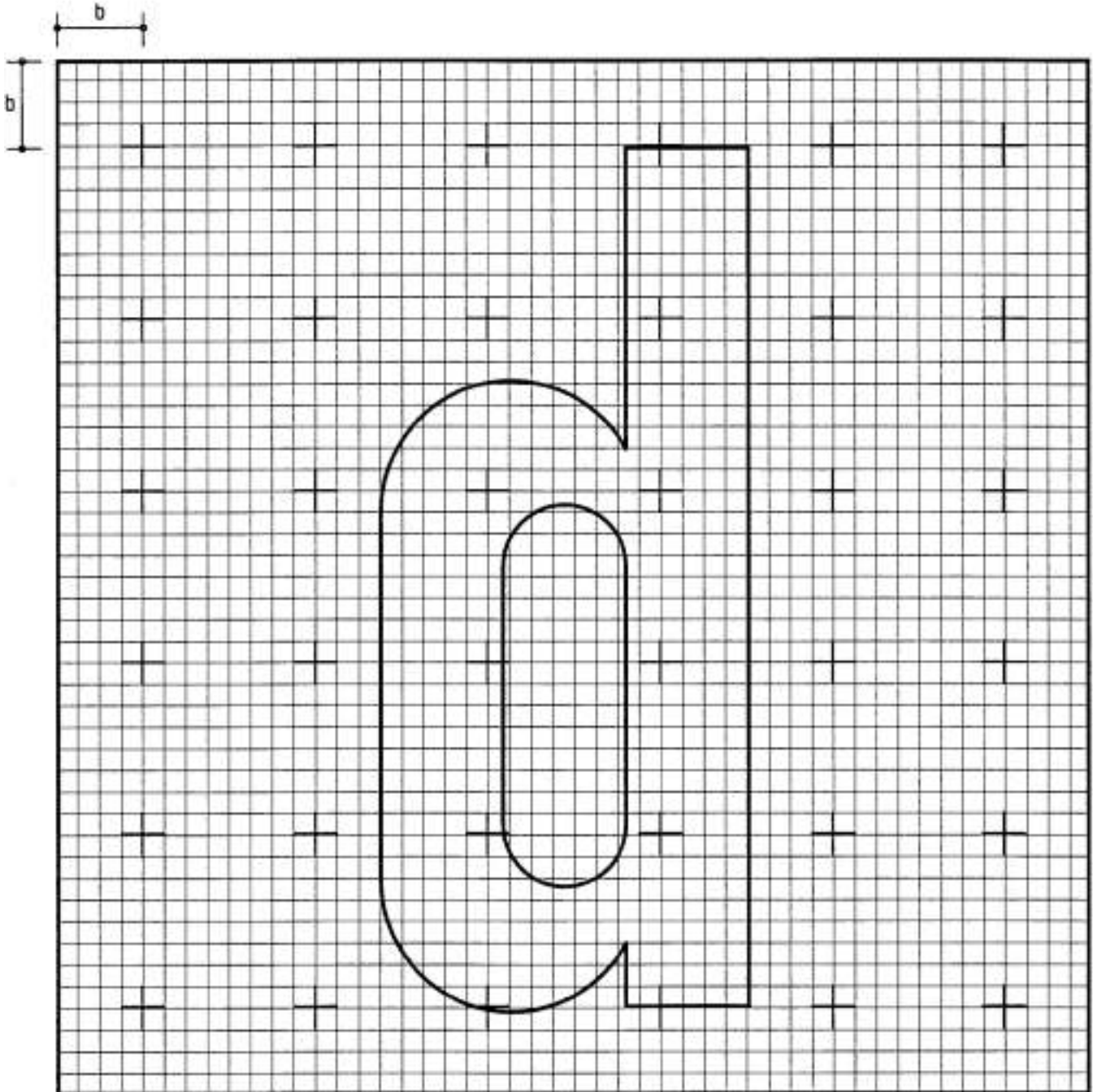
b

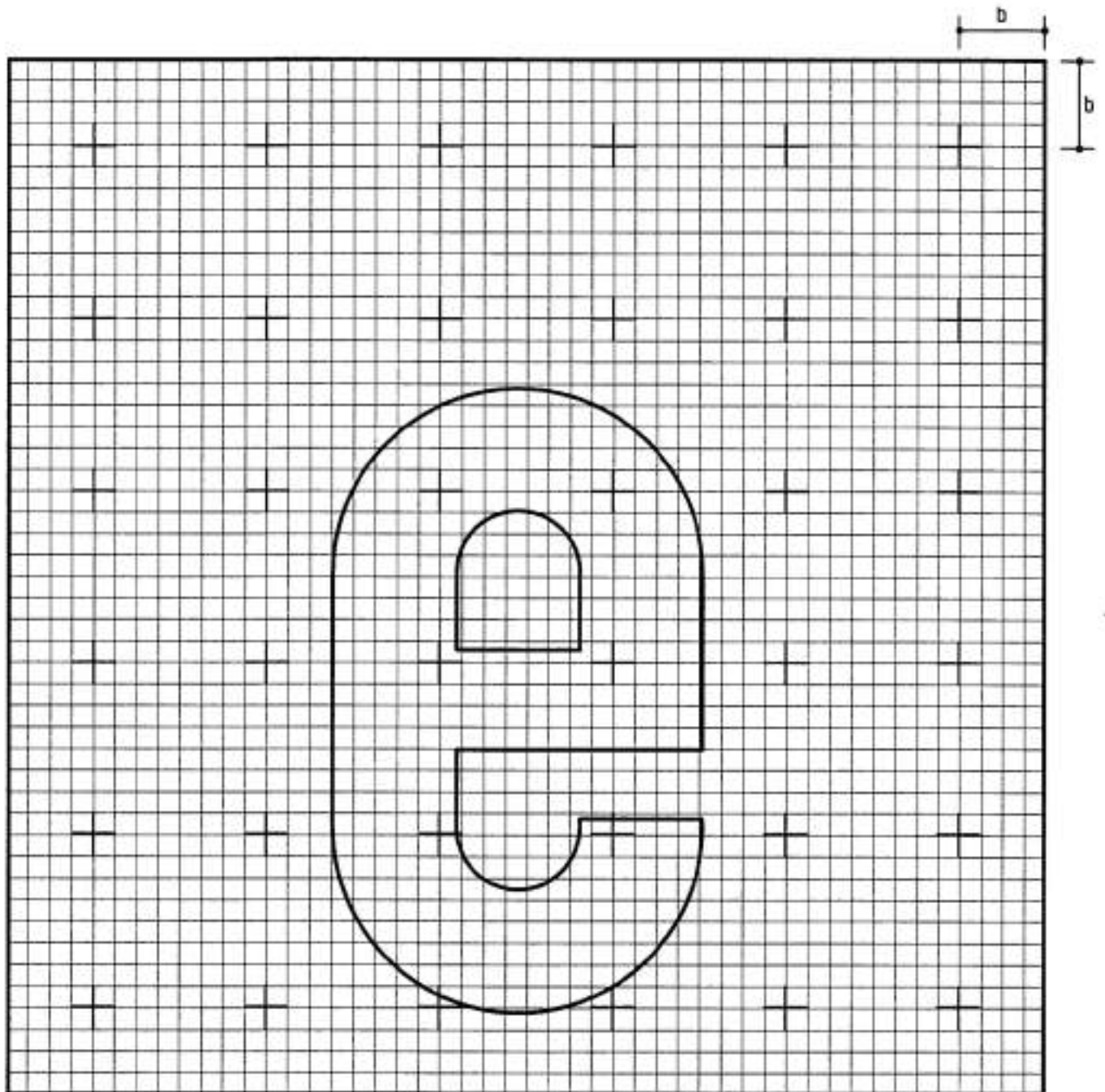


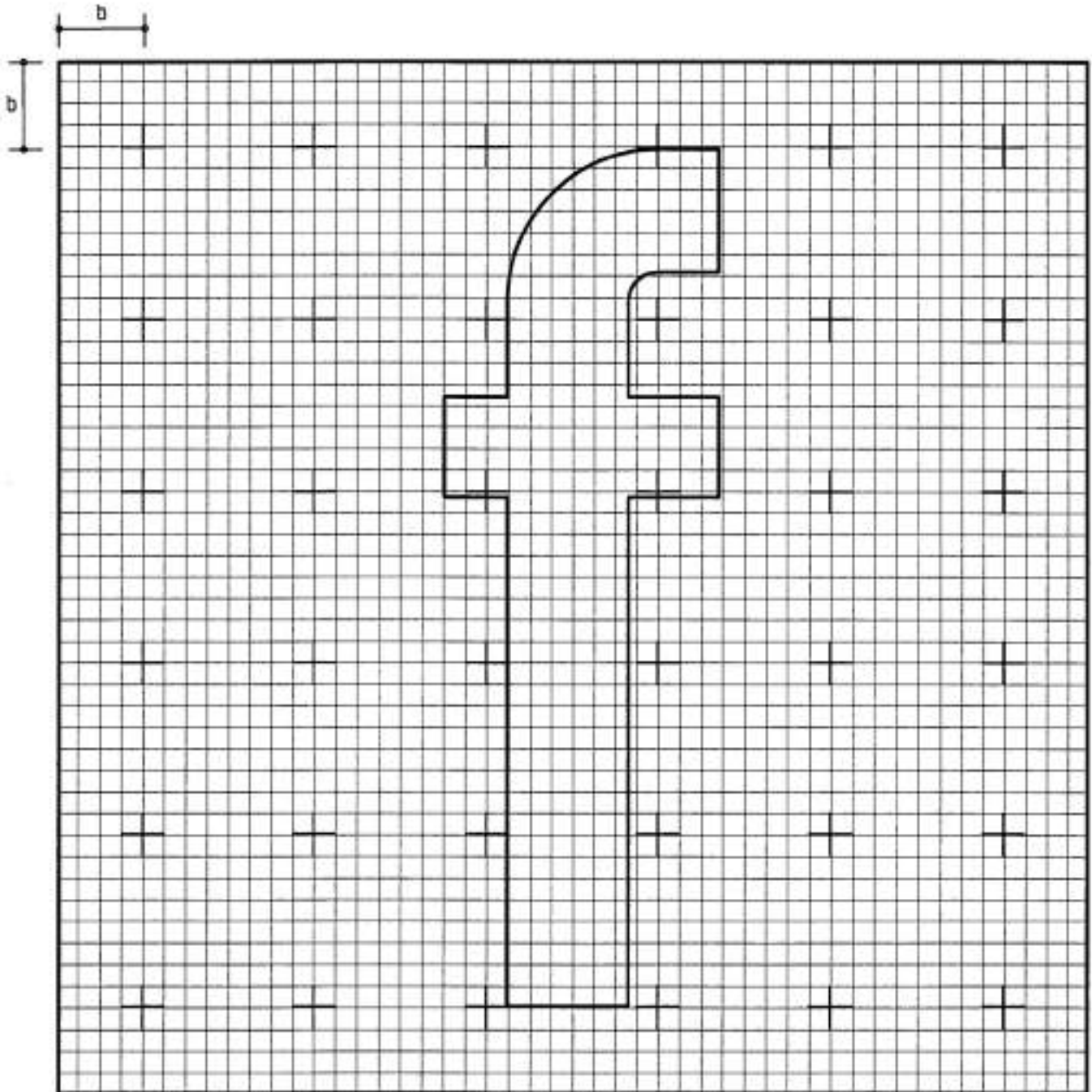
C



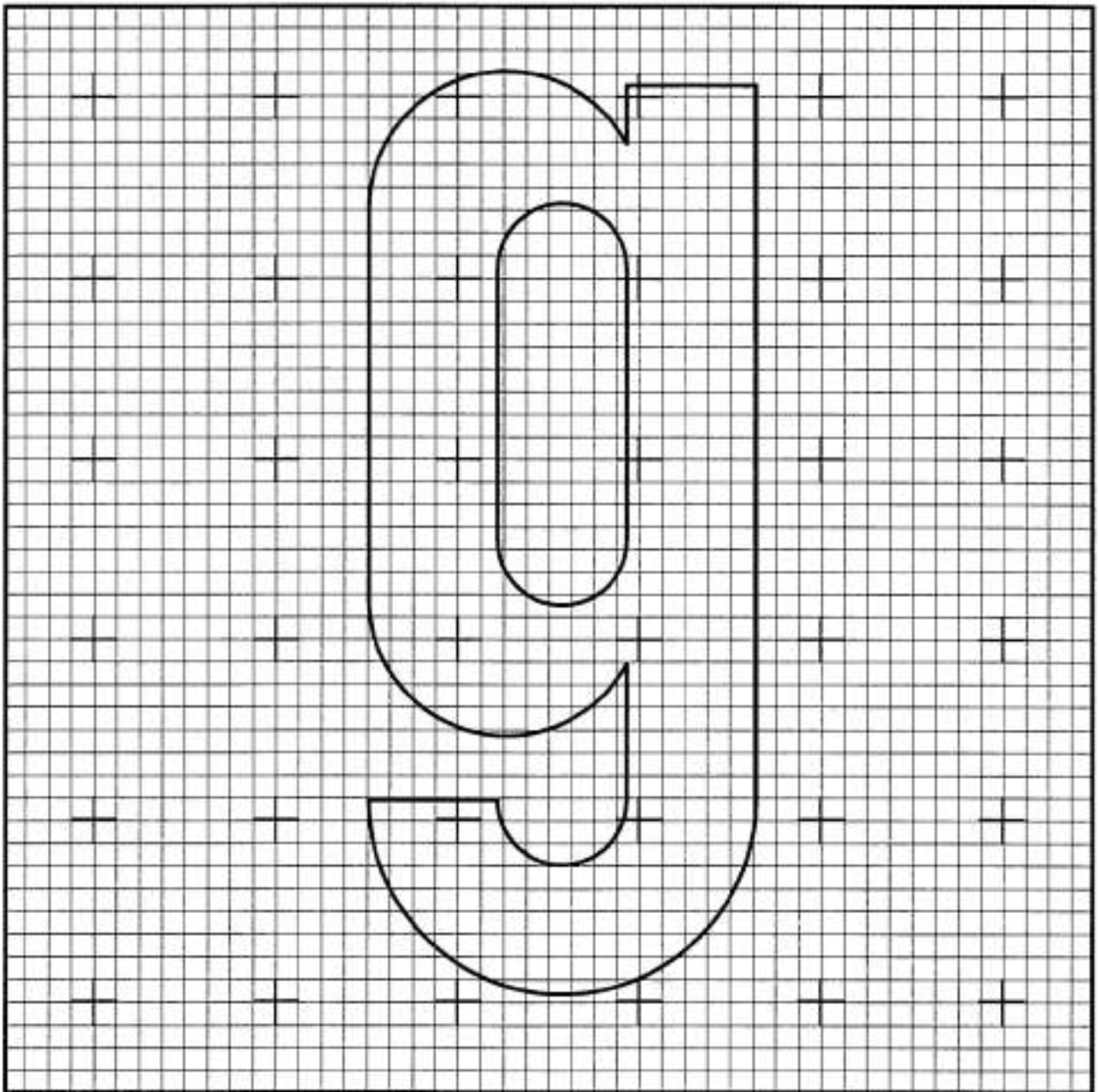
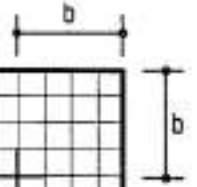
d



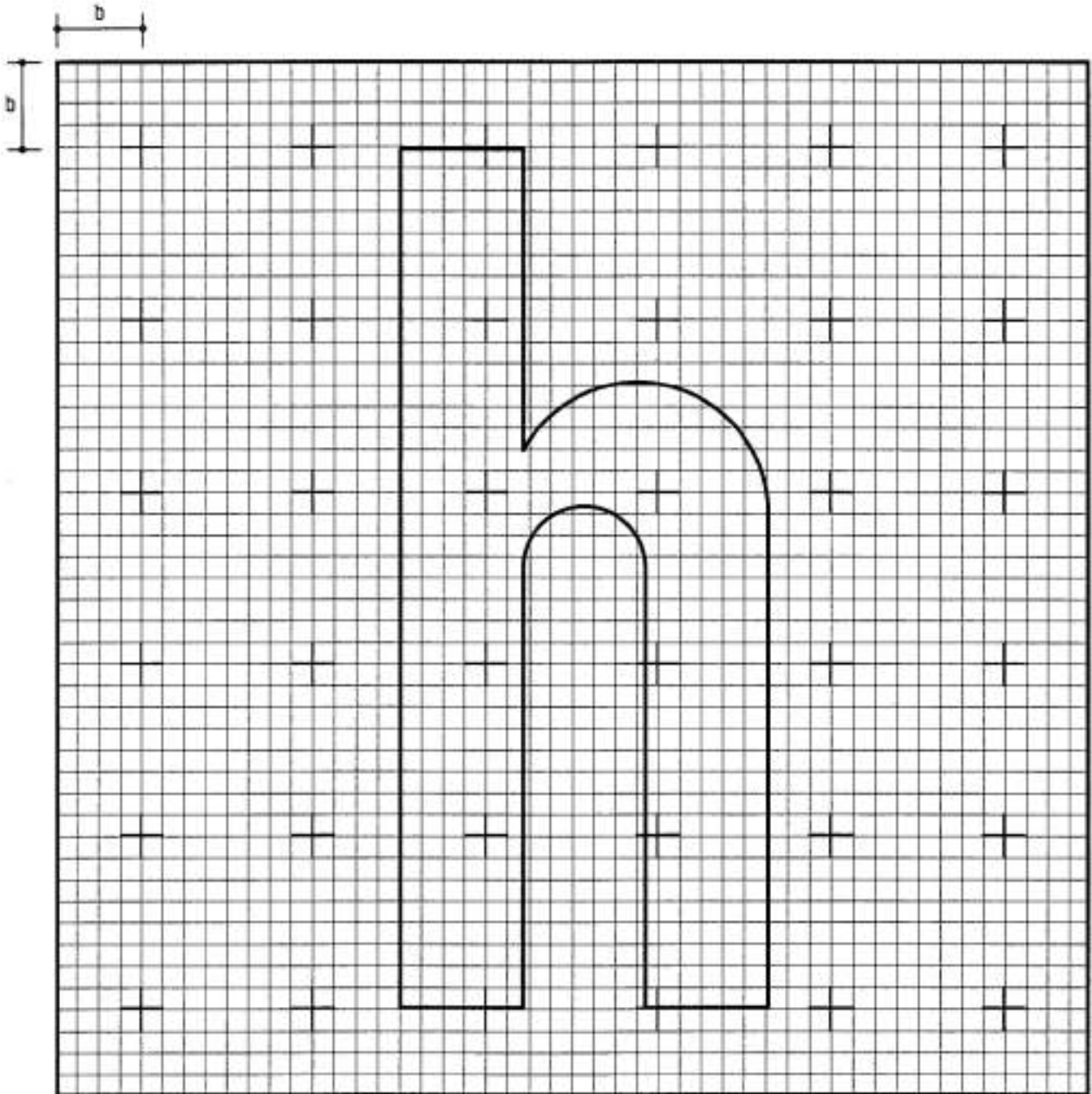








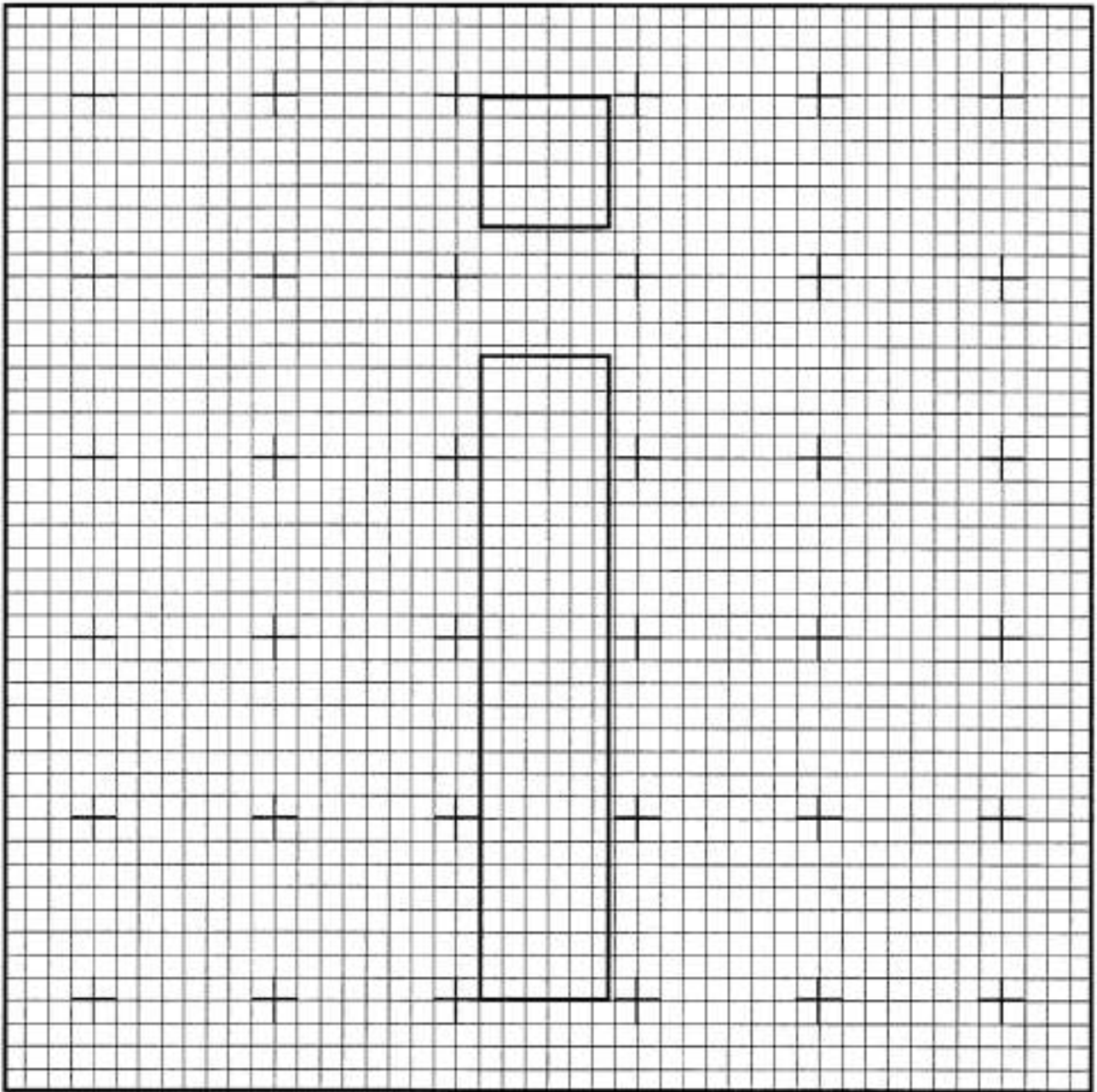
h

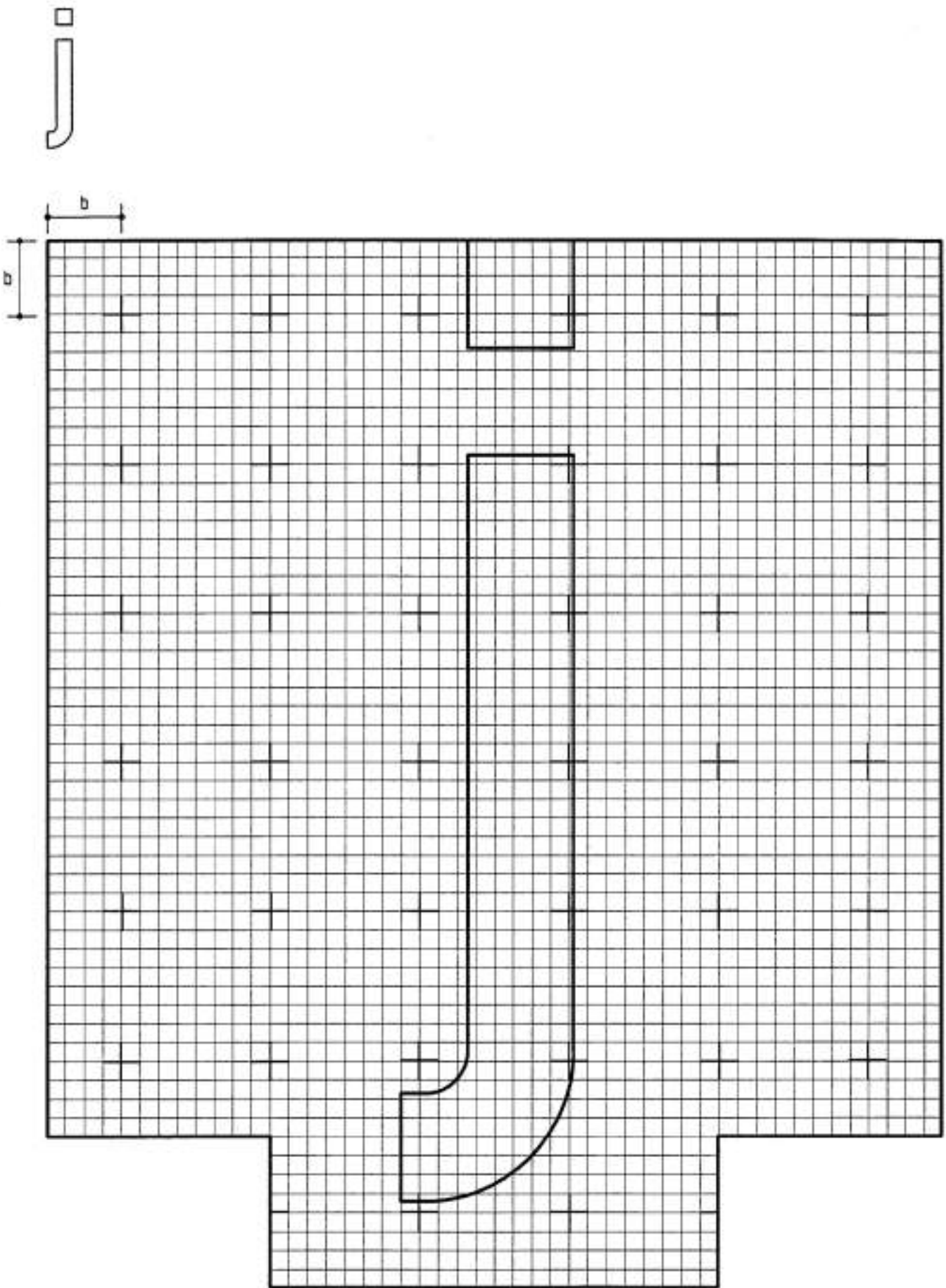




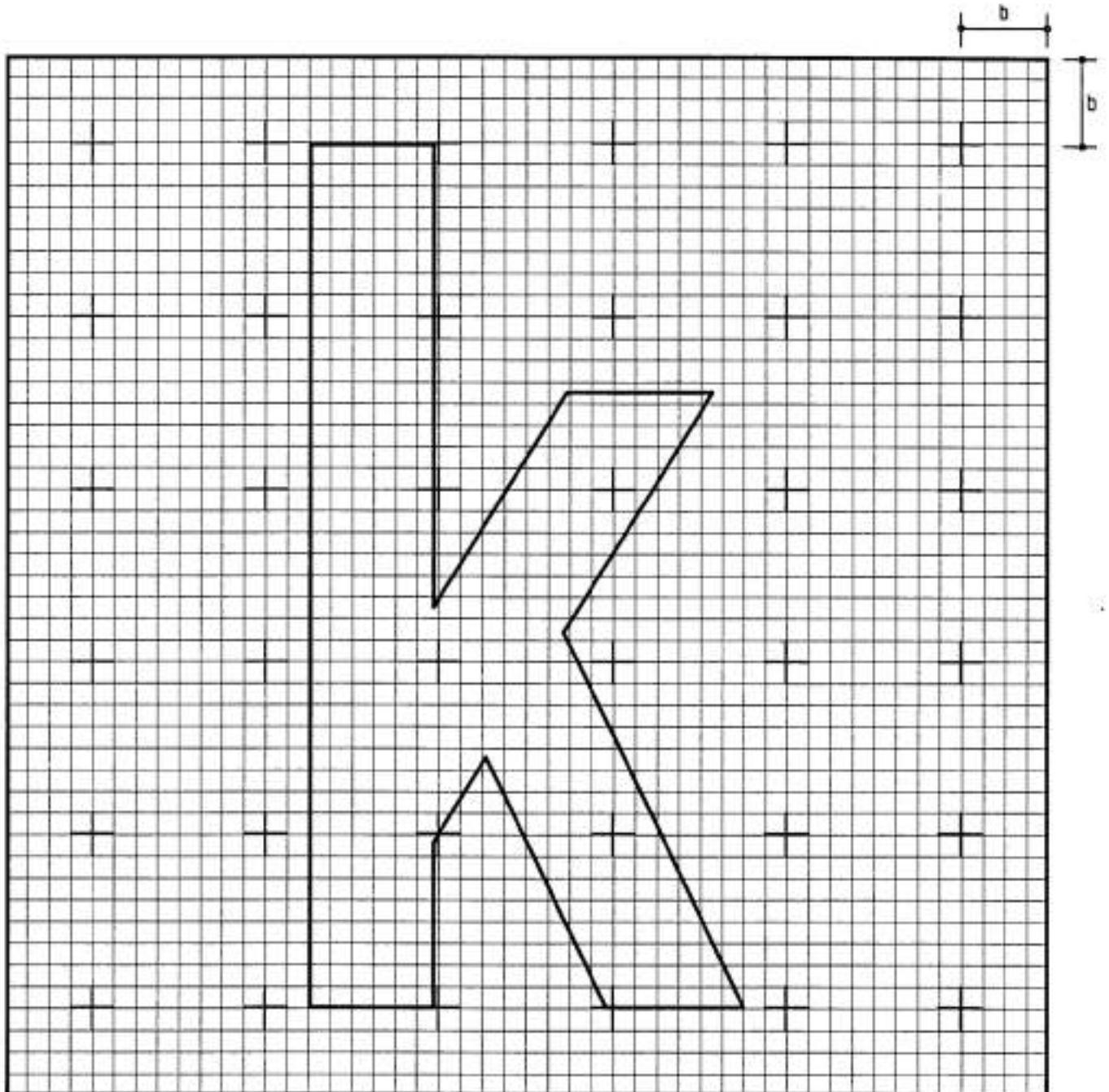
b

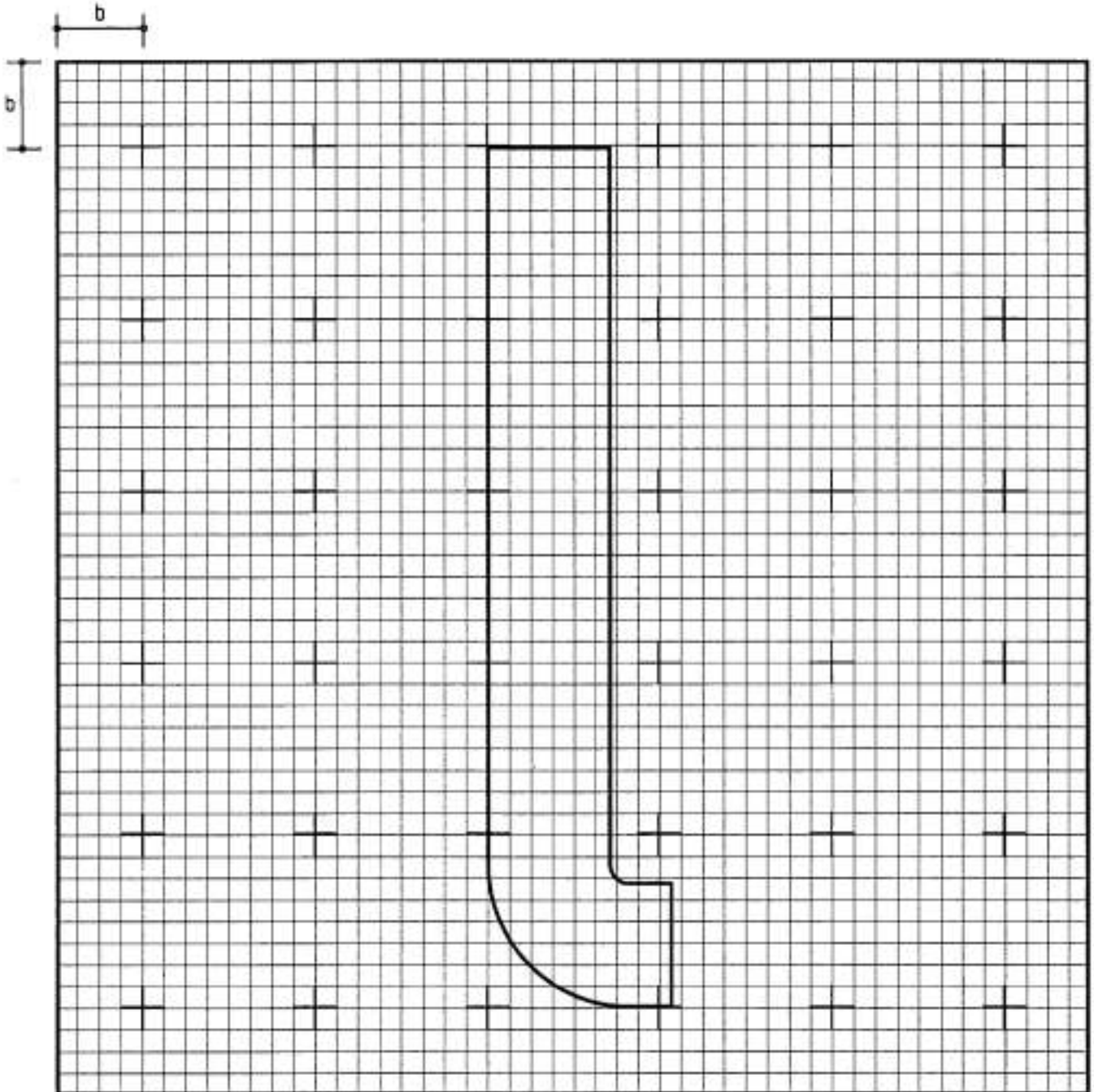
b



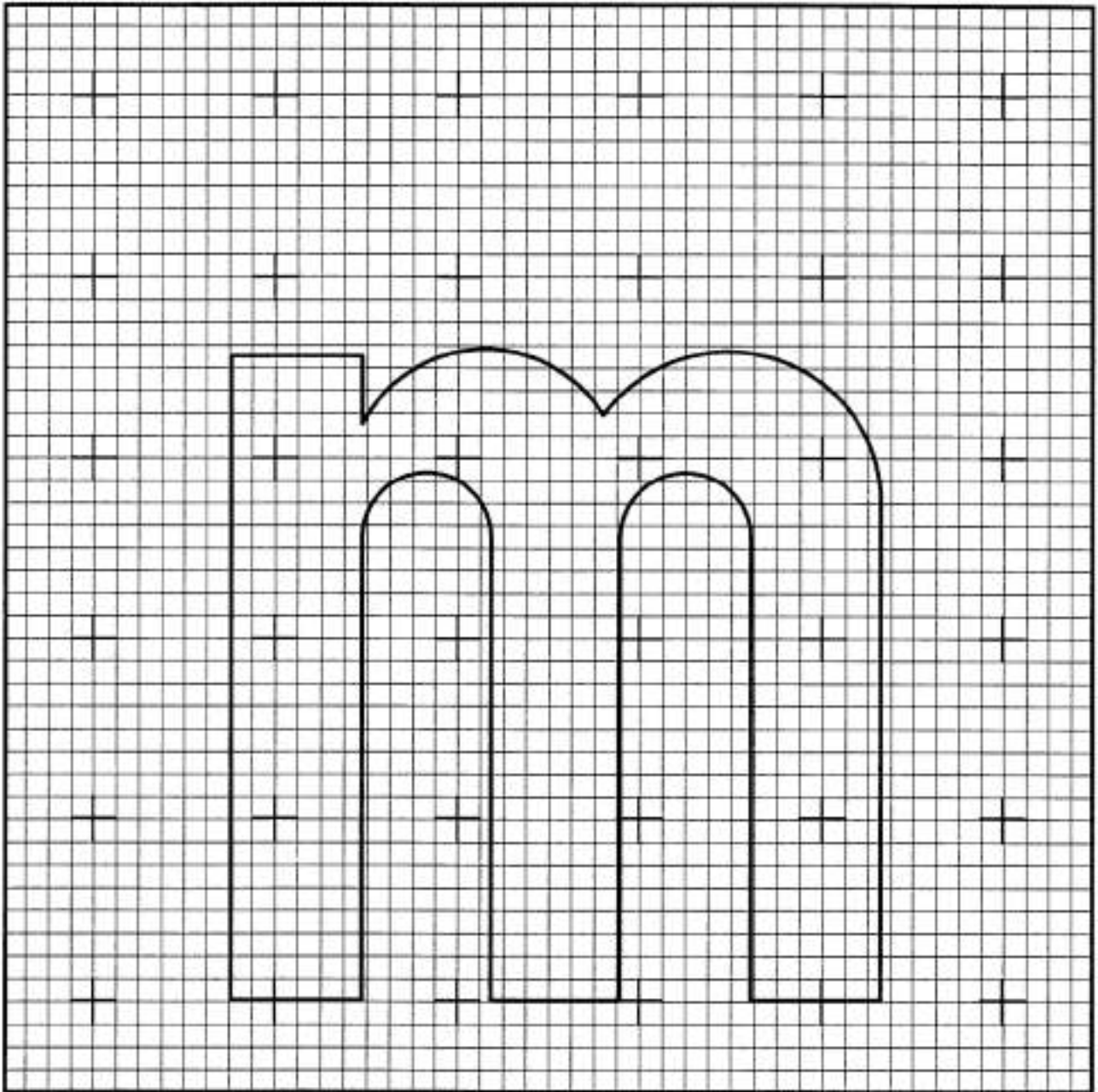
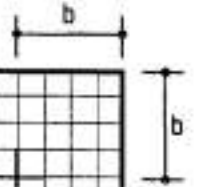


k

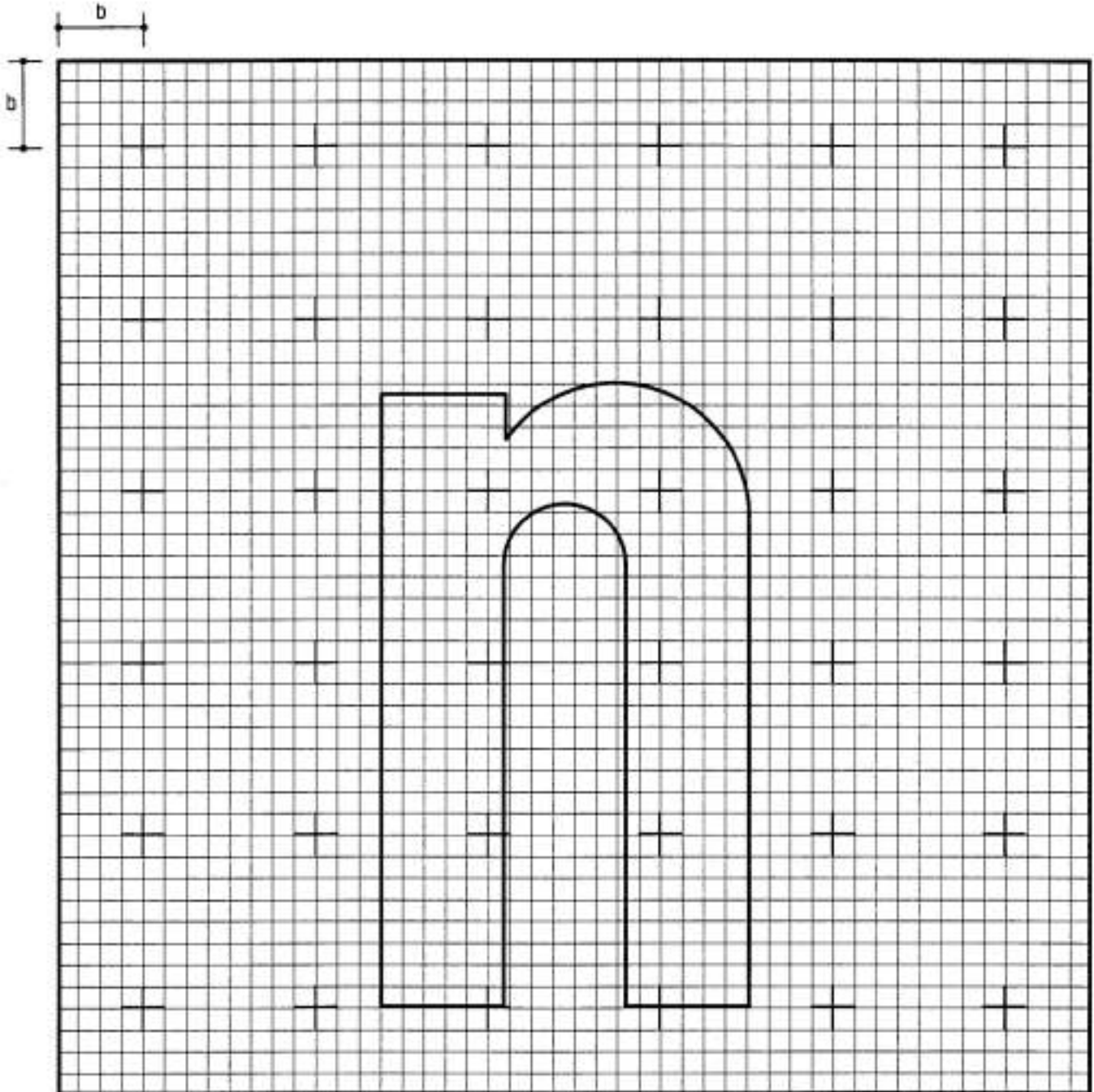




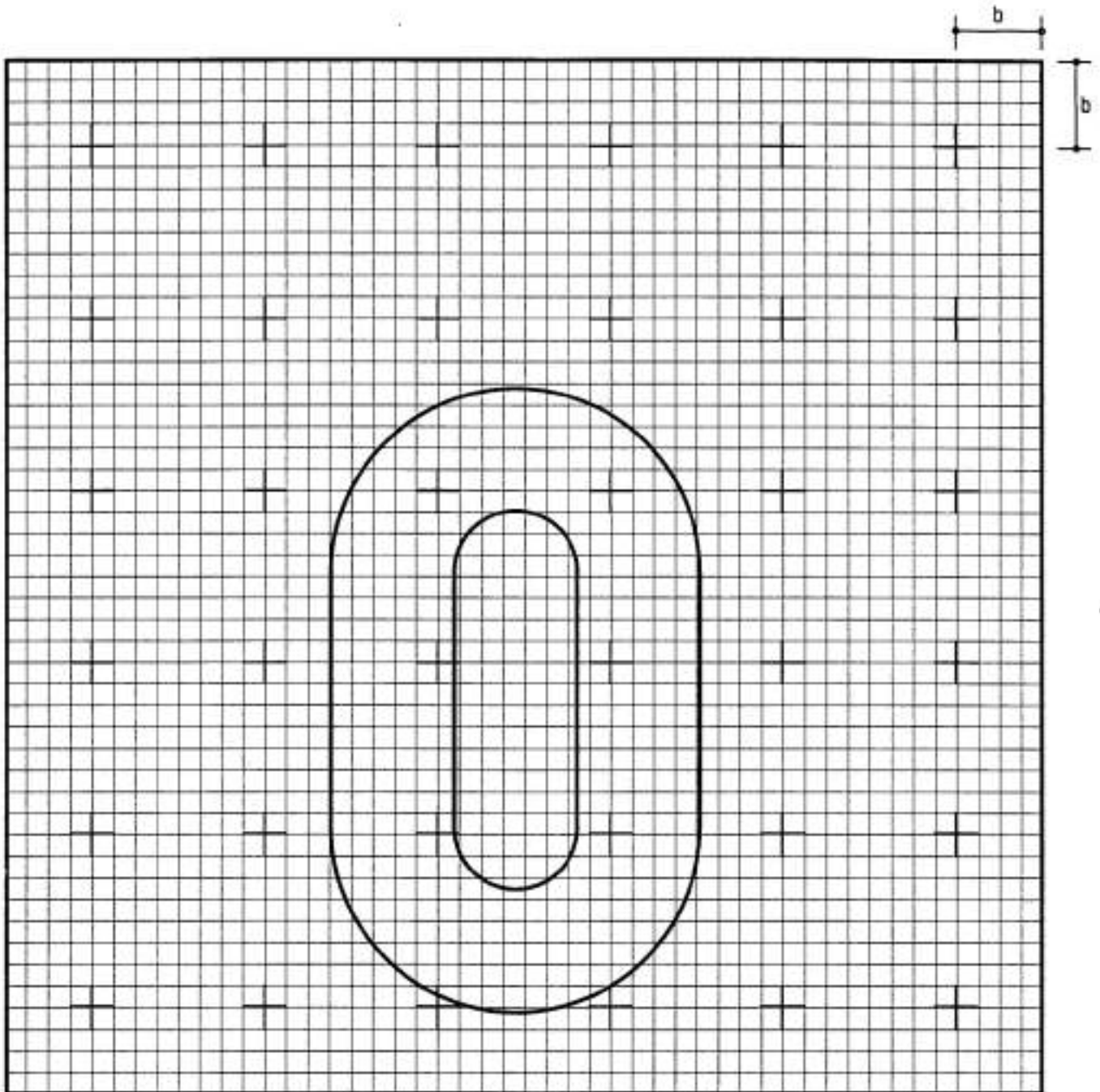
m



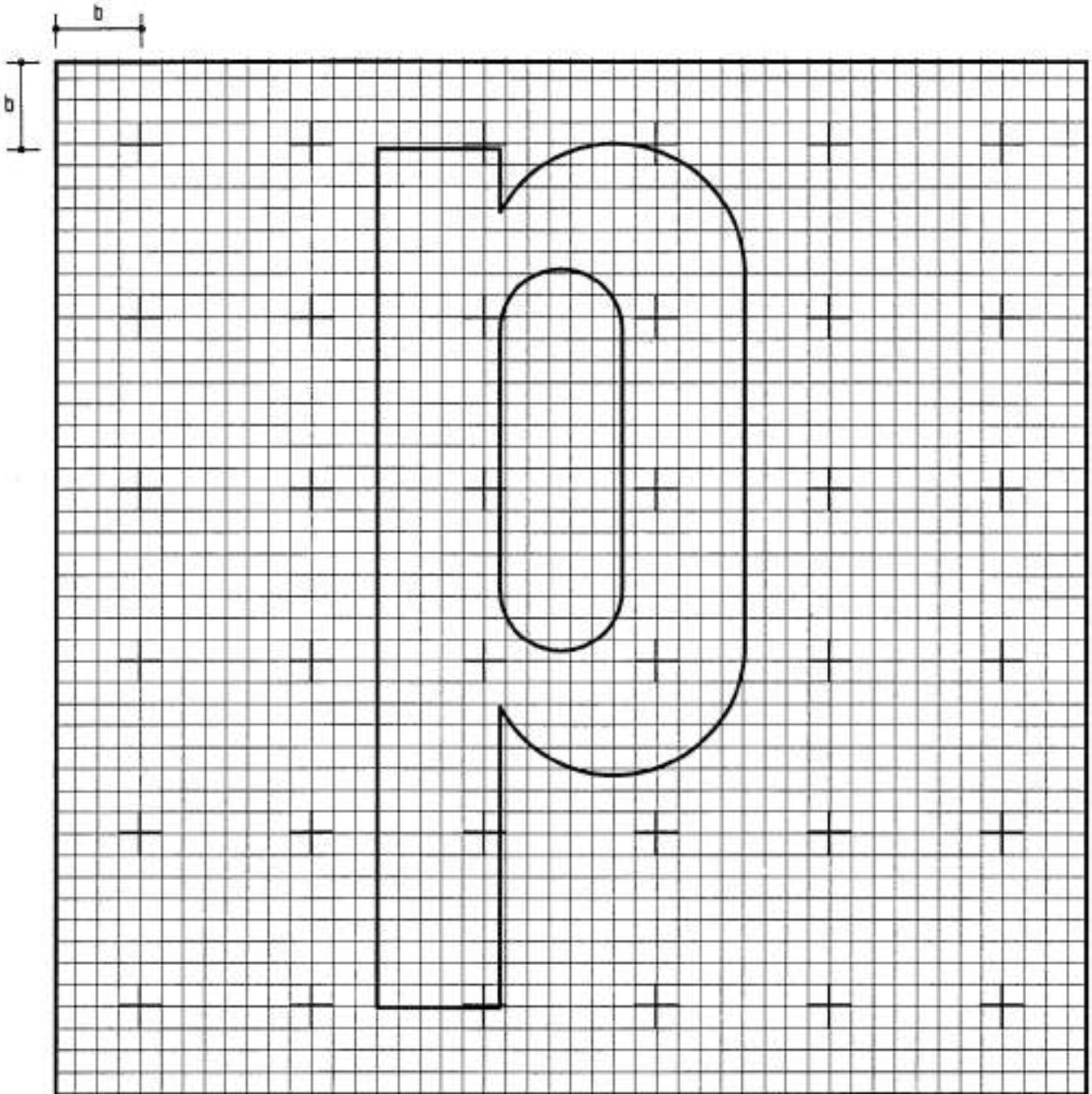
n

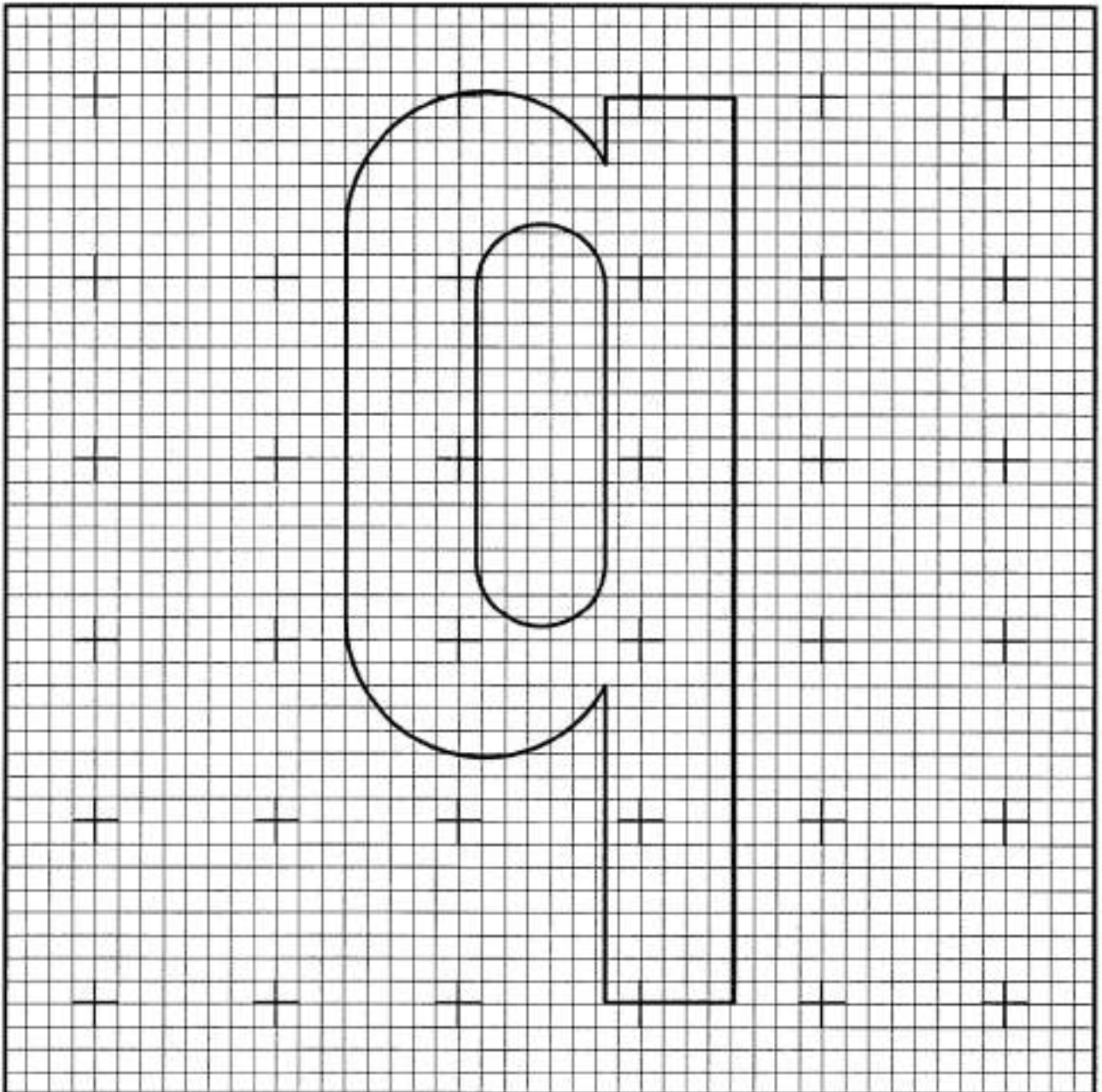
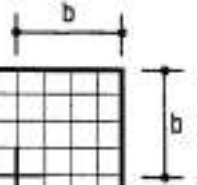


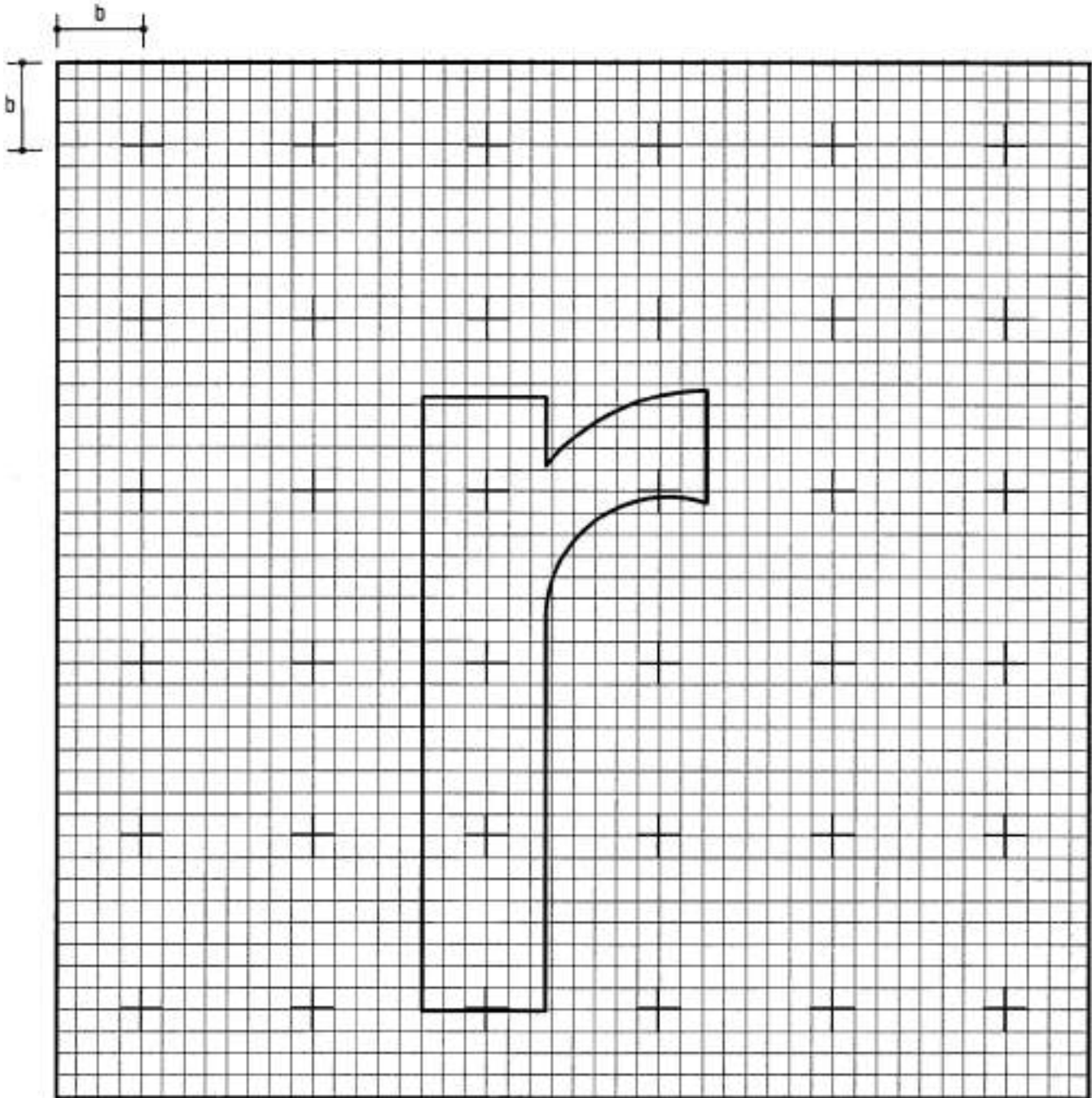




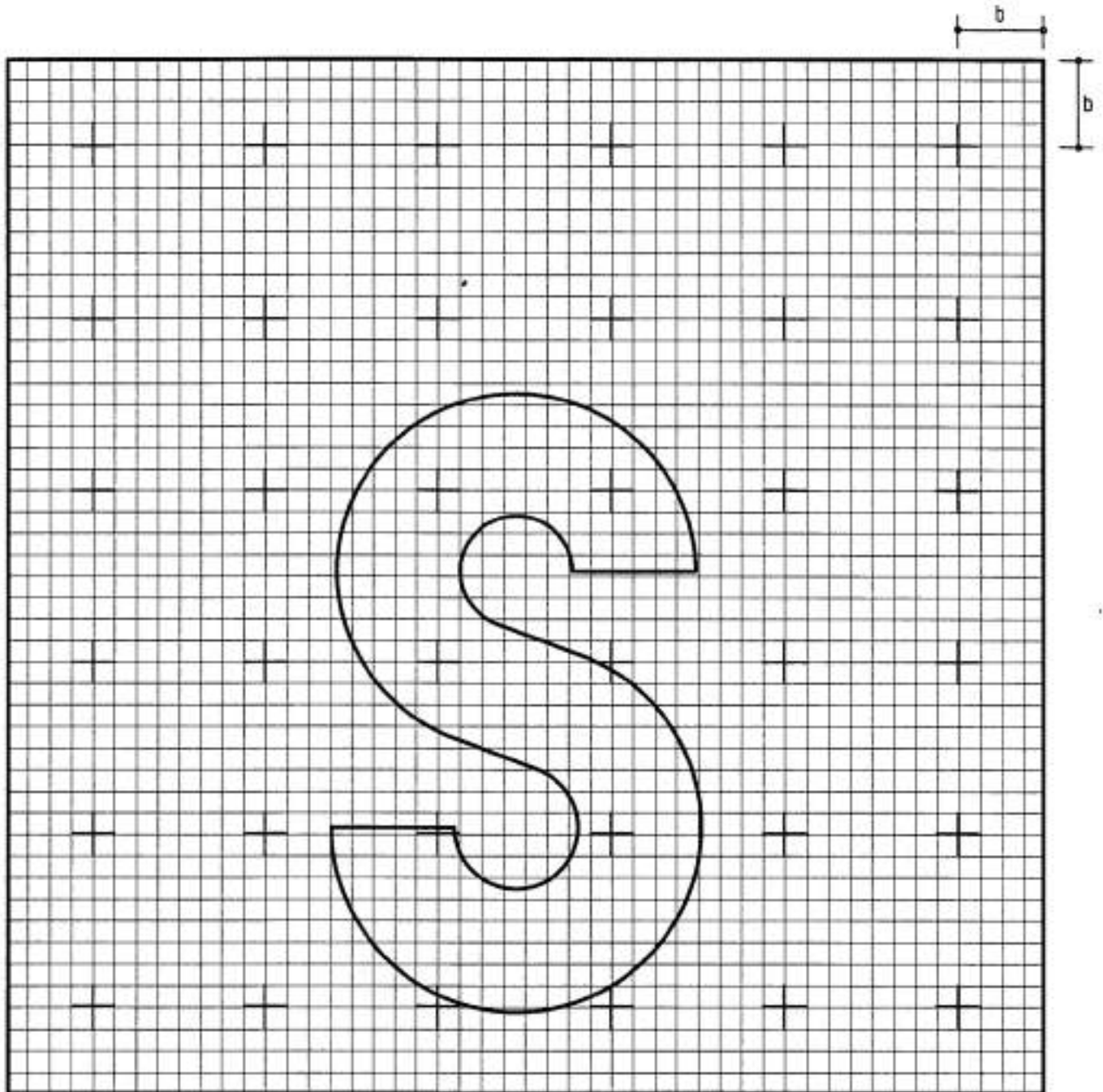
p

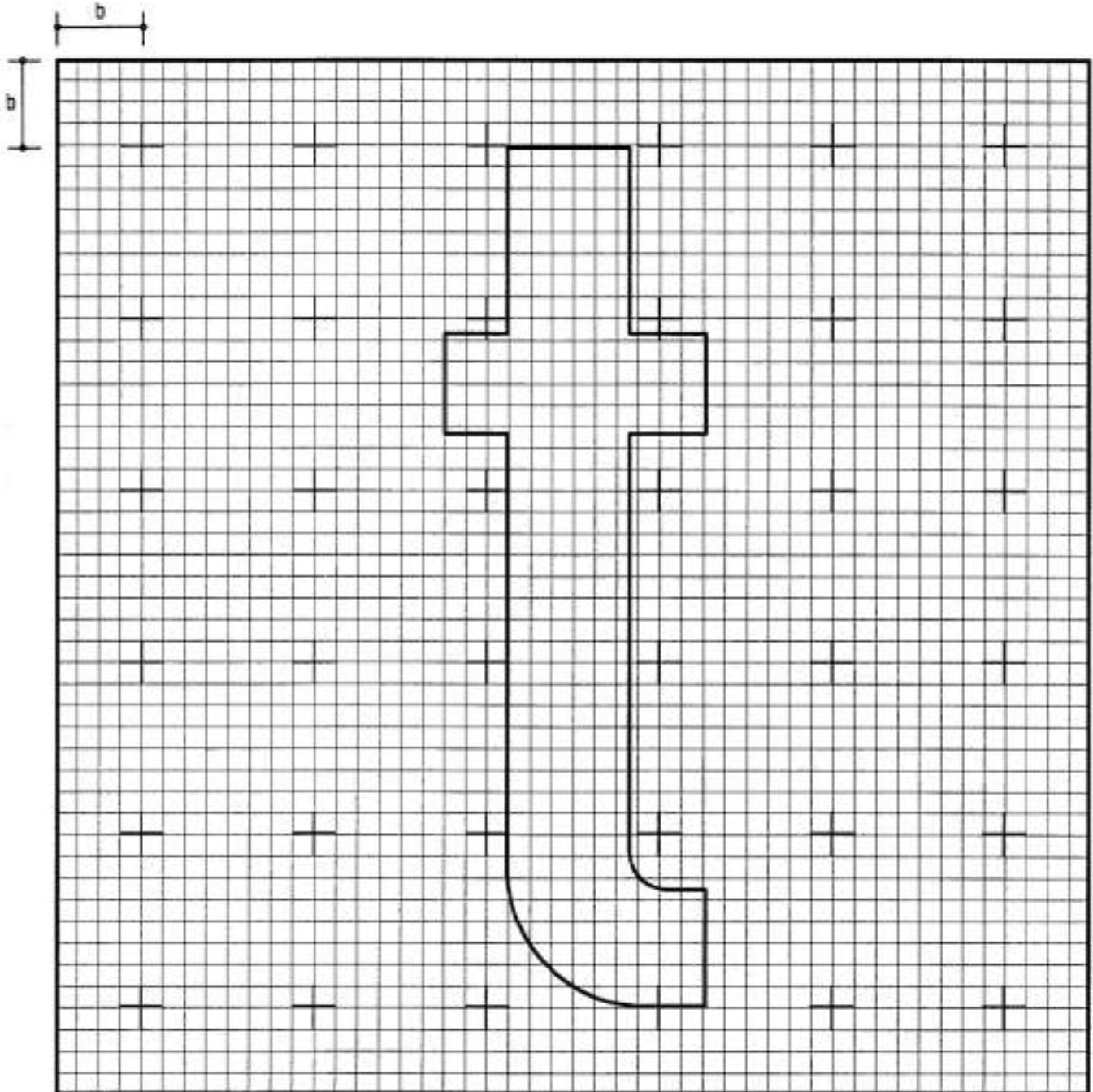


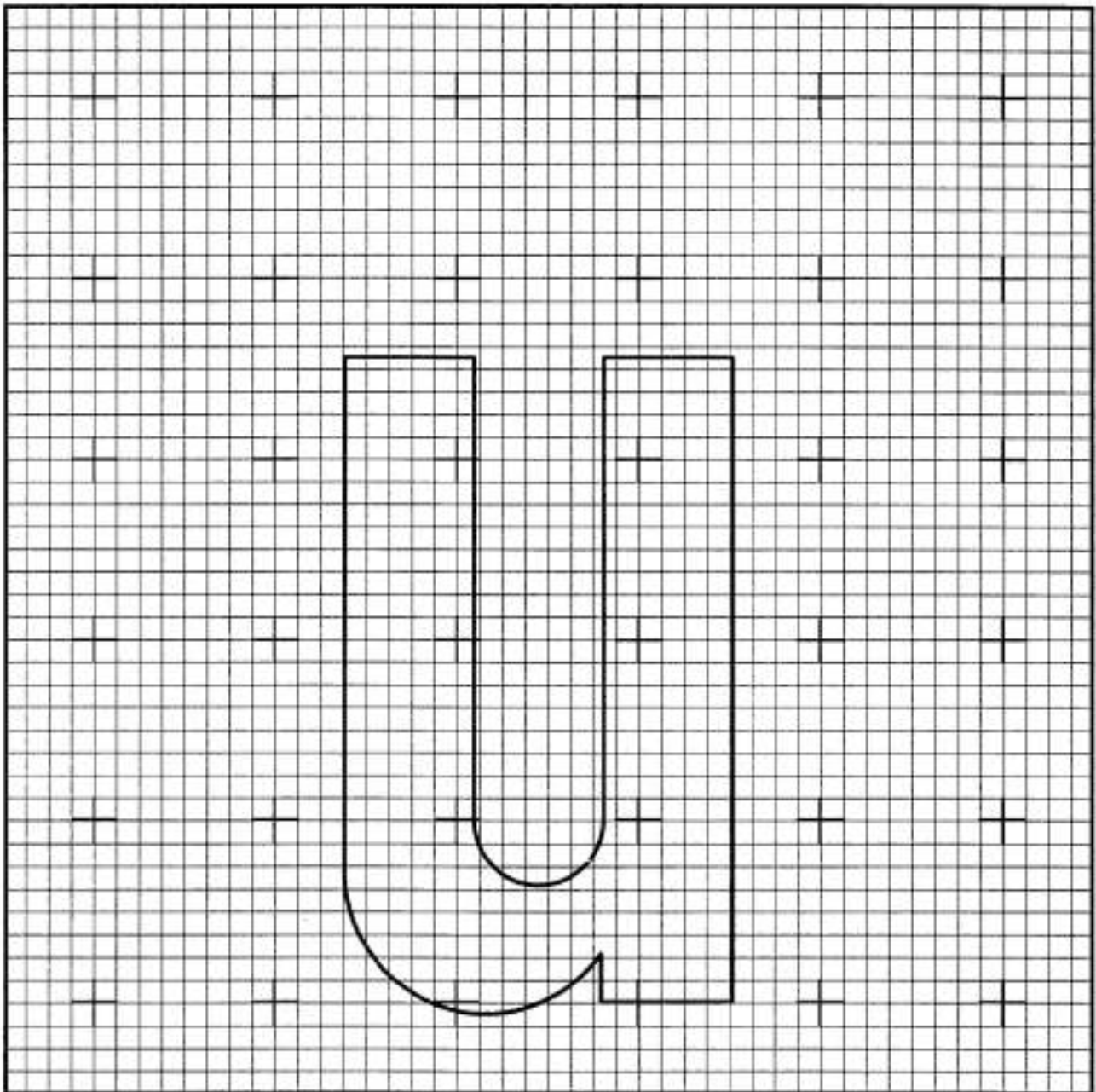
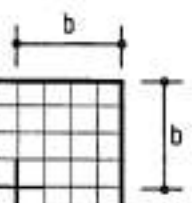


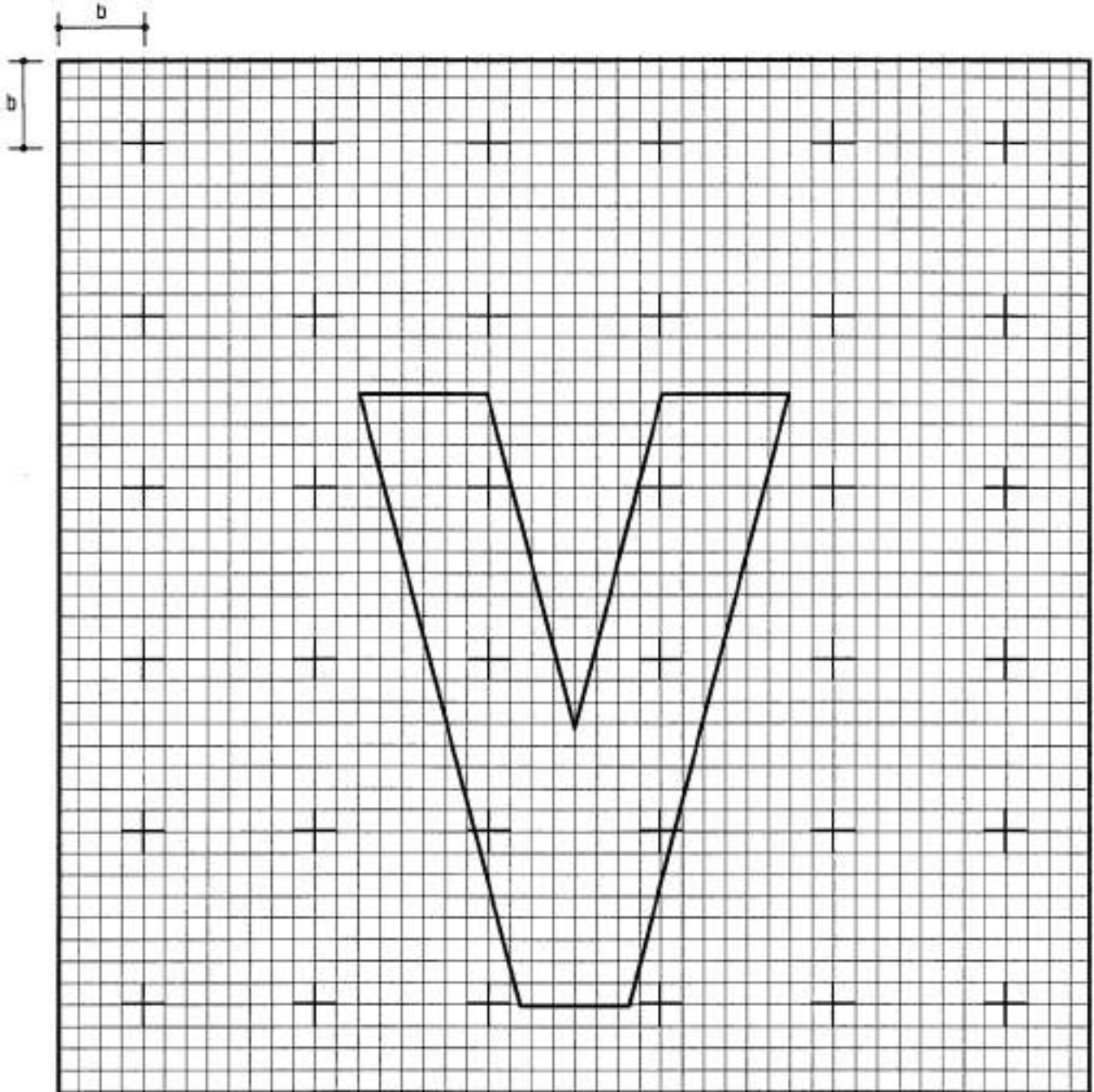


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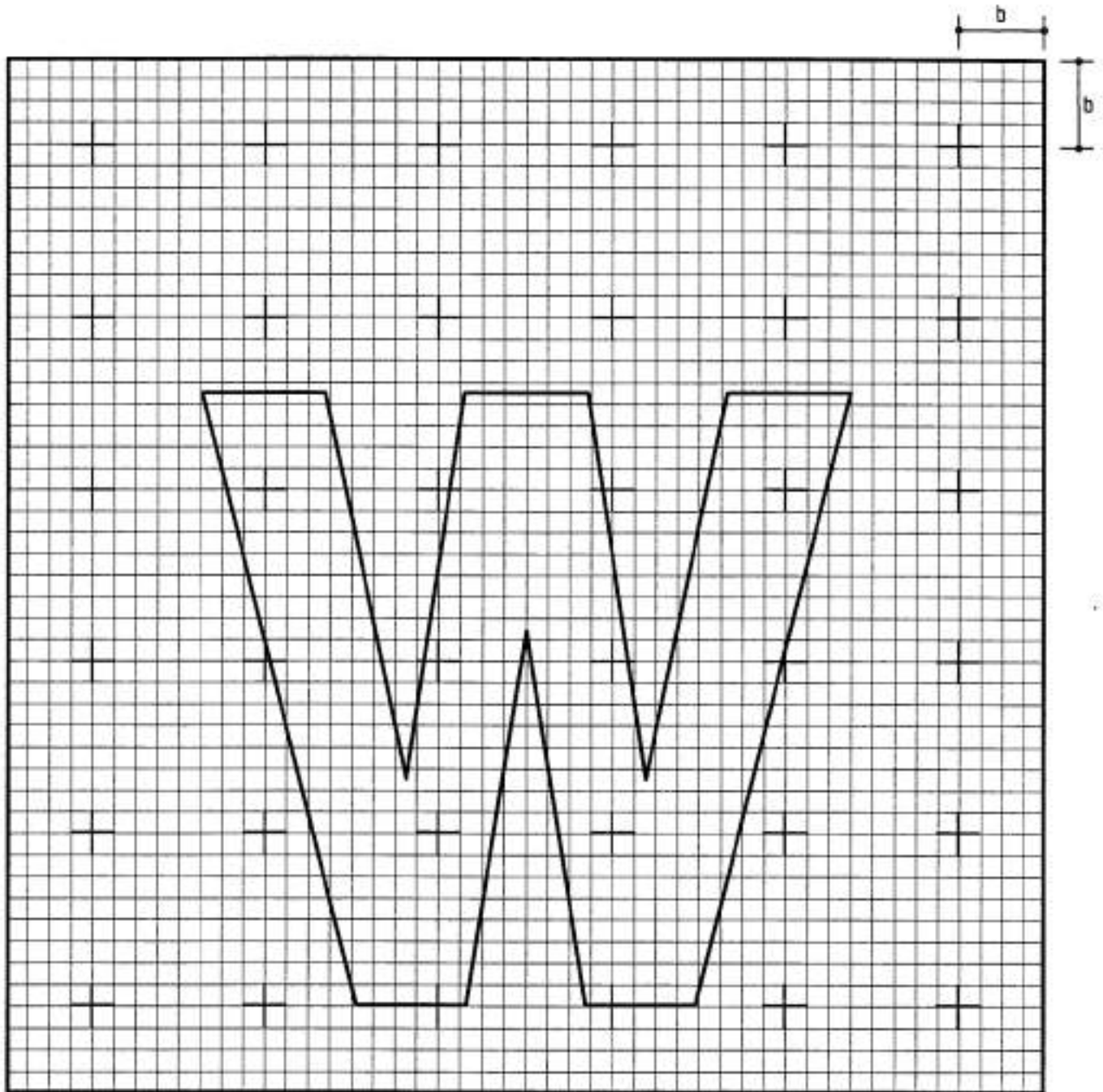




