

Athvale M.S.

MSR
(5/8)

CONSTRUCTIONAL DETAILS IN SIGNAGE

VCMSR-1 (5/8)
I. D. C. Library
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SPECIAL PROJECT m.s.-athavale

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Architects/Graphic designers entering the field signage design will soon realise that there are many ways to fabricate even the simplest of signs. By becoming thoroughly familiar with the basic materials and techniques, they will be able to select and specify the most appropriate material to a particular sign system. By understanding basic joinery and construction details, they will be able to guide construction workers and design some very effective details to suit respective conditions.

Understanding of basic joinery and basic constructional details will enable architects/graphic designers to specify right construction technique for an already selected materials according to the function of sign. Right technique when properly used can speed up the fabrication process, reduce cost by saving time, and produce a superior endproduct.

The purpose of this hand book is to present, in a concise format for easy reference, all parameters involved in the construction of

a sign. Emphasis is placed upon a systematic approach in tackling the task by providing checklists with relevant details and visual aids

- 3 MATERIALS

Plastic

Wood

Metal

- PLANNER FORM

- GROUND MOUNT

- WALL MOUNT

- CEILING MOUNT

AND.

SCOPE

There are many materials used in signage system. The list is exhaustive. There are many ways of putting message (letter/symbol) of one material on the background of the other material. So many permutations and combinations are there. The assembly thus formed can be put up in a desired environment by many ways. And moreover assembly can be of two form.

1 - planar, 2- volumetric.

The scope of this hand book will be to limit the materials, there by to limit the permutations and combinations of the message and the background and to select few ways of putting the assembly of planar form in an environment.

The materials selected are metals, wood and plastics, which are very commonly used in signage systems. 9 permutations and combinations are there of putting message of one material on background of the other. Apart from this there are many other ways of putting message on the background. The selected ways of putting the assembly in

an environment are-Floor mount, wall mount, ceiling mount. And ofcourse the form of assembly is planar.

EXTERIOR

INTERIOR

SIGNS

PRIMARY IDENTIFICATION SIGNS

They are prestigious, impressive and long lasting nature.

SECONDARY IDENTIFICATION SIGNS

They are elegant, impressive and of long lasting nature.

YOU ARE HERE MAP

Simple and bold map by simple technique. It should be vandal and weather resistance



VEHICULAR ADVANCE NOTICE

Letterform should be of such a material which can be cut precisely

VEHICULAR DIRECTIONAL

Same as above

TRAFFIC CONTROL

Bold, simple, should be easily replaceable

INSTRUCTIONAL / INFORMATIONAL

Distinct, simple, semipermanent nature

EXTERIOR SIGNS



IDENTIFICATION

It is impressive, decorative of temporary nature

PRIMARY DIRECTORY

Precise letterforms - they are of semipermanent nature

DIRECTIONAL

Precise arrow - they are changable/removable and of temporary nature.

AREA IDENTIFICATION

Letterforms should be very distinct. They are of temporary nature.

ROOM IDENTIFICATION

It is very simple and easy to move. It is a temporary sign.

DESK IDENTIFICATION

It is changable and most temporary sign.

REGULATORY & CONTROL

Letter form should be bold, distinct, semipermanent nature

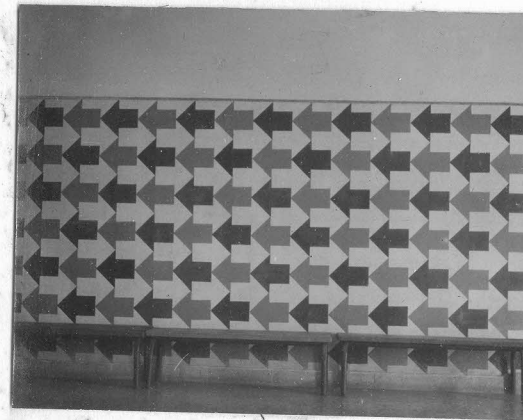
DEDICATORY PLAQUES

Elegant letter form, rich material
The most permanent interior sign

DECORATIVE FEATURES

Decorative, show materials, temporary

INTERIOR SIGNS



	USE		MAINTENANCE	
	Ext.	Int.	Ext.	Int.
Materials				

RATING		USE	MAINTENANCE
1		Excellent	High
2		Good	Fair
3		Fair	Low
4		Poor	
5		Not recommended	

MATERIALS _____

METAL: Metal is an extremely versatile material for sign fabrication. It is very durable and may be fabricated in a wide diversity. methods.

STEEL: It is very satisfactory material for sign faces that do not need internal illumination. It has a problem of rusting but can be overcome with adequate care in specifying under coats and paints. The coatings given to steel are of Nickel, Zinc, Chromium and Cadmium coatings. Process of applying a Zinc coating to steel is called as 'Galvanizing. One of the great advantage of steel is the fact that any small metal working shop can fabricate signs with it, it welds easily and it is relatively cheap.

