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JOINERY INDUSTRY[1/]

by

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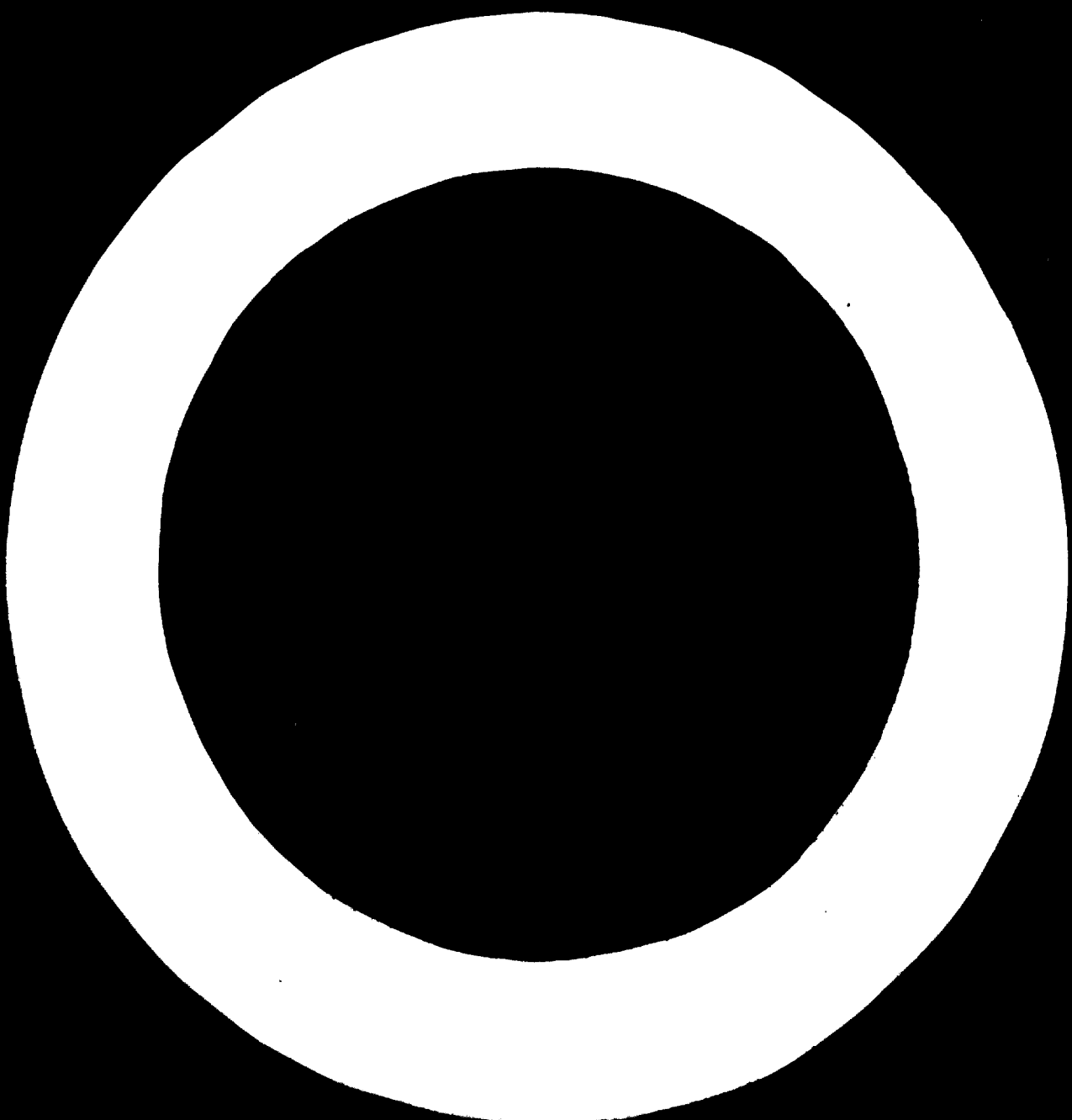


JOINERY INDUSTRY

1. Module dimensioning of joinery products

In 1960 the module department of Nordic Building Regulations Committee (NKB) formulated a standard called "Module System of Building Industry". International Organization for Standardiztion (ISO) has used this standard concerning the Nordic module system as a basis of an international recommendation.

The starting point in module dimensioning of joinery products is that their joining dimensions fit in with the previously mentioned dimensioning system of building industry. The basic module of dimensioning basis is M = 1 dm = 100 mm. The joining dimensions of the products are integral multiples of the basic module n x M, in which n $\geq$ 3, or more.

This lecture will concentrate on three main groups of joinery products:

a. Doors
b. Windows
c. Kitchen furniture and closets

These products have been manufactured traditionally for a long time in certain standard sizes at various factories.

The newest standards, which will be dealt with separately in connection with each product, were published as follows:

Doors in 1969
Windows in 1968
Furniture in 1969

Quality regulations and structural data can be dealt with standard dimensioning.

2. Doors for dwellings, standard sizes

Finnish standards

- RT 871.05 (Annex 1)
- RT 871.21 (Annex 2)
- RT 871.22 (Annex 3)

Fixing and fittings of doors

- RT 870.22 (Annex 4)

Quality regulations for doors

- RT 210.82 (Annex 5)

Structure of doors

- Structure of flush doors

The demands made on the structure of flush doors have already been mentioned in the quality regulations.

It is typical of flush doors that both their surfaces resemble a plane. The other parts of the structure are framework and filling.

The main purpose of the surface boards is to give the door the desired appearance but together with the filling it also has a decisive influence on the regidity of the door. In order that the door would remain straight in use the door structure has to be symmetric, and this makes notable demands also on the covering boards, which have to be homogeneous both in thickness and in quality. Generally covering boards are of hard fibre board or plywood, which suit this purpose quite well. Doors for more exacting use are often veneered with oak, okumé teak or pine.

The filling and the framework of the door together form the base on which the covering boards are glued. The framework can be made either of solid wood or by gluing it of thin lamins or pieces. Pieces are usually glued together with automatic finger jointing machines. In that case even timber of a lower quality can be used cutting off the faults and joining together the suitable pieces, and thus the timber is suitable to the purpose. Earlier

framework pieces were 4 in wide, and the corners were strengthened with cornerlock or dowel joints. Gradually, the framework has become narrower and is now 10...50 mm wide. Today framework pieces are joined together only with staples, which facilitates the assembling phase. Since the framework has become so much narrower, it has become necessary to use a special additional piece of wood in the lock and the hinges so that fastening screws can be fixed in solid wood.

The filling of flush doors used to be solid wood but later block filling became more common. The distance between the blocks varies greatly depending on the demands made on the evenness of the surface. The blocks are of wood, plywood, porous or hard fibre board. The blocks can also be used to form grids to obtain better filling than with blocks set in one direction only. Today we use almost solely paper honeycomb filling, the best-known of which are: Honeycomb filling, Dufolite filling and Wellite fillings.

Honeycomb fillings are formed of sections. The compression strength of the filling can be regulated by changing the size of the sections and the thickness of the paper. The paper fillings mentioned are inexpensive and they provide the product with even surface, great bending strength, straightness and light weight.

A separate group among flush doors is fireproof doors for dwellings and sound-insulation doors. They differ from ordinary flush doors actually only in regard to their filling. Wooden doors for dwellings belong to groups C 15 and C 30 in their fire-resistance. The figures 15 and 30 indicate the fire-resistance of the doors in minutes. The burning test is performed in a vertical oven of a fire laboratory according to normal burning curve, in which the oven temperature is 730°C after 15 minutes and 850°C after 30 minutes from the beginning of the burning. The door has to stand the burning without burning through. Also smoke formation and surface temperature on the opposite side of the burning are examined.

The inner structure of fireproof doors can be of solid wood, in which case a door 40 mm thick stands burning for 15 minutes. The same result can also be obtained when using particle board structure or expanded cork as filling. In fire group C 30 the structure has to be stronger. The required fire-resistance is obtained by using asbestos or some other special structure.

Sound insulation is required mainly in doors for hotel rooms, patient and examination room doors for hospitals, classroom doors for schools and outer doors of dwellings mentioned previously.

Sound insulation requirements are 25 dB or 30 dB depending on the use. The insulation degrees are obtained by increasing the weight of the door with thicker surface boards or with a multi-layer structure in which the inside is often soft and sound absorbing. Particular attention has then to be paid to the packing between the door and the frame.

3. Windows and glazed doors, standard sizes and structure

Finnish standards
RT 861.42 (Annex 6)
861.46 (Annex 7)
862.46 (Annex 8)
860.22 (Annex 9)
860.23 (Annex 10)

Windows, glazed doors, outer and frame doors, wooden
Quality regulations: RT 210.81 (Annex 11).

4. Kitchen furniture

The dimensioning principles of kitchen furniture are the same as those of doors and windows already dealt with. (Enso brochure)

Kitchen furniture is divided into groups according to the types of cupboards as follows:

Wall cupboards, standard widths are 400 mm and 500 mm or integral multiples of these dimensions.

The depth is 290 mm and the heights are 1160 mm, 680 mm and 480 mm.

Table cupboards, widths 400 mm and 500 mm or integral multiples, depth 590 mm, height 820 mm, which makes 850 mm together with the table top.

Closets, widths 500 and 600 mm, depth 590 mm and heights 2380 mm and 1900 mm, plus a separate upper cupboard 480 mm.

Inside furnishing possibilities of the cupboards can be seen in the enclosed brochure.

The main raw-materials of kitchen furniture are particle board, plywood, hard or semi-hard fibre board, and pine in joints and framework. Structural boards are often made using the honeycomb structure, which is used also in flush doors.

Quality regulations are basically the same as the corresponding ones for doors so that it is not necessary to repeat them here.

5. General information about the manufacturing technique of windows, doors and furniture

Main raw-materials

The timber used in Finland is generally pine, which is quite suitable for manufacturing joinery products. For visible surfaces of the products dealt with earlier in this lecture we generally use u/s or export quality. The faults allowed in timber have already been dealt with in quality regulations for doors and windows.

Recently the use of fir has been studied, and it has been used to some extent e.g. in door frames. Some manufacturers use also birch in certain parts of kitchen furniture.

Other raw-materials which are used are, as we have already mentioned, hard fibre board, semi-hard fibre board, plywood, hard board, stave board and various types of foreign hardwood.

A number of various manufacturing materials are also needed such as glues, paints, fittings, screws etc. to mention a few.

Special features in manufacturing joinery industry products

Finger-jointed timber

Joinery industries have started to use finger-jointed timber in an increasing amount. This is due to the facts that we have started to diminish the waste in cutting and to use also lower quality. Finger-jointening is usually performed so that artificially dried timber is driven through a cutting- saw and possibly also a surface planing to an automatic finger joint machine. After the drying part it is cut again to required length. The length of joint fingers determines the strength of the joint and it is fully controlled so that lengthened timber can be used for almost all purposes.

At the same time as longitudinal lengthening has become common also gluing side by side has become important in joinery industry. This is even necessary in certain products. Timber glued side by side does not twist nearly as much as a solid piece. This is important e.g. in manufacturing door frames. Generally frames wider than 5 in always have to be made of timber glued side by side.

Automatic production lines

The continuous rise in costs has brought about continuous attention paid to economy in the use of raw-materials and manufacturing wages. Therefore, we have aimed at greater and more rationalized serial production. This has also accelerated the use of automatic machines and machine lines.

An example for door manufacture is automatic door manufacturing line of Oy Wilh. Schauman, which you soon will see. There the door goes automatically from the press through double end tenoning, surface sanding, edge sanding and fittings. After all these phases it comes to stacking and then, if necessary, to another automatic line where surface finishing with all its phases takes place automatically. (Base painting, another sanding, finishing and the same on the other surface of the door.)

Similar examples are to be found in window and furniture manufacturing industries.

The manufacturing of furniture consists of more phases due to its assembling and different furnishing types. However, the newest furniture factories have advanced considerably also in their assembling phases. It is now common to use assembling presses, from which the furniture items go to a conveyor where doors are fixed and inside furnishing takes place. It has to be noted that furniture parts are painted before they are assembled. It is easier to paint furniture in parts than as a whole cupboard. The use of assembling presses has brought about changes in types of jointing. The type of jointing best suitable for presses is dowel joint, and we have started to use it again.

Materials and performance of finishing

You will have a special presentation on surface finishing so that only a brief preliminary account is given now.

The demands made on finished surfaces are dependent on the surroundings, personal taste and other matters connected with its use.

Wood as a base of surface finishing can be solid wood, veneer, plywood, hard board or particle board. When we think of the final appearance of the surface we have to consider the quality of the board carefully. Good results cannot be obtained on a poor base. If the base is uneven, it needs grinding and filling first.

Furniture parts and doors are usually painted with certain coating machines, which contain preliminary heating and actual drying ovens and a cooling part. The newest lines have also other sanding machines with brush equipment as well as the return rail for the pieces with its turning equipment.

The painting of windows is done with spray painting equipment either as parts or assembled. The temperatures of drying ovens are considerably lower so that when using softwood the resin will

will not boil out of the wood thus spoiling the painted surface. The paints used in windows differ also from door and furniture paints since they have to be more resilient because of weather resistance.

The paints used are usually based on alkyde and amin resins and urea resins, which act as cementing agent in the paint.

Nitrocellulose, urethane or polyesther resin are the most common cementing agents of varnish.

All paints and varnishes are very inflammable so that the equipment has to be very safe when we consider e.g. the high temperatures of drying ovens.

Let it be mentioned in this connection that instead of paint plastic profiles are often being used to coat door frames and windows. In that case no painting is necessary and also timber of a lower quality can be used under the plastic profile.

6. Marketing of products

There are two main groups of deliveries of joinery products from the factory:

a) Business based on offers to building companies
b) Business through retail organization to small-scale consumers

The first of the two is the most remarkable in its volume. Business is usually done so that a building company sends an enquiry concerning the joinery product in question to several manufacturers in the field and decides the purchase after a tough competition in prices based on price and quality. Certain manufacturers operate 100 % in this field of marketing and do not manufacture any stock products at all. They are, indeed, often more able to compete due to their flexibility and prices when special product means a product of a special size with e.g. different finishing or fittings from the ordinary ones. In addition, factories doing only this type of business are better able to compete since they need no stocking or interest costs. On the other hand, they may not have the profits of longer manufacturing series of standard production.

The strongest retail dealers are builders'department stores, which have appeared in recent years. They have also the best prerequisites because of their specialized staff and stock. Hardware stores have traditionally been in the field of retail business, but they do not, however, hold these products in stock but they act as agents of manufacturers thus receiving an agreed provisional commission for their sels. Larger companies also have district representatives all over the country, who generally operate from their stock of commission.

Generally manufacturers of the field operate alone on the whole sector with their own sales organization but increased competition has also forced them to product rationalization and united sales organizations with several other factories. An example for this is Sovi Oy, which is a sales organization of three door factories and divides its orders according to an agreed principle so that each member company manufactures for it the products which best suit its production.

The manufacturing degree of products has changed considerably during the past few years. Kitchen furniture is now delivered almost 100 % finished and also fixed to the walls at least in new buildings. Also doors and windows are increasingly painted, provided with fittings and windows are glazed. Building companies have found that it is less expensive, and when the product is prefabricated also the quality is better than it would be if made on the site in poor conditions with deficient machines and equipment. Thus the completion time-table for buildings has increased in speed and capital interest cost are saved as well as labour.

Suomen Standardisoimislautakunta Finlands Standardiseringskommission

OVI, ASUNNON, STANDARDIKOOT

Doors for dwellings, standard sizes

SFS 2483
SfB X (32)
UDK 69.028.1
Sivu 1 (1)

Rakennusteollisuuden moduulijärjestely		RT 038.960
Moduulijärjestely, soveltamisperusteita		RT 038.961
Ovet, nimistö		RT 870.00
Ovet	ryhmässä	RT 87...

1 Sisältö

Tämä standardi sisältää asuntojen, toimistojen yms. mo
duulimitoitettujen ovien standardisoidut nimelliskoot.

2 Liittymismitat. Oven koon merkintä

Ovi = karmi + ovilevy
Oven liittymismitat määräävät oven liittymisen seinään
Oven korkeuden liittymismitta määrätään valmiista lattio
pinnasta.
Moduulimitoitetun oven liittymismitat ovat moduulimittoja
kantamoduulin kokonaisia kerrannaisia. Kantamoduul
M ≙ 1 dm = 100 mm.

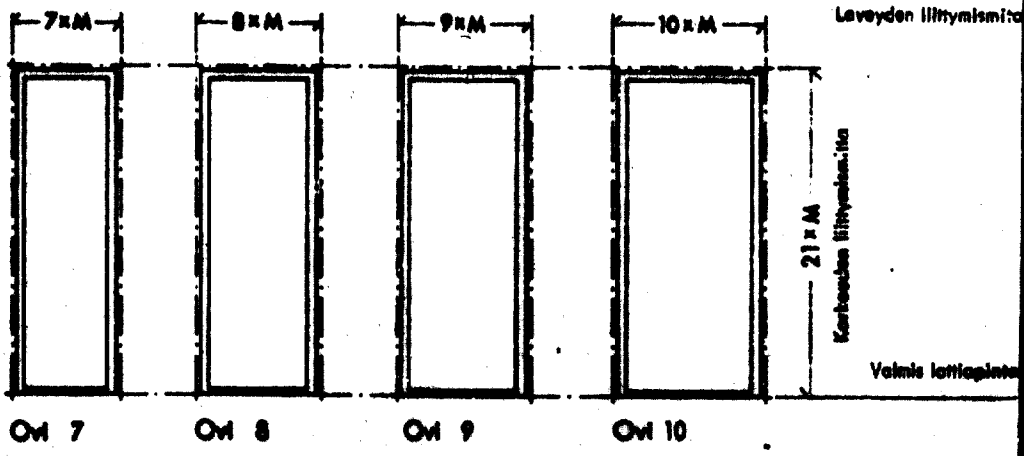
22 Oven koon merkintänä käytetään liittymismittoja (levey
ja tarvittaessa korkeus).
Asunnon, toimiston yms. standardikokoisen oven koo
merkintänä käytetään leveyden liittymismittaa ilmaistuna
moduulimittana, esim. ovi 9.

Oven koon merkintää ei yleensä käytetä yksinomaisena me
kintänä, vaan se liittyy tarkempaan oven eri ominaisuuksi
yksilöivään merkintään.

3 Standardikokojen nimellismitat

Asunnon ovien nimellismitat ovat n × M, missä n on

leveys	korkeus
7	21
8	
9	
10	



SAFA asemakaava- ja standardisoimistoliitto

Doors for dwellings, standard sizes

1 Contents

This standard contains the standardized nominal sizes of module dimensioned doors for dwellings, offices etc.

2 Joining dimensions. Marking door size

Door = frame + door leaf

Joining dimensions of the door determine the joining of the door to the wall. The joining dimensions of the door height are determined from finished floor surface.

Joining dimensions of a module dimensioned door are module dimensions, integral multiples of the basic module. The basic module is M = 1 dm = 100 mm.

22 To mark door size joining dimensions are used (width and if necessary also height).

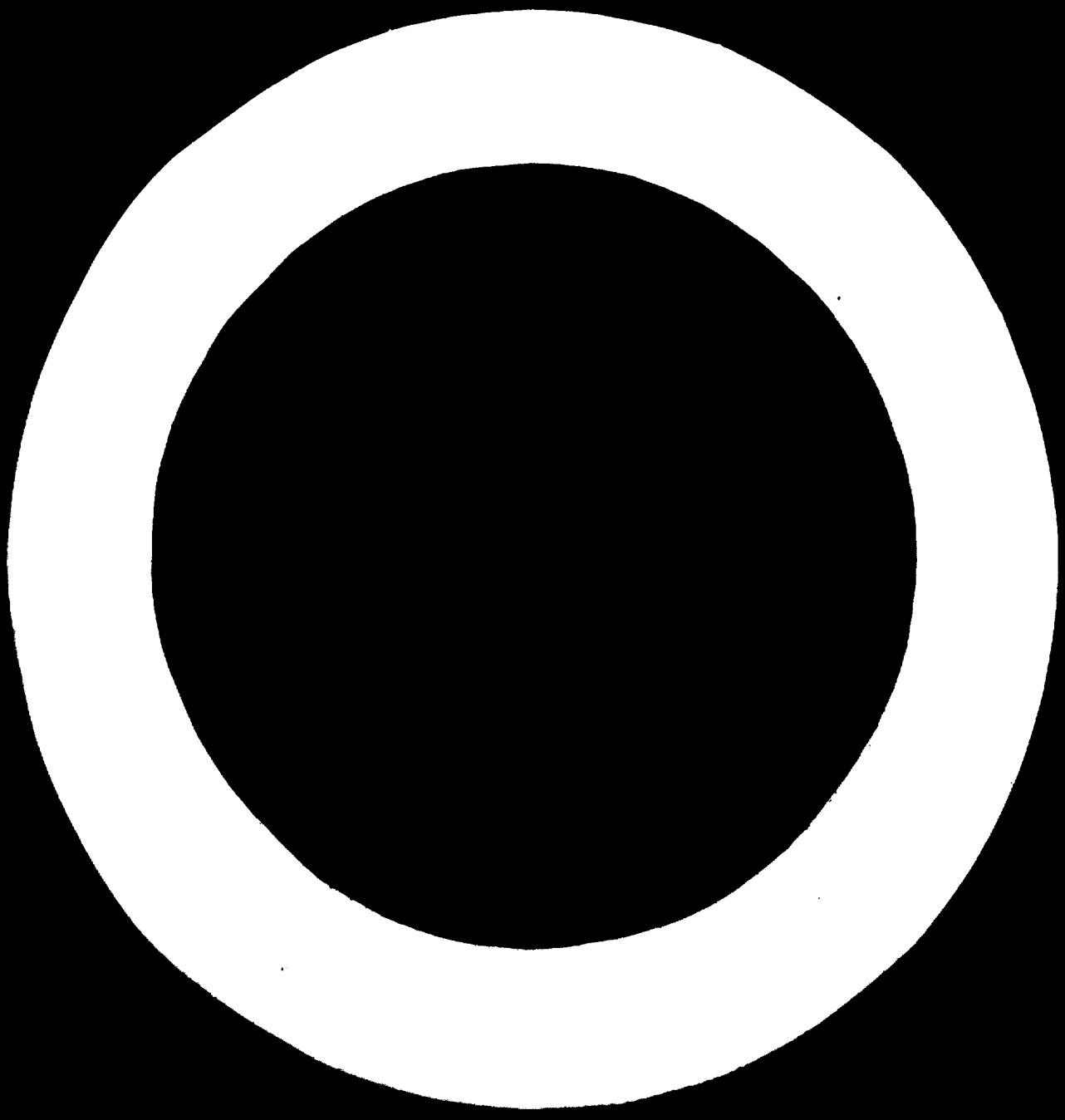
To mark a standard-sized door for dwelling, office etc the joining dimension of width is used given in module dimensions, e.g. door 9.

Door size is not generally used alone but it is part of more detailed specifications.

3 Nominal dimensions of standard sizes

The nominal dimensions of doors for dwellings are n x M, in which n equals:

width	height
7	21
8	
9	
10	



OVI, ASUNNON, PUUTA

tasoreunaovi

Wooden doors for dwellings

1969 RT 871.2
Sis X (32)
UDK 69.028.11
Sivu 1 (3)

Ovi, ainistö		RT 870.00
Ovi, asunnon, standardikaot		RT 871.05
Ovet	ryhmässä	RT 87...
Kehysovet, puuta, laadunmääräykset		RT 210.81
Laakaovet, puuta, laadunmääräykset		RT 210.82

1 SISÄLTÖ

11 Tässä RT-kortissa esitetään osuntojen, toimistojen yms. standardikokoinen puurakenteinen tasoreunaovi.

12 RT-kortti sisältää karmin ulkomitat, karmikappaleiden mitat, ovilevyn mitat sekä käyntivälit.

2 MERKINTÄ

21 Oven merkintä

Oven nimi, oven koko (ks. RT 871.05), karmin syvyys (mm), mainita jos ei haluta kynnystä ja tämän RT-kortin numero.

Esim: Laakaovi 9/92 RT 871.21
Kehysovi 8/92 ilman kynnystä RT 871.21

Lisäksi on tilauksen yhteydessä mainittava standardin RT 210.81 tai RT 210.82 mukainen laatuluokka ja valmistusaste.

22 Karmin ja ovilevyn merkintä erikseen tilattaessa

Karmin merkintä: karmi, oven koko, karmin syvyys, mainita jos ei haluta kynnystä ja tämän RT-kortin numero.

Esim: Karmi 9/92 ilman kynnystä RT 871.21
Karmi 7/68 RT 871.21

Lisäksi on tilauksen yhteydessä mainittava standardin RT 210.81 tai RT 210.82 mukainen laatuluokka ja valmistusaste.

Ovilevyn merkintä: ovilevy, oven koko ja tämän RT-kortin numero.

Esim: Laakaovilevy 9/RT 871.21
Kehysovilevy 8/RT 871.21

Lisäksi on tilauksen yhteydessä mainittava standardin RT 210.81 tai RT 210.82 mukainen laatuluokka ja valmistusaste.

3 MITOITUS

Oven liittymismitat, ks. RT 871.05

31 Oven karmin valmistusmitat ovat 10 ± 2 mm pienemmät kuin oven liittymismitat.

32 Karmikappaleiden mitat, ks. kuvat.

33 Ovilevyn valmistusmitat, ks. kuvat.

34 Oven käyntivälit pätevät heloitetussa ja valmiiksi sovitetussa käsittelemättömässä ovessa.

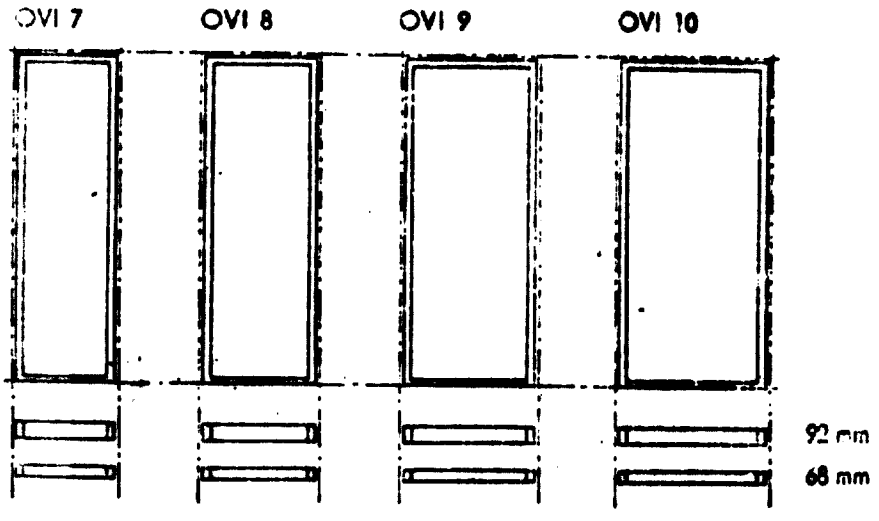
Käyntiväli

sivuilla yhteensä	2...6 mm
ylhäällä	1...3 mm
alhaalla	2...4 mm

35 Mitoitus edellyttää, että puutavaran kosteus huoneenosta laskettuna on laakaoville ≦ 10 % ja kehysovilla ≦ 12 %.

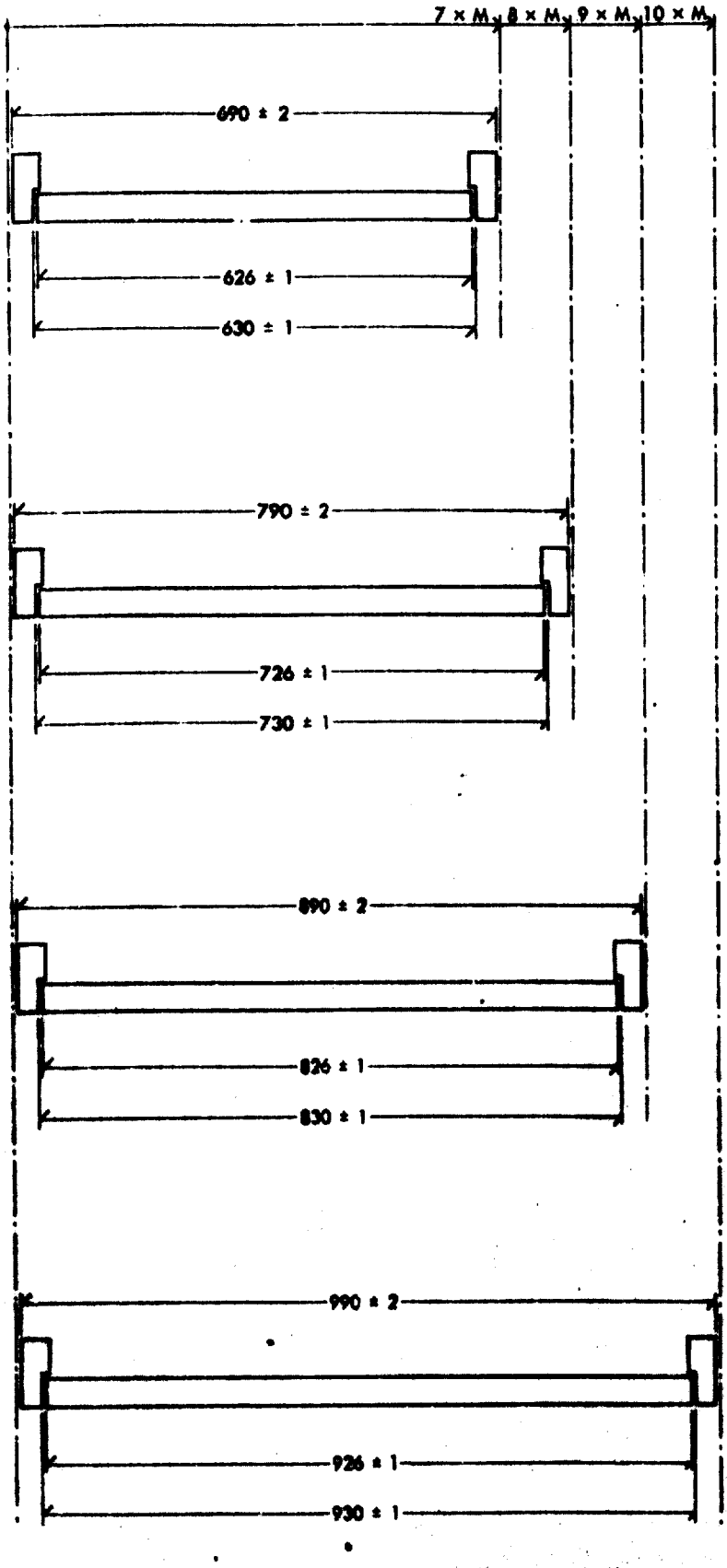
4 KYNNYS

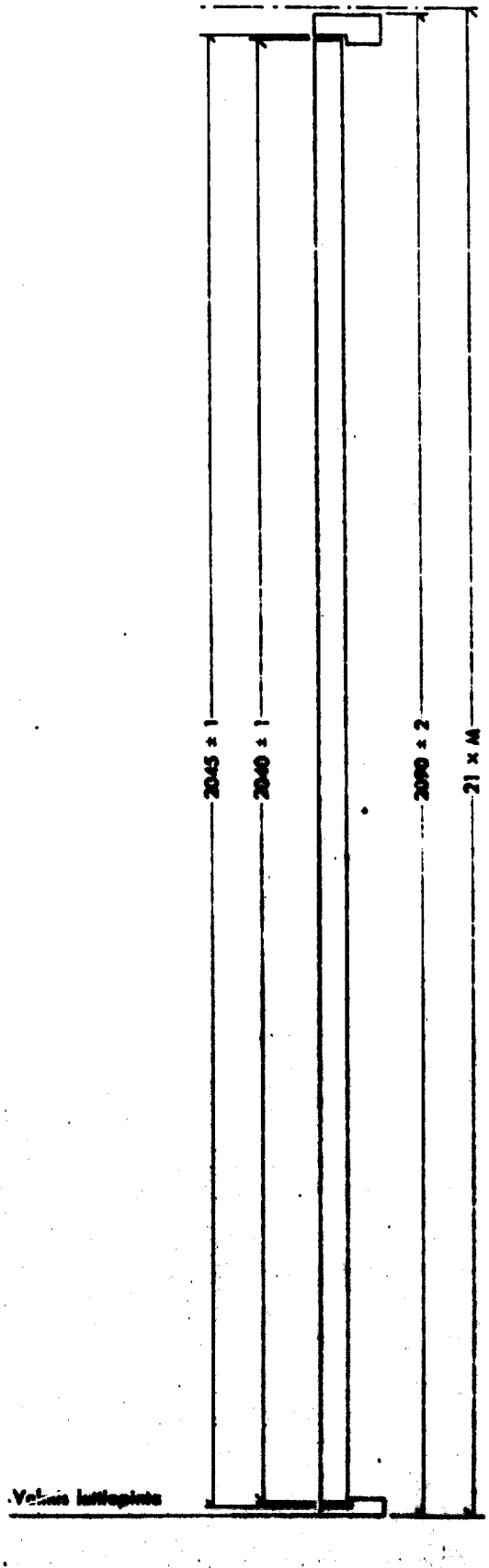
Standardioven kynnys on irtokynnys. Kynnyksen voi myös jättää pois, jolloin se on tilauksessa mainittava.