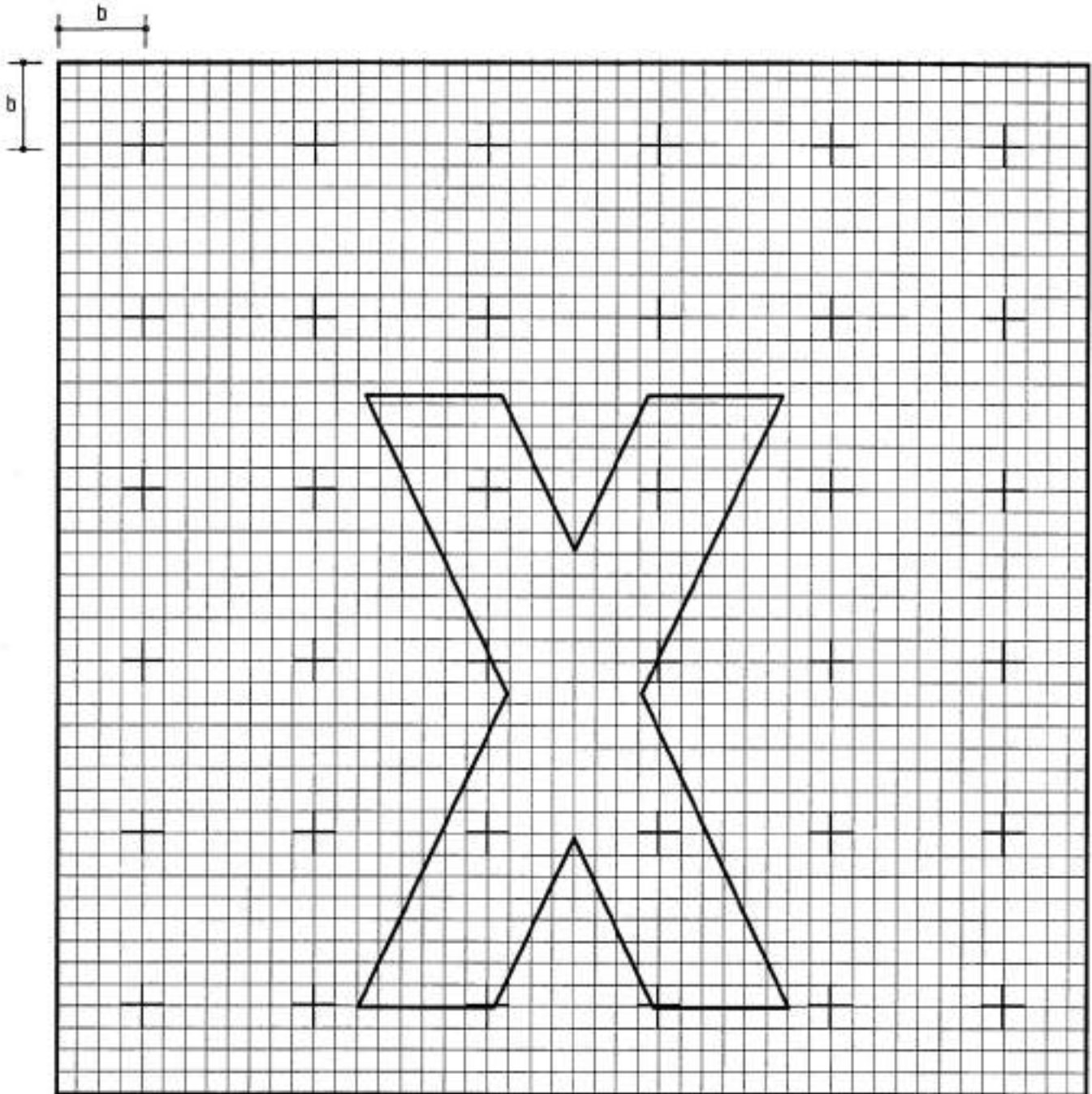




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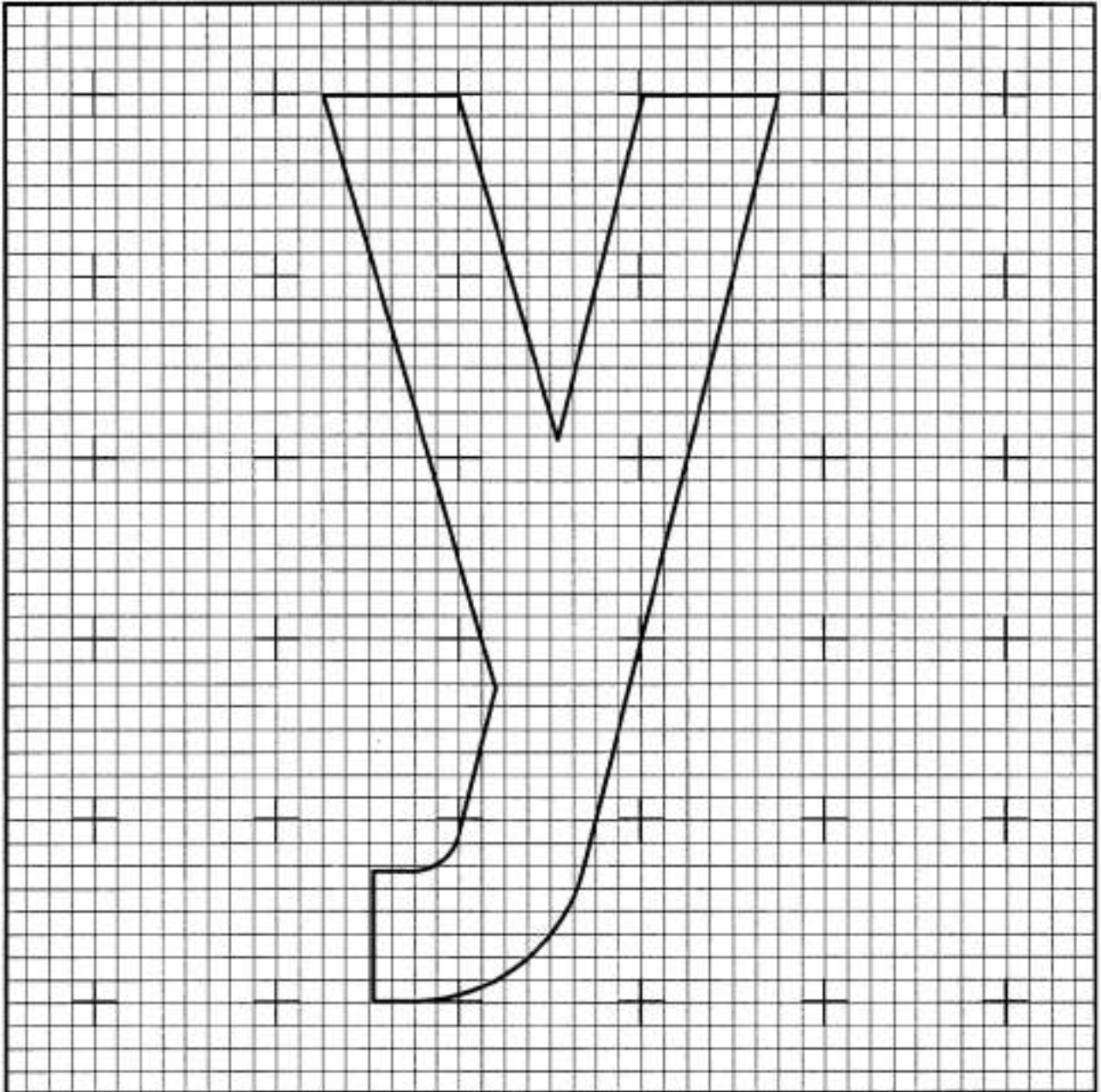
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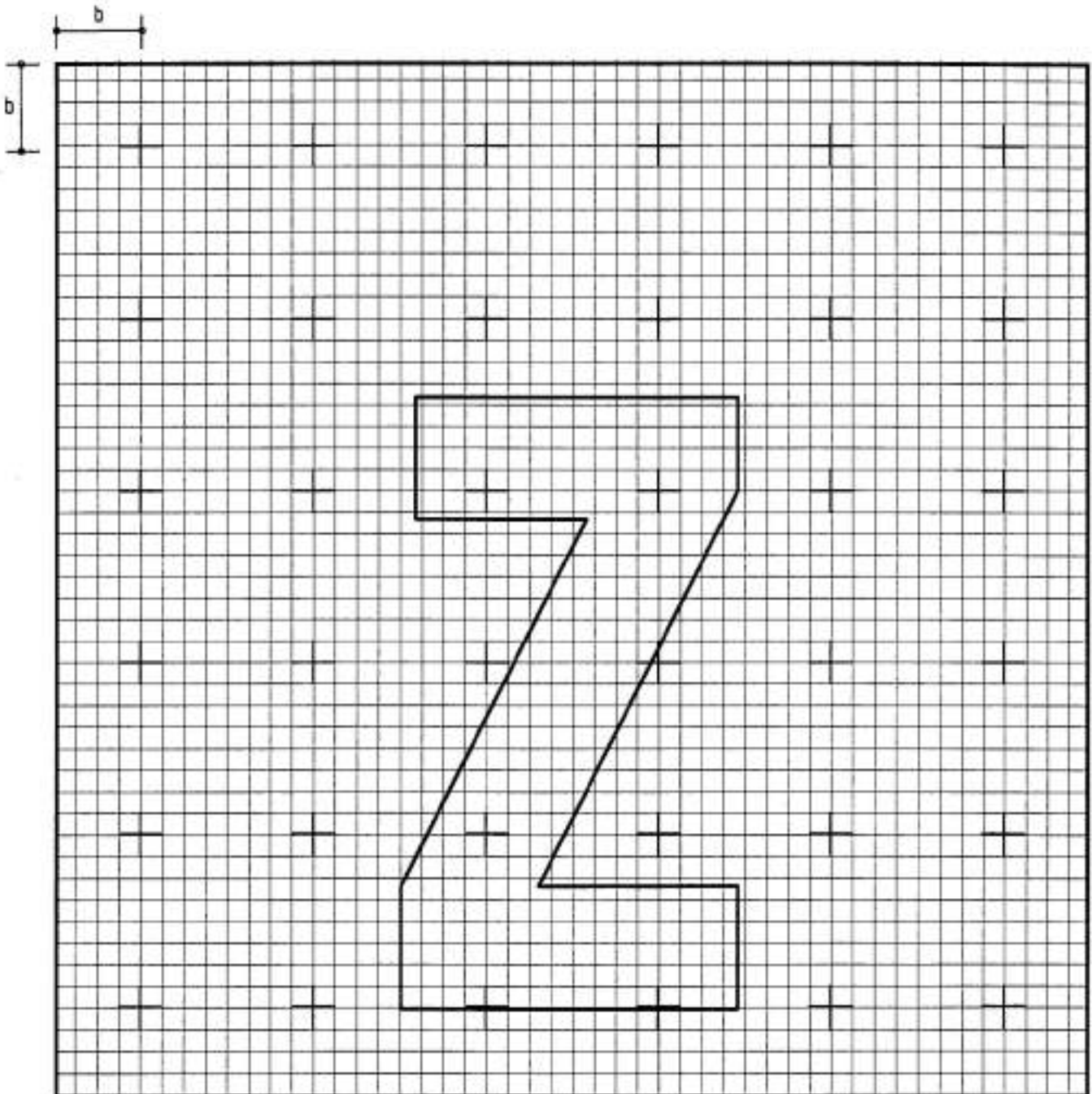
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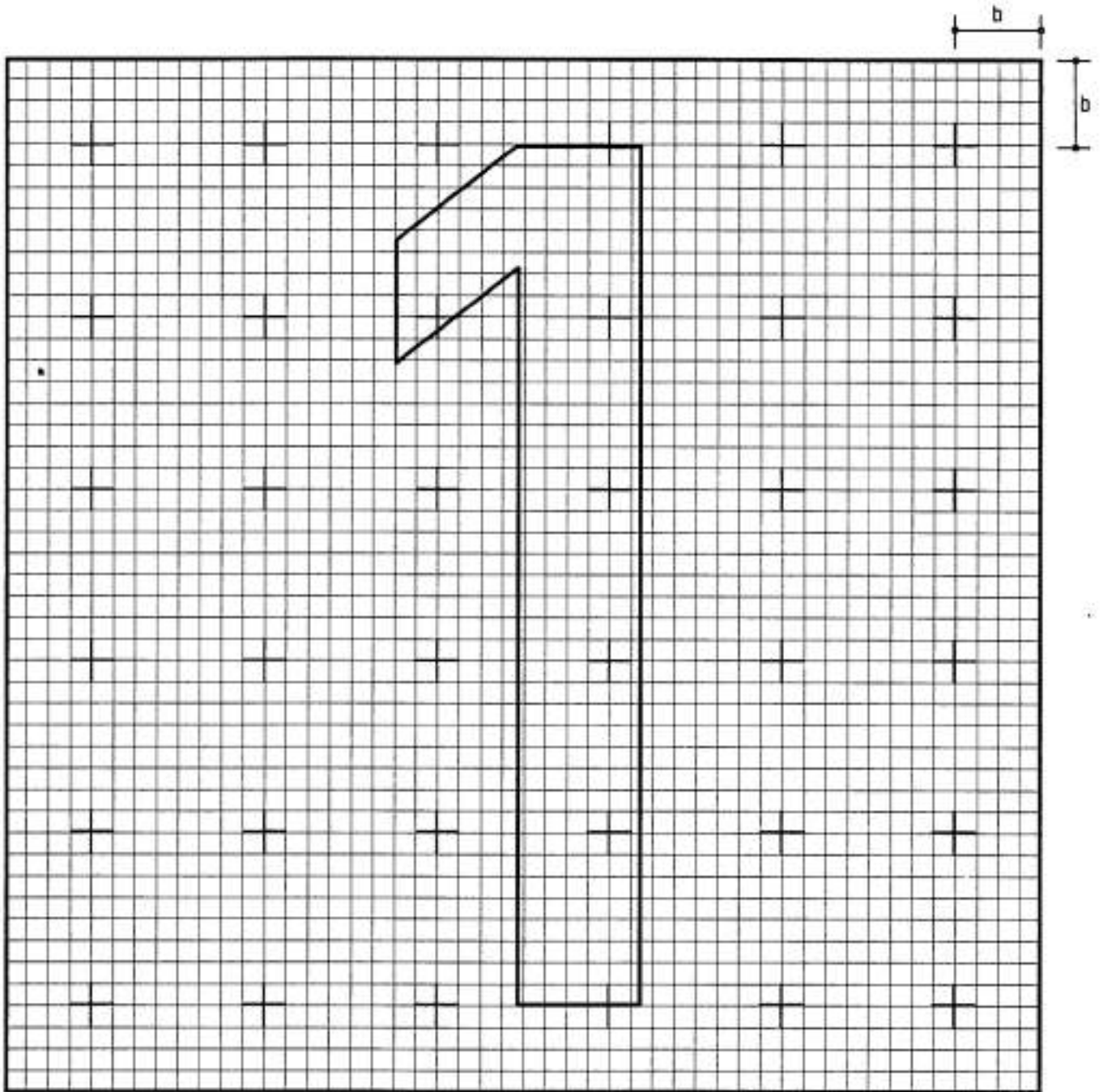
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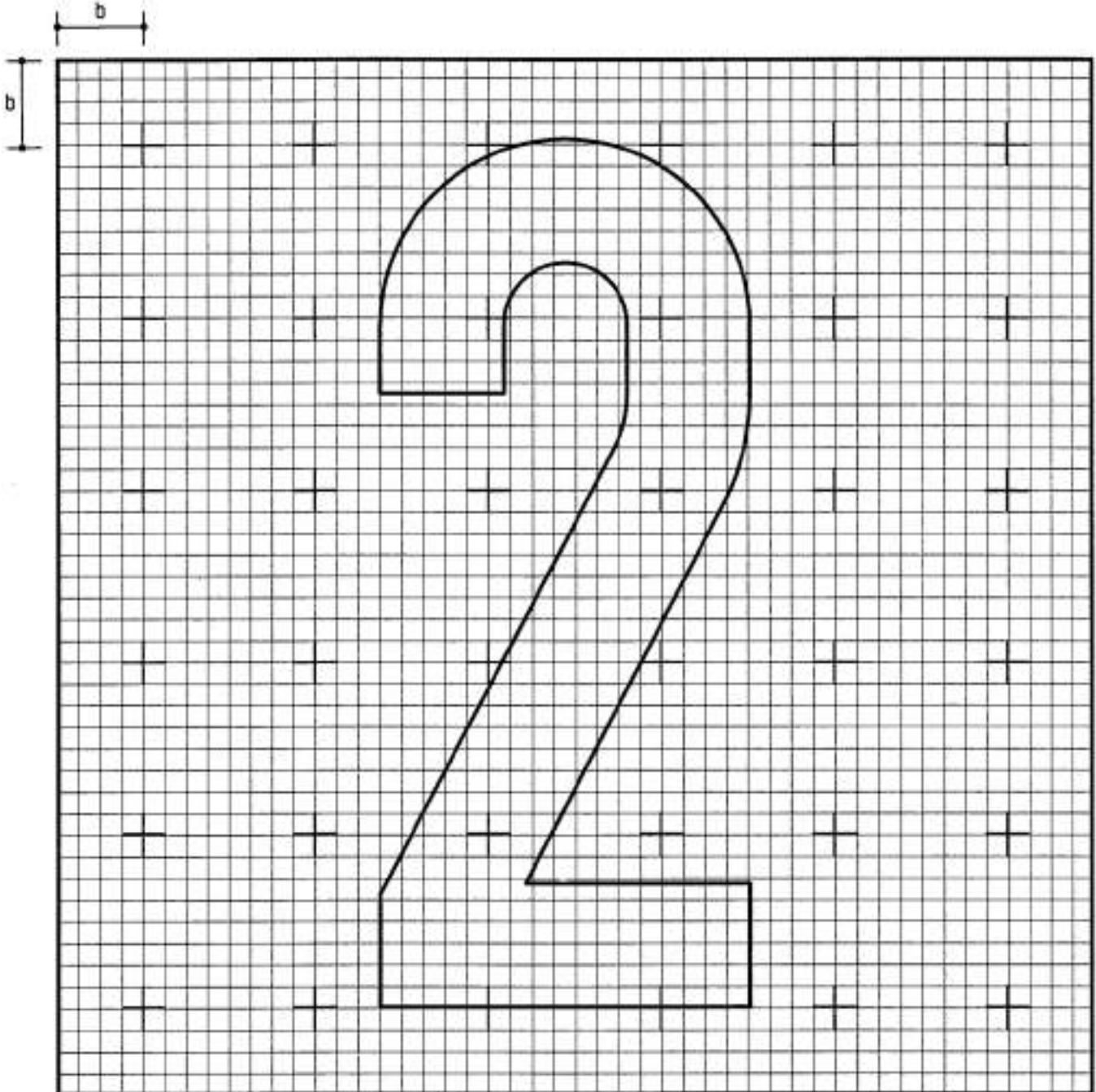
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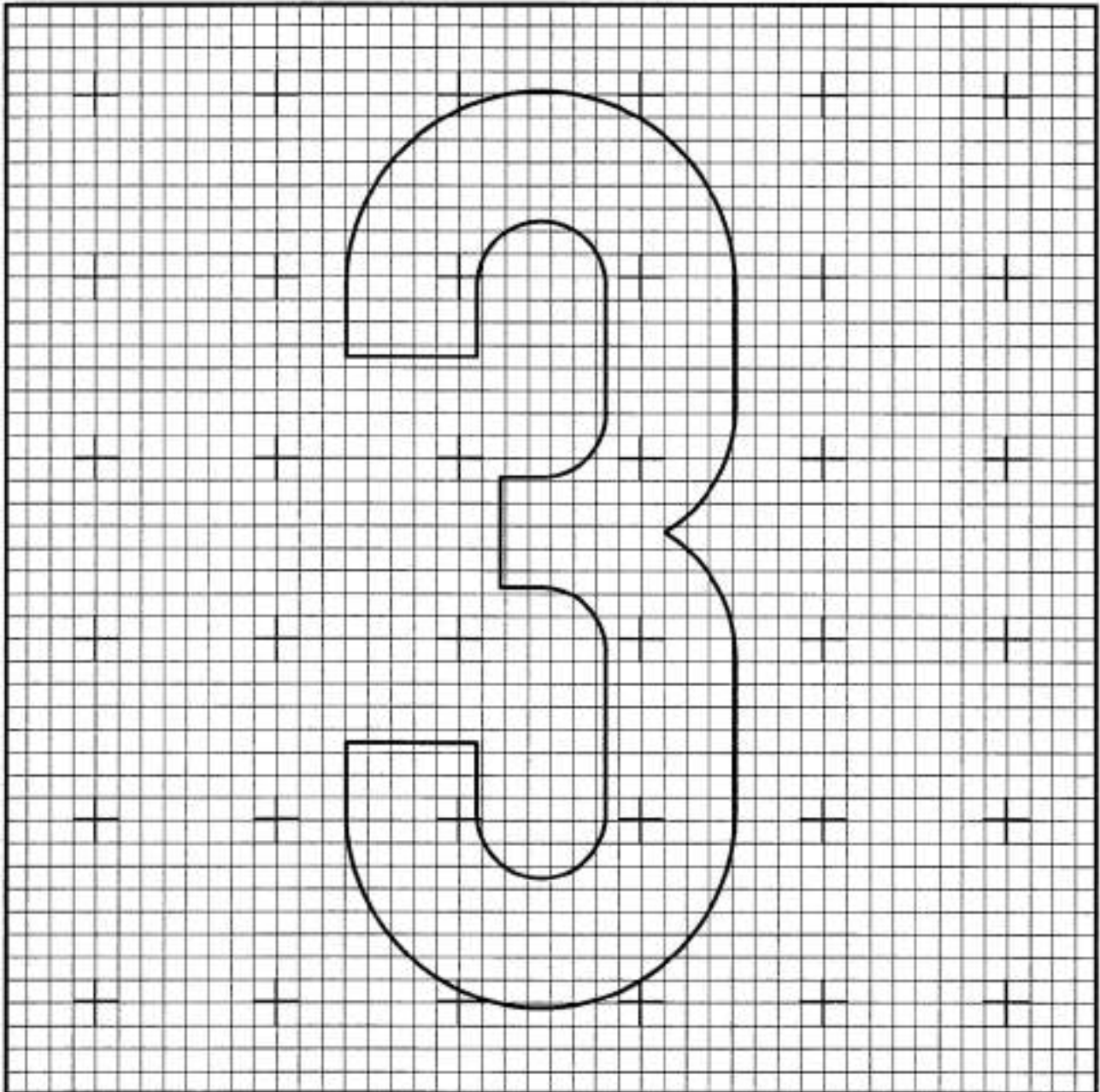
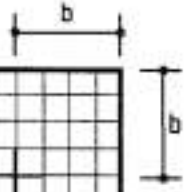
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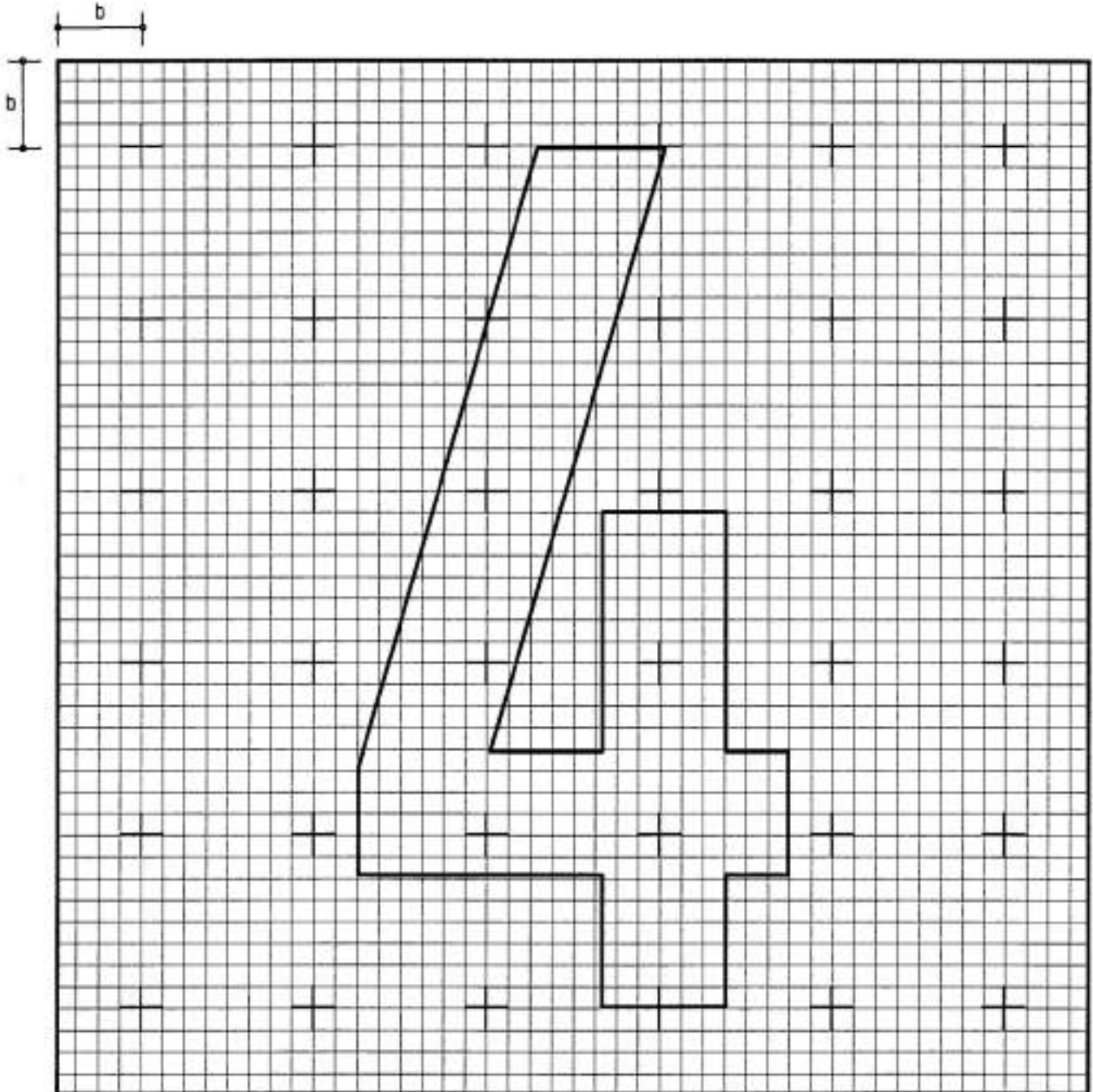
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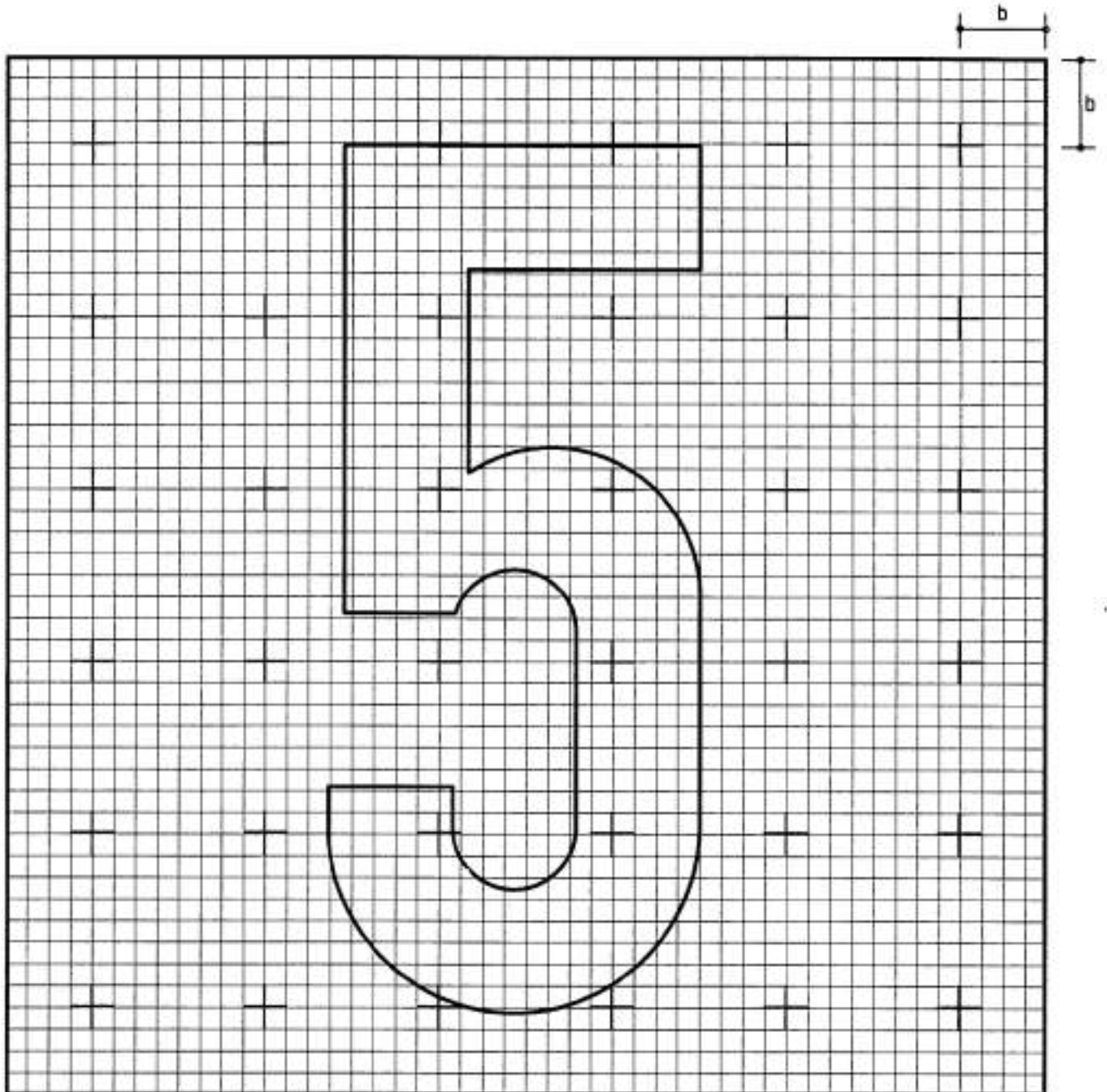


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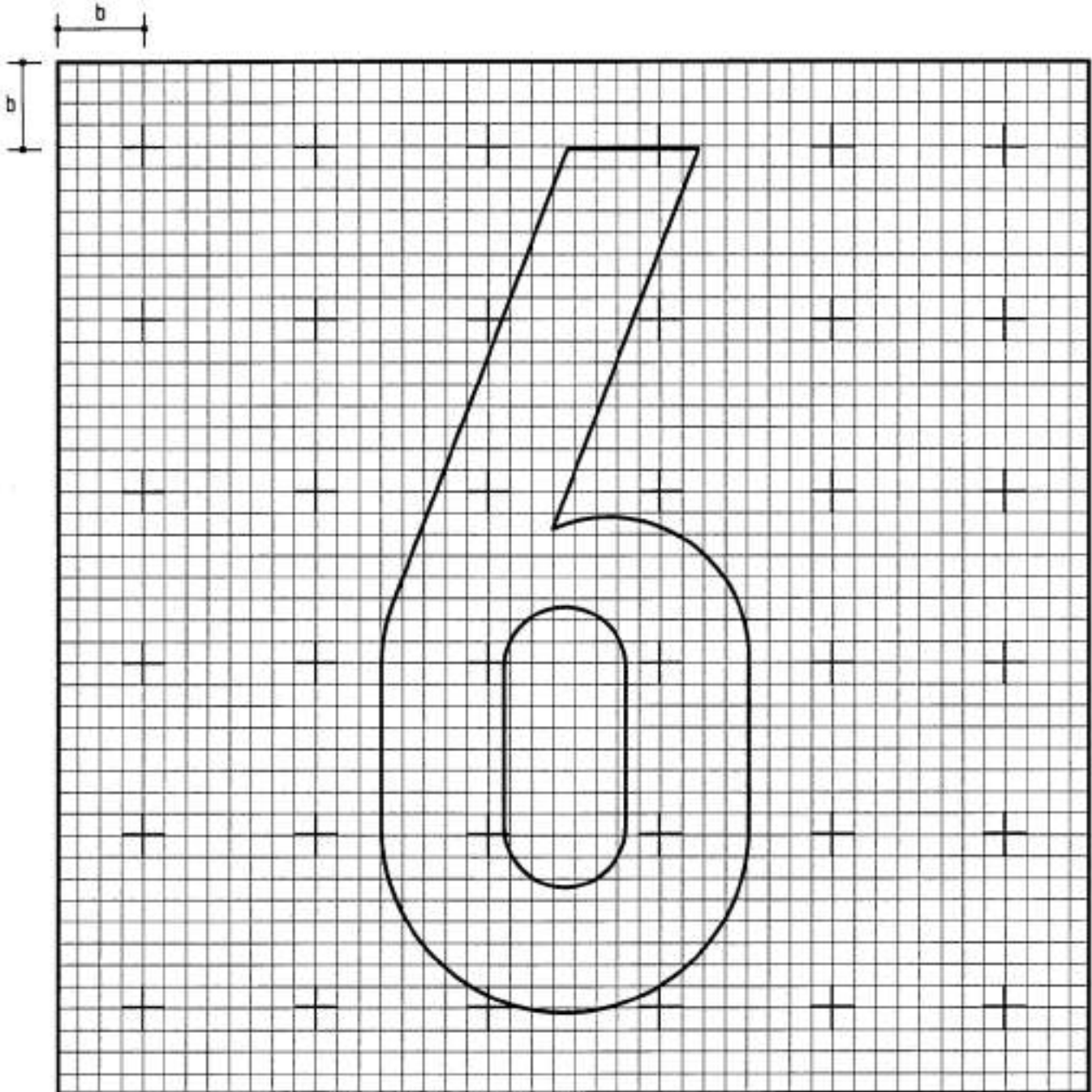




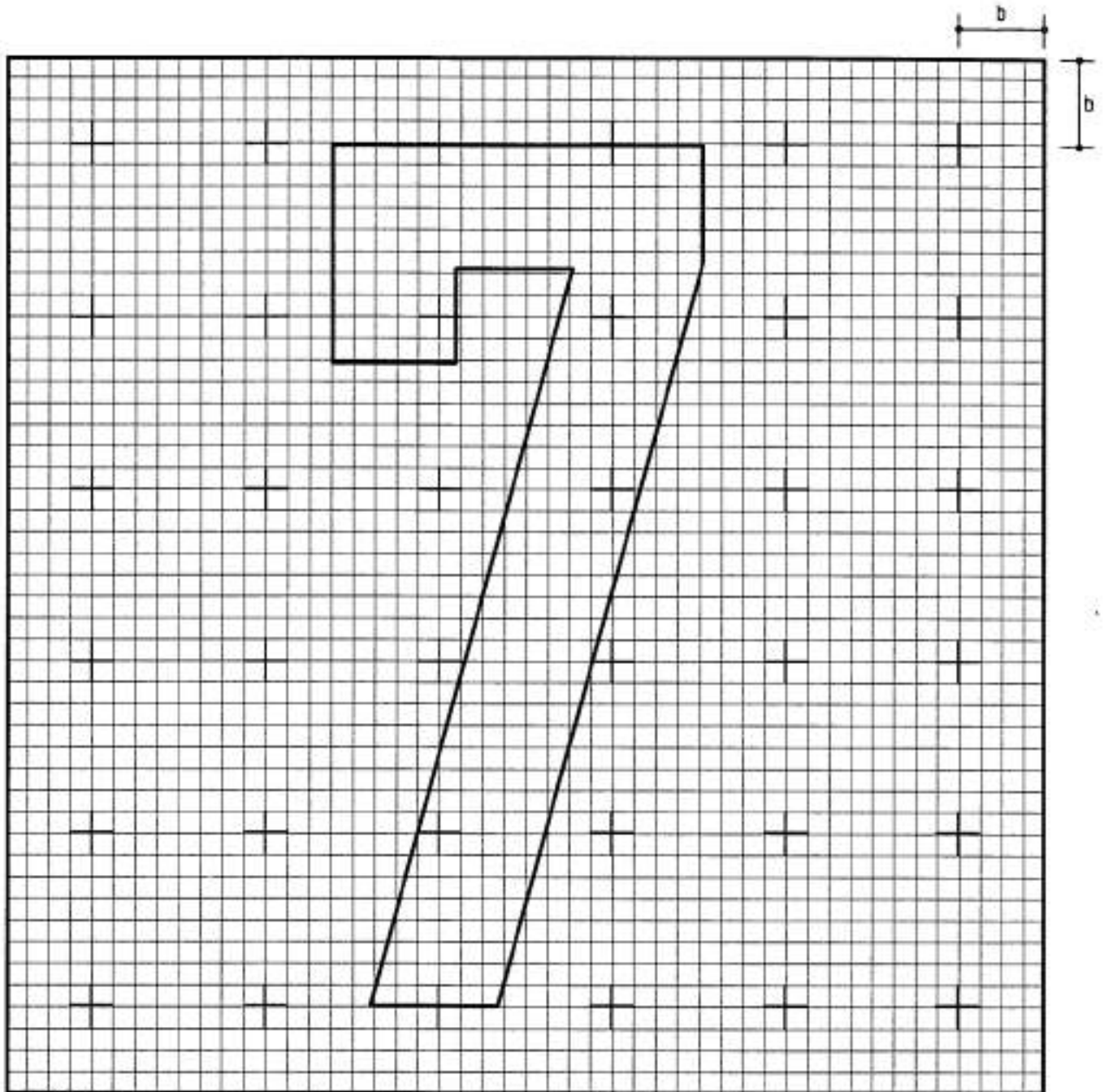
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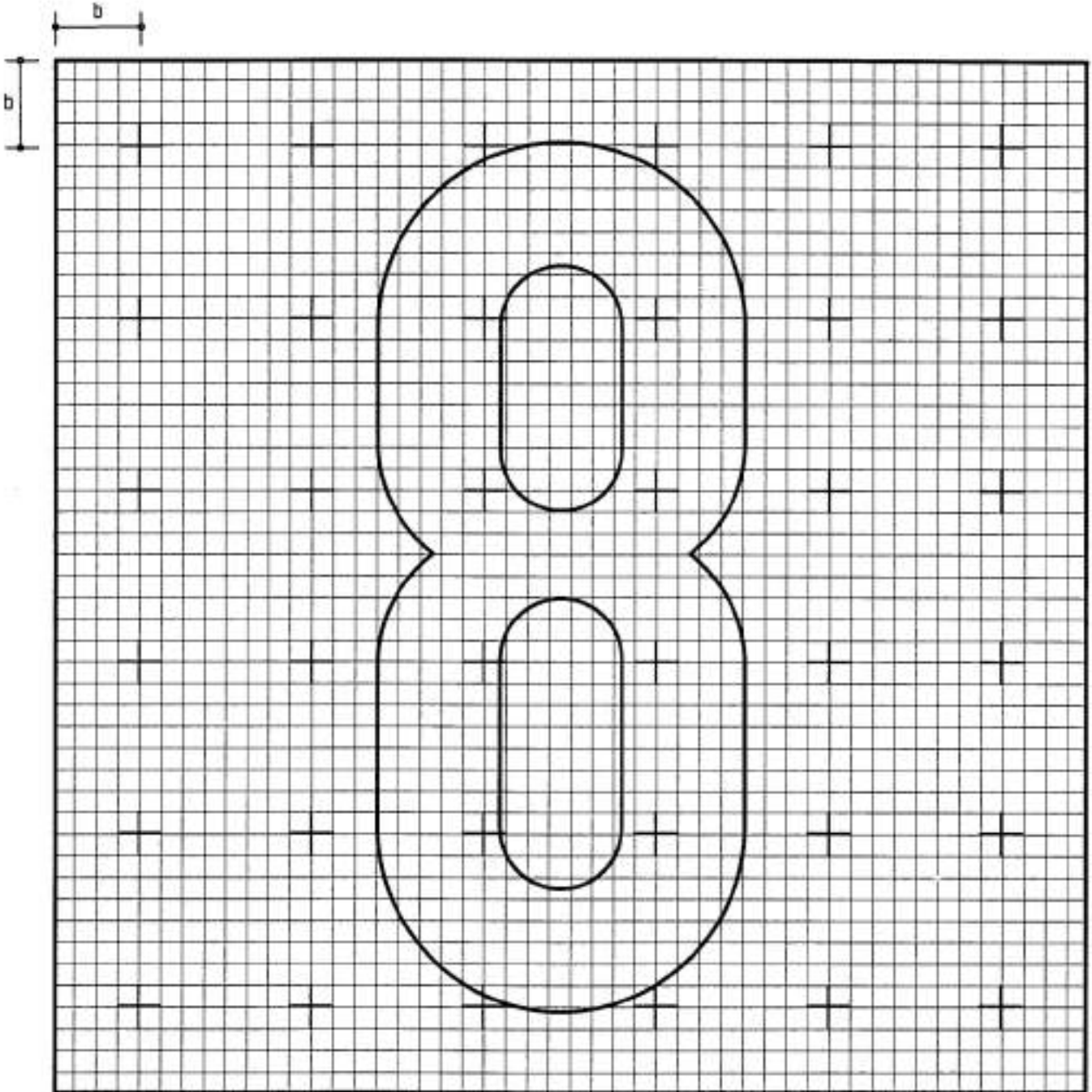


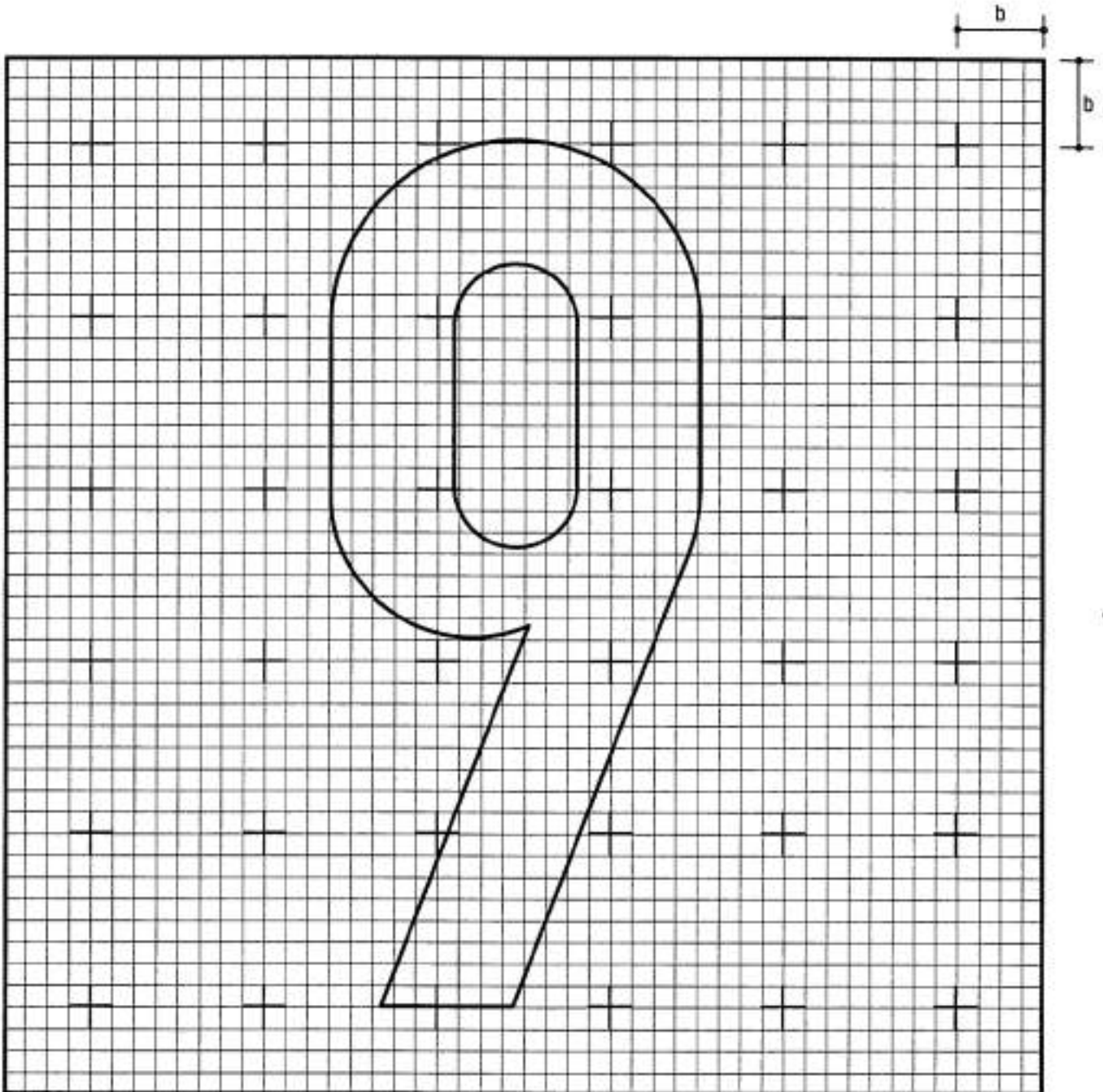
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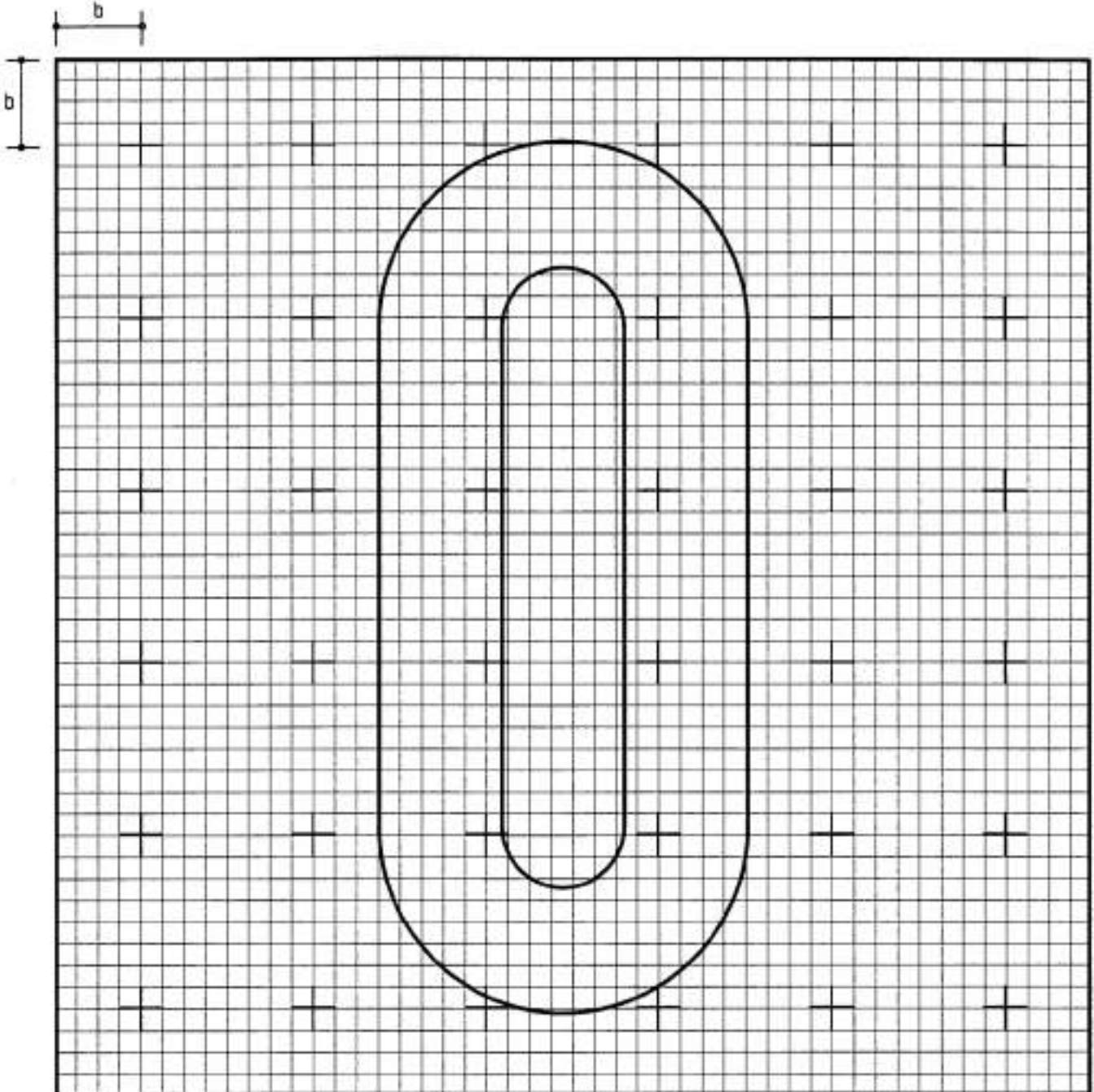


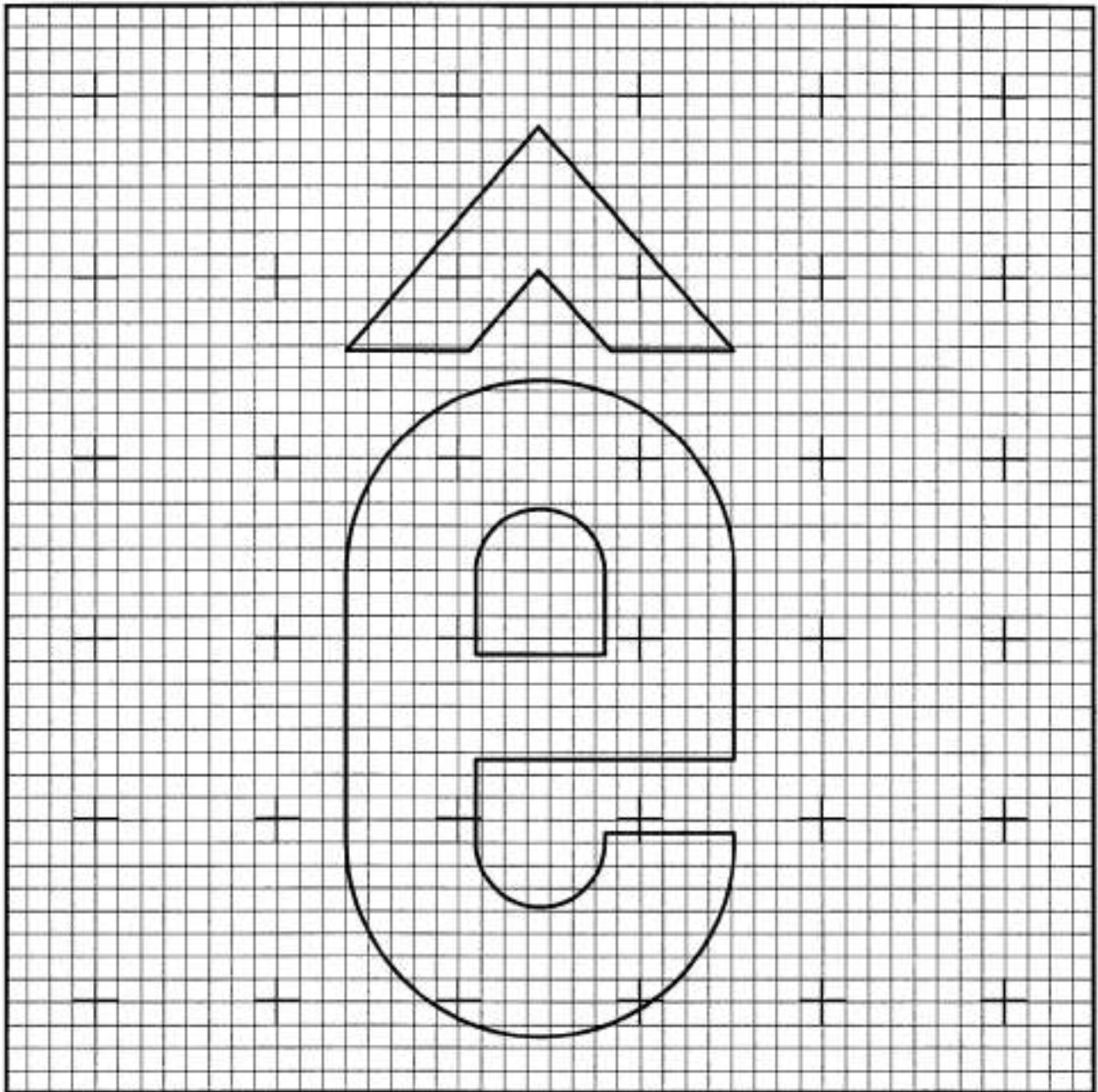
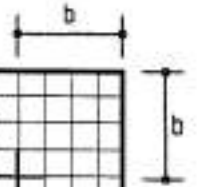
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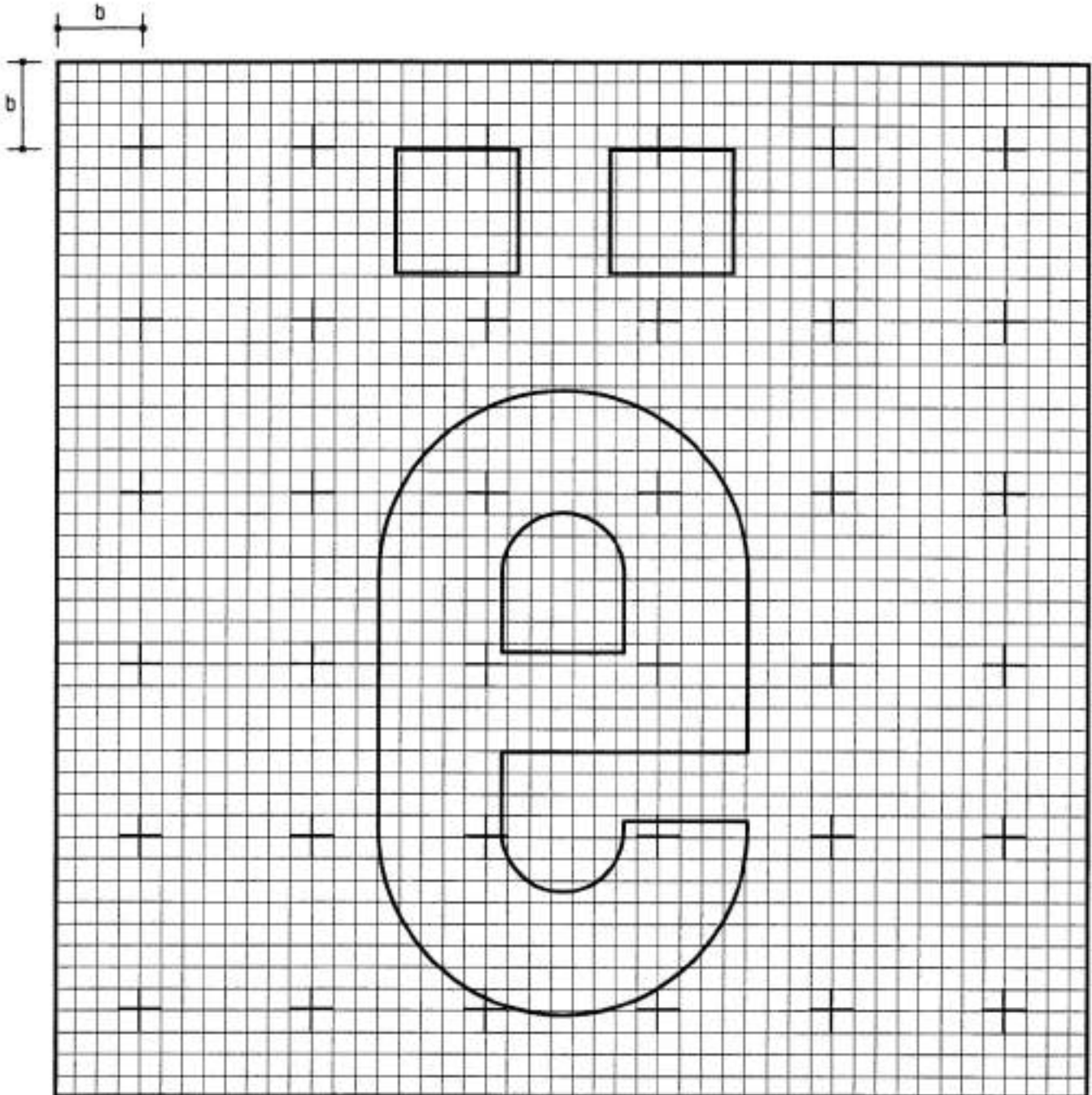