It comes in the form of sheets, extruded sections, rods and tubes.

ALUMINIUM: The only problem with it is expansion caused by heat, it is used extensively in the fabrication of sign faces because of its nonrusting characteristics.

Aluminium is generally hardanodized, painted or clad in adhesive films.

Metals	USE		MAINTENANCE	
	Ext.	Int.	Ext.	Int.
steel	1	1	Fair	Fair
Aluminium	3	2	Low	Low

It is especially suitable for sign faces using cut out letters. It comes in the form of sheets, extruded sections, rods, tubes, wires and foils.

BRONZE/BRASS: Bronze and brass are primarily alloys of copper and Zinc, plus traces of other metals, in varying proportions. The only problem with it is that the workshops are limited in number. Their bright finishes can be preoxidized by chemical attack or can be left to oxidize naturally in the weather. If oxidization is not desirable, manganese can be added to the alloy and the finish can be preserved through such coatings as lacquers or liquid plastics. They are often used when durability or prestige identification is required. It can be in the form of sheets, strips or in a cast forms.

WOOD: Wood is one of the oldest and most common sign materials. Its lasting qualities vary according to location: Wood in humid areas require special preservation treatment. Wood must, in

	USE		MAINTENANCE	
	Ext.	Int.	Ext.	Int.
<i>Metals</i>				
<i>Bronze/Brass</i>	1	1	Fair	Fair

any case, be specially treated or coated to begin to approach the effective outdoor life of other materials.

TEAKWOOD: A closed-gained wood with a slightly brown, yellowish-brown natural colour. It is generally available in standard sized lumber. It receives finishes well. Well season teak can sustain extreme weathering conditions. It has a long lasting character. It is generally used for exterior signs.

MAHOGANY: It is reddish brown in colour, open-gained, more expensive than teak and has fair finishing characteristics and stability. It is available in standard sized lumbers.

OAK: White oak, plain-sawn, is a grayish-tan. Open-gained hard wood available in wide range of grain patterns and colours. It has excellent finishing characteristics for transparent rather than opaque coatings. It is available in standard sized lumbers. It has poor dimensional stability, requiring expansion joints.

Wood	USE		MAINTENANCE	
	Ext.	Int.	Ext.	Int.
Oak	5	2	High	Fair
Teak	5	2	Fair	Low

LAMINATED WOOD PRODUCTS: The most common laminated wood product for signage is plywood.

Standard plywood - Made from any of the woods described above, std., plywood is most commonly made from exterior fir. It's exposed edges should be weather protected to prevent the wood from warping and delaminating.

METAL-CLAD PLYWOOD : This product is made by laminating aluminium steel or whatever material is specified. The sheets can be cut to the desired size, but the edges must be filled and sealed. Cladding is available on one or both sides.

PLASTICS : Plastics have chemical names, generic names, and brand name. For example, acrylic chemically speaking - are made of methylmethacrylate polymers.

'Acrylic' is a generic term, and 'Acrypol-S' or 'Plexiglass' is a brand name. This section is not concerned with chemical names. Plastics are sensitive to temp. change.

ACRYLICS: Acrylics have good resistance to weather and little fading from exposure to sun light. They can be heated to conform to almost any shape and can be sawed, drilled, and machined like a soft metal. Acrylics, have a low impact strength. The appropriate paints, which properly applied, fuse with the surface and become integral with it. Surfaces can be ordered in gloss or matte. It is most commonly used for internally illuminated signs. They are obtained in the form of sheets.

	USE		MAINTENANCE	
	Ext.	Int.	Ext.	Int.
Plastics				
Acrylic	4	2	High	Fair
F.R.P.	3	2	Fair	Fair

POLYCARBONATES : They have properties of acrylic together with the enormous advantage of being virtually shatterproof. It comes in clear range of colours. It is useful for illuminated signs, in location where there has been a high evidence of vandalism. They are obtained in the form of sheet.

FIBRE-REINFORCED POLYESTERS(FRP): The popular name for FRP is fibre glass. It has visible texture and paint coating, can give it a some what wavy appearance. It is a high impact material with light diffusing ability. They are obtained in sheets.

PLASTIC LAMINATES : They are generally bonded to such core materials as plywood, particle, board or metal. A great variety of colours is available as well as gloss, semigloss, matte, sculptured and embossed finishes.

COATING : Paint technology consists of many different products employing many different vehicles and binders. Some of most common are :

- . Alkyds
- . Epoxy-Catalysed
- . Epoxy-Esters
- Manufacturer - Corroseal
- . Latex Emulsion

COATINGS FOR METALS:

. Thermosetting acrylic enamels they have life expectancy of 12 to 15 years. A variety of colours are available, including metallics, in high, medium or low glass finishes. Its manufacturers are Nerolac paints, Asian paints etc.

. Polyurethanes - It's life expectancy is of 20 years. It is available in a limited range of colours which can be blended to provide almost any desired colour

Manufacturer - Episeal

COATINGS FOR PLASTICS : Plastics require coatings which are modified best adhere to their smooth surfaces.