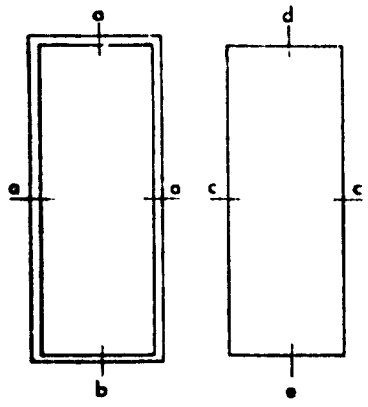
Ovi 7/92
Karmi 7/92
Ovilevy 7

Ovien valmistusmitat

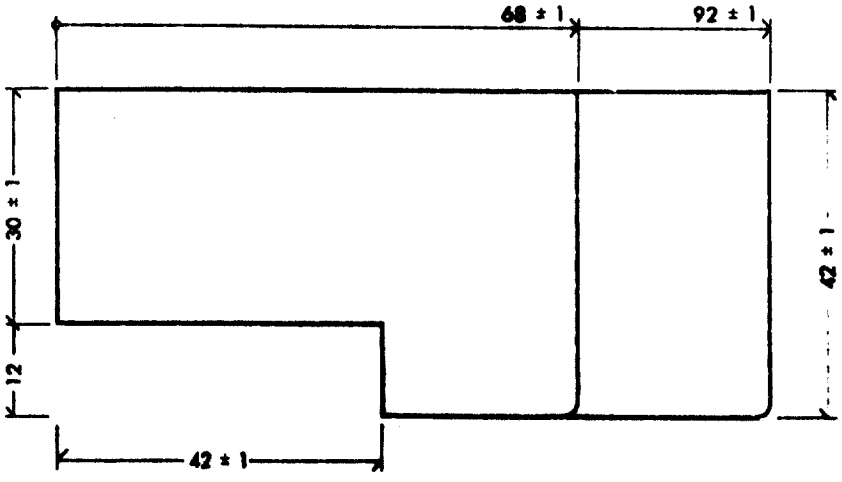




Karmikappaleiden mitat ja ovilevyn reunan mitat



a



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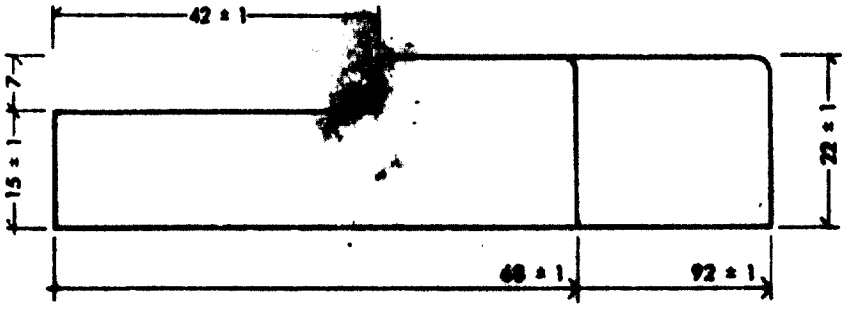
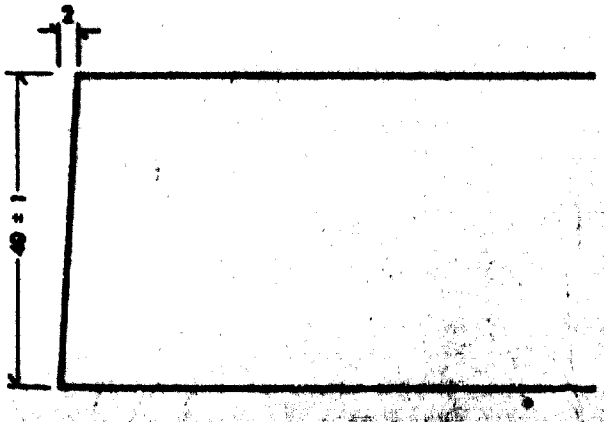
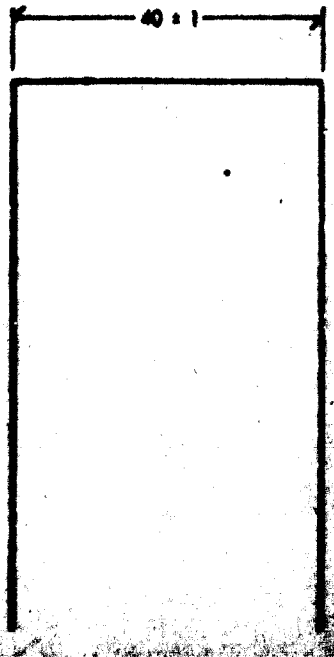
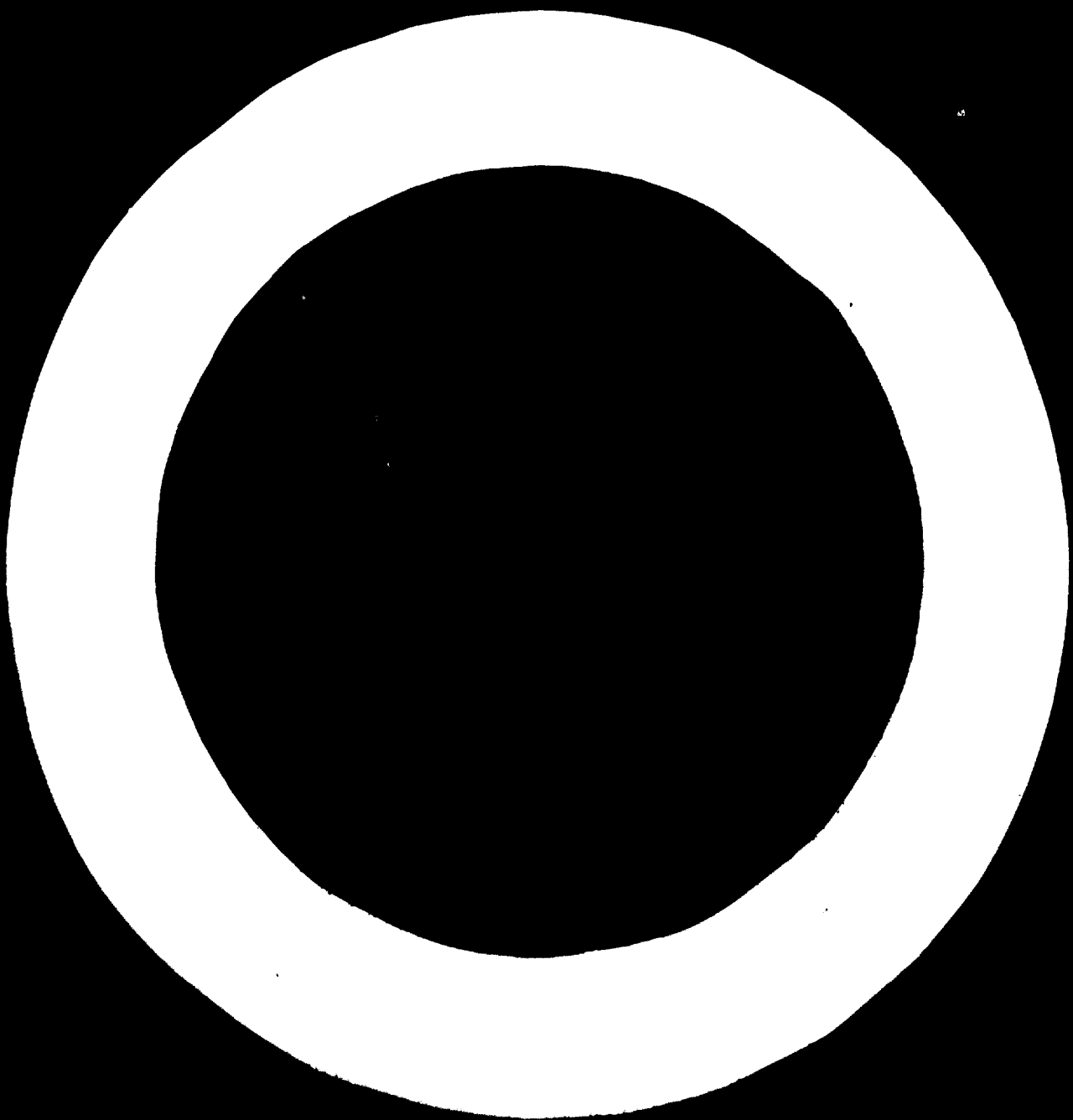


c



d e





Wooden doors for dwellings

1 Contents

11 This card describes a standard-sized, wooden door with even edges for dwellings, offices etc.

12 The card contains outer dimensions of the frame, dimensions of the frame pieces, dimensions of the door leaves and clearances.

2 Marking

21 Marking of door

Name of door, size of door (see RT 871.05), depth of frame (among others), indication if doorsill not required and the number of thsi RT card.

E.g. Flush door 9/92 RT 871.21

Door with frames 8/92 without doorsill RT 871.21

Quality class according to standard RT 210.81 or RT 210.82 and manufacturing degree have to be mentioned in the order.

22 Marking frame and door leaf when ordered seperately

Marking of frame: frame, size of door, depth of frame, if doorsill not required indication thereof and the number of this RT card.

E.g. Frame 9/92 without doorsill RT 871.21

Frame 7/68 RT 871.21

Quality class according to standard RT 210.81 or RT 210.82 and manufacturing degree have to be mentioned in the order.

Marking door leaf: door leaf, size of door and the number of this RT card.

E.g. Flush door leaf 9/RT 871.21

Door leaf with frames 8/RT 871.21

Quality class according to standard RT 210.81 or RT 210.82 and manufacturing degree have to be mentioned in the order.

3 Dimensioning

Joining dimensions of door, see RT 871.05

31 Manufacturing dimensions of door frame are 10 $\pm$ 2 mm smaller than the joining dimensions of door.

32 Dimensions of frame pieces, see figures.

33 Manufacturing dimensions of door leaf, see figures.

34 Door clearances are valid in an unfinished door provided with fittings.

Clearance	
on sides totalling	2...6 mm
up	1...3 mm
down	2...4 mm

35 Dimensioning implies that the moisture content of timber figured of dry weight is ≈ 10 % in flush doors and ≈ 12 % in doors with frames.

4 Doorsill

The doorsill for standard doors is separate. It can also be left out, in which case it must be mentioned in the order.

OVI, ASUNNON, PUUTA
huullettu ovi

Wooden daors for dwellings, rebated door leaf

1969 **RT 871.22**
SfB X (32)
UDK 69.028.11:674
Sivu 1 (3)

Ovi, nimistö		RT 870.00
Ovi, asunnan, standardikoot		RT 871.05
Ovet	ryhmässä	RT 87...
Kehysovet, puuta, laadunmääräykset		RT 210.81
Laakaovet, puuta, laadunmääräykset		RT 210.82

1 SISÄLTÖ

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2 MERKINTÄ

21 Oven merkintä

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Esim: Laakaovi 9/92 RT 871.22
Kehysovi 8/92 ilman kynnystä RT 871.22

Lisäksi on tilauksen yhteydessä mainittava standardin RT 210.81 tai RT 210.82 mukainen laatuluokka ja valmistusaste.

22 Karmin ja ovilevyn merkintä erikseen tilattaessa

Karmin merkintä: karmi, oven koko, karmin syvyys, mainintа jos ei haluta kynnystä ja tämän RT-kortin numero.

Esim: Karmi 9/92 ilman kynnystä RT 871.22
Karmi 7/68 RT 871.22

Lisäksi on tilauksen yhteydessä mainittava standardin RT 210.81 tai RT 210.82 mukainen laatuluokka ja valmistusaste.

Ovilevyn merkintä: ovilevy, oven koko ja tämän RT-kortin numero.

Esim: Laakaovilevy 9/RT 871.22
Kehysovilevy 8/RT 871.22

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33 Ovilevyn valmistusmitat, ks. kuvat.

34 Oven käyntivälit pätevät helaitetussa ja valmiiksi sovitetussa käsittelemättömässä ovessa.

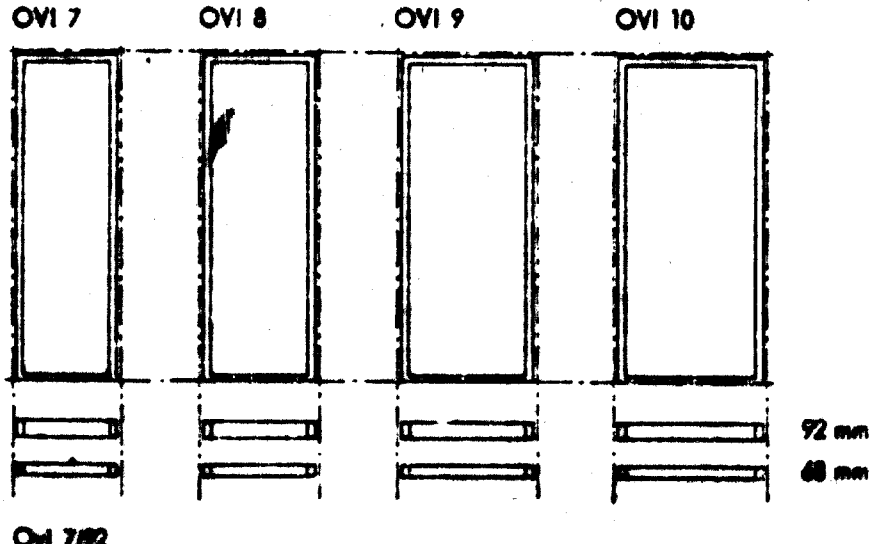
Käyntiväli

sivuillo yhteensä	2...6 mm
ylhäällä	1...3 mm
alhaalla	2...4 mm

35 Mitoitus edellyttää, että puutavaran kosteus kuivapainosta laskettuna on laakaovilla ≦ 10 % ja kehysovilla ≦ 12 %.

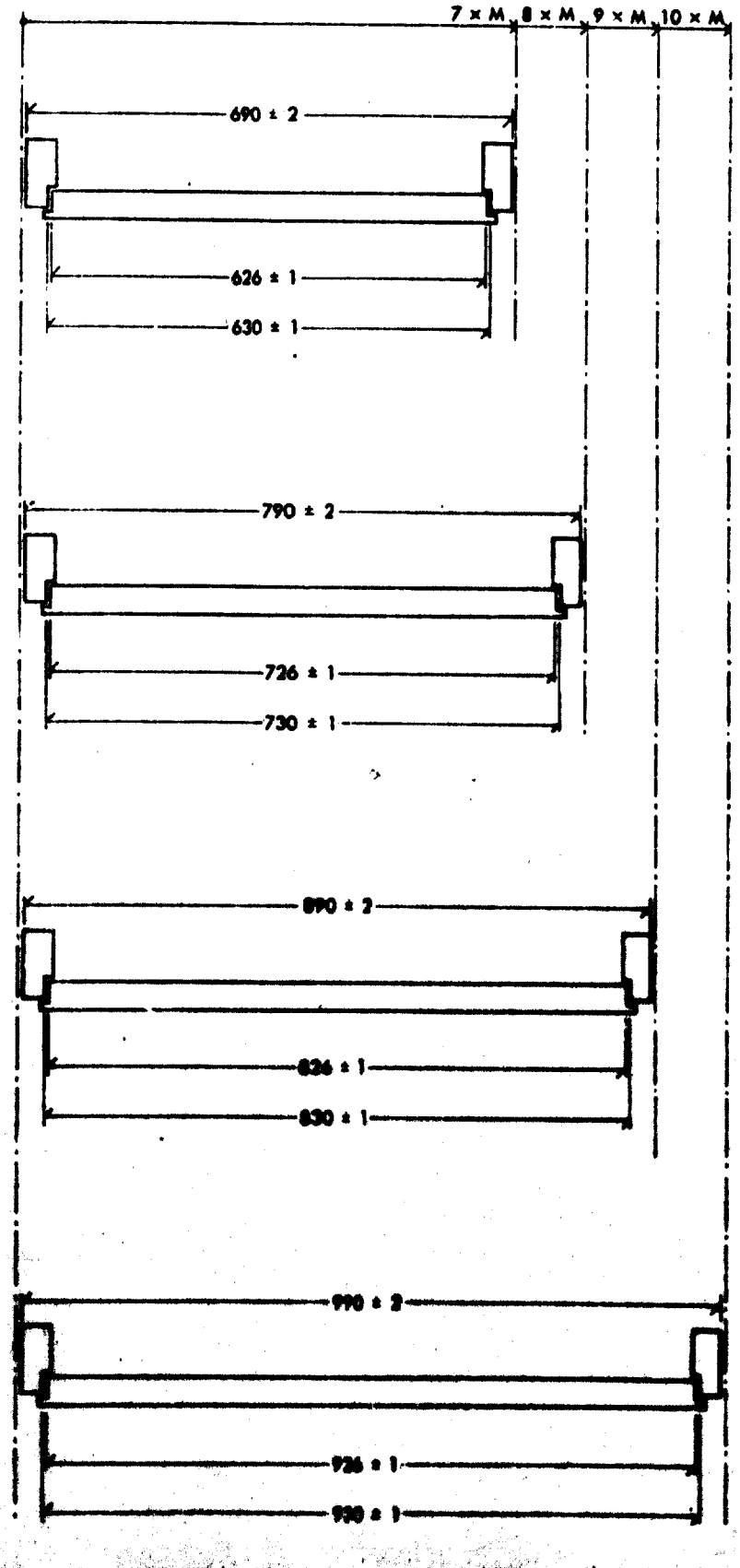
4 KYNNYS

Standardioven kynnys on irtokynnys. Kynnyksen voi myös jättää pois, jolloin se on tilauksessa mainittava.

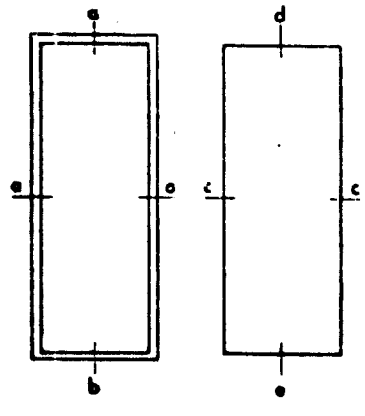


Ovi 7/92
Karmi 7/92
Ovilevy 7

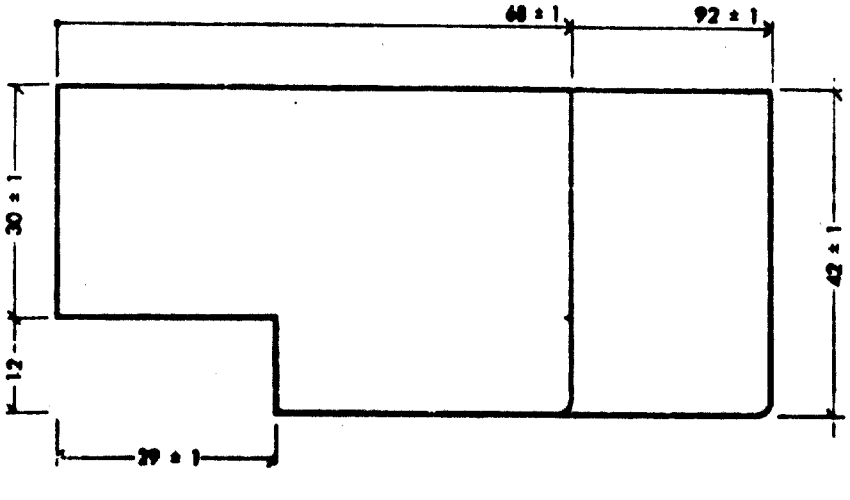
Ovien valmistusmitat



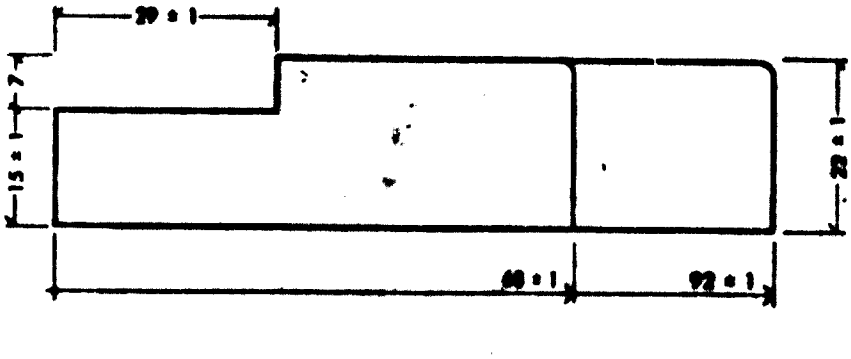
Karmikappaleiden mitat ja ovilevyn reunan mitat



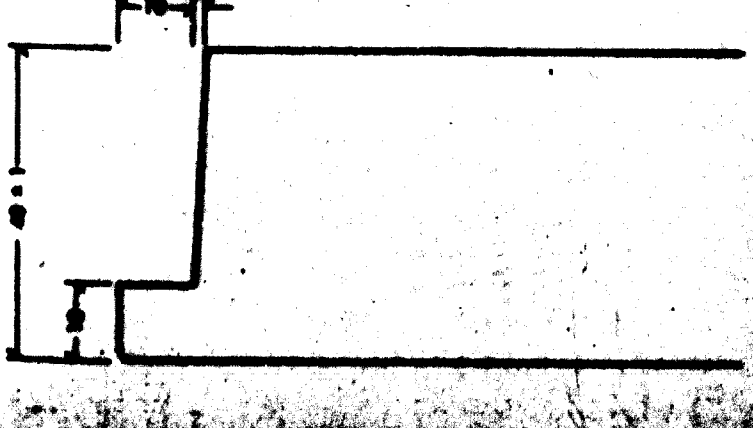
a



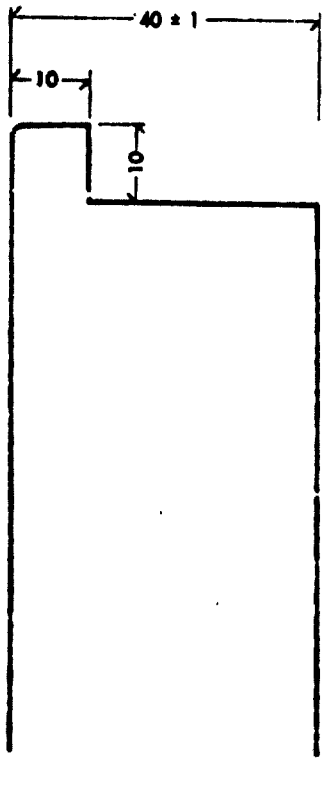
b



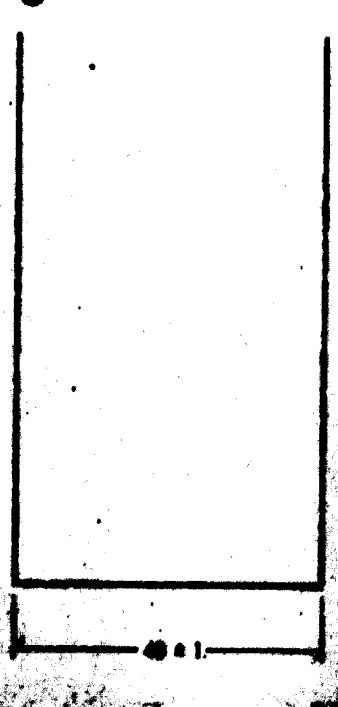
c

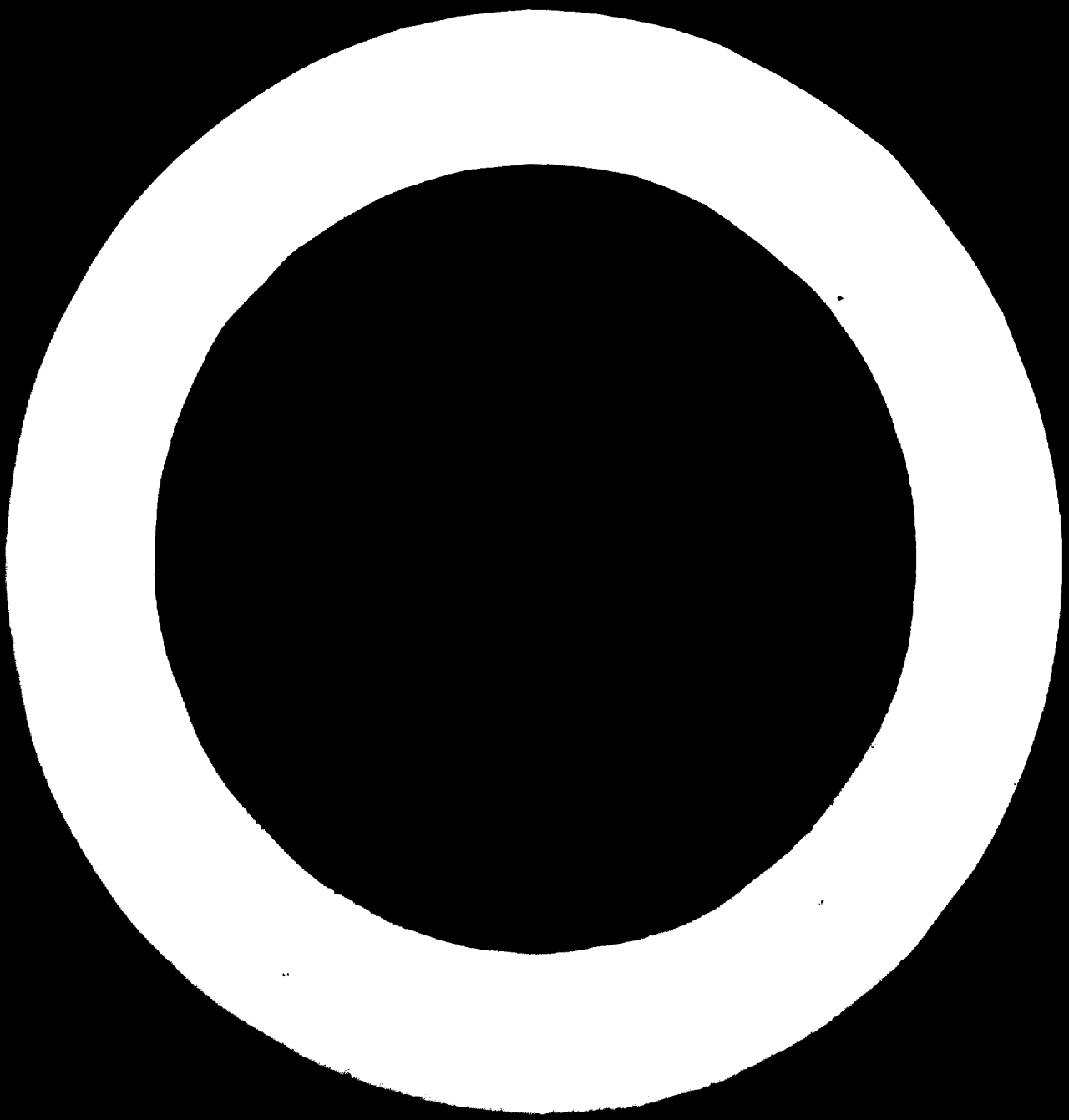


d



e





Wooden doors for dwellings, rebated door leaf

1 Contents

11 This RT card describes a standard wooden door for dwellings, offices etc, with rebated door leaf.

12 RT card contains outer dimensions of frame, dimensions of frame pieces, dimensions of door leaf and clearances.

2 Marking

21 Marking of door

Name of door, size of door (see RT 871.05), depth of frame (among others), if doorsill not required indication thereof plus number of this RT card

E.g. Flush door 9/92 RT 871.22

Door with frames 8/92 without doorsill RT 871.22

Quality class according to standard RT 210.81 or RT 210.82 and manufacturing degree have to be mentioned in the order.

22 Marking of frame and door leaf when ordered seperately

Marking of frame: frame, size of door, depth of frame, if doorsill not required, mention thereof plus the number of this RT card.

E.g. Frame 9/92 without doorsill RT 871.22

Frame 7/68 RT 871.22

Quality class according to standard RT 210.81 or RT 210.82 and manufacturing degree have to be mentioned in the order.