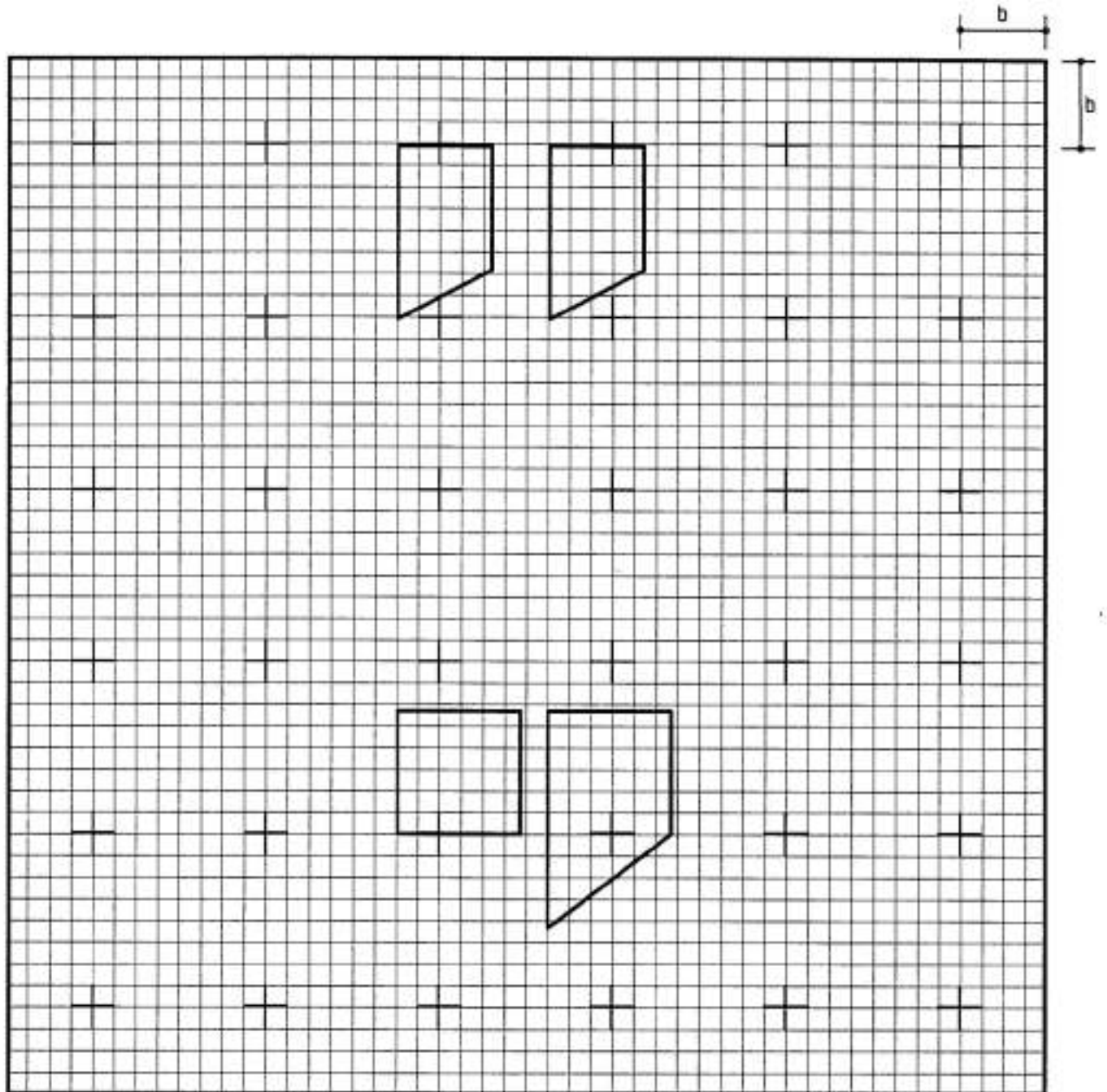


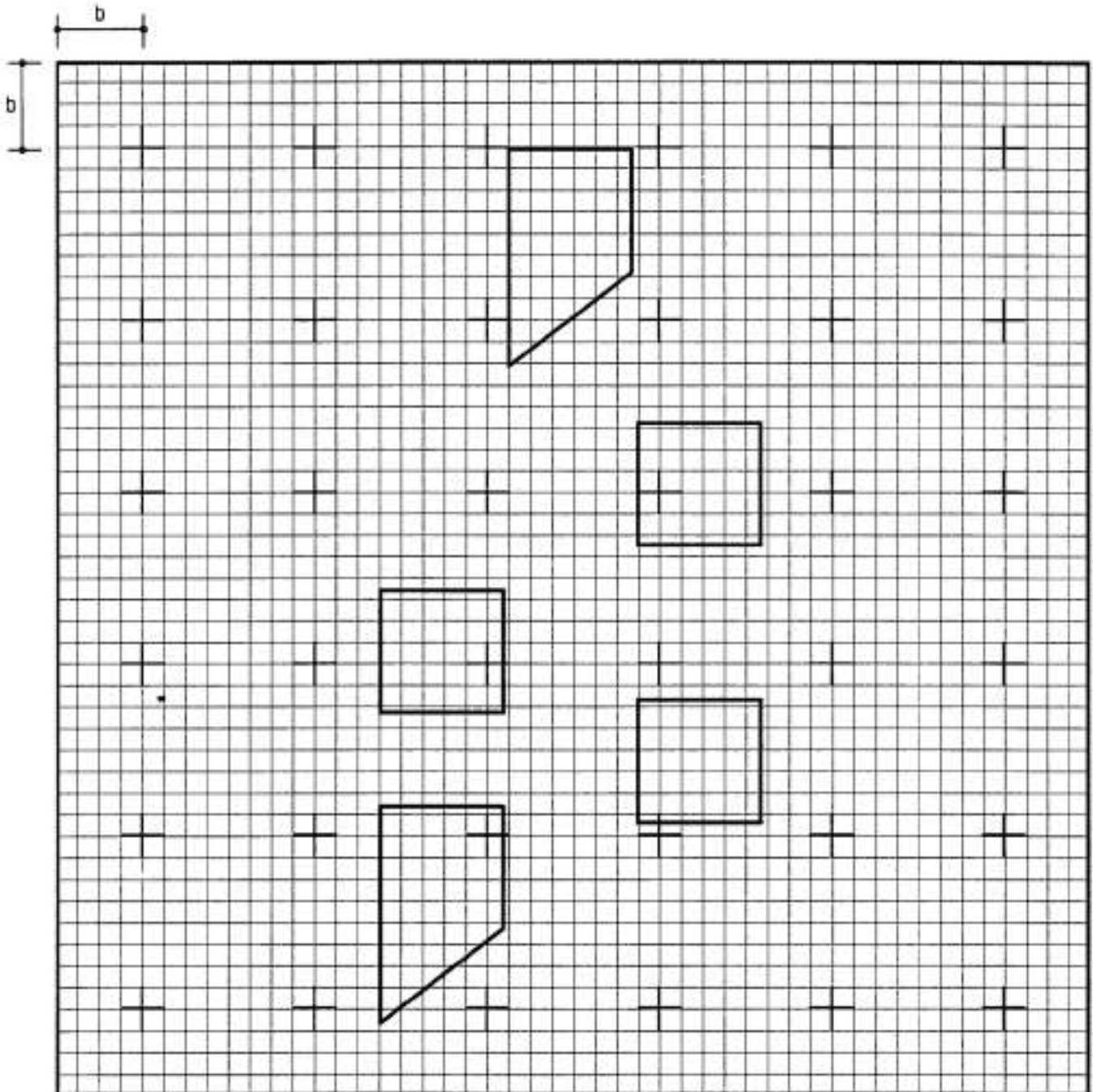


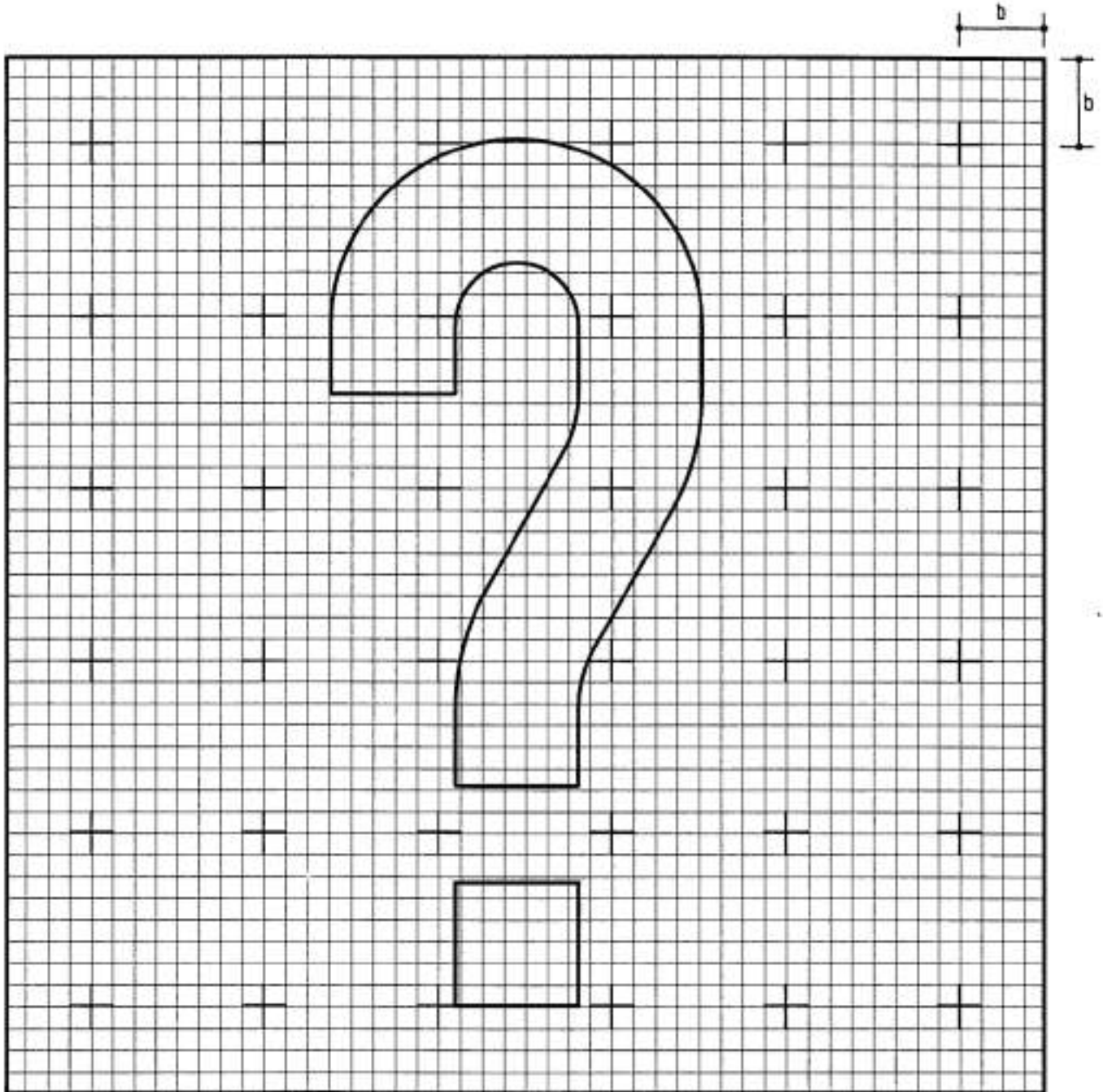


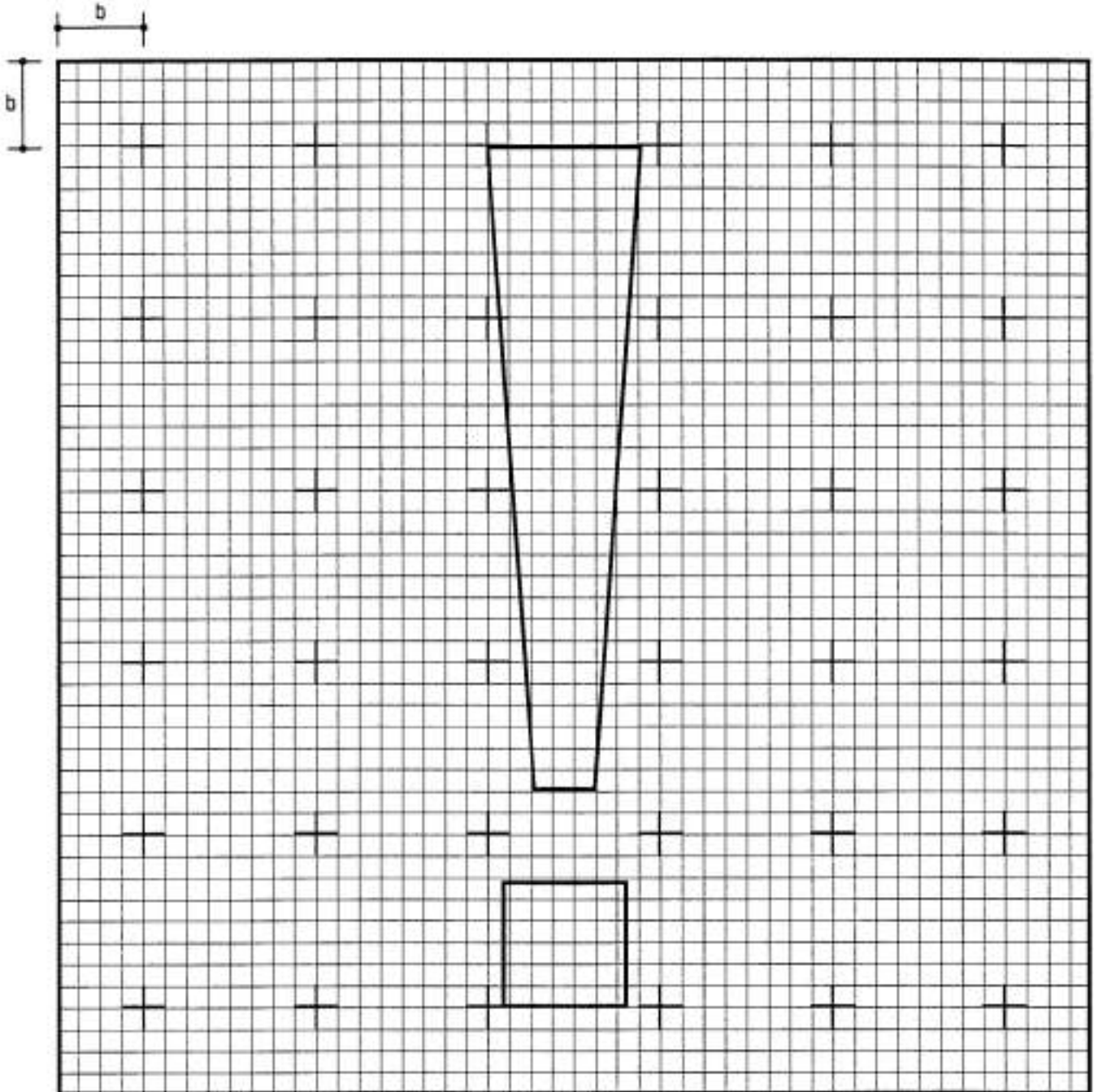


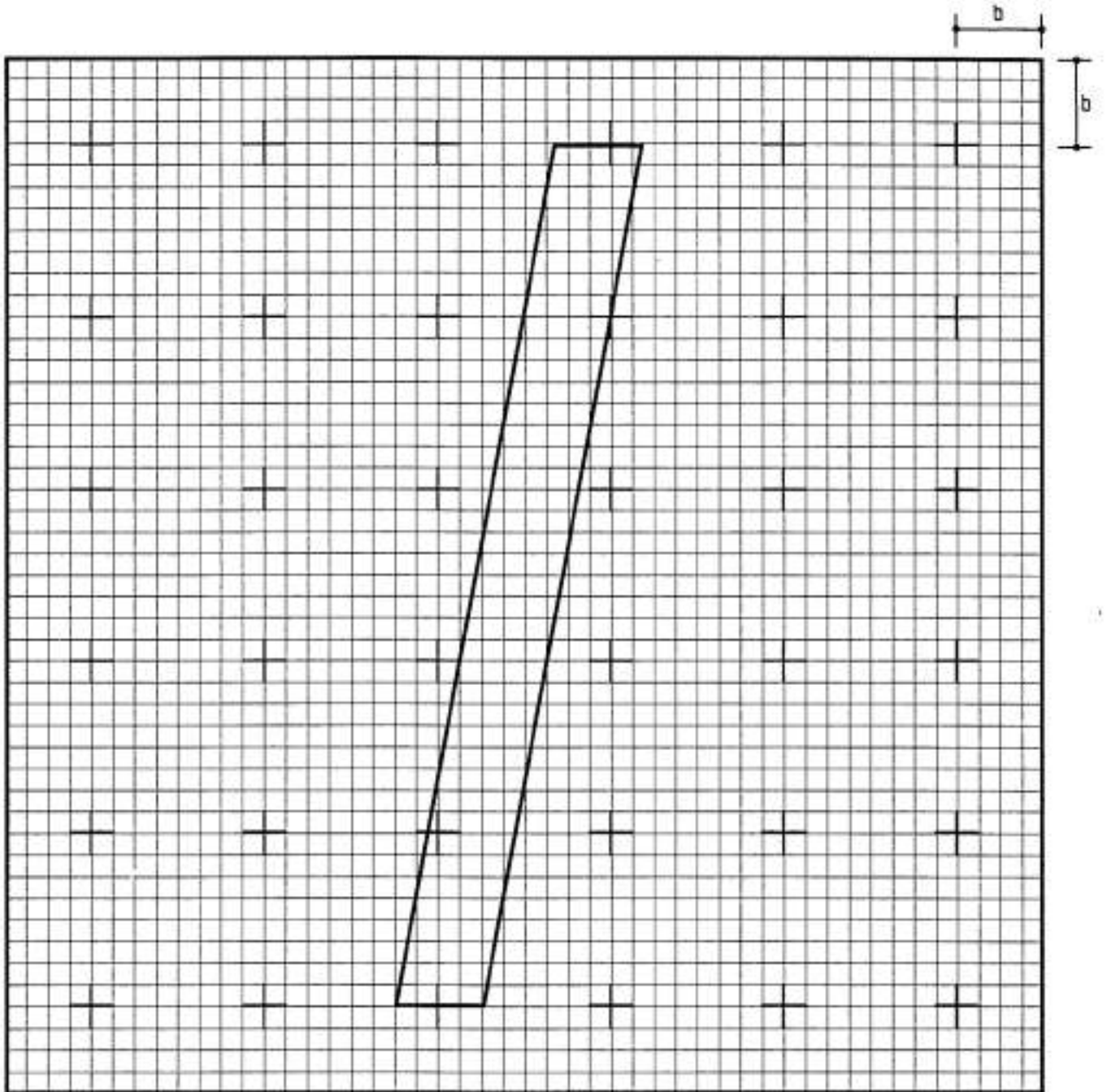


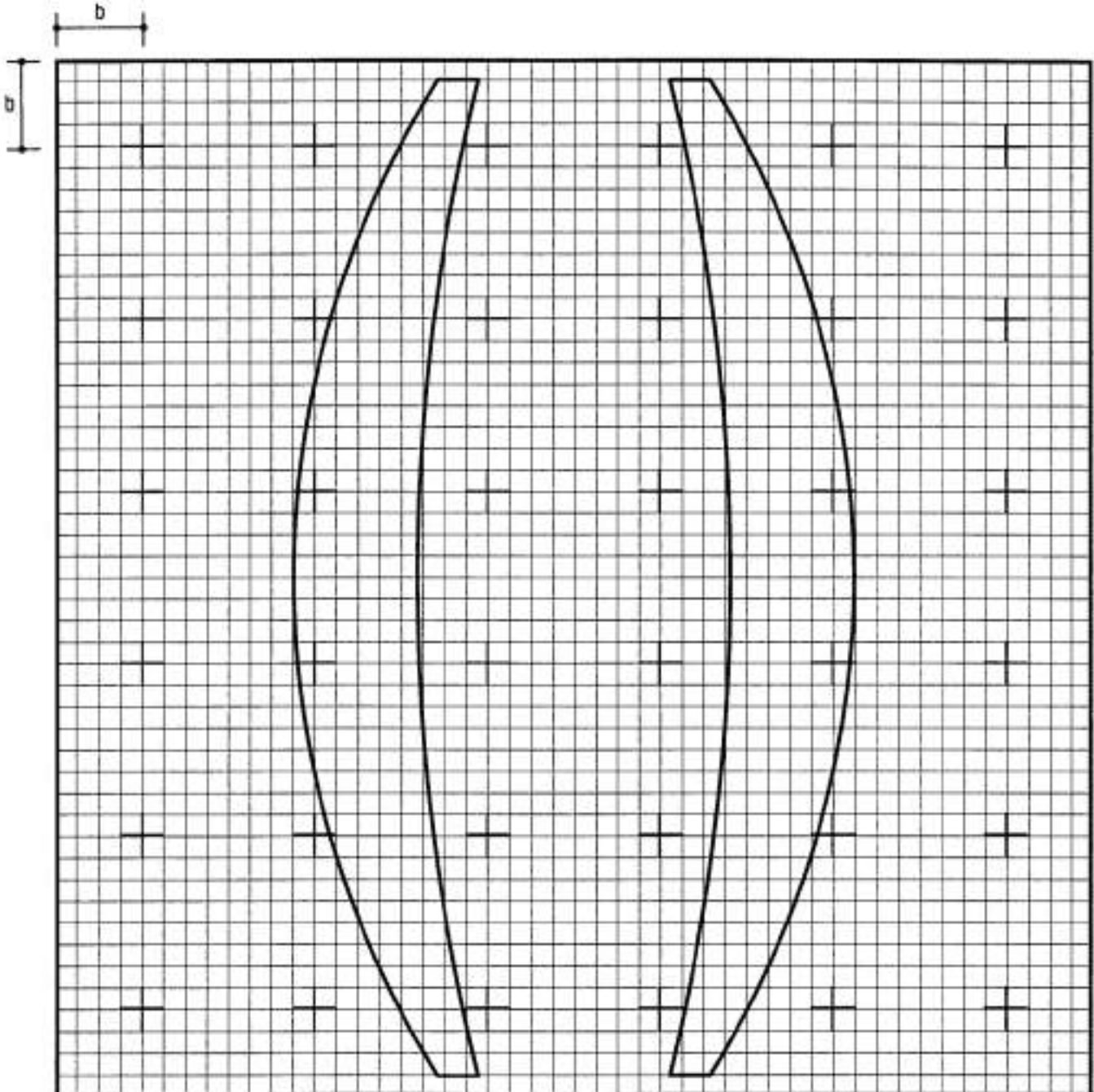


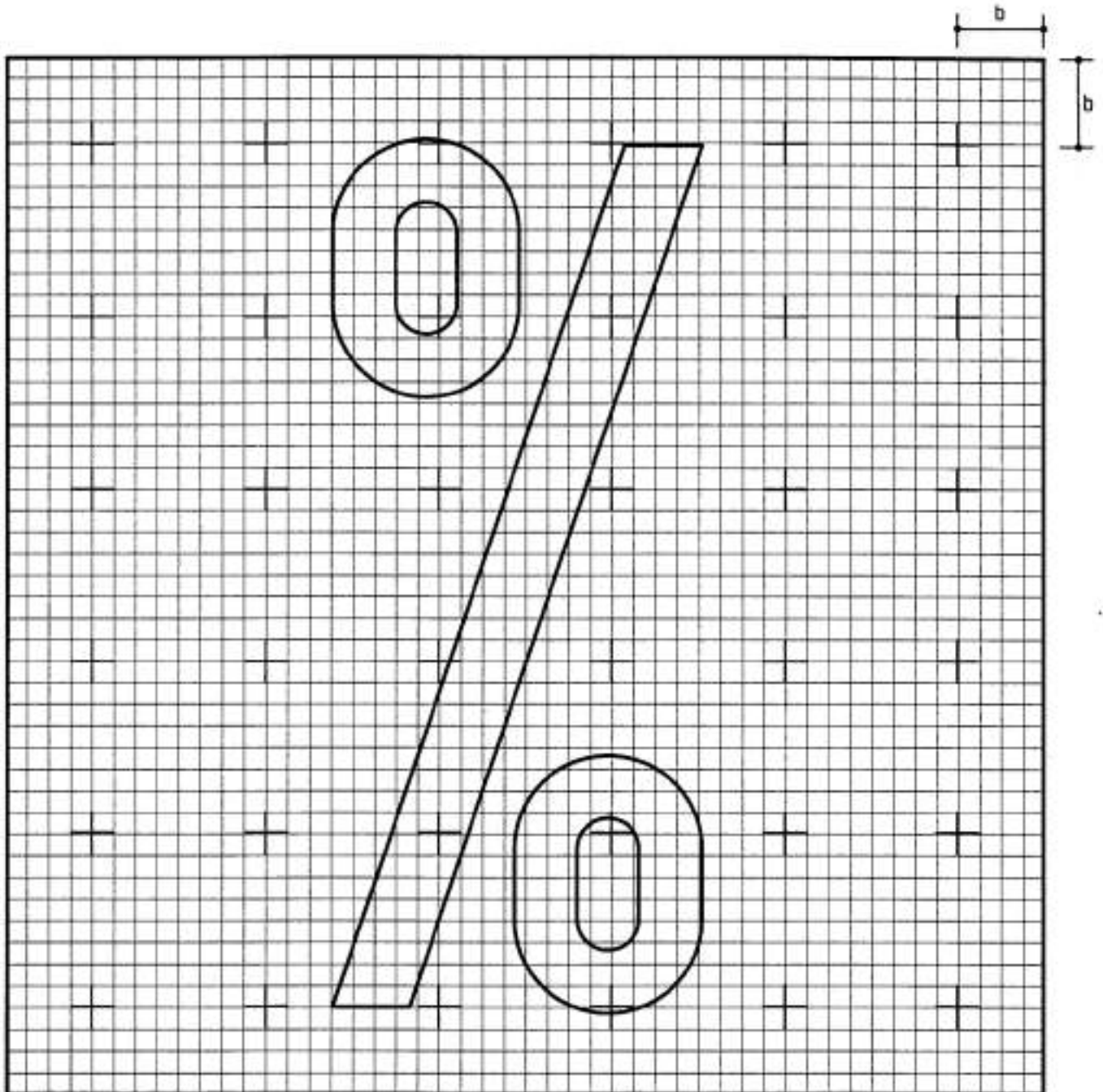


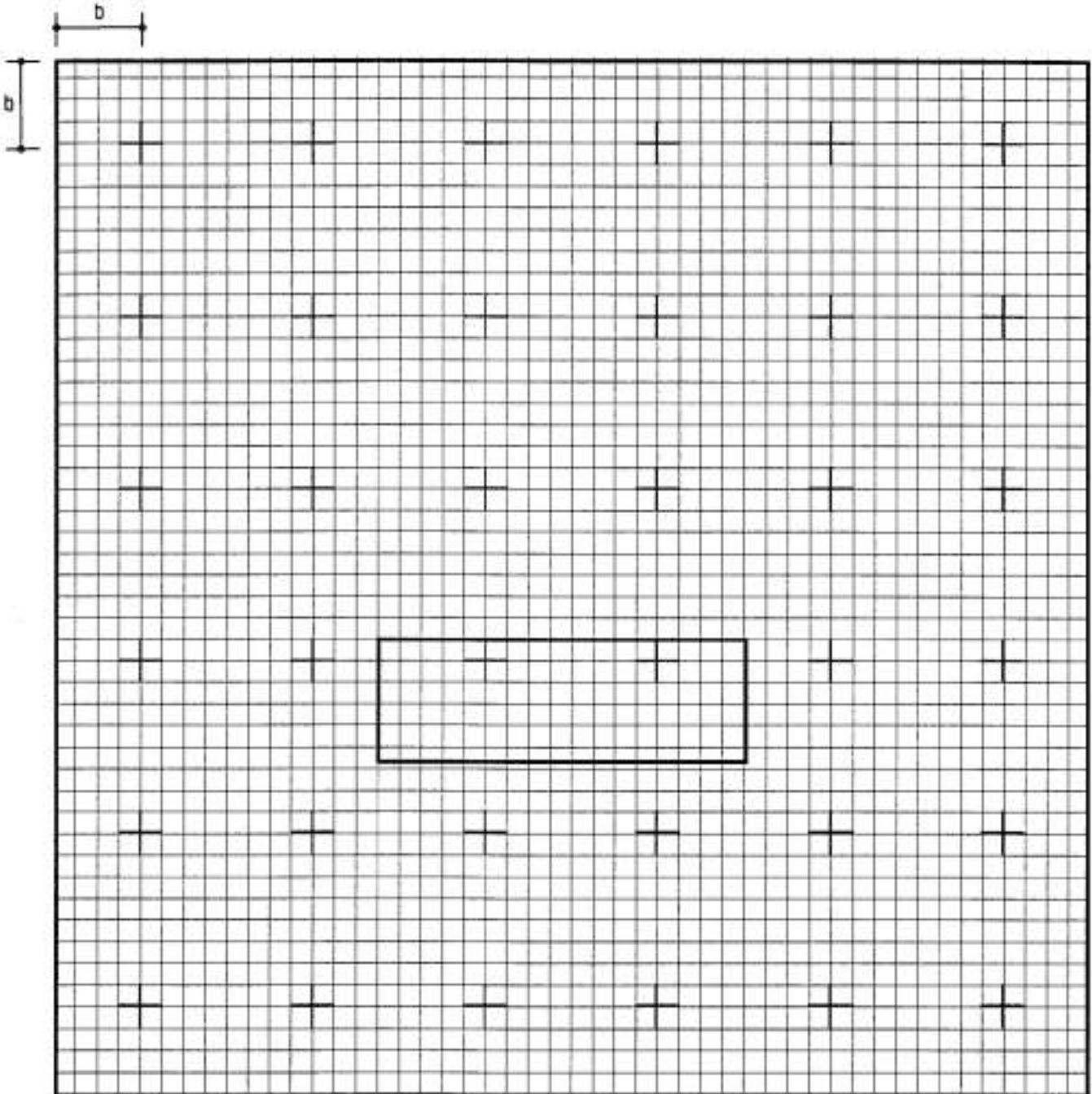




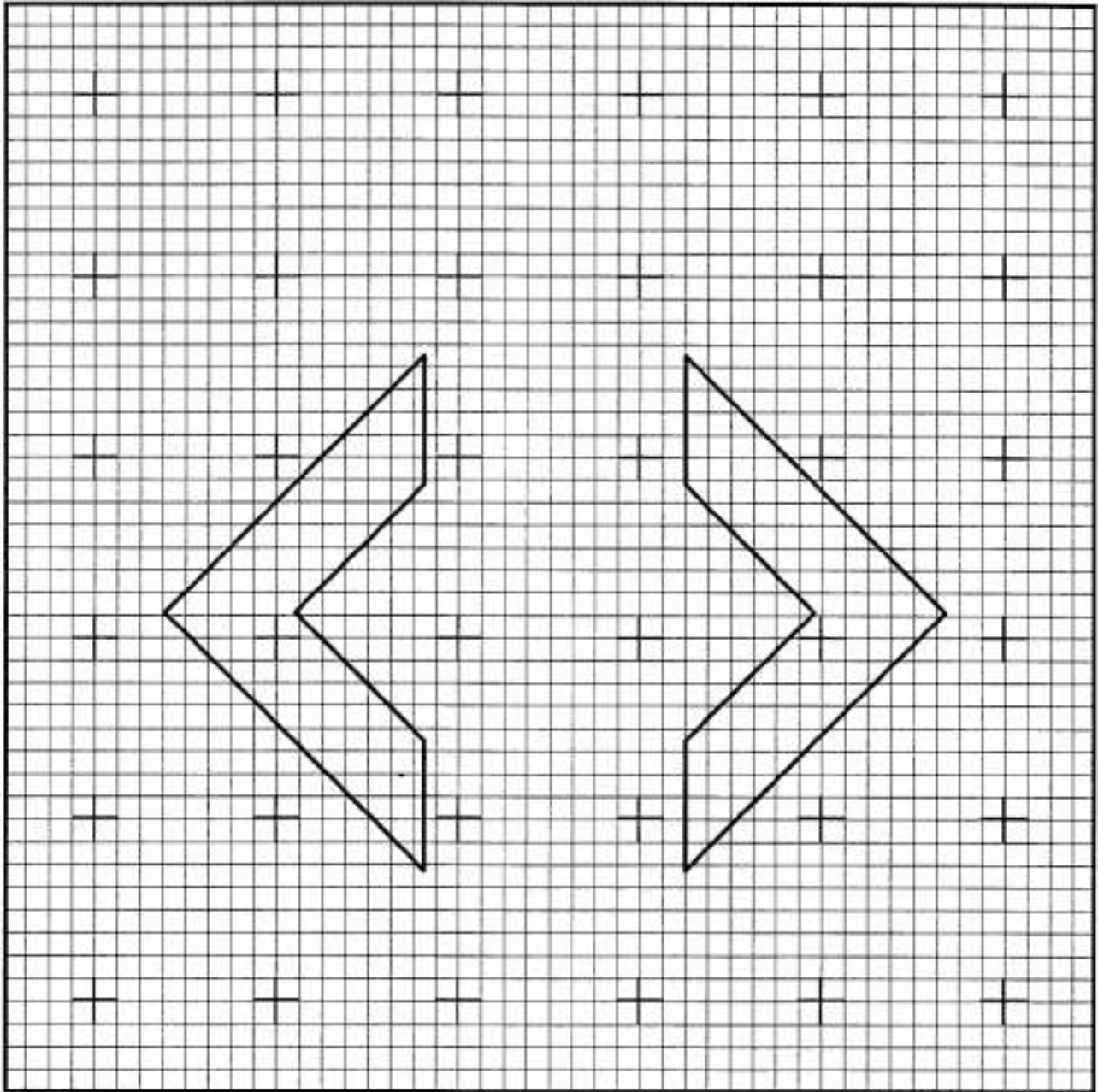
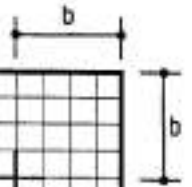
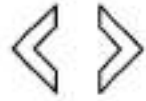


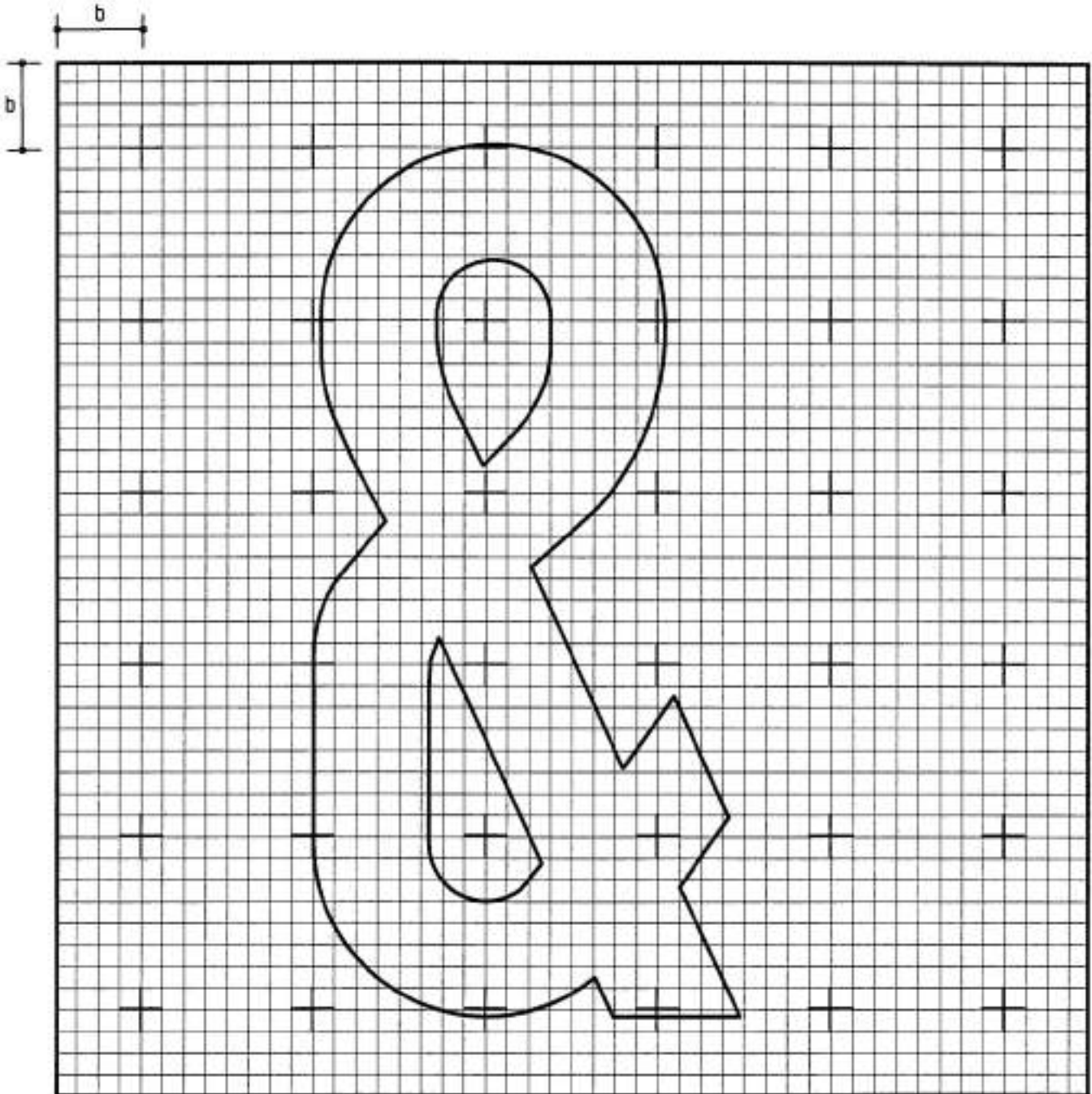


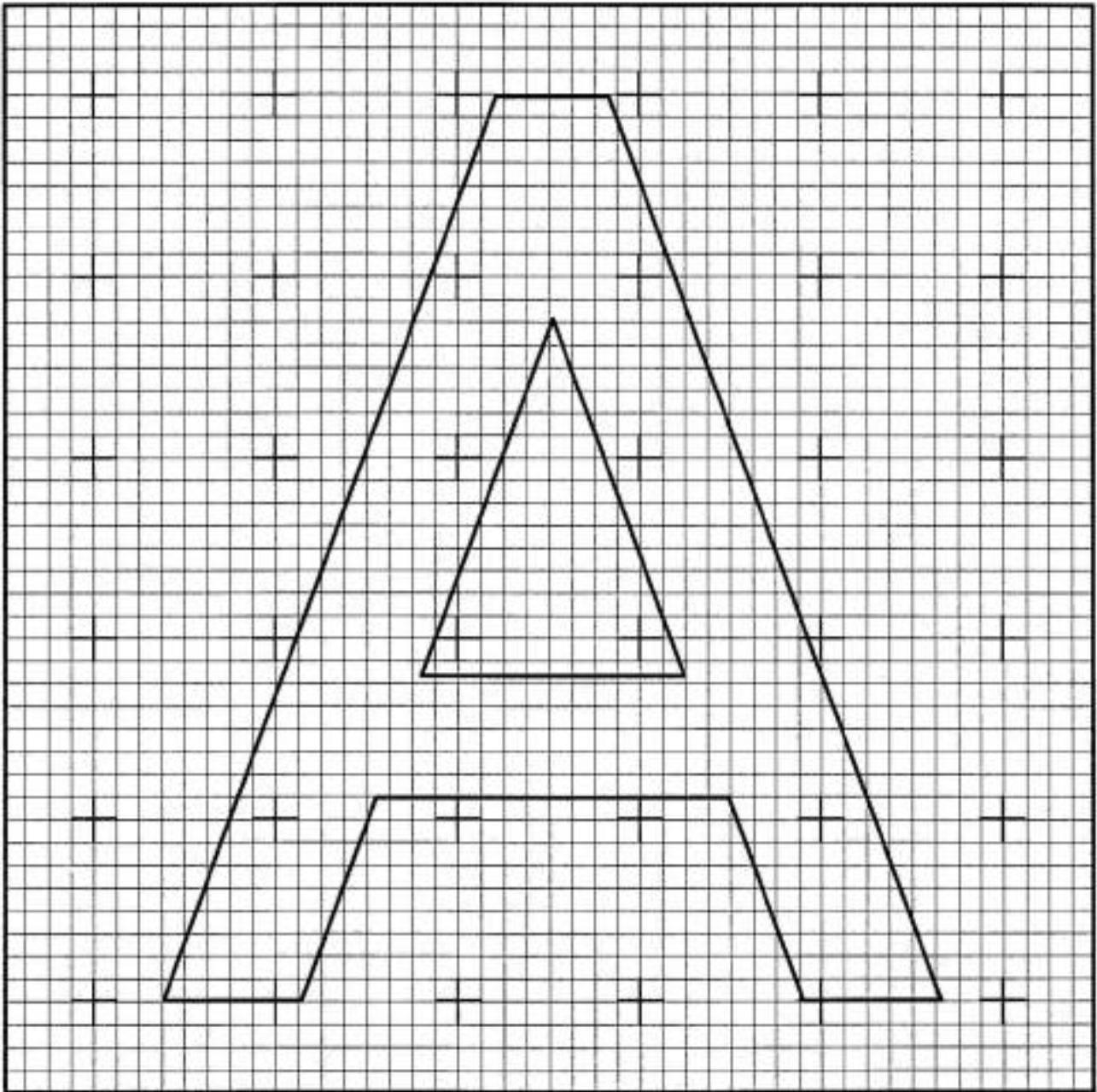
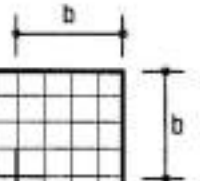




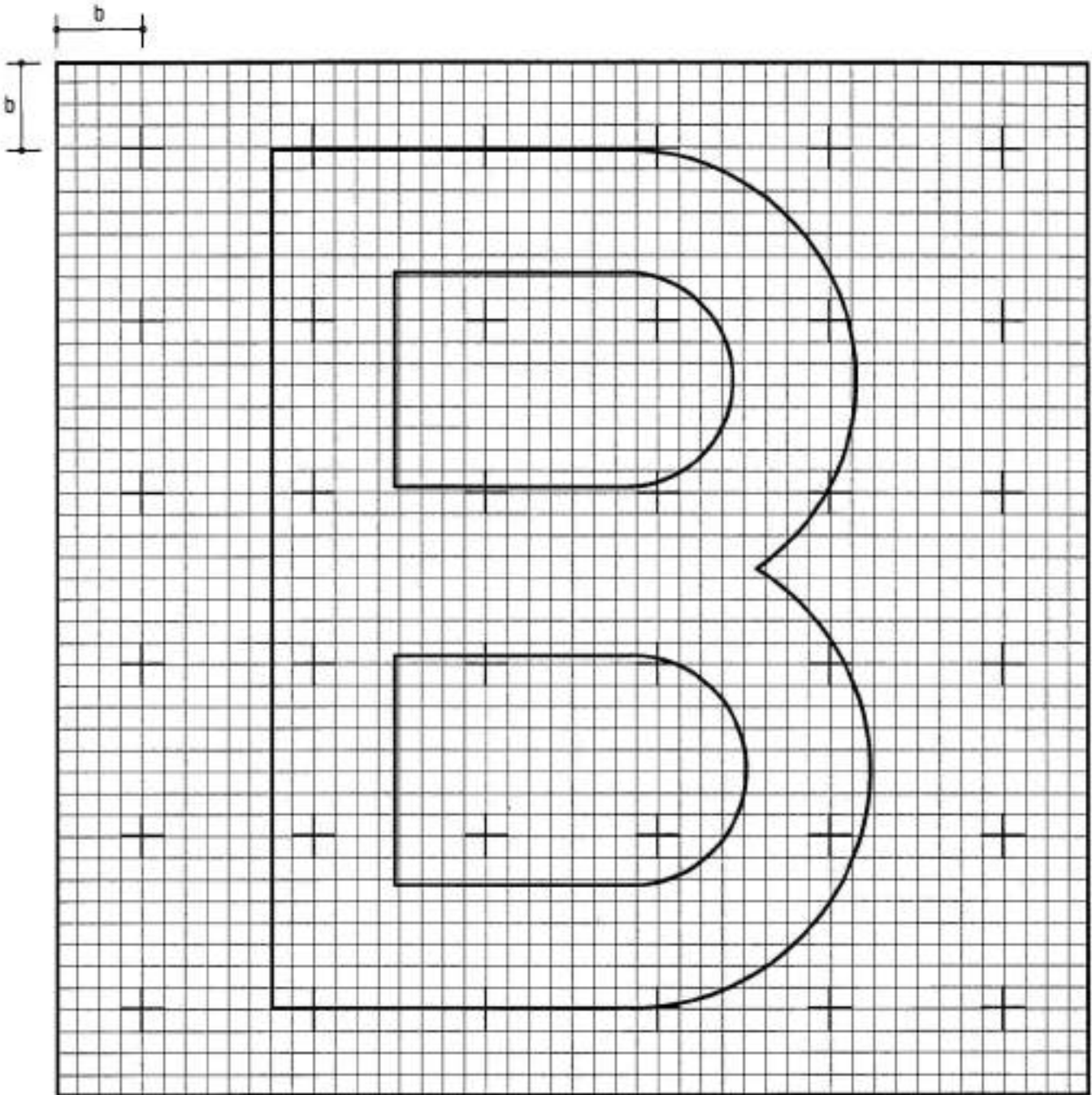


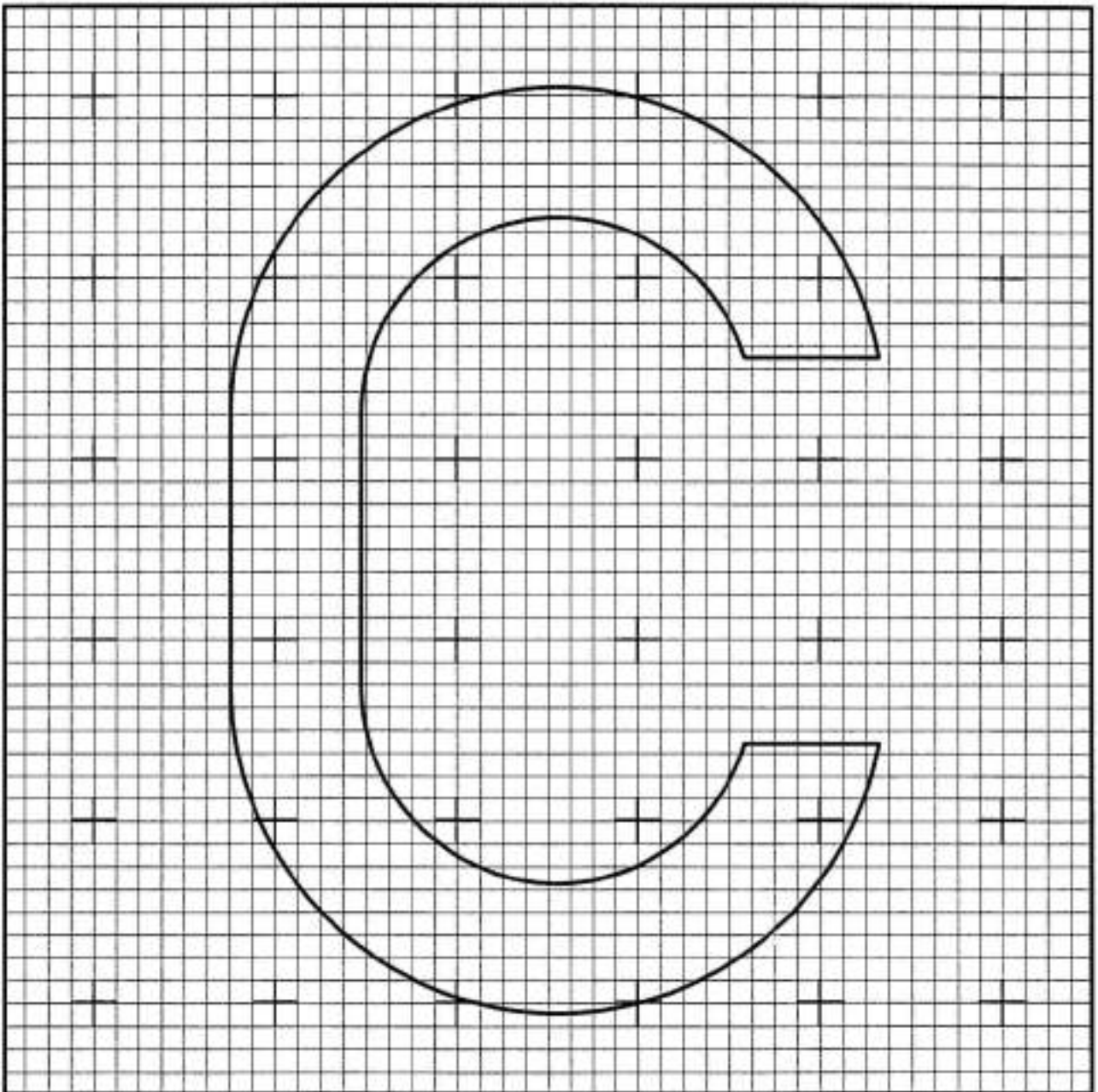
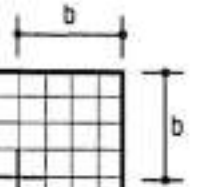


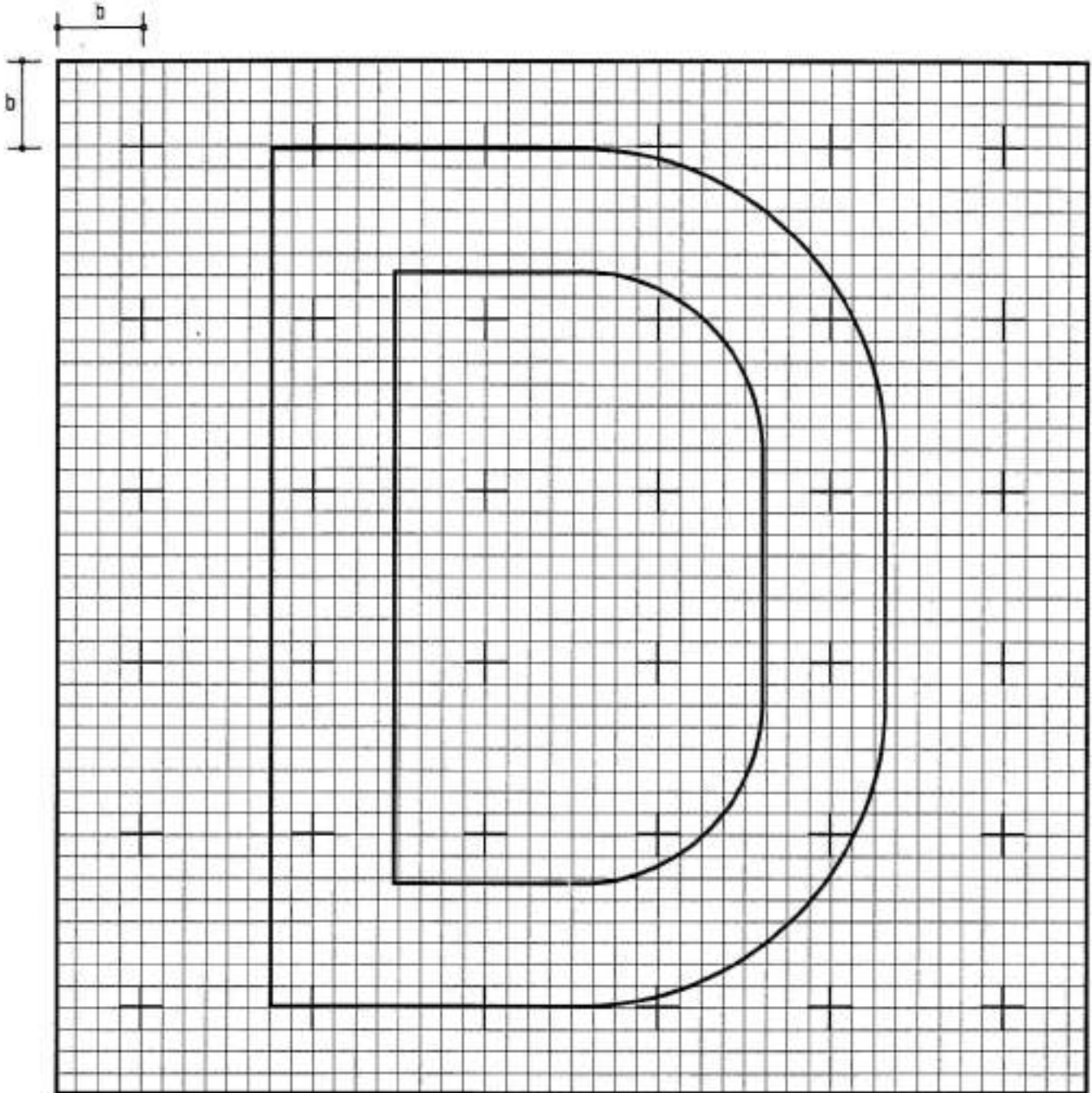


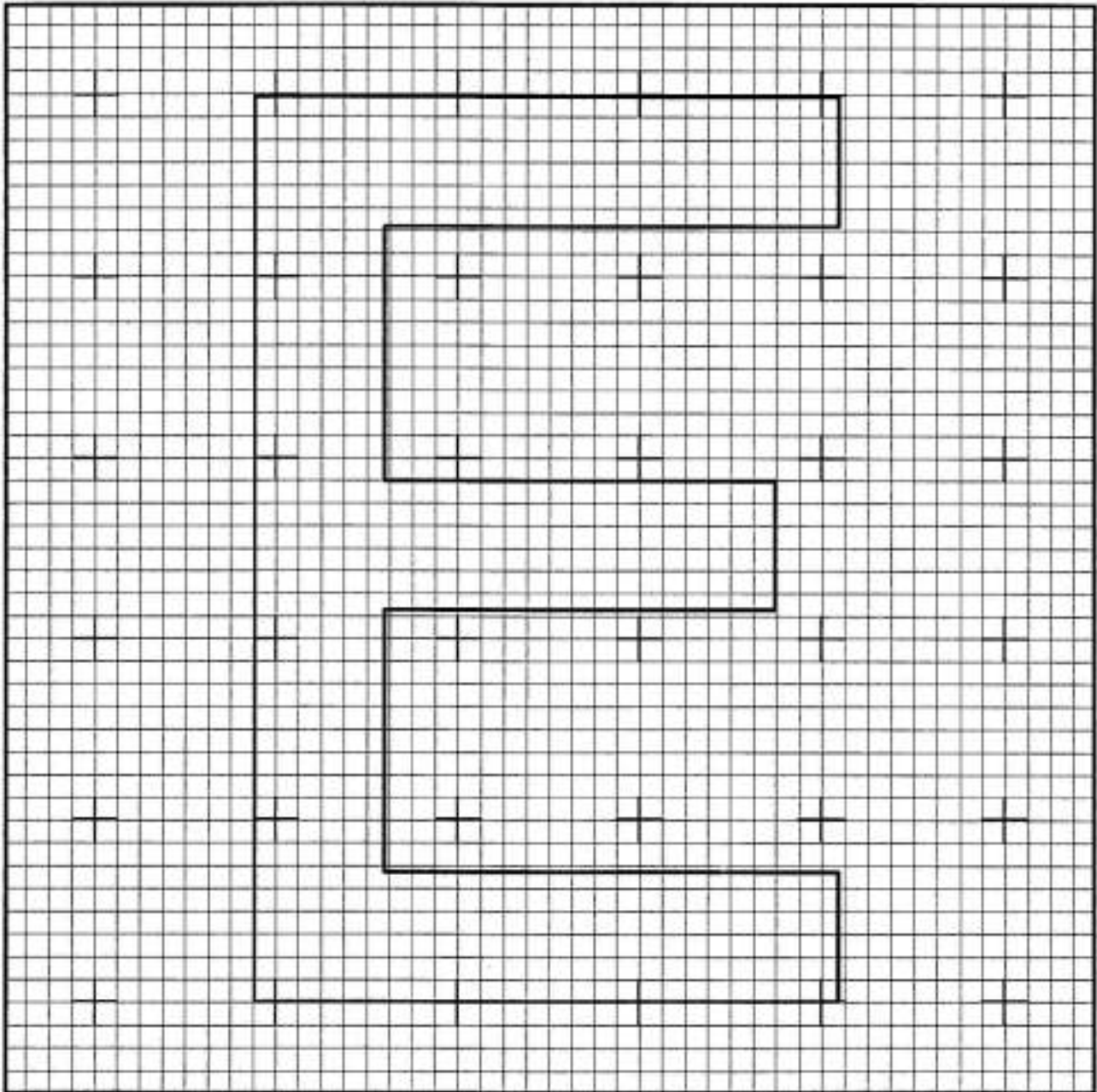
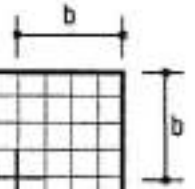


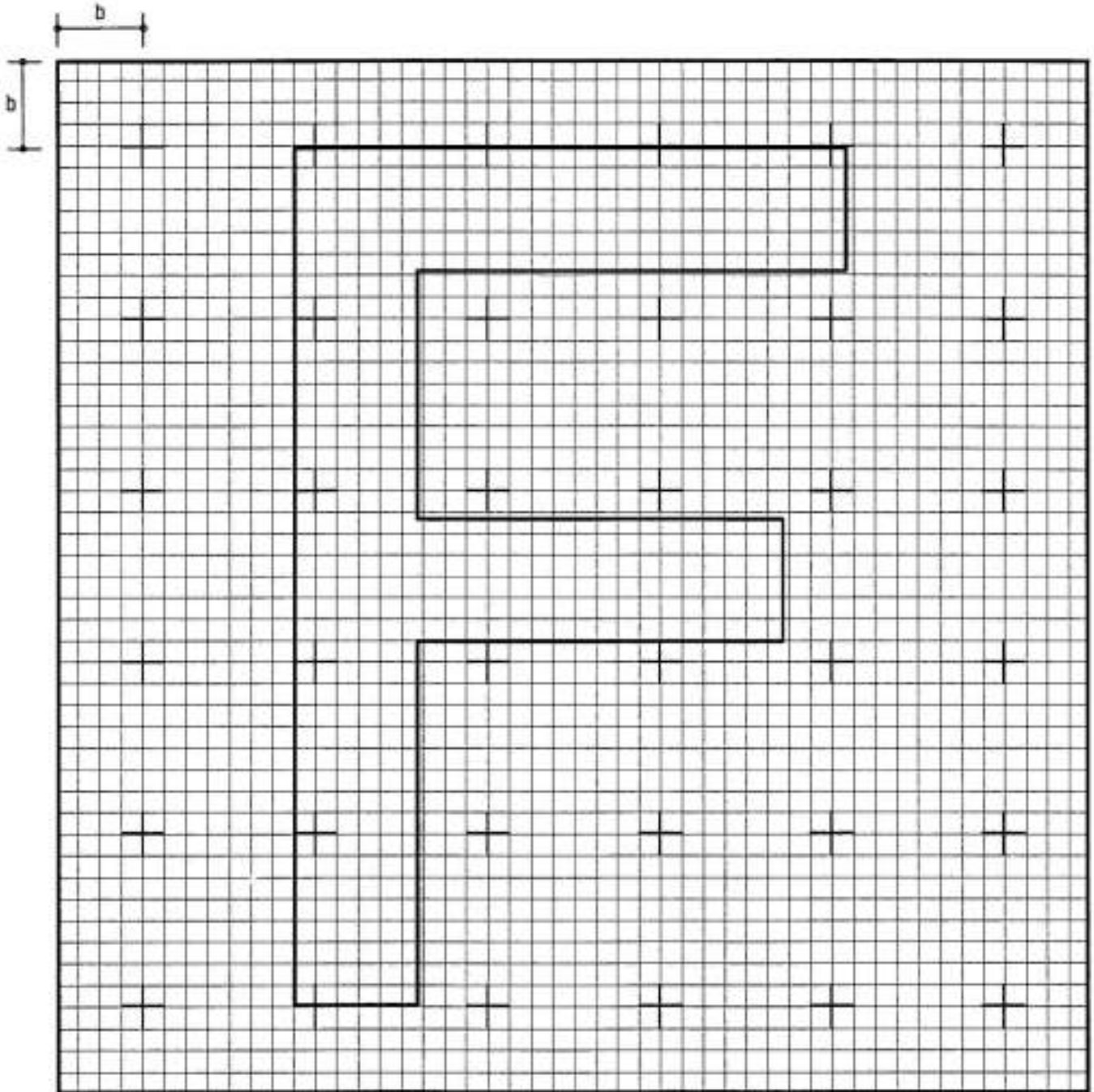
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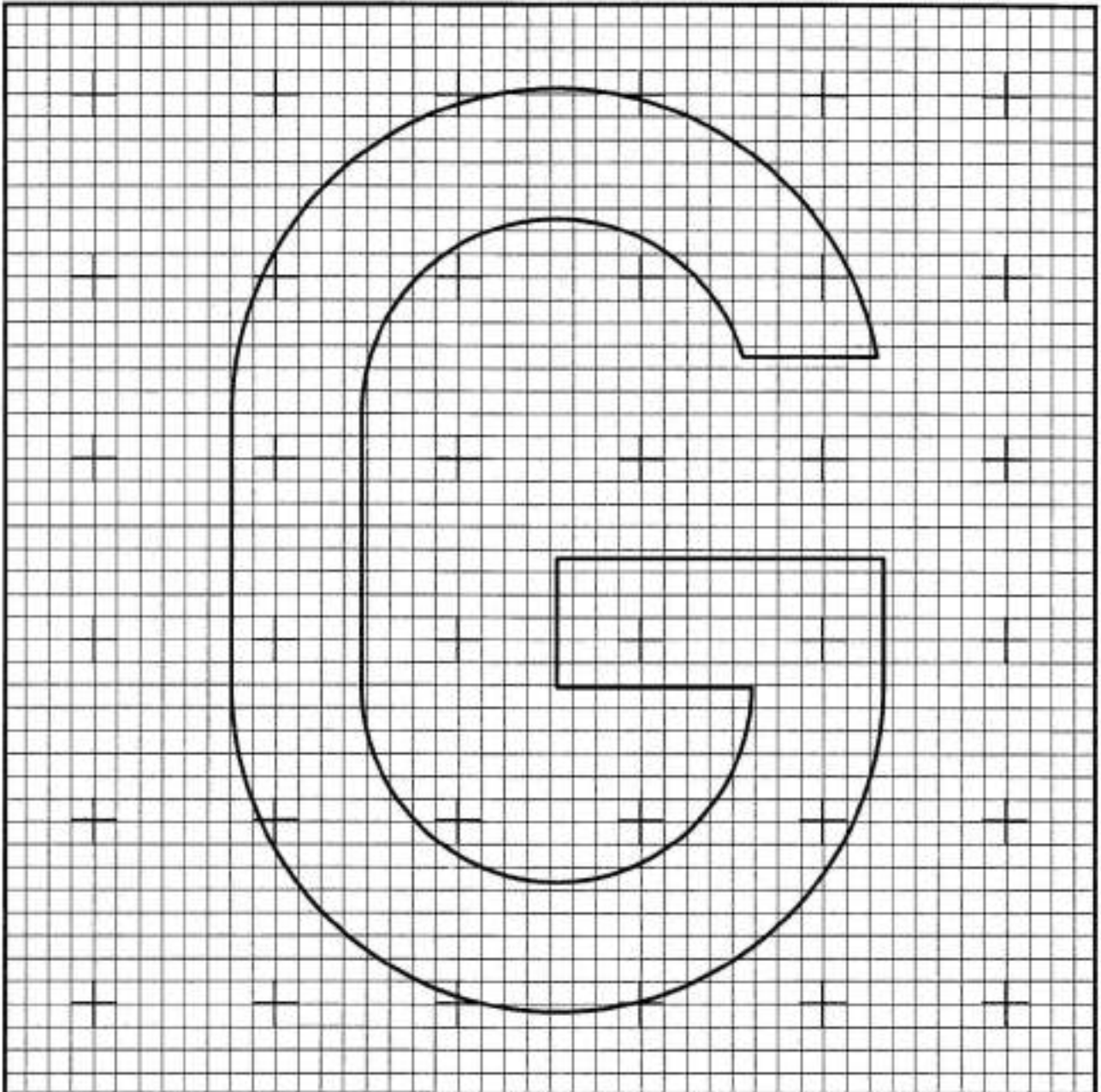
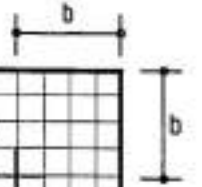


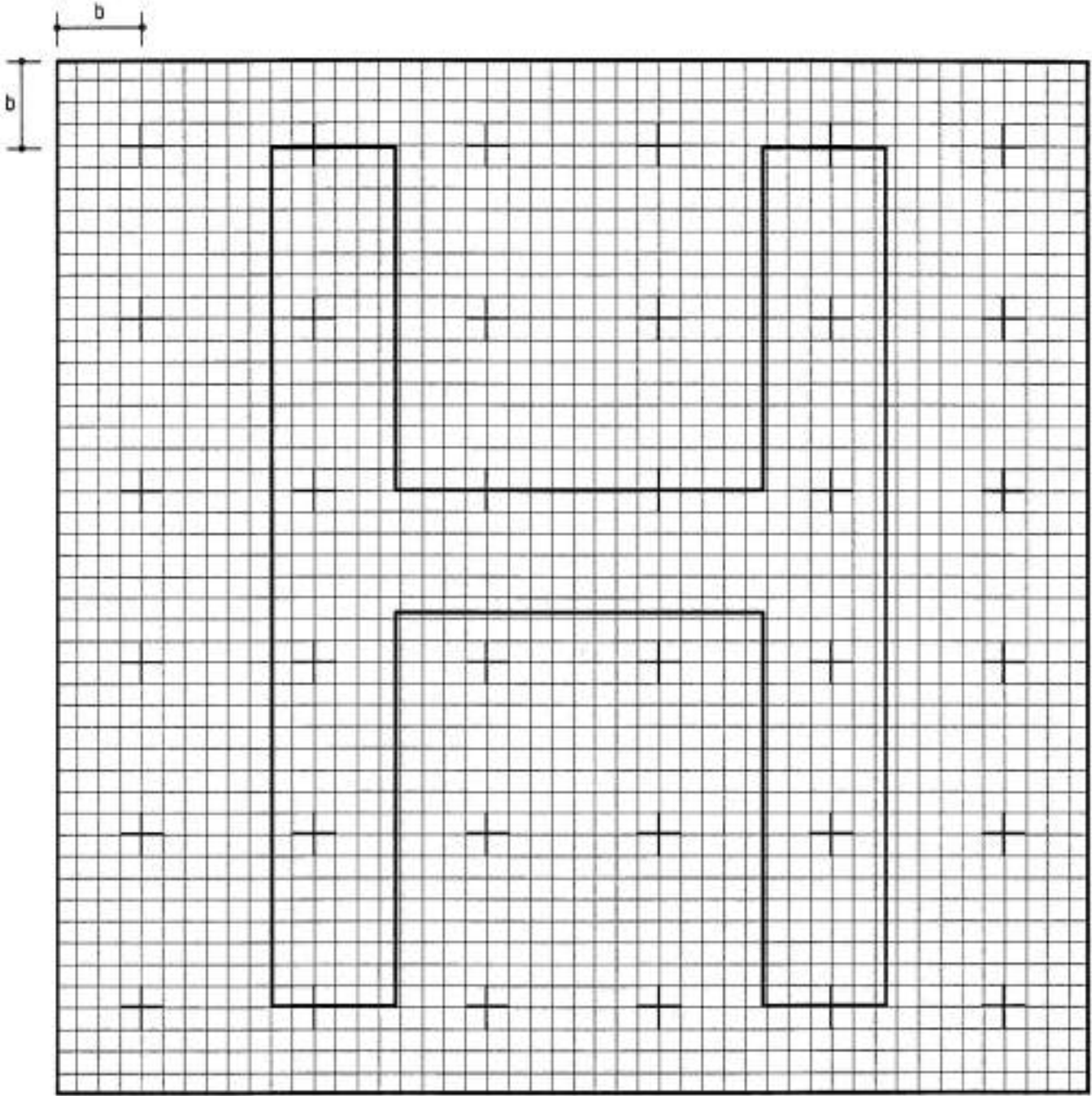


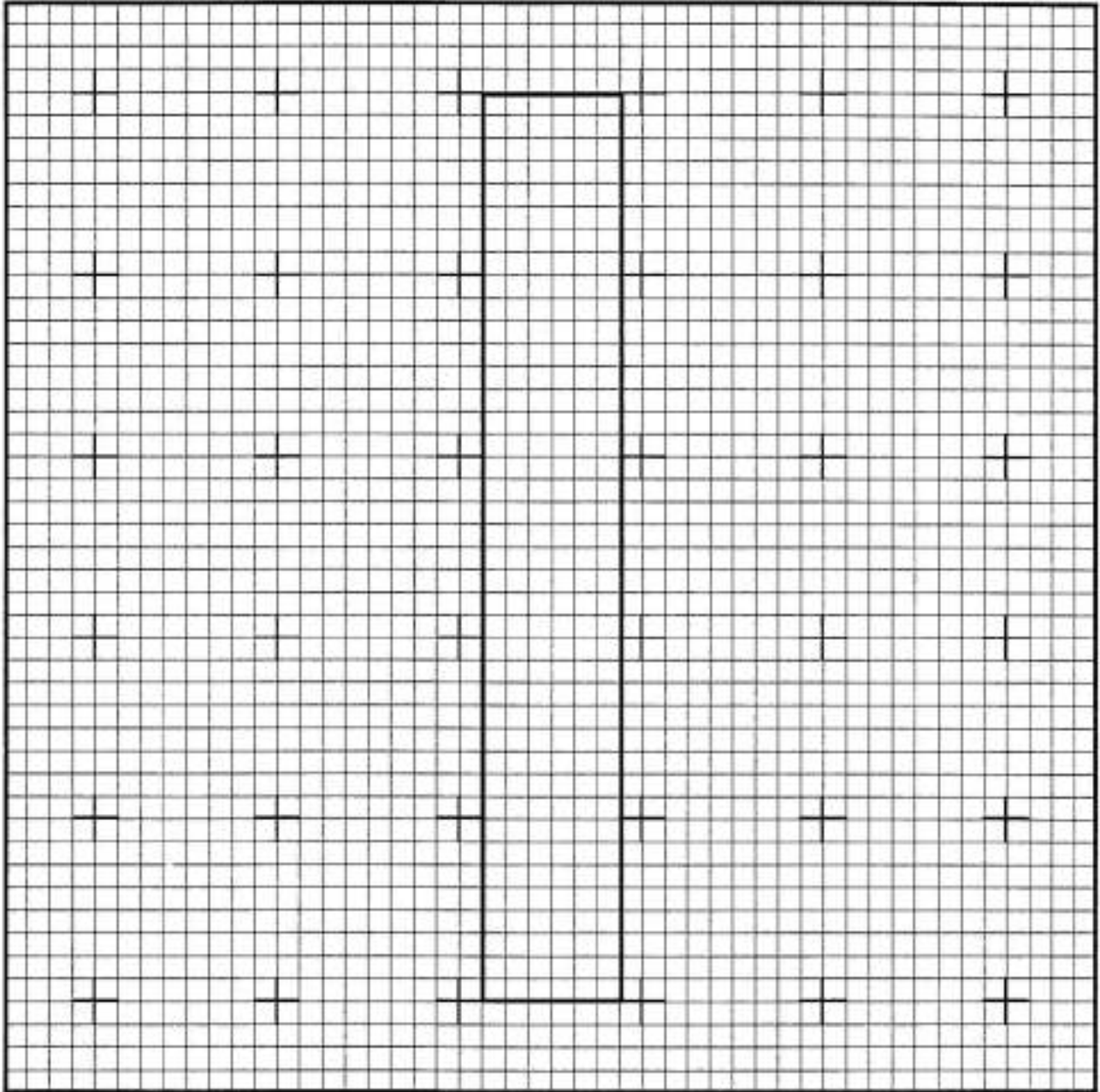
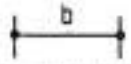


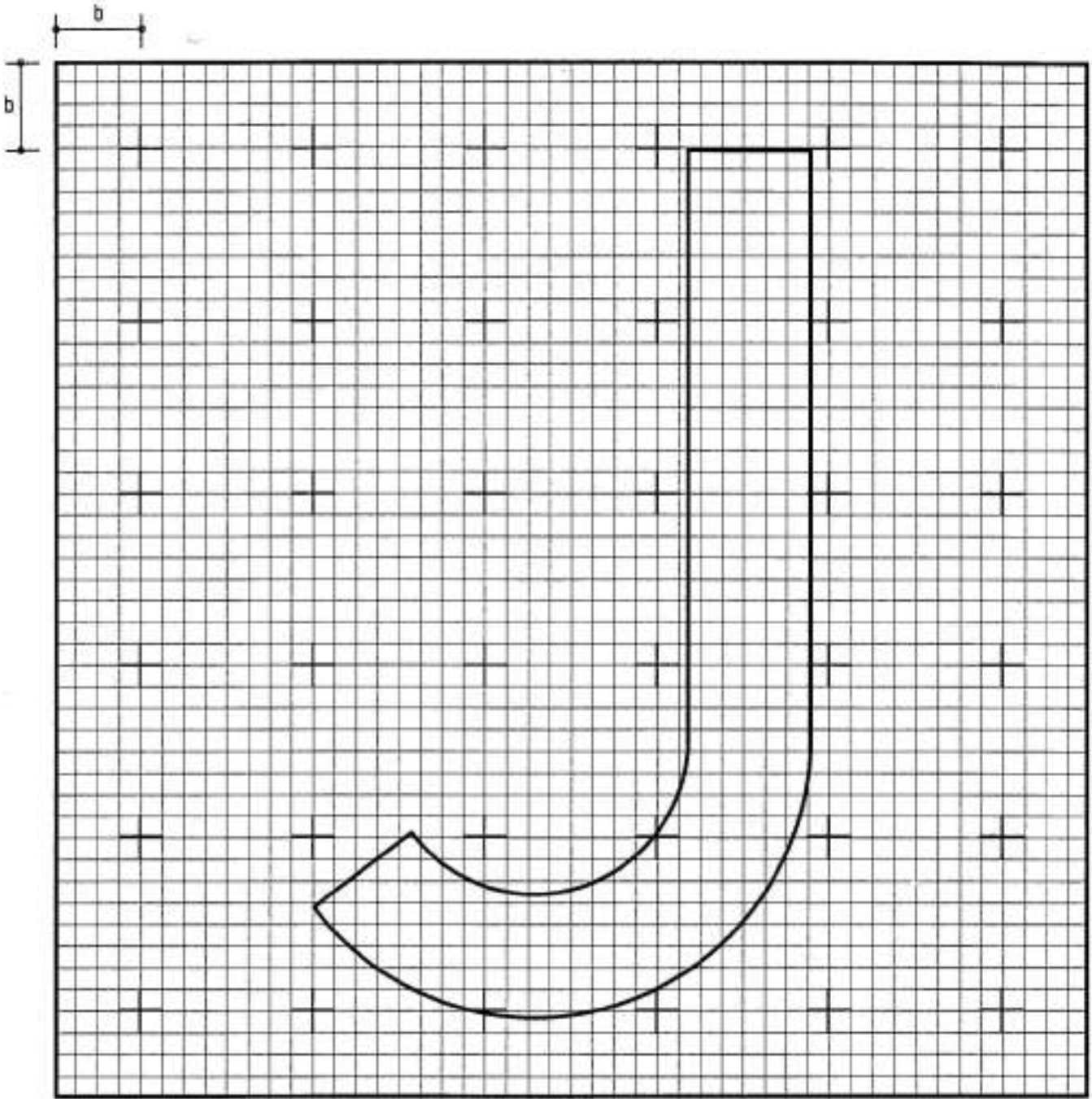




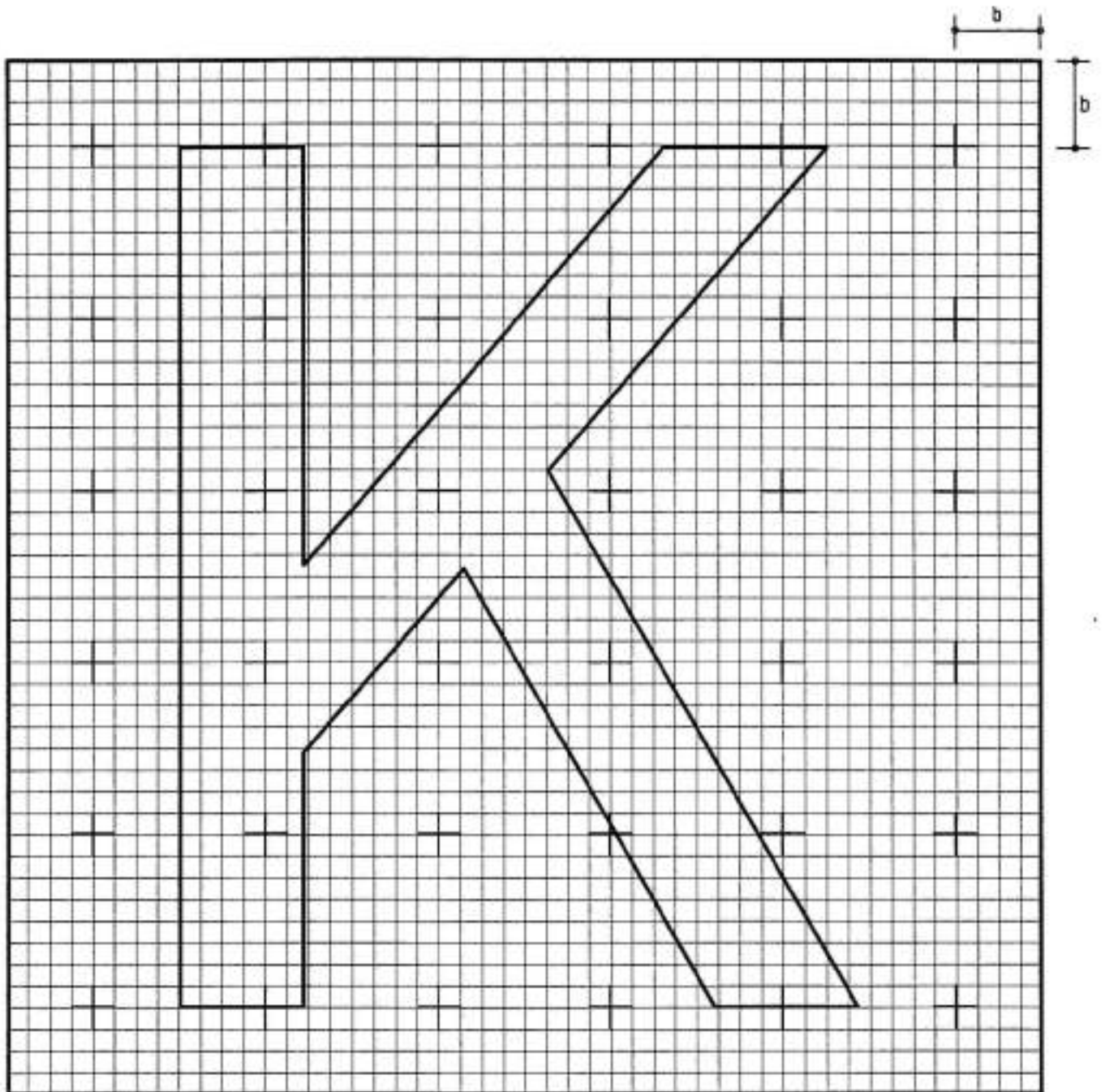


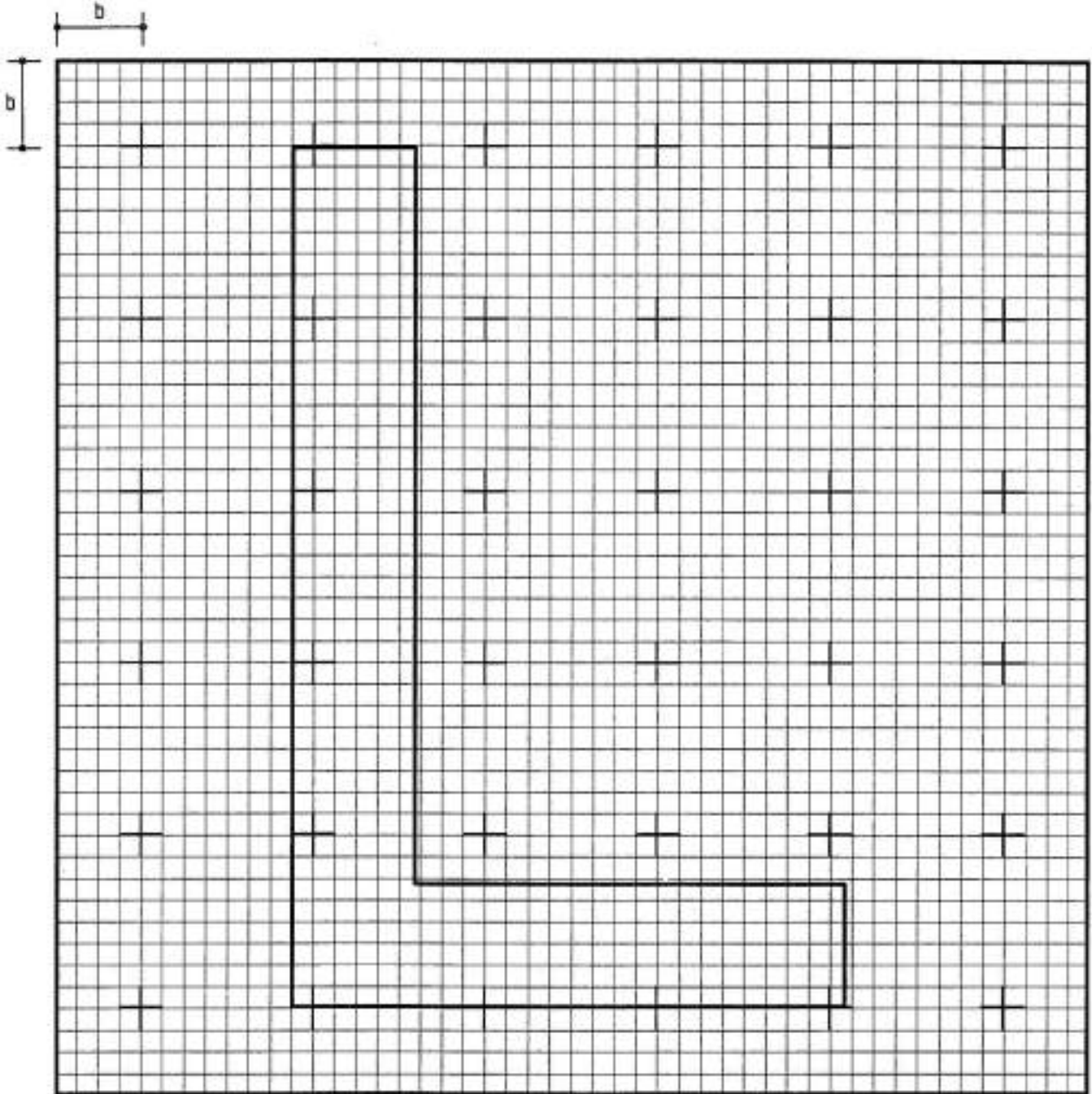




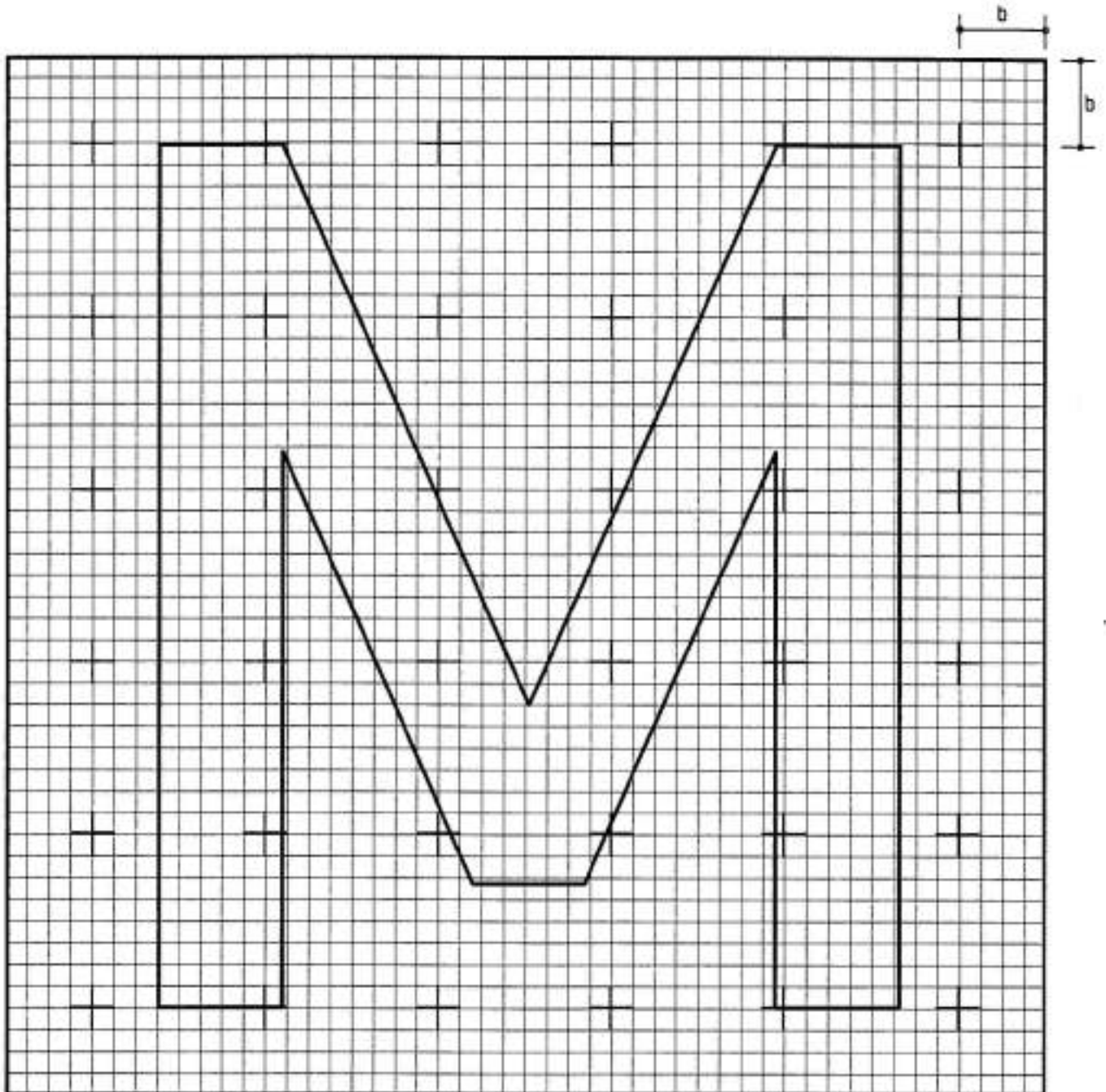


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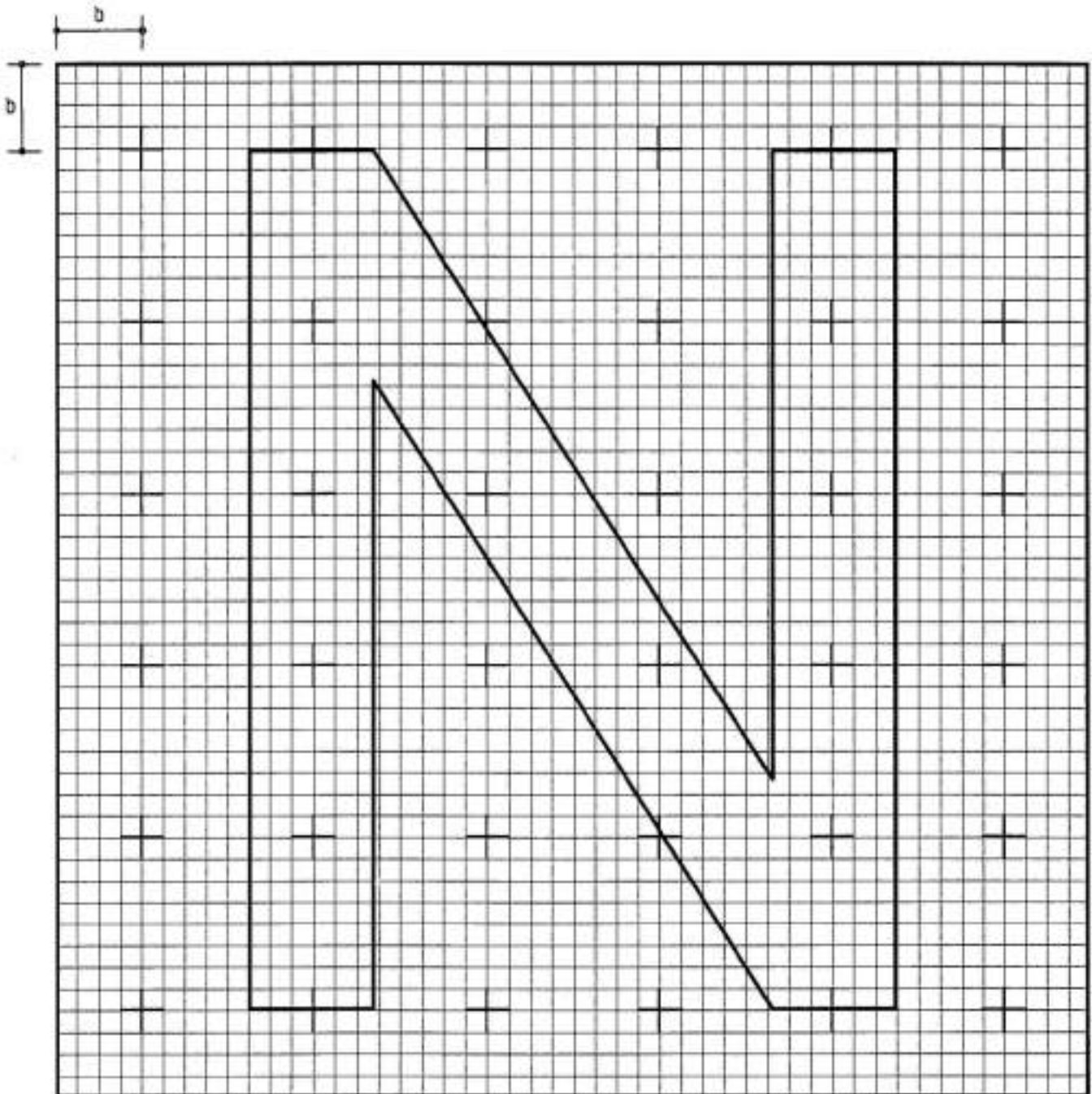