COATING FOR WOOD : A clear polyurethane coating are recommended. Varnishes are also used.

PLANE _____

Select a plane
for working on —

PROCESSES _____

PROCESSES: There are two types of processes which puts message on desired background material.

1. Processes which itself puts the message on the plane.
2. Processes which apply the message on the plane.

ENGRAVING : Messages on metal plate, wooden plane and plastic sheet may be directly chiseled by hand or by routing machines which may either be controlled by hand or by a stencil. Stencil cut letters are made with a pantograph machine.

Pattern is usually cut into plastic or metal and can either be prefabricated or custom-made. To get good definition the pattern should be slightly larger than the original. One end of the pantograph, a needle or stylus follows the groove of the pattern; on the other end, a rotating needle routs out a groove on the fresh plate, reduced but exactly following the pattern.



CUTTING AND SAWING : This process is applicable to plastic sheets, wooden plane of maximum thickness of half inch and metal sheets. A paper pattern is made and pested to fresh plate of above materials. Following the pattern, the sign is cut out with a band saw. Stainless steel plate of above 1/8''(.3 mm) or aluminium plate up to 1/2'' (1.3 mm) can be cut by this method. Finishing requires only the removal of any rough edges by belt sanding and filing.

GARODIA

PAINTING :

HAND PAINTING : Legend can be painted by hand with the help of brushes. In case of transparent materials like acrylic and glass paint is always applied to the back of the sign to ensure greater protection.

SPRAY PAINTING: (Cut and spray)

A clear sheet of any desired material is sprayed with a thin water-soluble rubber film or paper masking material, which is then cut away exposing the area to be painted. Paint is sprayed on the exposed part through an air gun. In case of transparent materials like acrylic, glass; a fine coat of white paint is sprayed over the back of the entire sign to intensify the colour after the image is completed and all masking is removed. Recommended paints for various materials :

Synthetic enamel : Metallic surface

Acrylic emulsion : Plastic, Metallic, wooden and glass surfaces.



IMPRINTING

STENCILING: Letters and symbols are cut from rubber masking sheet and a stencil is made. If the stencil is to be permanent then a thin aluminium sheet can be used for making stencil. Ink can be applied to the surface of the sign with a stenciling brush, spray paint or roller. Hand rollers produce the most precise image and should be used on relatively smooth surfaces. Stencil brush application is the most time consuming process and is recommended for large quantities. Spray paint is the most commonly used method because the ink is applied quickly and dries fast. It is the fastest, cheapest and most versatile method of sign making. It has the flexibility of hand painting, allow for extensive reproduction and can be used for almost any kind of surface. Recommended ink for any kind of surface is polyester rasin ink.

SCREEN PRINTING: A photostencil of the symbol/message is made

ANDRAULT PARAT

from art work and is pested to silk screen tightened on a wooden frame. The screen is to be put on desired material surface and a polyster resin ink is to be applied over photostencil by a roller. It passes through the unexposed area of stencil and gets printed on desired material surface.

It is a very versatile method for imprinting messages on a wide variety of materials, from paper to steel. It can print precisely finished message.

HOT STAMPING: Hot stamping is just that: metal type is locked up in position, electrically heated and stamped onto the surface to receive the message with a sheet of foil or film that transfers its coated colour under heat. A wide range colours, including metallics is available. The finished product is a hard, permanent message fused under pressure to .003 inch (.01-millimeter) depth. It is exterior or interior conditions, and can be further protected by laminating with clear film. Messages can also be applied to papers, Vinyl note book covers etc

ADHERING :

ADHESIVE FILM : It is a thin Vinyl or plastic film with adhesive backings that can provide either permanent or removable messages. Both types are normally pressure sensitized. The another type of adhesive film is reflectorized vinyl sheeting. Its adhesive is generally of a permanent type and it withstands severe weather and handling conditions. The reflectorized Vinyl sheeting bounces incoming light directly back to its source with glareless brilliance. It provides effective reflection at severe angles and performs well under the heaviest rain condition. It is normally used for traffic control devices. It is used either for a background with dead, non reflective letters- or for letters only with a dead non reflective background.

PRESPACED MESSAGES: Die cut messages are available as individual letters or as complete prespaced and prealigned legends on a carrier sheet. They can be stuck by removing carrier sheet on wooden boards, plastic