Marking of door leaf: door leaf, size of door and the number of this RT card.

E.g. Flush door leaf 9/RT 871.22

Leaf for door with frames 8/RT 871.22

Quality class according to standard RT 210.81 or RT 210.82 and manufacturing degree have to be mentioned in the order.

3 Dimensioning

Joining dimensions of door, see RT 871.05

31 Manufacturing dimensions of door frame are 10 $\pm$ 2 mm smaller than the joining dimensions of the door.

32 Dimensions of frame pieces, see figures.

33 Manufacturing dimensions of door leaf, see figures.

34 Door clearances are valid in an unfinished door provided with fittings.

Clearance	
on the sides, totalling	2...6 mm
up	1...3 mm
down	2...4 mm

35 Dimensioning implies that the moisture content of timber figured of dry weight is ≤ 10 % in flush doors and ≤ 12 % in doors with frames.

4 Doorsill

The doorsill for standard doors is separate. It can also be left out, in which case it must be mentioned in the order.

OVI, PUUTA, KIINNITYS JA HELOITUS

1970 RT 870.22
SfB X (32)
UDK 69.028.11:674
Sivu 1 (2)

Door, wood, fixing and fittings

Rakennustöiden yleiset laatumääräykset, luku X, Esinetarvikkeet, X(32)1.11 ja X(32)1.15		RT 140.1/X
Ikkunat, ikkunaovet, ulko- ja kehysovet, puuta, laadunmääräykset		RT 210.81
Laakaovet, puuta, laadunmääräykset		RT 210.82
Ovieritelmän laatimisohje		RT 870.13
Ovituettelolomake		RT 870.13.1
Ovikaaviolomake		RT 870.13.2
Ovet	ryhmä	RT 87...

0 YLEISTÄ

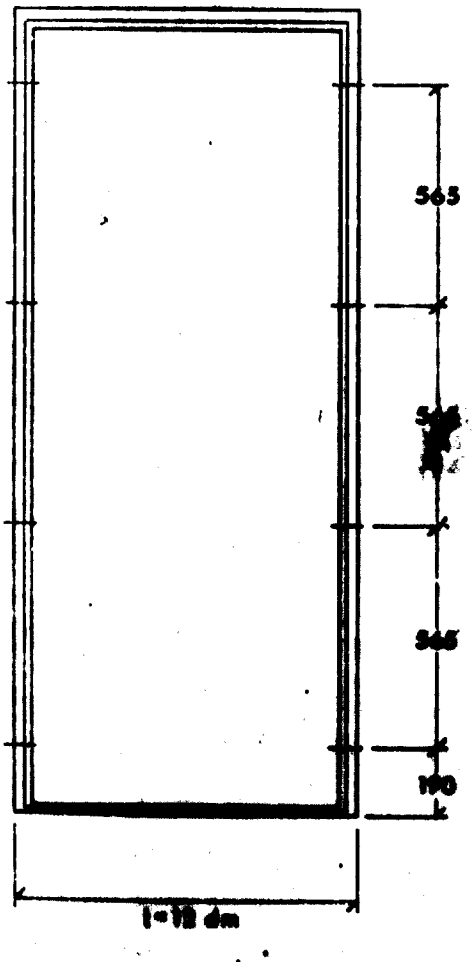
01 Tässä RT-kortissa esitetään standardikorkuisen oven karmin kiinnityskohtien lukumäärä ja sijoitus sekä helojen sijoitus.

1 KIINNITYSKOHTIEN LUKUMÄÄRÄ JA SIJOITUS

11 Kiinnityskohtien sijoitus karmin korkeussuunnassa, kuva 1.

Kiinnityskohtien paikat mitataan lähtien valmiin lattian pinnasta. Kundeilla saranoilla saranoitu ovi kiinnitetään sivukappaleen alimmasta ja kohdesta ylimmästä kiinnityskohdasta, kolmella saranoilla saranoitu ovi jokaisesta sivukappaleen kiinnityskohdasta.

KUVA 1

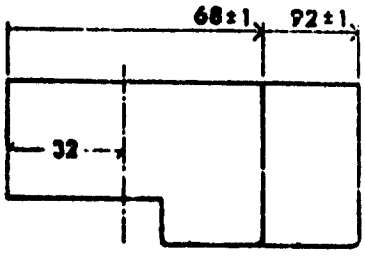


12 Kiinnityskohtien sijoitus karmin leveyssuunnassa

Jos karmin nimelliisleveys on yli 12 dm, tulee välikappaleen kautta yksi kiinnityskohta.

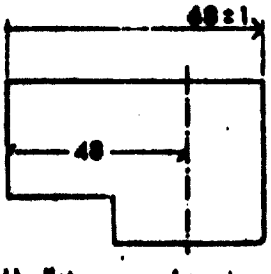
13 Kiinnityskohtien sijoitus karmin syvyyssuunnassa, kuvat 2, 3 ja 4.

Kaikissa karmeissa, joiden syvyys on ≥ 118 mm, kiinnityskohdat ovat syvyyssuunnassa keskellä.



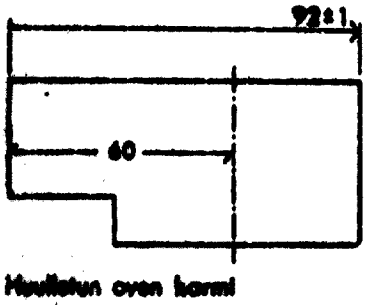
KUVA 2

Tasoreunaoven karmit



KUVA 3

Huulletun oven karmi



KUVA 4

Huulletun oven karmi

2 HELOJEN LUKUMÄÄRÄ JA SIJOITUS

Soronoiden lukumäärä, ks. RT 140.1/X, kohta X(32)1.15.

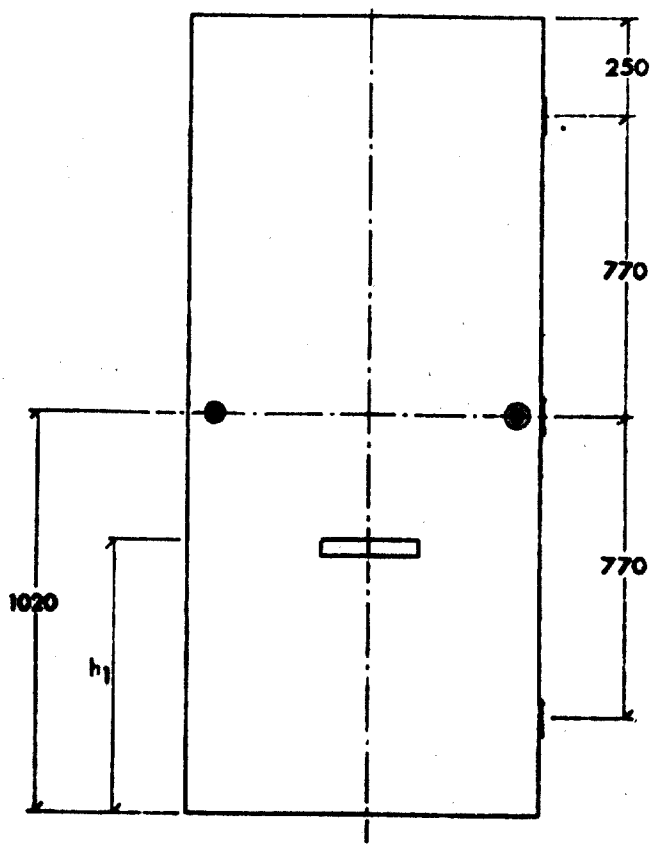
21 Soranoiden sijoitus, kuva 5.

22 Lukon ja salvan sijoitus
Lukko jo salpa sijoitetaan niin, että painikkeen koran reiän keskipiste on 1020 mm korkeudella ovilevyn alareunasta lukien, ks. kuva 5.
Jos lukon painikekeskiö ja avaimenreikä sijaitsevat lukkopesän keskiviivon molemmin puolin symmetrisesti, lukko voidaan sijaittaa siten, että lukkopesä on 1020 mm korkeudella ovilevyn alareunasta lukien.

23 Kirjeluukun sijoitus, kuva 5.

24 Soittokellon sijoitus
Soittokello sijoitetaan lukon kanssa symmetrisesti.

KUVA 5



650 mm ≤ h1 ≤ 800 mm

Annex 4
RT 870.22

Door, wood, fixing and fittings

0 General

01 This RT card indicates the number of fixing points of door frames, their location and the location of fittings.

1 Number and location of fixing points

11 Location of fixing points vertically, fig. 1
The places of fixing points are measured from the surface of finished floor. A door fixed with two hinges is fixed on the lowest and two topmost points of fixing; a door with three hinges on each point of side piece.

12 Location of fixing points horizontally
If the nominal width of the frame is over 12 dm, there will be one fixing point in the middle of the upper piece.

13 Location of fixing points in the direction of depth of frame see fig. 2,3 and 4.
In all frames, whose depth is $\geq$ 118 mm, the fixing points are in the middle of the depth.

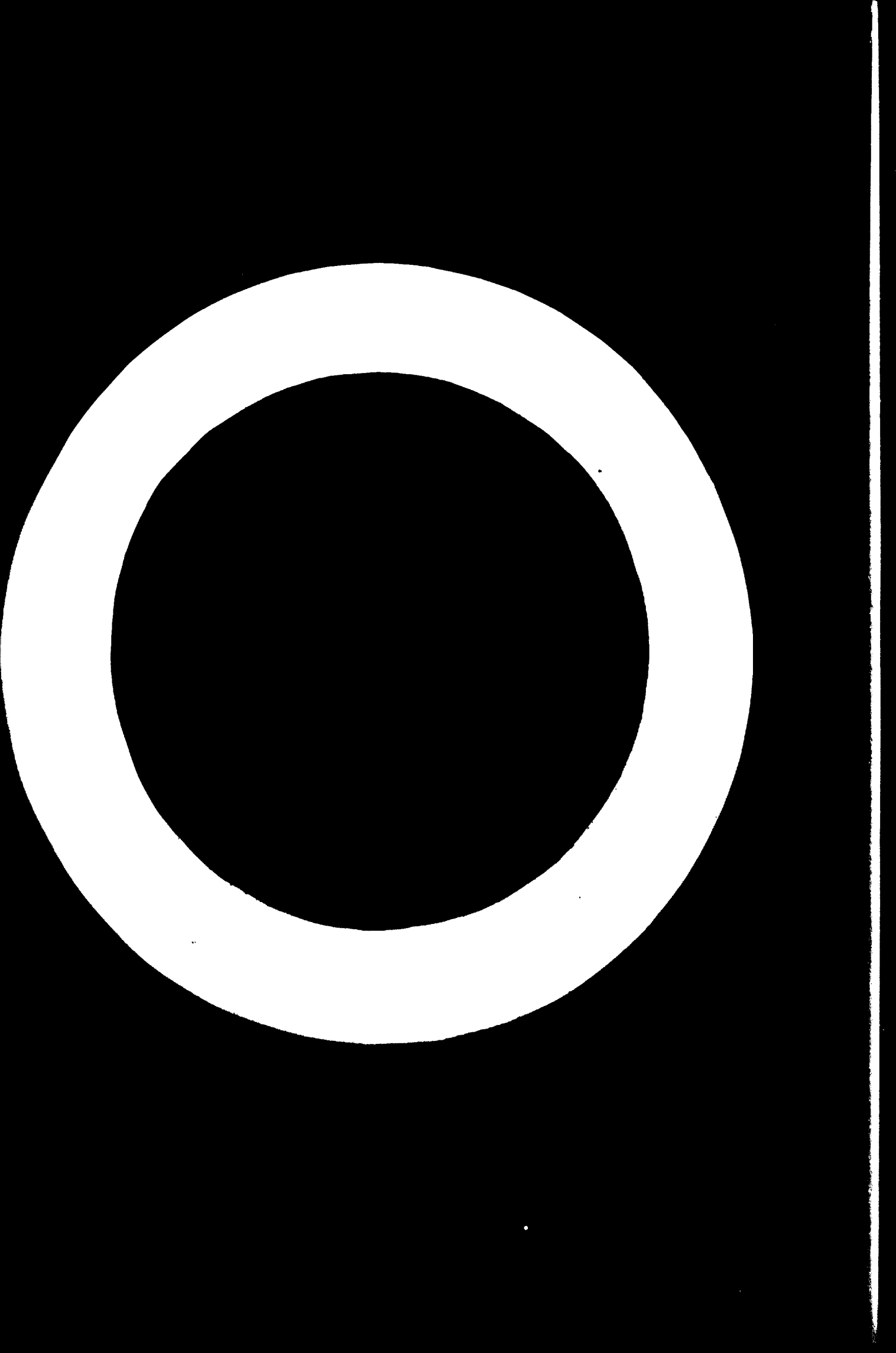
2 Number and location of fittings
Number of hinges, see RT 140.1/X, point X(32)1.15.

21 Location of hinges, see fig. 5.

22 Location of lock and bolt
Lock and bolt are arranged so that the centre of the hole in the bolt of the handle is 1020 mm from the bottom of the door leaf, see fig. 5.
If the center of the handle and the key hole are symmetrically on both sides of the central line, the lock can be located so that the lock nest is 1020 mm from the bottom of the door leaf.

23 Location of letterbox, fig.5.

24 Location of doorbell
The doorbell is symmetric with the lock.



Wooden flush doors, quality

1 Contents

11 This standard gives quality regulations for flush doors.

12 The standard contains regulations about the material used, the structure of doors, manufacture of doors and precision of form and the appearance of surface.

2 Marking

Marking: Manufacturing degree of the product and quality class (type of wood) and the RT number of this standard.

E.g. unfinished 1 pine, RT 210.82

E.g. painted 2, RT 210.82

3 Quality classes

The products are classified into special quality, lacquer quality and paint quality. In classification the so called facade principle is used so that other than facade surfaces (e.g. surfaces seen only occasionally) can be in special quality class and lacquer quality class of the next lower quality, unless otherwise indicated.

31 Special quality class, marking E

This class consists of products, which meet high requirements and to which materials have been chosen with particular care. These products are usually intended to be finished with lacquer. In quality class E frames are of quality class 1.

32 Lacquer quality class, marking 1

This is the normal quality class for products intended to be finished with lacquer.

The species of wood in frame, edge of door leaf and top veneer have to be indicated in the order.

33 Paint quality class, marking 2

This consists of products meant to be painted.

4 Regulations about the materials

41 Timber

.1 Quality

The basis of grading softwood is the u/s quality given in

grading orders of export timber with the limitations given later.

In foreign hardwood the regulations in appendix 2 will be used.

.2 Lengthening

The joints have to be finger joints or alternating butt joints. The length of an alternating butt seam may be at the most one third of the width of the lengthened piece, however no more than 50 mm. No visible lengthenings are allowed in special quality class and lacquer quality class.

.3 Faults. Patching.

Vane is not allowed in visible surfaces. The knots have to be distributed evenly and they are not allowed in places where they might affect the strength. The patches have to be of the same species of wood and the direction of grains must be the same as in the surrounding wood to which it must be firmly fastened. The patches are considered sound knots.

In products used in humid surroundings knots ought to be avoide

42 Plywood

In plywood the quality, dimensioning and property standards given in SFS standards are used.

43 Block- and laminboards

Block- and laminboards must suit the purpose in quality and structure.

In boards used in facades the top surfaces have to have 1 + 1 veneers glued crosswise on both sides so that the grain direction of the glued veneer of core board is perpendicular towards the grain direction of the core board.

A board with one or two parallel surface veneers on both sides, whose grain direction is vertical towards the grain direction of the core board can be used in facades only when they are covered with crosswise glued veneer, plastic laminate board, plastic fabric etc.

44 Particle board

Particle board has to be LA/A board of standard SFS 0.IV.2.

45 Wood fibre boards

.1 Volume weight of hard wood fibre board has to be the minimum of 850 kg/m^3.

.2 Volume weight of semi-hard wood fibre board has to be the minimum of 700 kg/m^3.

46 Top veneer

Top veneer for facades has to be cut, except birch which may be lathed.

Cut veneer must meet the requirements set in appendix 2.

Lathed veneer has to meet the requirements set in SFS standards.

47 Plastic laminate board

Plastic laminate board has to meet the requirements given in appendix 3.

48 Fittings

The manufacturer indicates the fittings he has used in his offer.

49 Degree of dryness

The timber has to be artificially dried. The moisture content of dry weight must not exceed 10 % in the manufacturing or purchasing phases. The dryness degree is also the basis for accuracy in dimensions and form.

5 Product regulations

51 General

The products and their parts have to be manufactured and assembled with care and skill. All wood joints which are known to be good and suit the appearance of the quality class in question are allowed.

The surface sheet has to be of plywood, which is at least 2.7 mm thick, of hard wood fibre board, which is at least 3.2 mm thick, or other board of corresponding thickness. The surface boards are fixed by gluing to the inner structure.

Lengthening of boards is not allowed. Lengthening of veneers is not allowed in the direction of grains.

If the inner structure is not suitable to the fixing of fittings, an additional piece of wood has to be used or the frame wood has to be dimensioned according to the fittings.

In adhesion glues which correspond the use of the product and resist moisture and micro-organisms must be used.
If the products are located in room space which is continuously humid, it has to be indicated in the offer.

52 Precision of form

Test methods of precision of form, see appendix 1.
The regulations concerning precision of form mean the requirements at the moment of delivery and in the inspection of guarantee in the dryness degree of 8 - 10 %.
The continuity of the properties of the products implies that they are stored and handled on the site according to general regulations of building works, see RYL 1980, RT 140.1/8, points B.671 and B. 673.

.1 Accuracy of angles (straight angles)

when delivered	in guarantee inspection
1 mm	1 mm

.2 Evenness of surface (crookedness or/and twisting)

when delivered	in guarantee inspection
3 mm	4 mm

These figures imply that the temperatures and moisture conditions are the same in both places.

.3 Evenness of surface

	when delivered	in guarantee inspe
with a 200 mm ruler	0.2 mm	0.3 mm

53 Top veneer

	special quality class	lacquer quality class	paint quality class
Lathed	AI(A)	I(B)	II(S)

Cut, see appendix 2.

54 Faults allowed in visible surfaces

	special quality class	lacquer quality class	paint quality class
.1 Visible parts of frame wood and edge joints thickness of doors = 40 mm sound knots or patches pieces/m	not allowed	1 10 mm and pearl knots	2 20 mm 2 15 mm and pearl knots
Checks	not allowed	not allowed	small patched ones allowed
Blue	not allowed	not allowed	allowed as fault in colour
.2 Frames 42 mm x 93 mm Healthy knots or patches piece/mm		1 20 mm 3 10 mm and pearl knots	2 30 mm 3 20 mm and pearl knots
Checks		not allowed	small patched ones allowed
Bluishness		not allowed	allowed as colour fault

55 Finishing of unpainted surface

.1 In special quality class all facade surfaces have to be very carefully finished. There must not be any signs of glue coming through which might make finishing difficult or cause colour defects. Faults of manufacture may not be seen.

.2 In lacquer quality class the facade surfaces have to be carefully finished. There must not be any signs of glue coming through, which might make finishing difficult or cause colour defects. Minor faults caused by manufacture are allowed only in such facade surfaces as are not necessary to send like in surfaces visible only occasionally.

.3 In paint quality class the facade surfaces have to be finished. No places where the glue has come through are allowed, which might make surface finishing difficult. Minor faults caused by manufacture are allowed only in surfaces which are seen only occasionally.

6 Manufacturing degree

Doors are delivered unfinished, varnished or painted. Varnishing and painting are done according to RT 148.032. If the products are required finished in some other way this has to be indicated separately as well as the material and the method to be used.

Appendix 1

Testing methods of accuracy of shape

1 Angle accuracy (straight angles)

Angle accuracy is measured with a straight-angled ruler from the corners at the opposite ends of the diagonal. The measuring points have to be situated 500 mm from the corners or at a distance corresponding the width if the width is less than 500 mm. Deviation is given in millimetres with the accuracy of 0.1 mm.

2 Planeness of the surface (crookedness and/or twistings)

The crookedness of the surface is measured on the concave side with a ruler which is as long as the surface along the diagonals and all edges. The greatest measured grade is decisive. The deviation is given in millimetres with the accuracy of 1 mm so that three corners are on level. The distance of the fourth corner from the plane is the crookedness of the surface to be measured.

The deviation is given in millimetres with the accuracy of 1 mm.

3 Evenness of the surface

Evenness of the surface is measured with a ruler which is 200 mm long by setting it in arbitrary directions on the surface to be measured and using a special measuring device to measure the checks.

The deviation is given in millimetres with the accuracy of 0.1 m

Appendix 2

Quality regulations for foreign hardwood surfaces

1 General

Foreign hardwoods are imported species (e.g. oak, teak, mahogany etc).

These regulations are also adapted to veneers cut of domestic species.

Regulations have been given in special quality class and lacquer quality class.

2 Veneer

Veneer has to be cut and the thickness has to be the minimum of 0.6 mm. The joints of the veneer have to be unbroken and the veneers have to be jointed so that a uniform unity typical of the type of veneer in question is formed.

.1 Special quality class

The veneer has to be typical of the species in question, faultless and totally homogeneous both in colour and in structure. Patches are not allowed.

.2 Lacquer quality class

The veneer has to be typical of the species in question. Slight faults in colour and some other faults which do not disturb the total impression are allowed. A small amount of knots smaller than 5 mm (bird's eyes) are allowed. Faults which sometimes appear in veneer such as surface wood of different colours, risings, decay faults etc are not allowed. Small corrections like patchings done carefully so that they fit in with the surrounding veneer in colour and structure are allowed.

.3 Sawn timber

The thickness of the board used for coating has to be the minimum of 5 mm.

.1 Special quality class

The timber has to be typical of the species in question and the facade surfaces have to be faultless and totally homogeneous in colour and structure. Patches are not allowed.

.2 Lacquer quality class

The timber has to be typical of the species in question. Small faults allowed in facade surfaces. Knots smaller than 7 mm are allowed to some extent. Surface wood of different colours and other faults sometimes appearing in timber are not allowed.

Separate patches, which are carefully made and fit in with the colour of the wood and are no larger than 15 mm are allowed. The patches have to be of the same species and the direction of the grains in the patch has to be the same as in the surrounding wood, where it must be tightly fixed.

Appendix 3

Quality regulations for plastic laminate boards

1 Surface coating of desks

The surface coating of a desk has to be of plastic laminate board strengthened with paper. Its thickness is the minimum of 1.4 $\pm$ 0.1 mm and it has to meet the following requirements:

Wearing strength: NEMA LD 1 - 3.03/64 A
Impact strength: NEMA LD 1 - 3.03/64 K
Appearance: NEMA LD 1 - 3.03/64 J
Changes due to moisture: NEMA LD 1 - 3.03/64 H
Heat resistance: SIS 245803 (NEMA LD 1 - 2.03/64). In testing no trace allowed on lacklustre board, a shining board can lose some lustre.
Strength in the temperature of boiling water: SIS R 705002 (NEMA LD 1 - 2.02/64), no trace allowed on the surface.
Influence of chemicals: SIS 245805 (NEMA LD 1 - 2.05/64), the grade has to be 3. The grades 1, 2 and 3, of which 3 is the best.

Light resistance: SIS 245804 (NEMA LD 1 - 2.06/64), the grade has to be the minimum of r. Grades 1 - 8, of which 8 is the best.

Water absorption: SIS 245801 (NEMA LD 1 - 2.07/64), the absorption may not be higher than the maximum of 500 mg/25 cm^2 with laminates 1.4 mm thick. In thicker laminates the maximum of 10 % of the mass.

2 Surface coating of vertical surfaces

The surface coating of vertical surfaces such as door leaves and doorleaves etc for furniture must be of paper strengthened plastic laminate board, the thickness of which is the minimum of 0.8 $\pm$ 0.1 mm and it has to meet the following requirements:

Wearing strength: NEMA LD 1 - 4.03/64 A

Impact strength: NEMA LD 1 - 4.03/64 G

Appearance: NEMA LD 1 - 4.03/64 E

Changes due to moisture: NEMA LD 1 - 4.03/64 D

Influence of chemicals: SIS 245805 (NEMA LD 1 - 2.05/64). The grade has to be 3. Grades 1, 2 and 3, of which 3 is the best.

Light resistance: SIS 245804 (NEMA LD 1 - 2.06/64). The grade has to be the minimum of 5. Grades 1 - 8, of which 8 is the best.

Water absorption: SIS 245801 (NEMA LD 1 - 2.07/64), in laminates which are 0.8 mm thick the absorption may be the maximum of 350 mg/25 cm^2, in thicker laminates the maximum of 12 % of the mass.

3 Surface coating of shelves

The thickness of plastic laminate boards used for surface coating of shelves has to be the minimum of 0.8 $\pm$ 0.1 mm and it has to meet the following requirements:

Wearing strength: NEMA LD 1 - 4.03/64 A

Impact strength: NEMA LD 1 - 4.03/64 G

Influence of chemicals: SIS 245805 (NEMA LD 1 - 2.05/64). The grade has to be 3. Grades 1, 2 and 3, of which 3 is the best.

4 Other plastic laminate boards

Plastic laminate board can also be fabric strengthened or other plastic laminate board if it has met all requirements of the previously mentioned standards SIS and NEMA. The manufacturer has to mention the thickness and type of plastic laminate board in his offer.

IKKUNA, PUUTA, SISÄÄNAUKEAVA
kaksinkertainen

Windows, wood, opening inwards, double casement

SFS/RT 861.42
SfB X (31)
UDK 69.028.21:67-4
Sivu 1 (8)

Ikkuna, nimistö SFS/RT 860.00
Muut ikkunastandardit ryhmässä SFS/RT 861 . . .
Rakennuspuusepänteollisuuden tuotteet, laadunmääräykset, ikkunat SFS/RT 210.81

Tähän ikkunatyyppiin yhdistettäväksi soveltuvat ikkunat ja ikkunaovet:
SFS/RT 861.43 Ikkuna, puuta, sisäänaukeava, kolminkertainen
SFS/RT 861.221.2 Ikkuna, puuta, sisälasi kiinteä, karmin syvyys 118 mm, vankka puite
RT 862.221.2 Ikkunaavi, puuta, sisään-ulosaukeava, karmin syvyys 118 mm, kapea kehys

1 Sisältö

11 Tässä SFS/RT-standardissa esitetään moduulimitoitettu puurakenteinen sivu- ja yläsaranoitu sisäänaukeava kaksinkertainen ikkuna.

12 Standardi sisältää karmin ulkomitat, karmi- ja puitekappaleiden mitat ja ikkunan käyntivälit sekä jaottoman ikkunan 3 M:n suunnittelumoduuliin perustuvat standardikaot, lasitusmitat, lasilevyjen mitat ja saranainnin.

2 Merkintä

Standardi-ikkunan nimelliskoko ilmoitetaan dm:nä leveys × korkeus.
Merkintä: ikkunan nimi, nimelliskoko ja tämän standardin numero.
Esim. Joatan ikkuna 15 × 12 SFS/RT 861.42
Lisäksi on tilauksen yhteydessä mainittava standardin SFS/RT 210.81 mukainen valmistusoste ja laatuluokka.

3 Mitoitusperusteet

Kantomoduuli M = 1 dm = 100 mm.
Ikkunoiden yleiset liittymismitat ovat moduulimittoja, kantamoduulin kokonaisia kerrannaisia. Mitoitus edellyttää, että puutavaran kosteus kuivapainosta laskettuna ei ole suurempi kuin 12 %.

4 Mitoitus

Ikkunan mitoituksen periaate on esitetty kuvassa 1.

41 Ikkunon karmin ulkomitat ovat 10 ± 2 mm pienempiä kuin vastaavat ikkunan liittymismitat. Kuva 1.

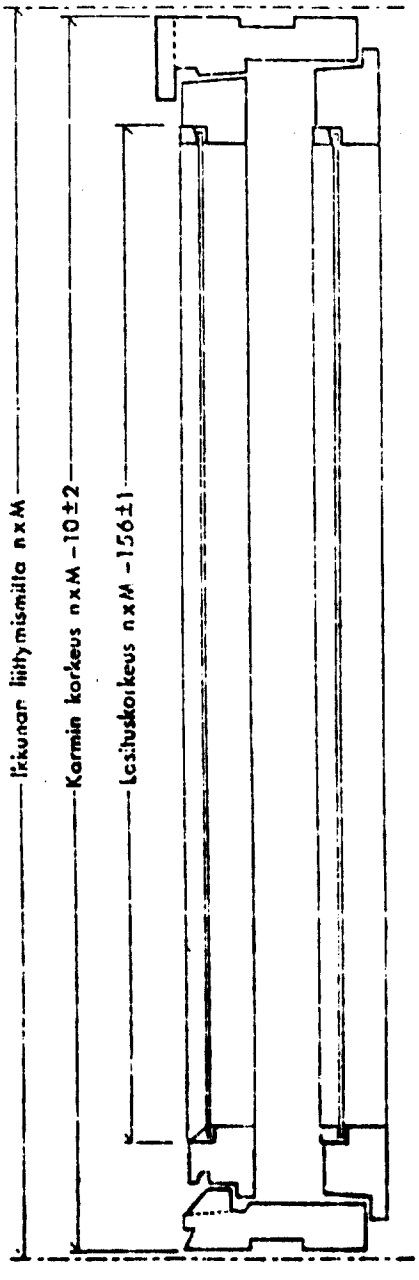
42 Jaottoman ikkunon lasitusmitat ovat 156 ± 1 mm pienempiä kuin vastaavat ikkunon liittymismitat. Kuva 1.

43 Jaottoman ikkunon lasilevyjen normaalimitat ovat 160 mm pienempiä kuin vastaavat ikkunan liittymismitat.

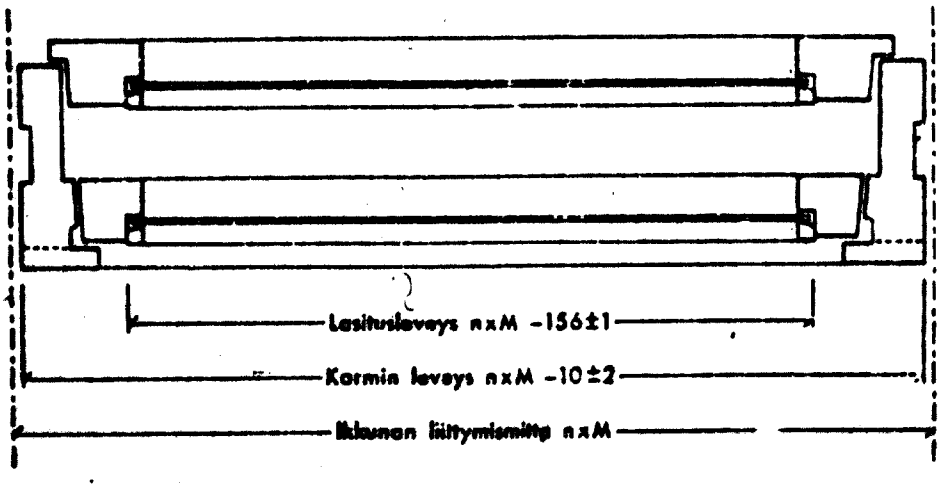
44 Profiilien mitat, ks. kuvat.