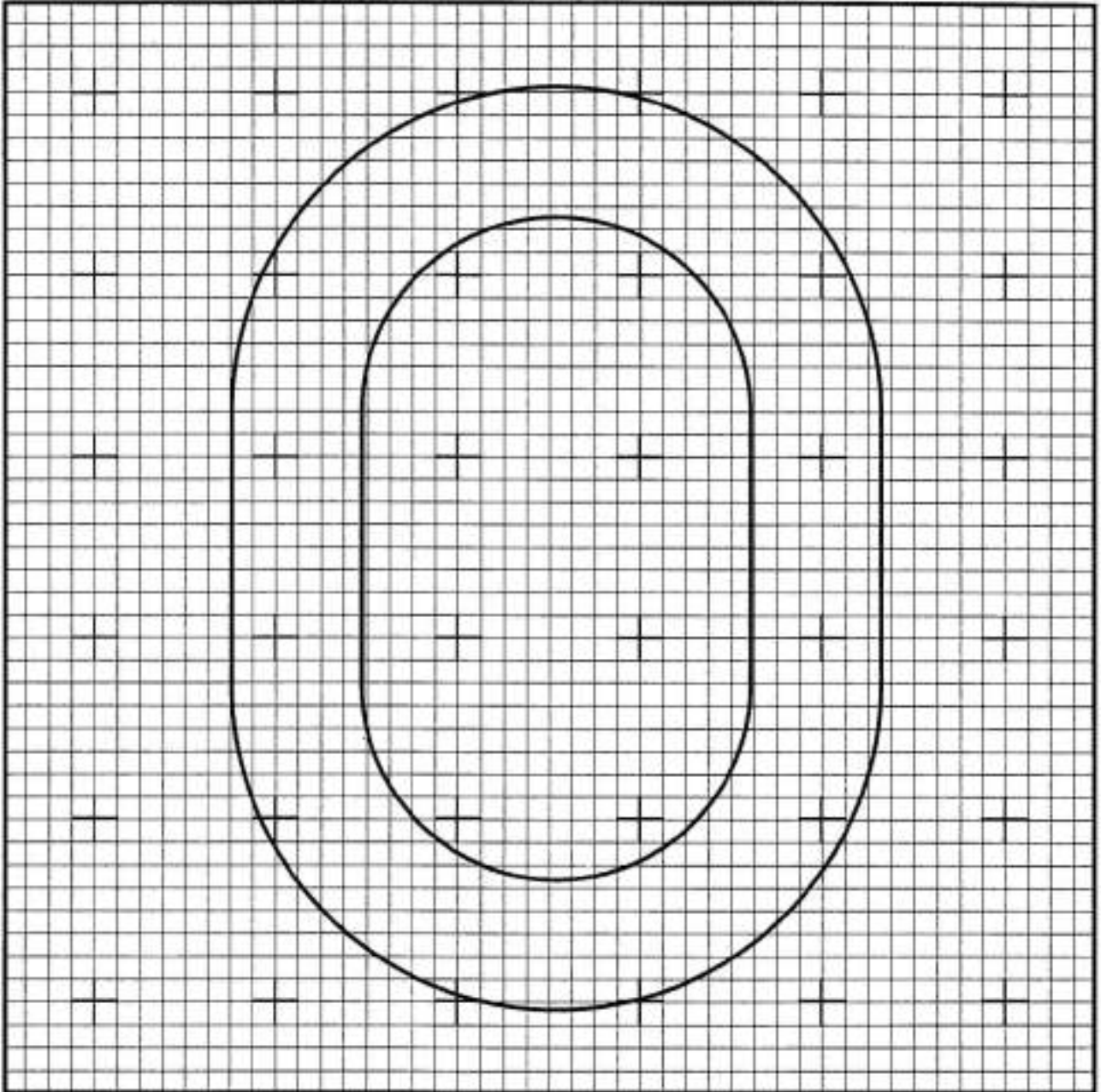
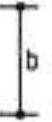
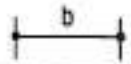
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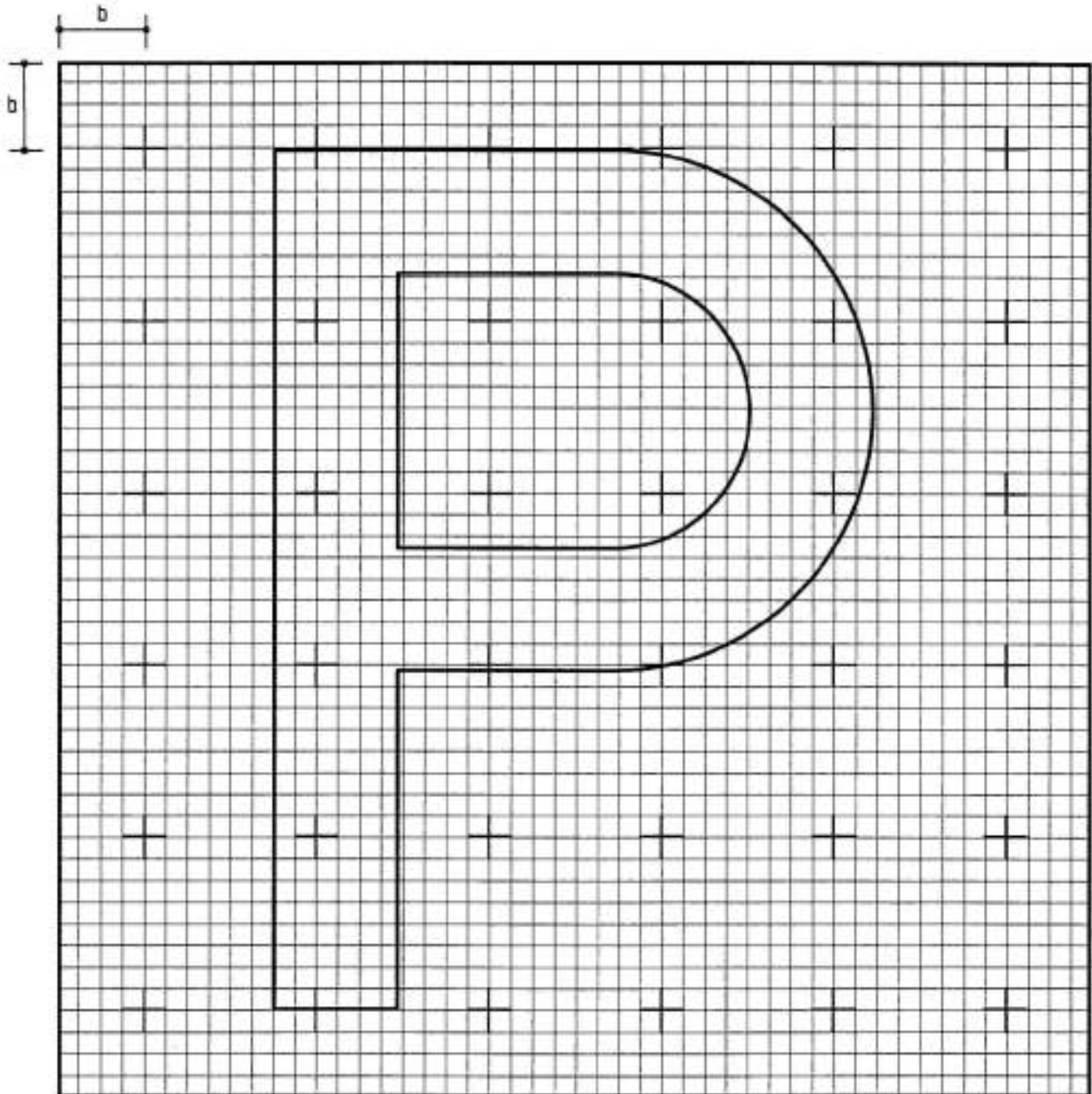
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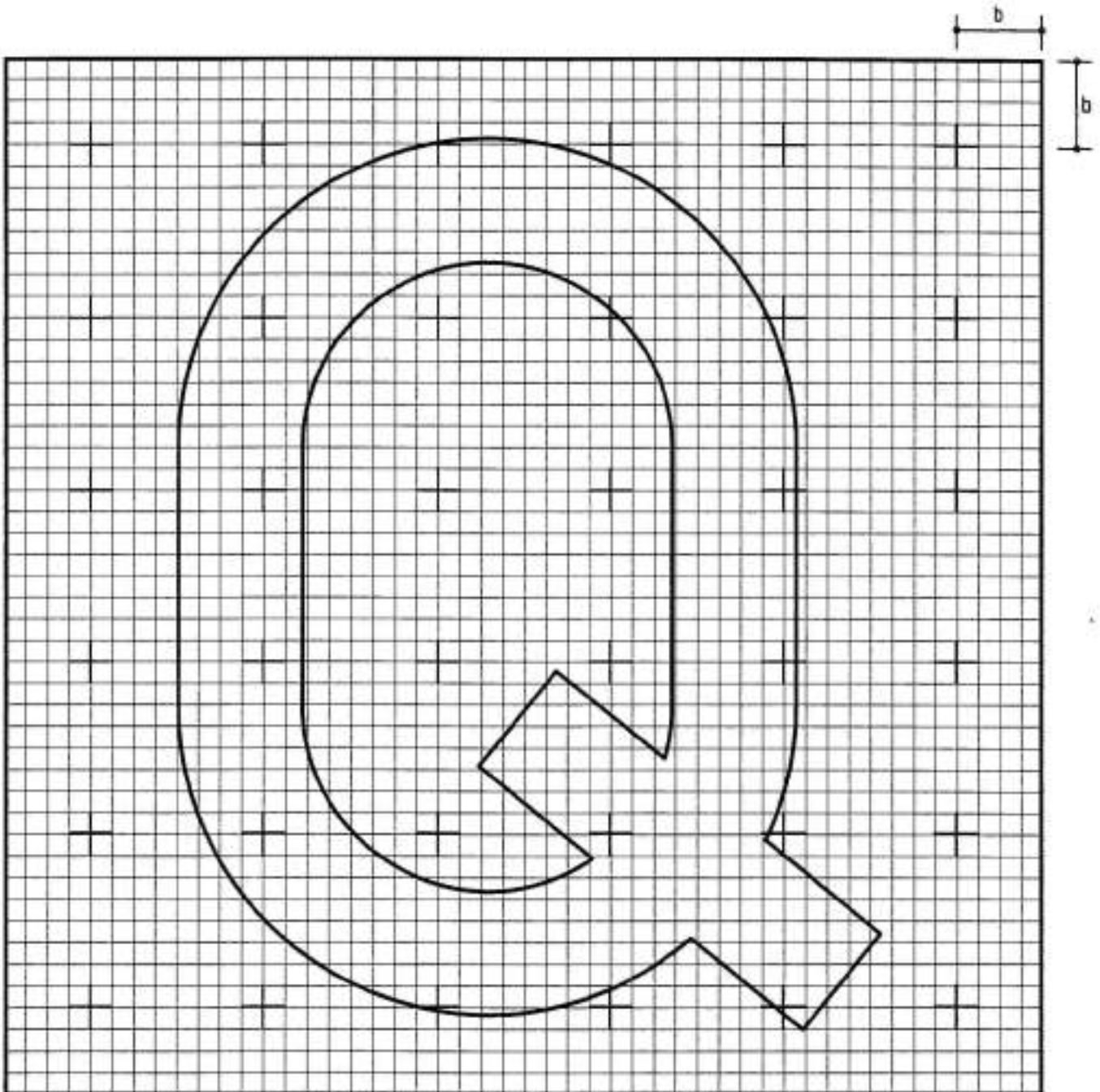




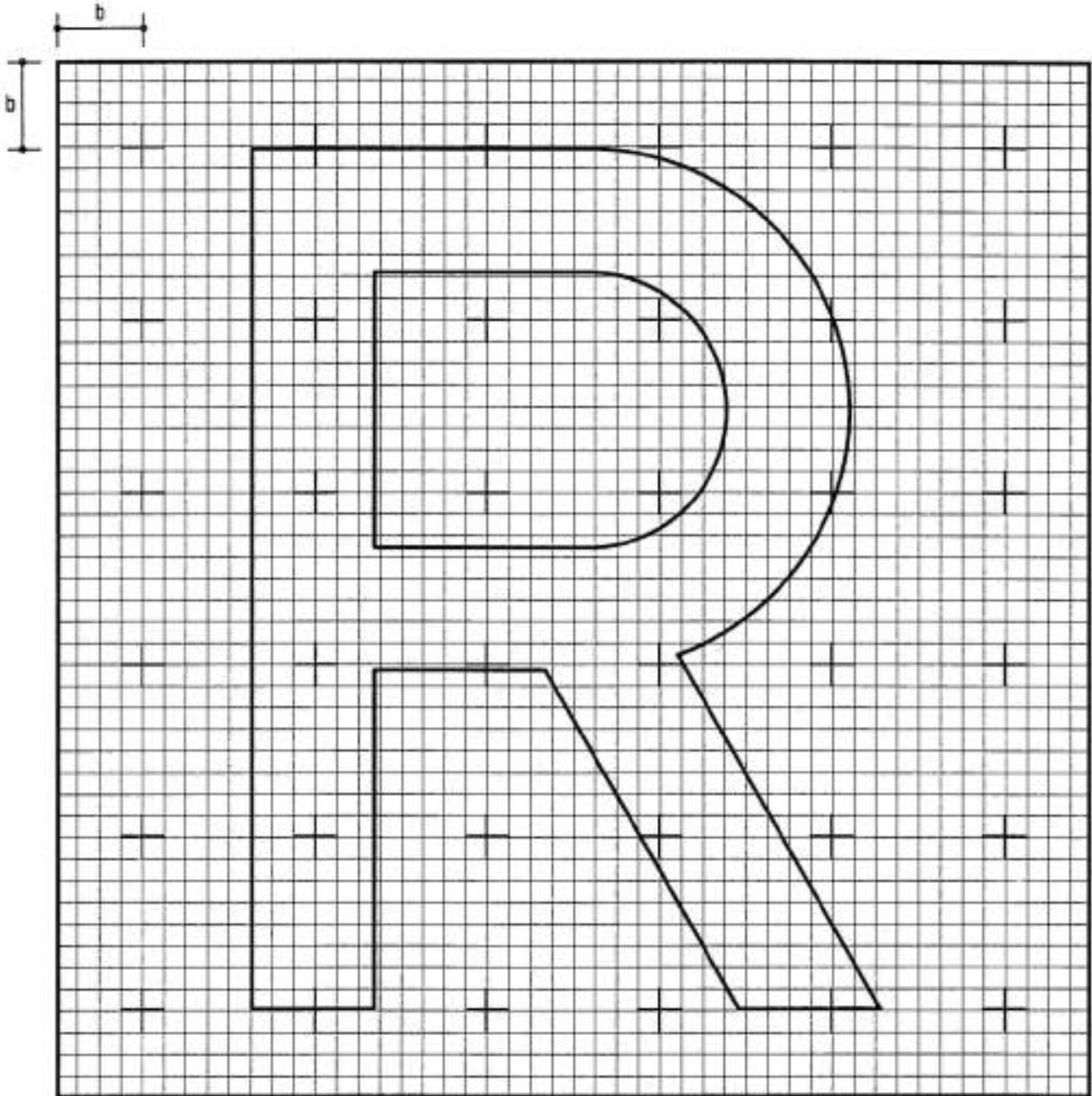


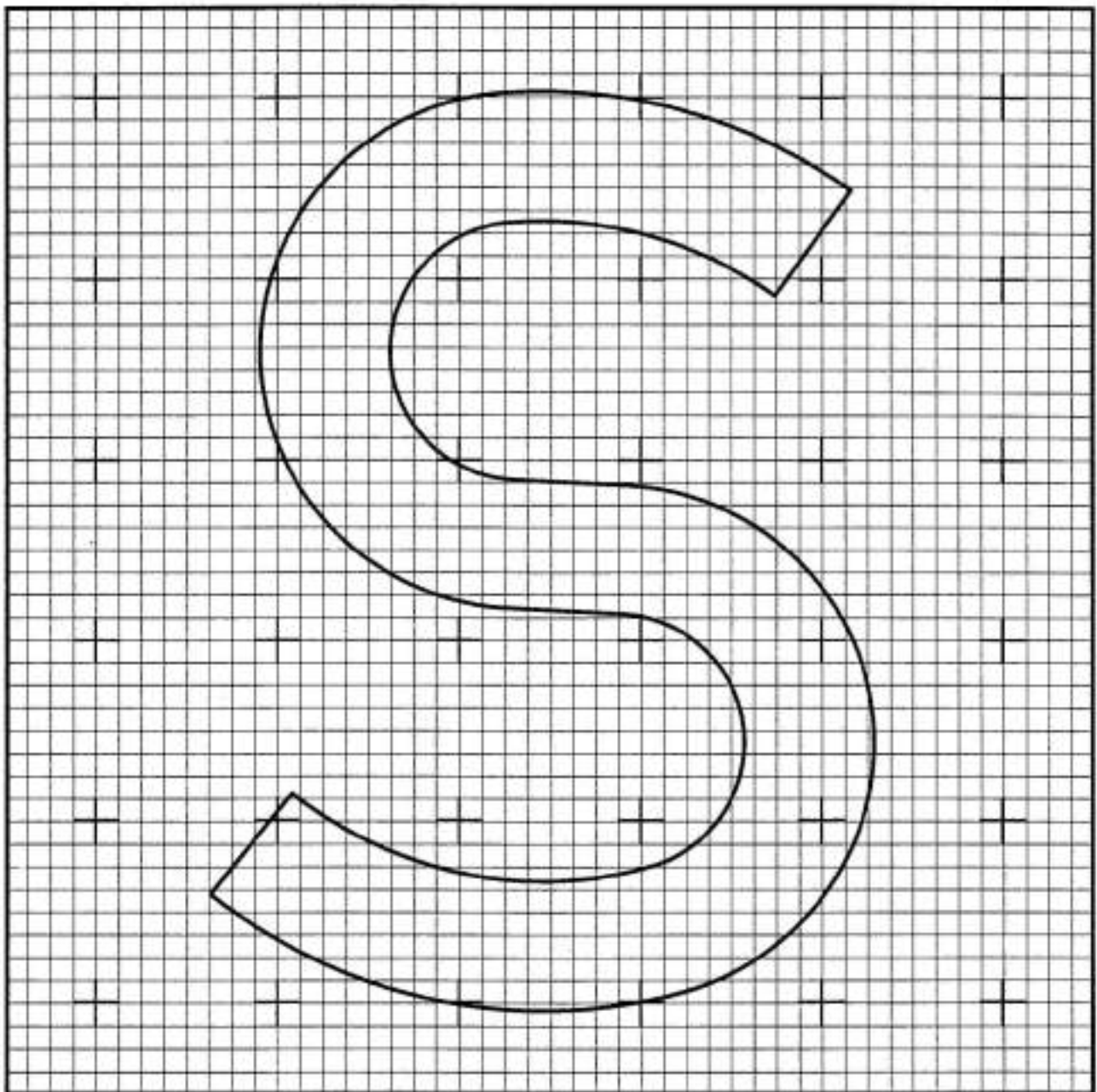
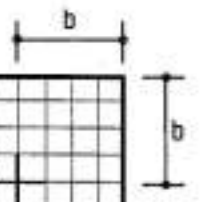
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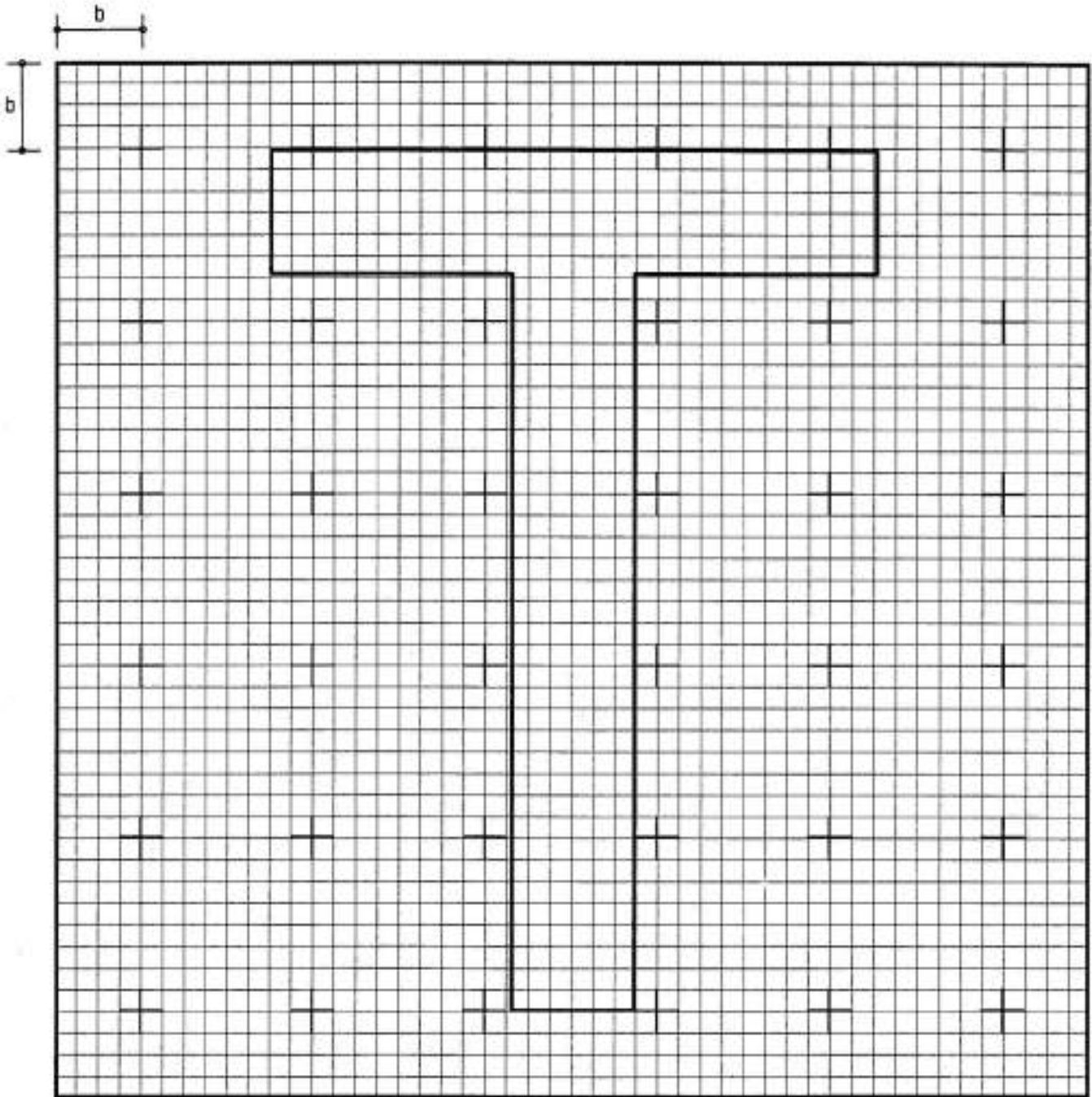


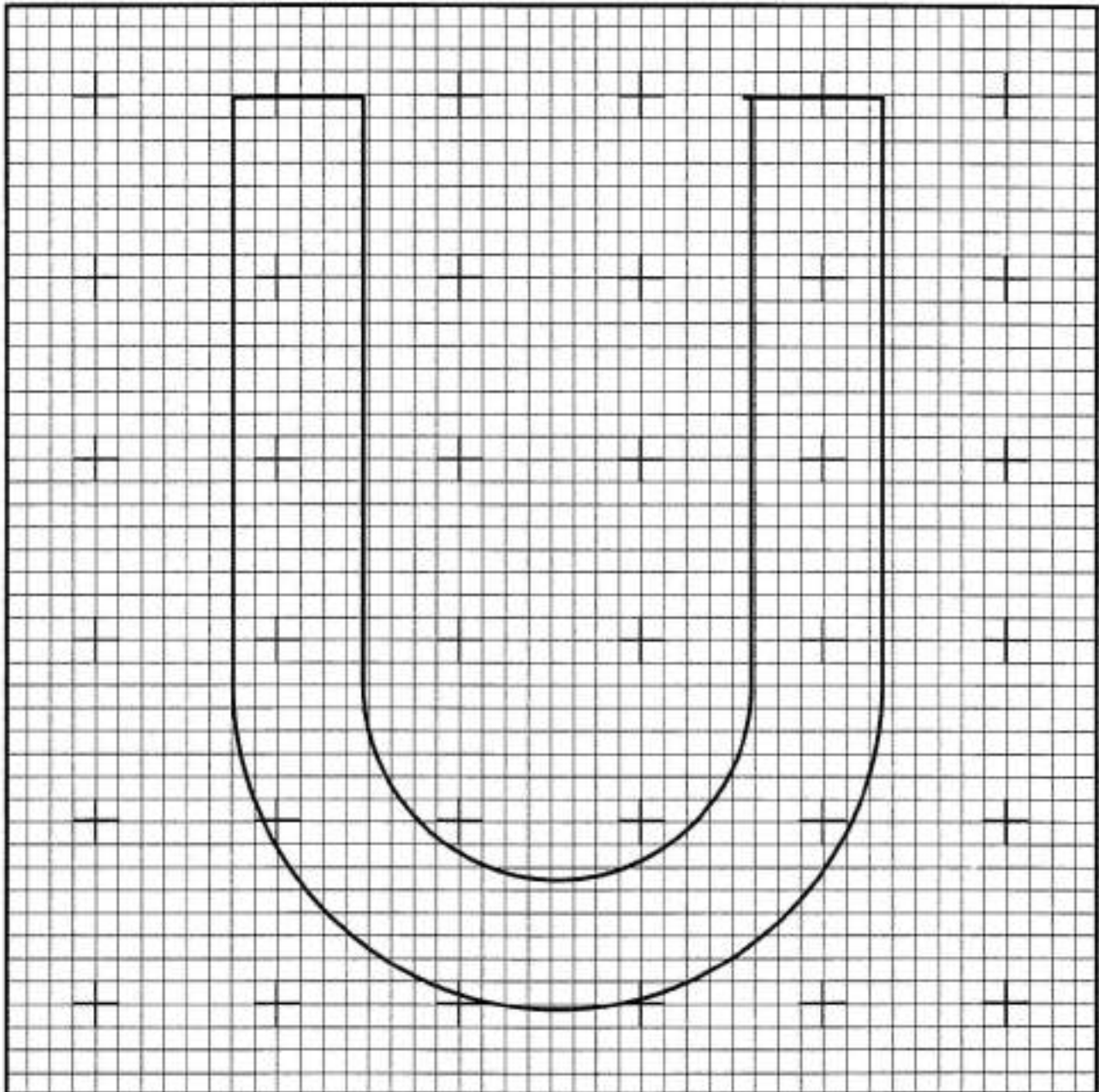
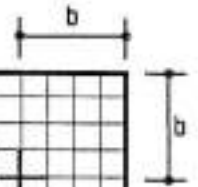


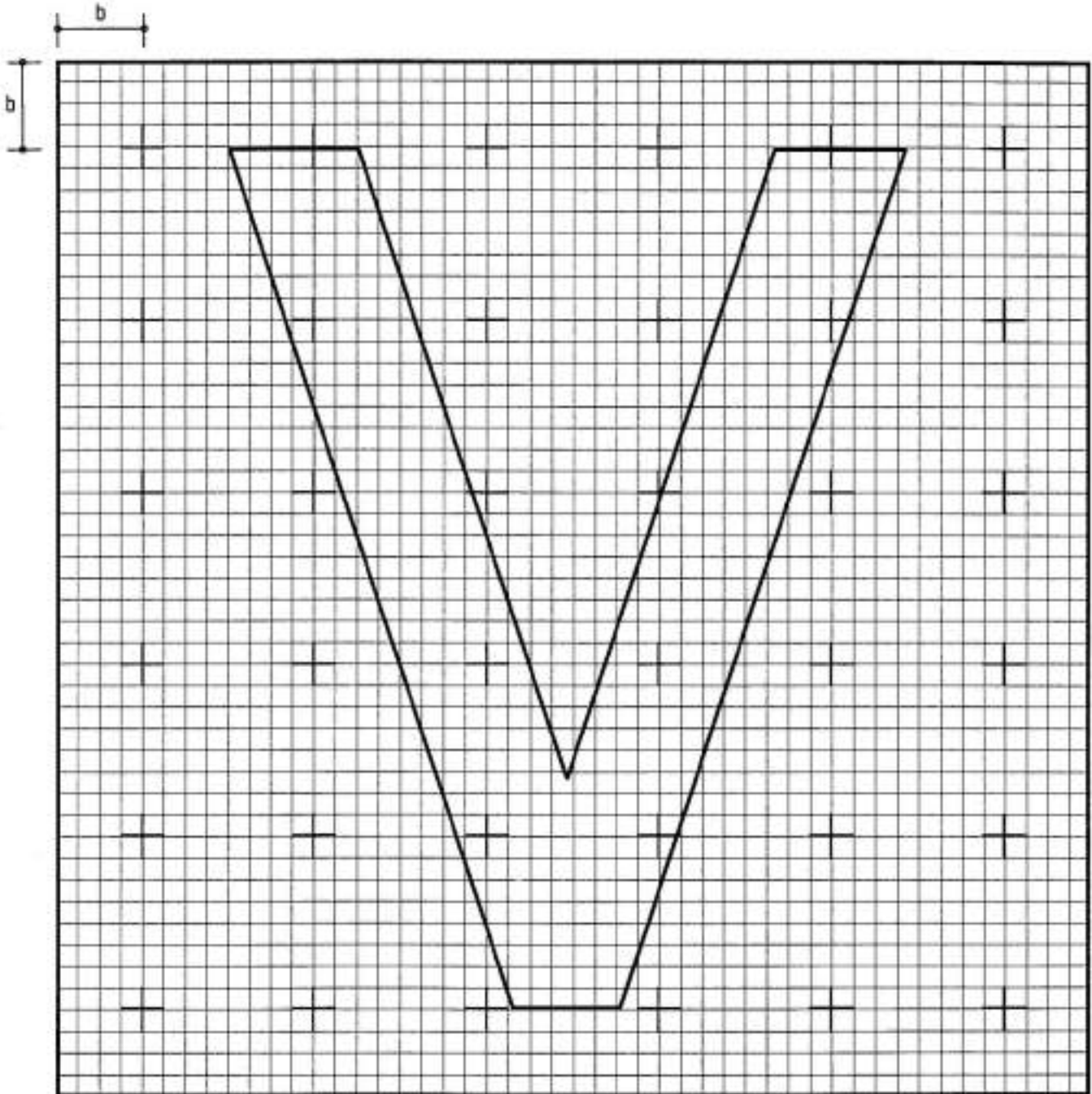
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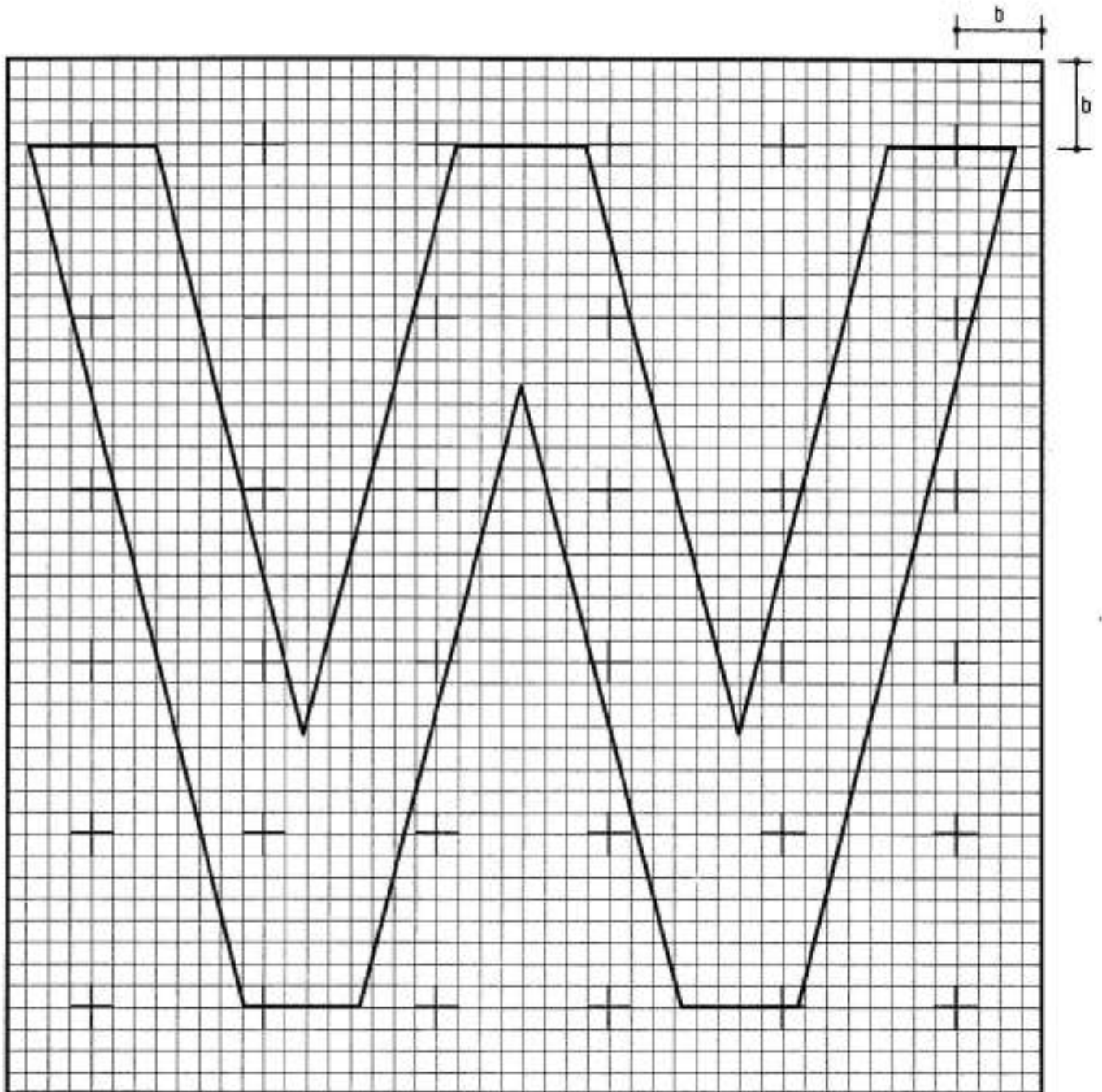


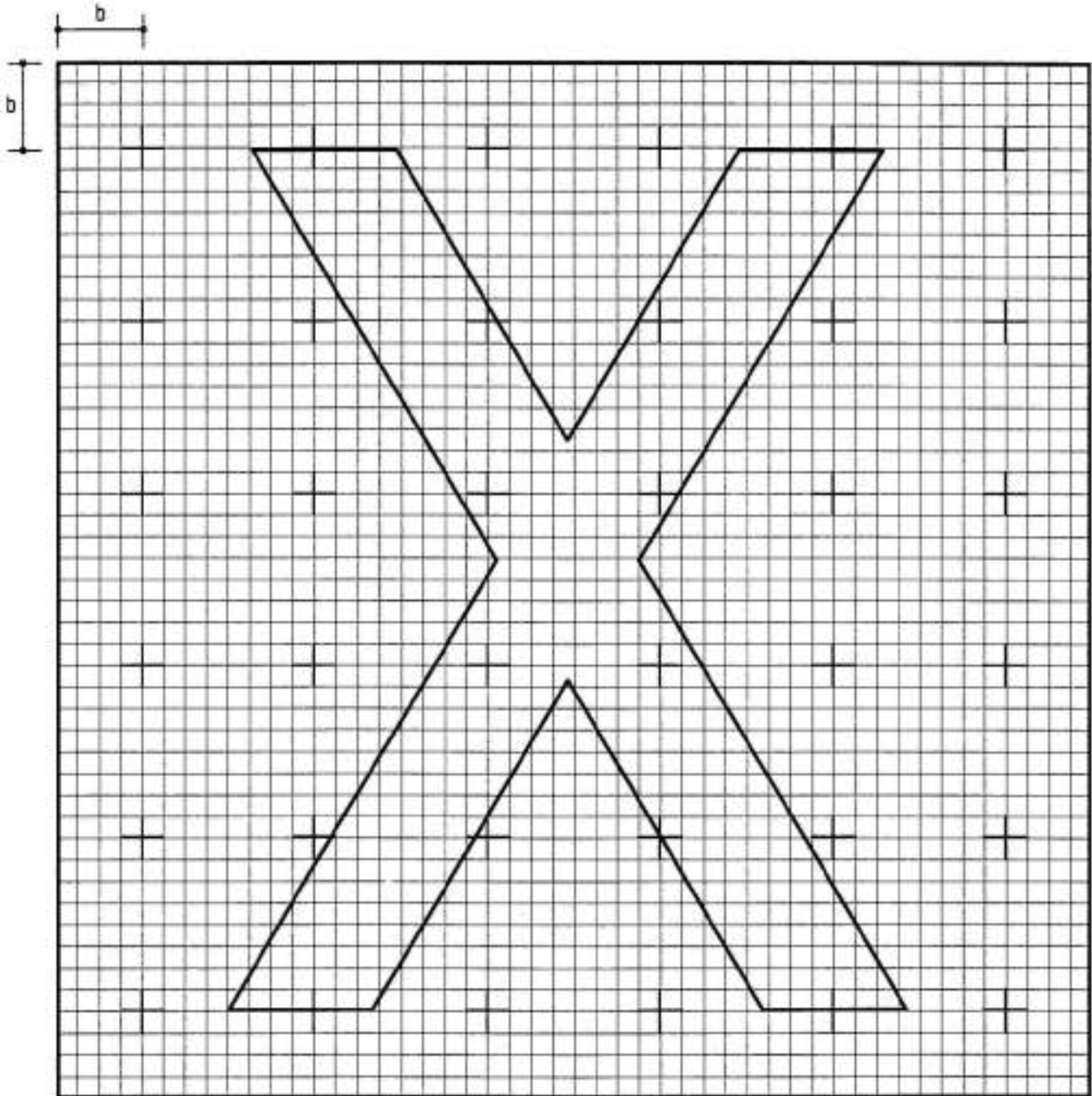


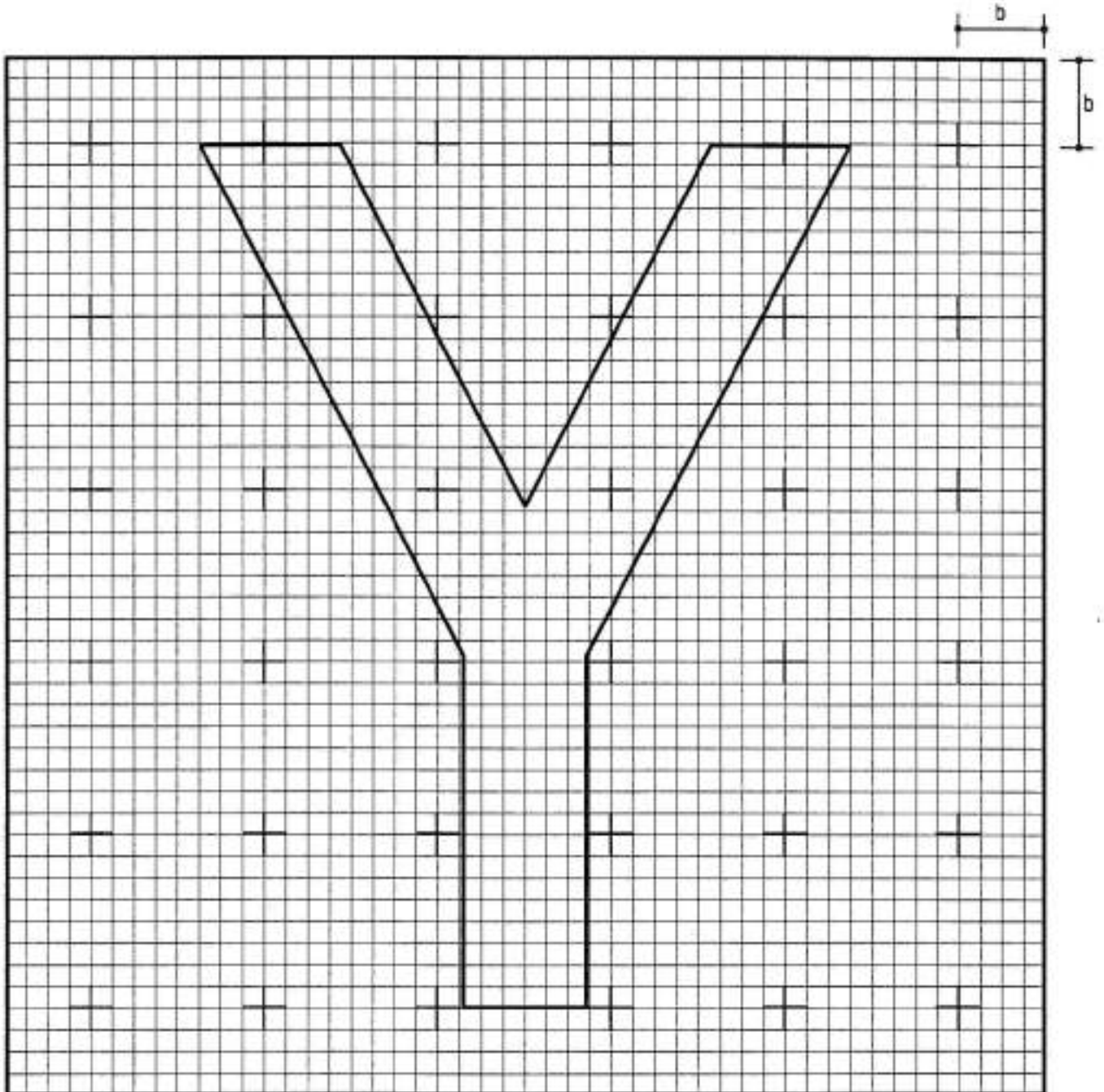
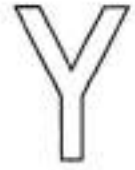




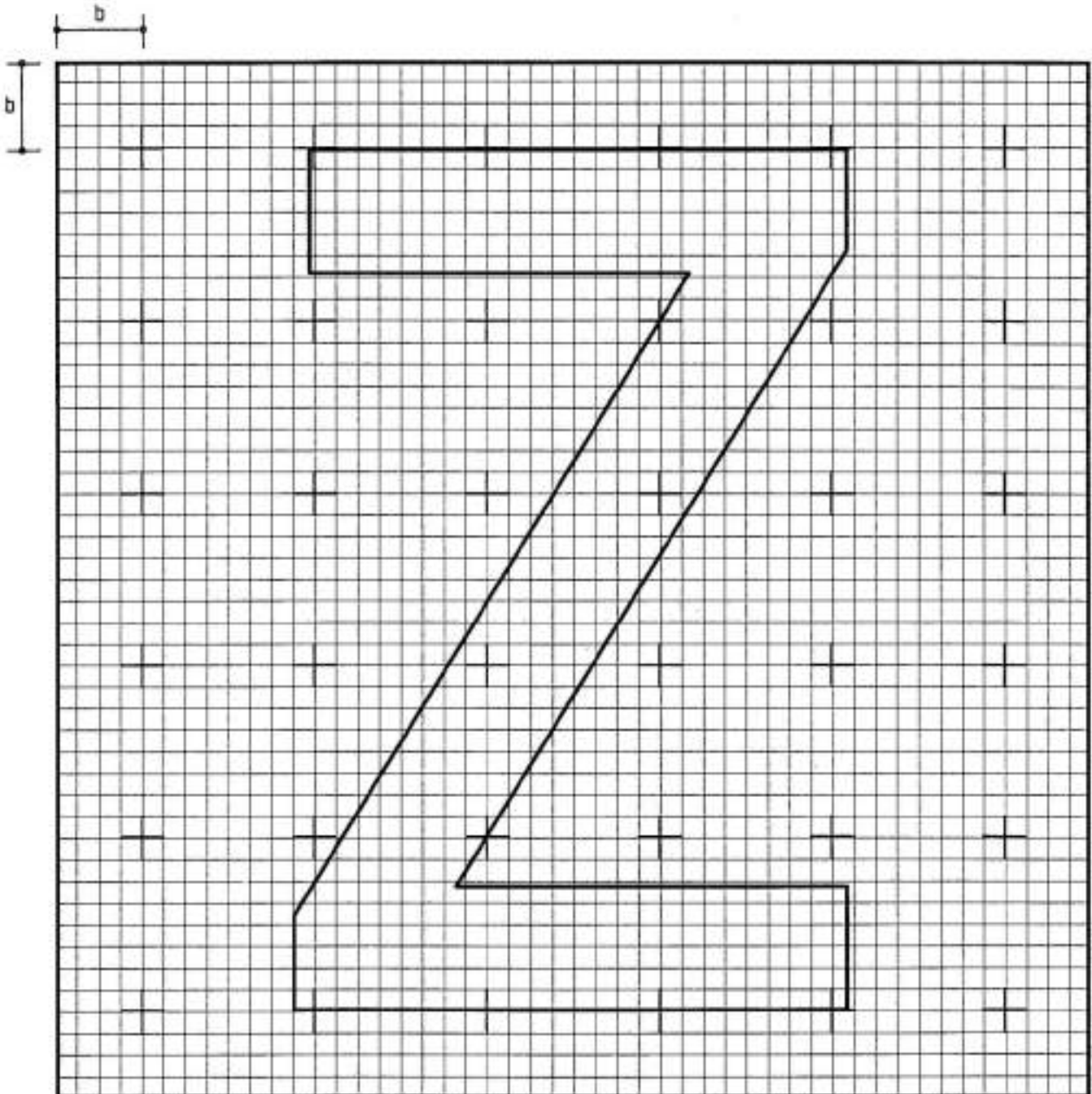




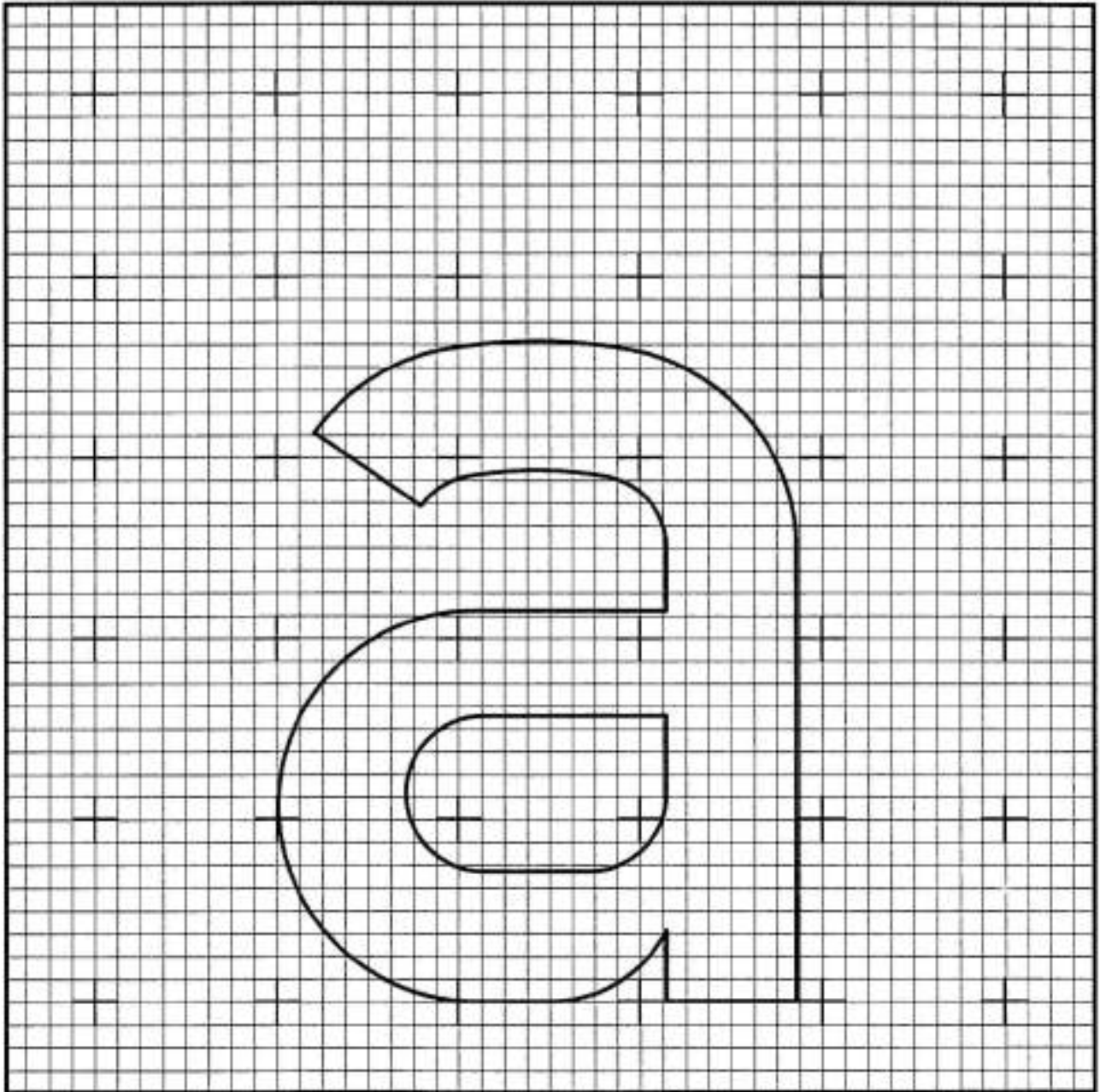
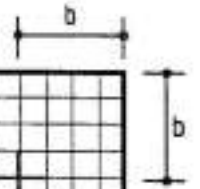




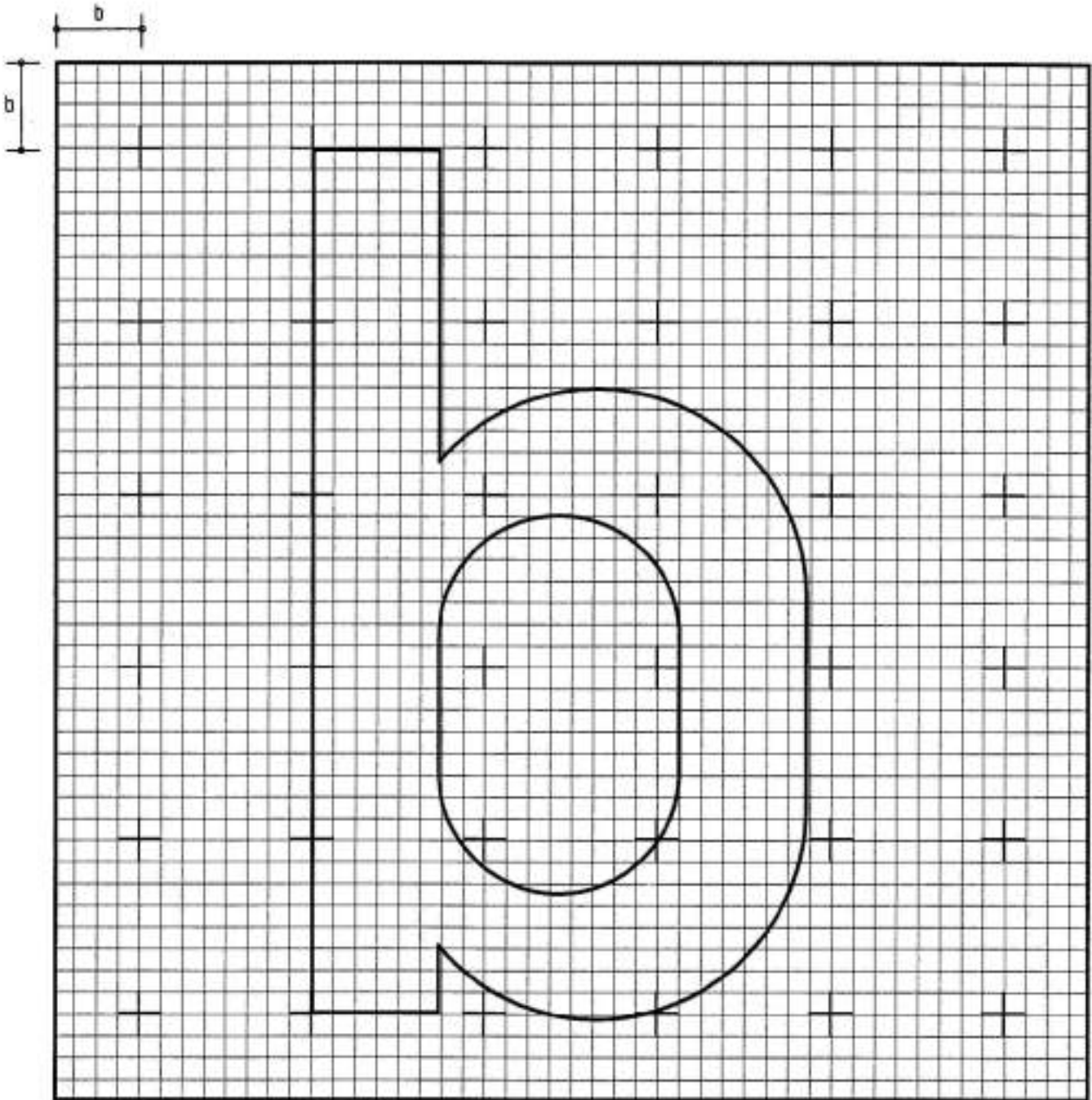
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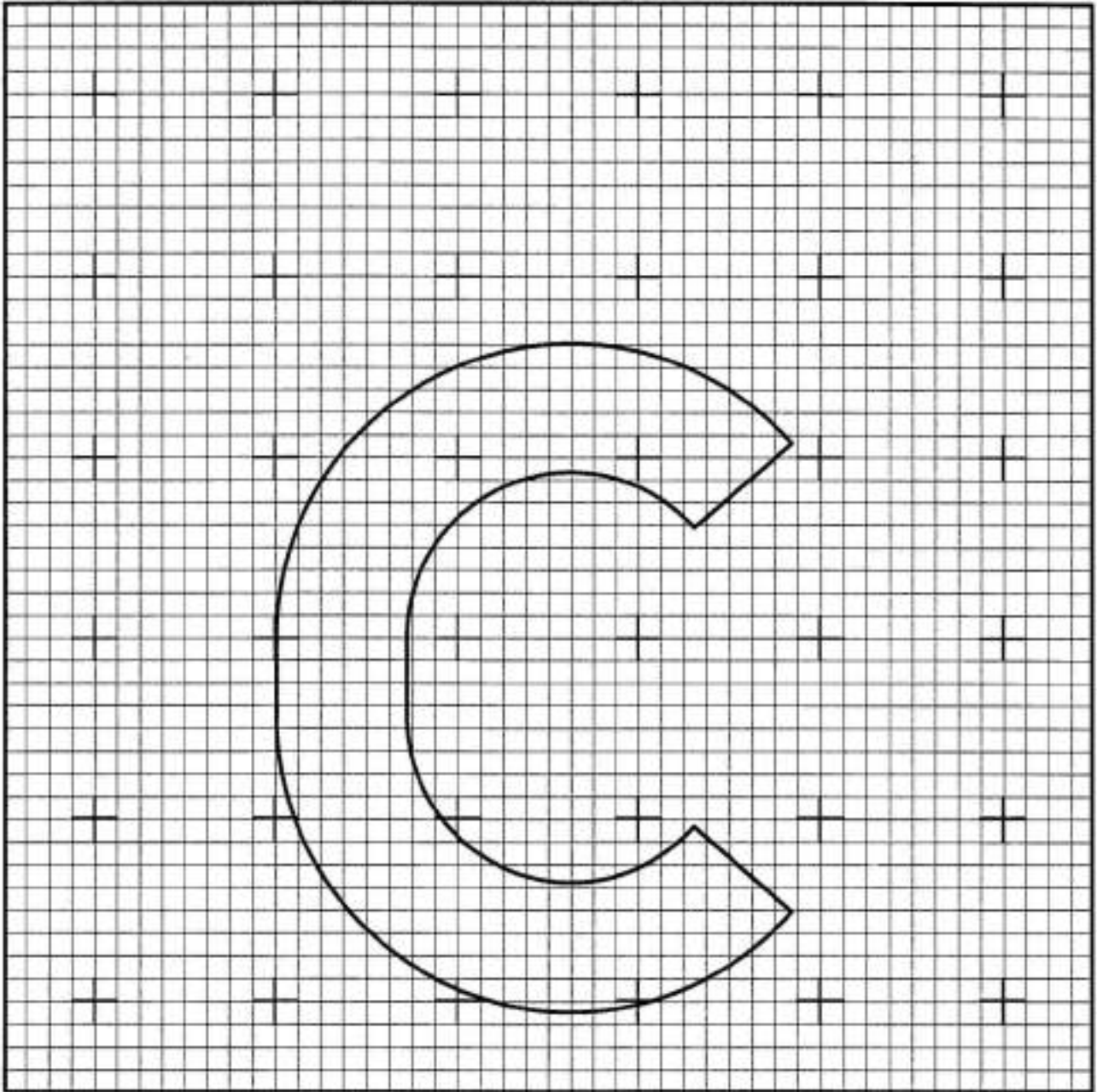
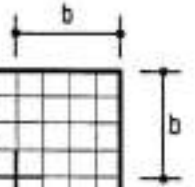


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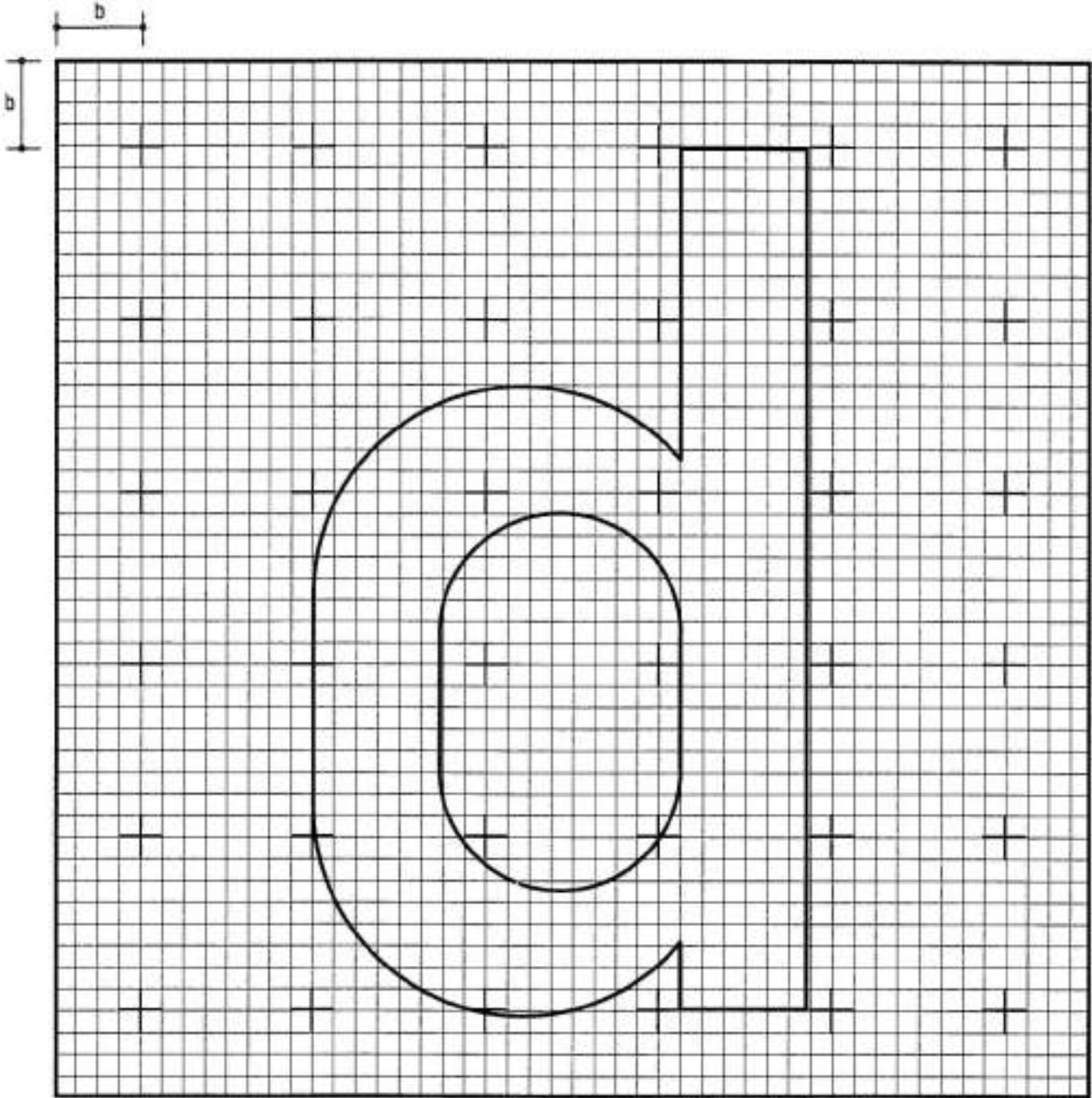


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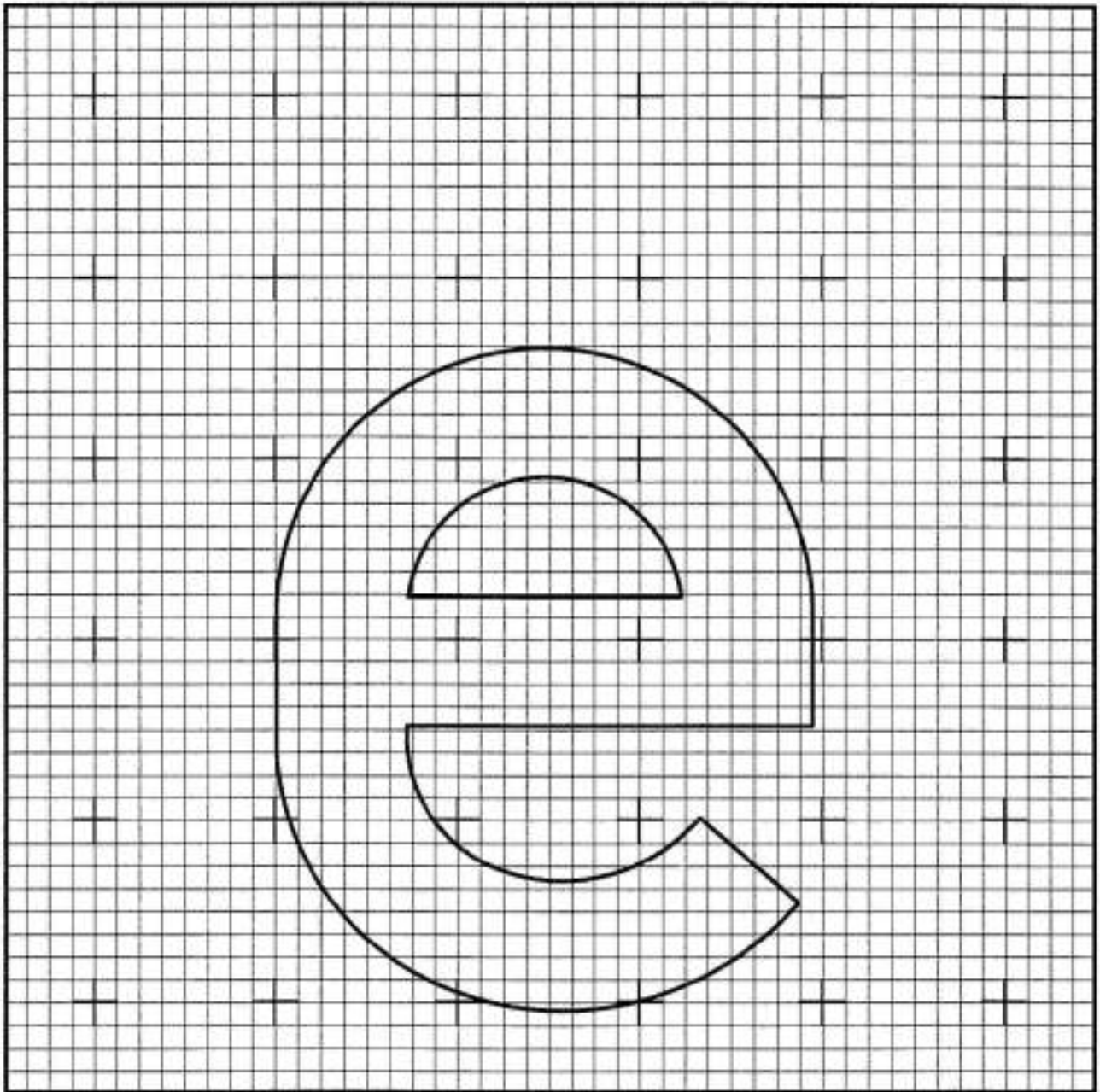
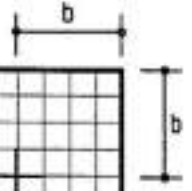


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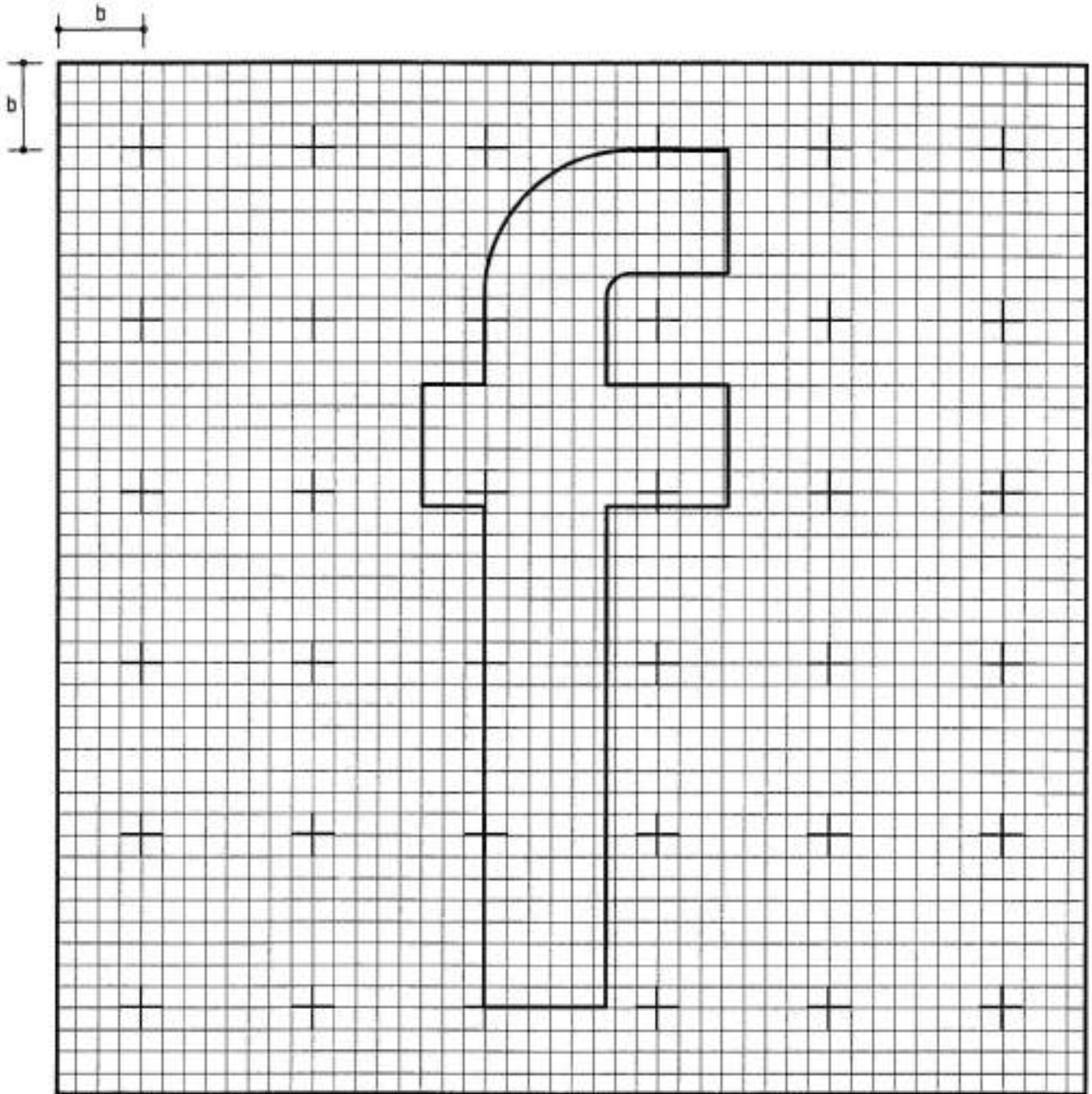


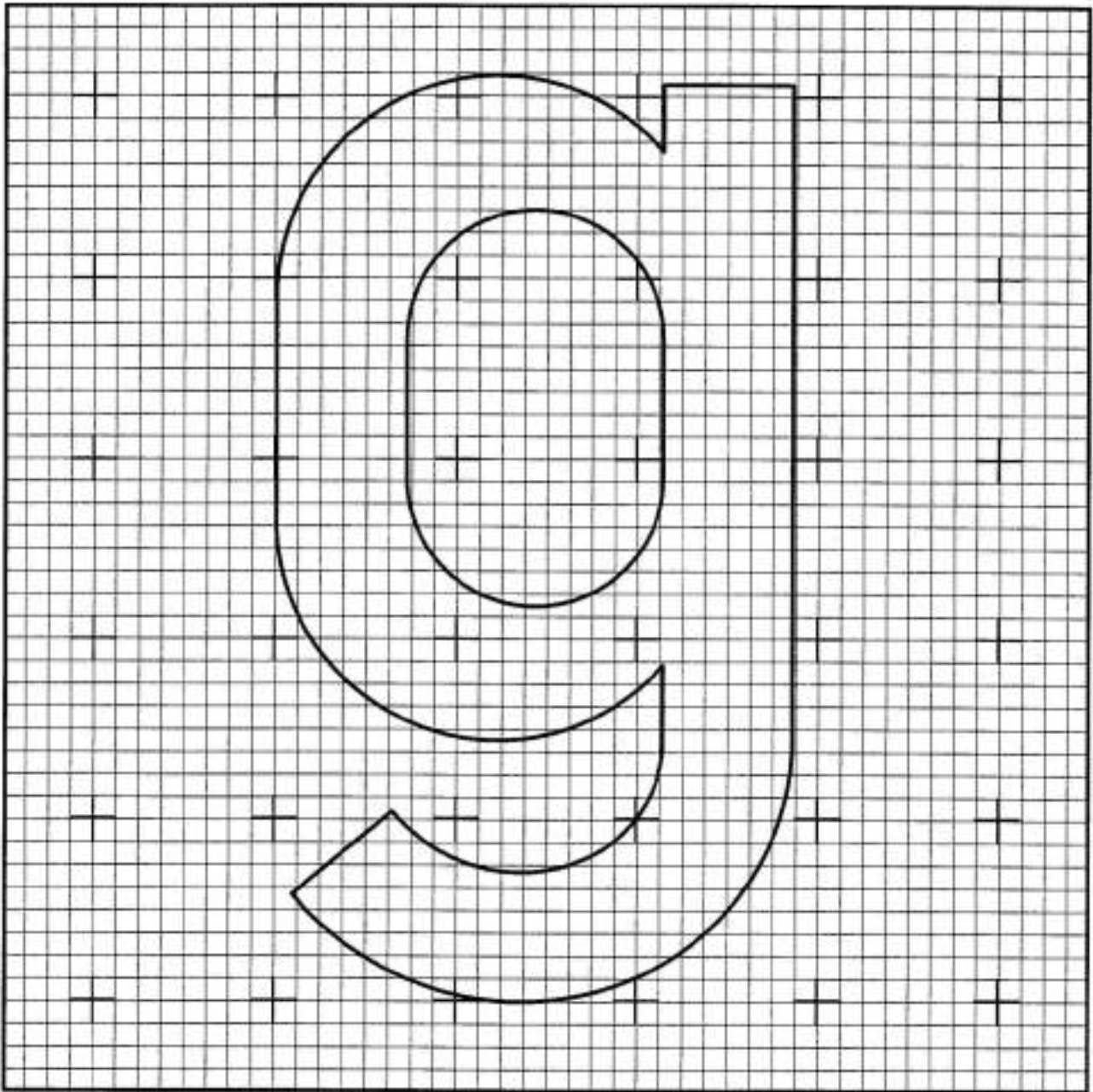
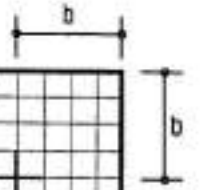


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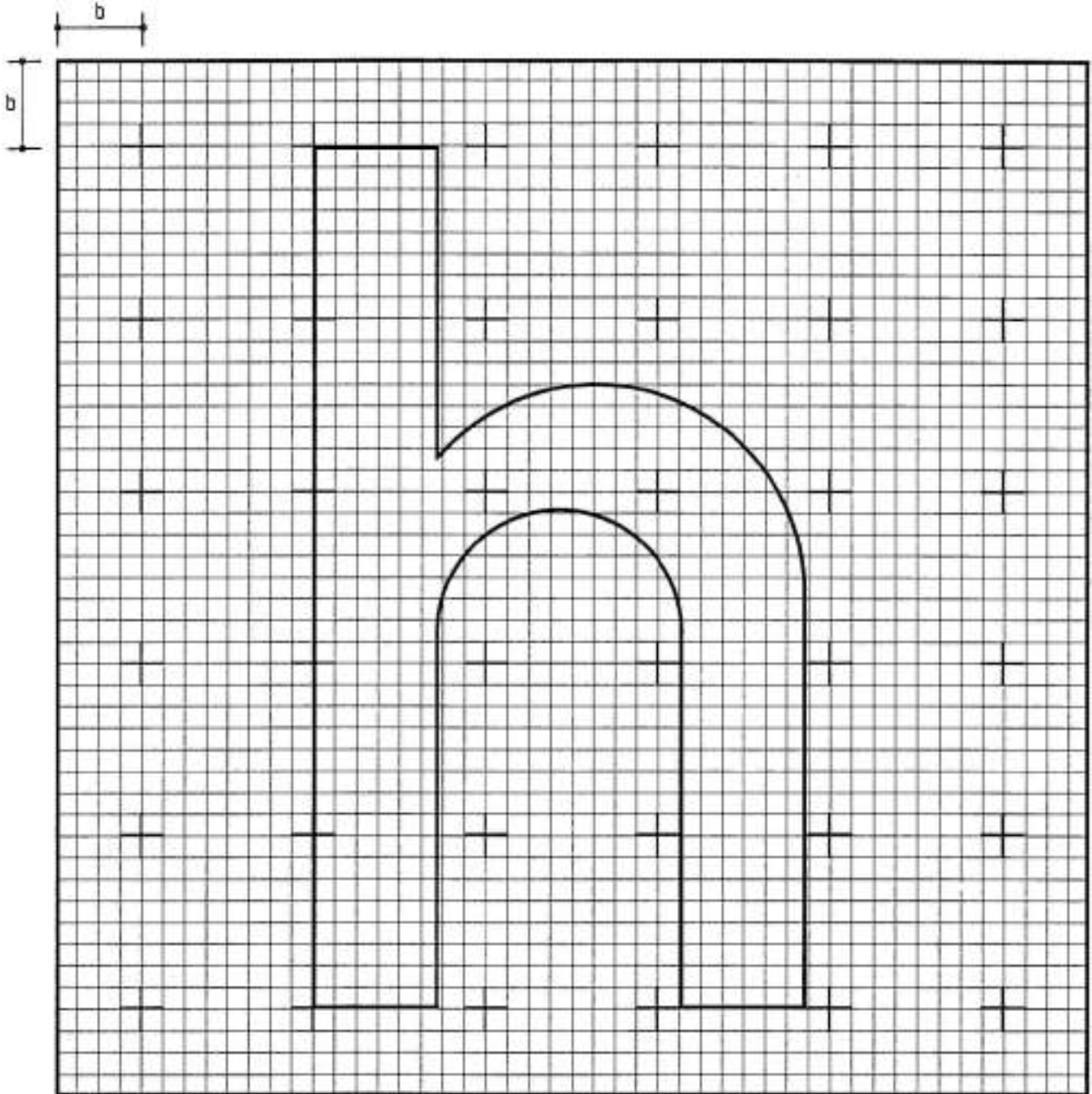