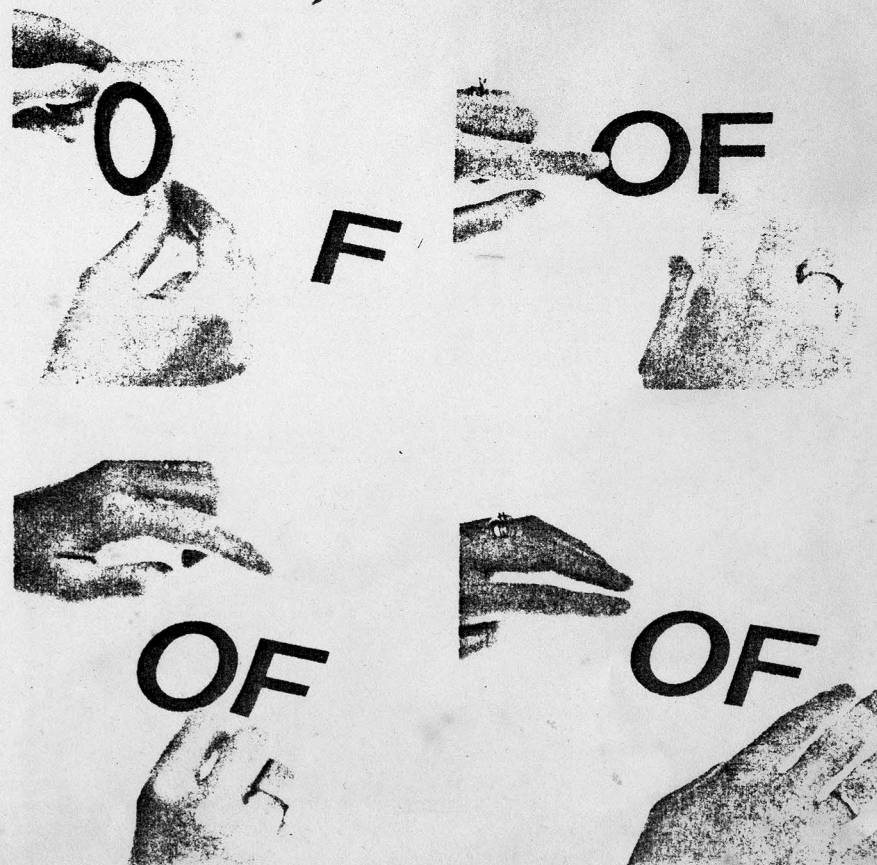
sheets, glass sheets and any metal sheets. They are furnished with tight, normal or wide letter spacing per customer.

Specifications. They have precise finish but low lasting value. Recommended for interior use.

TRANSFERS : Transfer letters are printed in vinyl inks on the back of a carrier sheet. The individual letters are then optically spaced and rubbed on to the sign surface by burnishing. Recommended use is for interior signs with protection from vandalism. Such protection can be a plastic frame, cover or over coating recommended by the manufacturer.

DECALS : They are self adhesive maskings, are a common method of applying printing to various surfaces which would otherwise not be receptive to printing process. They are simple, one step applications and avoid extraneous operations such as painting riveting, or stenciling. They are used for many sign

requirements ranging from small scale signs to identification of fleets, oil trucks or air planes.



SAND BLASTING : Messages may be sand blasted into Acrylic, FRP, Metallic or wooden signs by covering surface with a rubber masking material, cutting out the character, and blasting with a fine sand. The depth of the letters is determined by the softness of the material and the length of time the sand can be sprayed.

PORCELAIN ENAMELING: This process uses powders that are cured by heat and are available in any colour. The porcelain can be enameled either by stencil process or by silk screening. Integral porcelain messages are not sharp in the stencil process, however silk screened messages will be sharp as the screen. After baking porcelain is permanent and withstands weathering over an infinite period.

ETCHING: Certain acids are used to etch metal plates. Etching creates relief which is often coloured or filled with enamel.



CASTING, MOULDING AND VACUUM FORMING :

CASTING IN PLASTICS: Casting is a cheap, fast process used to produce small letters in mass quantities. A silicone rubber mold is filled with polyester and allowed to cure. These letters are used primarily for bulletin boards, and range in size from 1/4 to 18 inches (.6 to 457 millimeters).

CASTING IN METAL: Cast metal signs are solid. They are often used when durability or prestige identification is required.

VACUUM FORMING OF PLASTICS: Heated plastic is clamped directly to the edges of a female form and sucked into a mold by air pressure. It can be stretched to various sizes, depending on the thickness of the sheet and the amount of heat applied. Vacuum forming is used especially for large signs, as it tends to give greater strength and durability to the form. It also can be used for individual letters forms. Vacuum formed letters have fairly round edges.

MOULDING IN PLASTICS : A heated sheet of plastic is placed between male and female dies and pressed into a form.



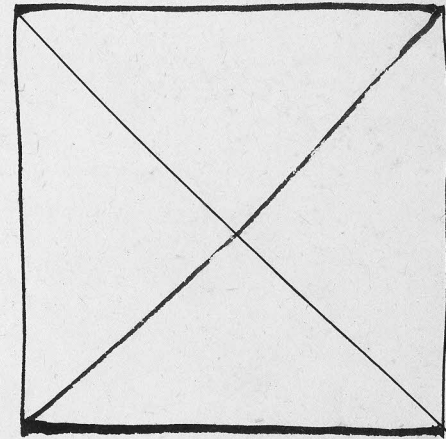
Material :

Process :

Finishes :

Height :

Thickness :



LETTER FORM

ALUMINIUM PLATE : Mesage can be applied by die-cut vinyl letters imprinted, enamelled, etched, sand blasted and engraved. It can be cut.