45 Käyntivälien mitat pätevät heloitetussa ja valmiiksi sovitetussa käsittelemättömässä ikkunassa.

Käyntiväli	Ulkopuite	Sisäpuite
saranasivulla	2 mm	2 mm
lukkosivulla	3 ...4 mm	3 ...4 mm
ylhäällä	2,5...3,5 mm	2,5...3,5 mm
alhaalla	3,5...4,5 mm	3 ...4 mm

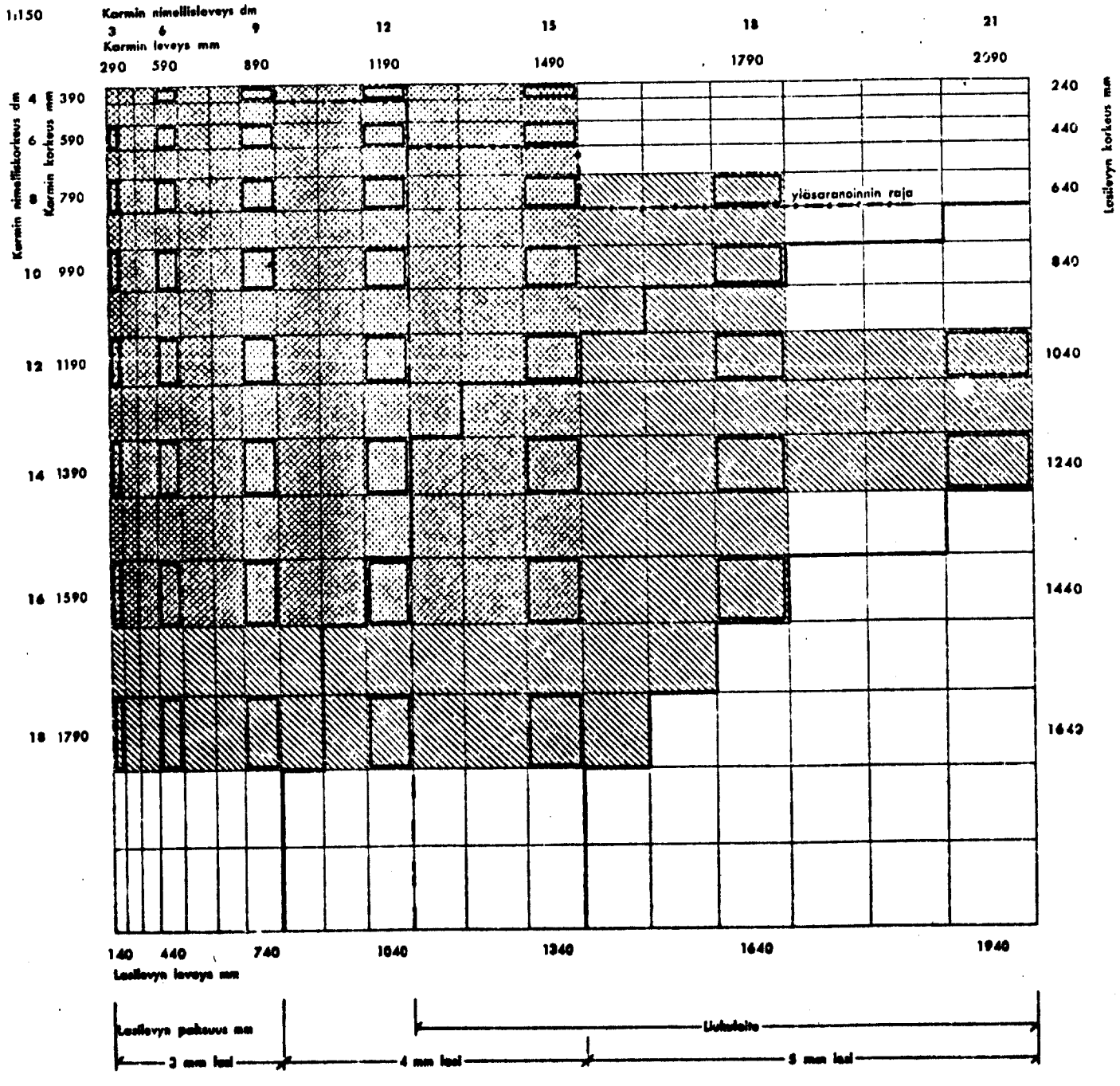


Kuva 1
M = 100 mm
n on kokonaisluku ≥ 3



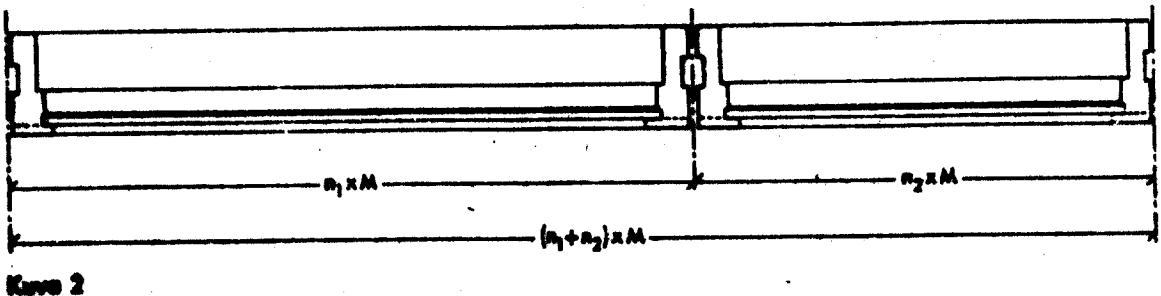
5 Jaottoman ikkunan standardikoot

Taulukossa on esitetty rasterialueena tämän standardin mukaisten jaottamien ikkunaiden suositellut koot. Jaottoman ikkunan standardikoot, jotka leveyssuunnassa perustuvat 3 M:n suunnittelumoduuliin, on esitetty rajatuissa ruuduissa. Standardikokojen nimellismitat ja karmin mitat on merkitty taulukon ylä- ja vasempaan reunaan. Vastaavat lasilevyjen mitat on merkitty taulukon ala- ja oikeaan reunaan. Lasilevyjen paksuus on merkitty taulukon alapualelle ja esitetty taulukassa yhtenäisten viivojen rajaamina alueina.
Saranoiden lukumäärä on merkitty taulukkaan erilaisilla rastereilla ja yläsaranoidut ikkunat lisäksi piste-katkoviivan rajaamana alueena taulukon yläreunassa. Katkoviivalla on rajattu se ikkunaiden kokoa ilmaiseva alue, jolla sivusaranoidut ikkunat on varustettava liukulaitteella.



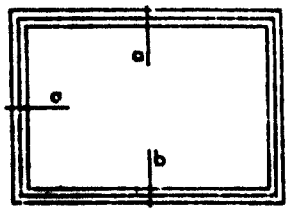
6 Ikkunoiden yhdistäminen

Jaottomia standardi-ikkunoita yhdistämällä voidaan muodostaa kaksi- tai moniosaisia ikkunoita ja ikkunanauhoja.
Näitä ikkunatyyppejä sekä näihin yhdistettäväksi soveltuvia ikkunoita ja ikkunaovia (SFS/RT 861.43, SFS/RT 861.221.1, RT 862.221.2) liitetään rinnakkain kuvan 2 mukaisesti.



Kuva 2
Standardi-ikkunoiden moduulitarkastelun mukainen liittäminen toisiinsa.

Jaottoman ikkunan karmin ja puitteiden sovitus



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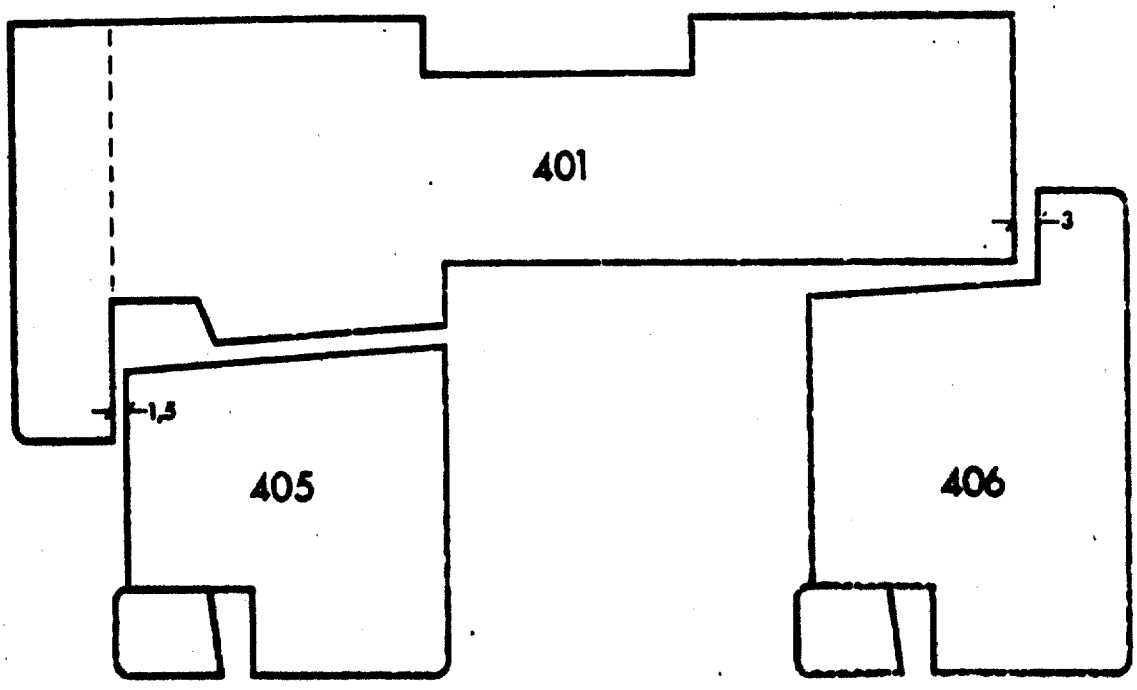

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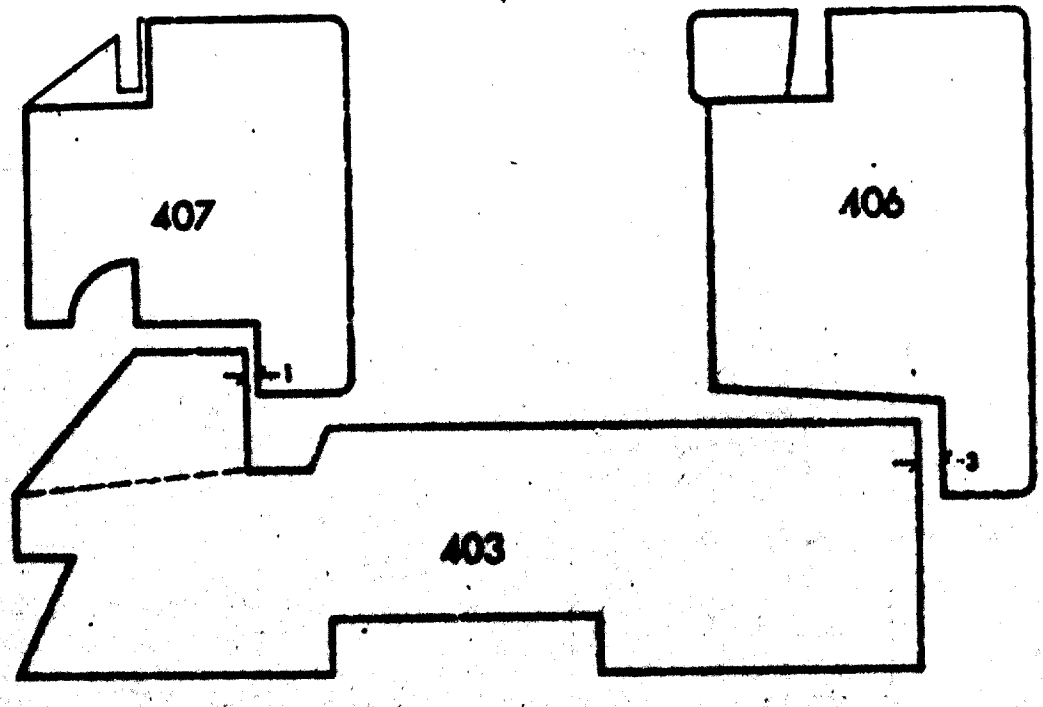
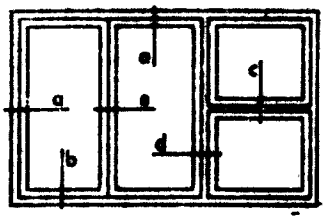
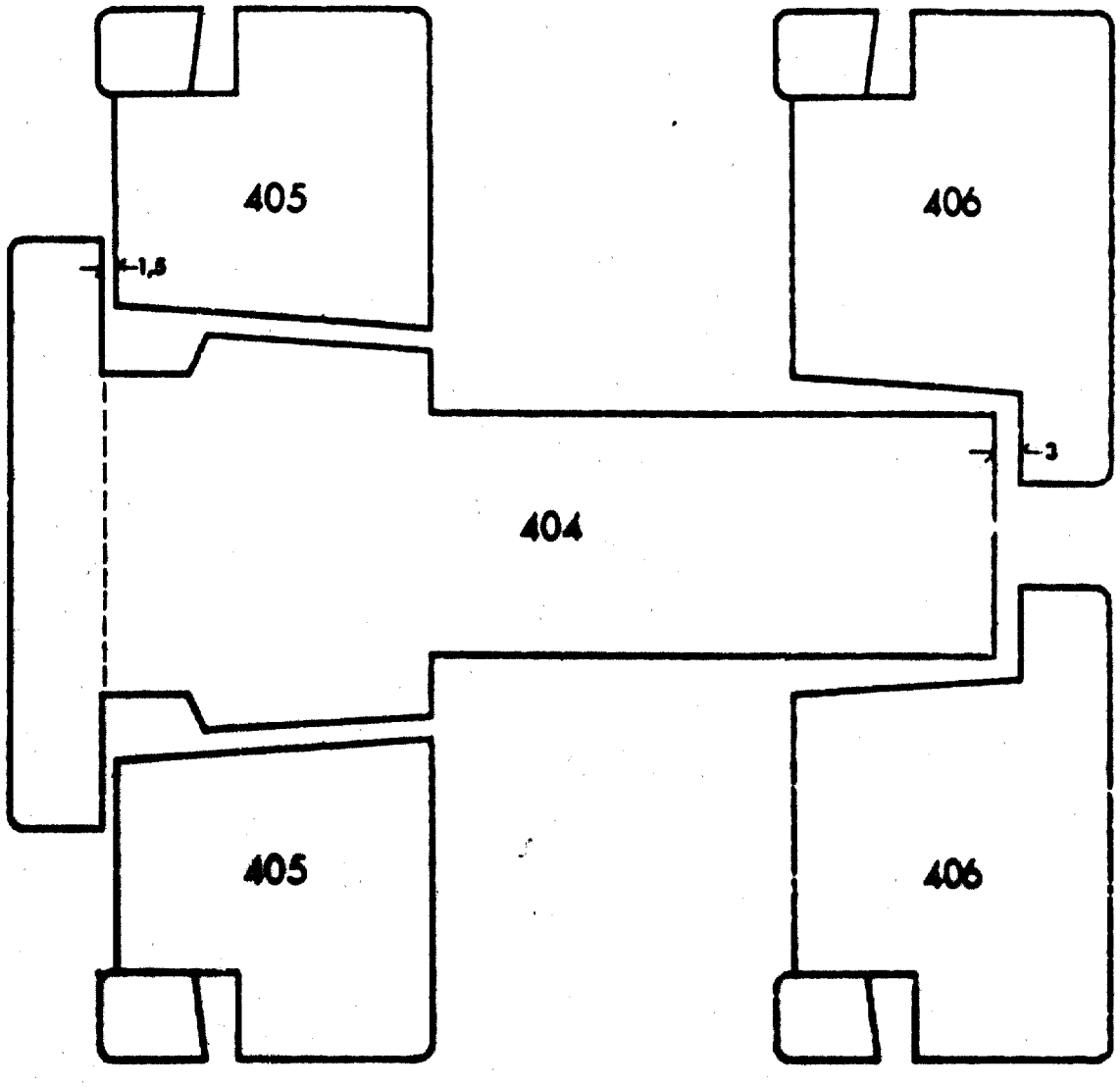


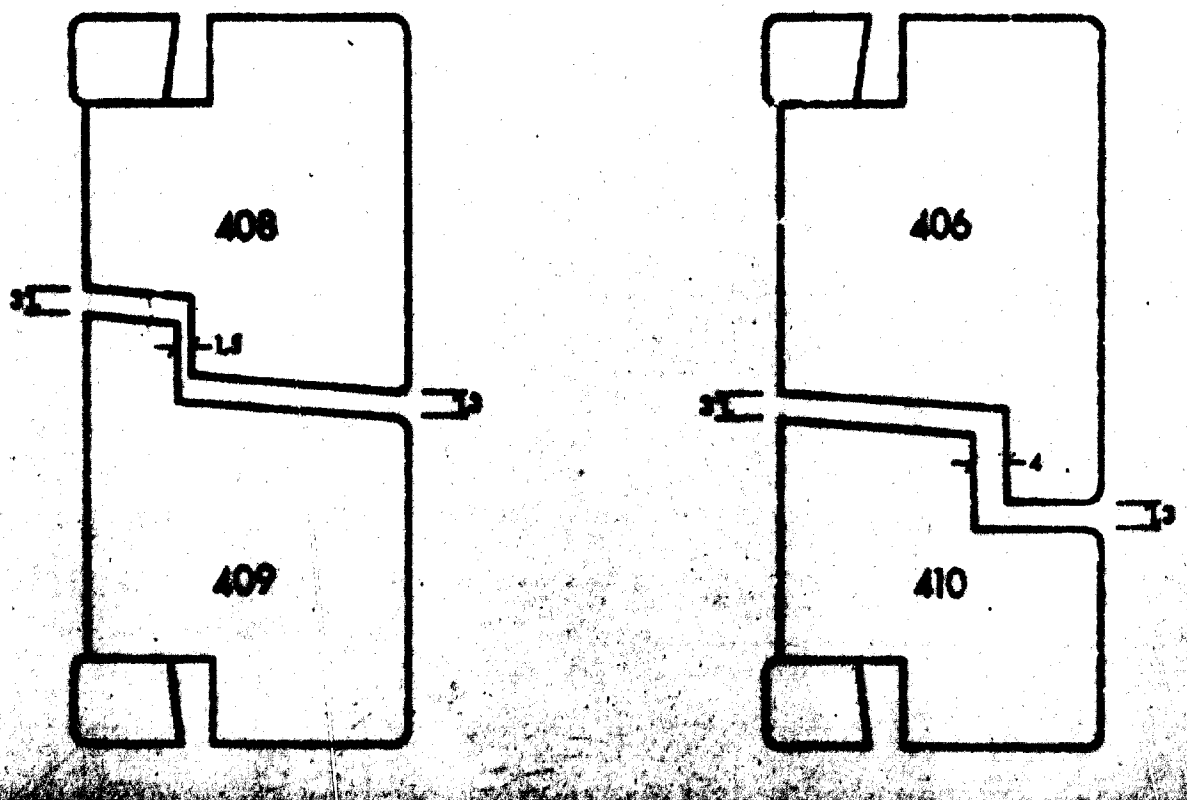


Jaetun ikkunan karmin jakokappaleiden ja puitteiden sekä yhtyvien keskipuitteiden sovitus

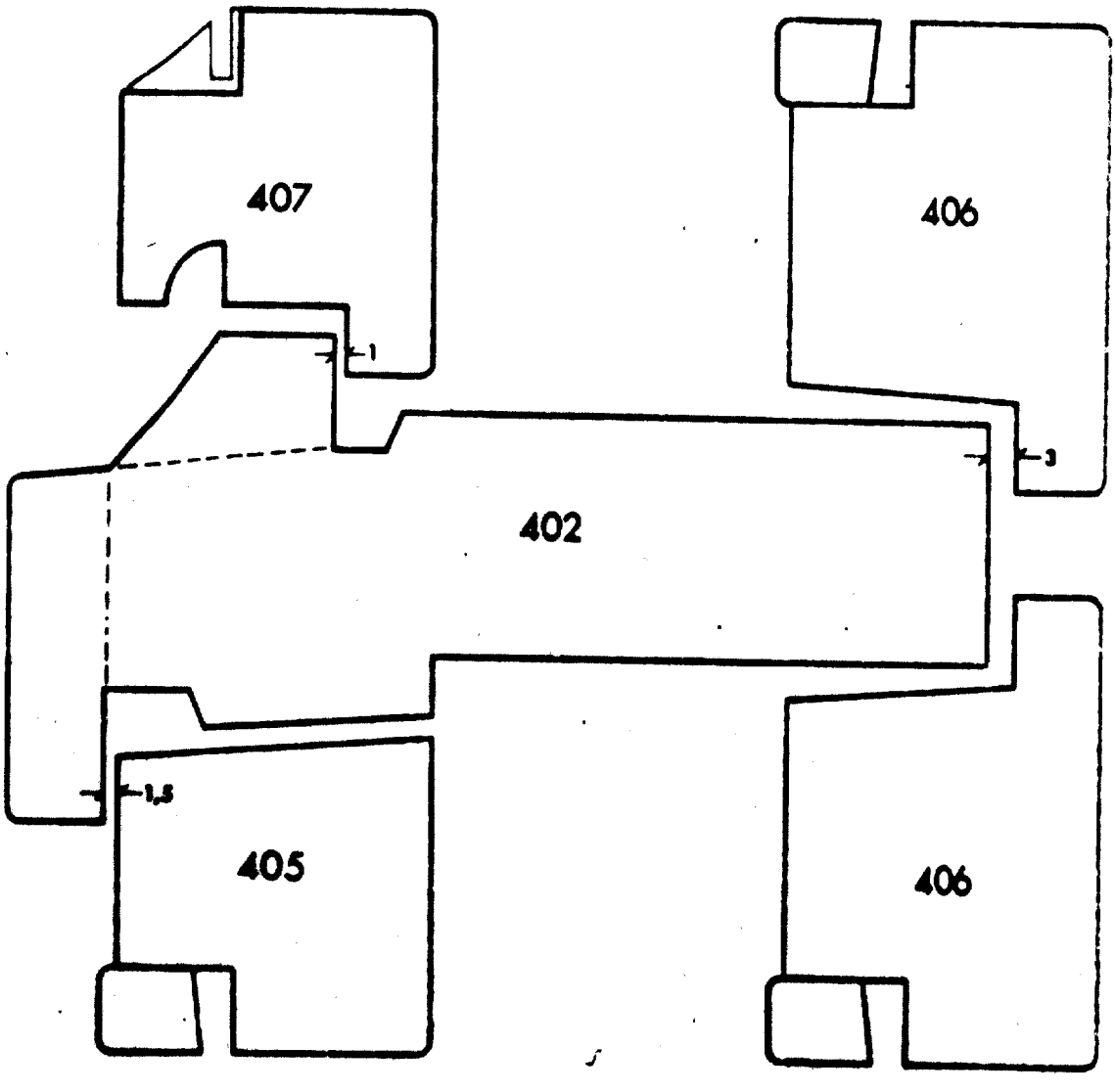
d



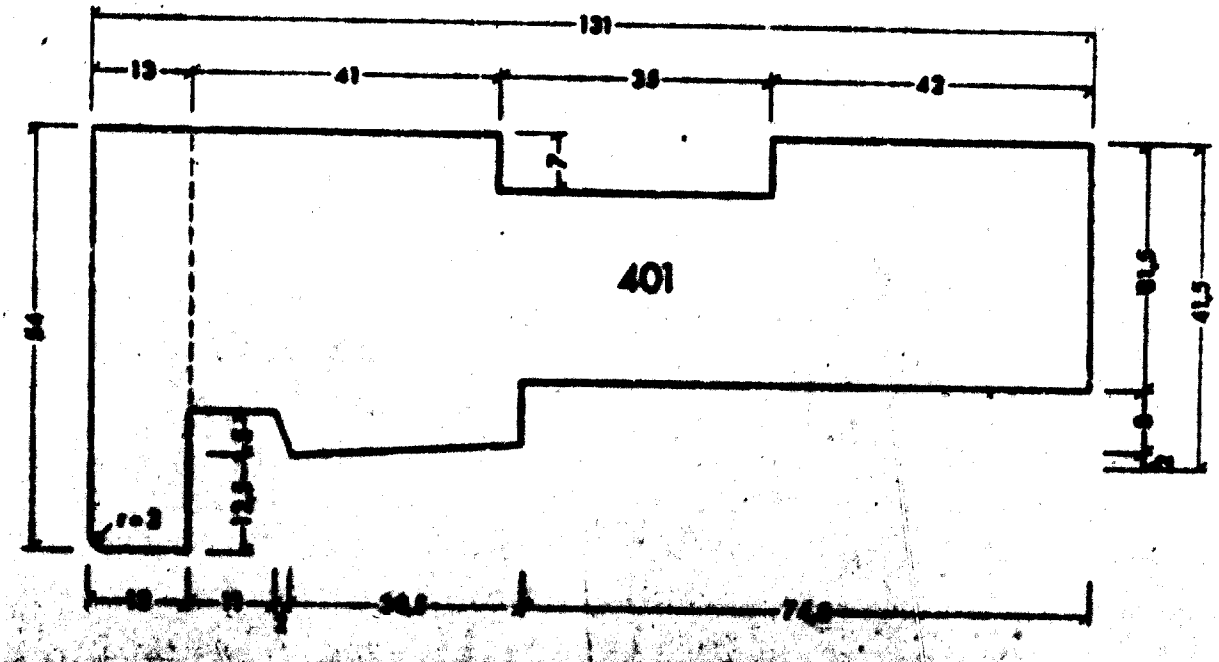
e

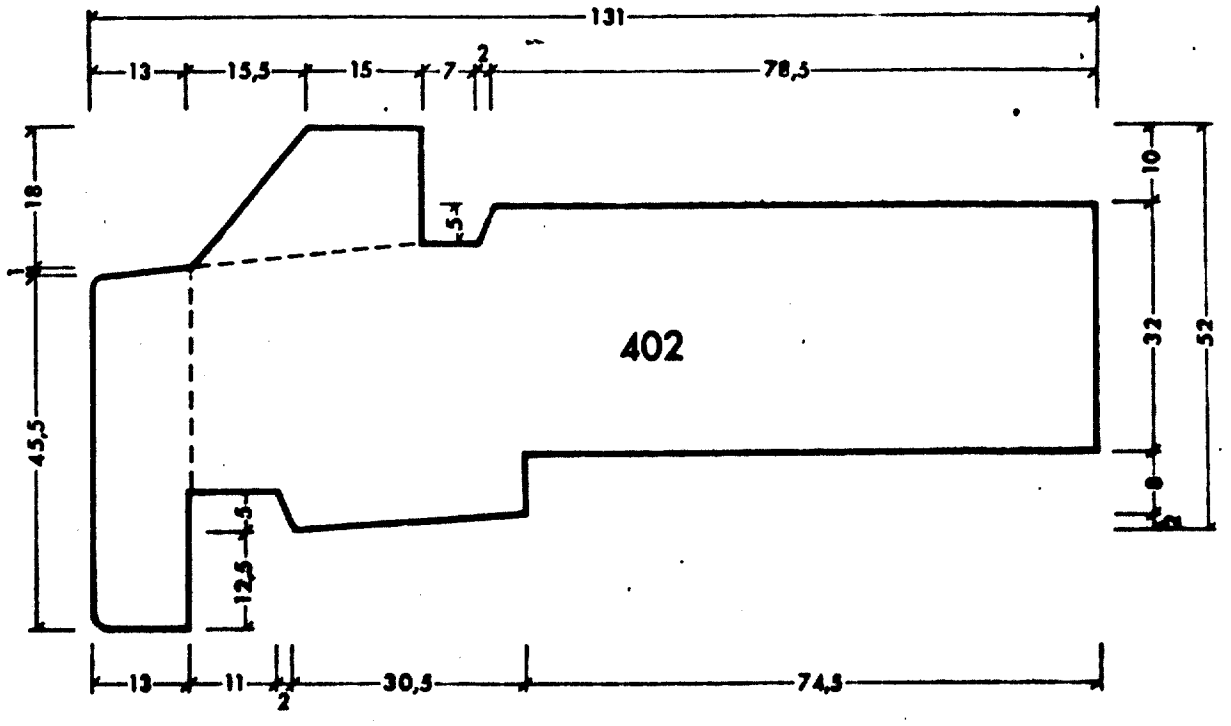


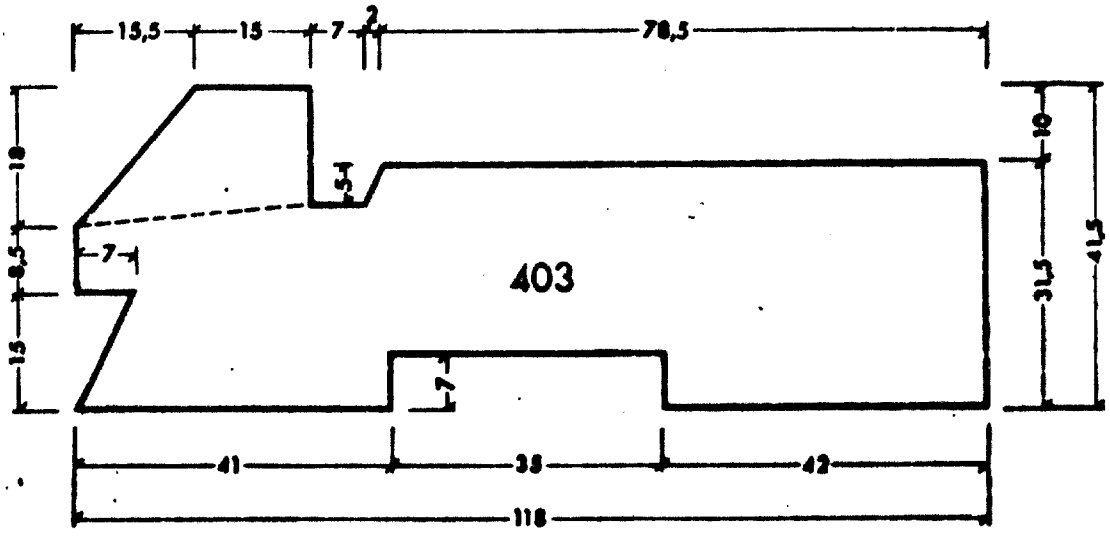
C



Kansi- ja pohjakappaleiden höyläysmitat
Kappaleiden päämittojen sallitun siirtovaihtelun ohjearvo on ± 1 mm.