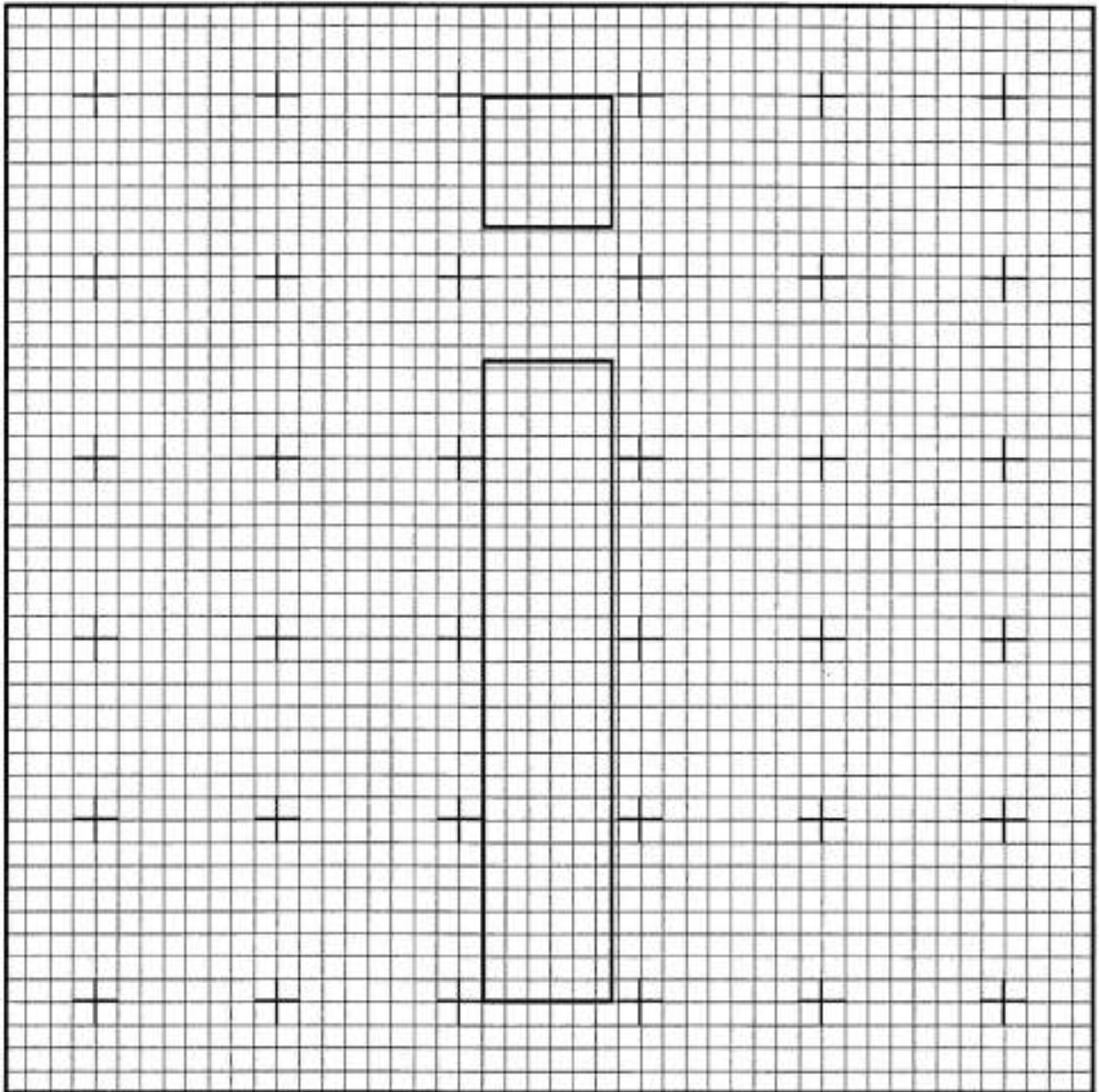
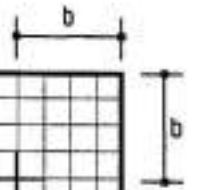
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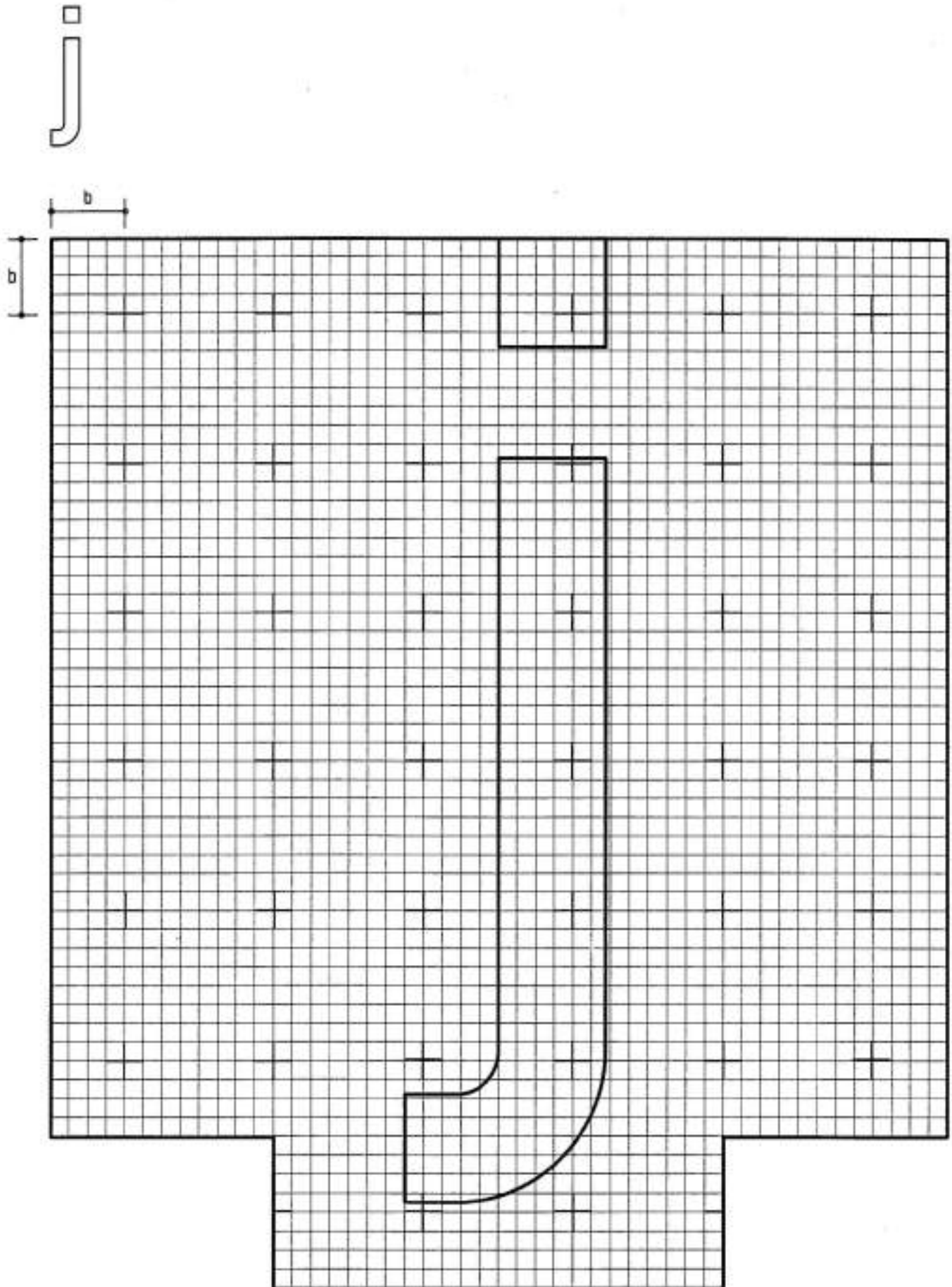




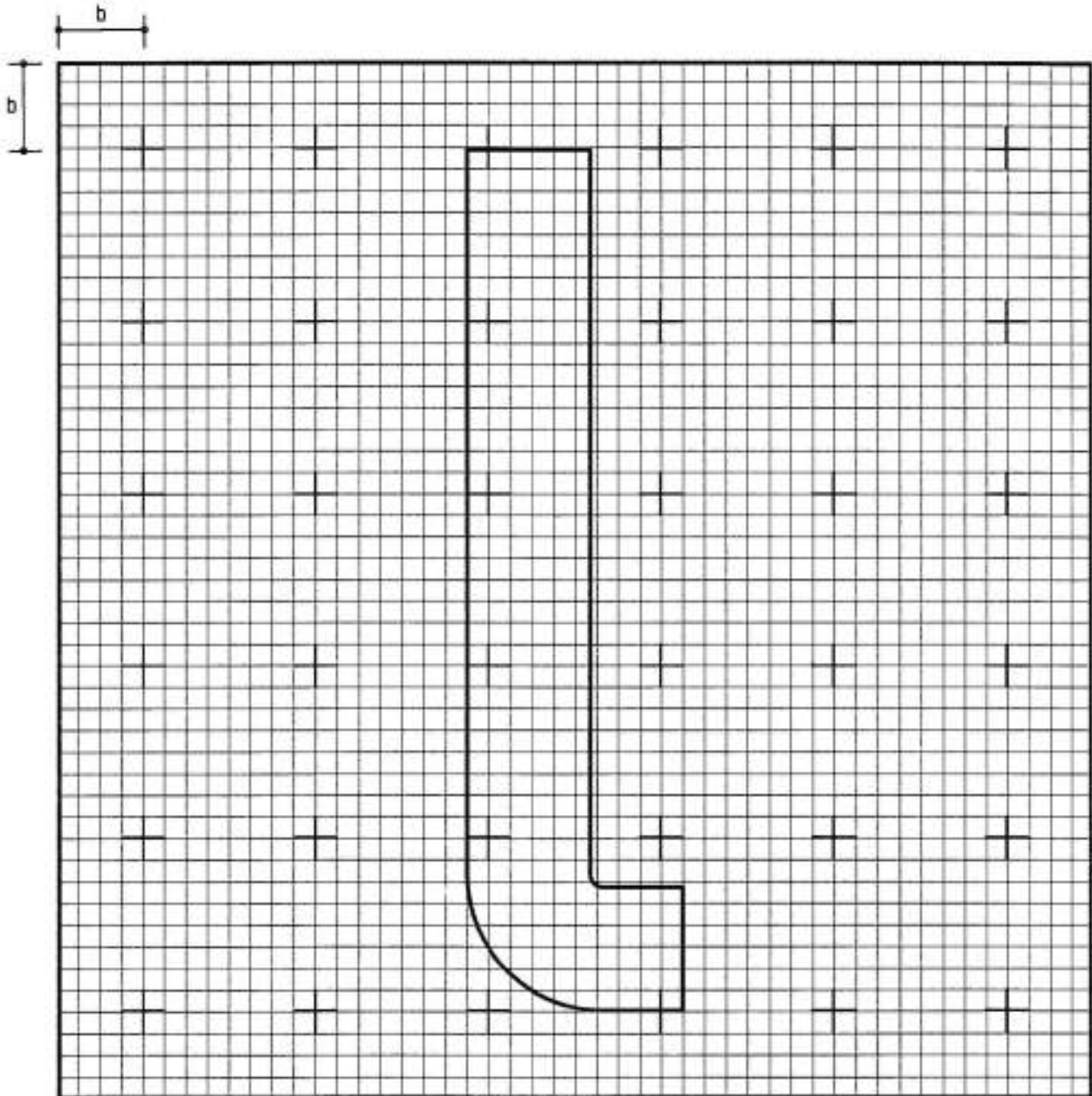
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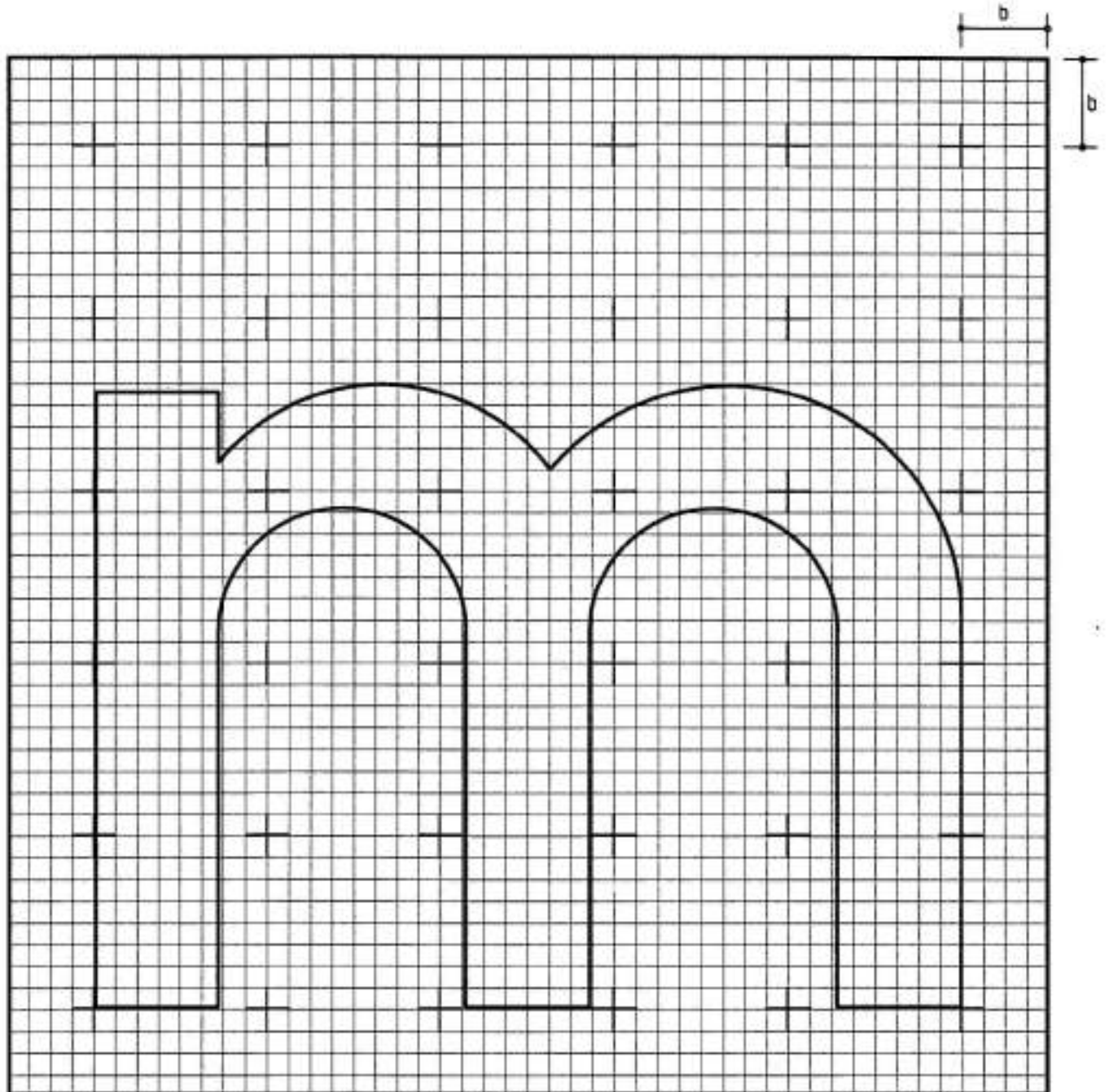




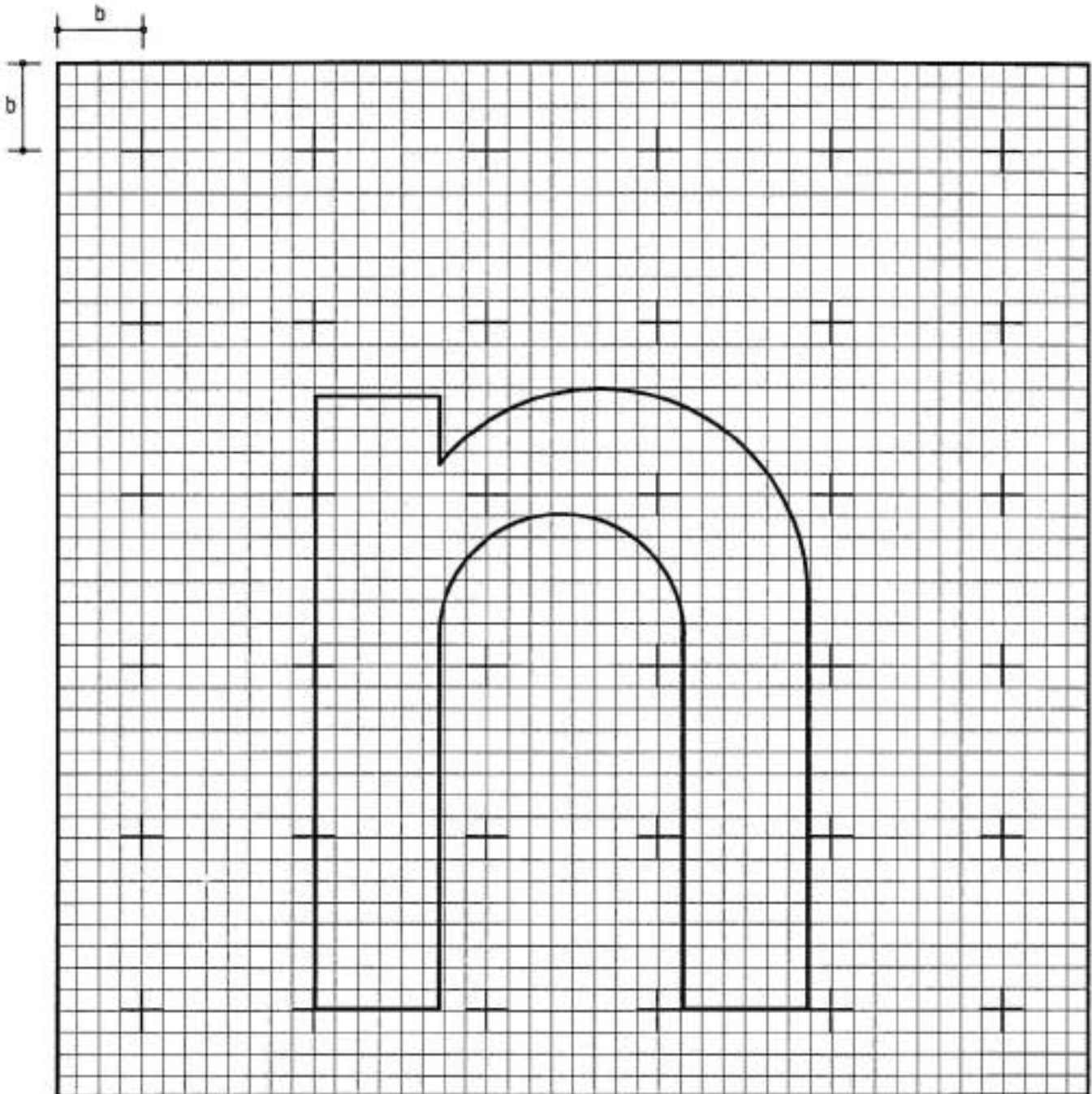


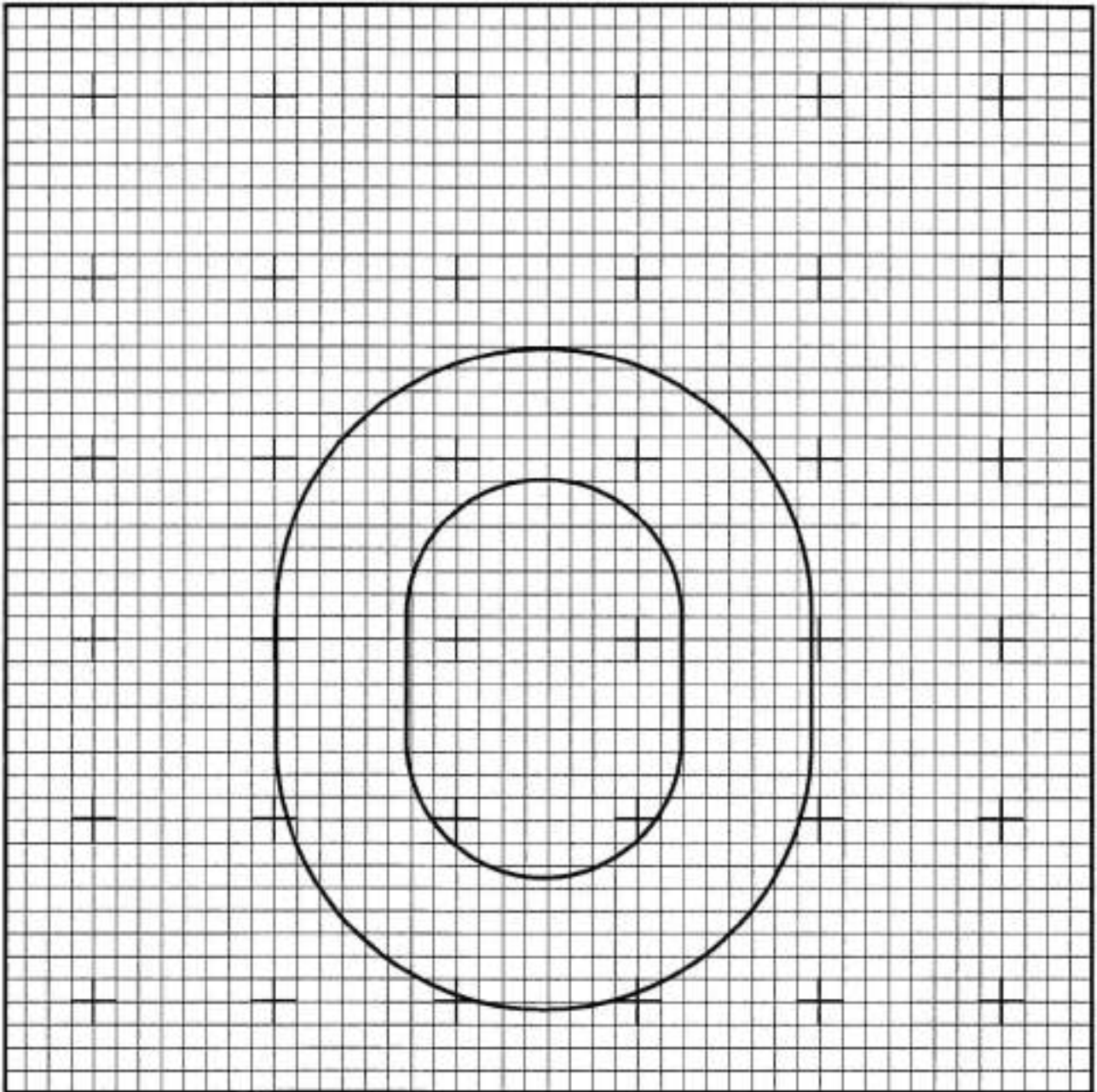
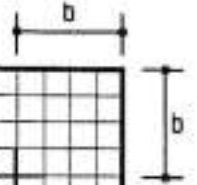


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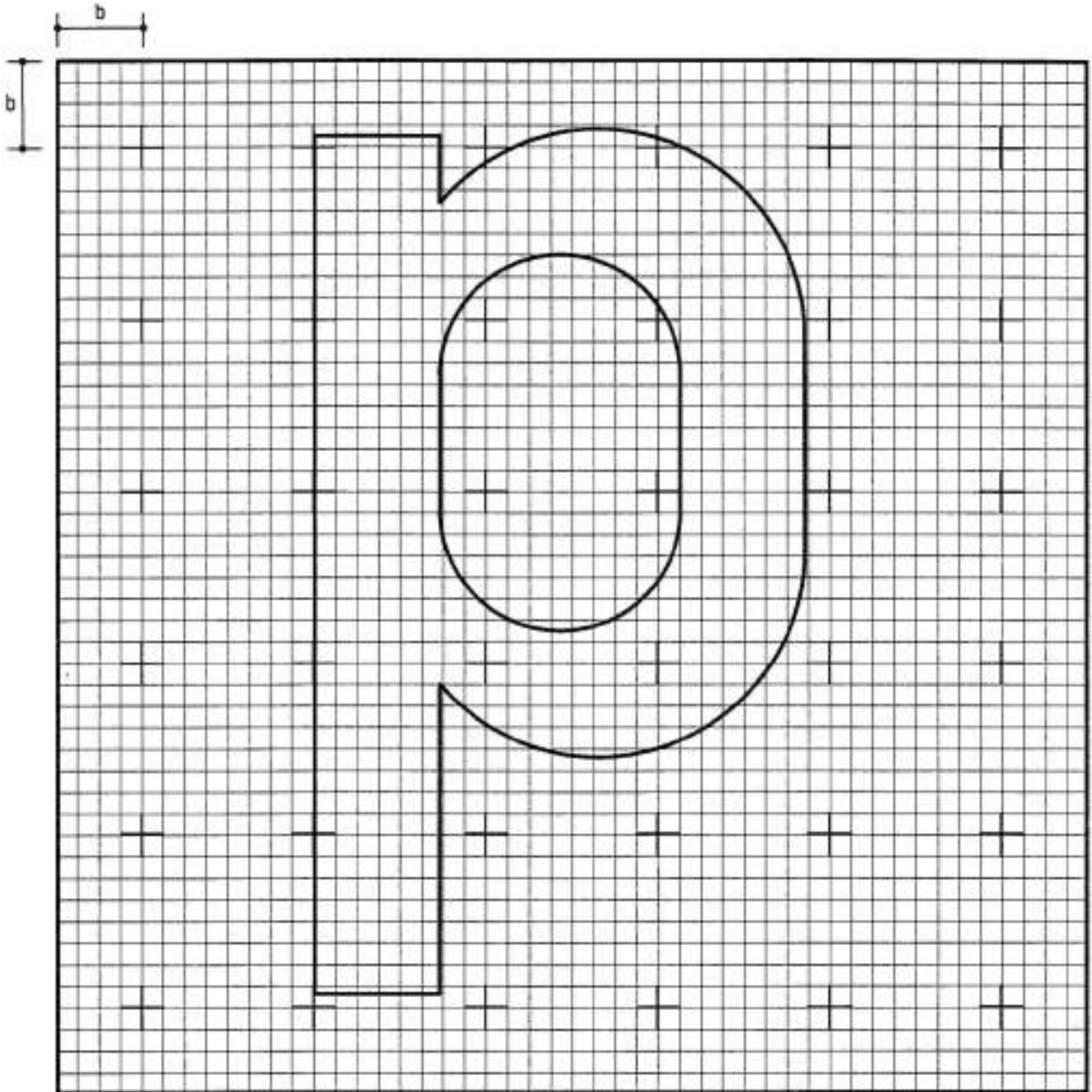


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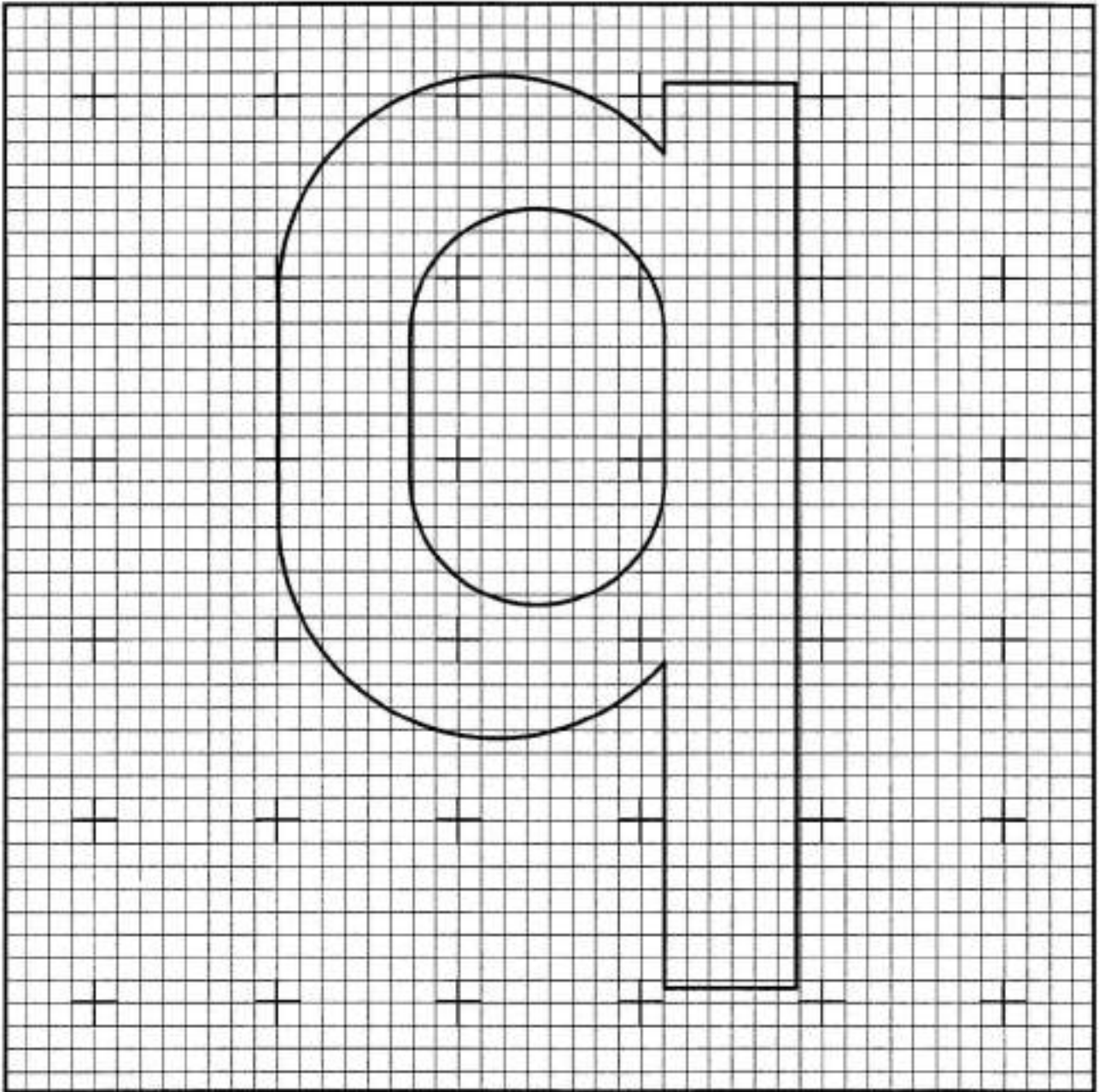
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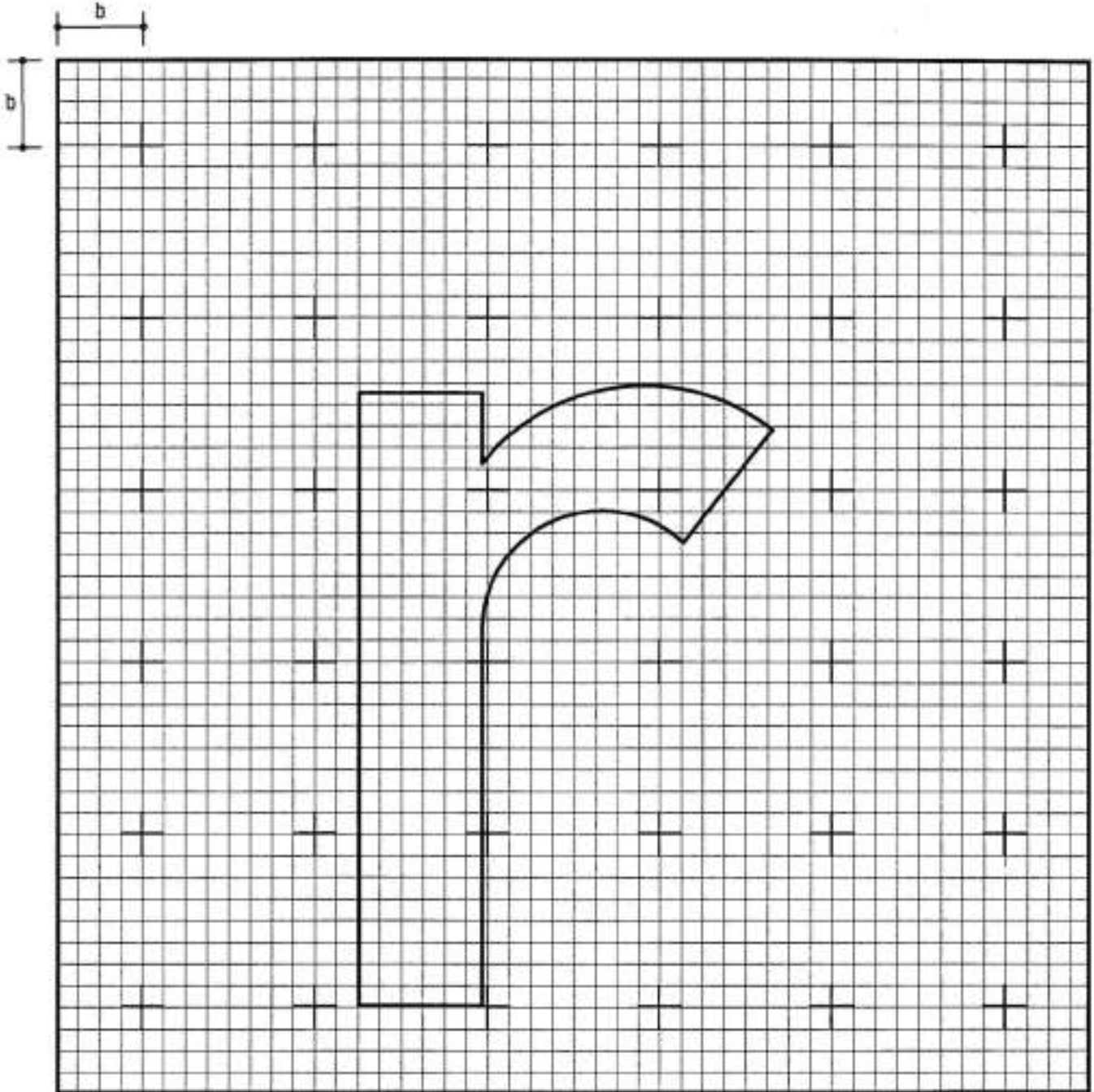


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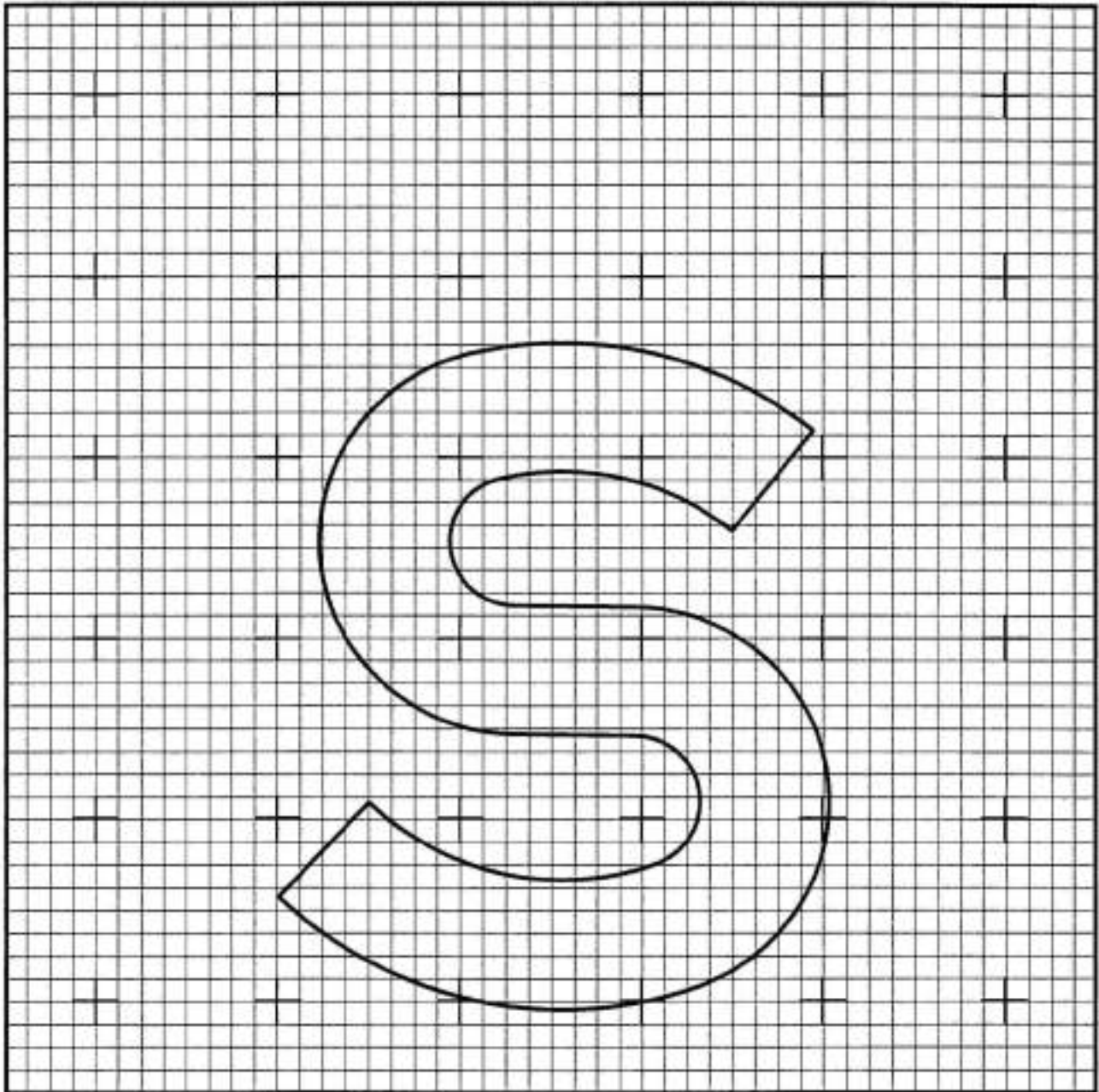
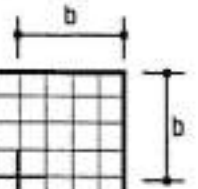
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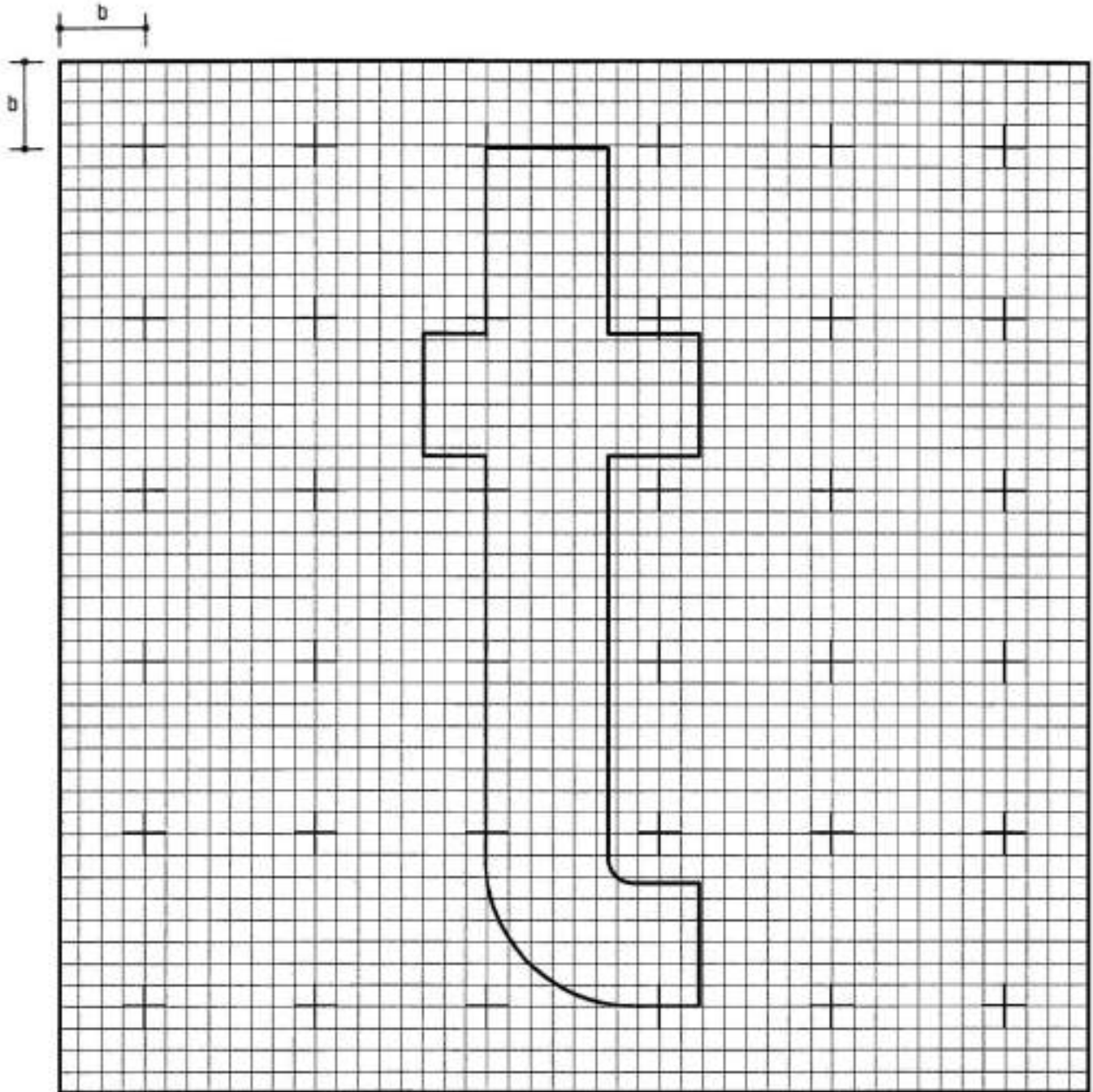
b



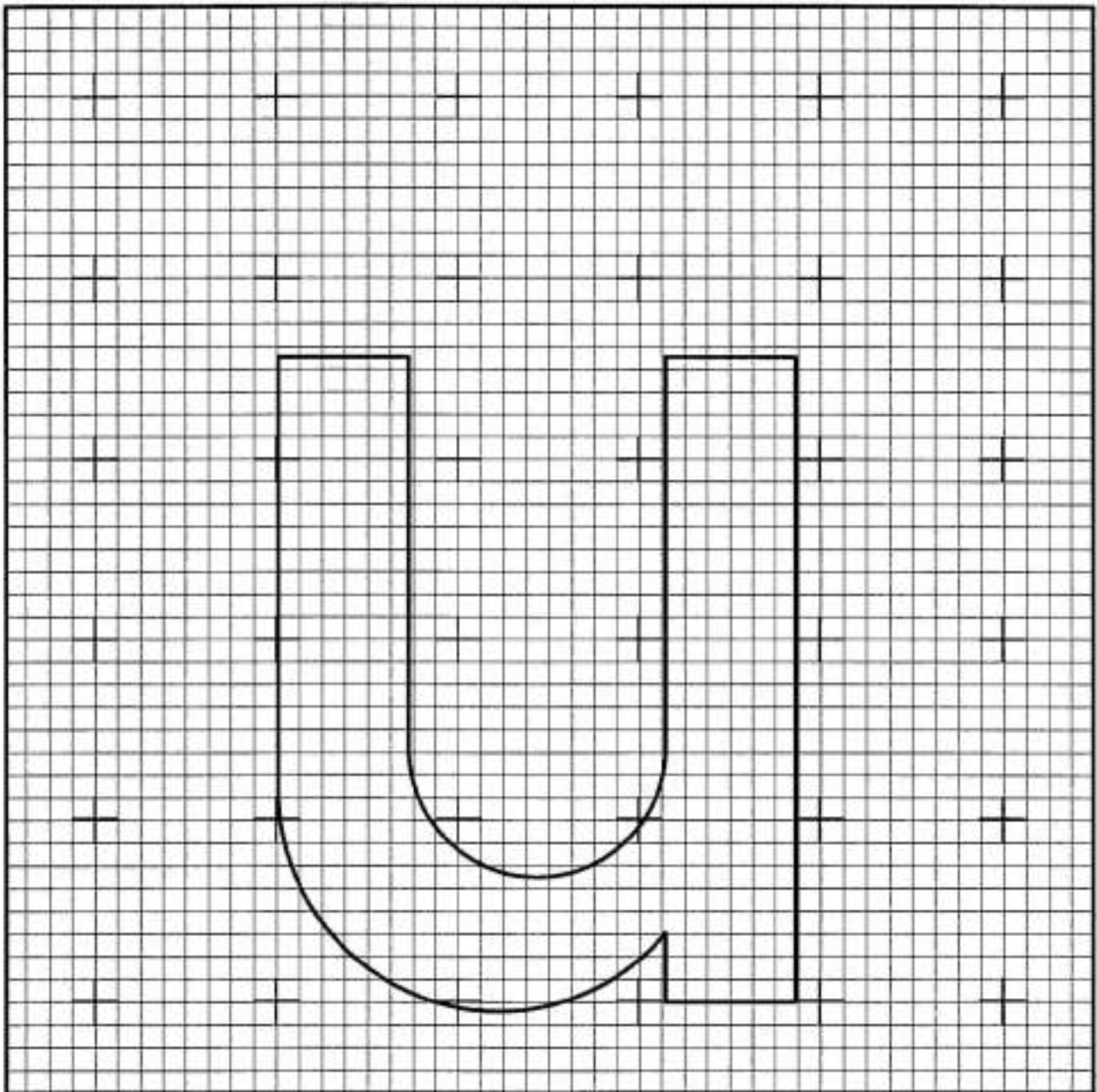
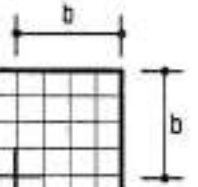


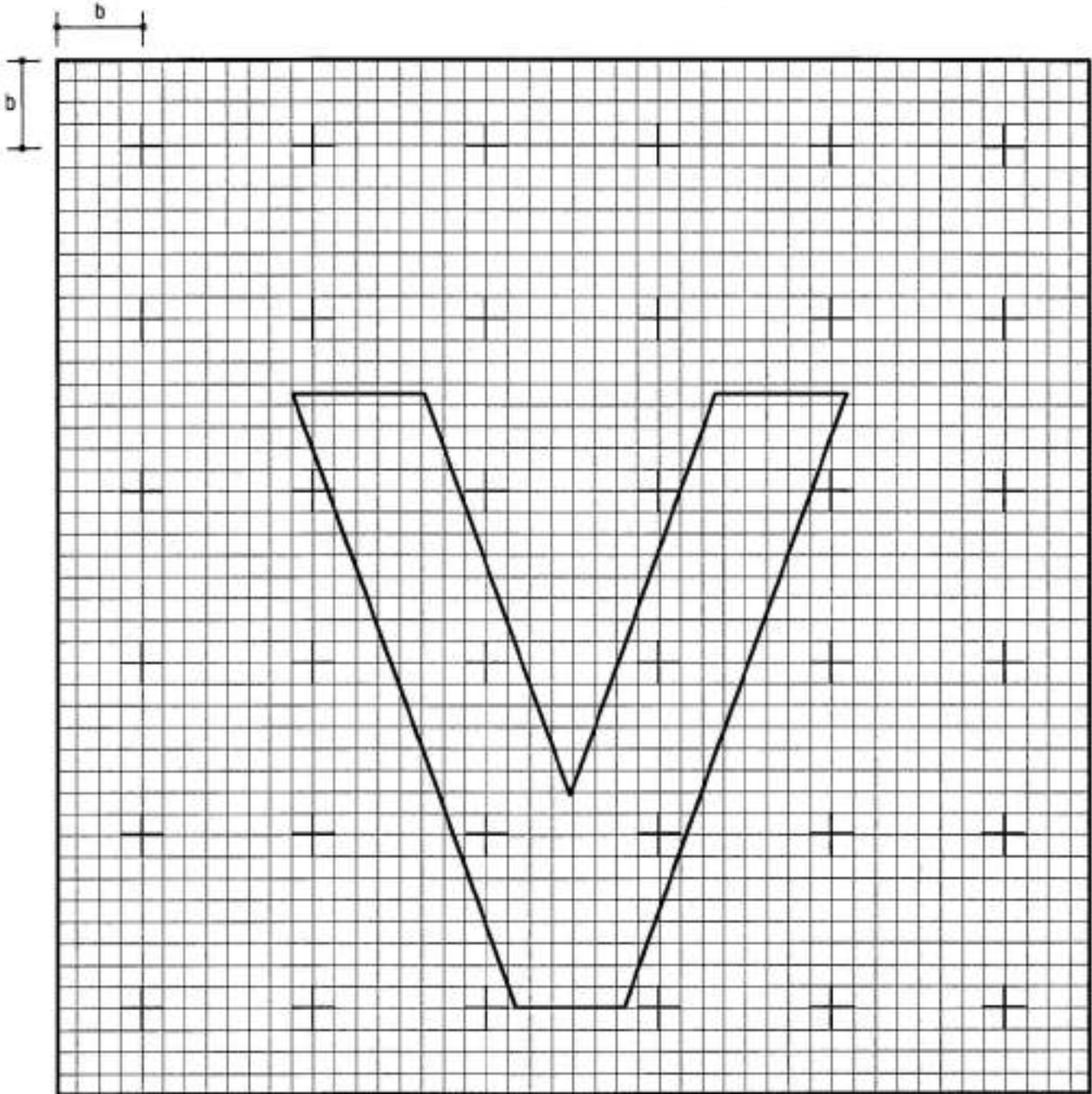
S



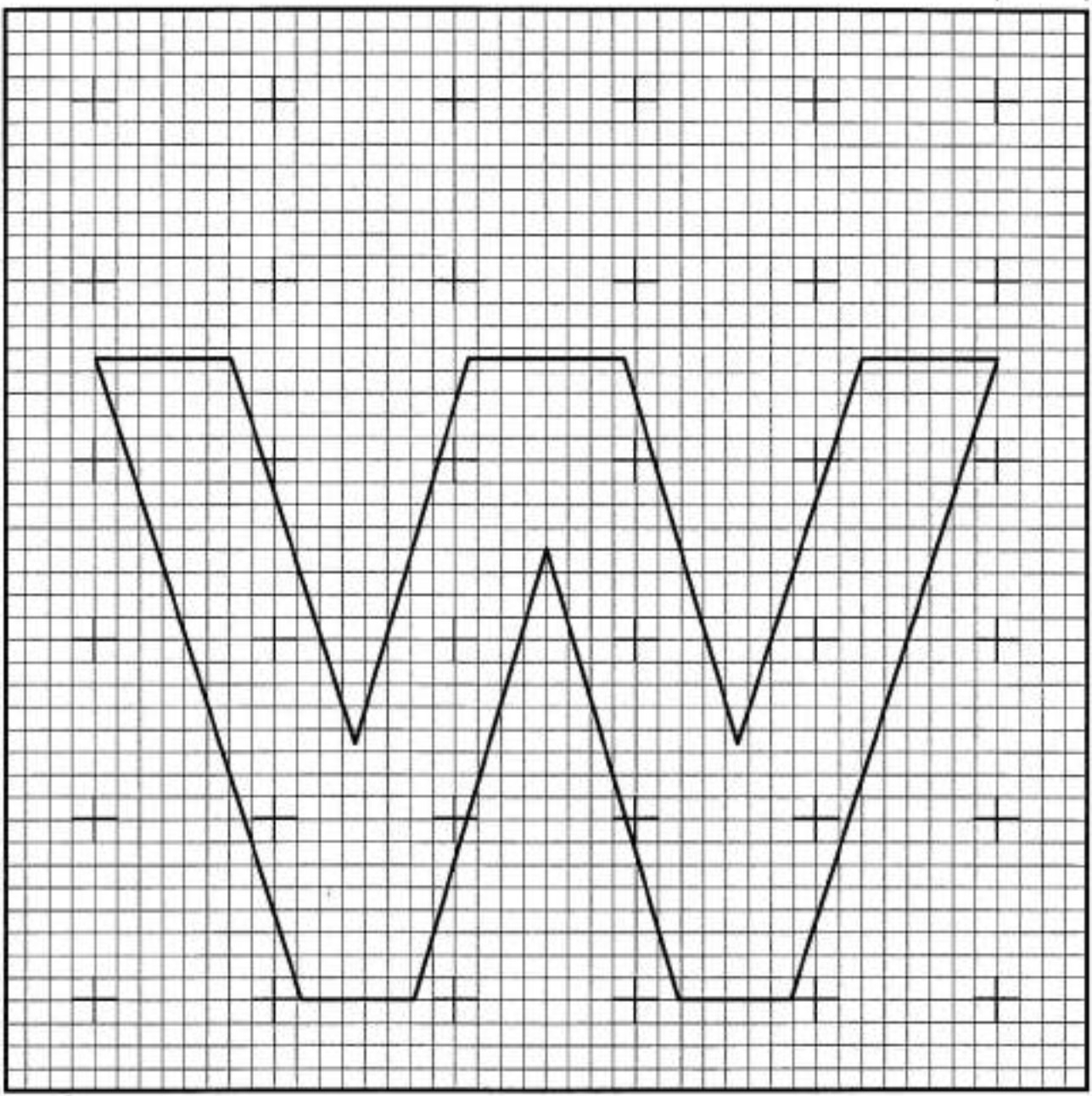
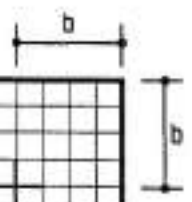


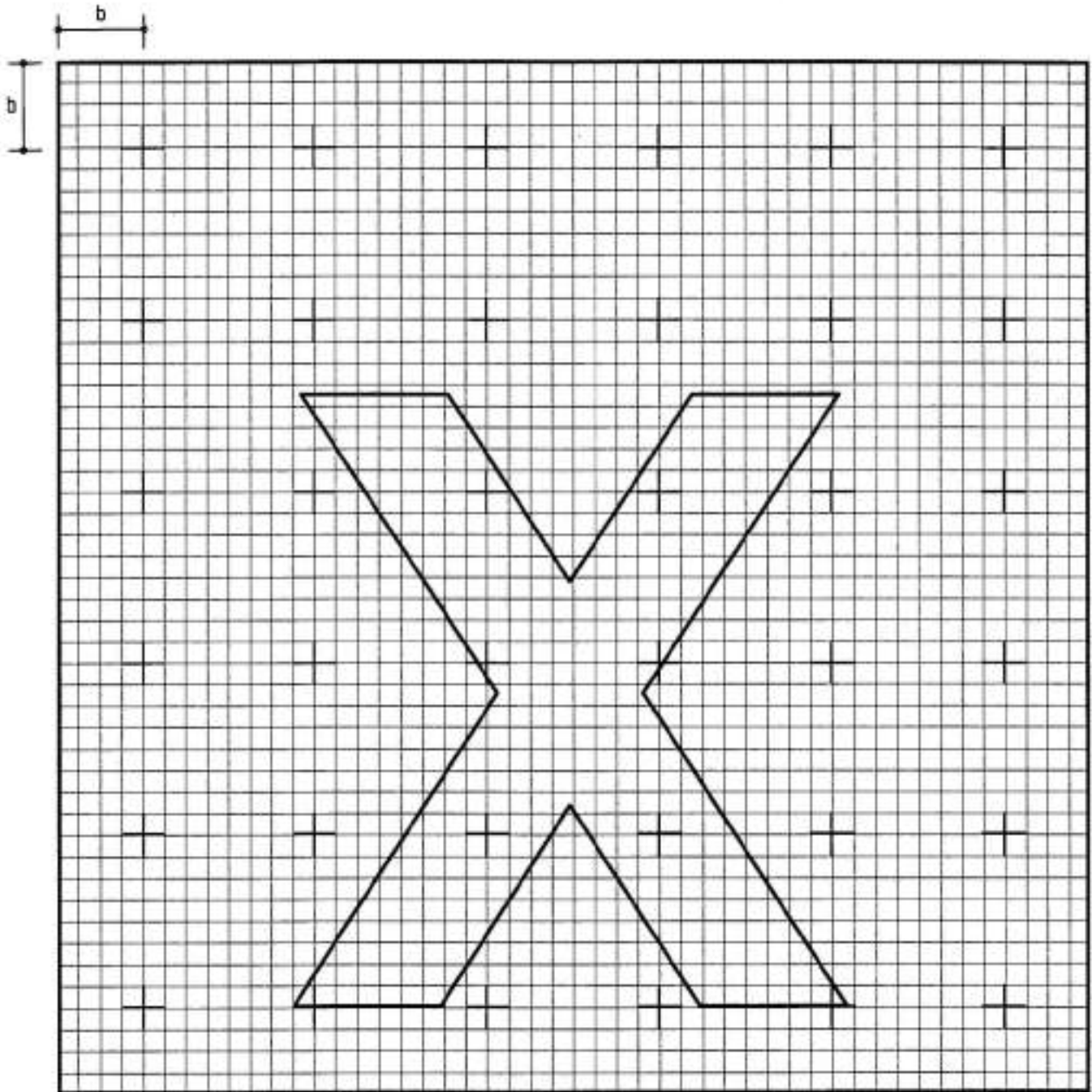


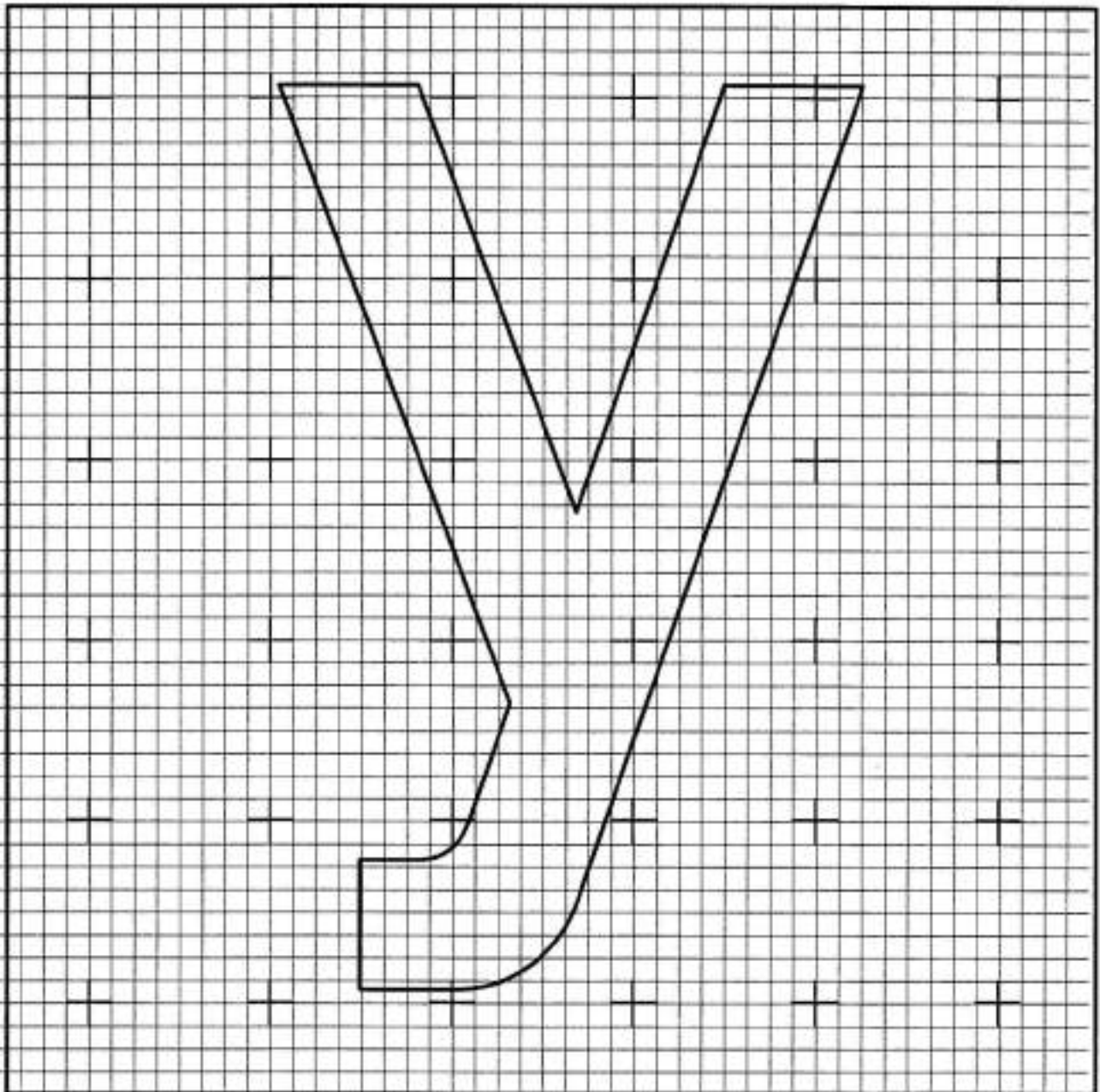
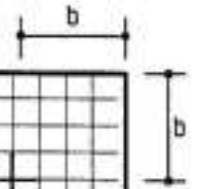




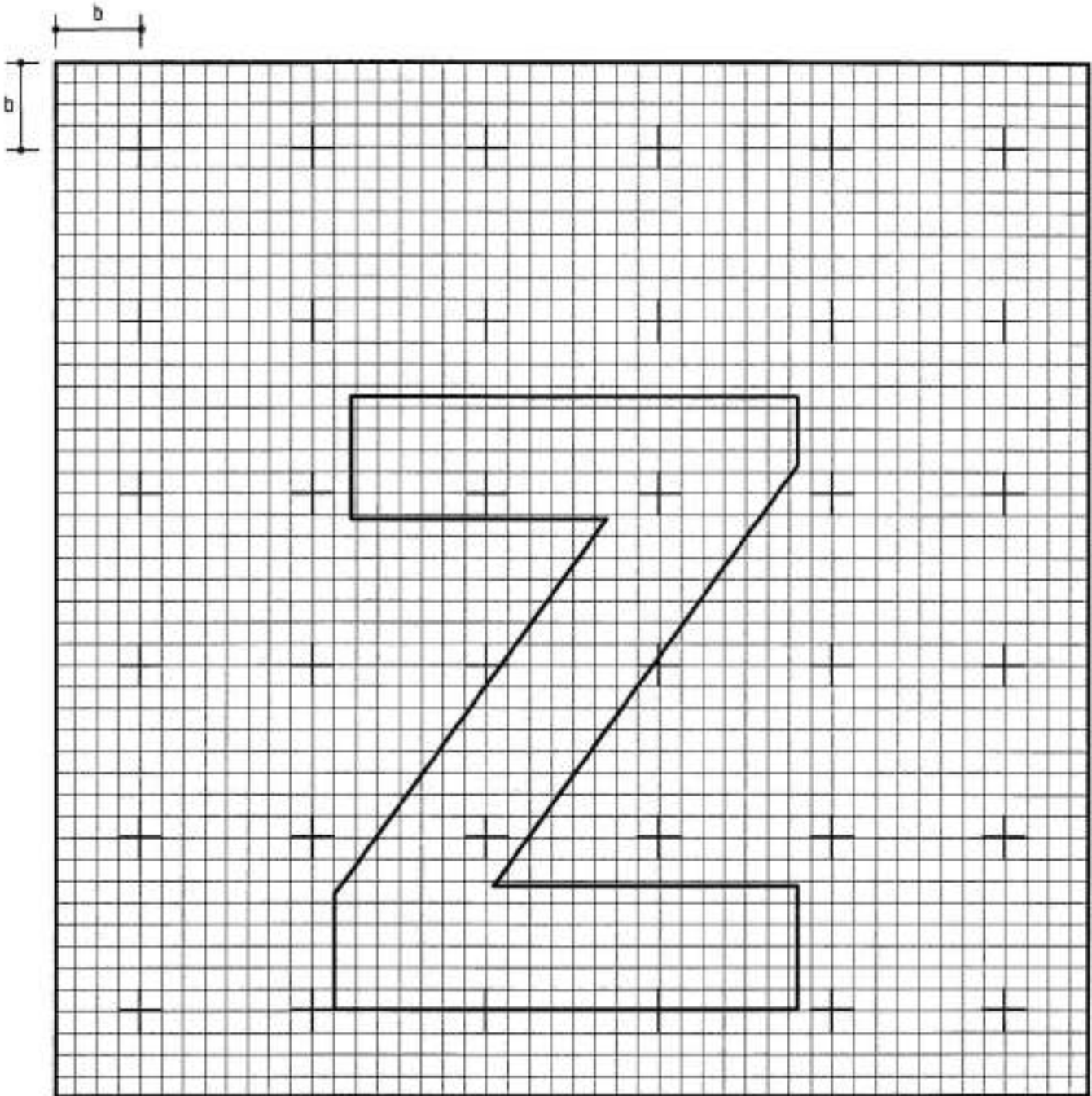
W



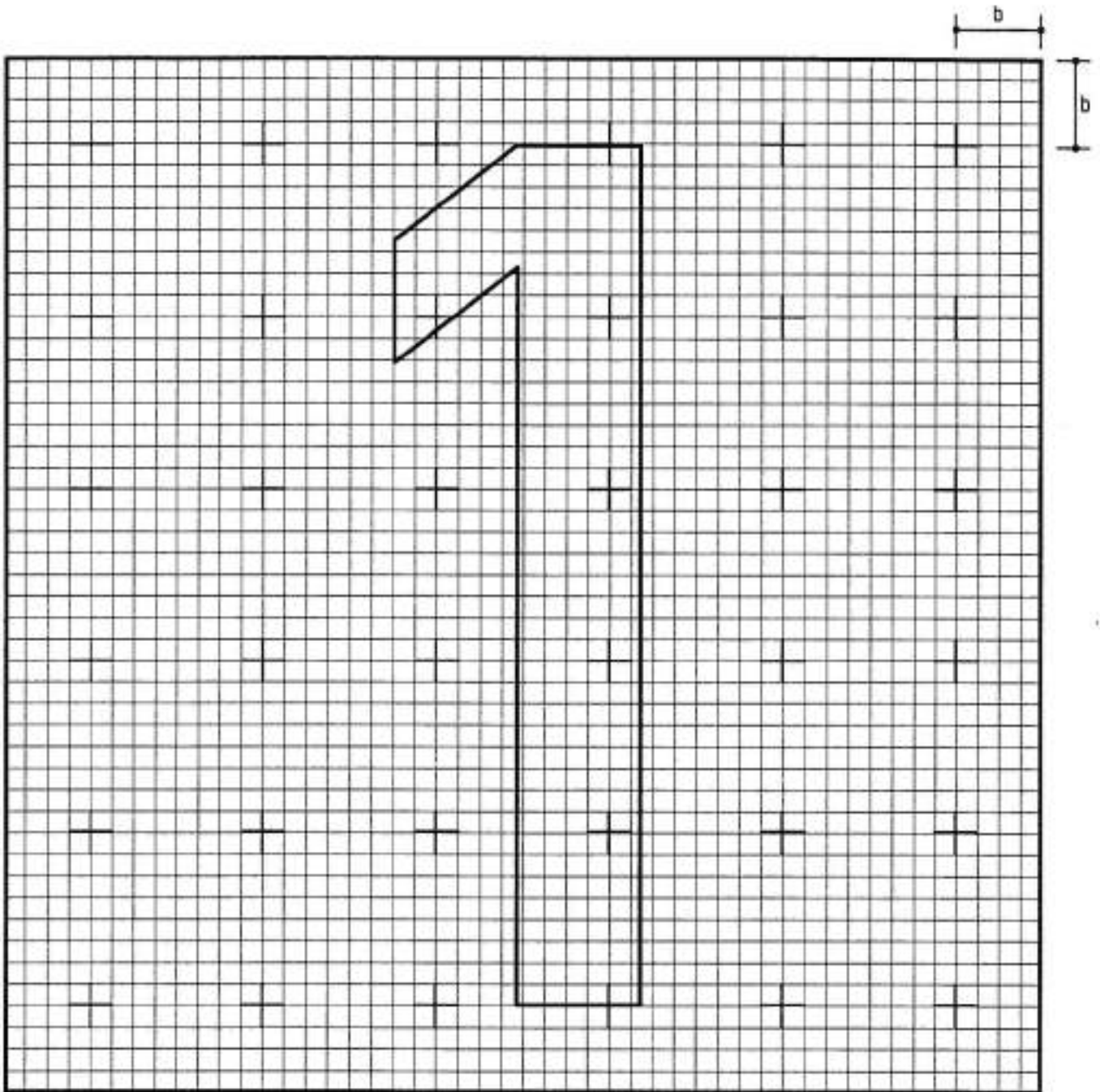




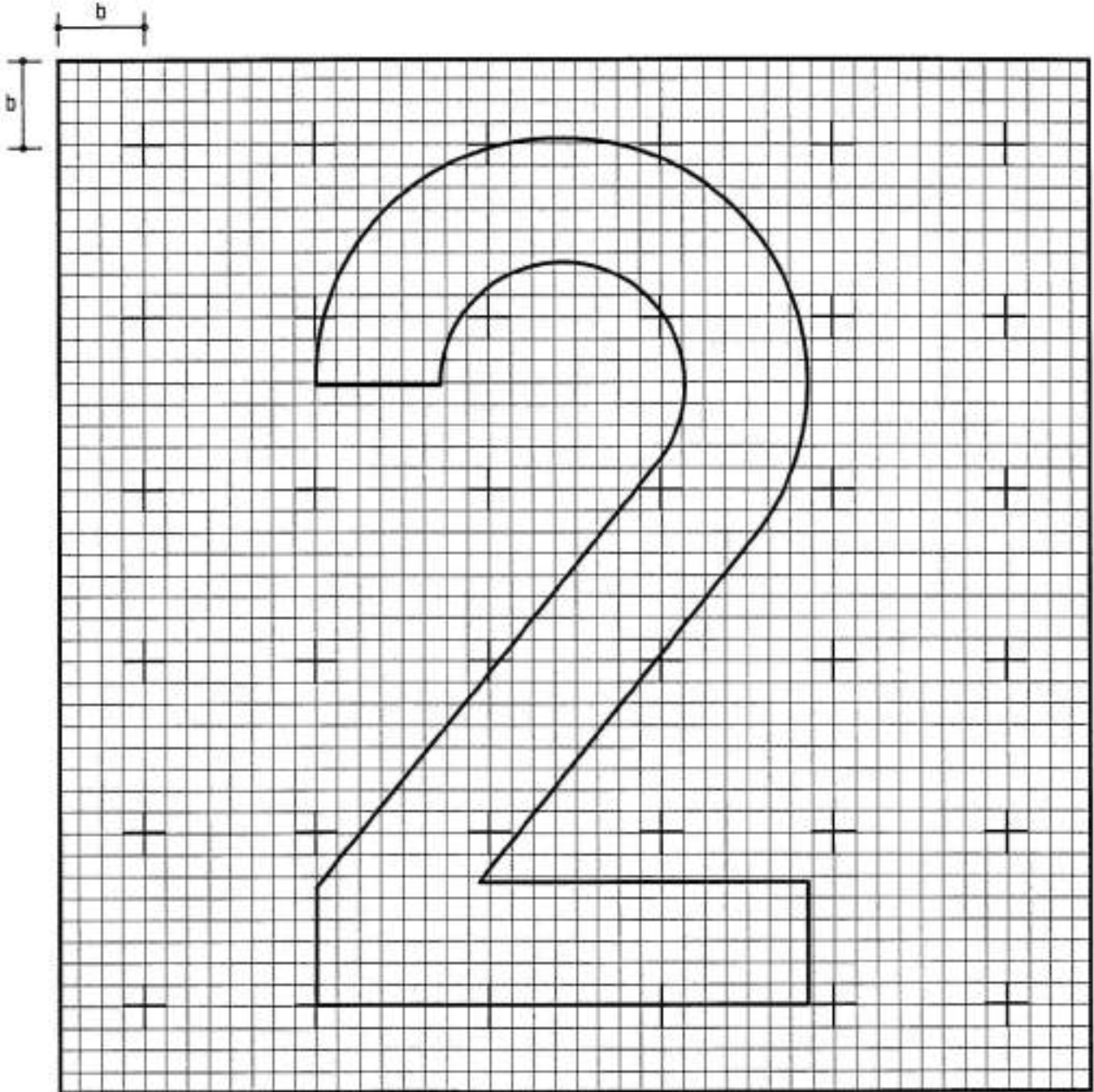
Z



1

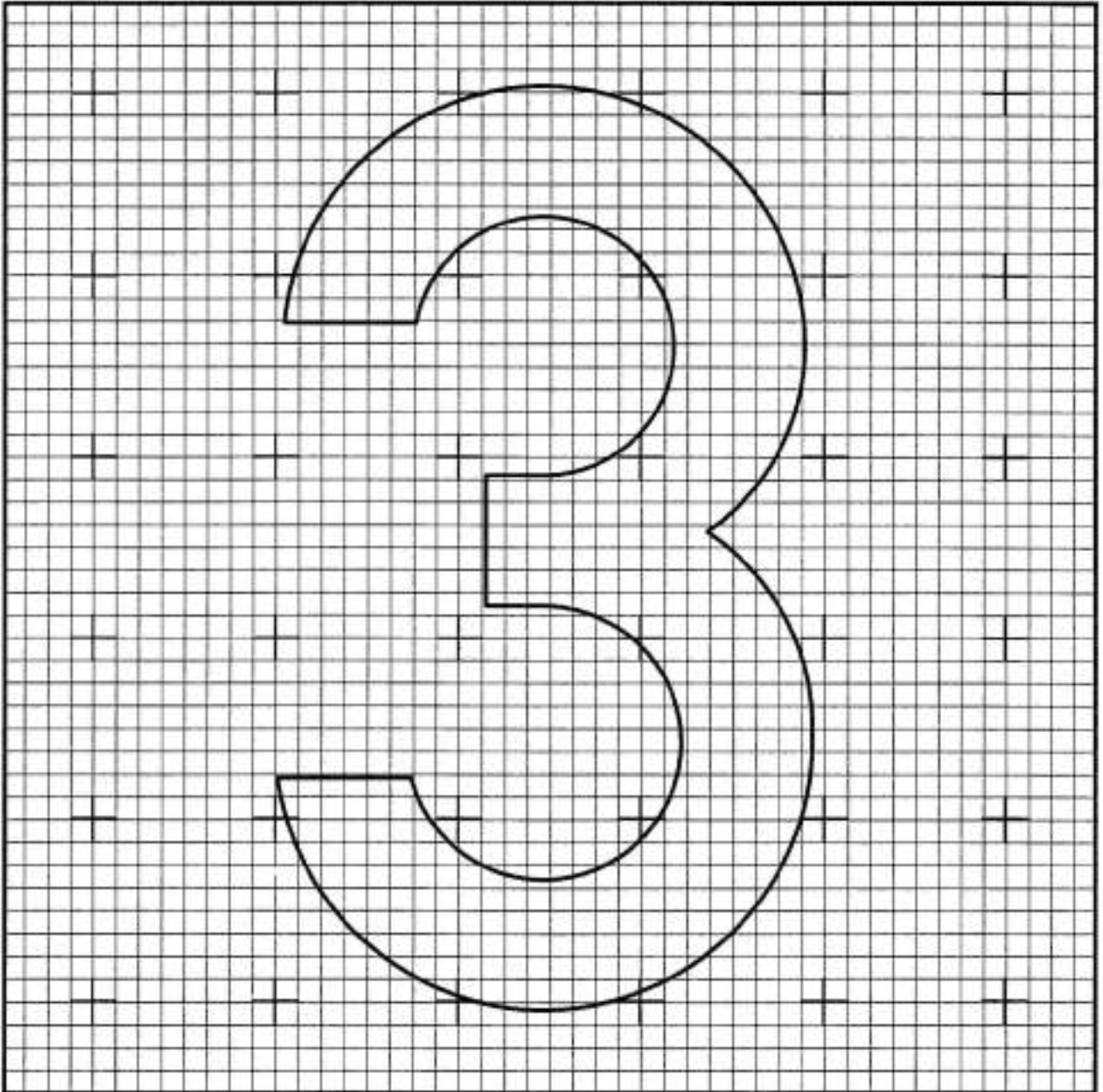
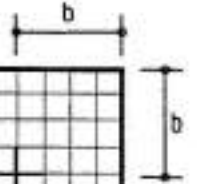