Finishes : Natural satin, bright satin, alumilite, duranodic, baked enamel and porcelain enamel

Heights : 2 to 48 inches

Thickness : $1/8$, $3/16$, $1/4$, $3/8$ and $1/2$ inch. Letter forms are

•• fabricated by heliarch weliding

Finishes : Baked enamel, clear satin, anodized, duranodic bronze and porcelain enamel.

Heights : 6 to 72 inches

Thickness: 1, 2, 3, 4, 6, 8, 10 and

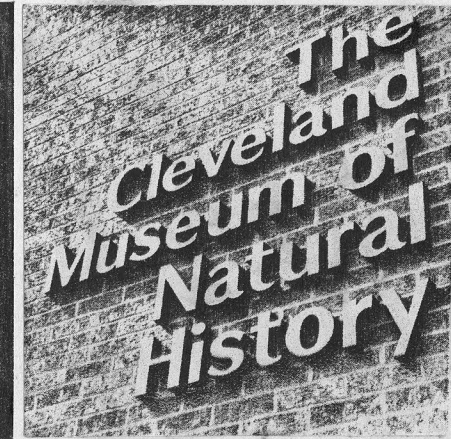
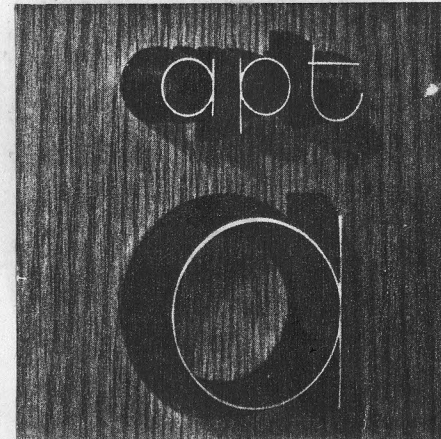
12 inches. Letters upto 24 inches high may be fabricated from .63 gauge is aluminium, while .87 gauge is standard for letters upto 72 inches in height.

••• CAST ALUMINIUM:

Finishes : Baked enamel, natural satin or porcelain enamel, satin alumilite.

Height : 1 to 16 inches

Thickness: Letter depth depends on the style and height of the letter, and also varies from manufacturer to manufacturer.



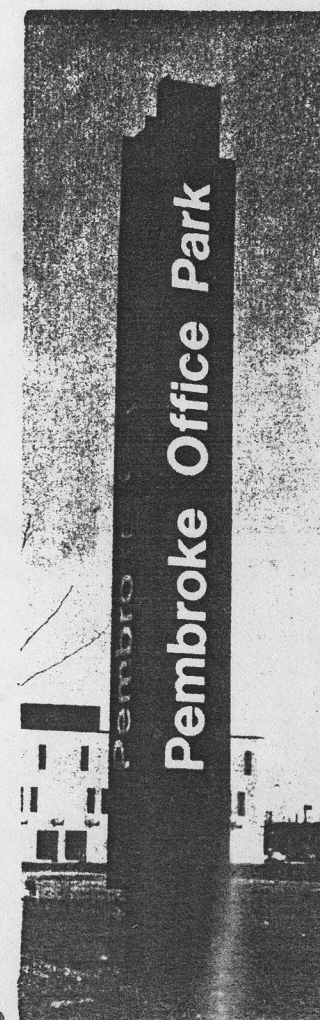
STAINLESS STEEL PLATE : Message
can be applied by die-cut
vinyl letters, enamelled,
imprinted, etched, sand blasted and
engraved. It can be cut, sawed. ●
Paints and coatings- Synthetic
enamel automotive point, urethane
fluorocarbons, siliconised polysters
and epoxies.

Finishes - No. 4 satin, No.7
reflective, backed enamel or
polyurethane. Thickness-max 1/8''
(.3 mm) It can be fabricated by ● ●
cutting the desired shape out of
sheet and welding a return
around the letter perimeter to
the depth desired.

Finishes : No.4, satin, No.7
reflective, baked enamel or
polyurethane

Heights : 8 to 60 inches

Thickness : 2, 2 1/2, 3 and 4 inches.



BRONZE PLATE : Message can be engraved, etched, casted, silk screened, applied by die-cut legends and sand blasted. It can be casted, sawed and extruded.

Paints and coatings: Lacquers or liquid plastic.

Finishes: Natural satin, oxidized and polished. Special finishes includes polished or satin chrome, silver plate, Gold plate and nickel plate

Height: 2 to 24 inches

Thickness 1/8, 3/16, 1/4, 3/8, and 1/2 inch.

Letterforms are fabricated by brazing.

Paints and coatings : as above

Finishes : Satin bronze, light ~~s~~statuary and dark, oxidized, all protected with clear lacquer coating.