131
13
15,5
15
7
2
78,5
18
1
5,4
10
32
52
45,5
5
12,5
13
11
2
30,5
74,5
402


15,5
15
7
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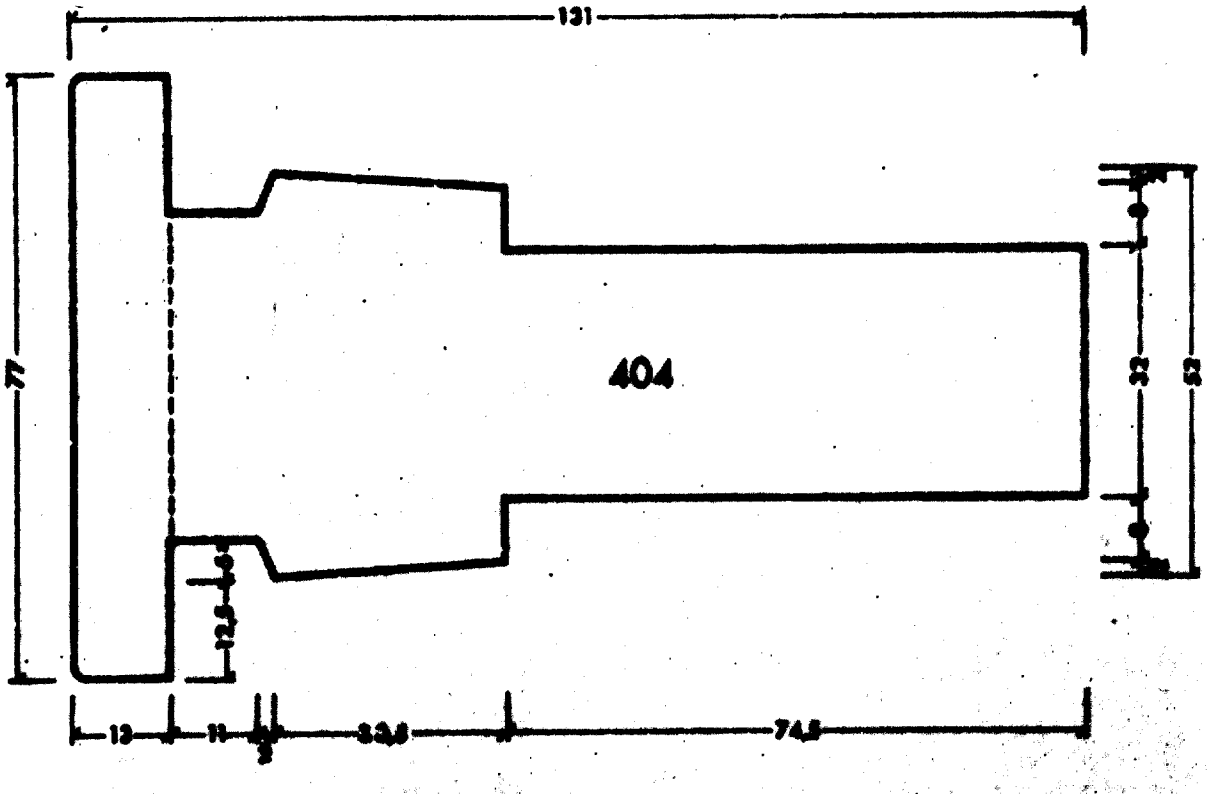
8,5
7
31,5
41,5
15
7
41
38
42
118
403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42
12,5
13
11
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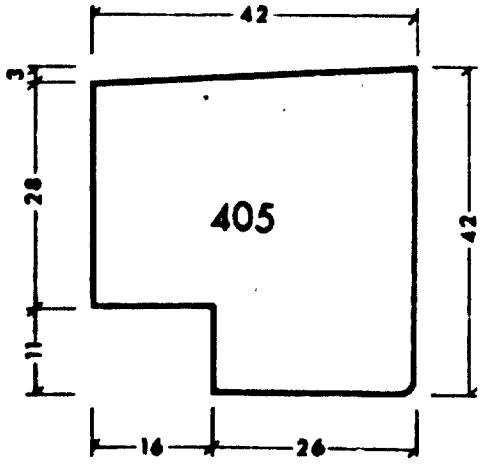
74,5
404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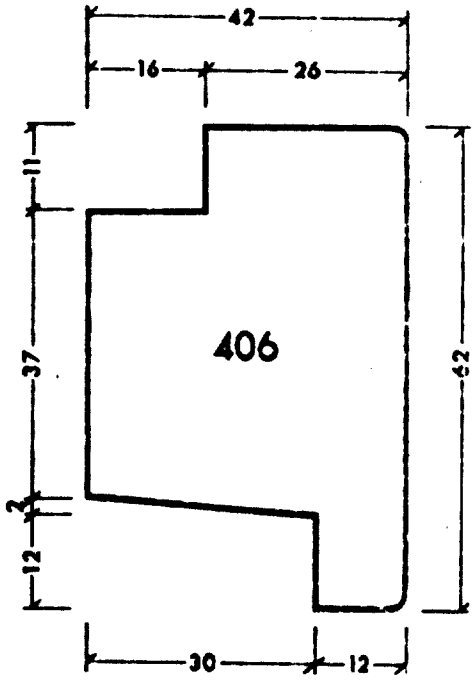
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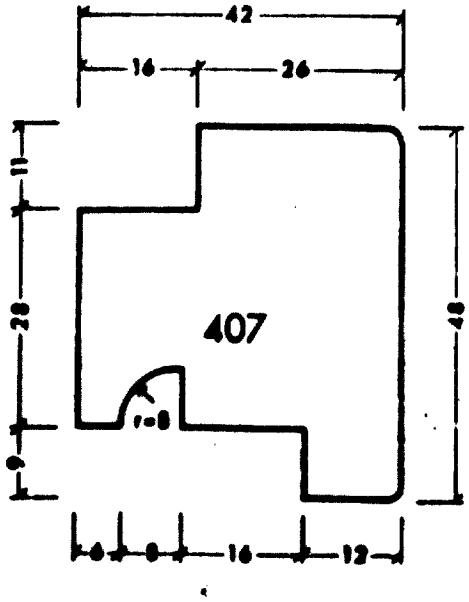
406
30
12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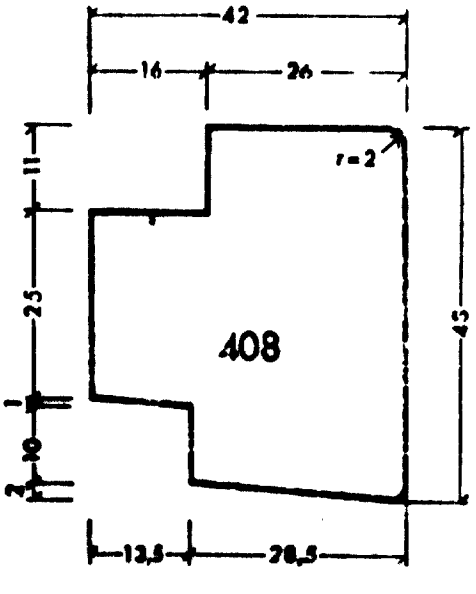
16
26
11
28
9
48
407
r=8
6
8
16
12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16
26
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25
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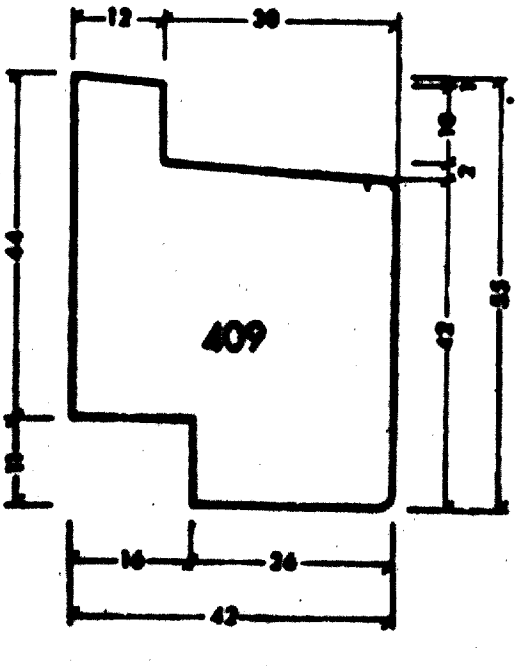
43
408
r=2
13,5
28,5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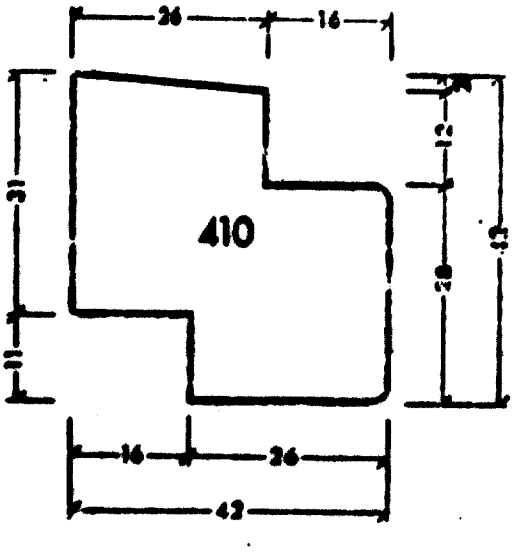
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410
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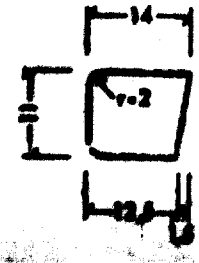
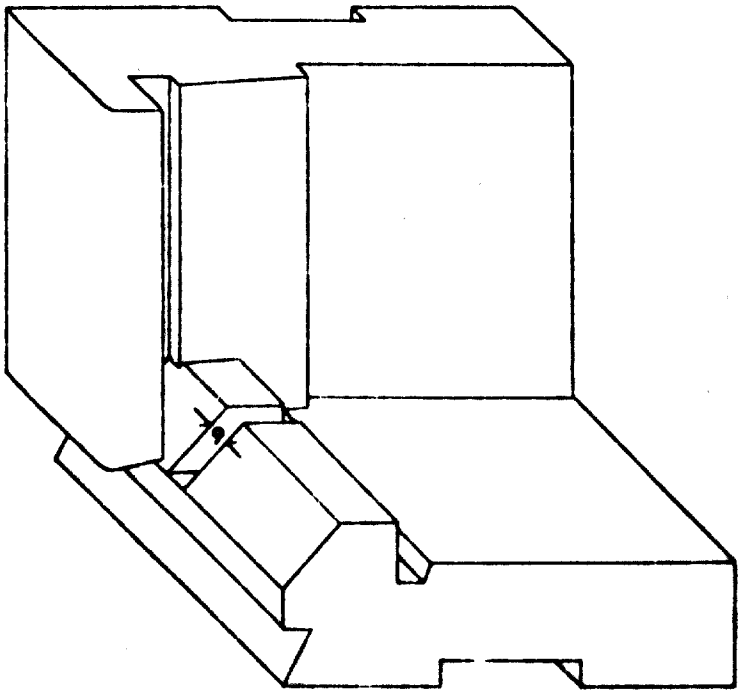

14
11
r=2
12,5

Alakarmin vedenpoistojärjestely



Ikkunoihin, joiden nimellisleveys on 3...11 dm tulee vedenpoistoaukko kummallekin sivulle. Nimellisleveyden ollessa 12...17 dm lisätään yksi vedenpoistoaukko ja suuremmin kaksi tasaisin välein.

Windows, wood, opening inwards, double casement

1 Contents

This SFS/RT standard describes a module dimensioned wooden window with opening inwards and double casement.

12 The standard contains outer dimensions of the frame, dimensions of frame and casement pieces, and clearances of the window plus standard sizes, glazing sizes, dimensions of panes and hinges of window designed on the basis of module dimension 3 M.

2 Marking

The nominal size of a standard window is given in dm width x height.

Marking: name of window, nominal size and the number of this standard.

E.g. Window 15 x 12 SFS/RT 861.42.

Manufacturing degree and quality class according to standard SFS/RT 210.81 has to be mentioned with the order.

3 Dimensioning basis

Basic module M = 1 dm = 100 mm.

The general joining dimensions of the windows are module dimensions, integral multiples of the basic module.

Dimensioning implies that the moisture content of the timber of the dry weight is no greater than 12 %.

4 Dimensioning

The principle of dimensioning is given in fig. 1.

41 The outside dimensions of window frame are 10 $\pm$ 2 mm smaller than the corresponding joining dimensions of the window. Figure 1.

42 Glazing dimensions of an undivided window are 156 $\pm$ 1 mm smaller than the corresponding joining dimensions of the window. Figure 1.

43 The normal dimensions of glass panes of an undivided window are 160 mm smaller than the joining dimensions of the corresponding window.

44 Profile sizes, see figures.

45 Dimensions of clearances are valid in an unfinished window which has been provided with fittings.

Clearance	Outer casement	Inner casement
on side of hinges	2 mm	2 mm
on side of lock	3 - 4 mm	3 - 4 mm
up	2.5 - 3.5 mm	2.5 - 3.5 mm
down	3.5 - 4.5 mm	3 - 4 mm

5 S.andard sizes of an undivided window

The recommended sizes for undivided windows of this standard are seen in the enclosed table. The standard sizes, which are horizontally based on planning module 3 M, can be seen in lined squares. Nominal sizes and dimensions of frame are on the upper and left hand side of the table. The corresponding dimensions of glass panes are on the lower and right hand side of the table. The thickness of glass panes can be seen at the bottom and can be seen also in the table as areas surrounded with uniform lines.
The number of hinges can be seen in the table, and windows with hinges on the upper side with particular lines at the top. Line of dashes has been used to show the area indicating window sizes, in which the windows have to be provided with rail equipment.

6 Combined windows

By combining undivided standard windows, windows with two or more parts and window lines can be formed.
These types of windows and windows that can be combined with them are joined together according to figure 2.

IKKUNA, PUUTA, SISÄÄNAUKEAVA

kytketty

Windows, wood opening inwards, coupled casement

1968 RT 861.46
SfB X (31)
UDK 69.028.21:674
Sivu 1 (8)

Ikkuna, nimistö SFS/RT 860.00
Muut ikkunastandardit ryhmässä SFS/RT 861 ...
Rakennuspuusepänteollisuuden tuotteet, laadunmääräykset, ikkunat ja ikkunaovet SFS/RT 210.81

Tähän ikkunatyyppiin yhdistettäväksi soveltuva ikkunaovi: RT 862.46 Ikkunaovi, puuta, sisäänaukeava, kytketty

0 YLEISTÄ

01 Tässä RT-kortissa on esitetty moduulimitoitettu puurakenteinen sivu- ja yläsaranoitu sisäänaukeava kytketty ikkuna.

02 RT-kortti sisältää karmin ulkamitat, karmi- ja puitekappaleiden mitat ja ikkunan käyntivälit sekä jaottoman ikkunan 3 M:n suunnittelumoduuliin perustuvat standardikoot, lasitusmitat, lasilevyjen mitat ja saranoinnin.

1 MERKINTÄ

Ikkunan nimelliskoko ilmoitetaan dm:nä leveys × korkeus.
Merkintä: Ikkunan nimi, nimelliskoko ja tämän RT-kortin numero.
Esim.: Jaoton ikkuna 15 × 12 RT 861.46
Lisäksi on tilauksen yhteydessä mainittava standardin SFS/RT 210.81 mukainen valmistusaste ja laatuluokka.

2 MITOITUSPERUSTEET

Kantamoduuli M = 1 dm = 100 mm.
Ikkunoiden yleiset liittymismitat ovat moduulimittoja, kantomoduulin kokonaisia kerrannaisia. Mitoitus edellyttää, että puutavaran kosteus kuivapainosta laskettuna ei ole suurempi kuin 12 %.

3 MITOITUS

Ikkunan mitoituksen periaate on esitetty kuvassa 1.

31 Ikkunan karmin ulkomitat ovat 10 ± 2 mm pienempiä kuin vastaavat ikkunan liittymismitat. Kuva 1.

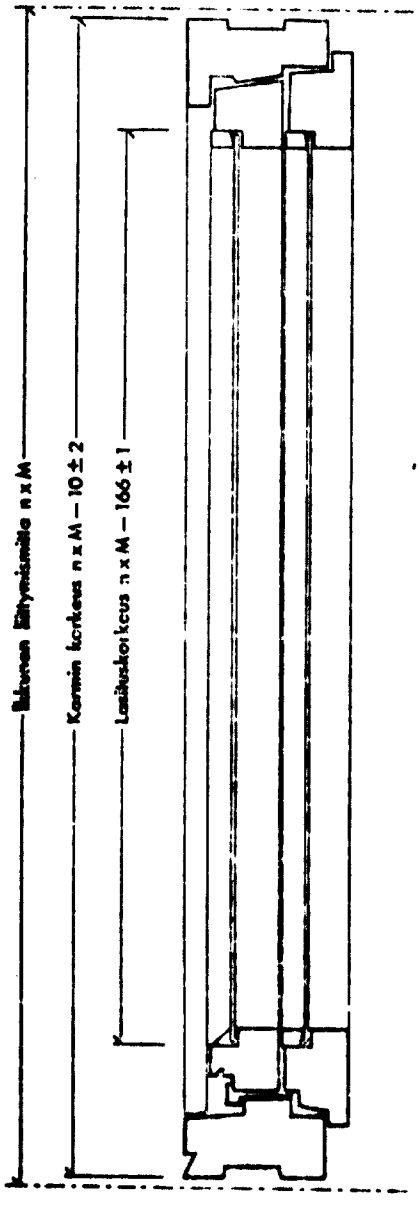
32 Jaottoman ikkunan lasitusmitat ovat leveyssuunnassa 156 ± 1 mm ja korkeussuunnassa 166 ± 1 mm pienempiä kuin vastaavat ikkunan liittymismitat. Kuva 1.

33 Jaottoman ikkunan lasilevyjen normaalimitat ovat leveyssuunnassa 160 mm ja korkeussuunnassa 170 mm pienempiä kuin vastaavat ikkunan liittymismitat.

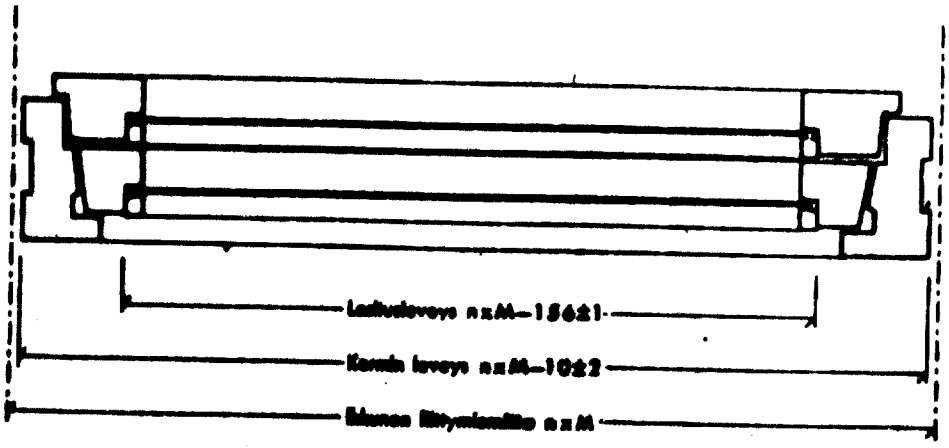
34 Profiilien mitat, ks. kuvat.

35 Käyntivälien mitat pätevät heloitetussa ja valmiiksi sovitetussa käsittelemättömässä ikkunassa.

Käyntiväli	Ulkopuite ja sisäpuite
saranasivulla	2 mm
lukkosivulla	3 ... 4 mm
yläpäässä	2,5 ... 3,5 mm
alapäässä (sisäpuite)	3 ... 4 mm



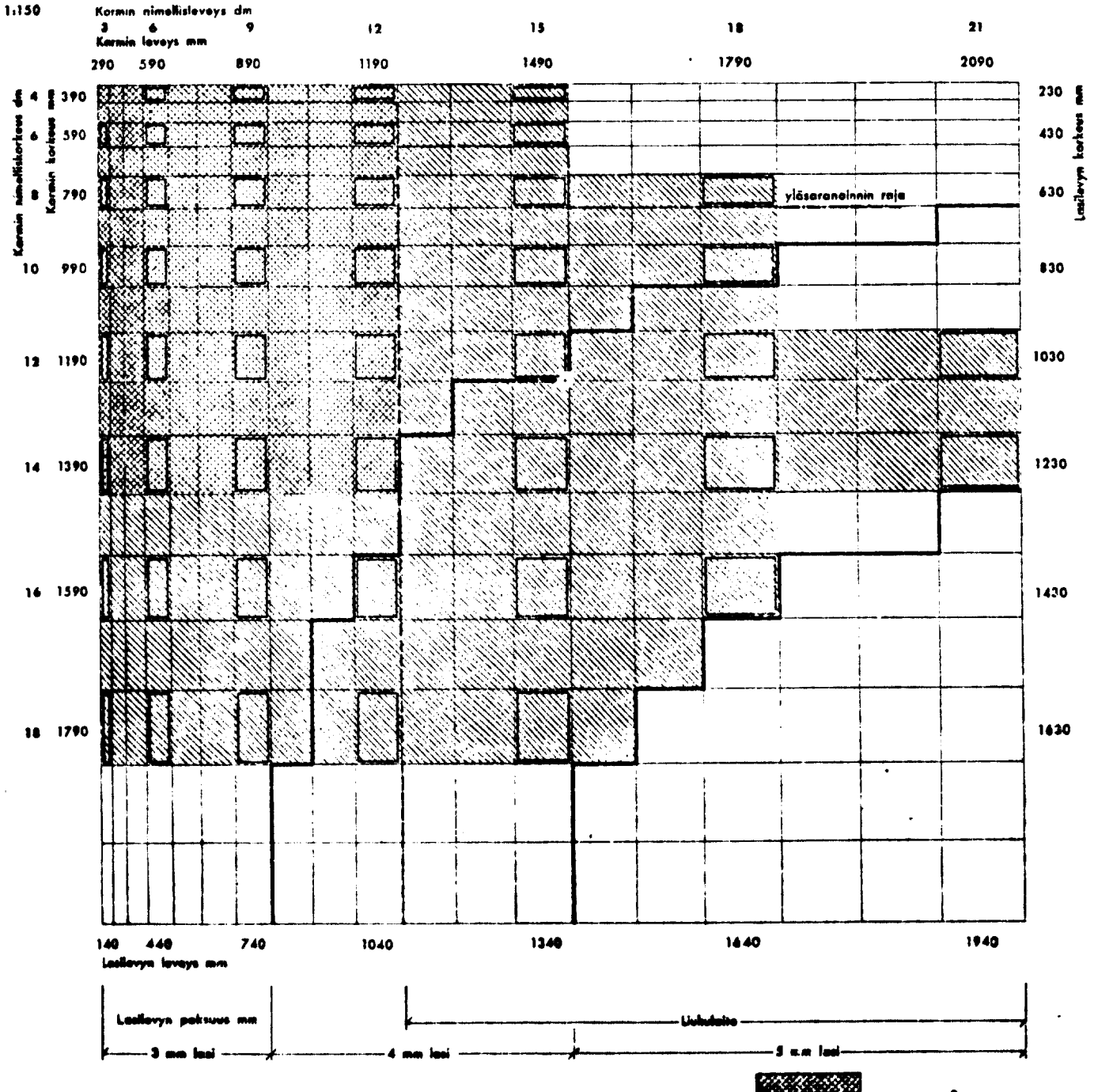
KUVA 1
M = 100 mm
n on kokonaisluku ≥ 3



4 JAOTTOMAN IKKUNAN STANDARDIKOOT

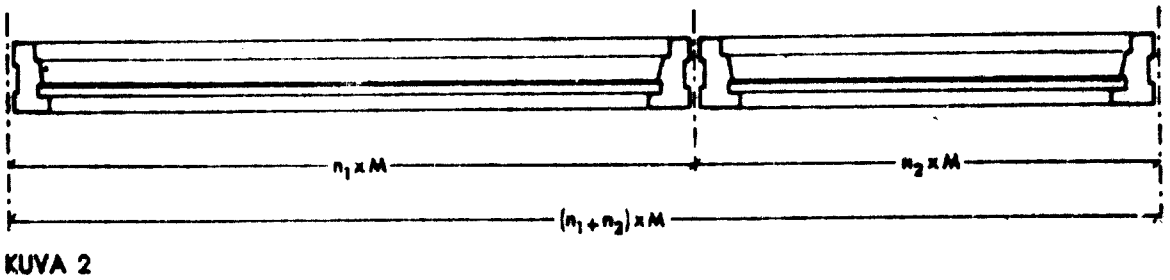
Taulukossa on esitetty rasterialueena tämän RT-kortin mukaisten jaottomien ikkunoiden suositellut kaot. Jaottoman ikkunan standardikaat, jotka leveyssuunnassa perustuvat 3 M:n suunnittelumoduuliin, on esitetty rajatuissa ruuduissa. Standardikokojen nimellismitat ja karmin mitat on merkitty taulukon vasempaan ja yläreunaan. Vastaavat lasilevyjen mitat on merkitty taulukan oikeaan ja alareunaan. Lasilevyjen paksuus on merkitty taulukan alapuolelle ja esitetty taulukassa yhtenäisten viivojen rajaamina alueina.

Saranoiden lukumäärä on merkitty taulukkoon erilaisilla rastereilla ja yläsaranaidut ikkunat lisäksi piste-katkoviivan rajaamana alueena taulukon yläreunassa. Katkoviivalla on rajo' se ikkunoiden kokoa ilmaiseva alue, jolla sivusarano ,ut ikkunat on varustettava liukulaitteella.



5 IKKUNOIDEN YHDISTÄMINEN

Jaottomia ikkunoita yhdistämällä voidaan muodostaa kaksi -tai moniosaisia ikkunaita ja ikkunanauhoja. Näitä ikkunatyyppejä sekä näihin yhdistettäväksi soveltuvia ikkunaovia (RT 862.46) liitetään rinnakkain kuvan 2 mukaisesti.



KUVA 2

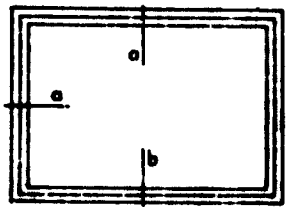
Ikkunoiden moduulijärjestelyn mukainen liittäminen toisiinsa.