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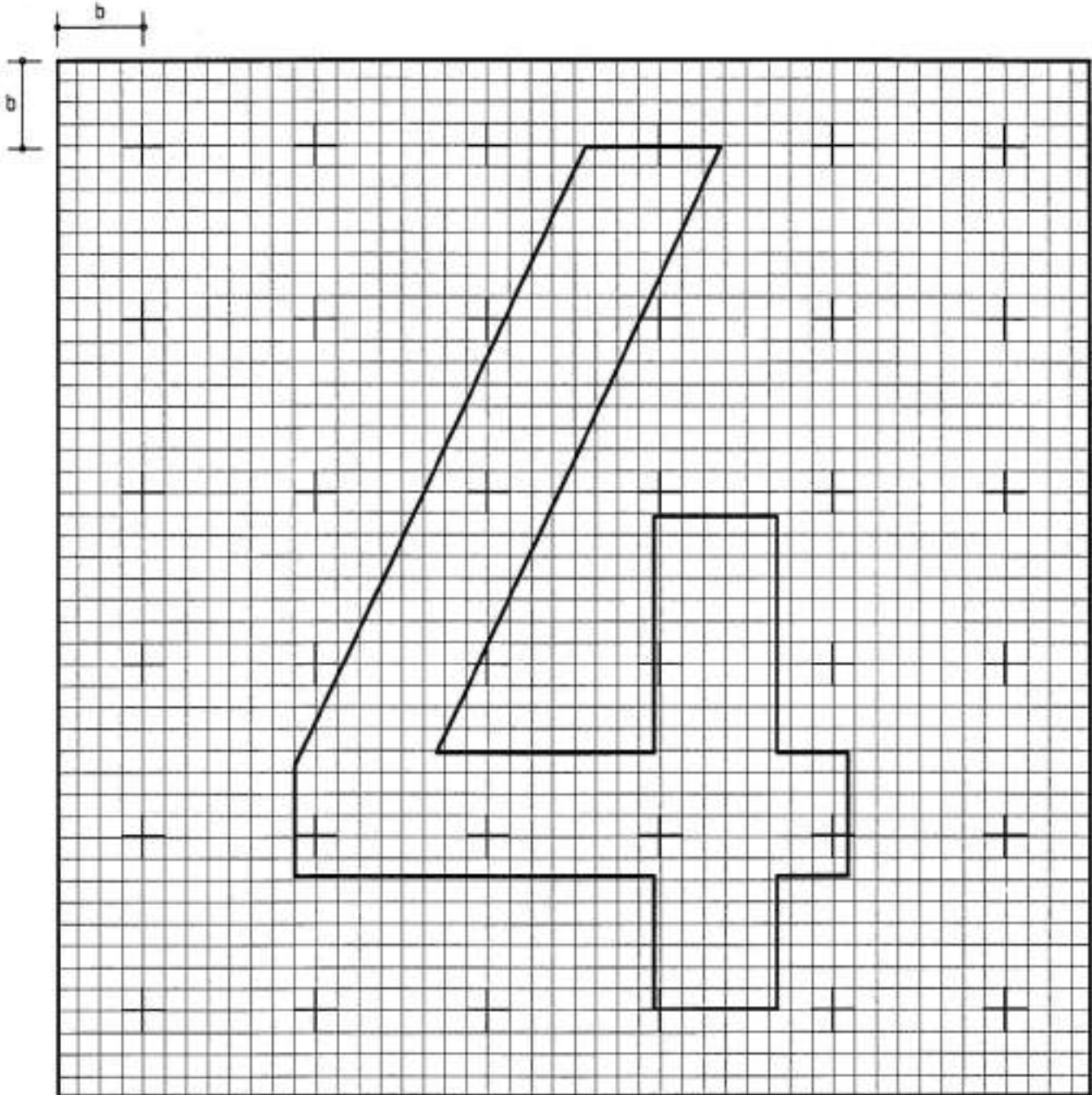




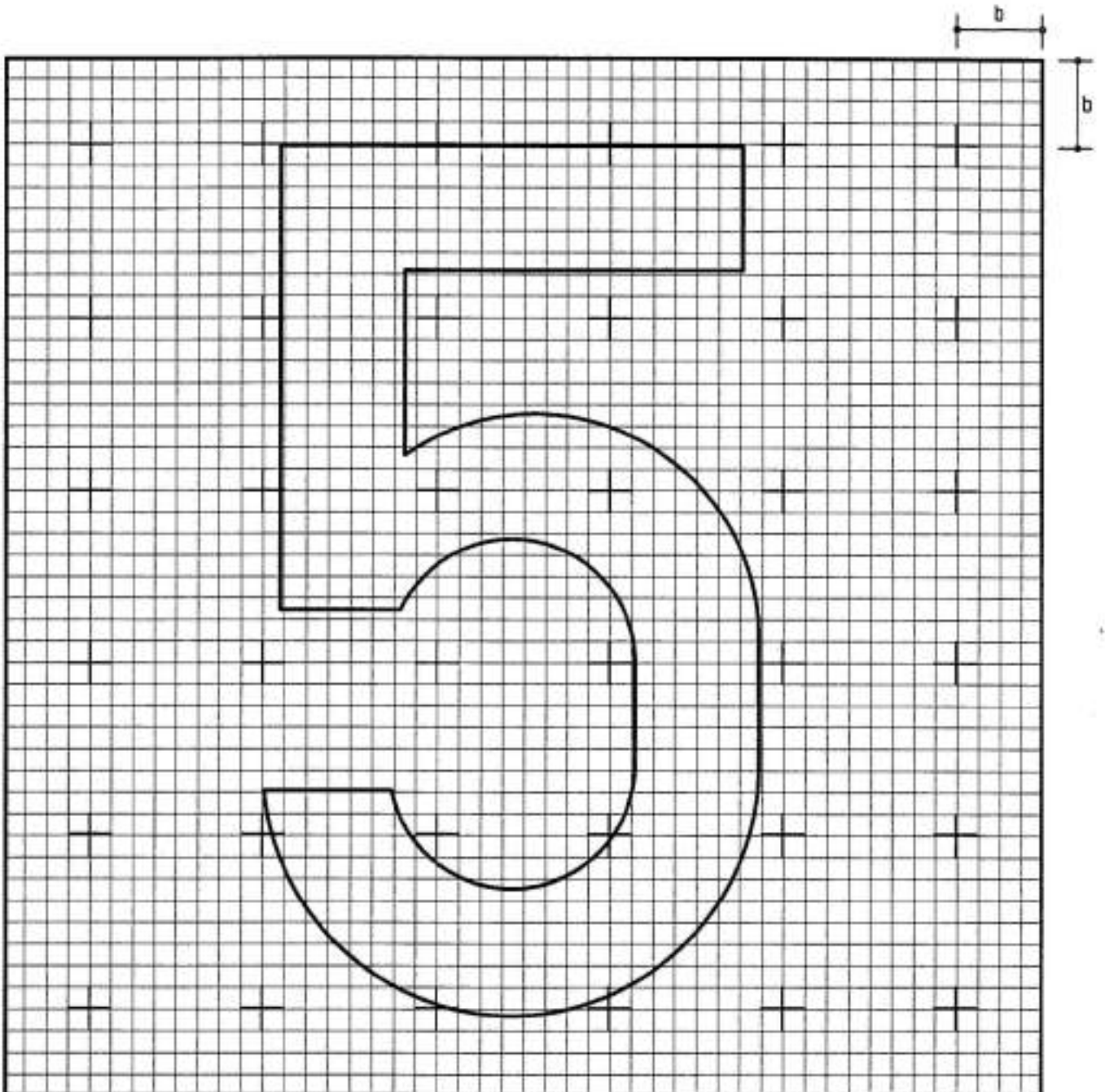
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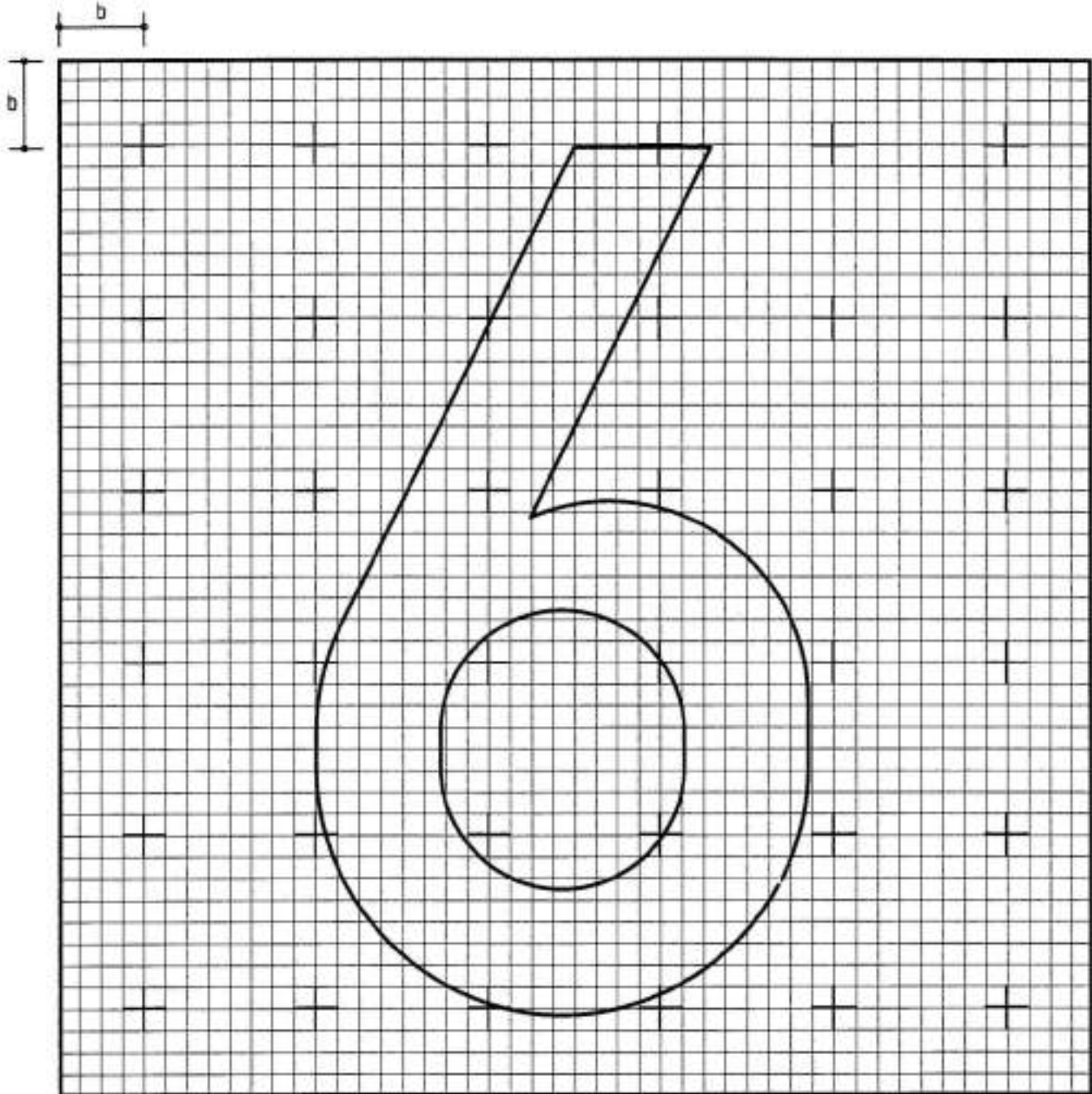


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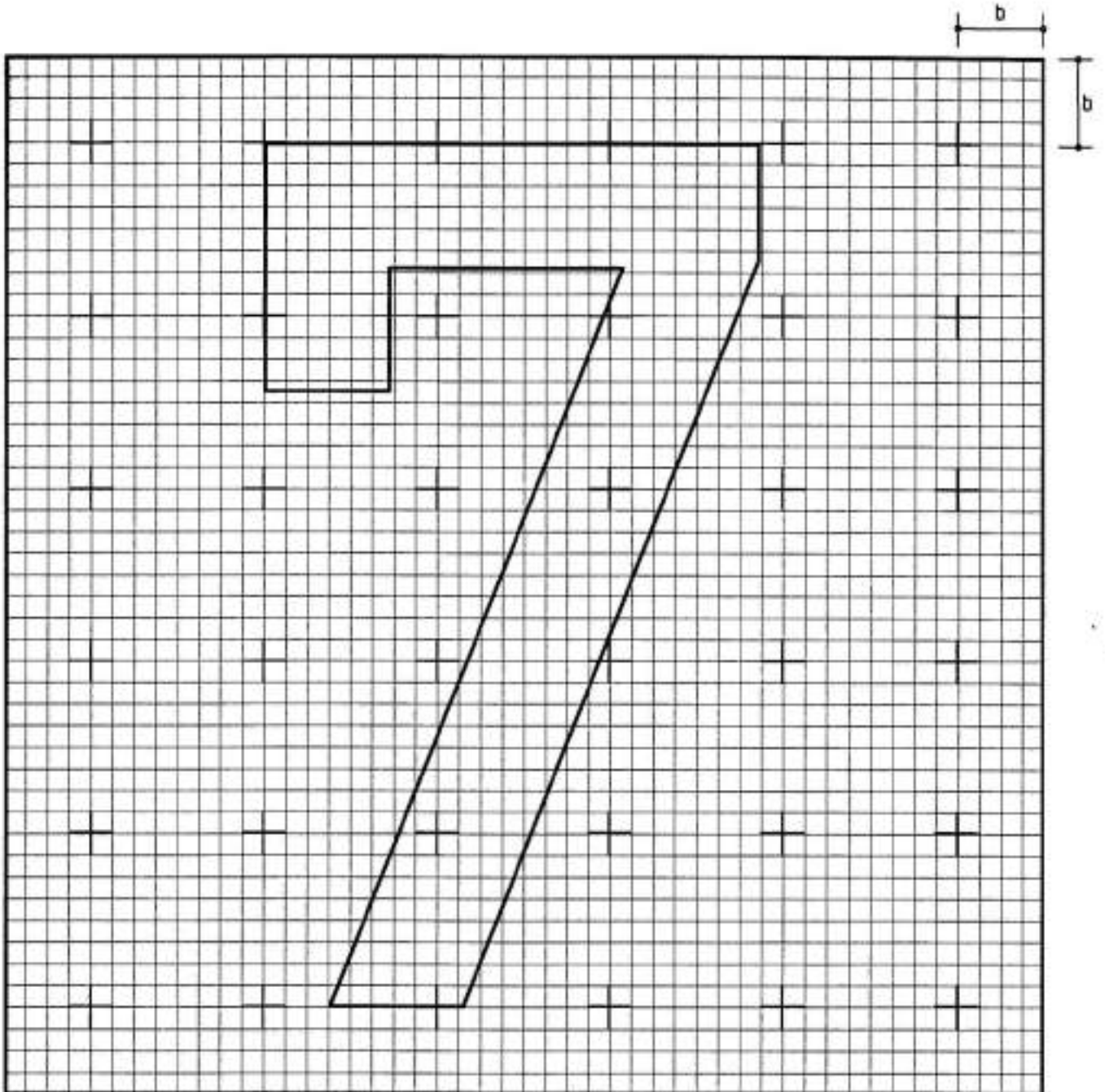


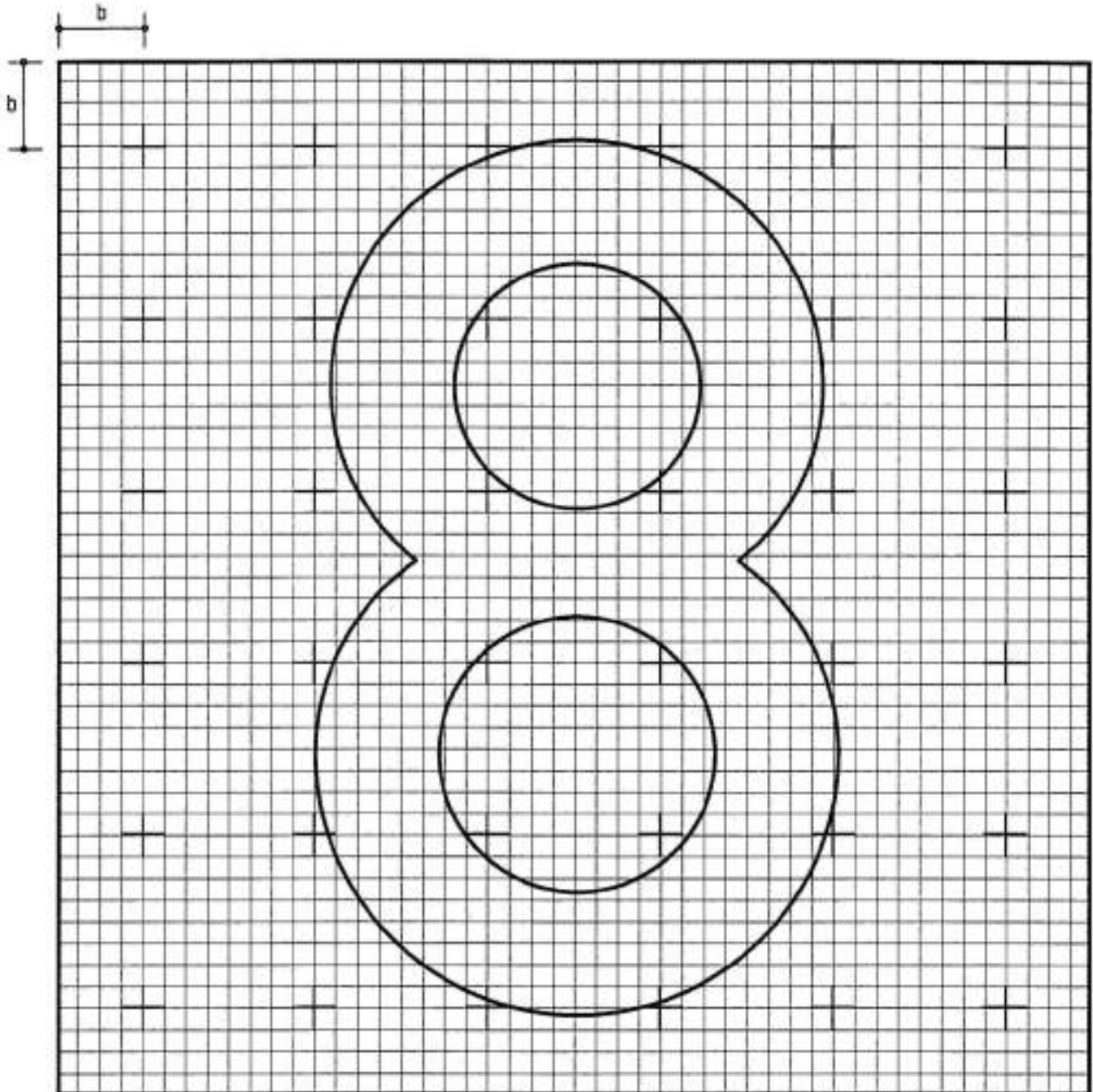
5

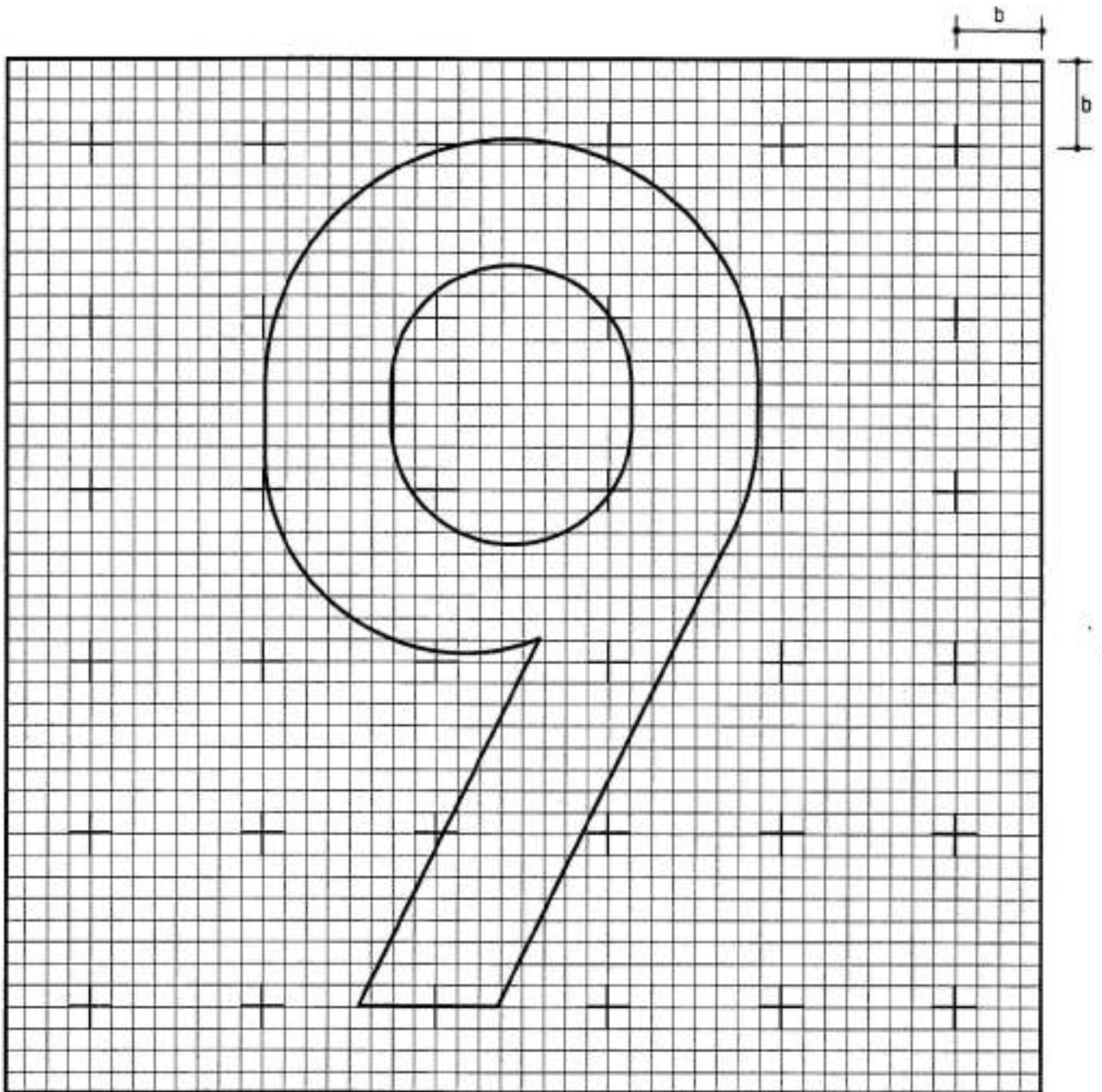


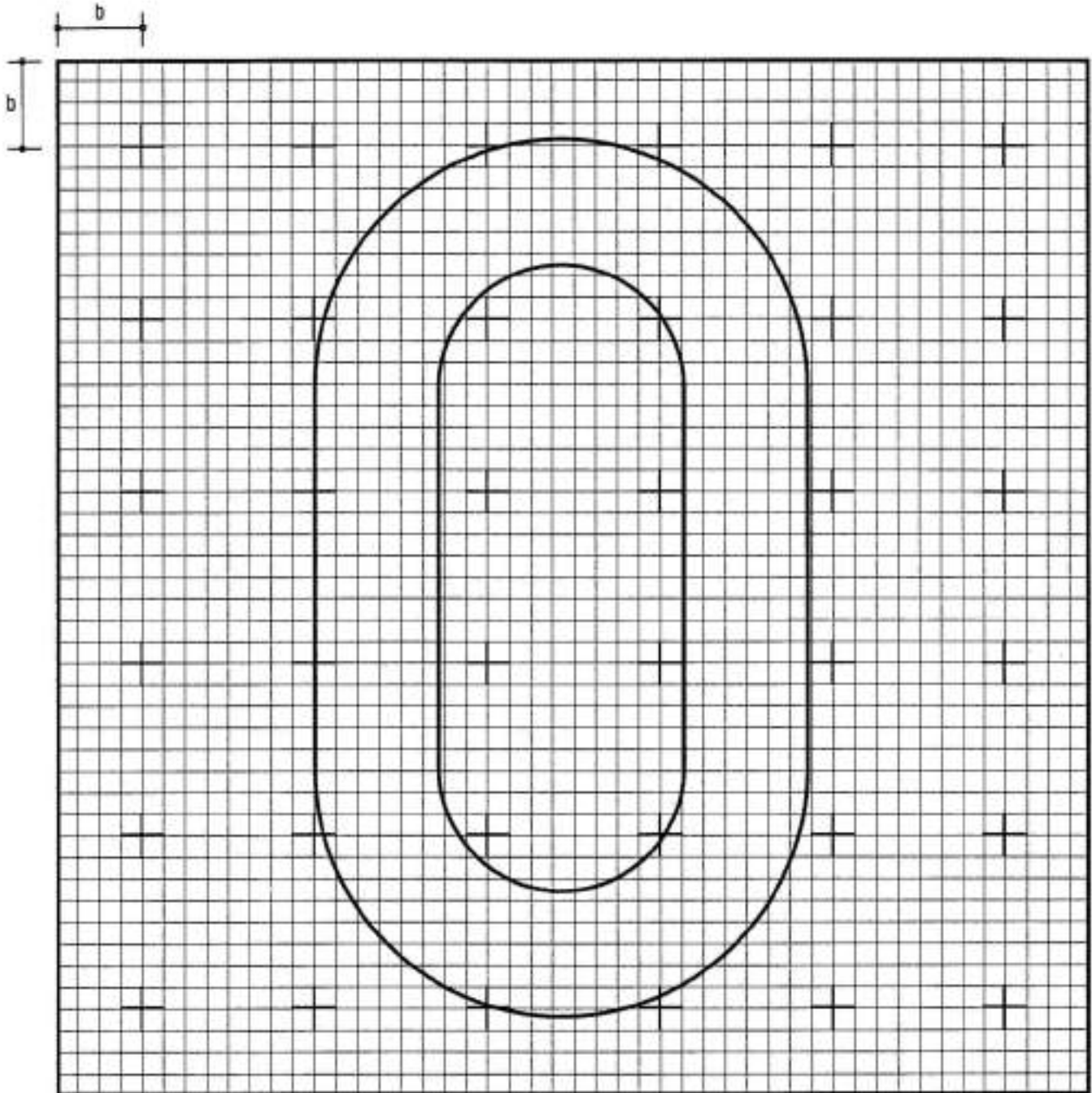


7



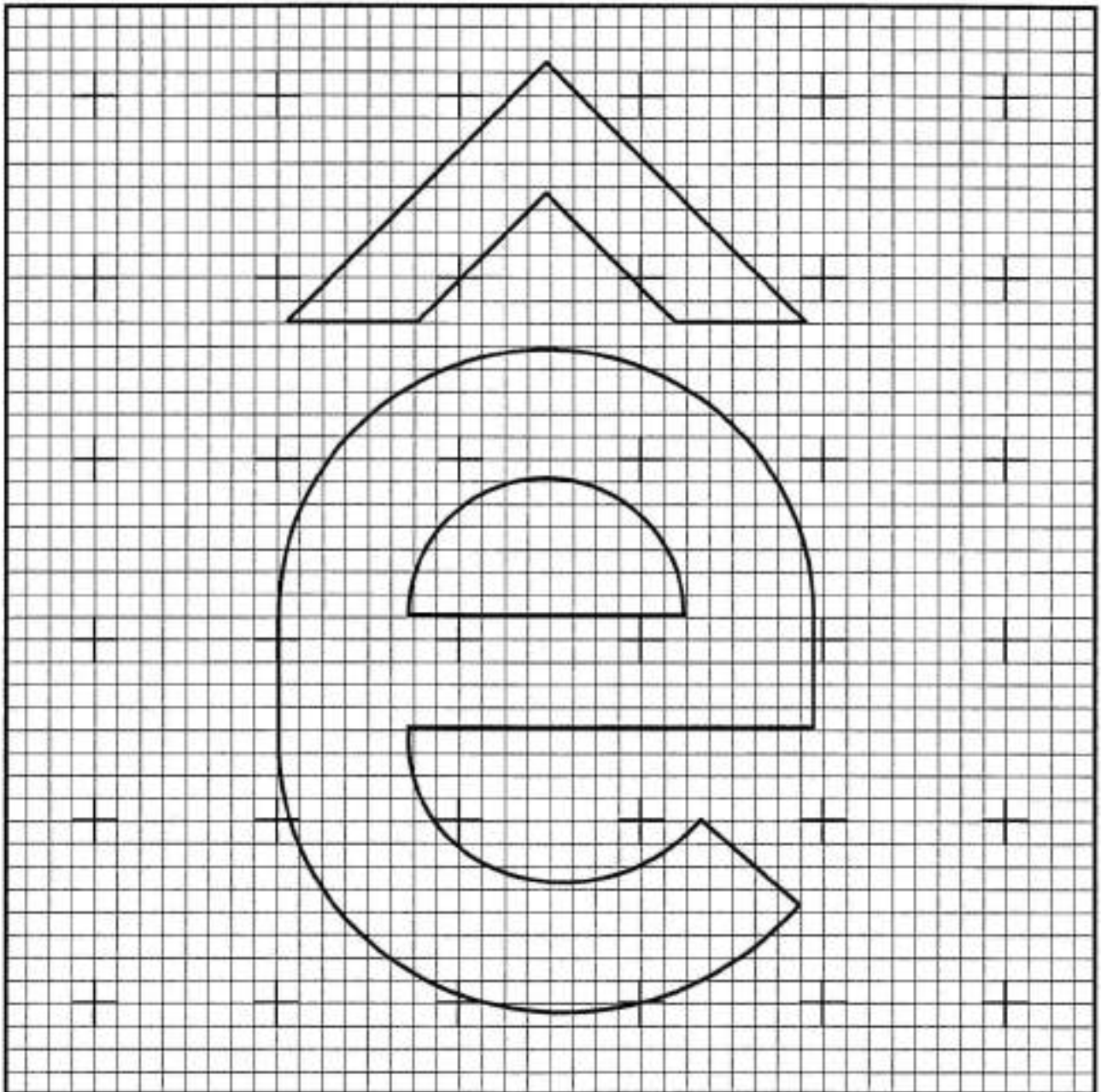
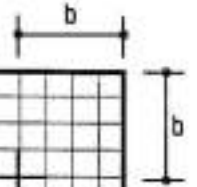




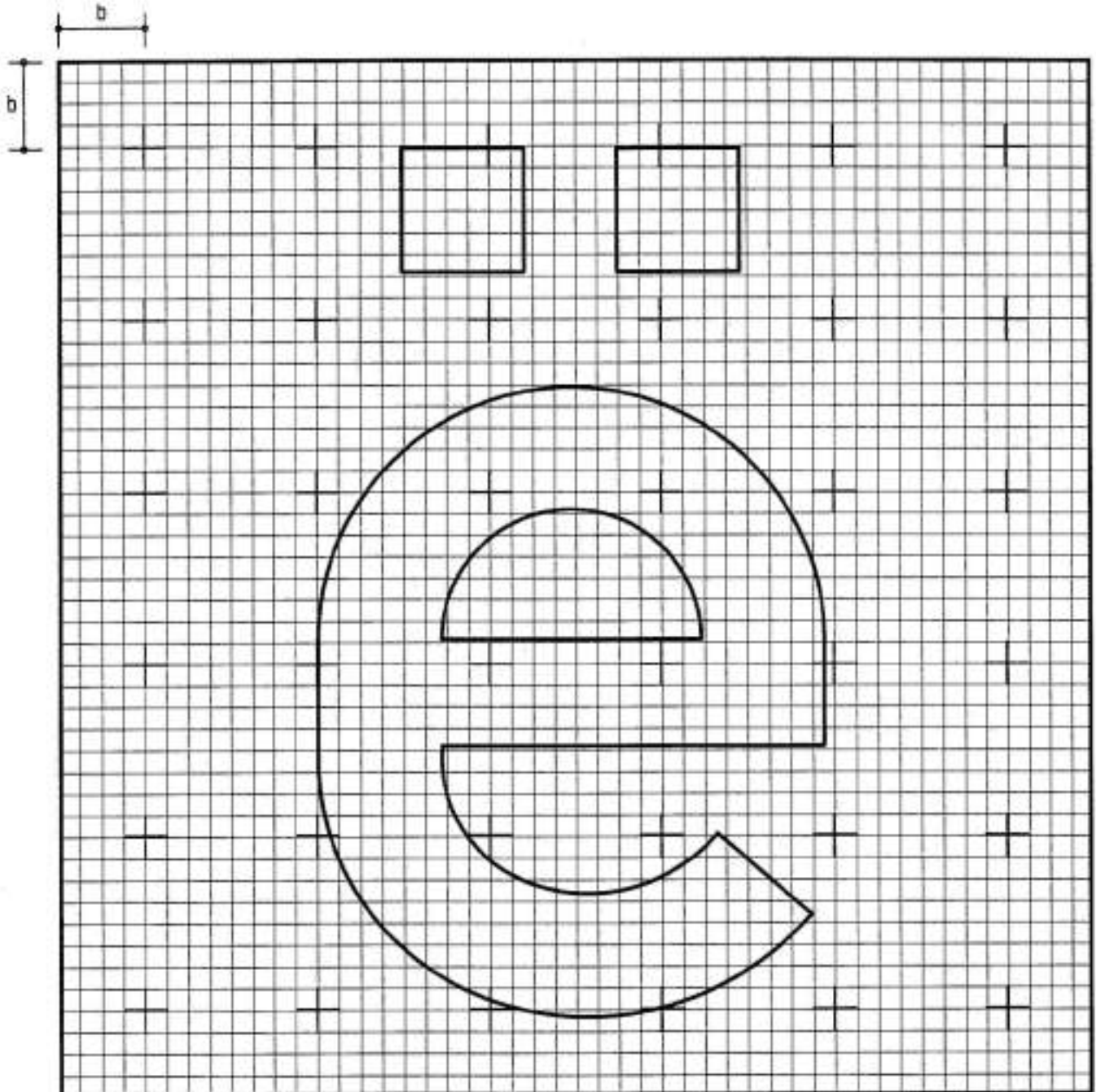


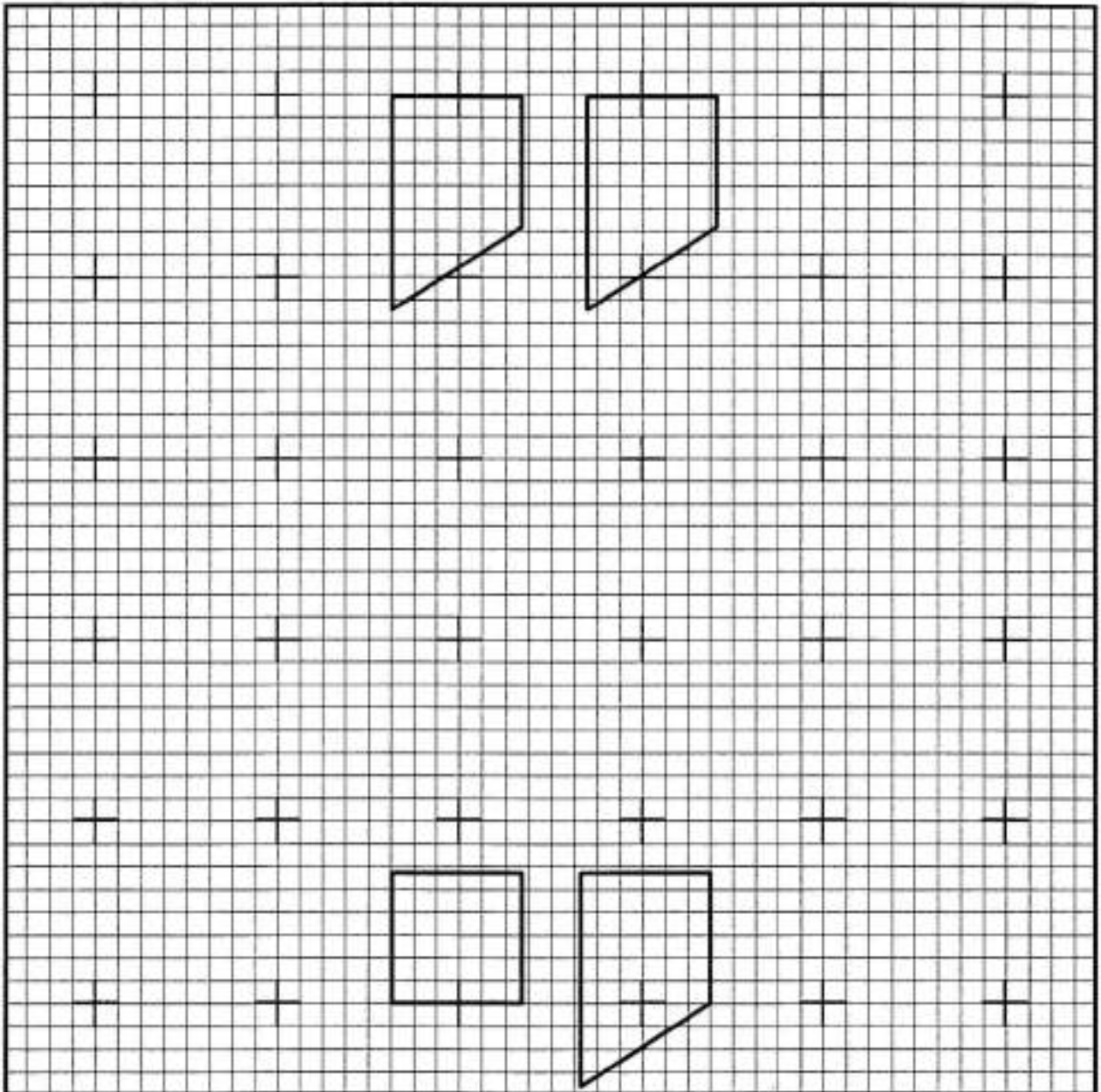
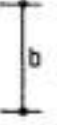
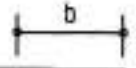


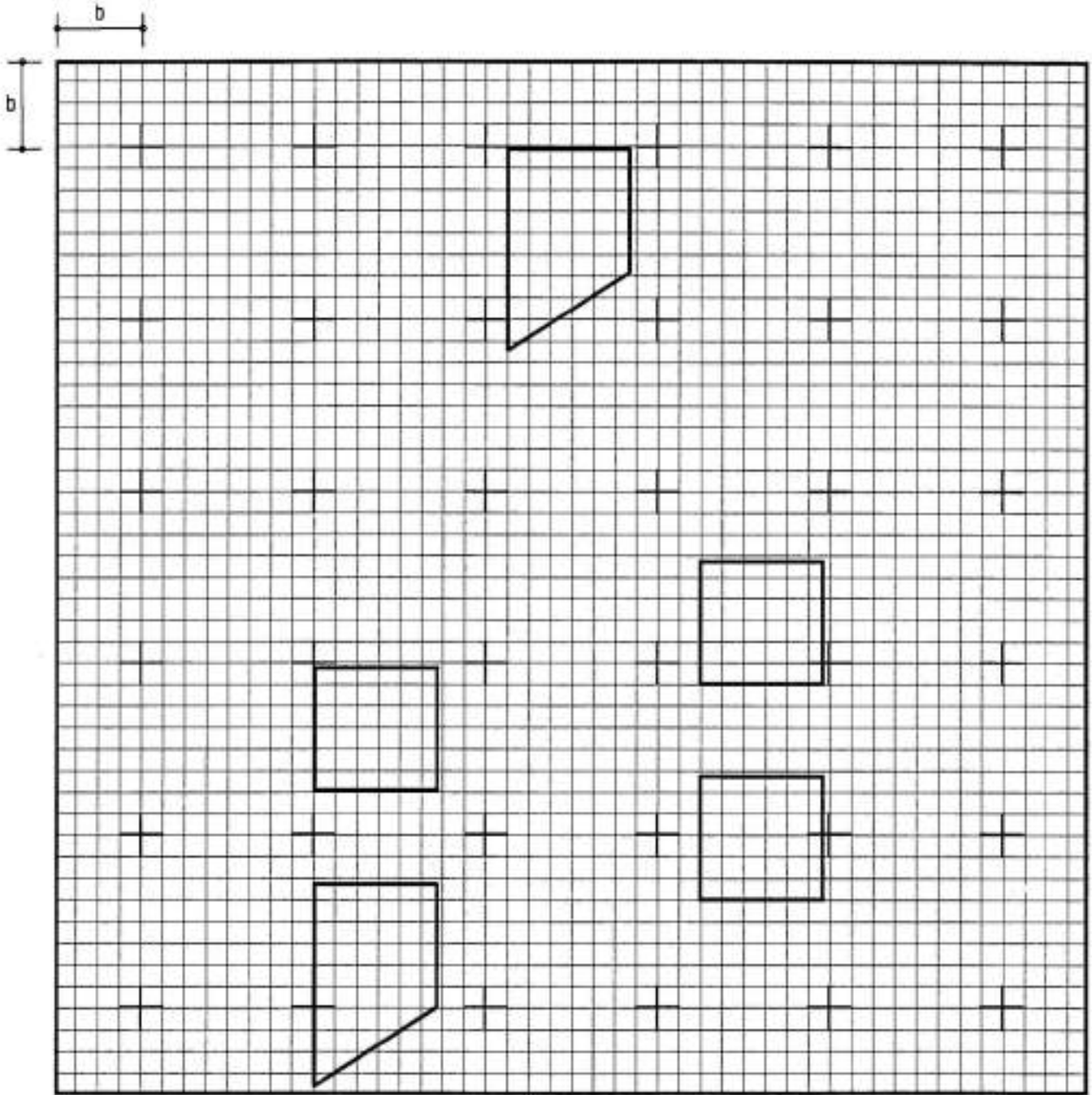
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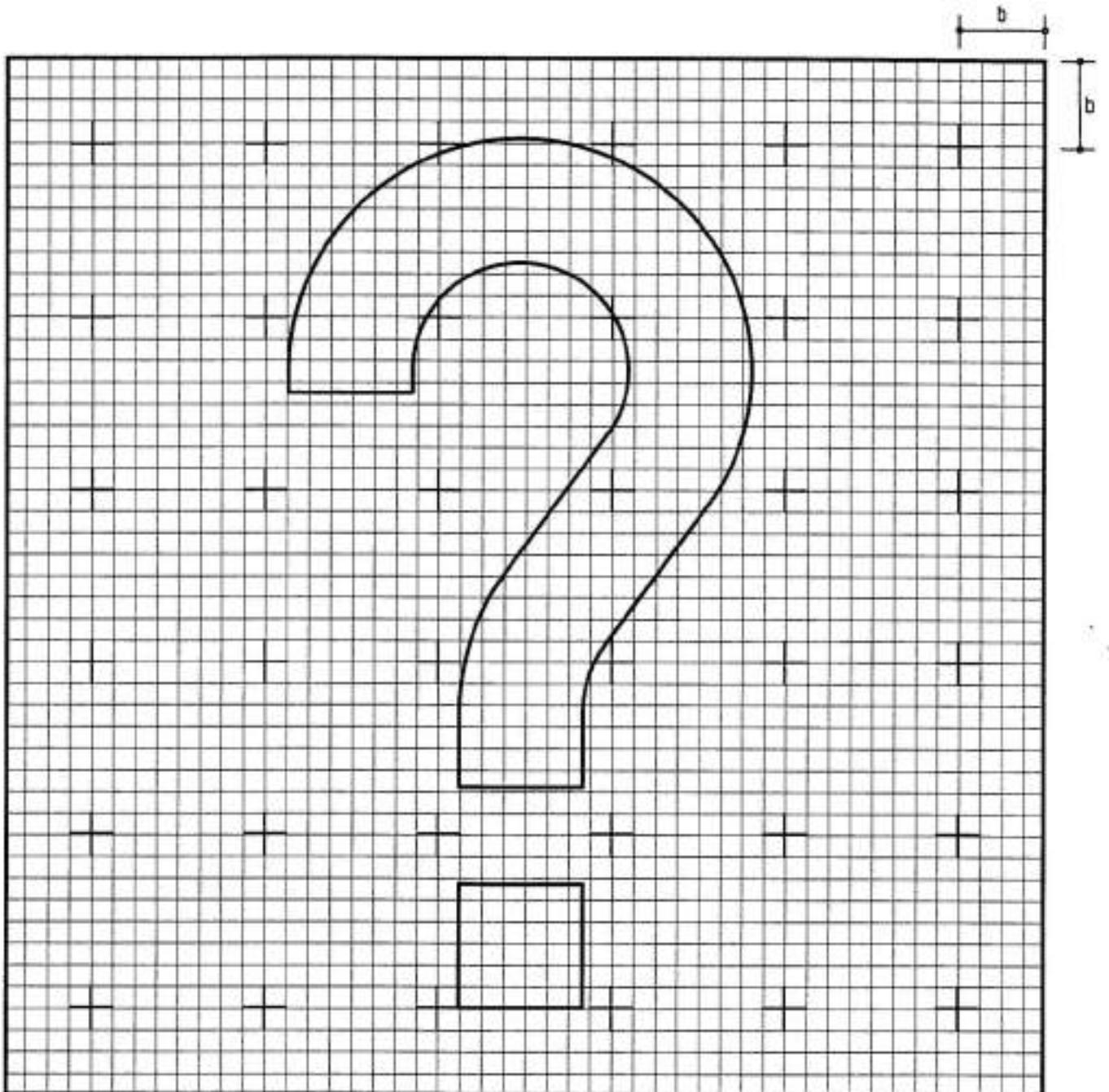


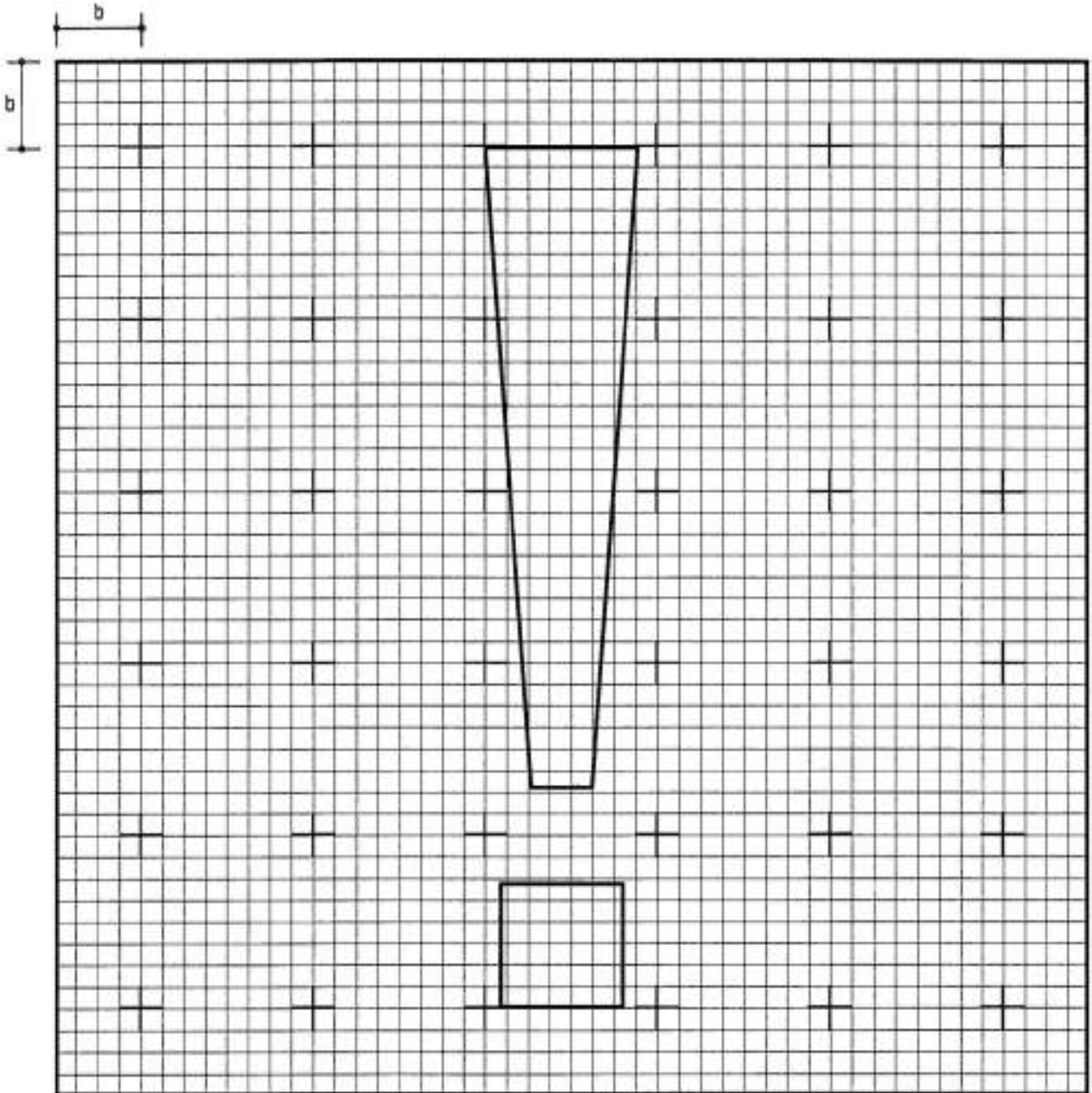
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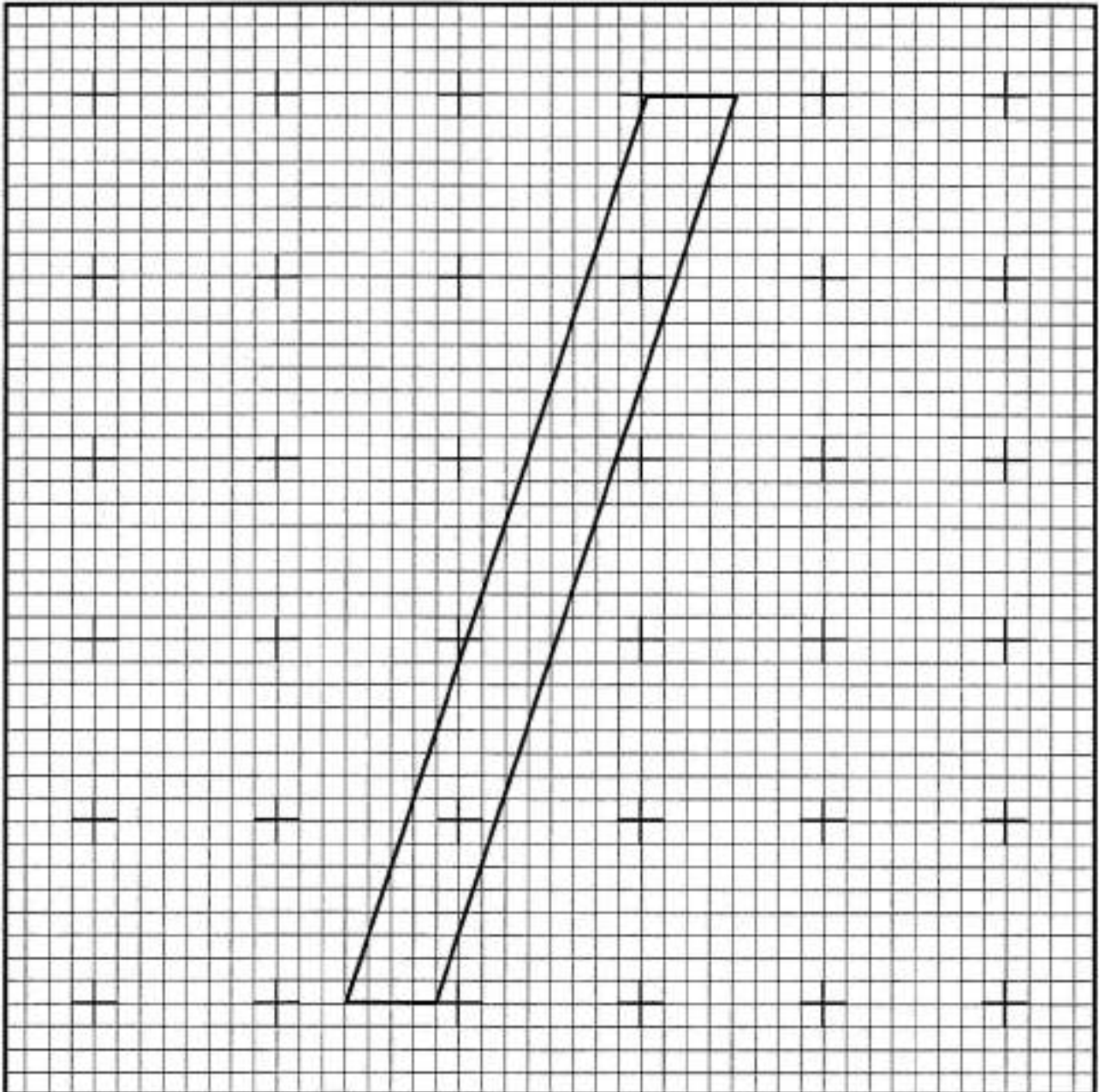
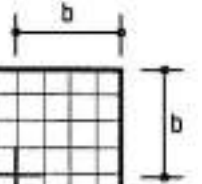


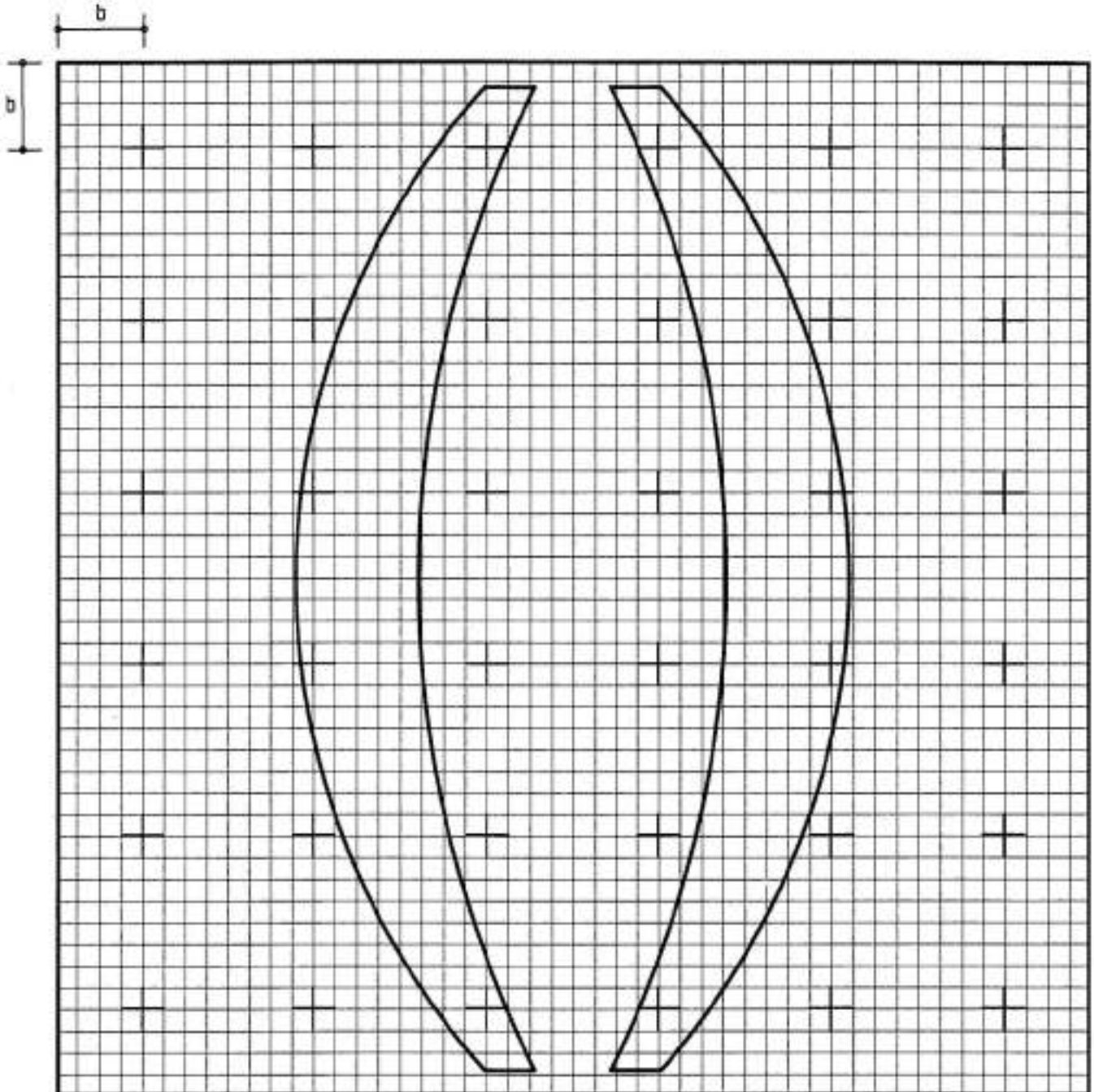




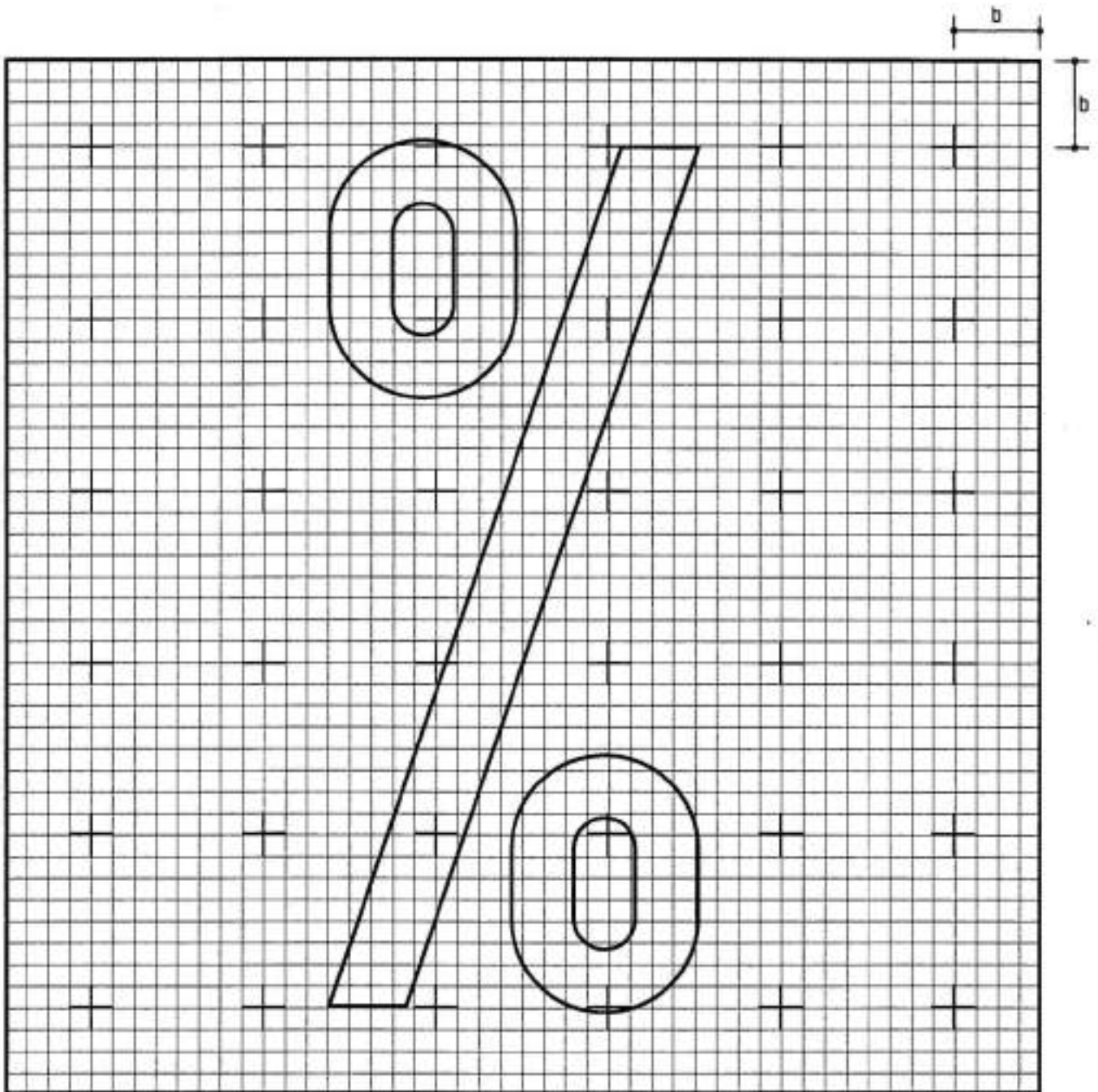


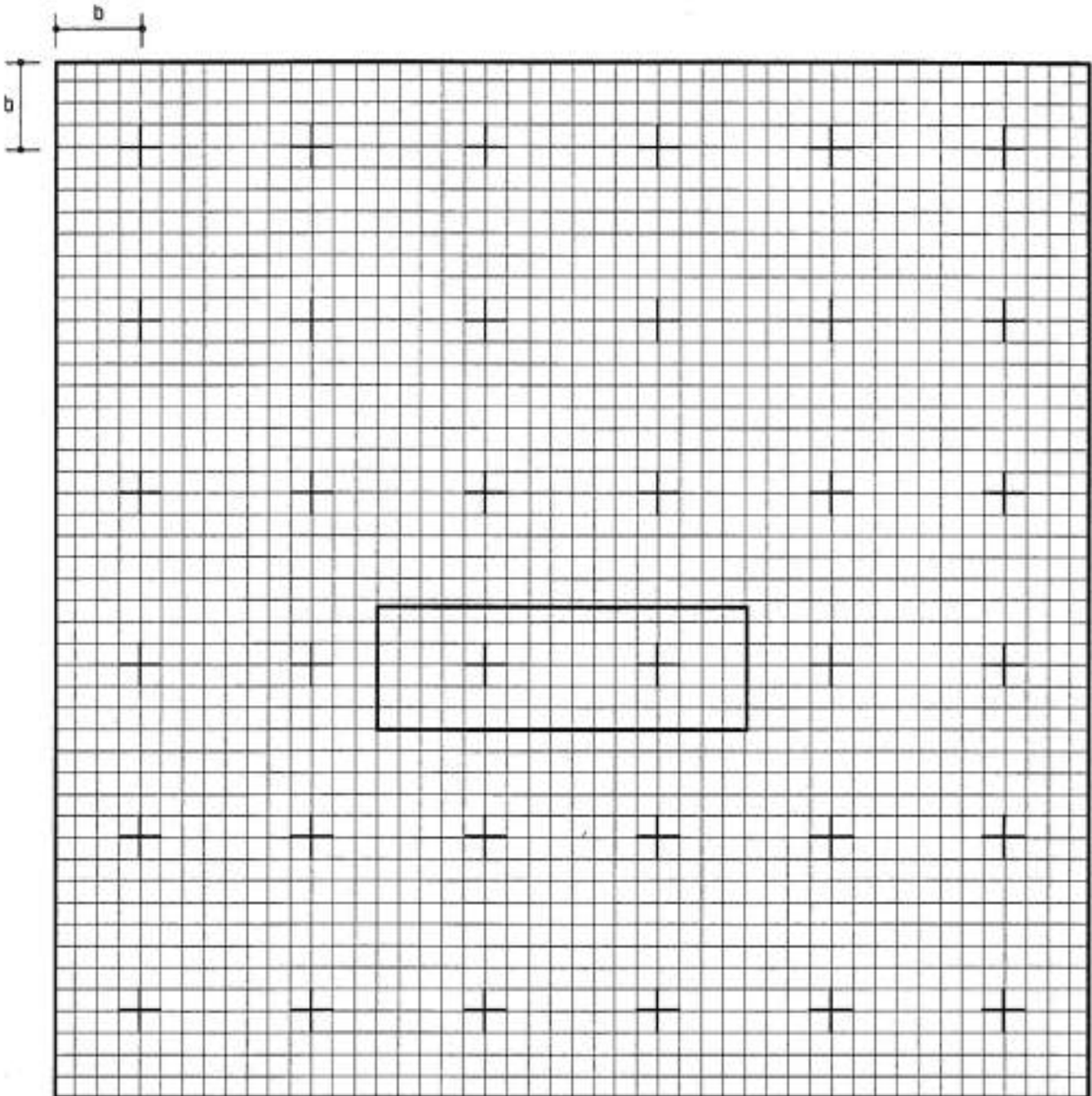


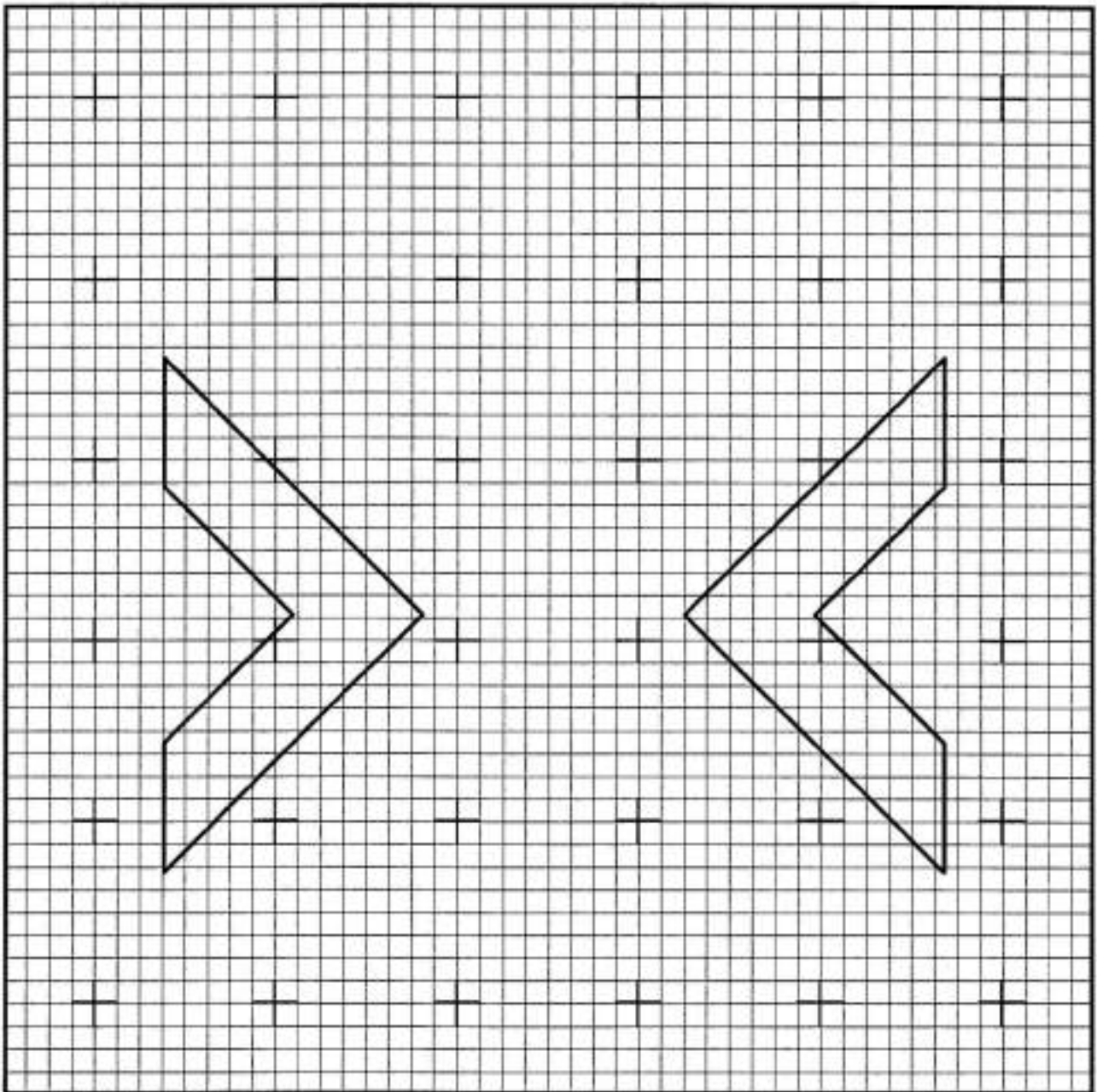
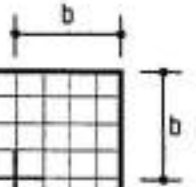