Height : 8 to 48 inches.

Thicknesses : 2, 2, 2/2, 3, 4 inches.

CAST BRONZE :

Finishes: Satin oxidized, or polished finish as standard satin and polished chrome, and silver, gold and nickel plate are special finishes.

Heights : 1 to 16 inches

Thickness: Letter depth depends



on the style and height of the letter, and also varies from manufacturer to manufacturer.

METAL LAMINATE :

Thin metal sheeting is bonded to acrylic or tempered hardboard. letterforms are precisely cut out using a set of master fonts on a pantograph machine. The edges of the letters may have sharp 90 returns, or they may be beveled, depending on the cutting tool used in the cutting process. Finishes : Face finishes include natural satin, anodized aluminium polished aluminium, duranodic bronze, satin bronze or brass, polished bronze or brass. Edges of letters are painted in the colour desired.

Heights : $3/4$ to 9 inches

Thickness : $1/8$, $1/4$ and $1/2$ inch

METAL FACED WOOD : Metal laminates is bonded to wood and cut to desired letterforms on a band saw. The edges are sanded smooth, primed and painted in the color desired. Letterforms: Any letterform or logo type

Finishes : Face finishes include natural satin anodized aluminium,

polished aluminium, duranodic bronze, satin bronze or brass, polished bronze or brass. Special finishes are mirror finish gold and silver edges of the letters are painted in the color desired.

Heights : 4 to 24 inches

Thickness $1/2, 3/4, 1.1, 1/2, 2$, and 4 inches or any other standard wood thickness.

WOOD: Message is painted, imprinted, engraved, applied by dic-cut letters and sand blasted. Wood can be cut and sawed.

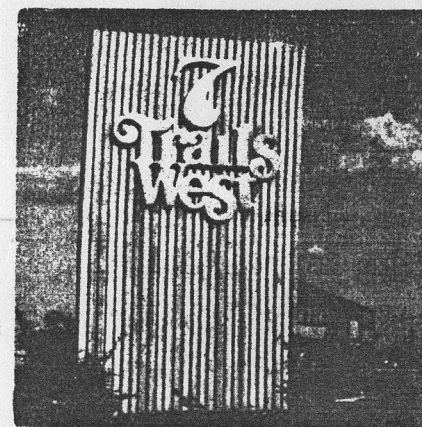
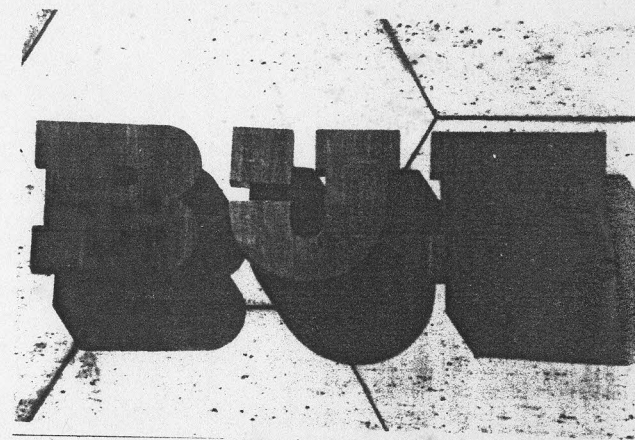
Letterforms: Any letterform or logo type.

Finishes: Painted in any color required

Heights : 4 to 48 inches

Thickness : $1/2, 3/4, 1$, and $1 1/2$ inches.

Letterforms are fabricated by pesting(phenol formaldehyde) and by nailing.



PLASTICS : Message is applied by die-cut vinyl legends, imprinted engraved, sub-surface printed and sand blasted. It can be cut, sawed and drilled.

ACRYLIC PLASTIC :

Finishes: Standard finish is gloss, and a satin or matte face is obtainable. All standard acrylic colors are available, including gold and silver metallic. Letters may also be painted if desired

Heights: $1/2$ to 9 inches

Thickness $1/8, 1/16, 3/16, 1/4, 3/8$ and $1/2$ inch.

FIBRE REINFORCED PLASTIC

Finishes : Any standard colors offered by producers of the sheet material

Height: 4 to 48 inches

Thickness: .060, .090, and .125 inch.