JAOTTOMAN IKKUNAN KARMIN JA PUITTEIDEN SOVITUS

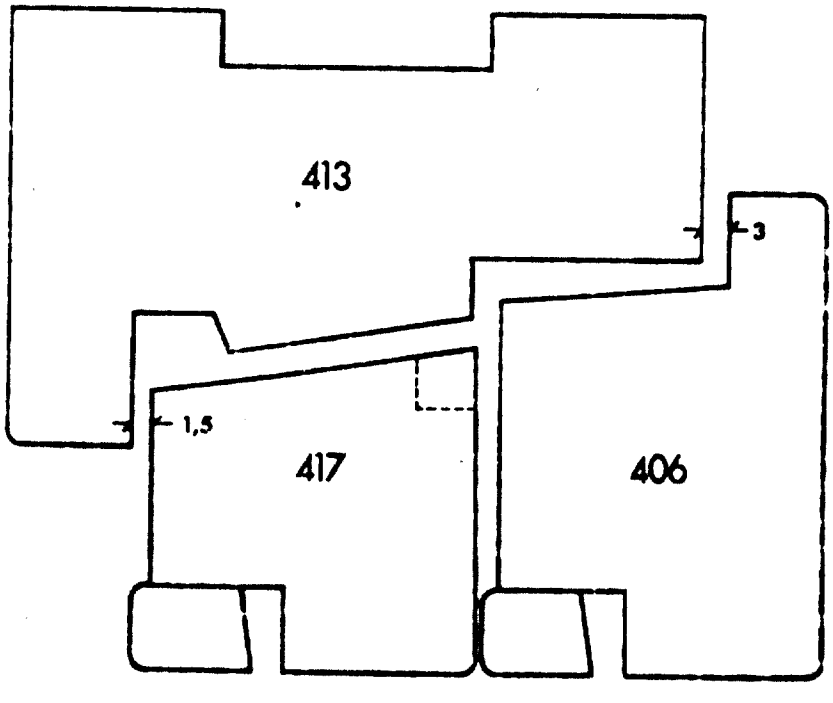
Karmin alakoppaleeseen ja vaakajakokappaleeseen **kuuluu metallinen** suojalista, jonka periaatteellinen muoto **on esitetty** kuvassa. Suojalista voi olla metallitankoa tai **taivutettua peltiä.**

Suojalista tulee varustaa tarpeellisella määrällä veden**poistoaukkoja.**

Yläsaranoidussa ikkunassa ulkopuitteen alakappale viis**tetään tarvittaessa.**



a



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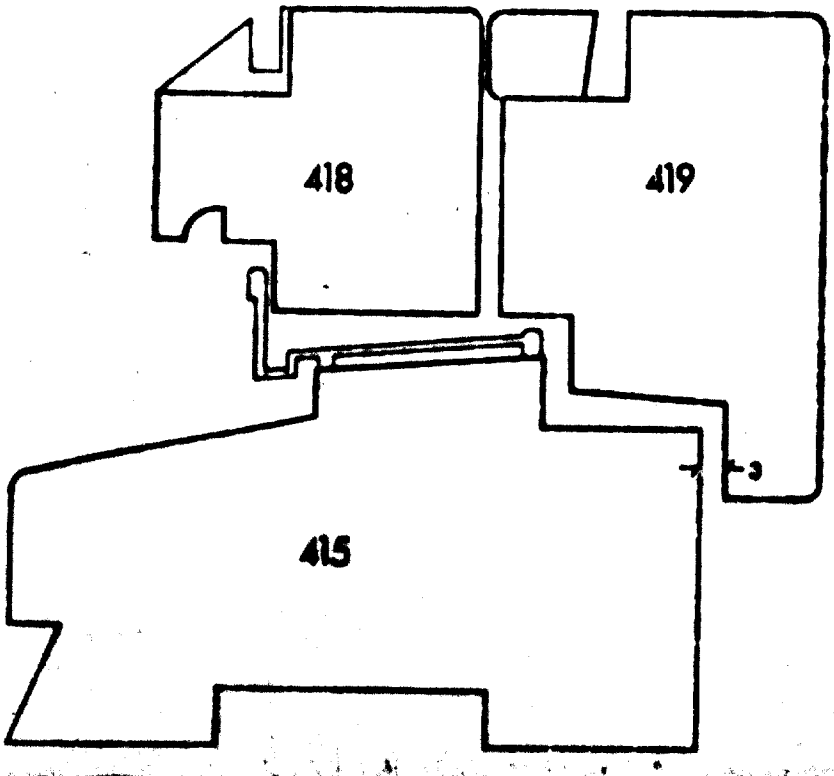
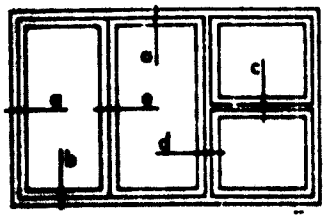


JAETUN IKKUNAN KARMIN JAKOKAPPALEIDEN JA PUITTEIDEN SEKÄ YHTYVIEN KESKIPUITTEIDEN SOVITUS



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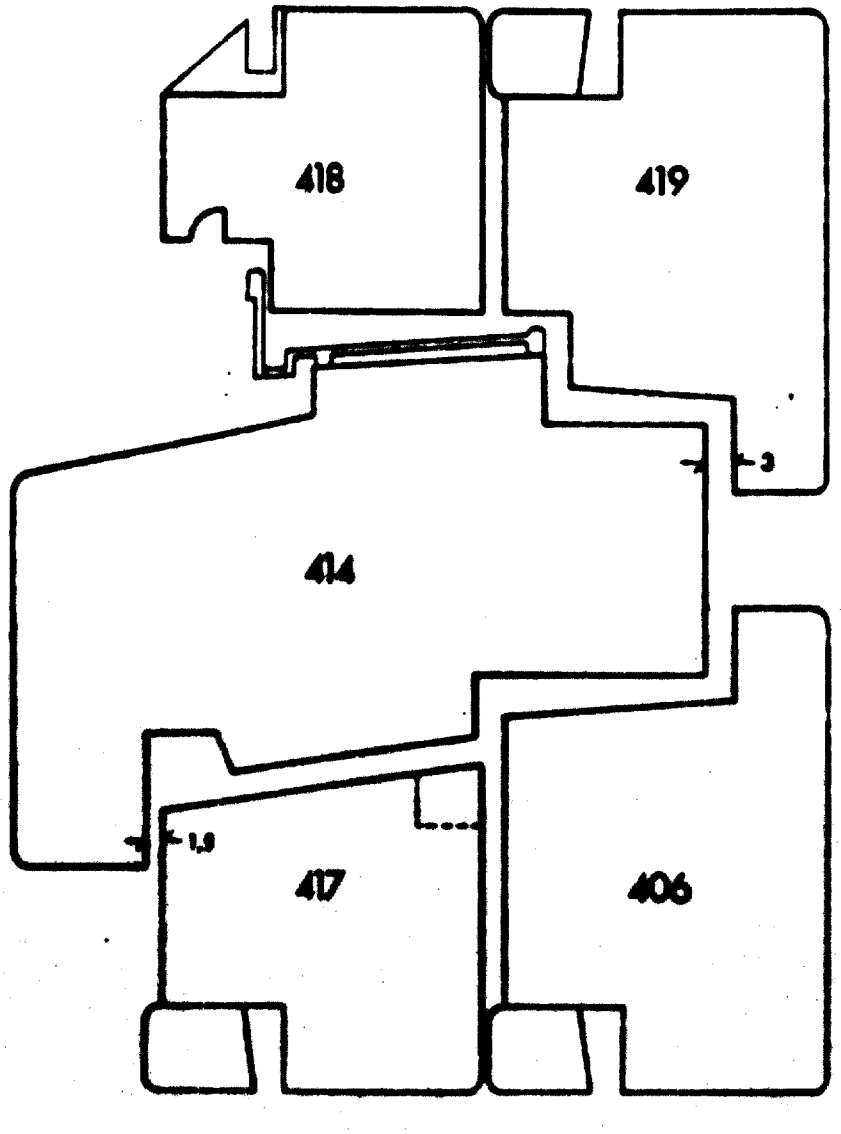

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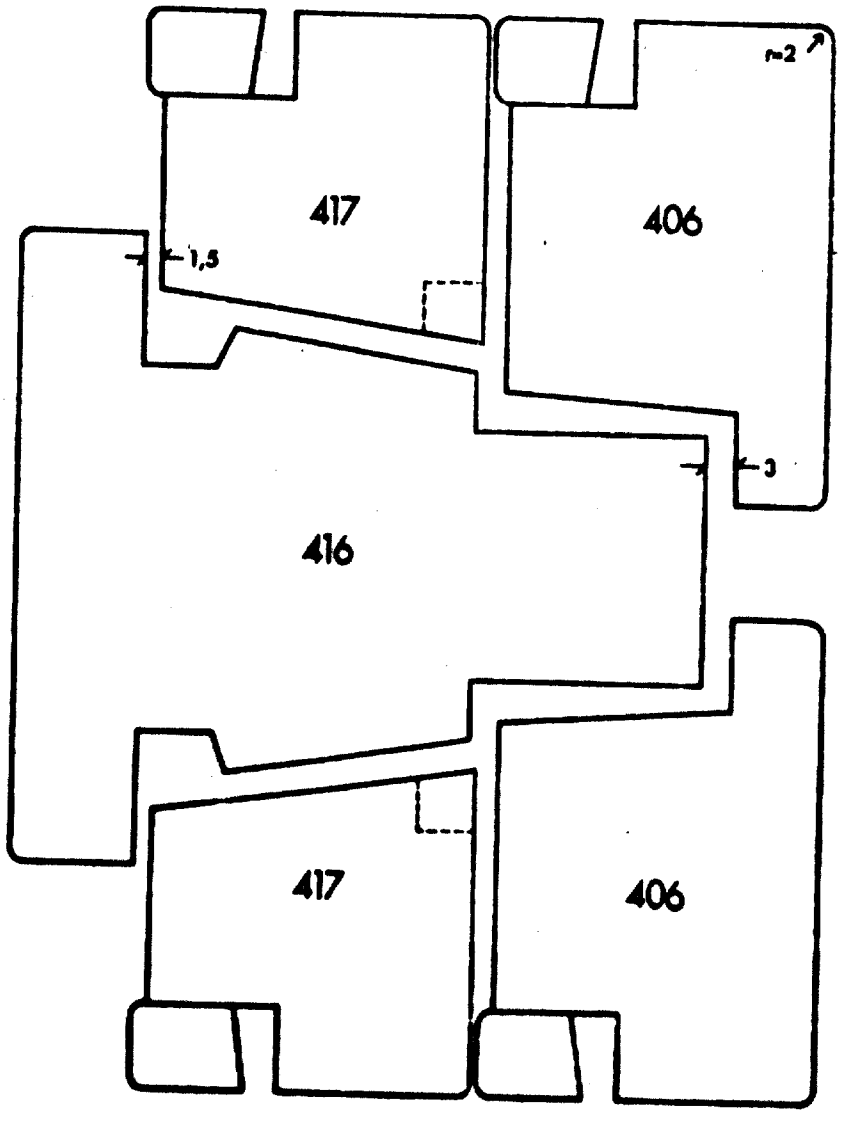
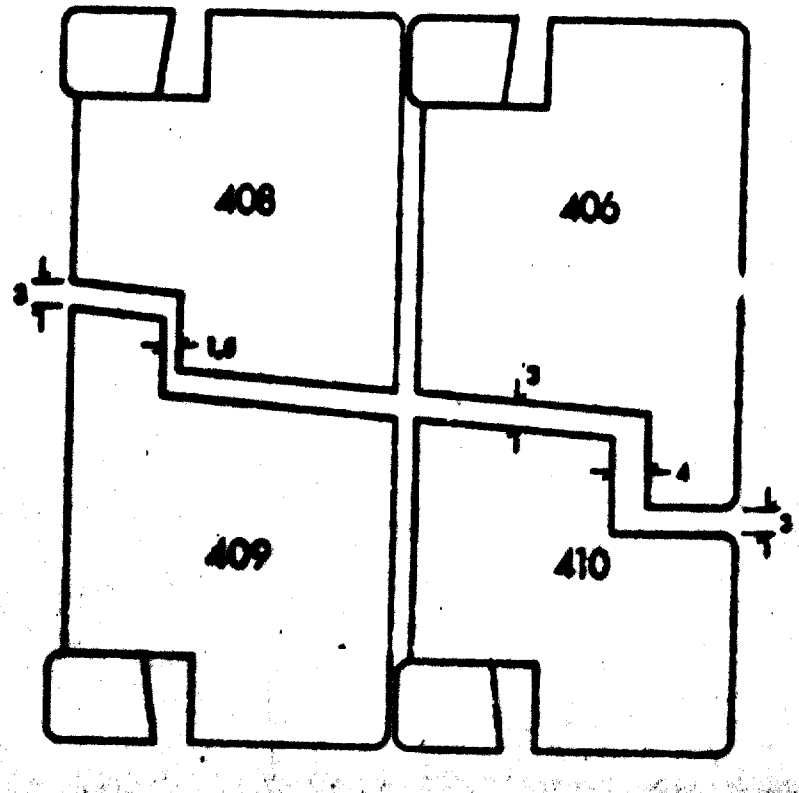


e



7.8.73

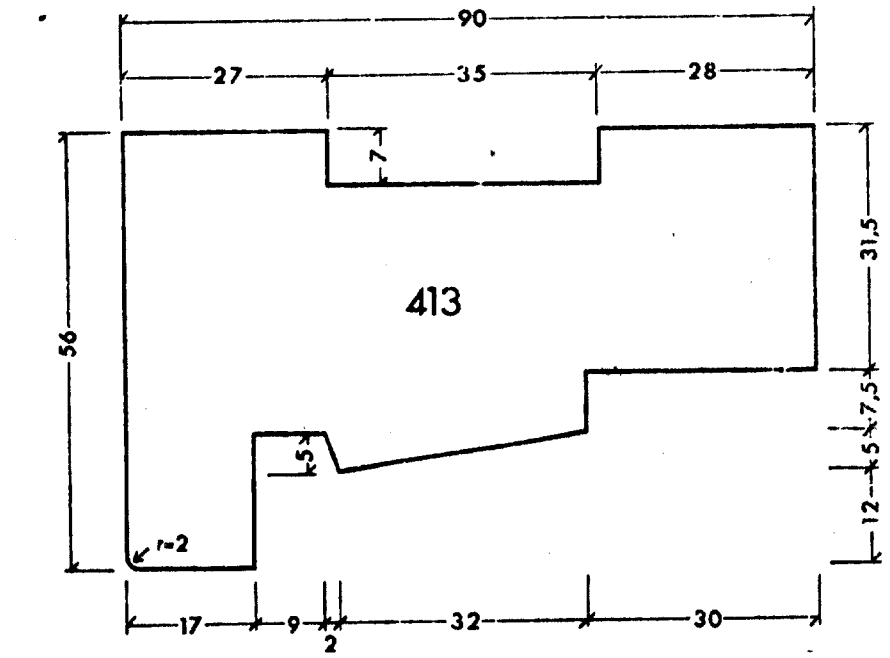
2 OF 2

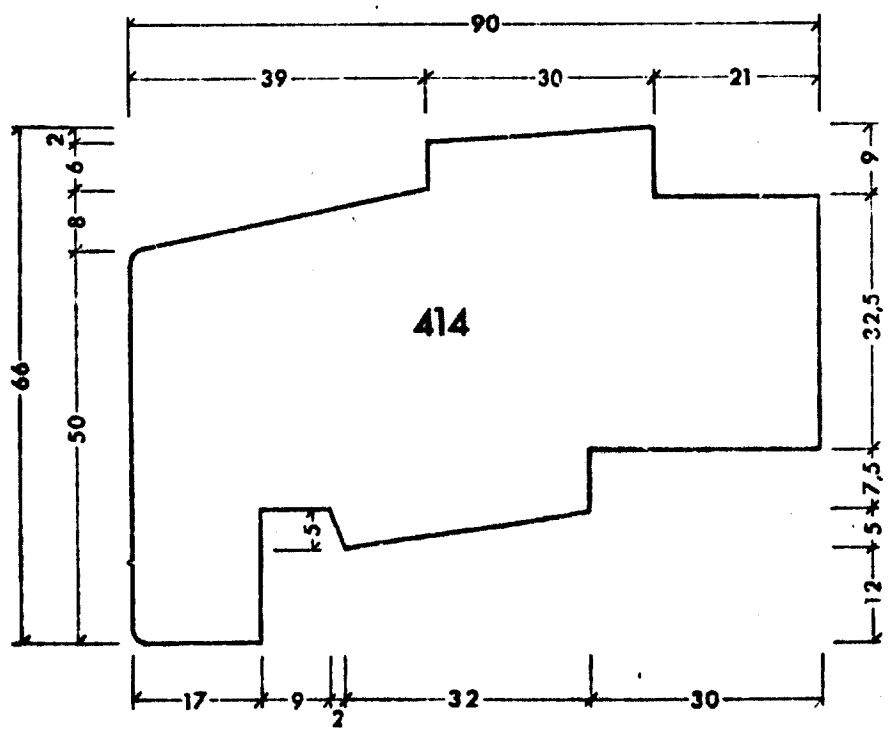
DO

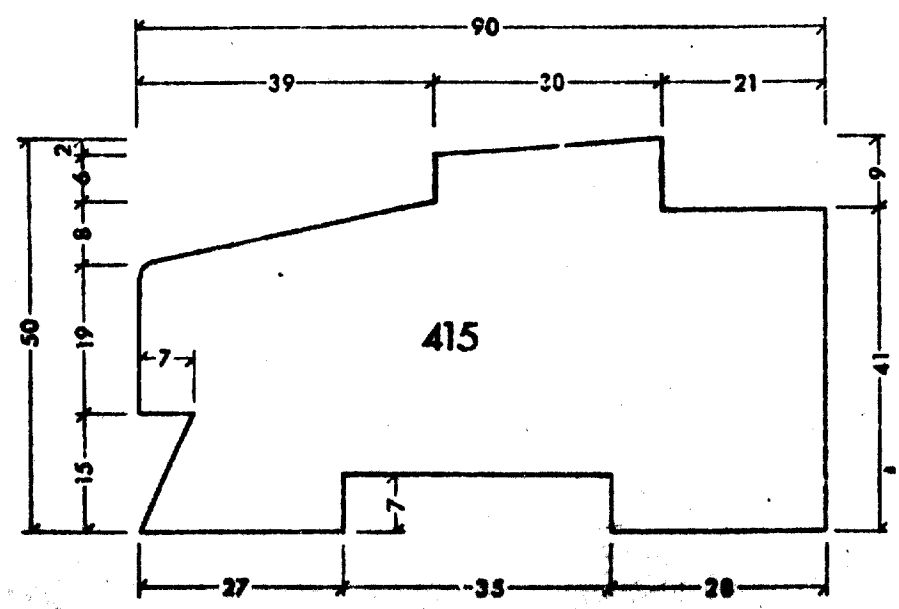
3153

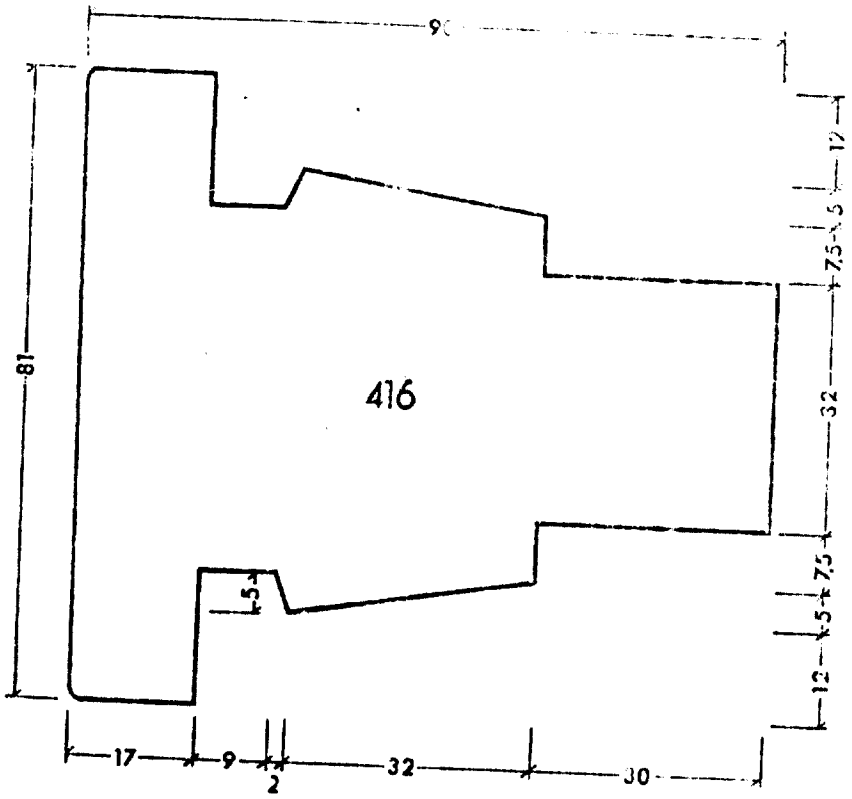
KARMI- JA PUITEKAPPALEIDEN HÖYLÄYSMITAT

Kappaleiden päämittojen sallittun mittovaihtelun ohjearvo on ± 1 mm.





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9
2
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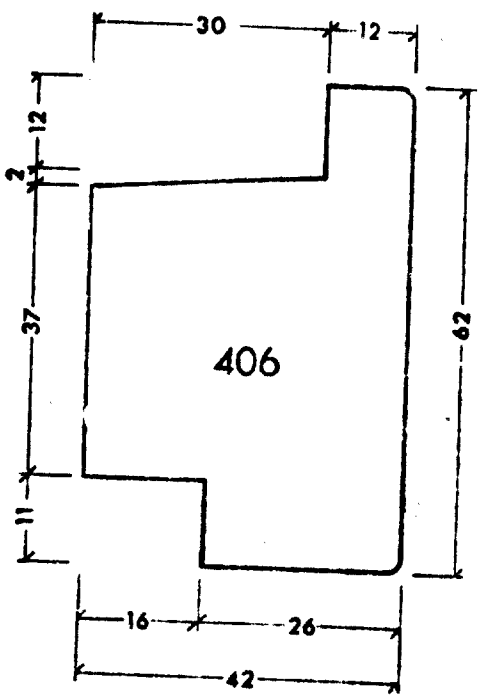
30
5
12
7,5
5
32
7,5
5
12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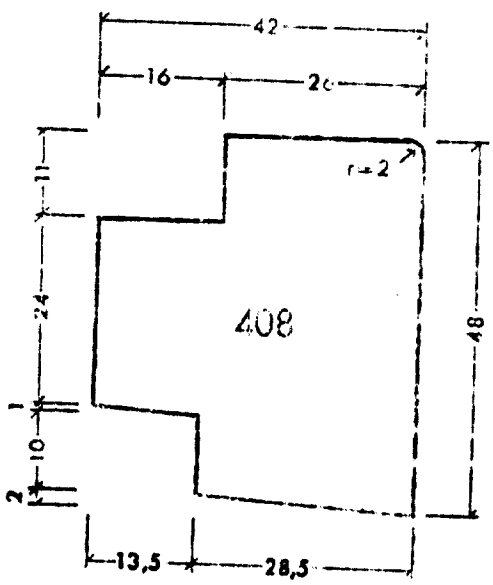
11
16
26
42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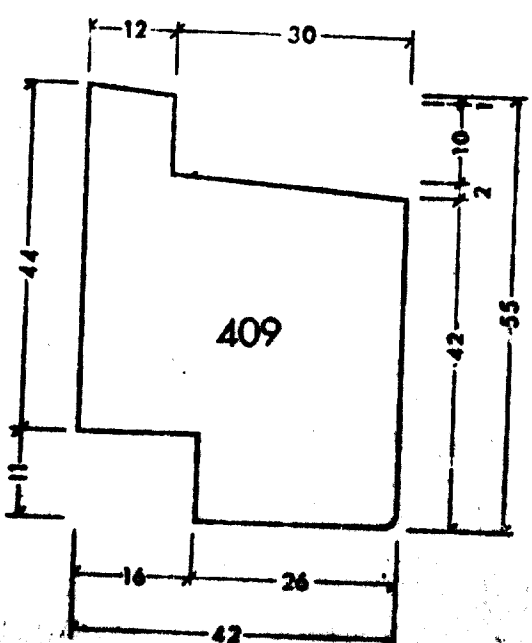
16
26
r=2
11
24
408
48
1
10
2
13,5
28,5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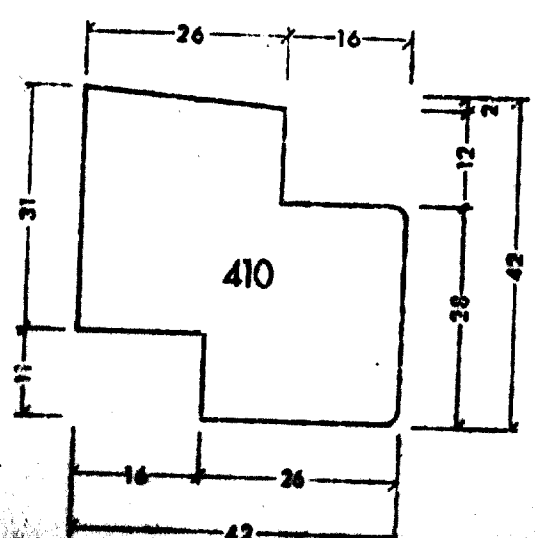
30
1
10
2
44
409
55
42
11
16
26
42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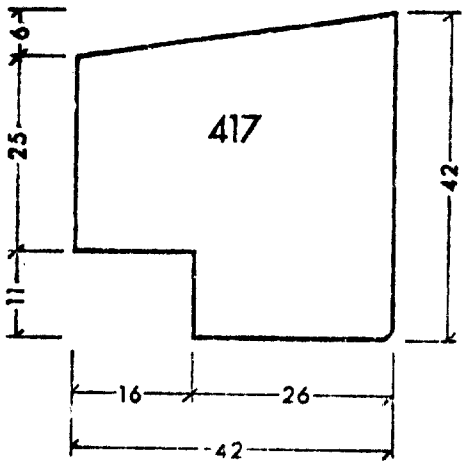
16
2
12
31
410
42
28
11
16
26
42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6
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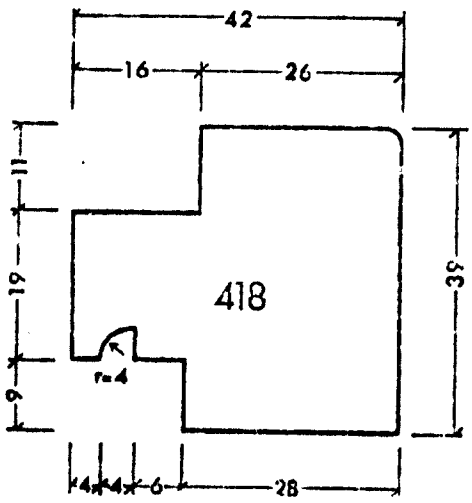
11
42
16
26
42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9
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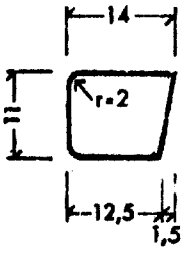
4
4
6
28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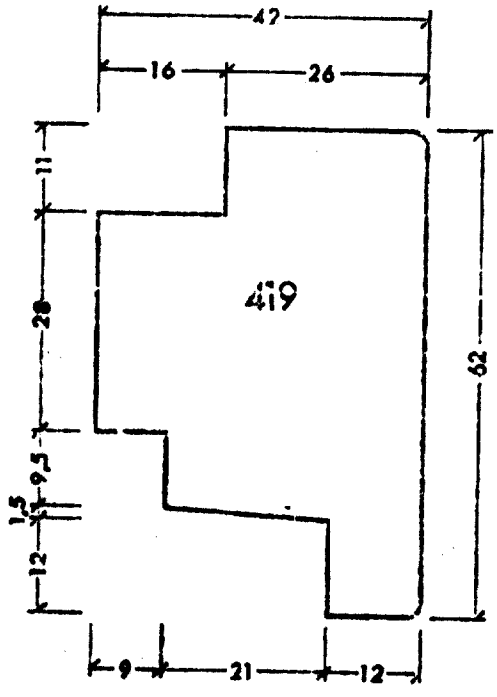
11
r=2
12,5
1,5


42
16
26
11
28
419
62
9,5
1,5
12
9
21
12

Windows, wood opening inwards, coupled casement

0 General

01 This RT card describes a module dimensioned window with wood opening inwards and coupled casement

02 This RT card contains the outer dimensions of the frame, dimensions of frame and casement pieces and window clearances and standard sizes, glazing dimensions, dimensions of panes and hinges of an undivided window designed on the basis of module dimension 3 M.

1 Marking

The nominal size of window is given in dm width x height.
Marking: name of window, nominal size and the number of this RT card.
E.g. undivided window 15 x 12 RT 861.46
Manufacturing degree and quality class according to standard SFS/RT 210.81 have to be indicated in the order.

2 Dimensioning basis

Basic module M = 1 dm = 100 mm.
The general joining dimensions of windows are module dimensions, integral multiples of the basic module. Dimensioning implies that the moisture content of the timber of dry weight is no greater than 12 %.

3 Dimensioning

The principle of dimensioning the window is seen in figure 1.

31 Outside dimensions of window frame are 10 ± 2 mm smaller than the corresponding joining dimensions of the window.

32 Glazing dimensions of an undivided window are 156 ± 1 mm horizontally and 166 ± . åå vertoca..u, Figure 1.

33 The normal dimensions of the panes of an undivided window are horizontally 160 mm and vertically 170 mm smaller than the corresponding joining dimensions of the window.

34 Dimensions of profiles, see figures.

35 Dimensions of clearances are valid in an unfinished window provided with fittings.

Clearance	Outer and inner casement
on the side of hinges	2 mm
on the side of lock	3 - 4 mm
up	2.5 - 3.5 mm
down	3 - 4 mm

4 Standard sizes of an undivided window
See eclosed table

5 Combined windows

Windows of two or more parts or window lines can be formed by joining undivided windows. These types of windows and glazed doors are joined together as fig. 2 shows.

IKKUNAOVI, PUUTA, SISÄÄNAUKEAVA

kytketty

Glazed doors, wood, opening inwards, coupled casement

1968 RT 862.46
SfB X (31)
UDK 69.028.23:674
Sivu 1 (5)

ikkunaovi, nimisto RT 862.00
Muut ikkunaovet ryhmässä RT 862 . . .
Rakennuspuusepänteollisuuden tuotteet, laadunmääräykset, ikkunat ja ikkunaovet SFS/RT 210.81

Tähän ikkunaovityyppiin yhdistettäväksi soveltuva ikkuna: RT 861.46 ikkuna, puuto, sisäänaukeava, kytketty

0 YLEISTÄ

01 Tässä RT-kortissa on esitetty puurakenteinen sisäänaukeava kytketty ikkunaovi.

02 RT-kortti sisältää karmin leveysmitan, karmi- ja kehyskappaleiden mitat, ikkunaoven käyntivälit ja ikkunaovessa käytettävän lasilevyn paksuuden.

1 MITOITUS

Mitoituksessa edellytetään, että puutavaran kosteus kuivapainosta laskettuna ei ole suurempi kuin 12 %.

11 Ikkunaoven karmin leveyden liittymismitta on moduulimitta 9 × M = 900 mm.
Karmin leveyden valmistusmitta on 900 — 10 ± 2 mm = 890 ± 2 mm. Kuva 2.

12 Ikkunan rinnalle tuleva ikkunaovi tulisi korkeussuunnassa mitoittaa siten, että asennuksessa ikkunan ja ikkunaoven karmin yläkappaleet ovat samassa tasassa. Karmin korkeusmitassa sallitaan ± 2 mm:n mittavaihtelu.

13 Profiilien mitat, ks. kuvat.
Karmi- ja kehyskappaleiden päämittojen sallitun mittavaihtelun ohjearvo on ± 1 mm.

14 Käyntivälien mitat pätevät heloitetussa ja valmiiksi sovitetussa käsittelemättömässä ikkunaovessa.

Käyntiväli	Ulkakehys ja sisäkehys
saranasivulla	2 mm
lukkasivulla	3 . . . 4 mm
ylhäällä	2 . . . 3 mm
alhaalla (sisäkehys)	4 . . . 5 mm

15 Ikkunaovessa käytettävän lasilevyn paksuus on vähintään 5 mm.

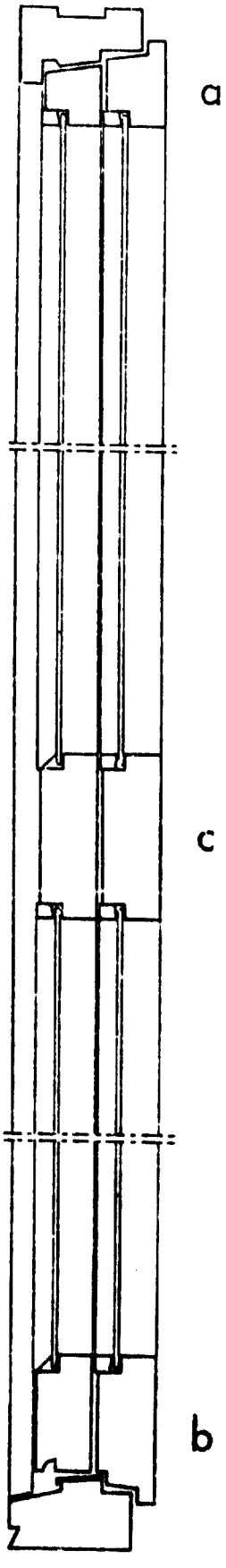
2 IKKUNAOVIEN JA IKKUNOIDEN YHDISTÄMINEN

Näitä ikkunaovia sekä näihin yhdistettäväksi soveltuvia ikkunoita (RT 861.46) liitetään rinnakkain kuvan 3 mukaisesti.

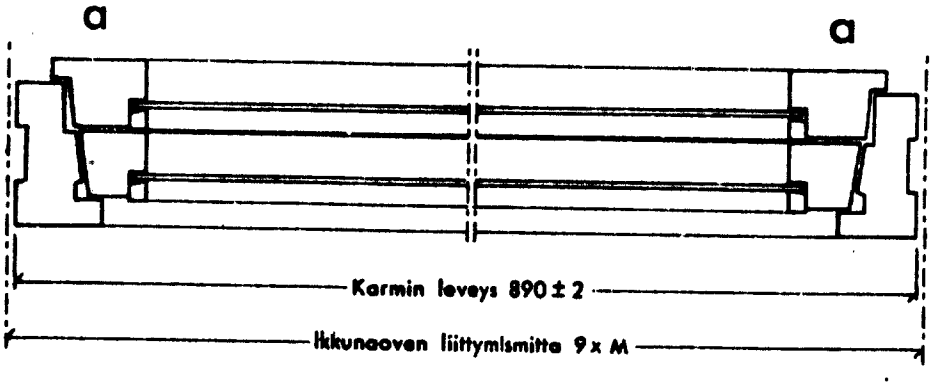
3 OVILEVYN ULKONÄKÖ

Tämän RT-kortin kehysprofiileja käyttäen voidaan suunnitella vain kehyksen vaakajakokappaleen jakama kaksi- (tai useampi-) lasinen ovilevy.