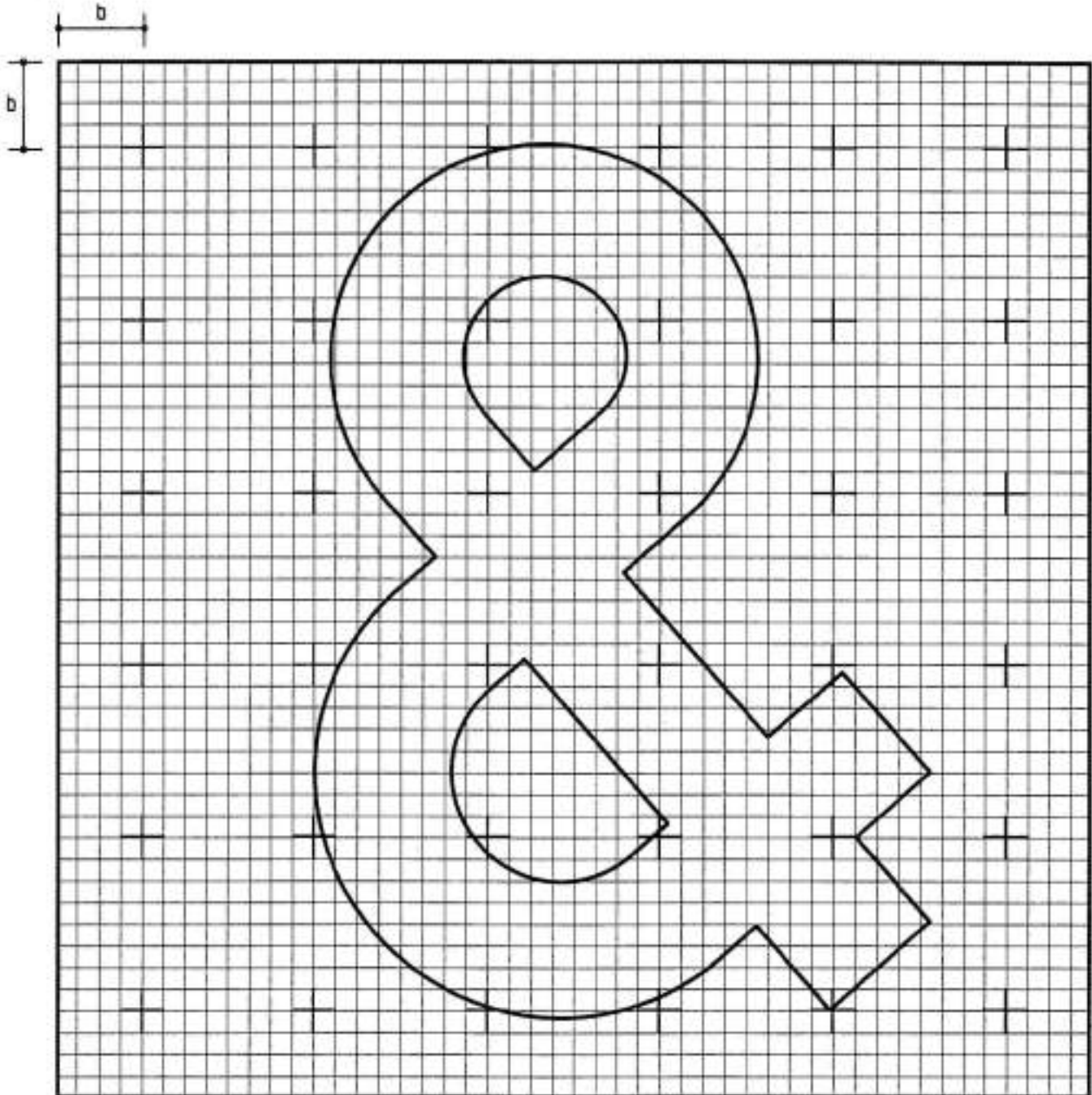




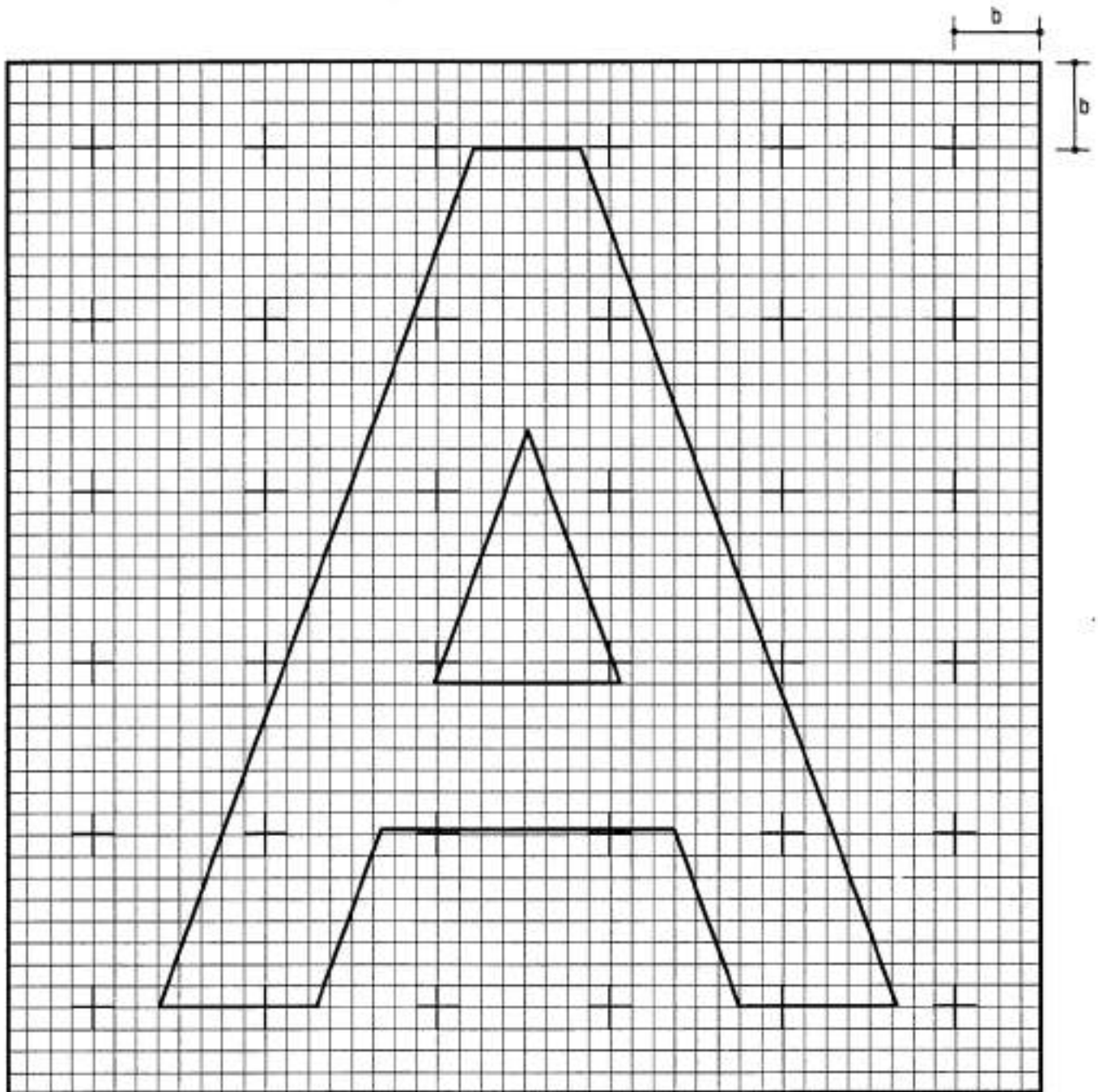




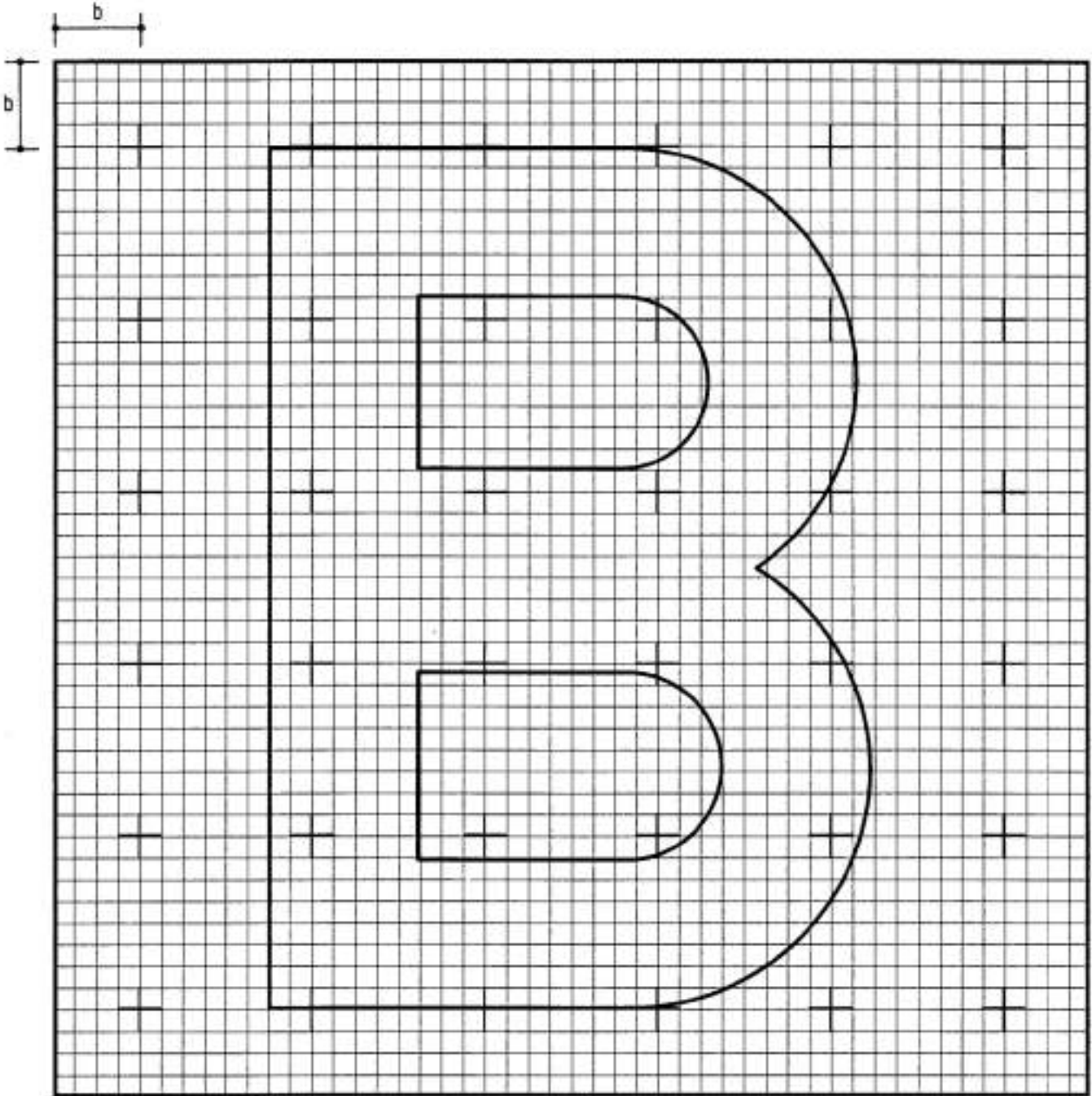




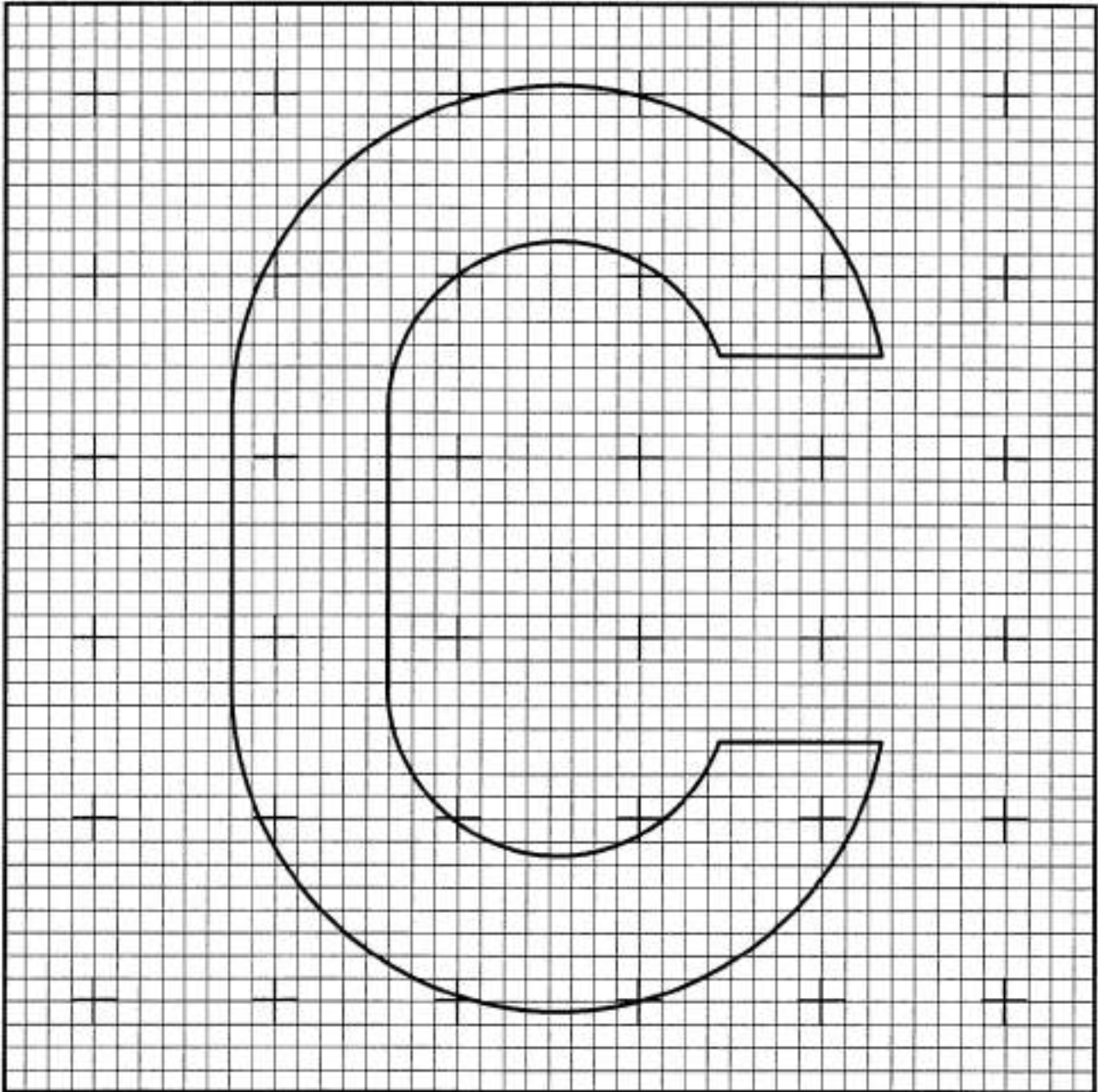
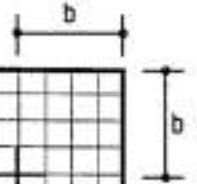
**A**



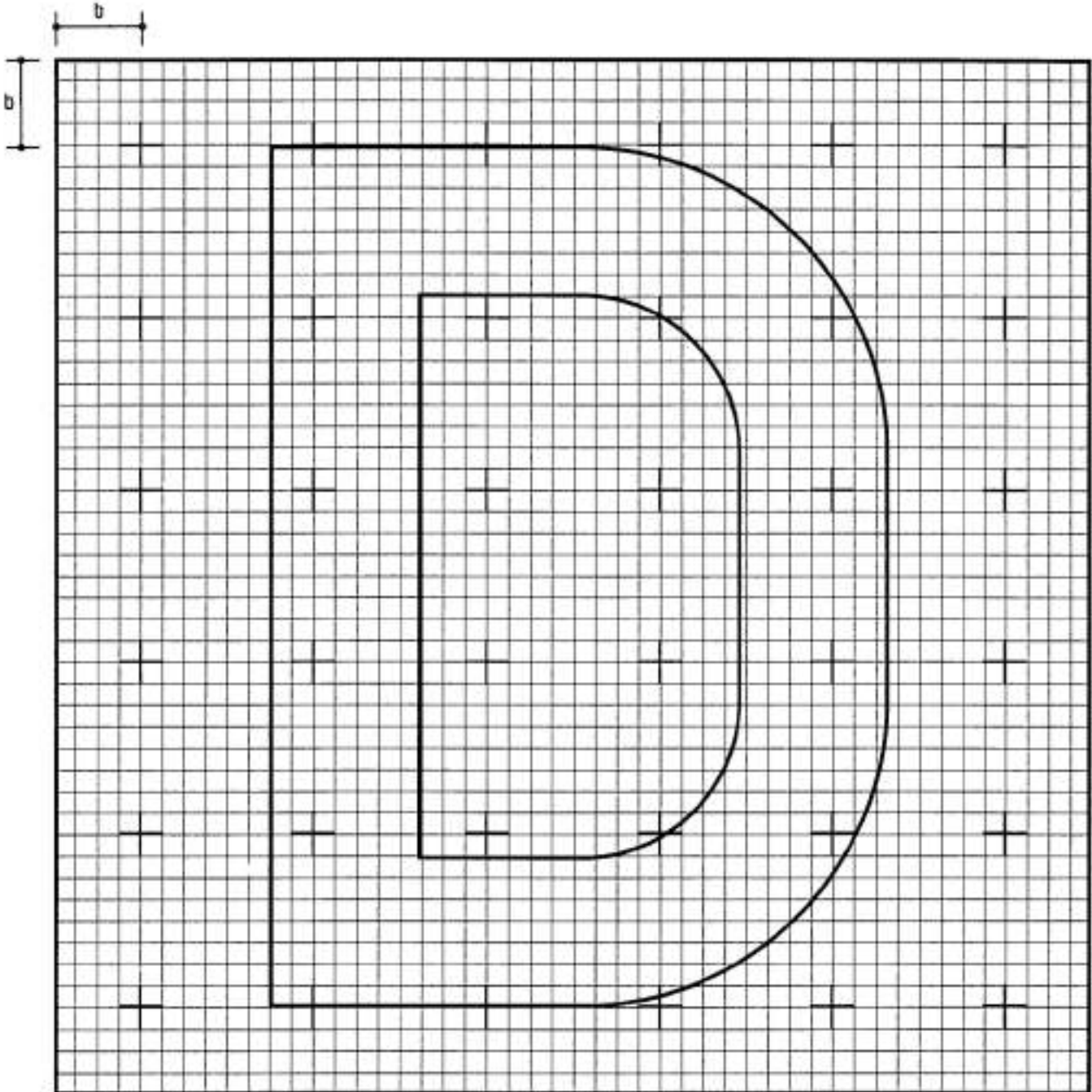
**B**



C

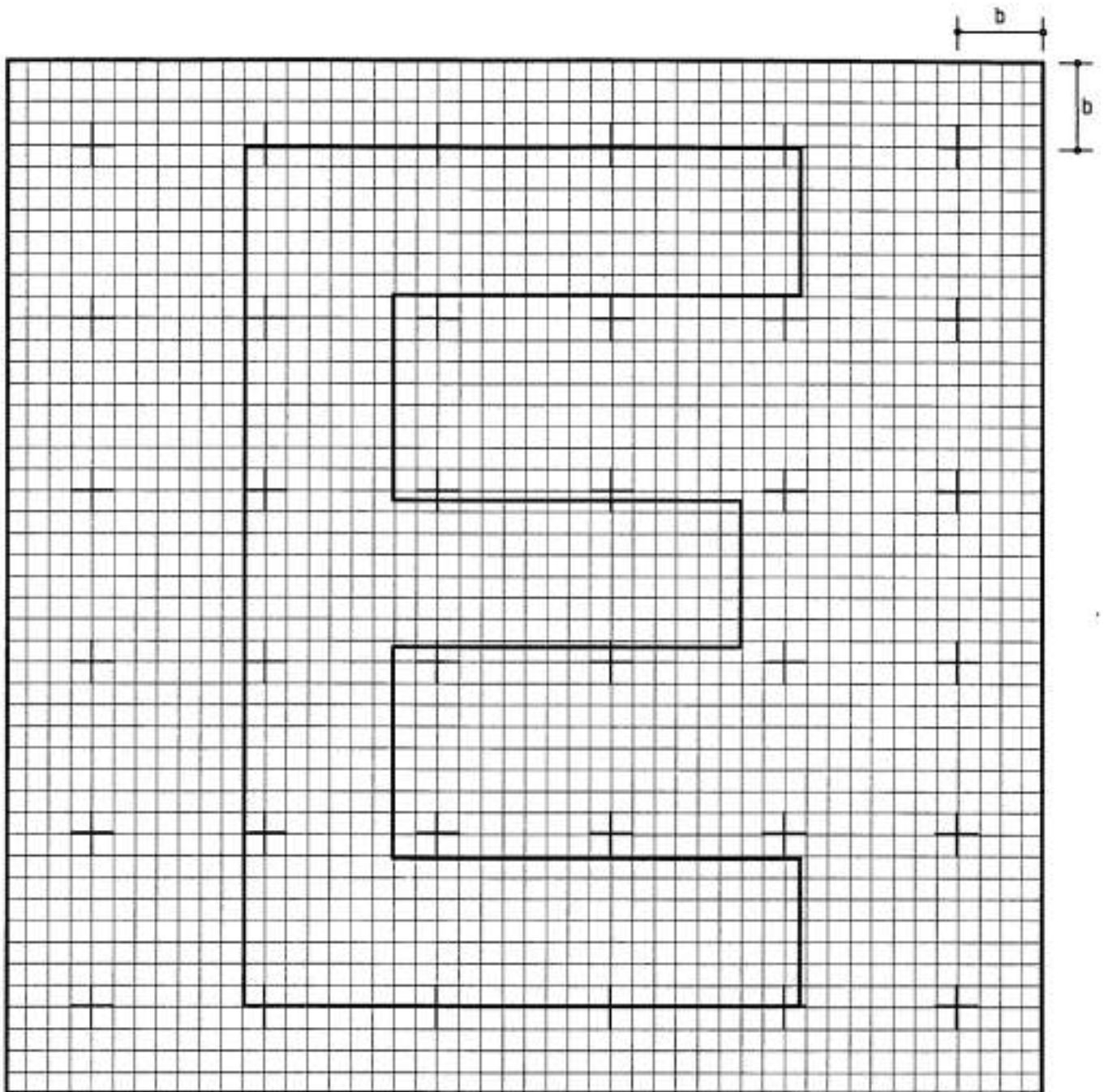


# D

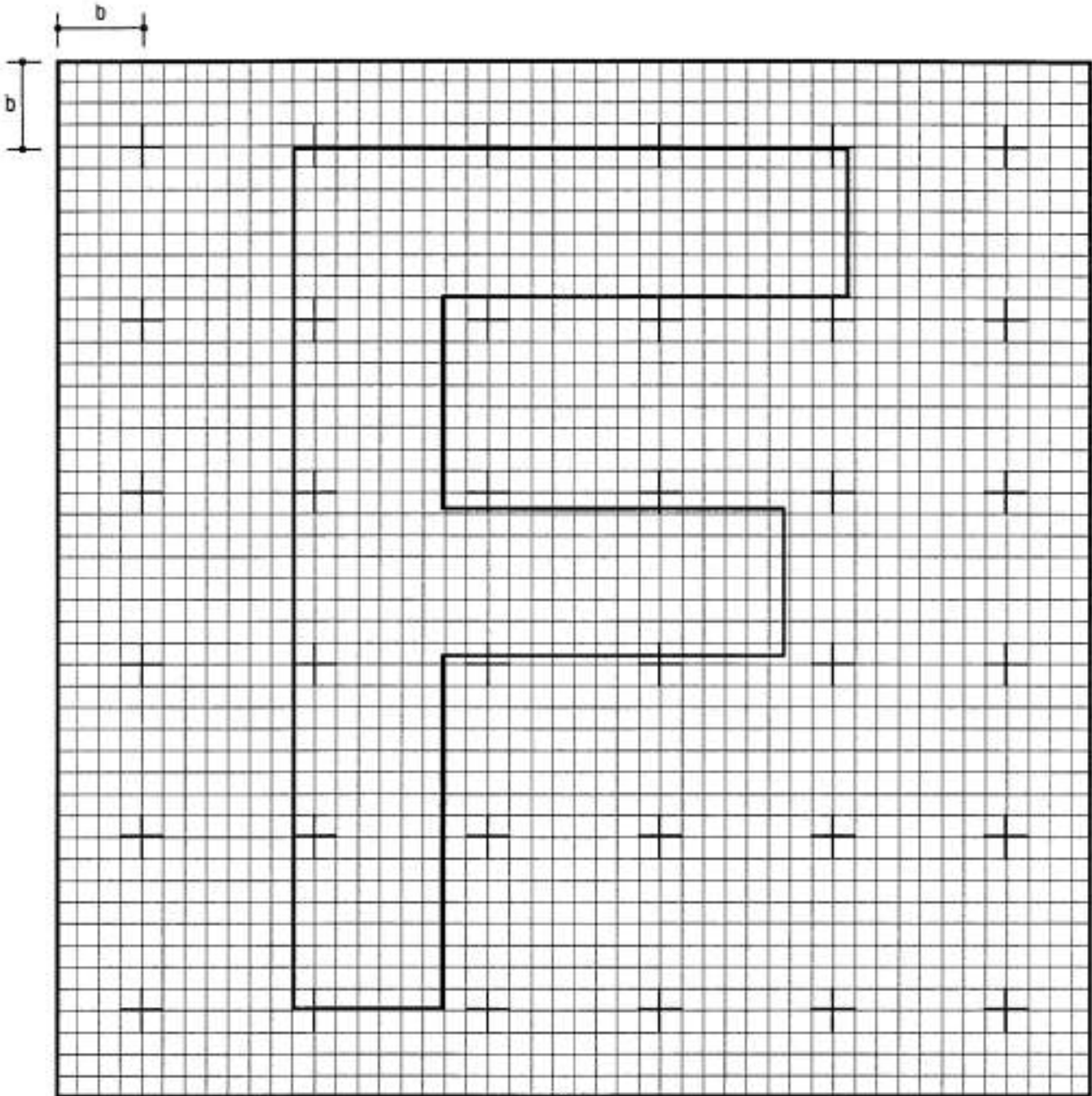




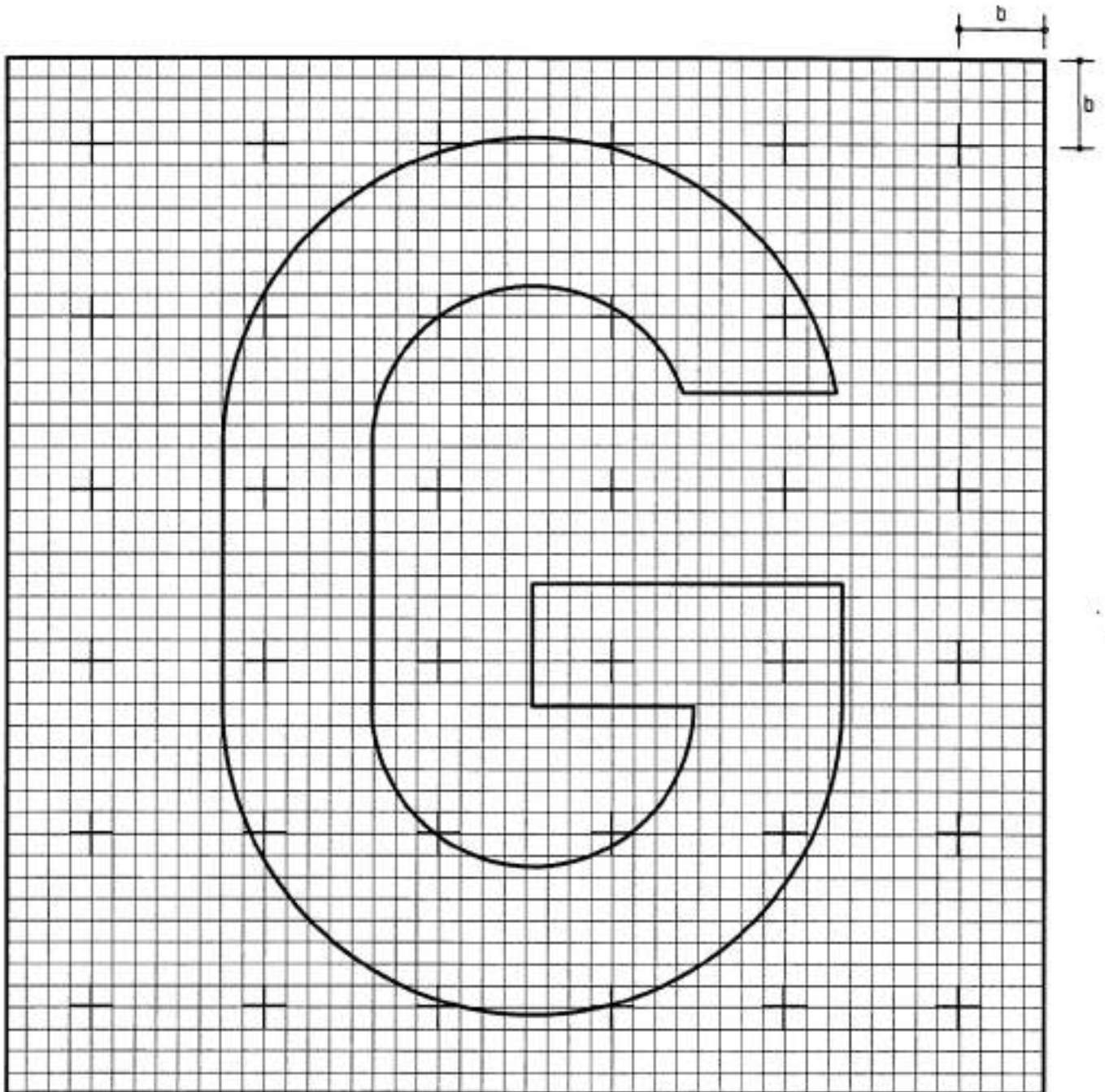
**E**



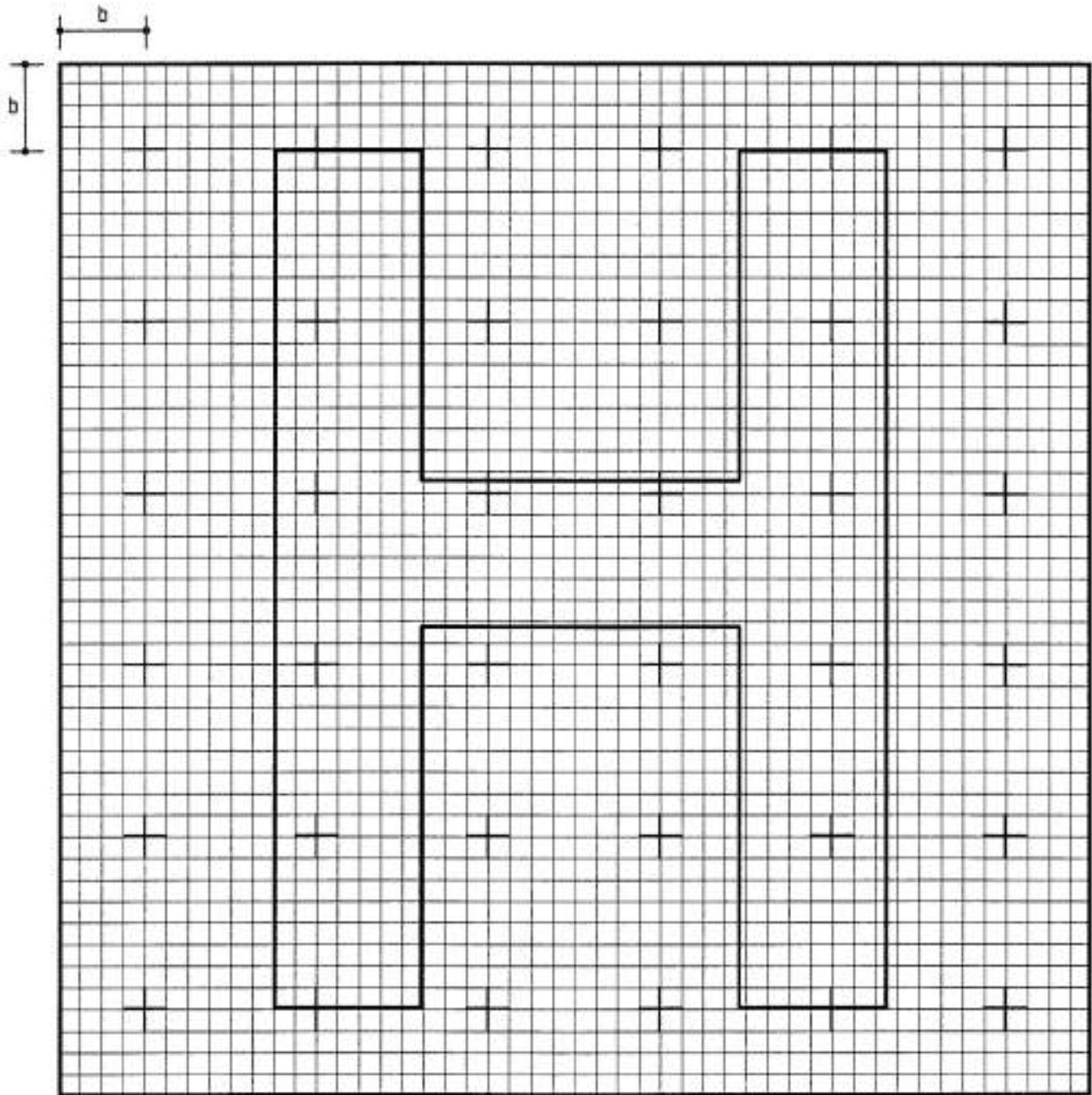
# F

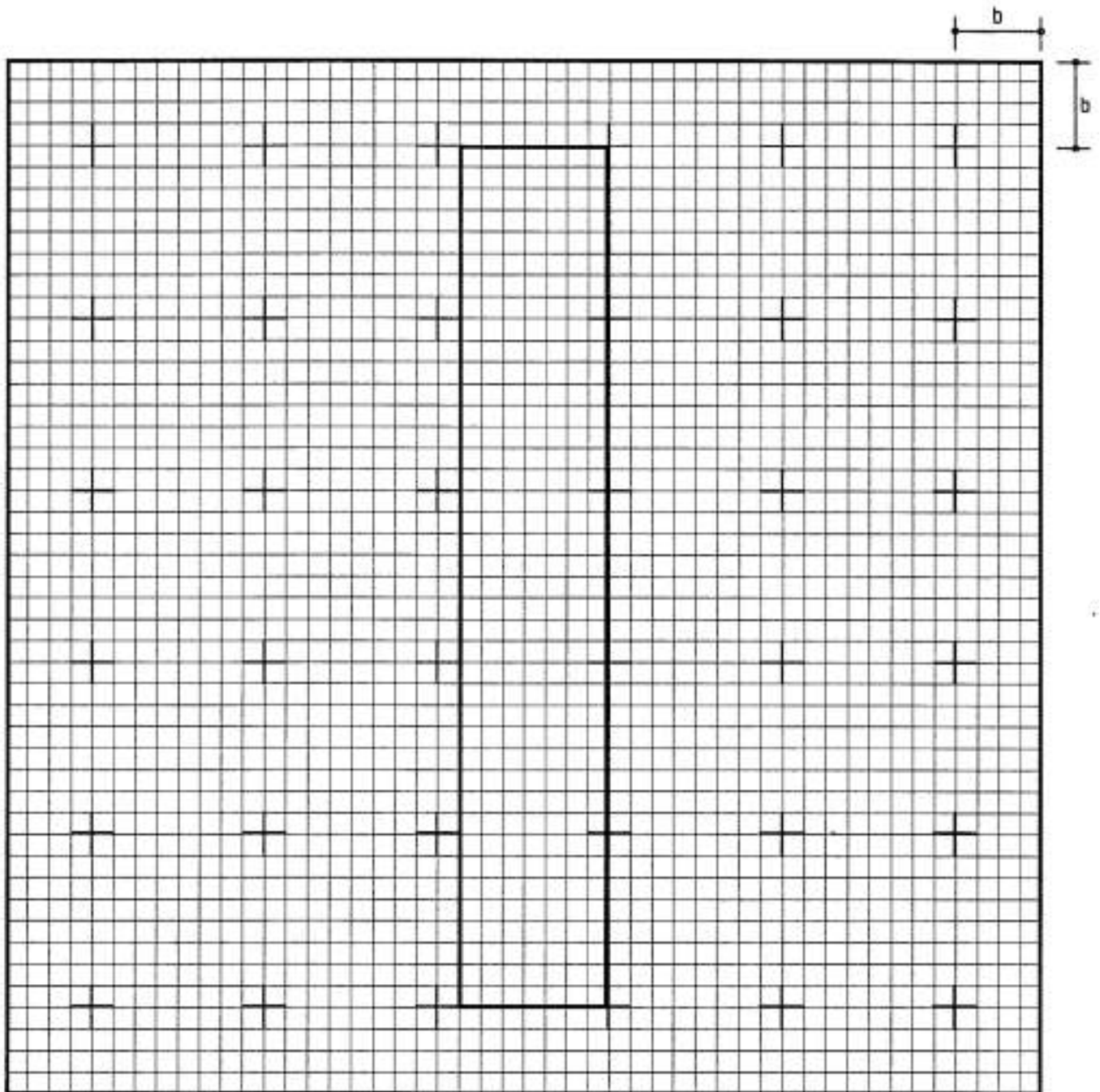


**G**

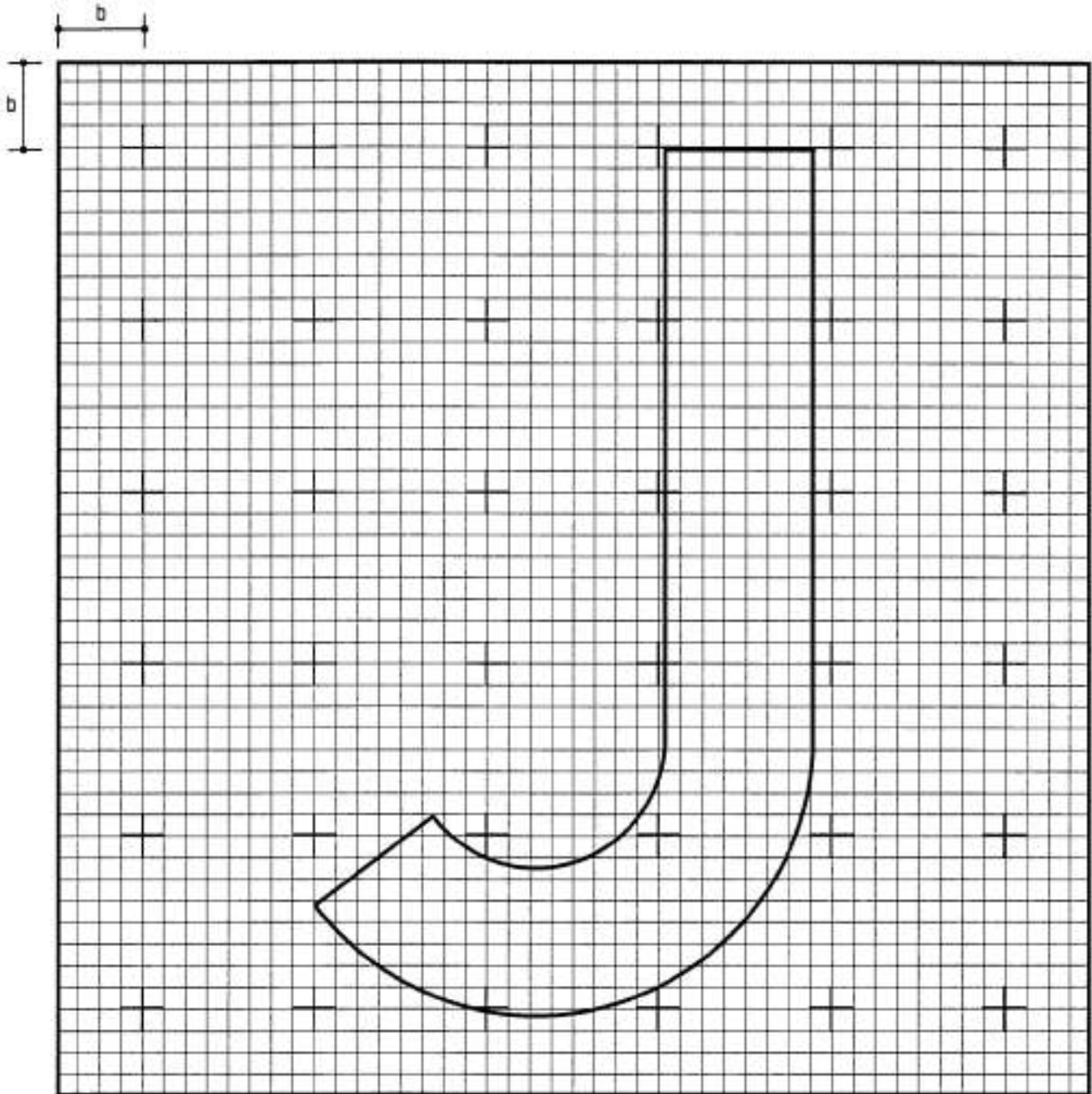


# H

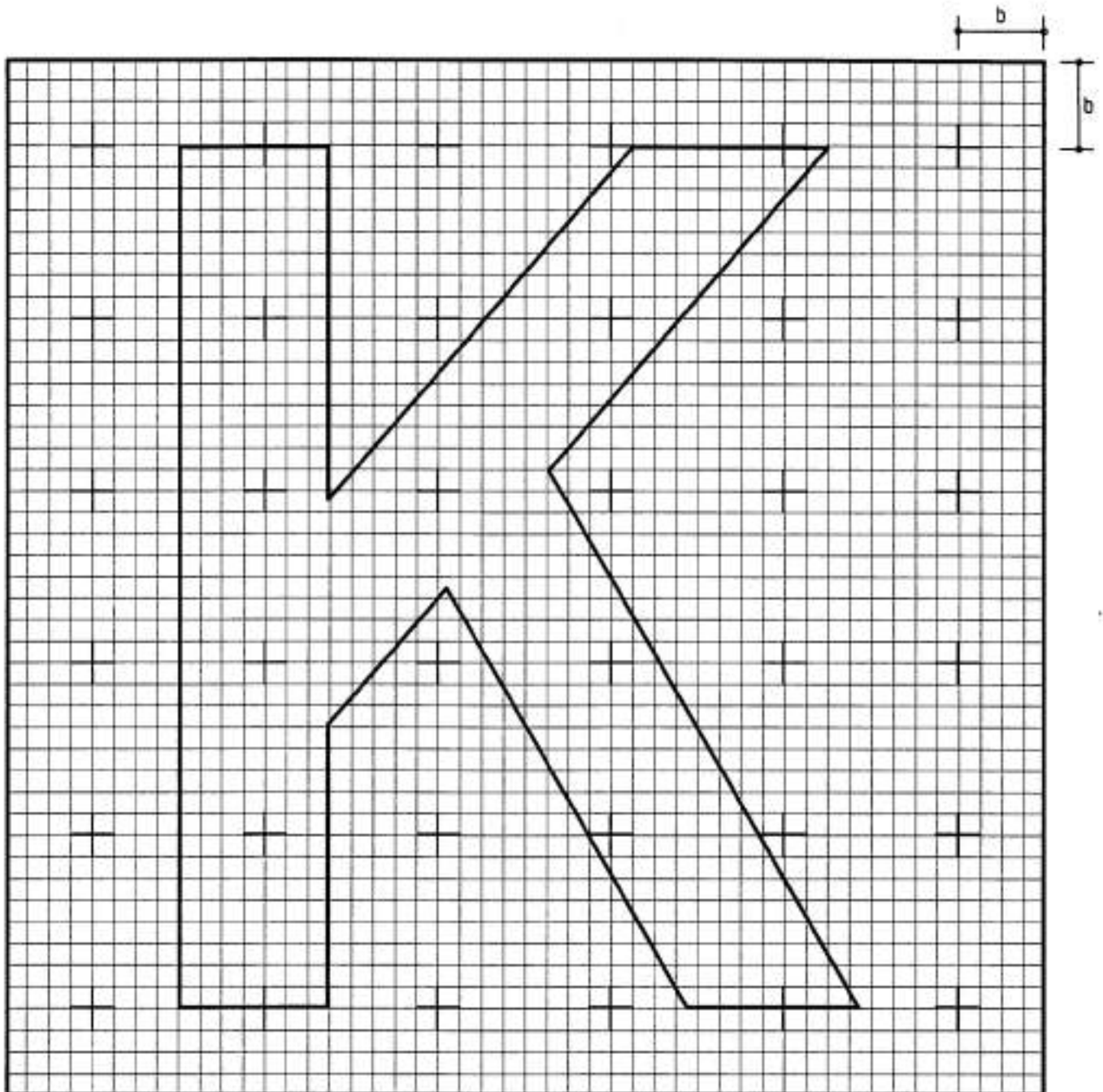




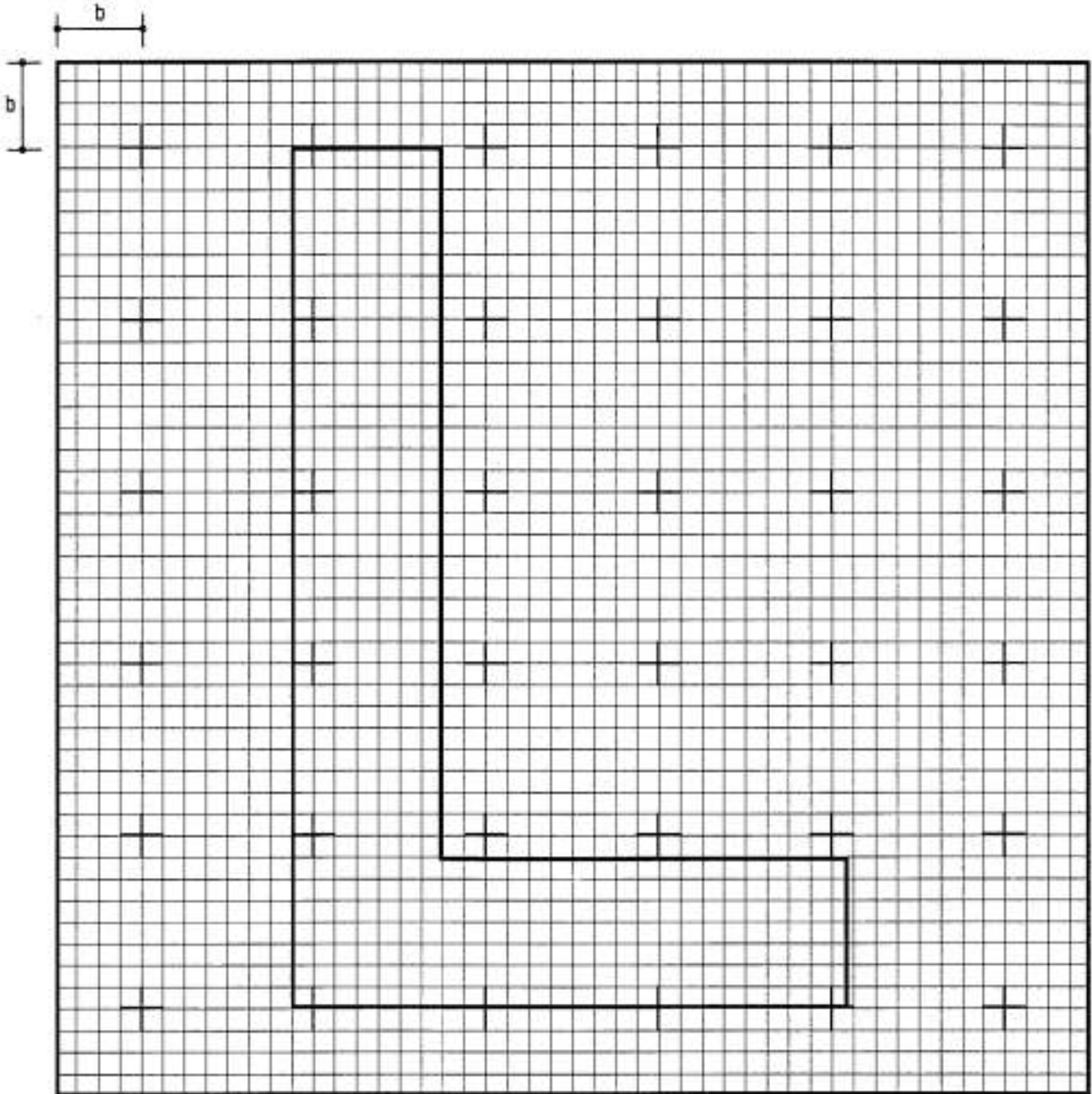
J



# K

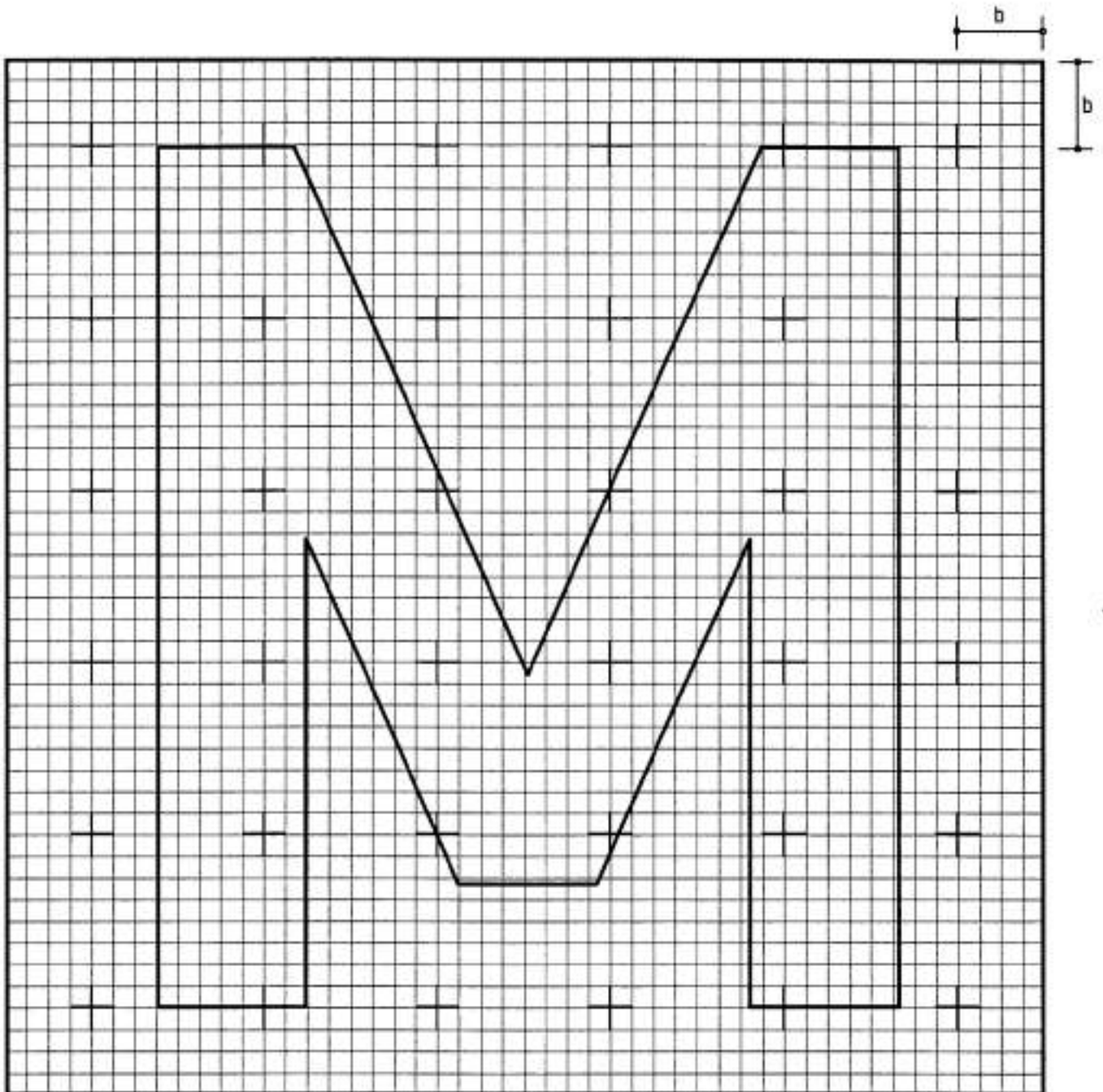


**L**

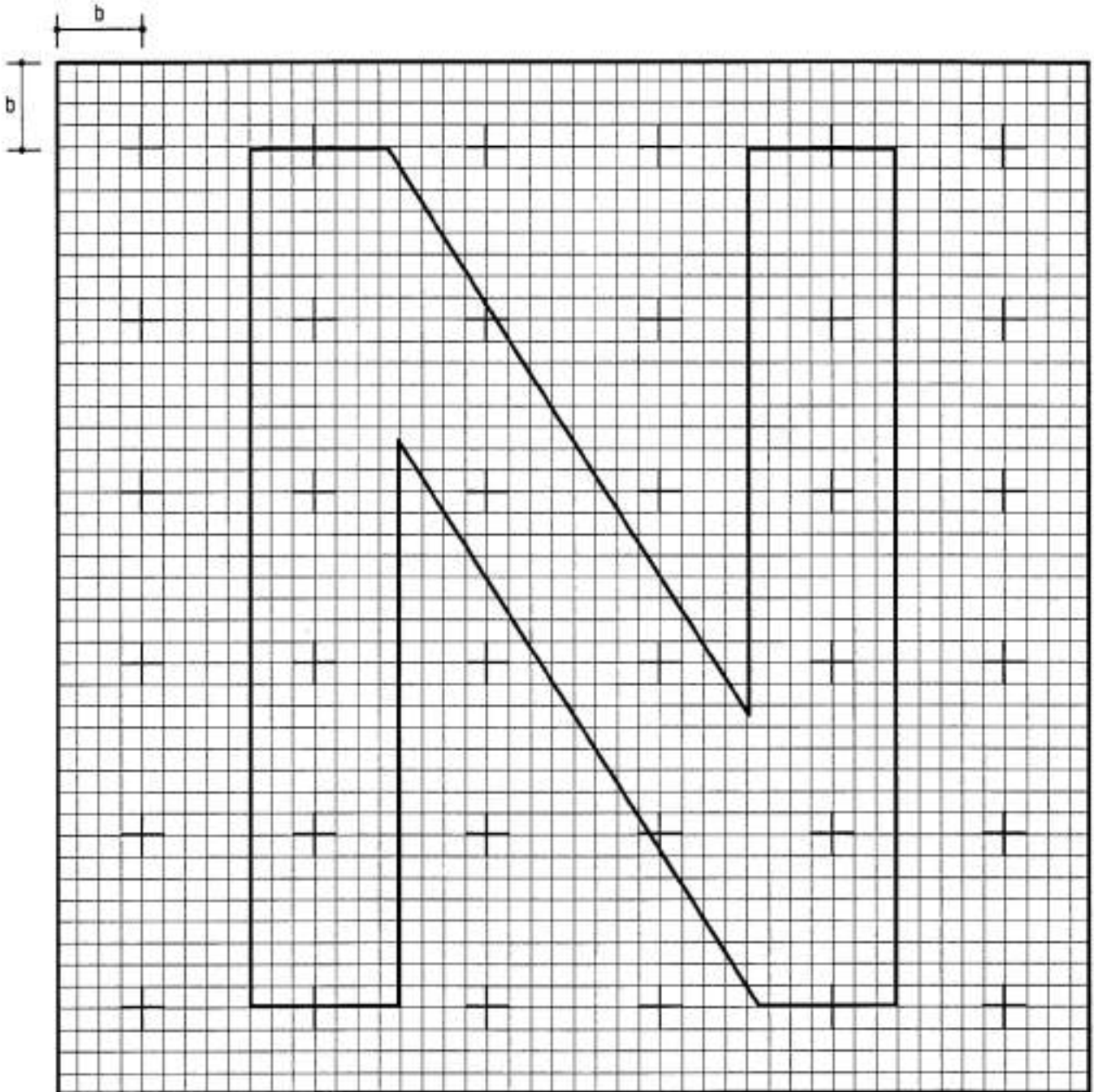




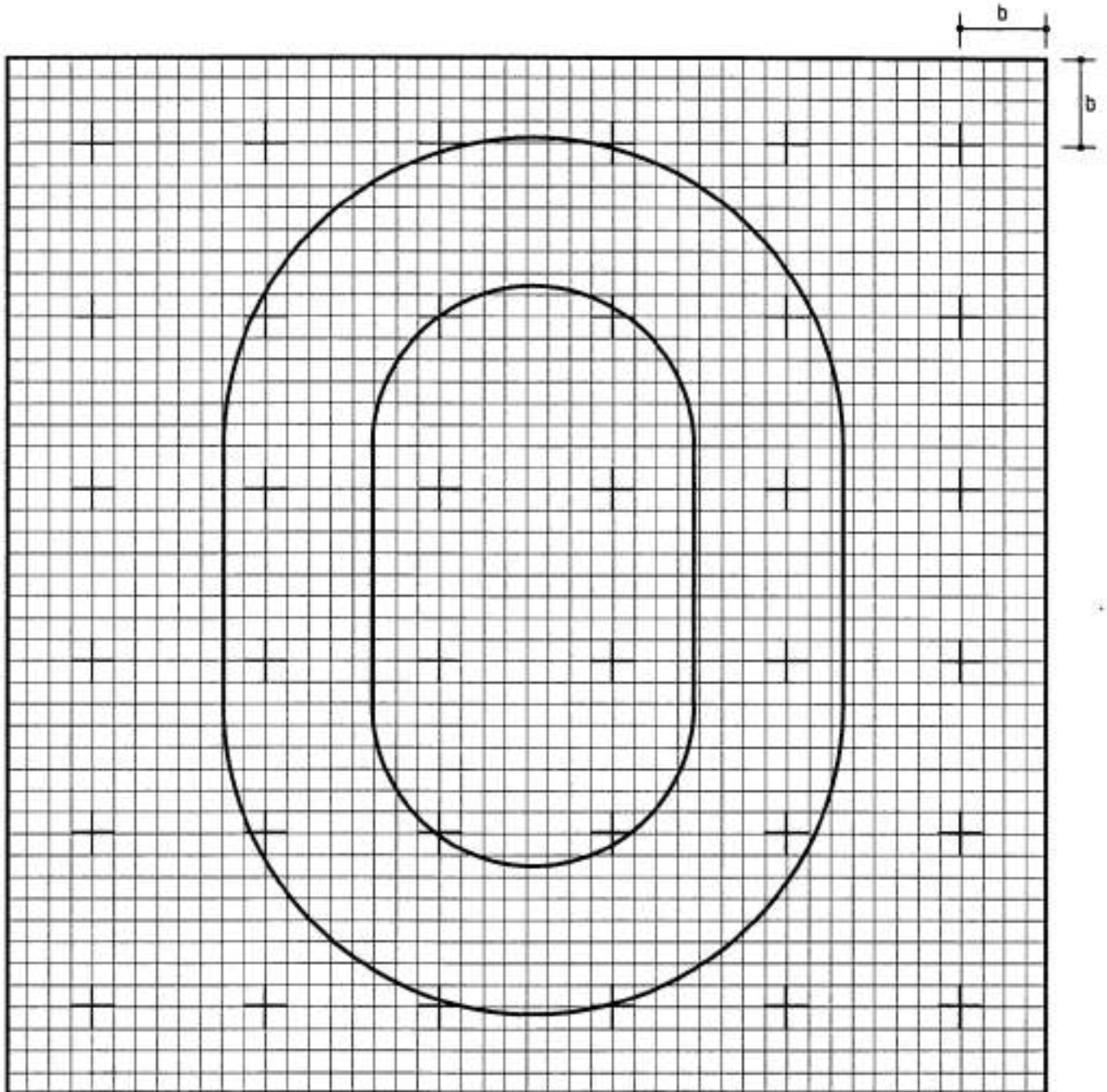
**M**



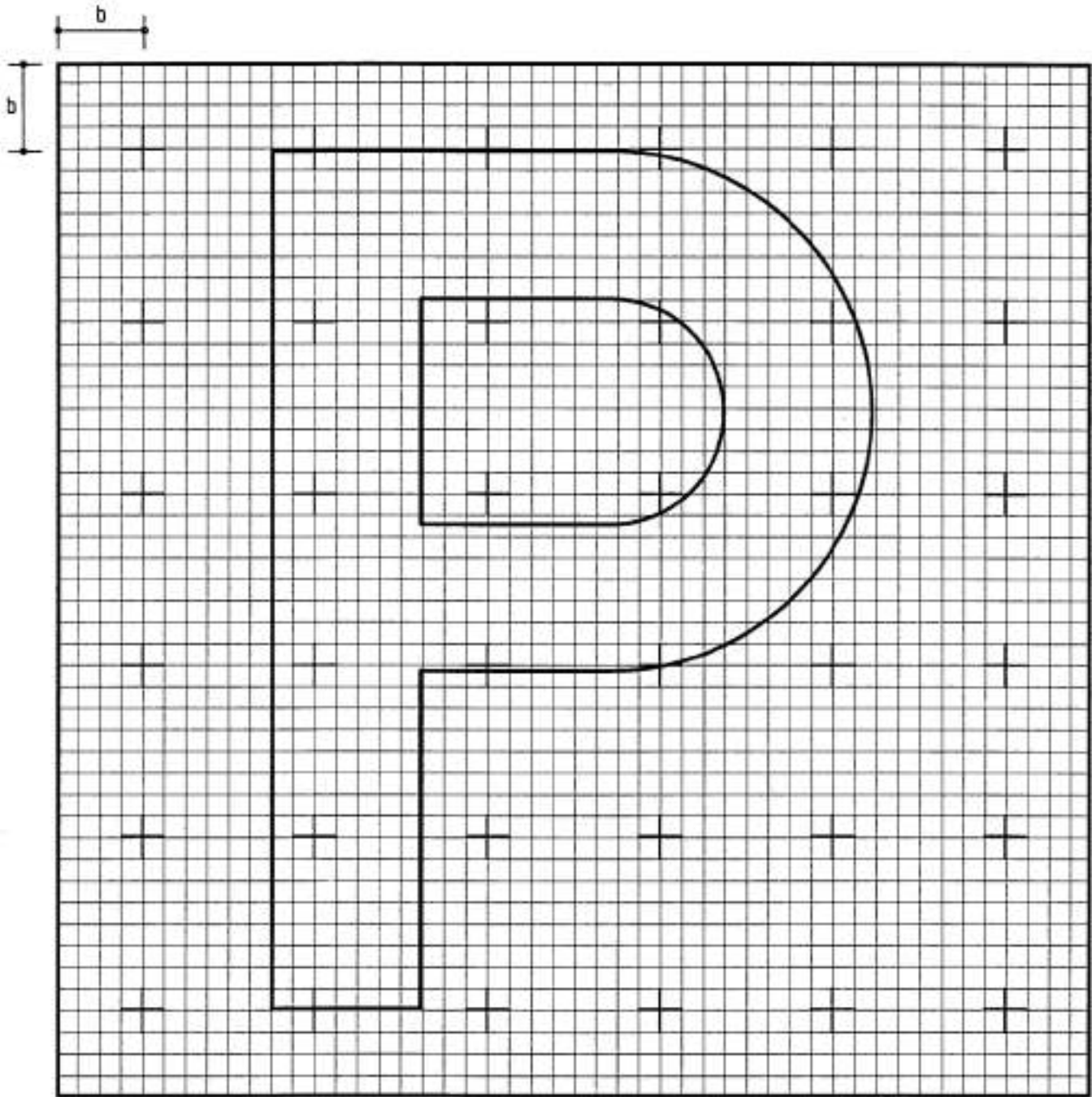
# N



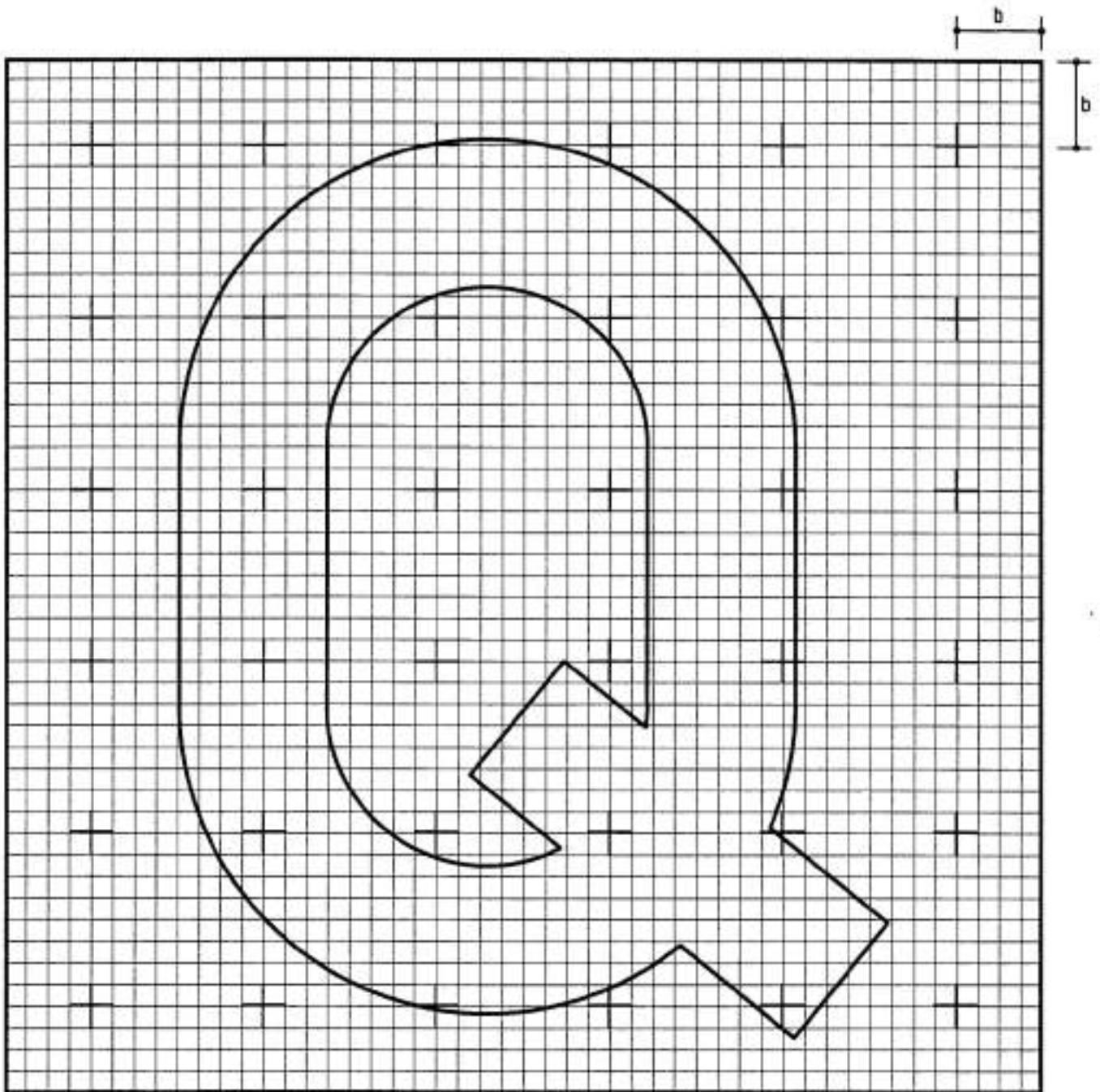
O



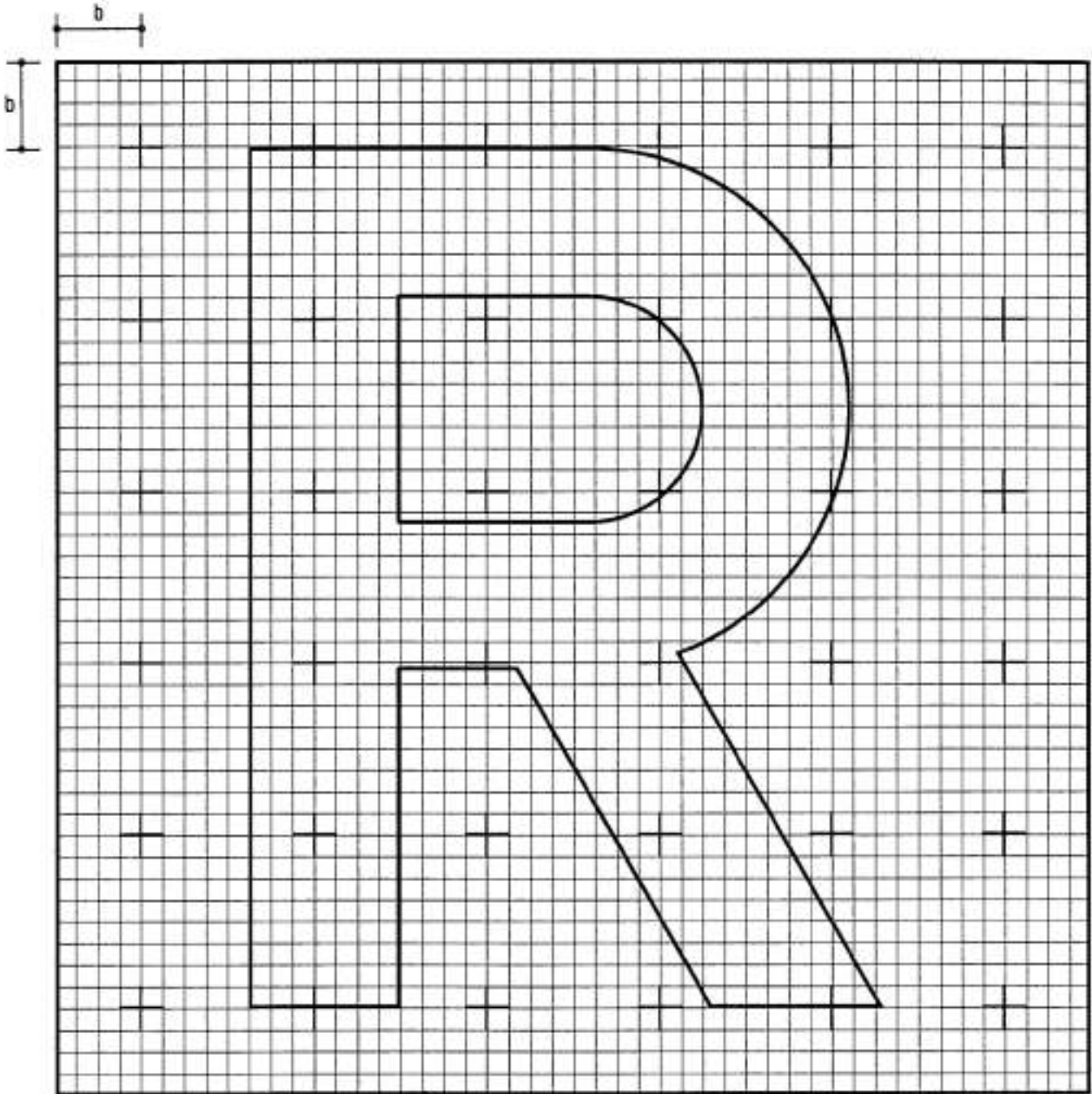
# P



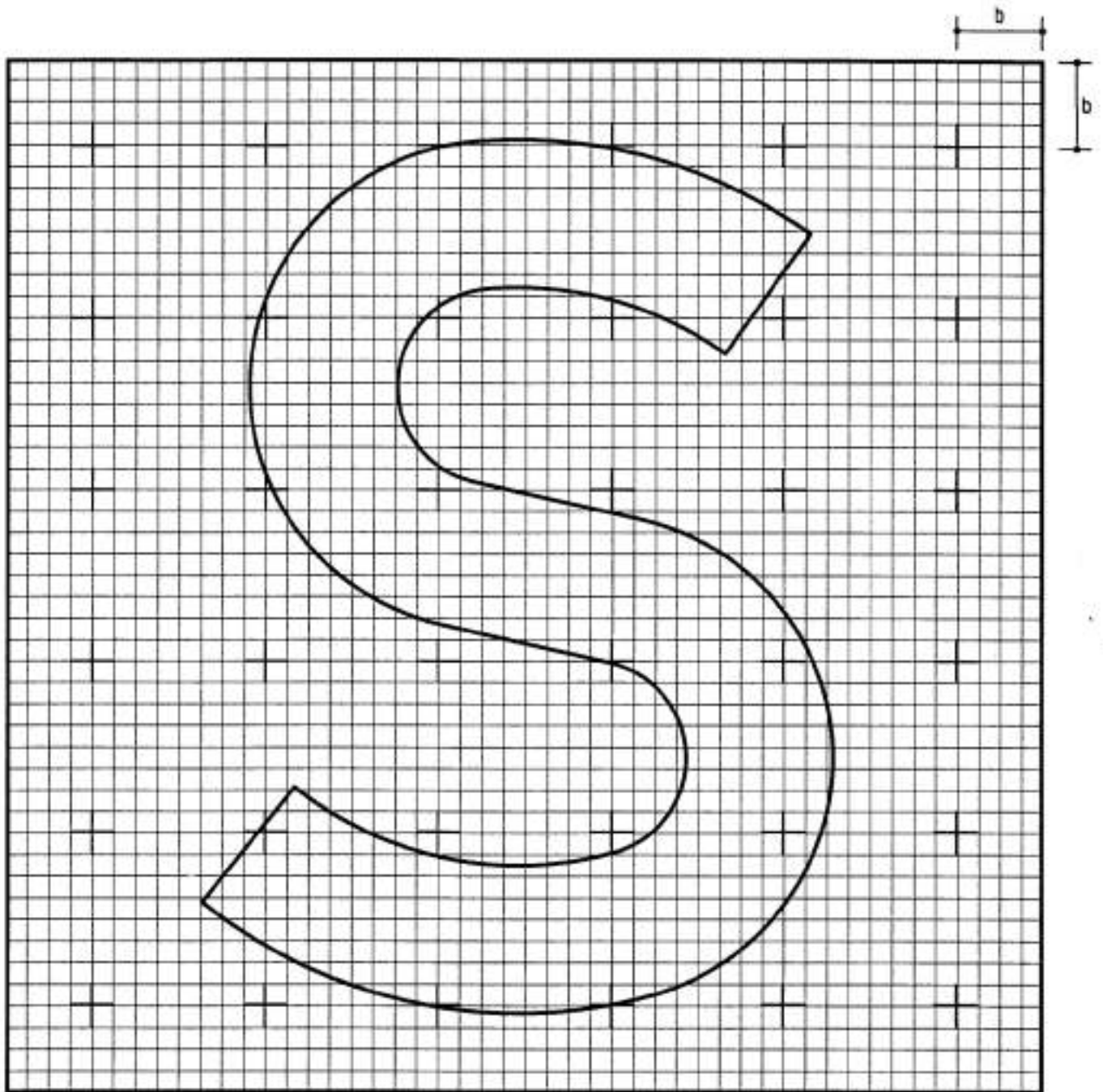
Q



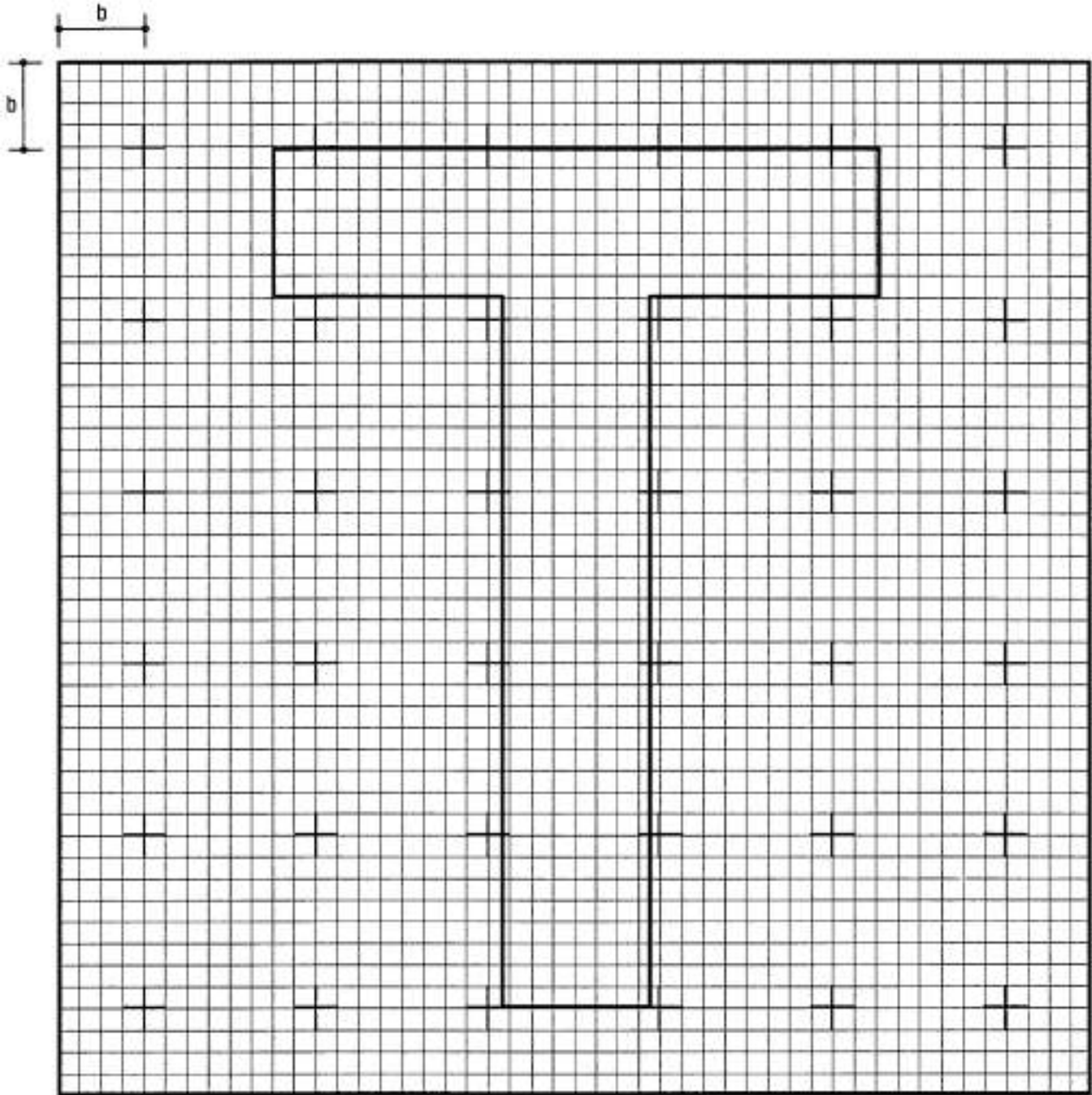
# R



**S**

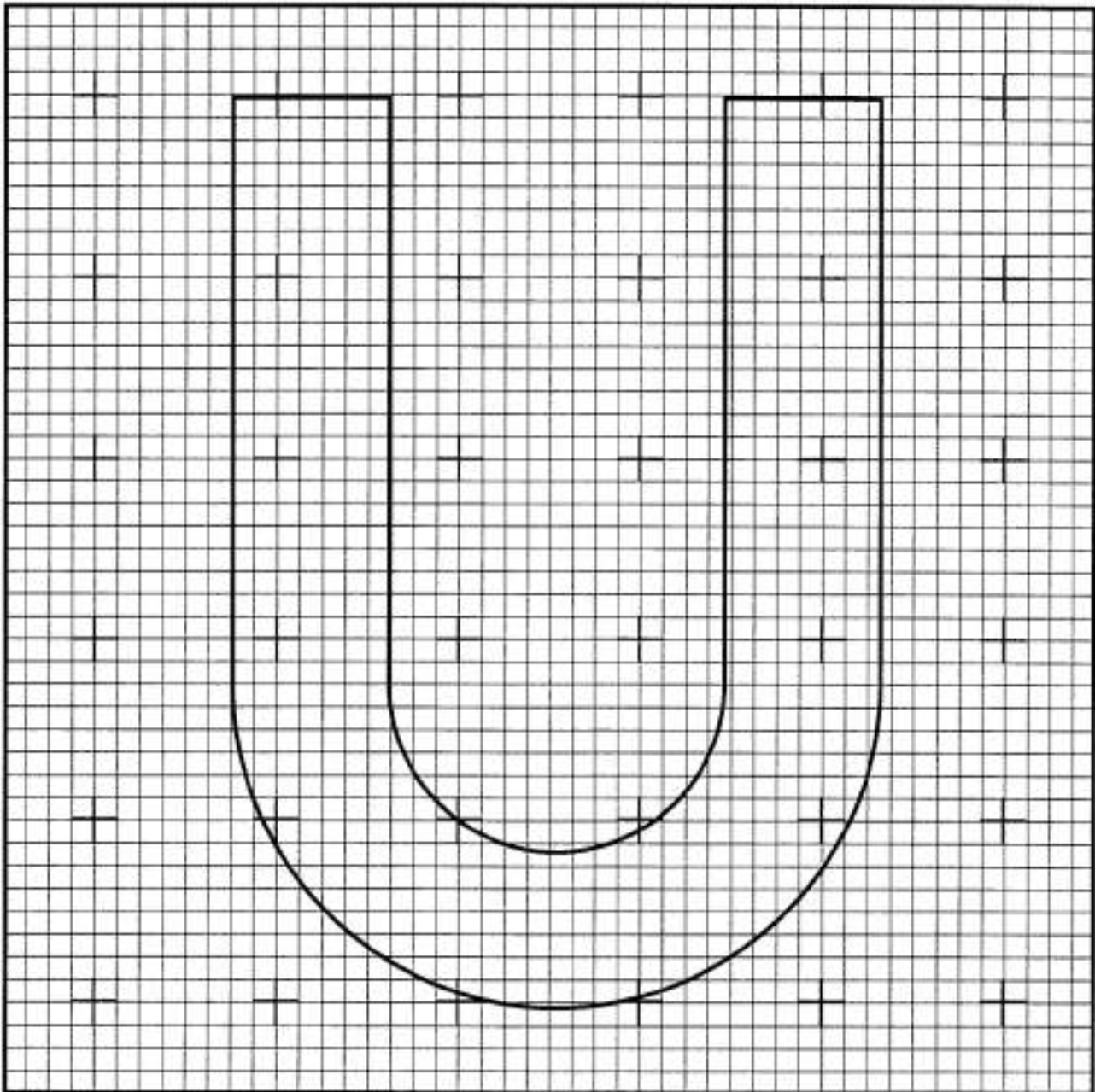
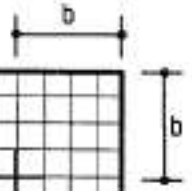