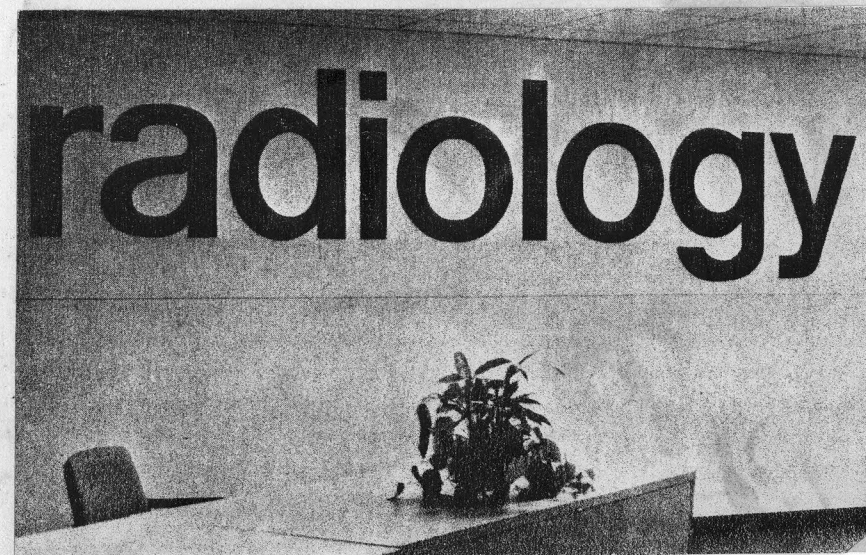
Letterforms are fabricated by pesting acrylic elements with chloroform.

It can be vacuum formed

Finishes: Any standard acrylic colour may be specified.

Height and Depths

6-9 : $5/8, 12-15: 7/8, 18: 1, 24: 1 \frac{1}{2},$
36 : 2 inches.



It can be injection molded

Finishes : Standard colors include
black, white, red and blue ;

many decorative foil stamped
finishes : Silver, copper and gold
metallics and cherry, oak and
maple woodgrains - are offered
by several manufacturers

Heights: 1/2 to 12 inches

Thickness : .125 inch

PLASTIC LAMINATES : Countertop
material is precision-cut to a
variety of letterforms using a
pantograph engraving machine.
Since engraving master fonts are
required, lettering styles are
limited. Manufacturers speciali-
sing in this technique offer the
following styles as represent-
ative.

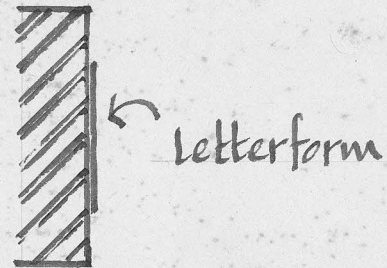
Finishes: Any standard plastic
laminate color or texture
produced by firms specializing in
laminates may be selected

Heights 1/2 to 6 inches

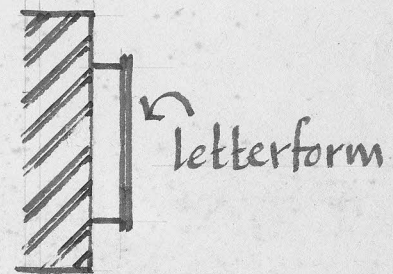
Thickness 1/16 inch.

LETTERFORM ON WALL —

FLUSH MOUNT



PROJECTED MOUNT

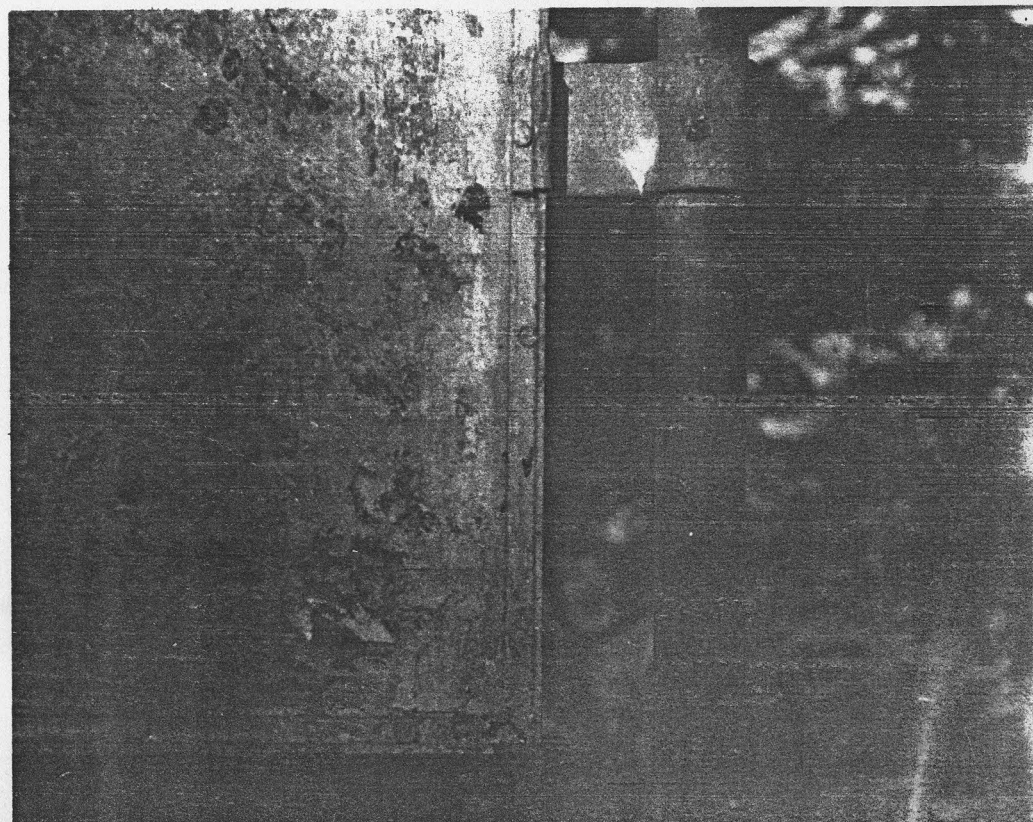


LETTERFORM ON PLANE —

FIXINGS : There are three types of fixings in joinary ; Joinary by which one can put up letterform of desired material on background of desired materials. They are