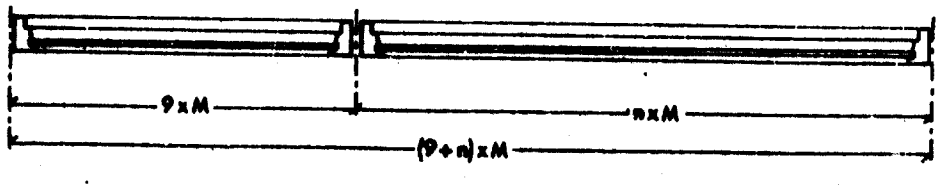
KUVA 1



KUVA 2



KUVA 3
Ikkunaoven ja ikkunan moduulijärjestelyn mukainen liittäminen toisiinsa

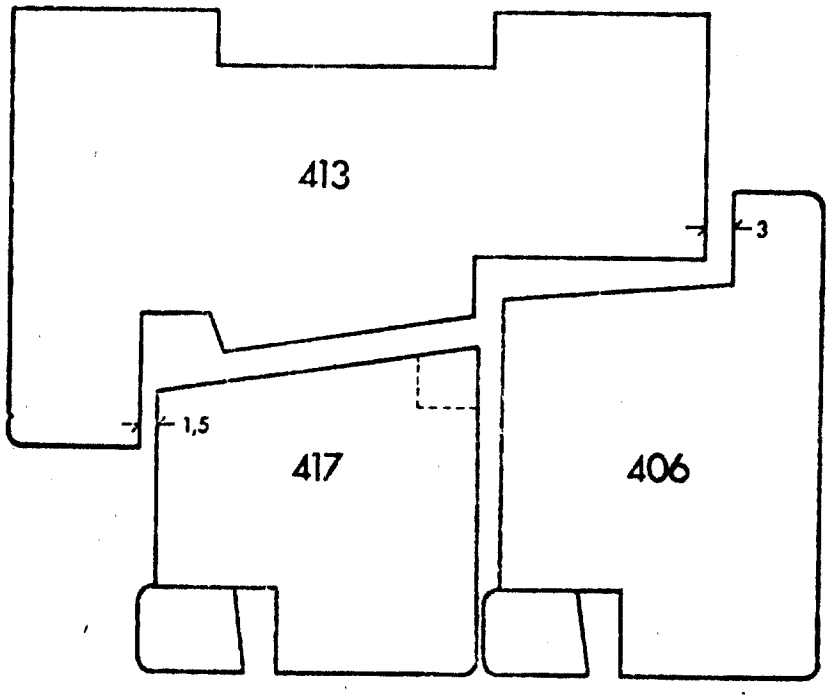


M = 100 mm
n on kokonaisluku ≥ 3

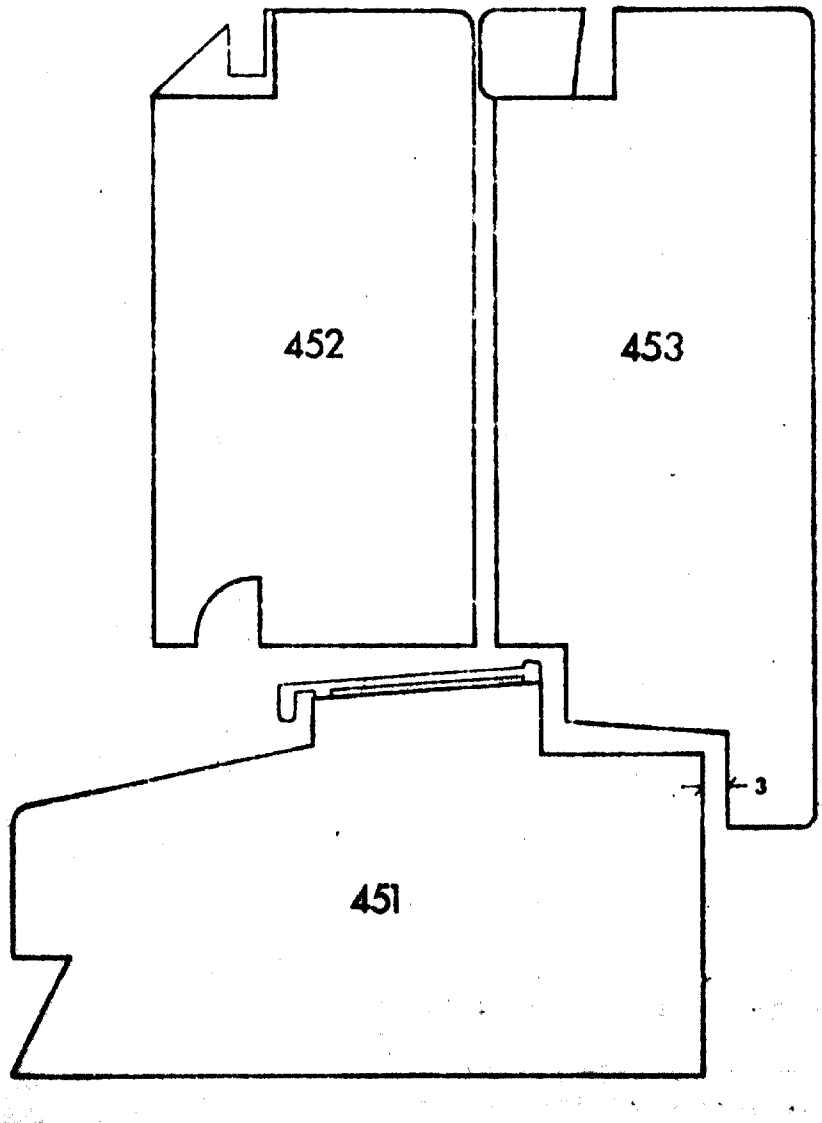
IKKUNAOVEN KARMIN JA KEHYSKAPPALEIDEN SOVITUS

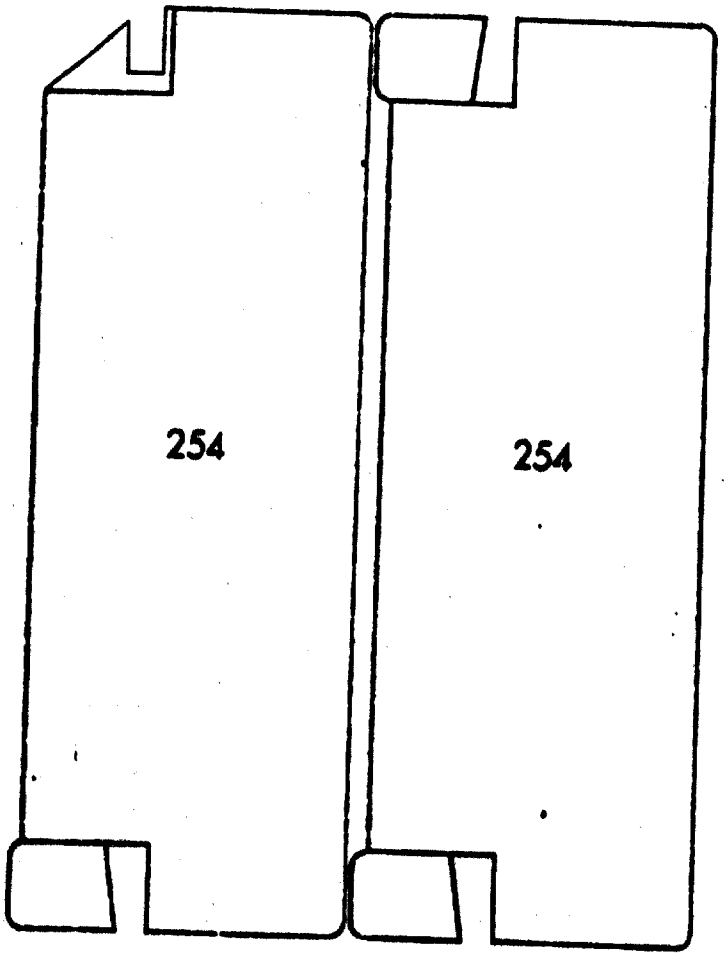
Ikkunaoven kynnykseen kuuluu metallinen suojalista, **jonka** **periaatteellinen** muoto on esitetty kuvassa.

a



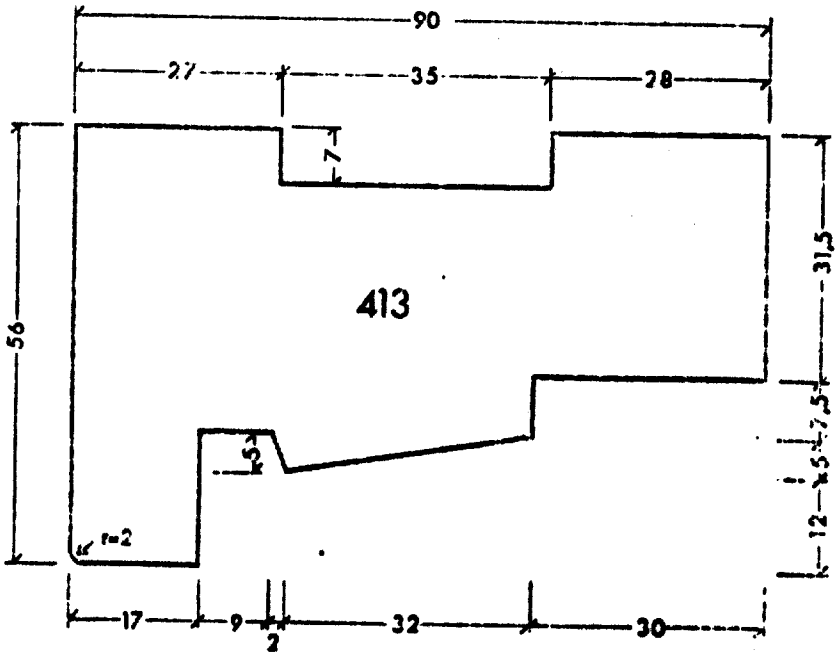
b

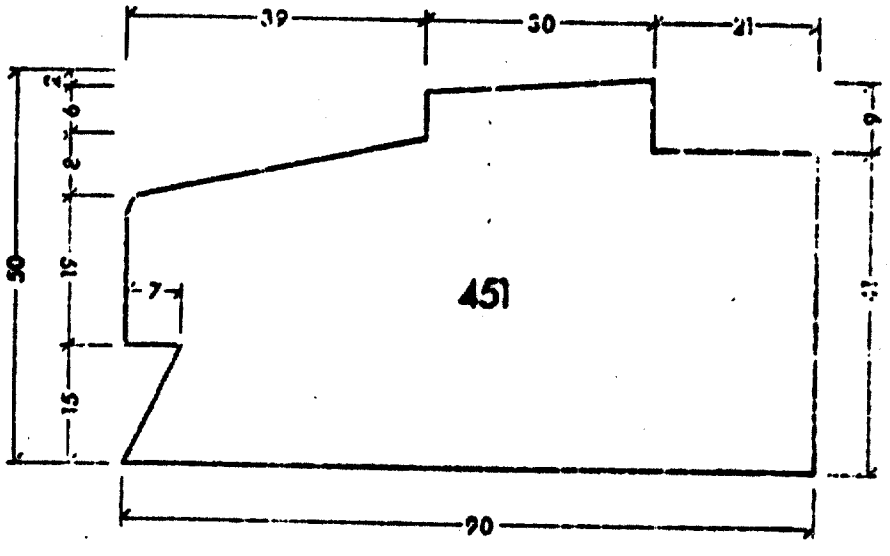


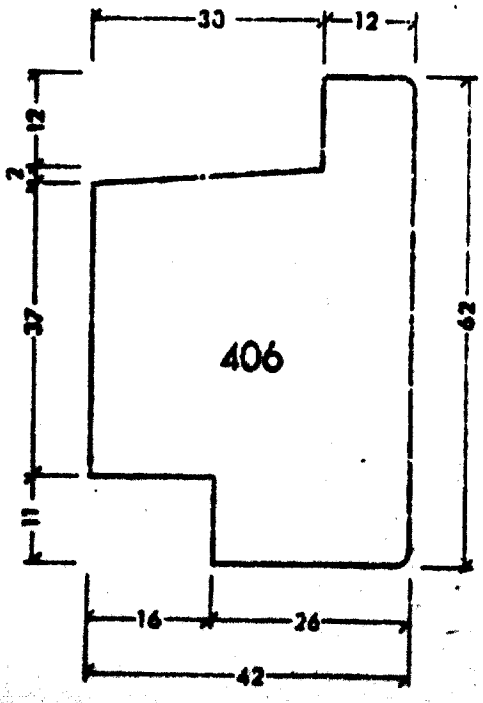


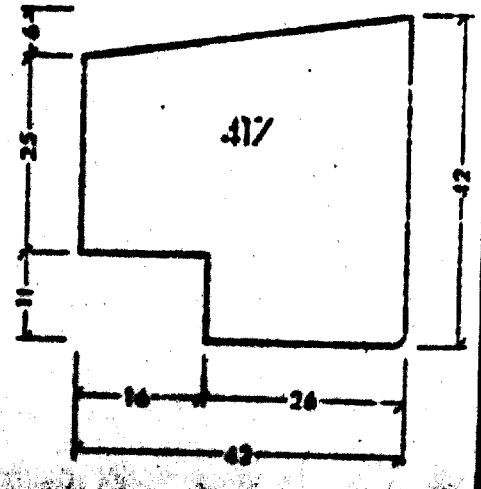
C

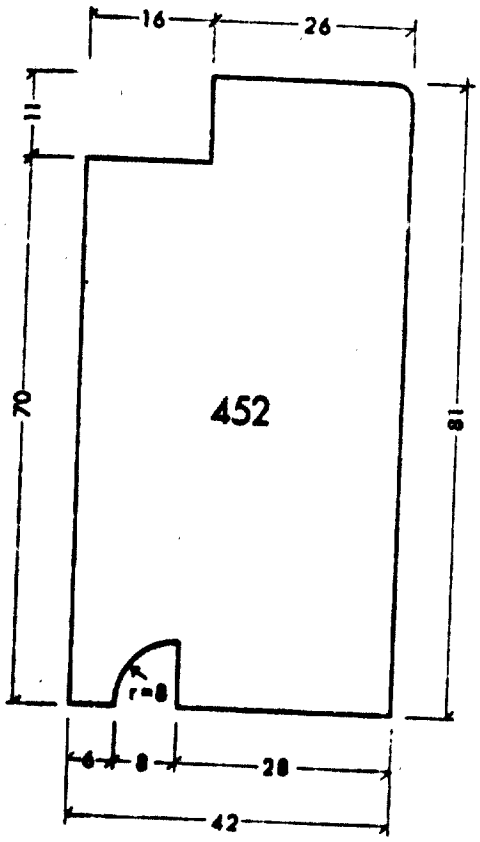
KARMI- JA KEHYSKAPPALEIDEN HÖYLÄYSMITAT







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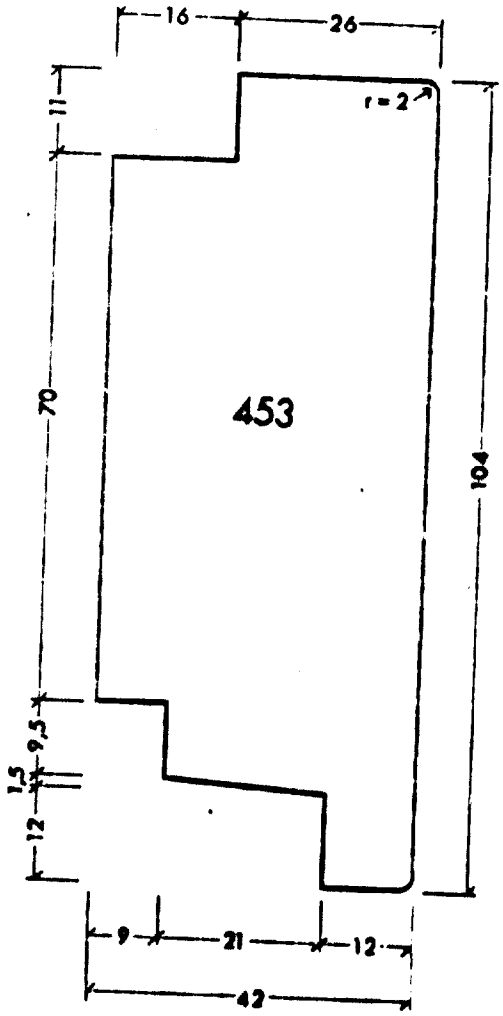
26
11
70
452
81
r=8
6
8
28
42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26
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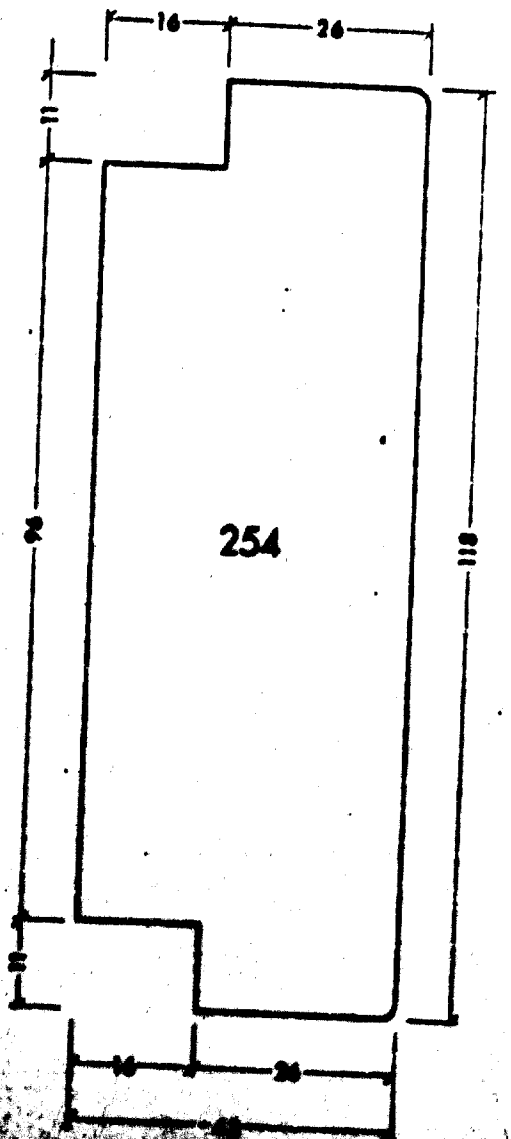
70
453
104
9,5
1,5
12
9
21
12
42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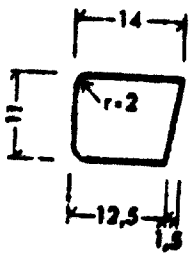
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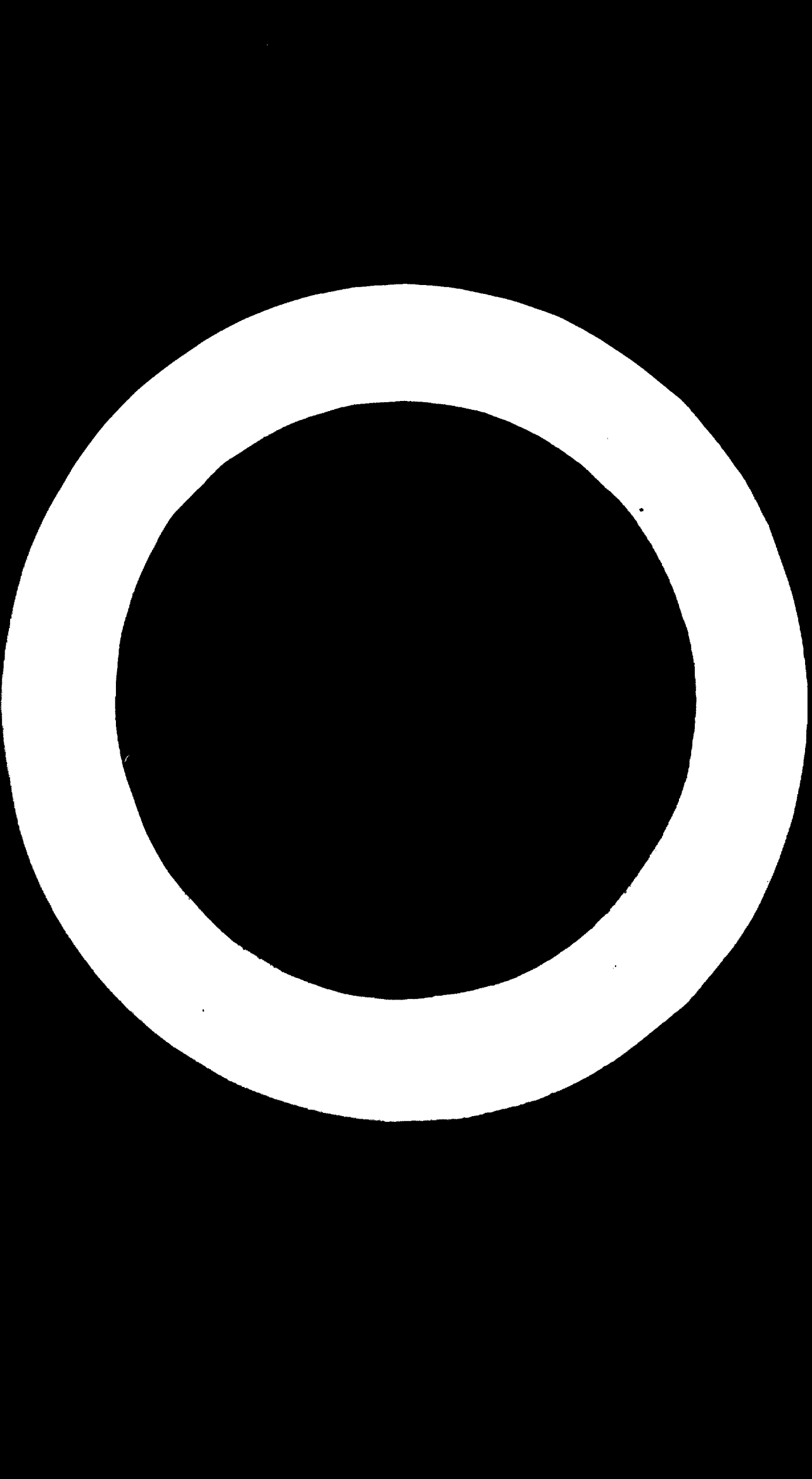
1,5



Glazed doors, wood, opening inwards, coupled casement

0 General

01 This RT card describes a glazed door of wood, with opening inwards and coupled casement.

02 The RT card contains the width of the frame, the dimensions of frame and casement pieces, clearance of glazed door and the thickness of pane used in a glazed door.

1 Dimensioning

The dimensioning implies that the moisture content of the timber of the dry weight is no greater than 12 %.

11 Joining dimensions of frame of glazed door are module dimensions 9 x M = 900 mm.
The manufacturing width of frame is 900 - 10 $\pm$ 2 mm = 890 $\pm$ 2 mm. Fig. 2.

12 The glazed door coming to the side of the window ought to be dimensioned vertically so that the upper pieces of the frame and glazed door will be at the same level. Deviation of $\pm$ 2 mm is allowed in the vertical dimensioning.

13 Profile dimensions, see figures.
Standard for deviations in main dimensions of frame and casement pieces is $\pm$ 1 mm.

14 Dimensions of clearances are valid in an unfinished glazed door provided with fittings.

Clearance	Outer and inner casement
on side of hinges	2 mm
on side of lock	3 - 4 mm
up	2 - 3 mm
down (inner casement)	4 - 5 mm

15 The thickness of pane used in glazed door is the minimum of 5 mm.

2 Joining glazed doors and windows

These glazed doors and windows fit to be joined with them are joined together according to fig. 3.

3 Appearance of door leaf

Only door leaves with two or more panes divided with a horizontal piece of wood can ben designed when using the profiles of this RT card.

IKKUNA, PUUTA, KIINNITYS

1970 RT 860.22
SfS X (31)
UDK 69.028.21:674
Sivu 1 (2)

Window, wood, fixing

Rakennustöiden yleiset laatumääräykset, luku X, Esinetarvikkeet, kohta X (31) i. 11
Ikkunat, ikkunaovet, ulko- ja kehysovet, puuta, laadunmääräykset
Ikkuna, puuta, helpitus
Ikkuna- ja ikkunaovieritelmän laatimisohje
Ikkuna- ja ikkunaovieritelmälomake
Ikkunastandardit

RT 140.1/X
RT 210.81
RT 860.23
RT 860.13
RT 860.131
ryhmä RT 86[illegible]

0 YLEISTÄ

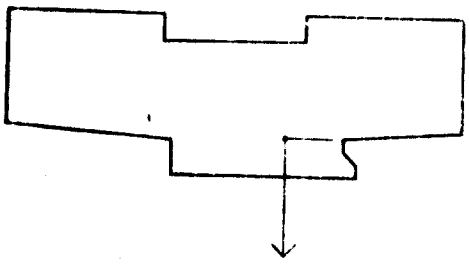
01 Tässä RT-kortissa esitetään puuikkunan karmin kiinnityskohtien lukumäärä ja sijoitus.

02 Ikkunan karmi kiinnitetään aina sivukappaleistaan. Ikkunan karmit, joiden nimellisleveys on ≥ 12 dm, kiinnitetään lisäksi ylä- ja alakappaleista, ks. kohta 12.

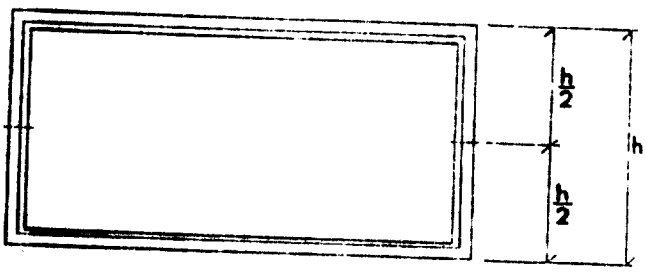
1 KIINNITYSKOHTIEN LUKUMÄÄRÄ JA SIJOITUS

11 Kiinnityskohtien lukumäärä ja sijoitus karmin sivukappaleissa, kuvat 2...5
Kiinnityskohtien paikat mitataan lähtien karmin kynteestä ks. kuva 1.

KUVA 1

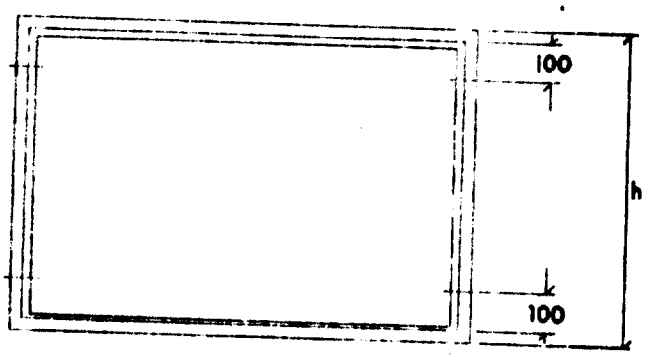


KUVA 2



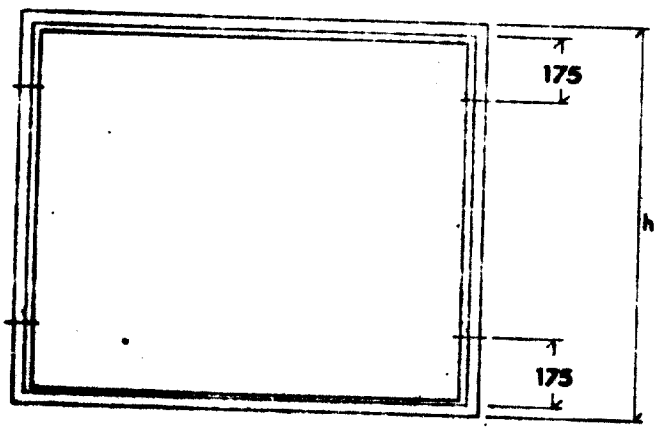
h < 8 dm

KUVA 3



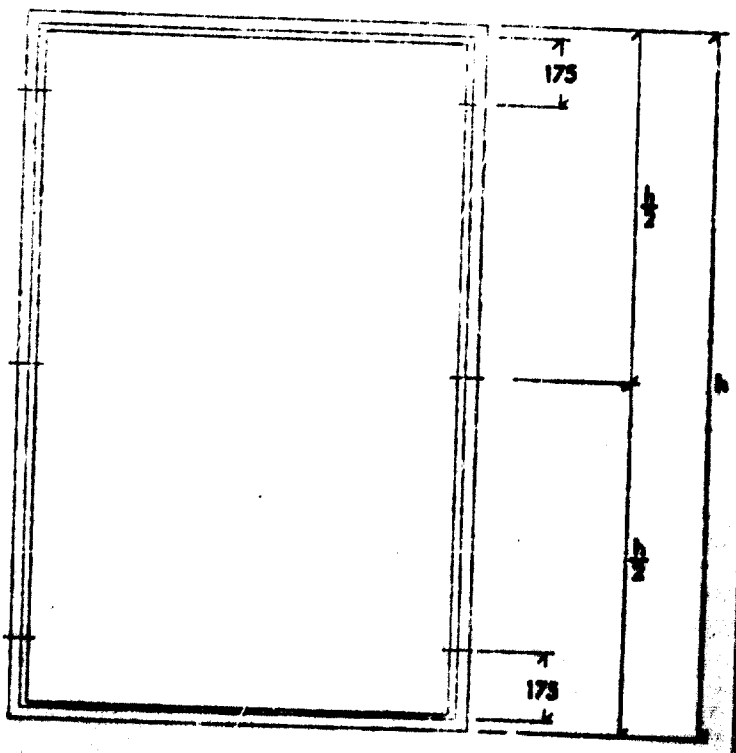
h ≥ 8 dm

KUVA 4



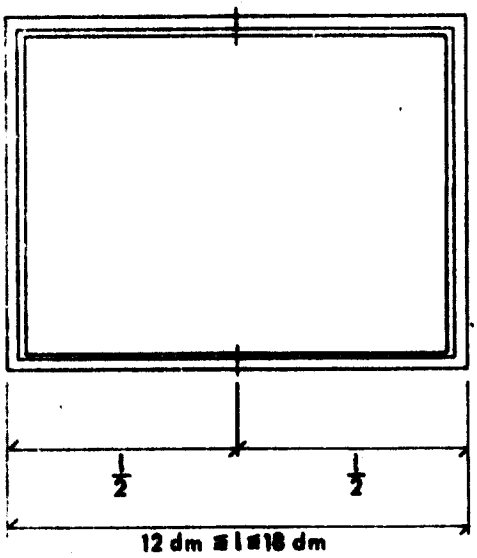
8 dm < h ≤ 16 dm

KUVA 5



h > 16 dm

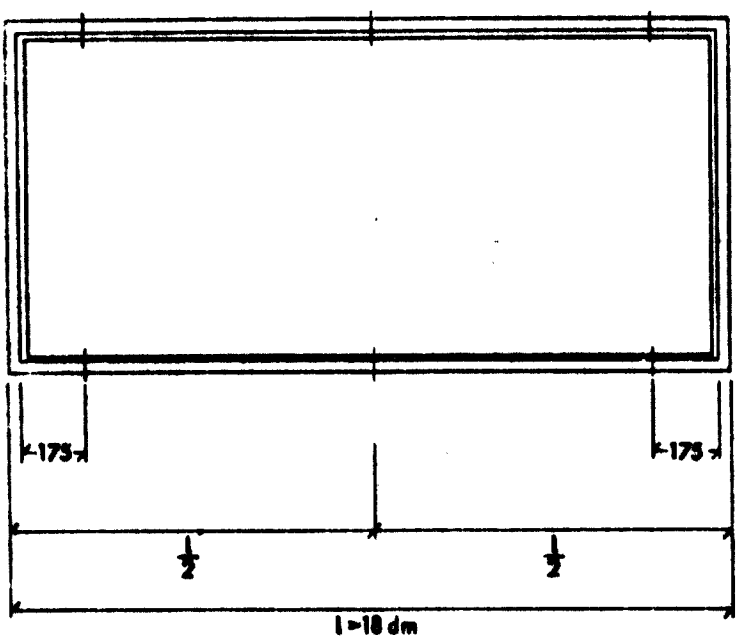
KUVA 6



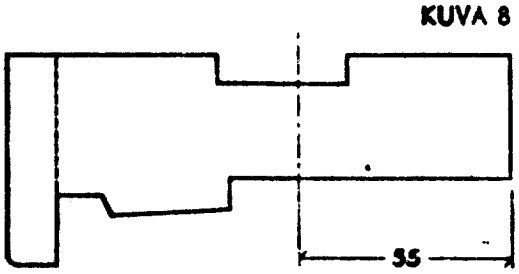
12 Kiinnityskohtien lukumäärä ja sijoitus karmin ylä- ja alakappaleissa, kuvat 6 ja 7. Kiinnityskohtien paikat mitataan lähtien karmin kynnyksestä, ks. kuva 1.
Kun karmin nimellisleveys on < 12 dm, ei karmin ylä- eikä alakappaleessa ole kiinnityskohtia.