**T**

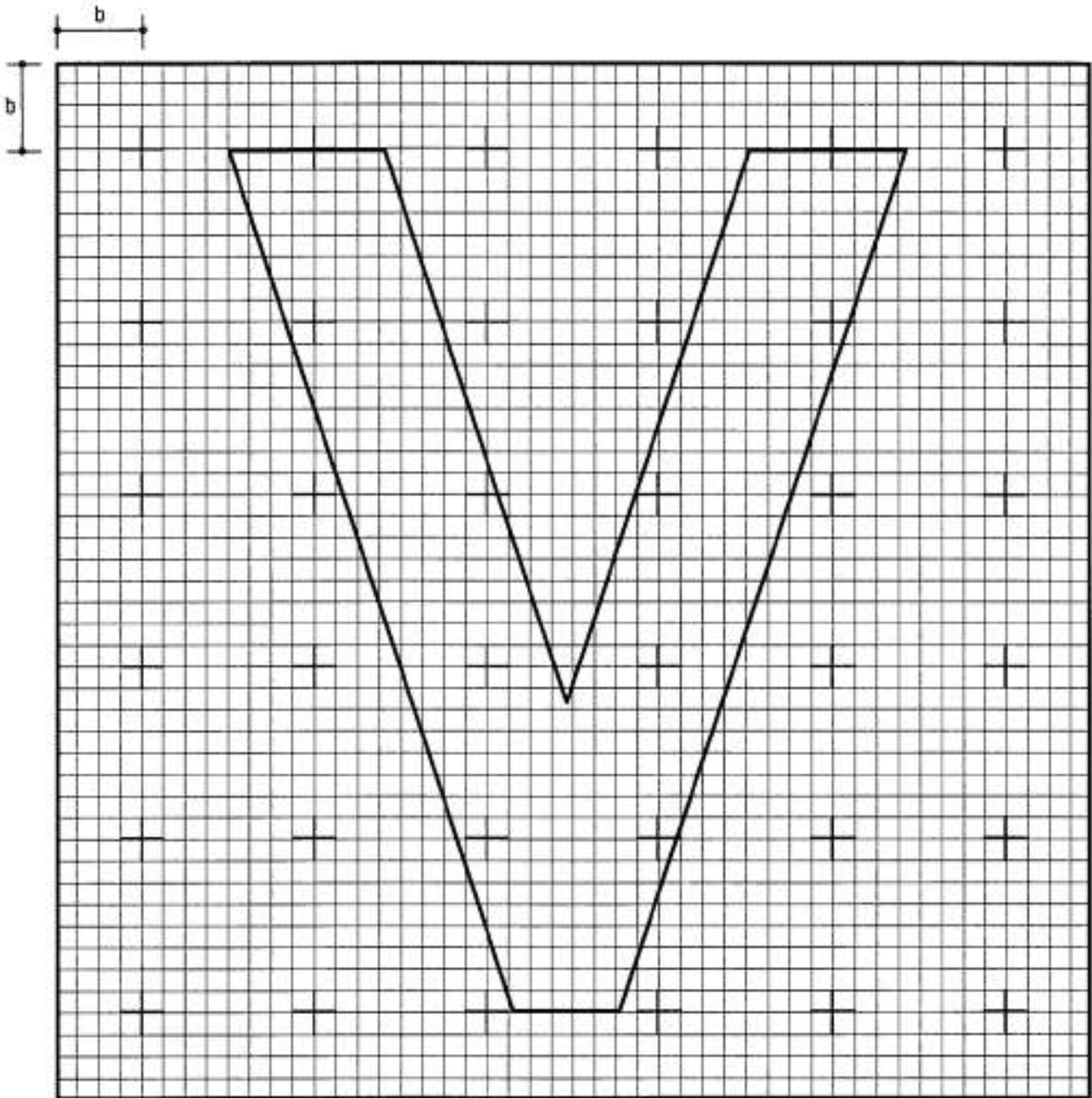




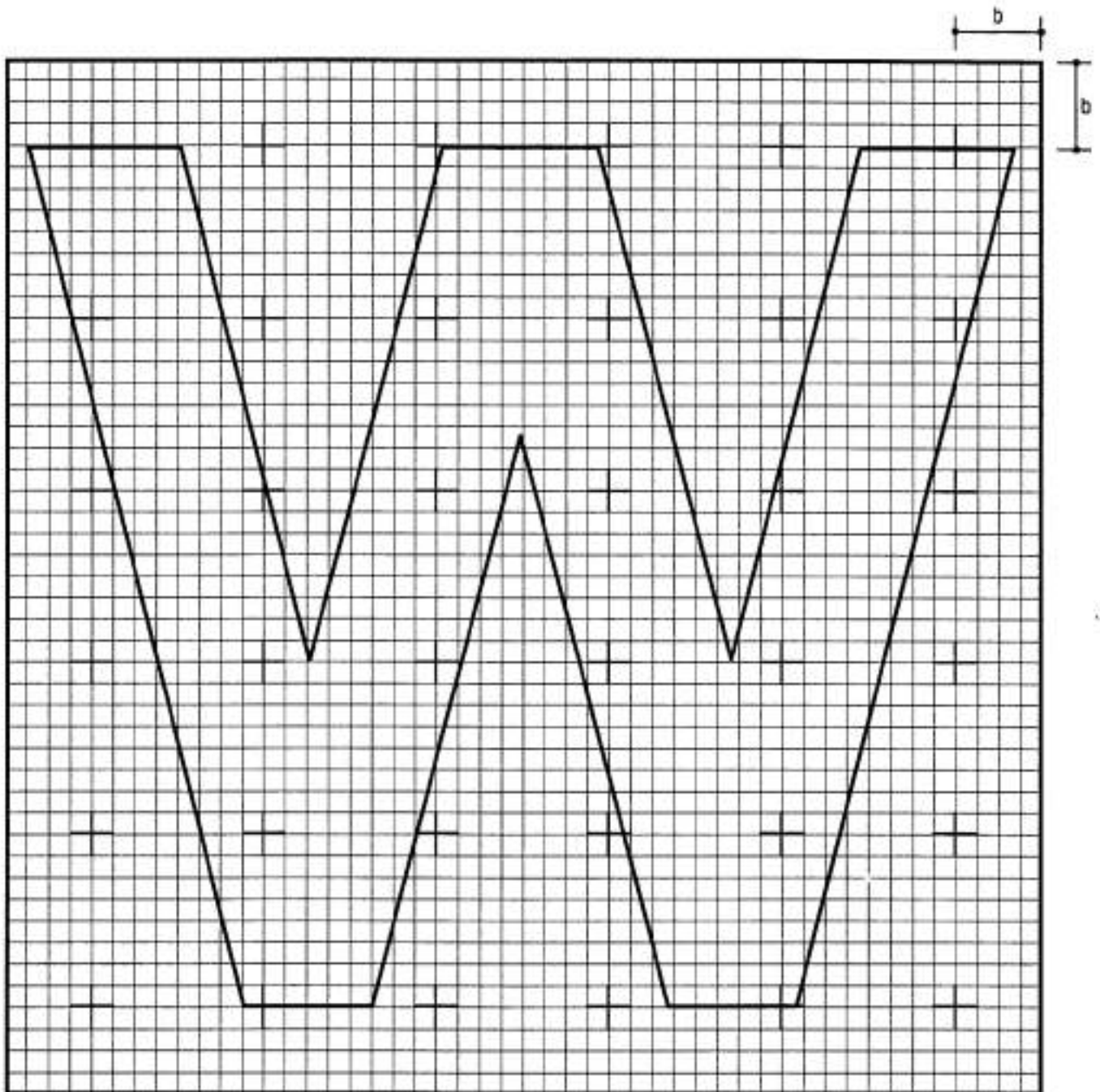
U



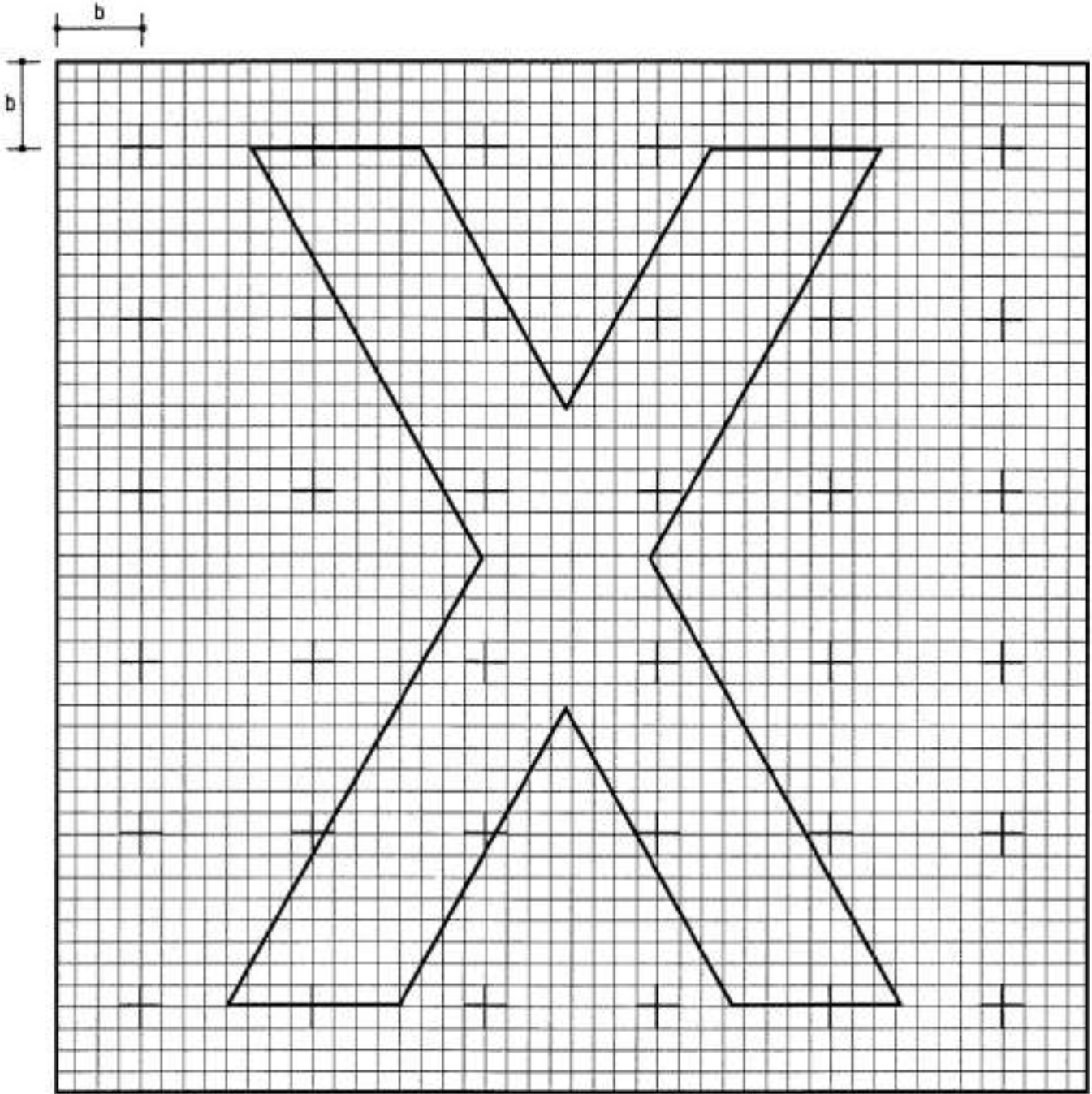
V



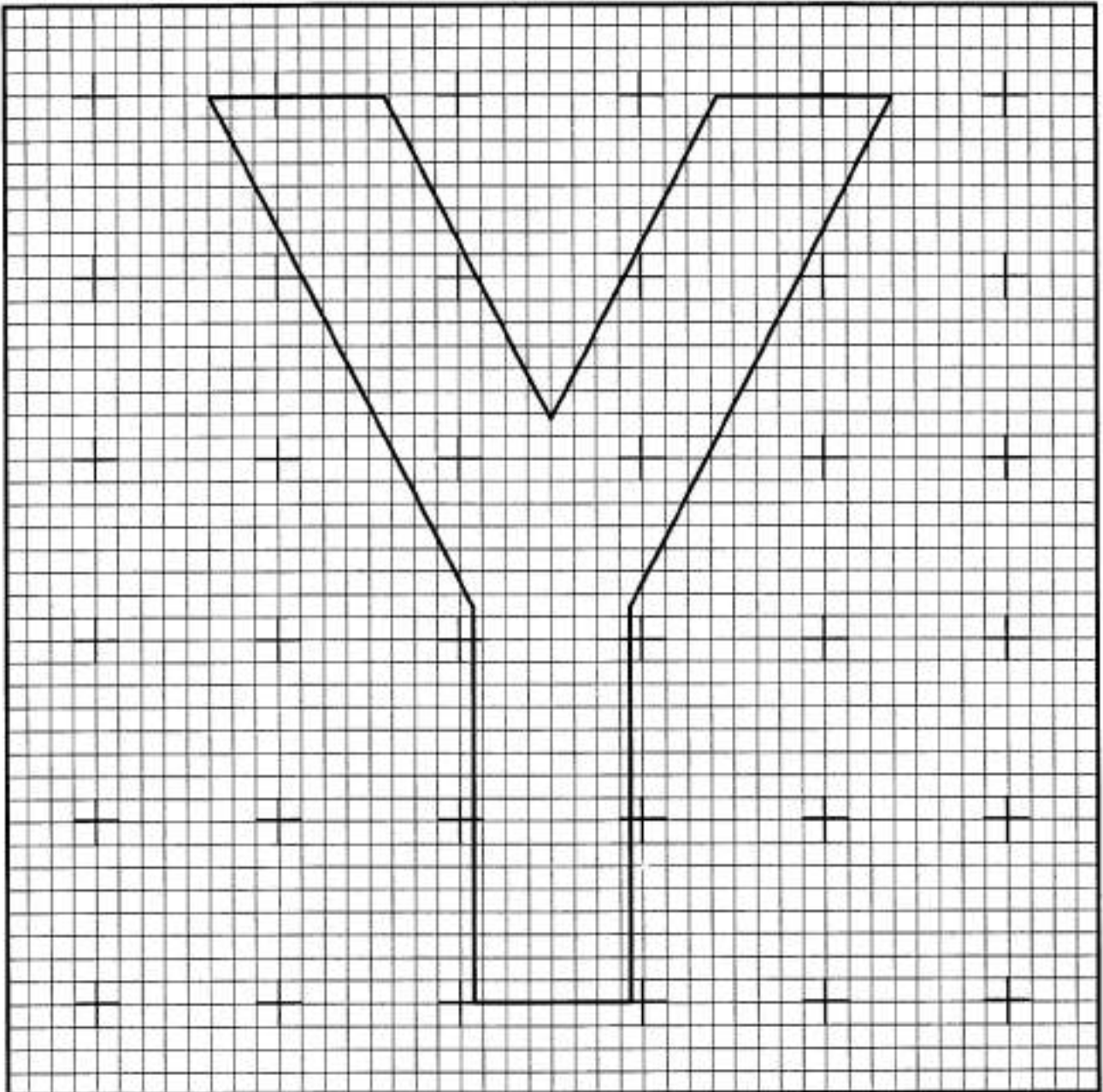
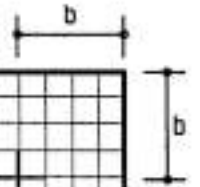
**W**



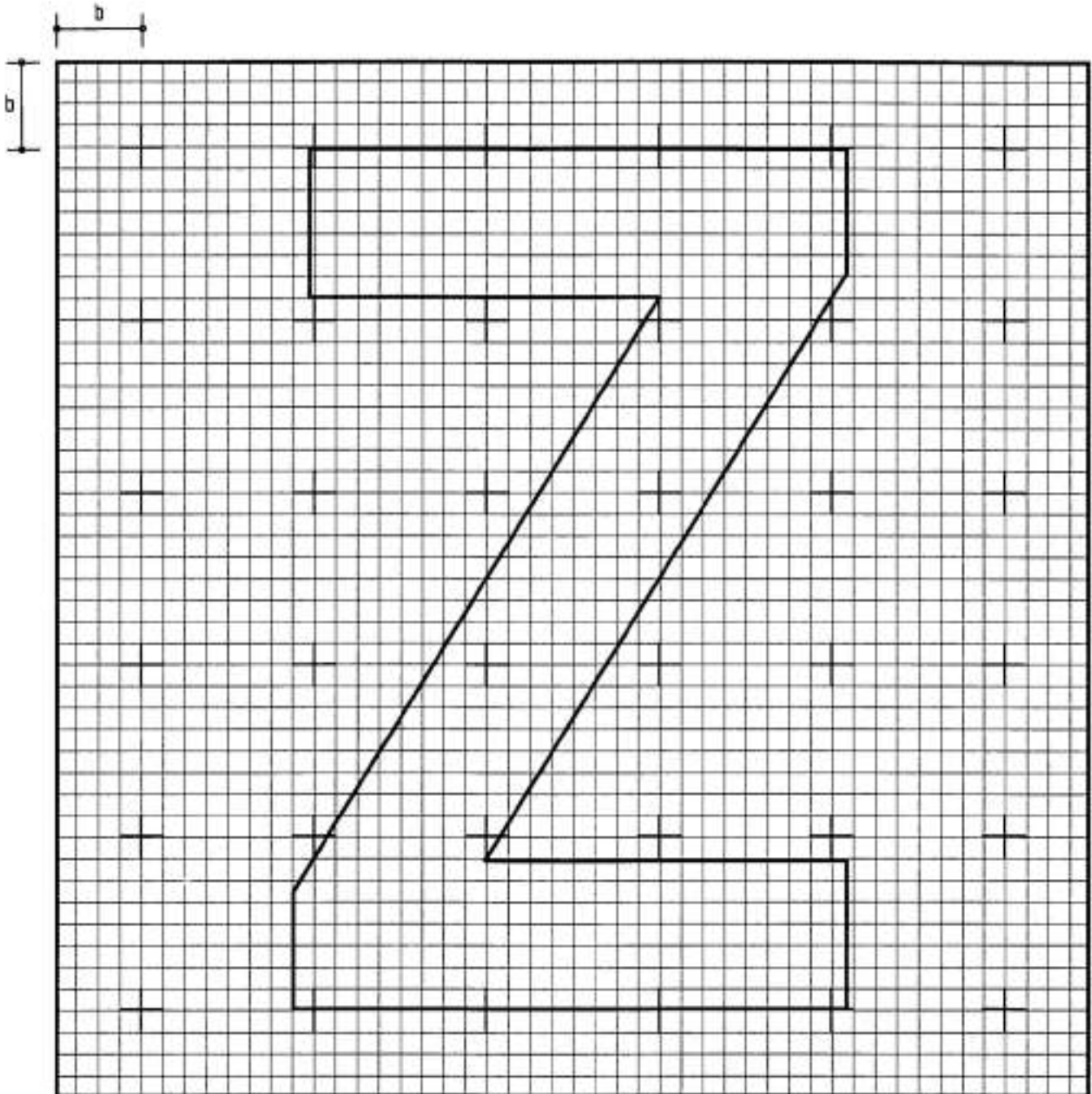
# X



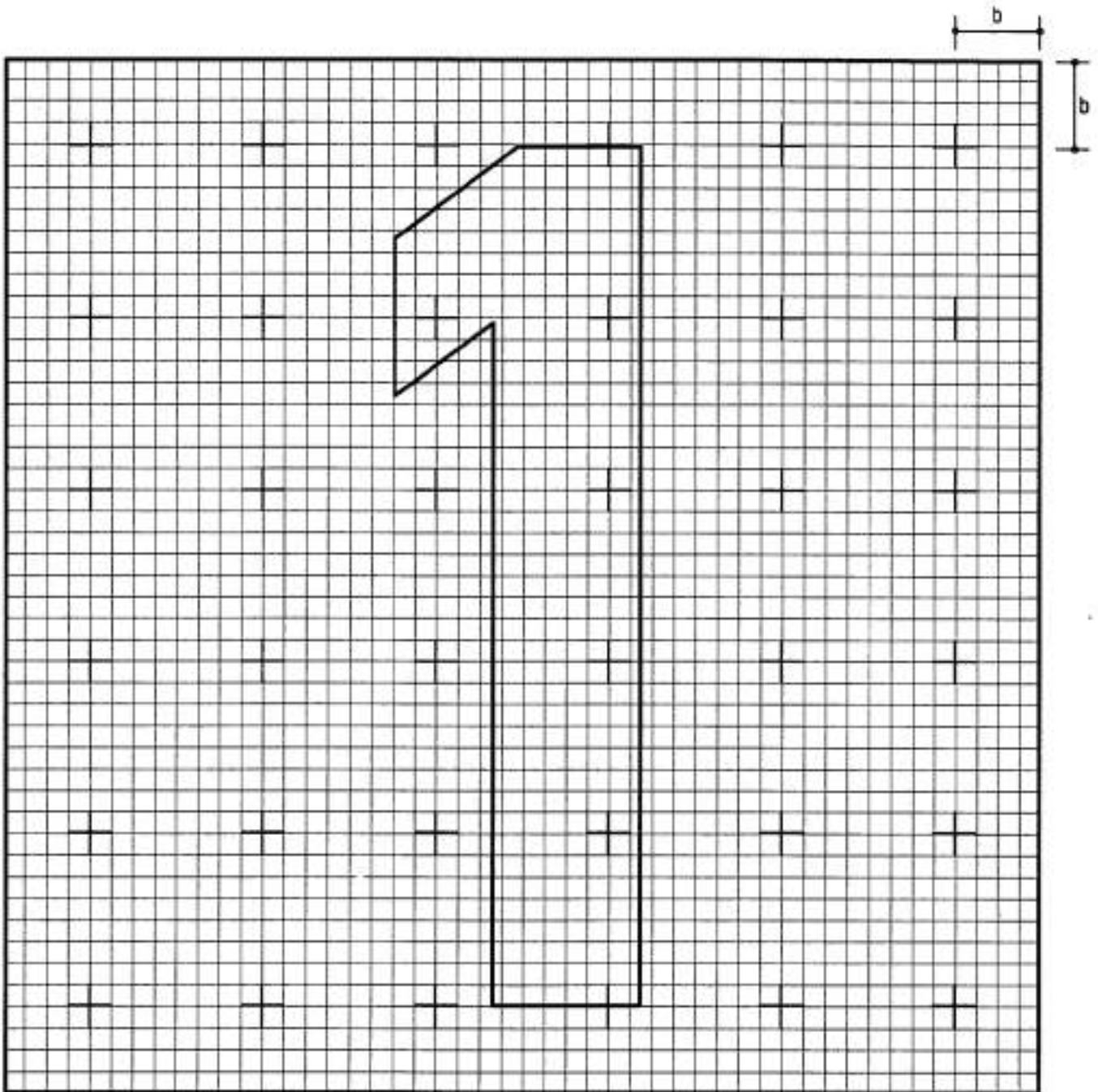
Y



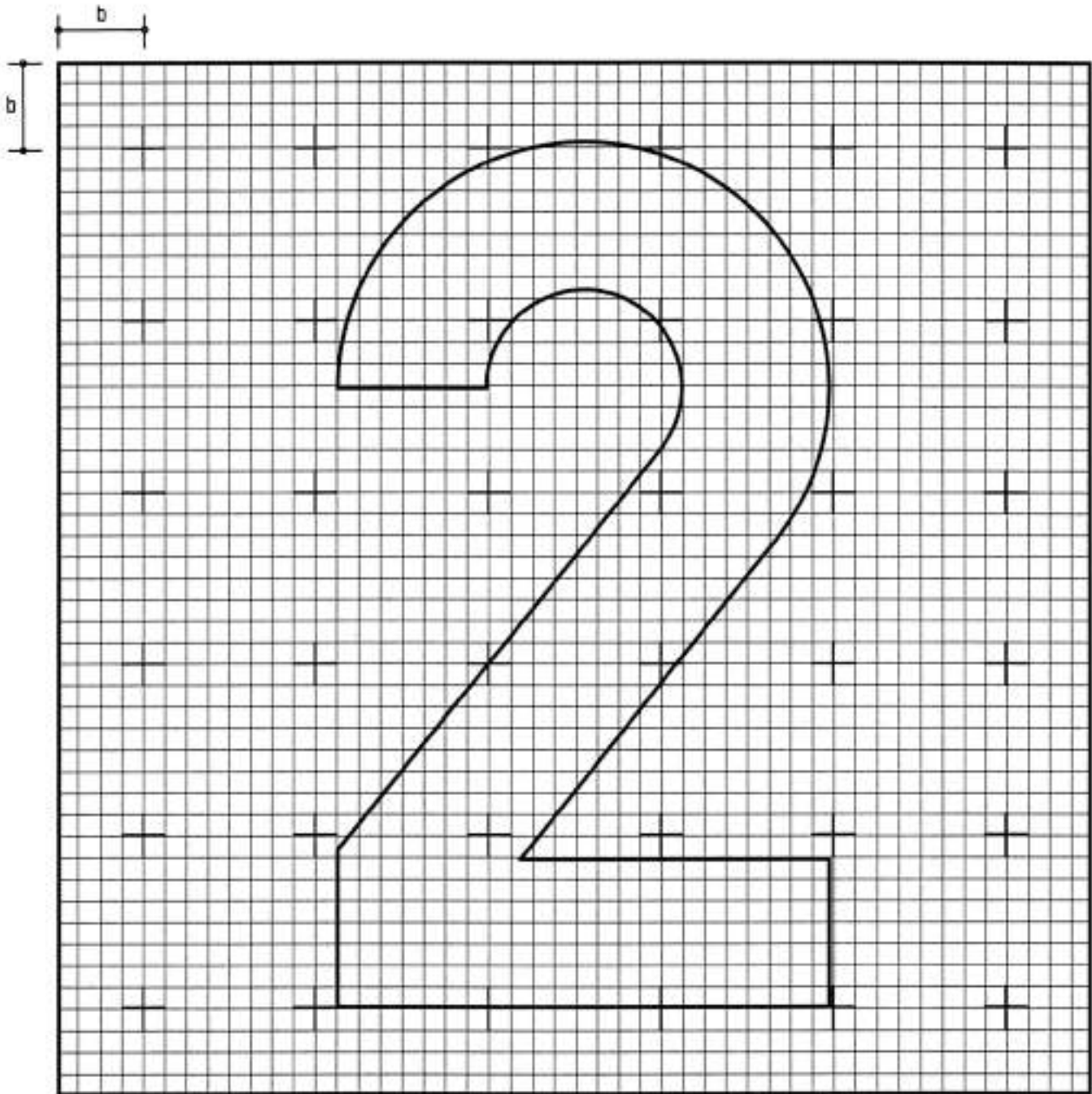
# Z



1

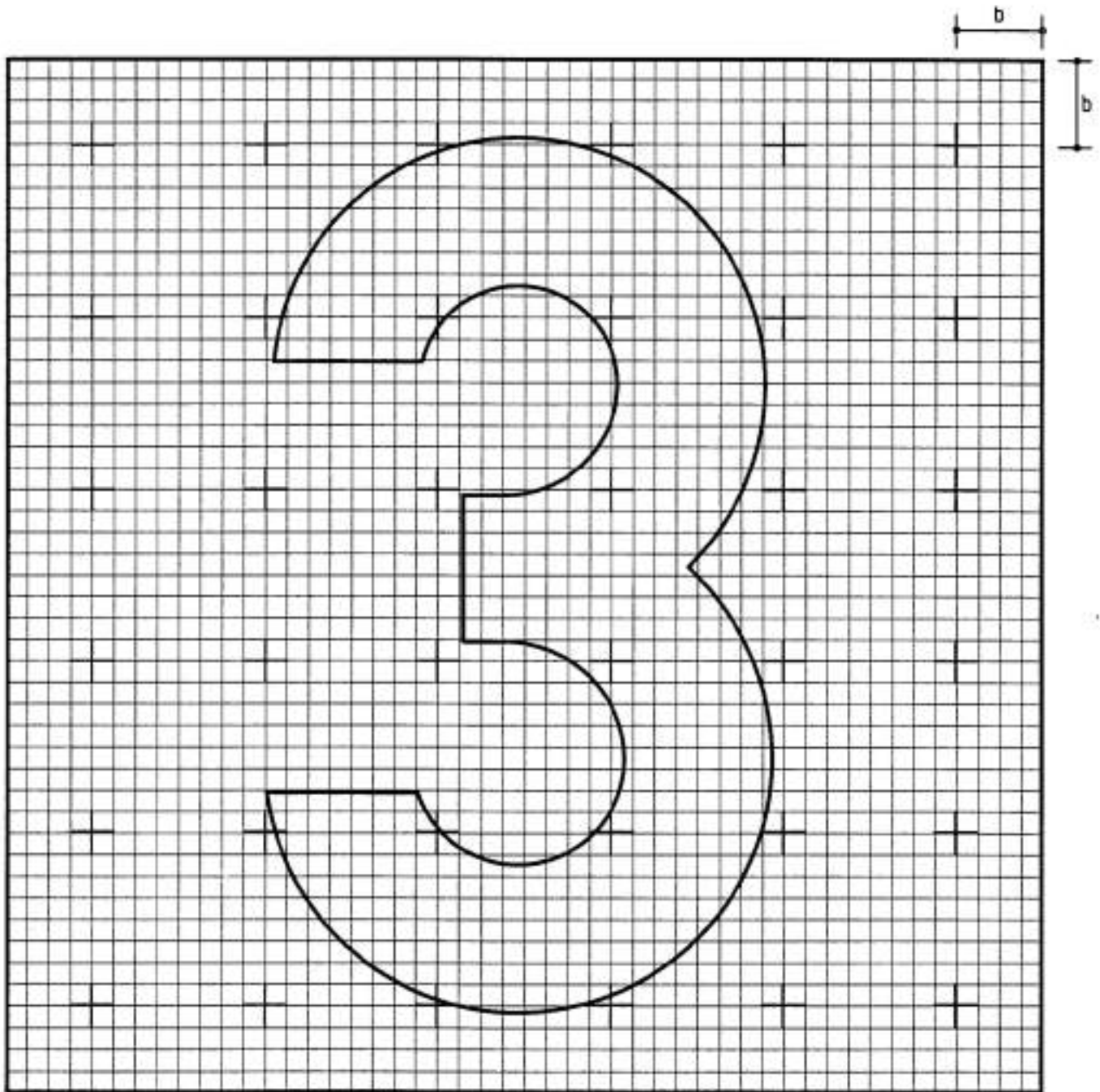


# 2

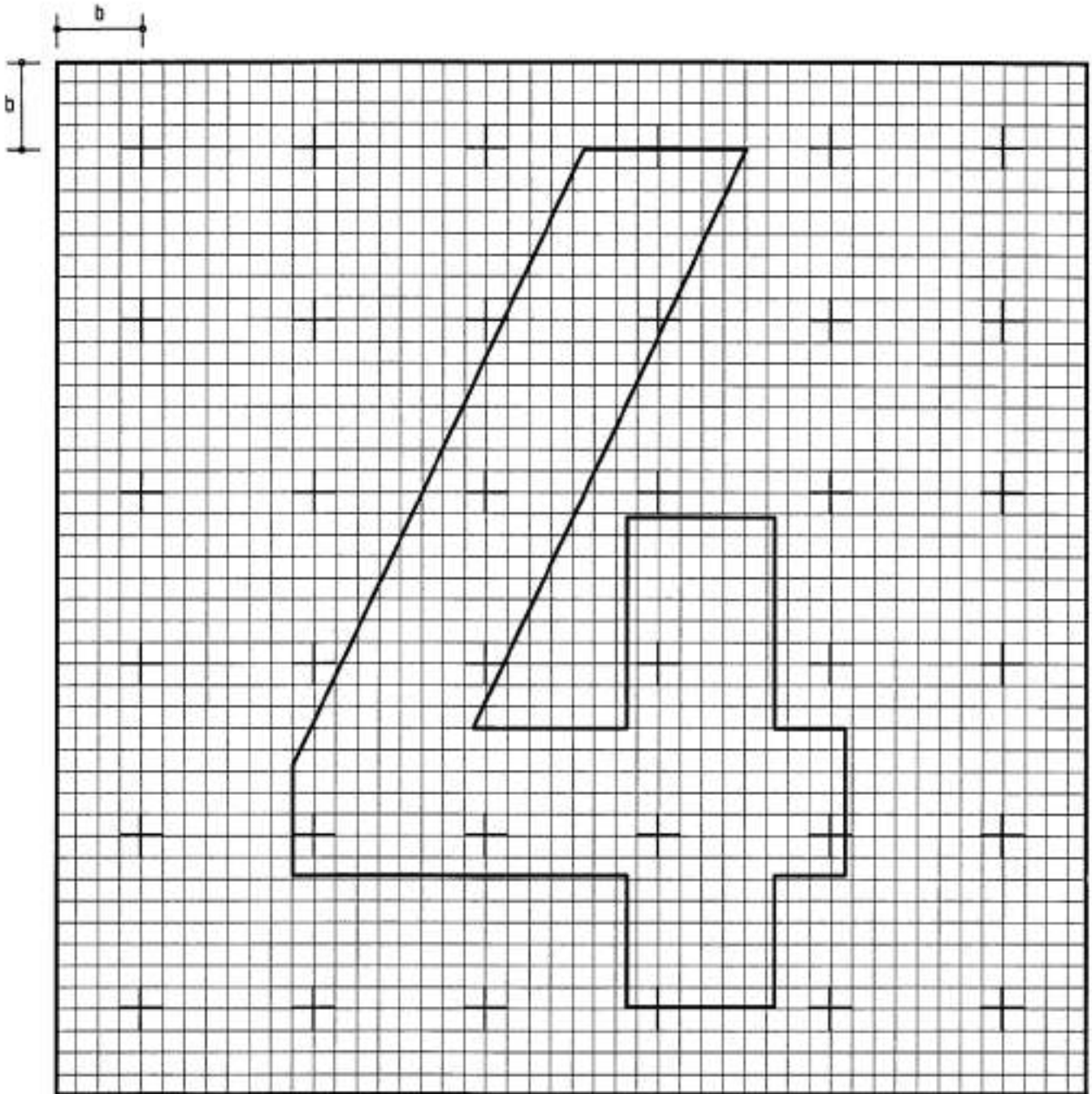




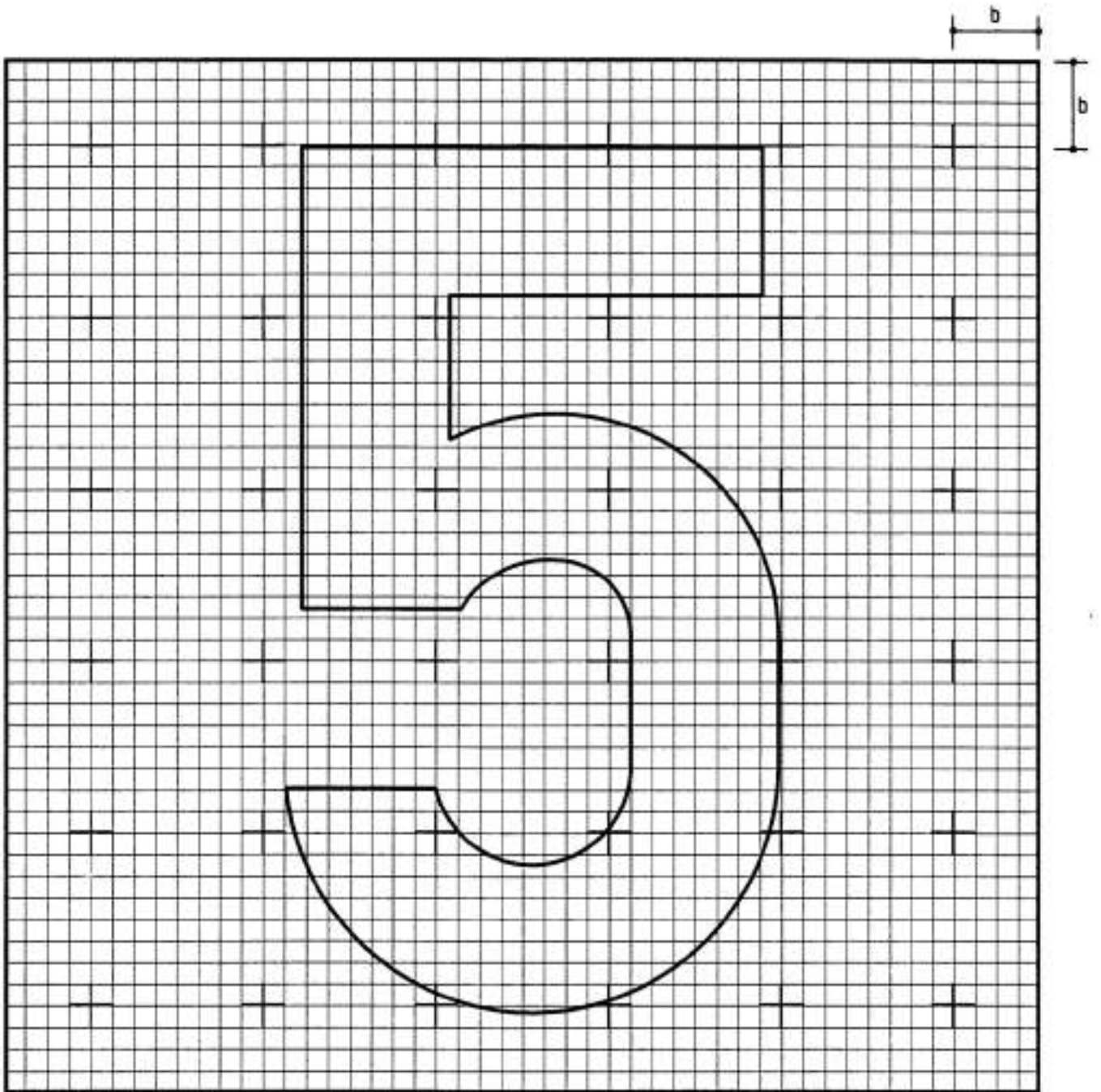
**3**



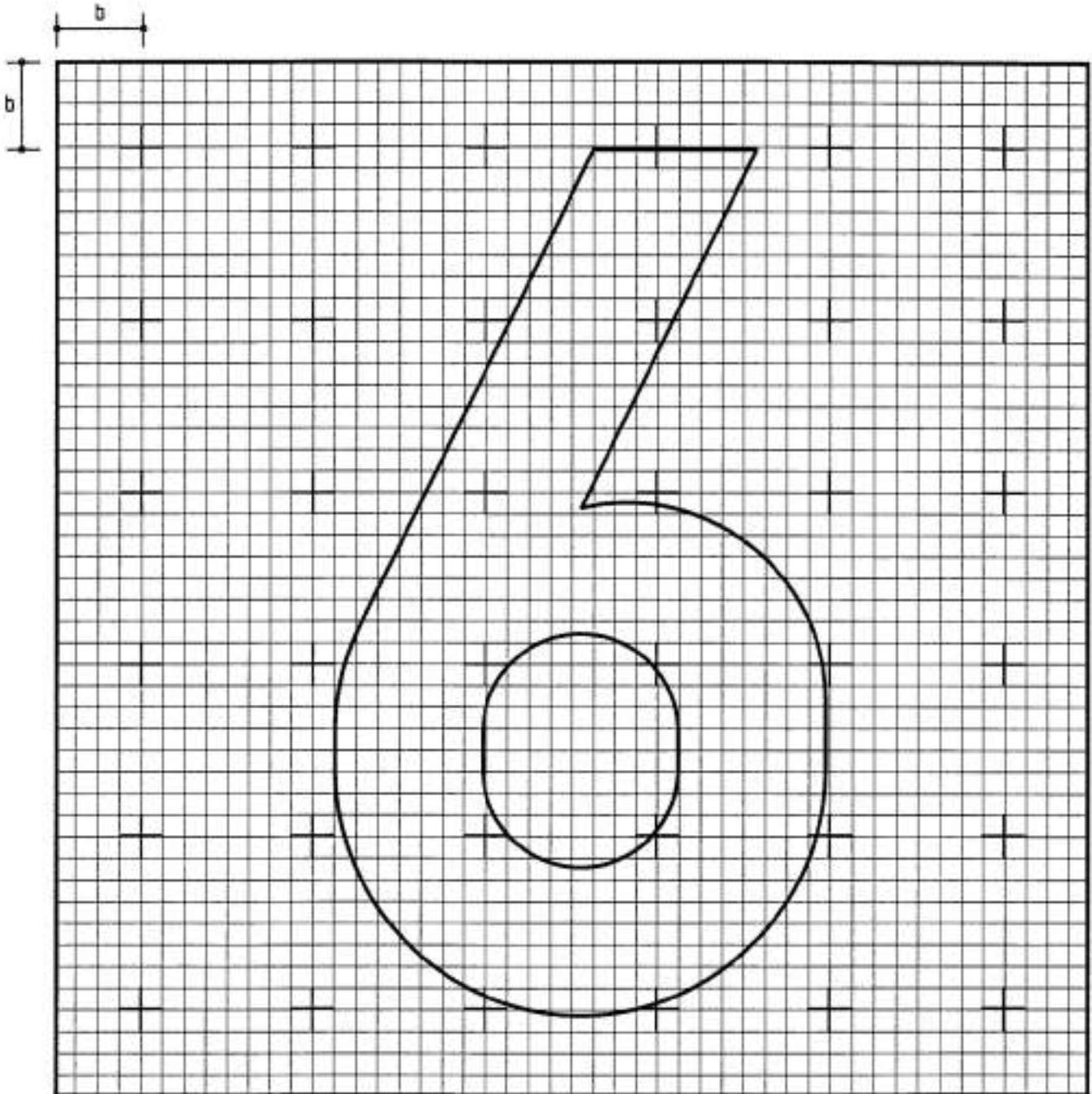
# 4



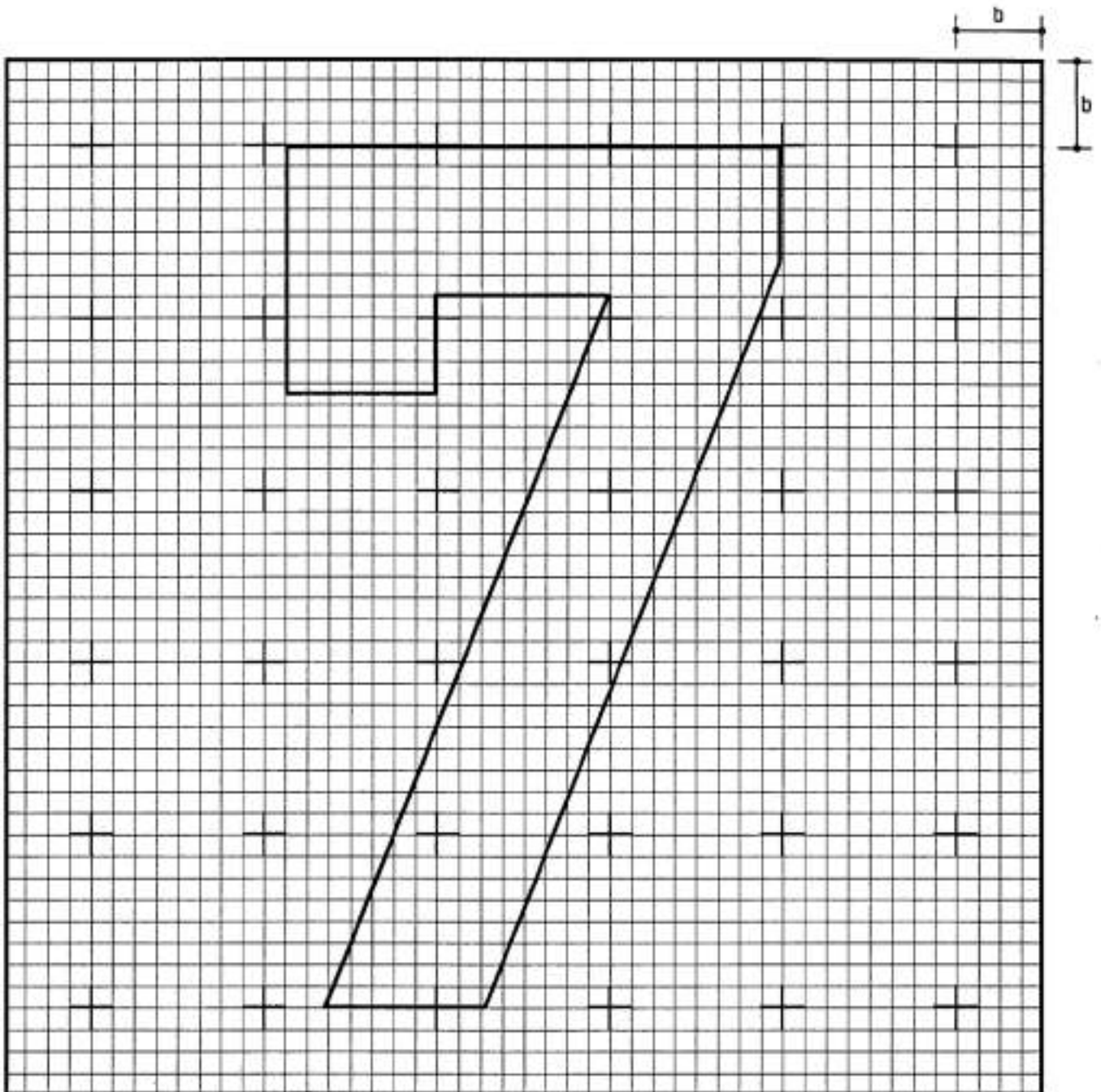
5



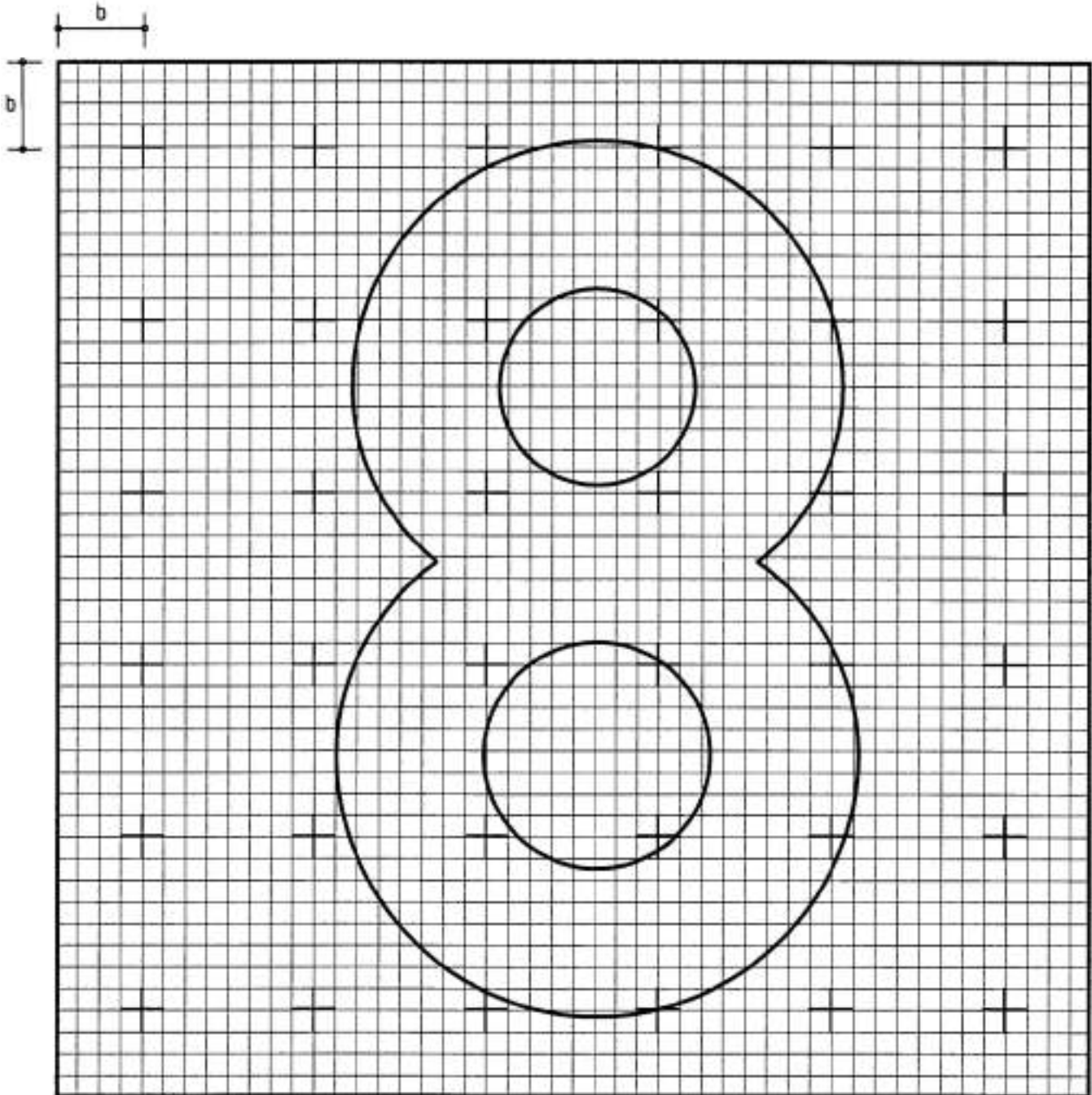
6



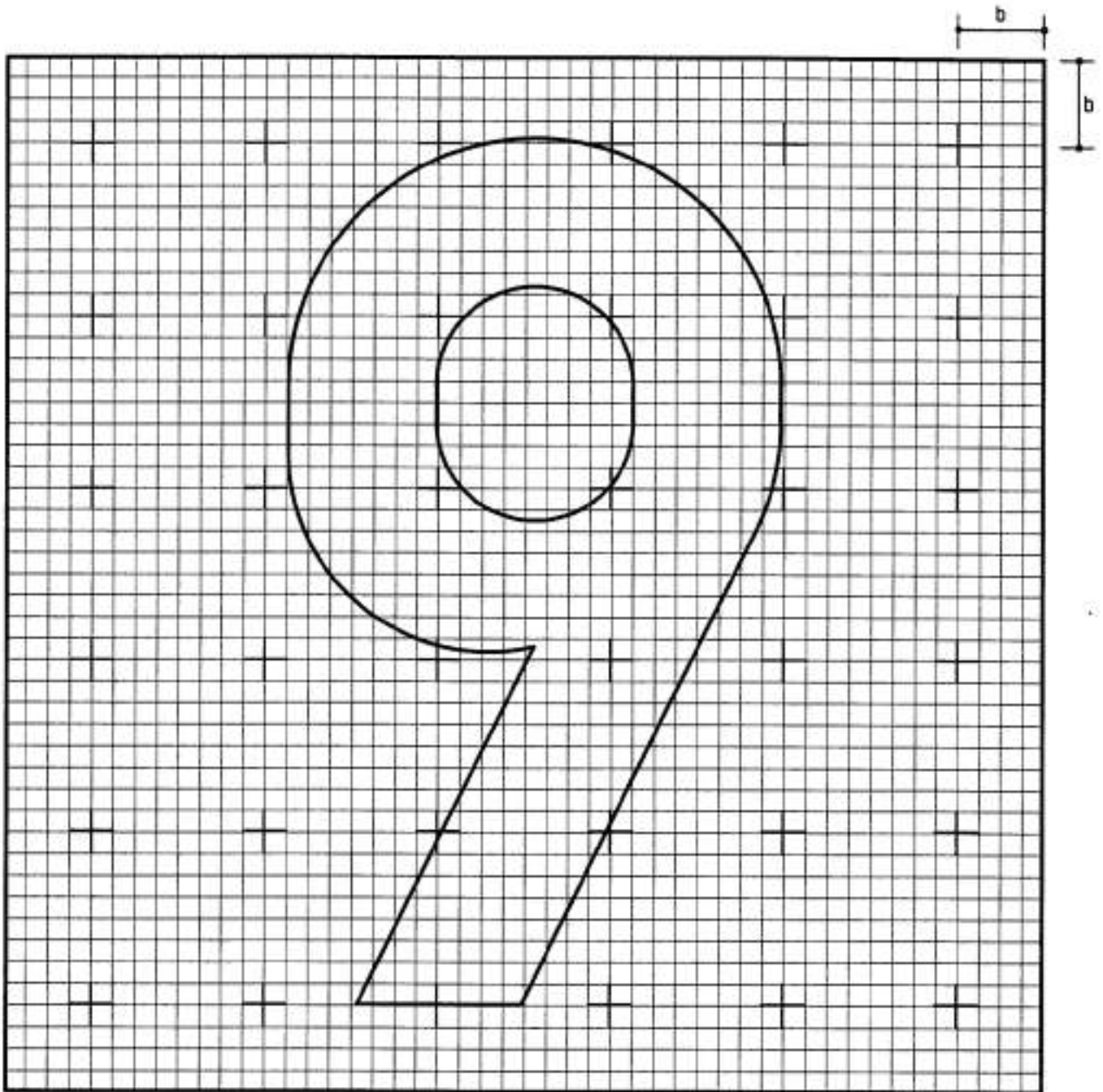
7



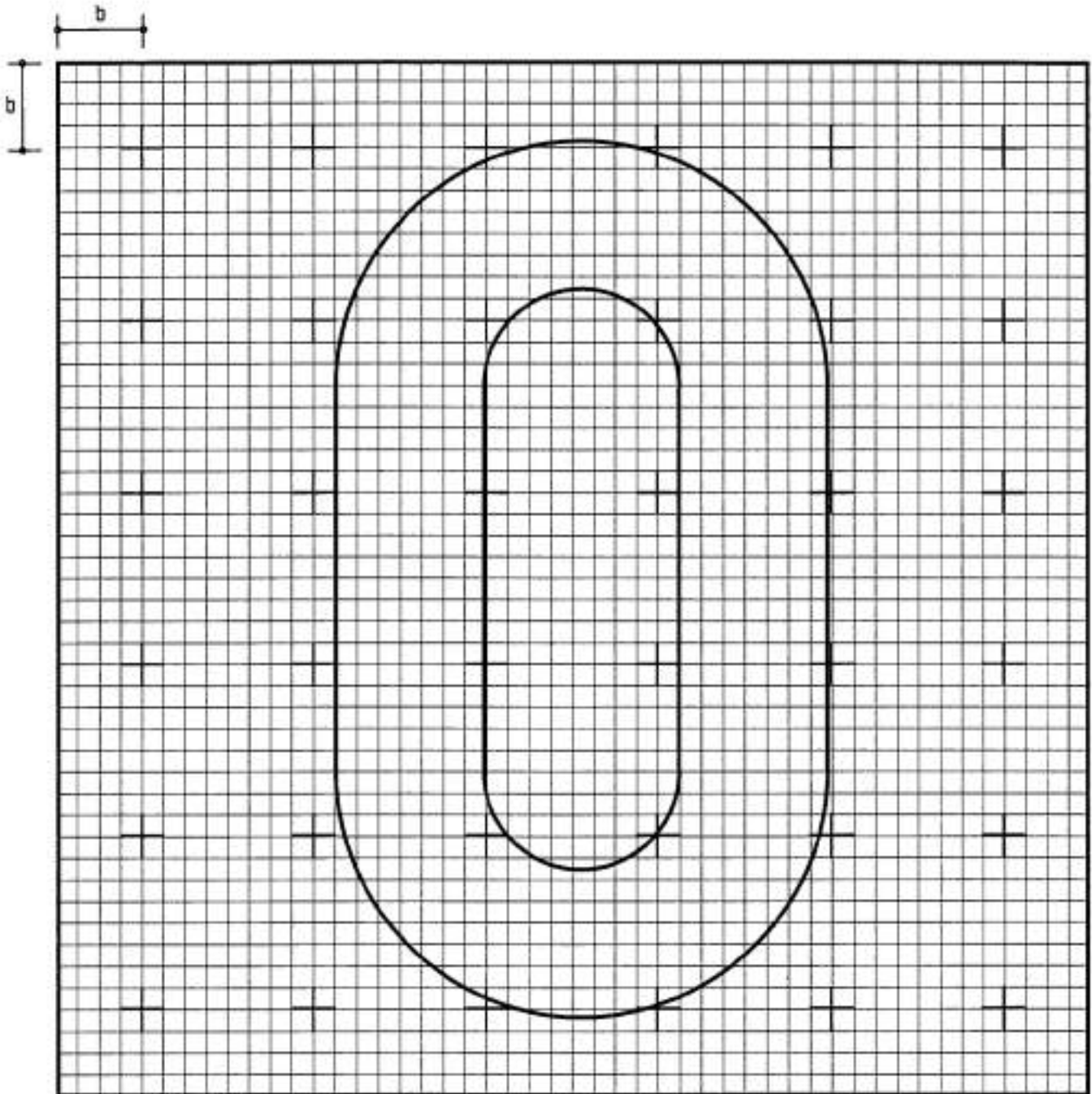
8



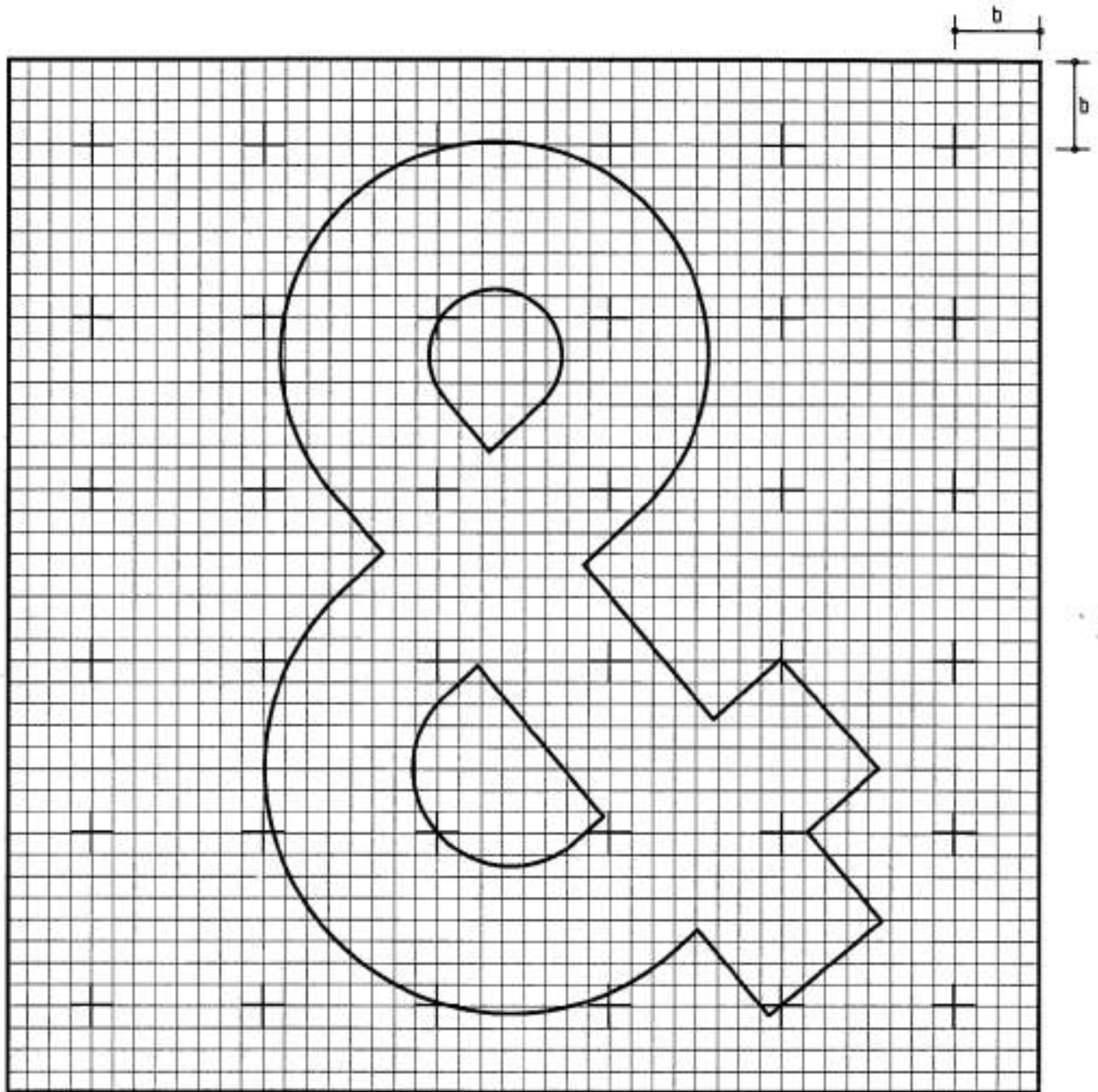
9



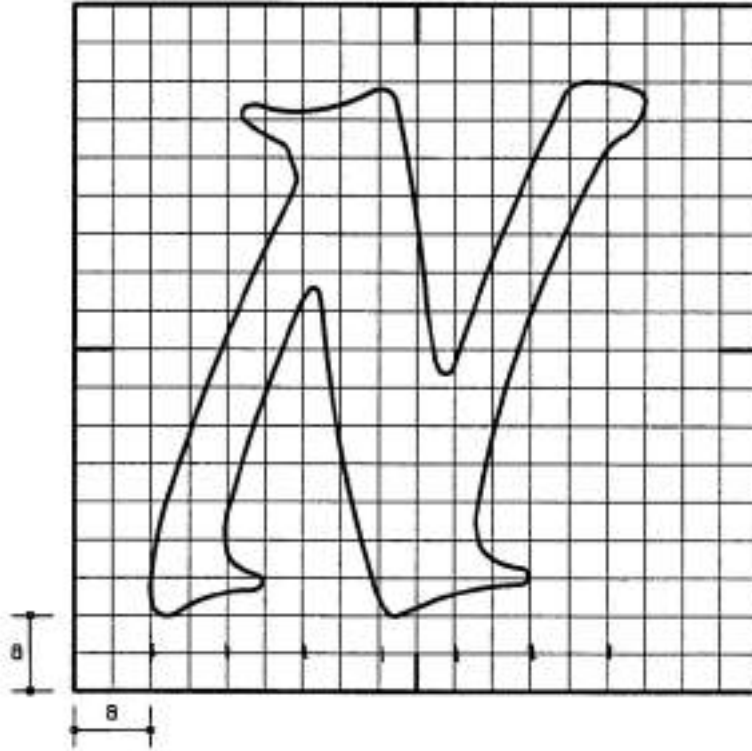
**O**



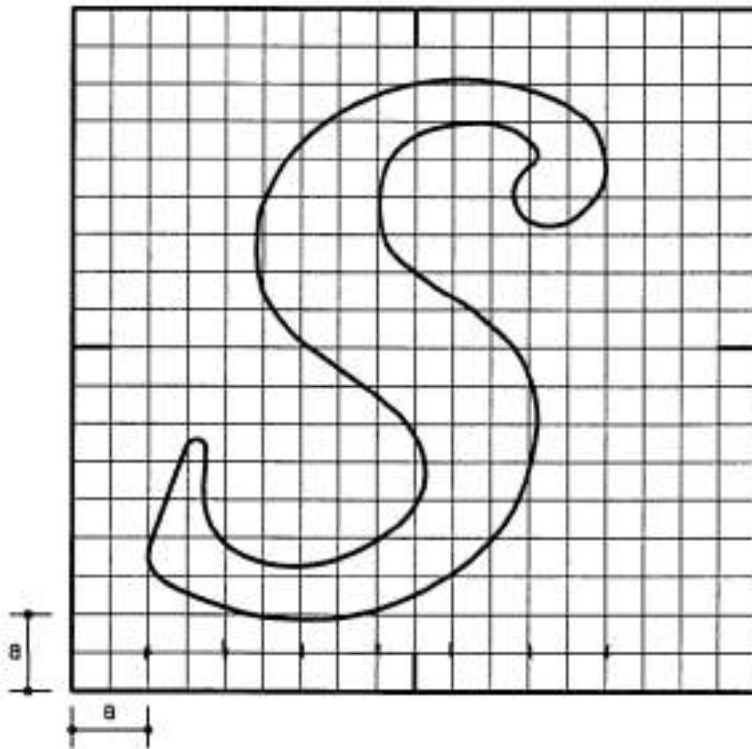








Scale 1:5  
For a = 50 mm  
See p.11.5.3



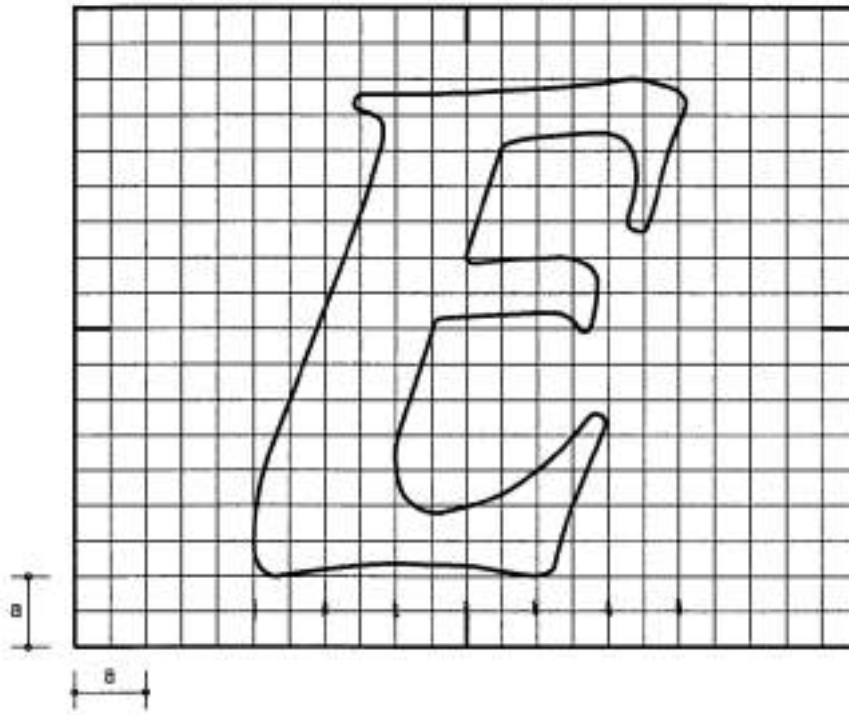
Scale 1:5  
For a = 50 mm  
See p.11.5.3

A stylized, shaded letter 'E' with a decorative, slightly irregular outline.

Scale 1:5

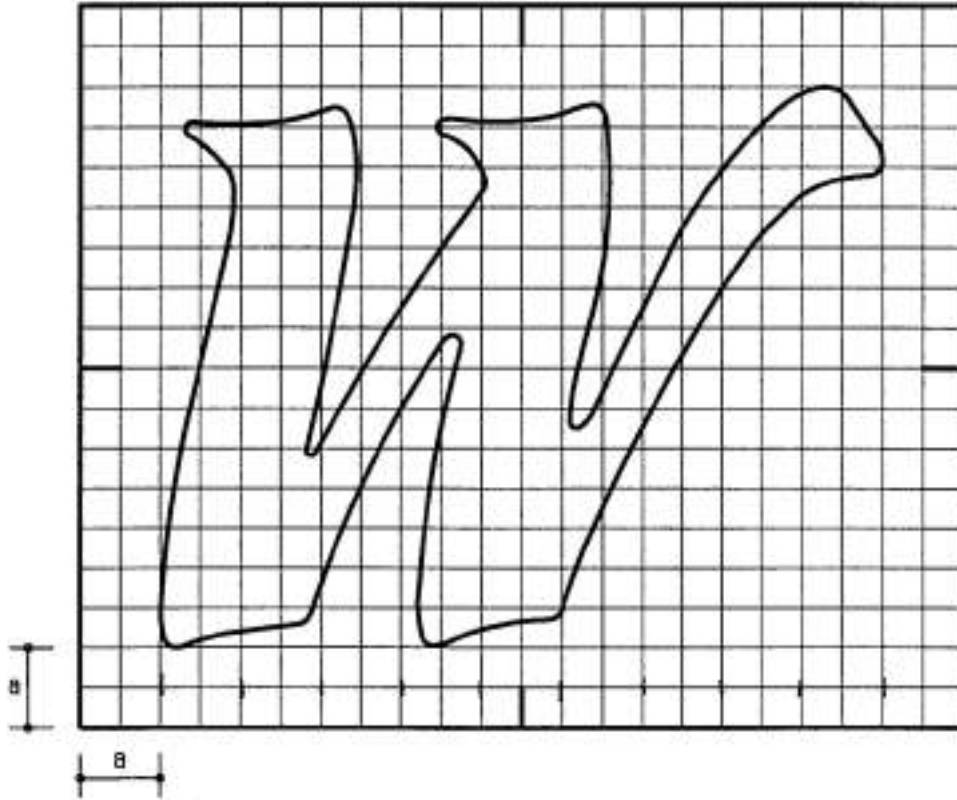
For a = 50 mm

See p.11.5.3





Scale 1:5  
For a = 50 mm



'a' mm	60	50	40	30	20	16
LEGEND	420/300	350/250	280/200	210/150	140/100	112/80