13 Kiinnityskohtien sijoitus karmin syvyyssuunnassa, kuva 8.

KUVA 7



KUVA 8



Annex 9
RT 860.22

Window, wood, fixing

0 General

01 This RT card describes the number and location of fixing points of frames of a wooden window.

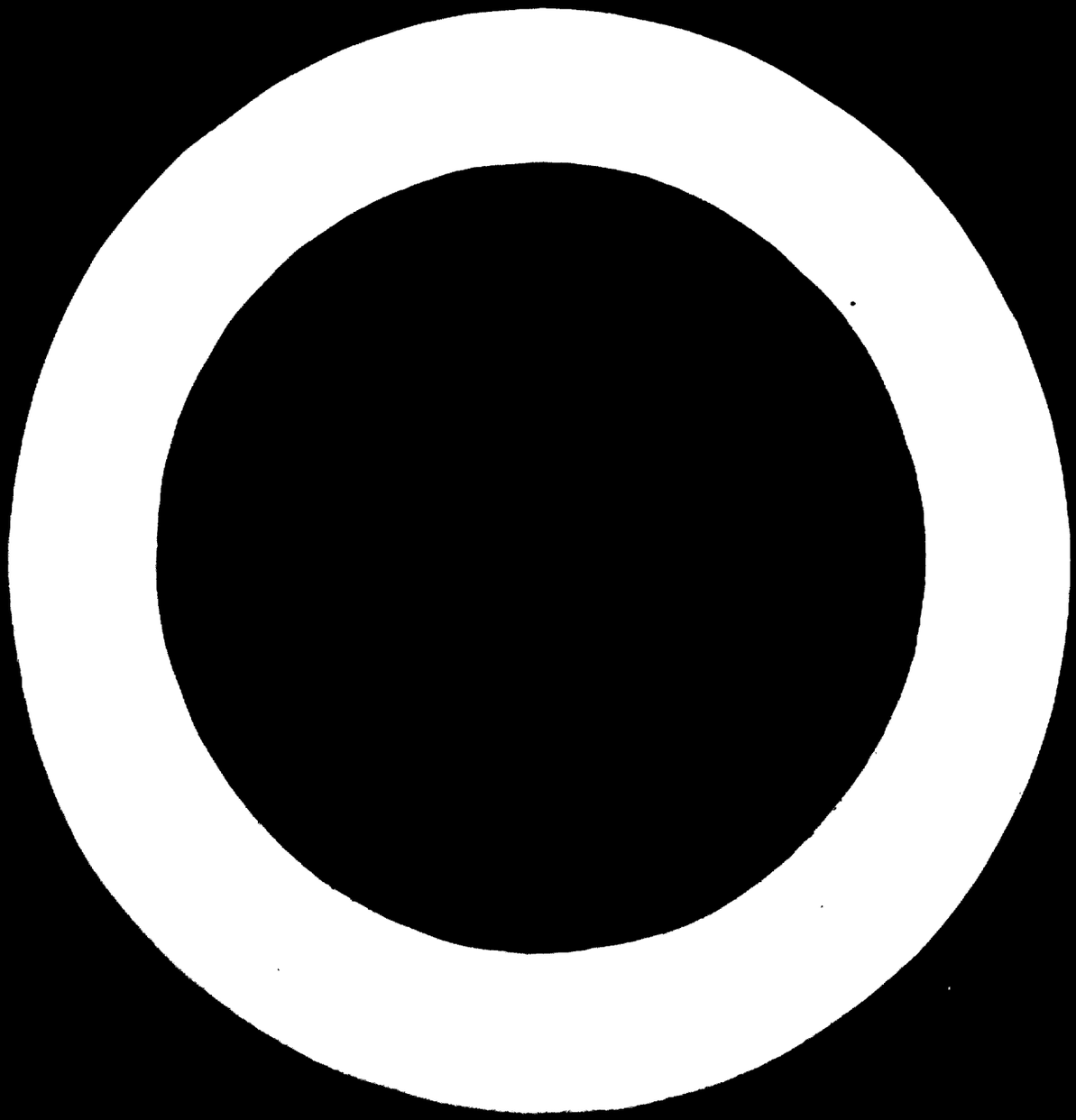
02 The frame of the window is always fixed from its side pieces. Window frames, whose nominal width is ≥ 12 dm, are fixed also from their top and bottom pieces. See point 2.

1 Number and location of fixing points

11 Number and location of fixing points in the side pieces of frame, fig. 2 - 5.

12 Number and location of fixing points in top and bottom pieces of frame, fig. 6 and 7.
When the nominal width of frame is < 12 dm there are no fixing points in top and bottom pieces.

13 Location of fixing points in the direction of depth.



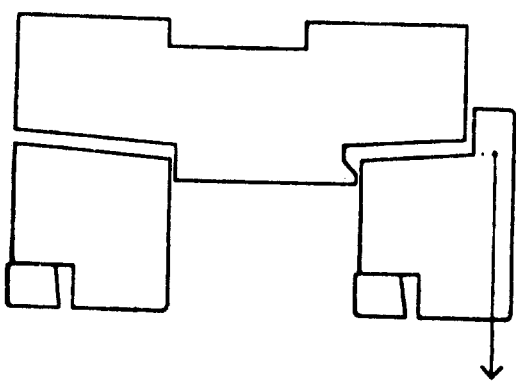
IKKUNA, PUUTA, HELOITUS

1970 RT 860.23
SfB X (31)
UDK 69.028.21:674
Sivu 1 (4)

Window, wood, fittings

Rakennustöiden yleiset laatumääräykset, luku X, Esinetarvikkeet, kohta X (31) i, 15 — RT 140.1/X
Ikkunat, ikkunaovet, ulka- ja kehysovet, puuta, laadunmääräykset — RT 210.81
ikkuna, puuta, kiinnitys — RT 860.22
Ikkuna- ja ikkunaovieritelmän laatimisohje — RT 860.13
Ikkuna- ja ikkunaovieritelmälomake — RT 860.13.1
Ikkunastandardit — ryhmä RT 861 ...

KUVA 1



0 YLEISTÄ

Tässä RT-kartissa esitetään saranoiden sijoitus sekä salpojen ja kytkinhelojen lukumäärä ja sijaitus puuikkunassa.

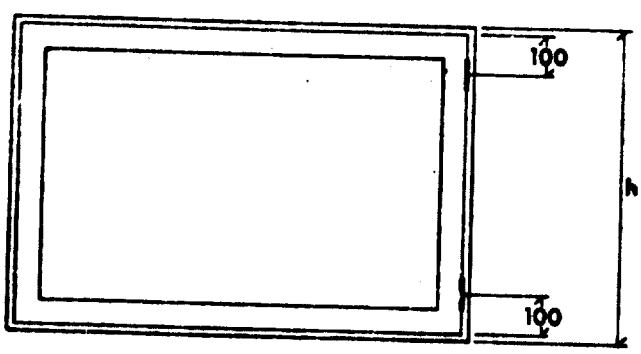
1 SARANOIDEN SIJOITUS

Saranoiden keskipisteen paikka mitataan lähtien sisäpuitteen kulmasta, ks. kuva 1.
Saranoiden lukumäärä, ks. ryhmä RT 861 ...
Kytketyn ikkunan saranat
Kytkinsaranat sijaitetaan nostosaranoiden lähelle. Puitteen lujuus ei saa heiketä. Taisinsa kytkettyjen puitteiden väliin tulee jäädä 1 mm väli.

11 Sivusaranaidun ikkunan saranat

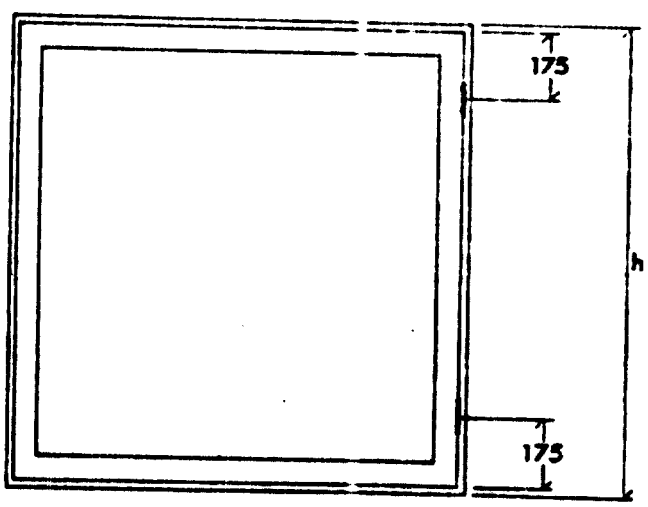
111 Kahdella saranalla sivusaranoitu ikkuna, kuvat 2 ja 3.

KUVA 2



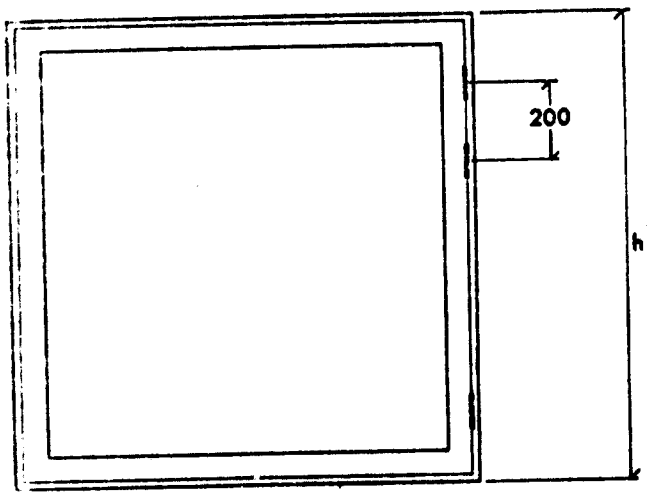
h ≤ 8 dm

KUVA 3



h > 8 dm

KUVA 4



8 dm < h < 18 dm

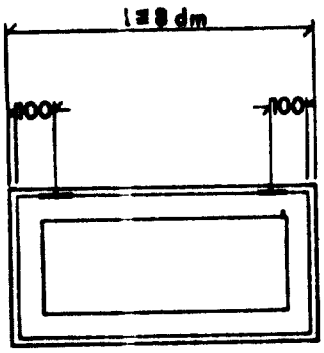
112 Kolmella saranalla sivusaranoitu ikkuna, kuvat 4 ja 5.

12 Yläsaranoidun ikkunan saranat

121 Kahdella saranalla yläsaranoitu ikkuna, kuvat 6 ja 7.

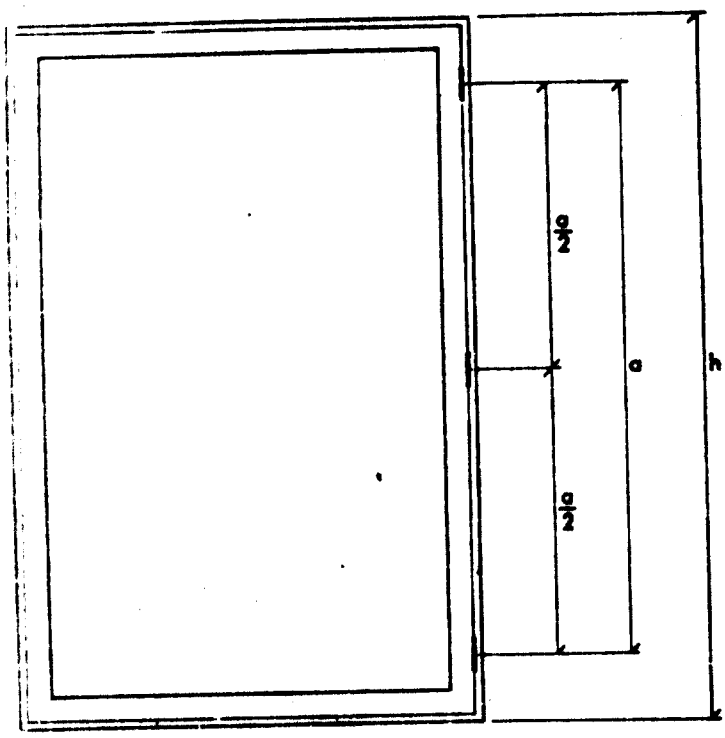
122 Kolmella saranalla yläsaranoitu ikkuna, kuva 8.

13 Alasaranoidun ikkunan saranat
Alasaranoidun ikkunan saranat kiinnitetään alakoppaleisiin kahtlin, jatka vastaavat yläsaranoiden sijaitusta.

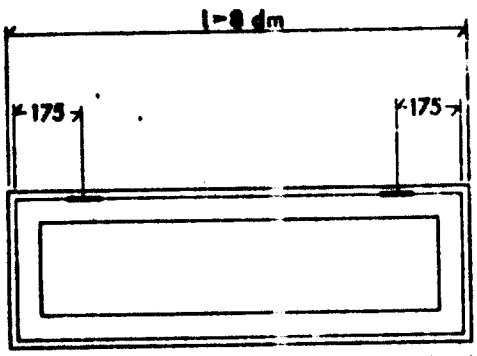


KUVA 6

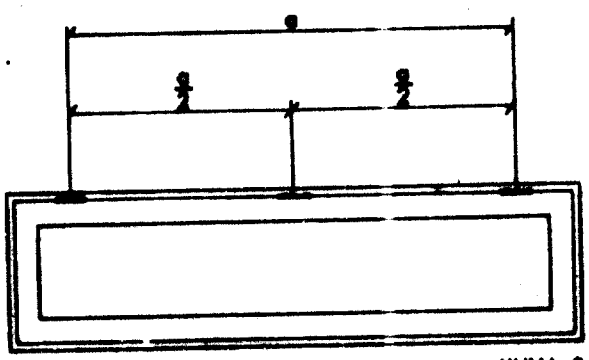
KUVA 5



h ≥ 18 dm

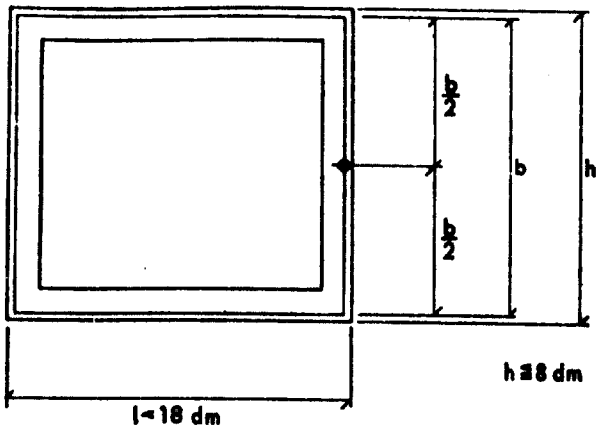


KUVA 7

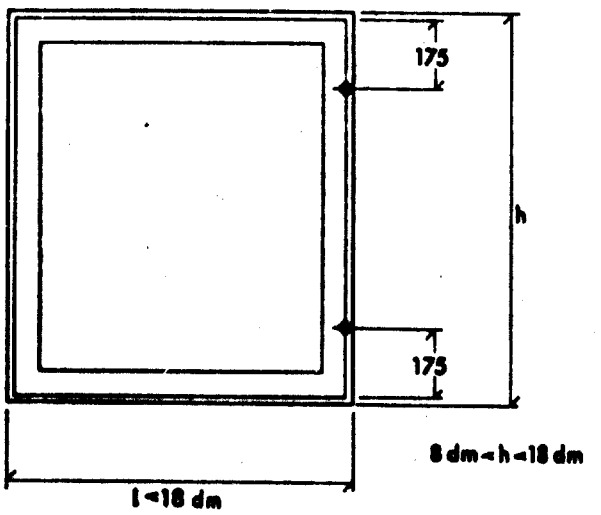


KUVA 8

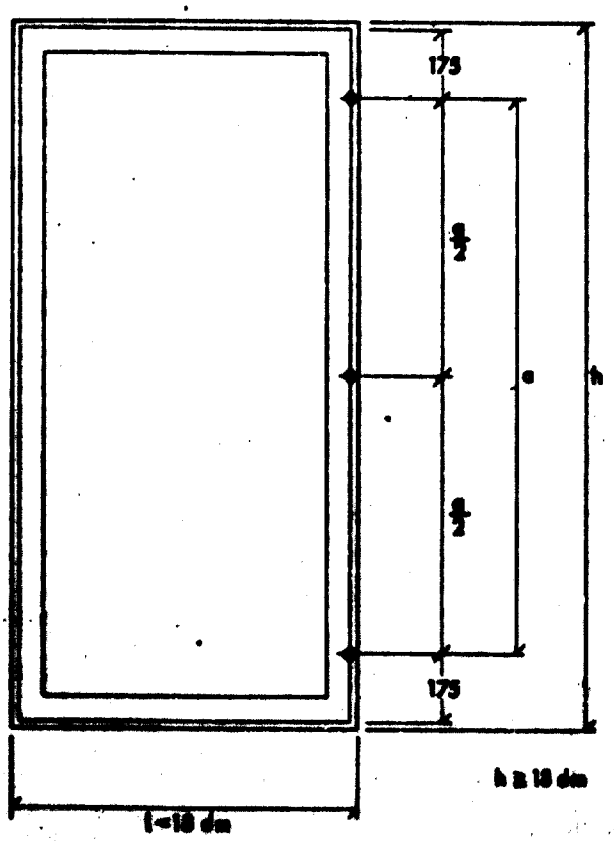
KUVA 9



KUVA 10



KUVA 11



2 SALPOJEN LUKUMÄÄRÄ JA SIJOITUS

Salvan painikkeen kohdan reiän keskipisteen paikka mitataan lähtien sisäpuitteen kulmasta, ks. kuva 1.

21 Sivusaranaidun ikkunan salvat, kuvat 9, 10 ja 11.

Jos sivusaranaidun ikkunan karmin nimellisleveys on ≧18 dm, tulee sivukappaleissa olevien salpojen lisäksi sekä ylä- että alakappaleiden keskelle yksi salpa.

211 Yhtyvät keskipuitteet

Yhtyviin keskipuitteisiin kiinnitetään pitkäsalpa, jossa tulee olla sekä sivu- että päätyeljet.

Pitkäsalvan sivutelkien lukumäärä ja sijainti on samo kuin salpojen lukumäärä ja sijainti vastaavan korkuisessa ikkunassa.

Pitkäsalvan painike sijaitetaan puitteen keskikohdalle, kun ikkunan nimelliskarkeus on ≦ 14 dm, ja 600 mm korkeudelle puitteen alanurkasta, kun ikkunan nimelliskorkeus on > 14 dm.

212 Luukulla varustettu tuuletusikkuna

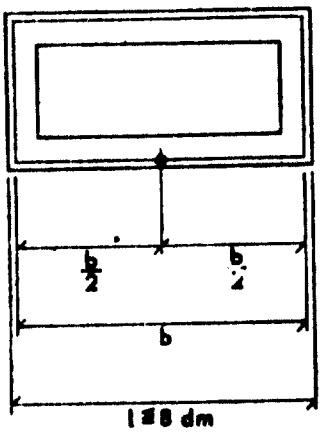
Luukulla varustettuun tuuletusikkunaan, jonka nimelliskorkeus on ≦ 8 dm, kiinnitetään yksi kiintopainikkeellinen salpa.

Jos nimelliskarkeus on > 8 dm, käytetään pitkäsalpaa. Pitkäsalvassa tulee olla sivuteljet. Telkien lukumäärä ja sijoitus sekä painikkeen sijoitus, ks. kohto 211.

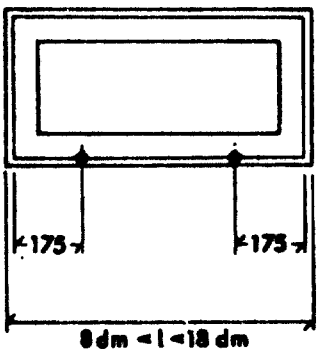
22 Yläsaranoidun ikkunan salvat, kuvat 12, 13 ja 14.

23 Alasaranoidun ikkunan salvat
Alasaranoidun ikkunan salvat kiinnitetään ylä- ja sivukappaleissa kohtiin, jotka vastaavat yläsaranoidun ikkunan salpojen sijaitusta.

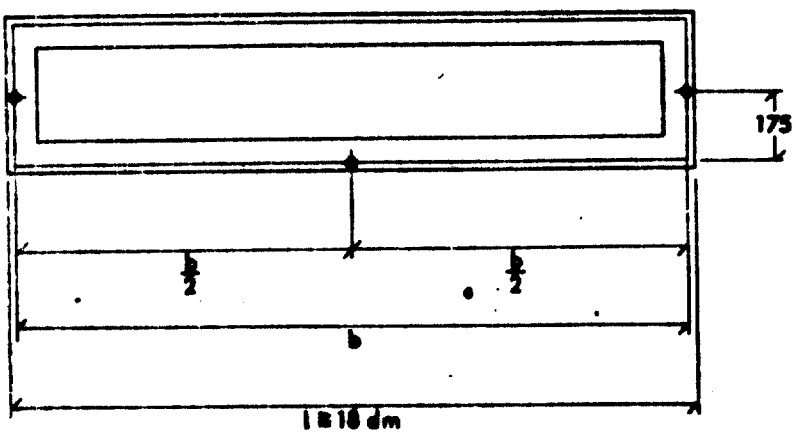
KUVA 12



KUVA 13



KUVA 14



3 KYTKINHELOJEN LUKUMÄÄRÄ JA SIJOITUS
Kytketyssä ikkunassa kytkinheloja tulee olla yhtä monta kuin salpoja, kuitenkin vähintään 2.
Kytkinhelat sijoitetaan salpojen lähelle. Puitteen lujuus ei saa heiketä. Toisiinsa kytkettyjen puitteiden väliin tulee jäädä 1 mm väli.

Window, wood, fittings

0 General

This RT card describes the location of hinges and the number and location of catches and coupling fittings in a wooden window.

1 Location of hinges

The centre of hinges is measured from the corner of the inner casement, see fig. 1.

Number of hinges, see group RT 861...

Hinges of a fixed window

Fixing hinges are put near the lifting hinges. The strength of the casement must not be lessened. There must be 1 mm between casements fixed to each other.

11 Hinges of a window with hinges on the side

111 Window with two hinges on the side, fig. 2 and 3.

112 Window with three hinges on the side, fig. 4 and 5.

12 Hinges of a window with hinges on top

121 Window with two hinges on top, fig. 6 and 7.

122 Window with three hinges on top, fig. 8.

13 Hinges of a window with hinges at the bottom

The hinges of a window with hinges at bottom are fixed to lower pieces in points corresponding the location of upper hinges.

2 Number and location of catches

The location of the centre of the hole for catch handle is measured from the corner of the inner casement, see fig. 1.

21 Catches of a window with hinges on side, figures 9, 10 and 11.

If the nominal width of a window with hinges on side is ≥ 18 dm, the side pieces must have one catch in the middle of the top and bottom pieces in addition to the catches in the side pieces.

211 Uniting central casement

The uniting central casement must have a long catch, which must have both side and main bars.

The number and location of the side bars of long catches is the same as the number and the location of catches in a window of corresponding height. The handle of a long catch is in the centre of the casement, when the nominal height of the window is $\leq$ 14 dm, and 600 mm from the lower corner of the casement when the nominal height is > 14 dm.

212 Ventilation window provided with a hatch

One catch for the fixed handle is fixed to a ventilation window, whose nominal height is $\leq$ 8 dm.

If the nominal height is > 8 dm, a long catch is used. There must be side bars in the long catch. The number and location of bars and the location of handle, see point 211.

22 Catches of a window with hinges on top, fig. 12, 13 and 14.

23 Catches of a window with hinges at the bottom

The catches of a window with hinges at the bottom are fixed in top and bottom pieces to such places as correspond the location of catches of a window with hinges on top.

3 Number and location of fixing fittings

In a fixed window there must be as many fixing fittings as there are catches, however the minimum of 2. The fixing fittings are located near the catches. The strength of the casement must remain the same. There must be 1 mm between casements fixed on each other.

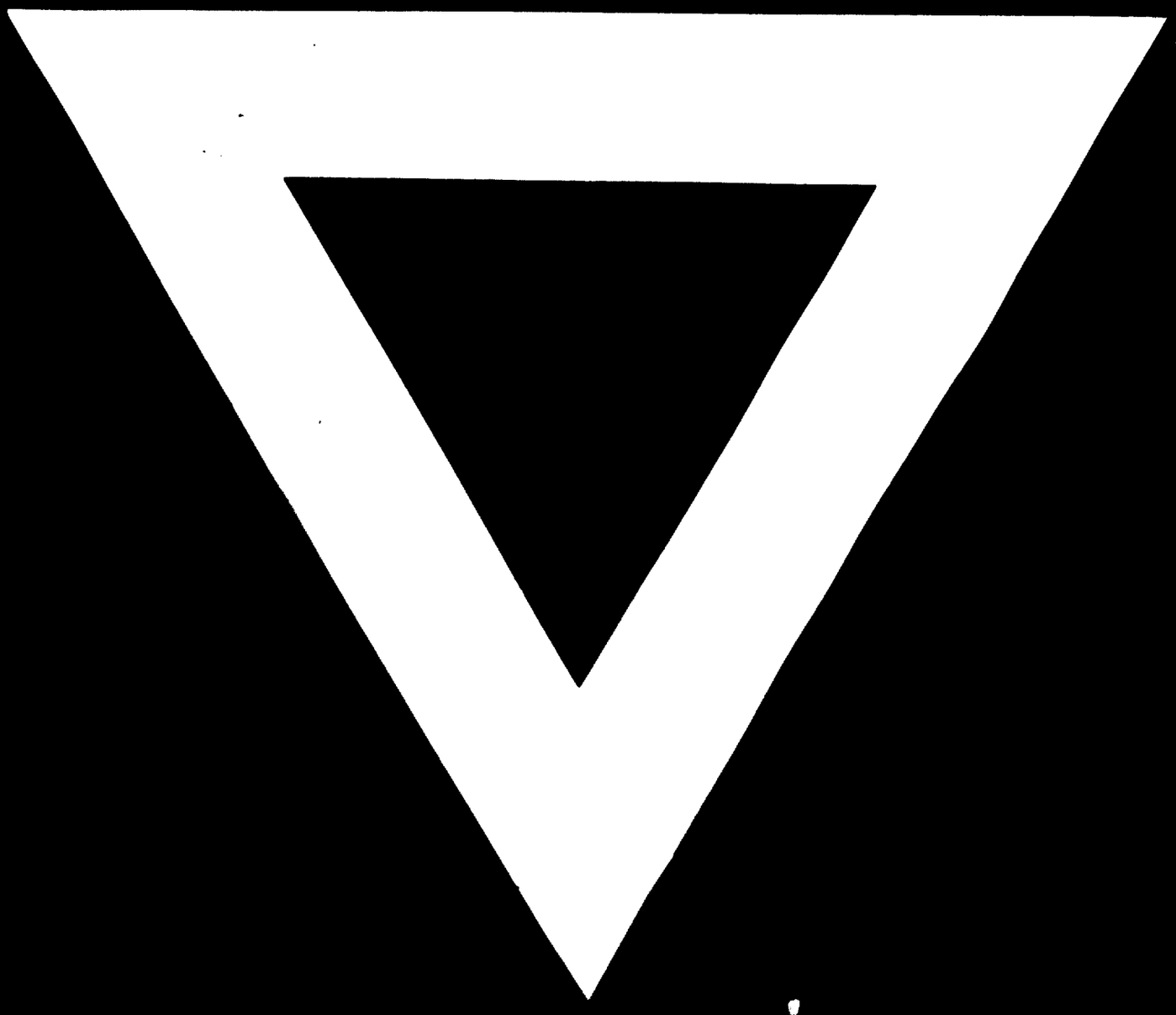
Annex 11
RT 210.81

Wooden windowe and outside doors, quality

1 Contents

This standard gives quality regulations for windows and outside doors.

The text is the same as in standard 210.82.



7.8.73