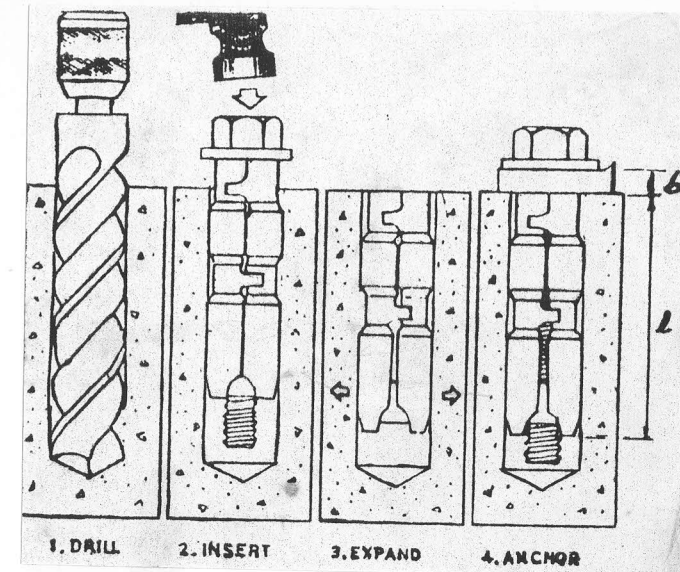
- 1) Secret fixing
- 2) Semi secret fixing
- 3) Open fixing

Open system shows its fixing, its fasteners. That gives a crude look to the s-ign. As secret and semi-secret avoids show of its fasteners it gives a clean and descent look to the sign and moreover it evokes curiousness amongst most of the people, about its fixing. The book right from here, is devoted to secret and semi-secret fixing.



Method of installation :

1. Drill hole with carbide tipped or diamond tipped drill bit of correct size and clean.
2. Bring bolt head with washer on the top of CLINCH ANCHOR so that the threaded EXPANDER NUT does not travel up. Then drop in hole with a few blows of a hand hammer.
3. Turn two to three threads of the bolt so that CLINCH ANCHOR is expanded. After that remove the bolt. The centre line of the EXPANDER NUT will be perfectly aligned.
4. Bolt may now be inserted to secure item being installed.



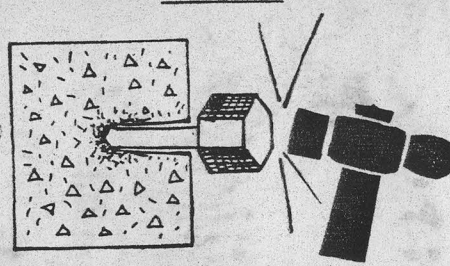
Technical data and standard size of CLINCH ANCHORS.

Anchor Size (Bolt dia.)	Anchor dia. (Drill size)	Anchor length l	Base thickness b	Bolt length $L = l + b$	Holding Power Kgs.
M 6	12 mm	40 mm	10 mm	50 mm	1520
M 8	16 mm	45 mm	15 mm	60 mm	1850
M 10	18 mm	55 mm	20 mm	75 mm	2180
M 12	22 mm	70 mm	20 mm	90 mm	4100
M 16	25 mm	85 mm	35 mm	120 mm	5800

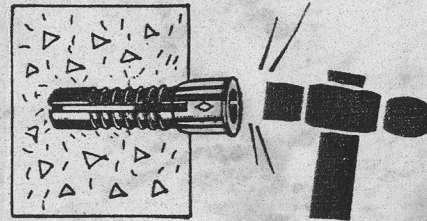
The maximum working load should not exceed 25% of the average ultimate value for a specific anchor size.

NYLON-SLEEVE

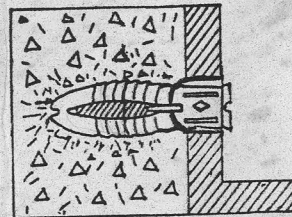
NYLON SLEEVE	LENGTH	No. Per Box	HOLDING POWER
No. 8	25 mm	100	260 Kgs.
No. 10	25 mm	100	260 Kgs.
No. 12	30 mm	100	265 Kgs.
SPEEDY • SAFE • SECURE			



Hammer with Light rapid blows while rotating Punch holder clockwise.



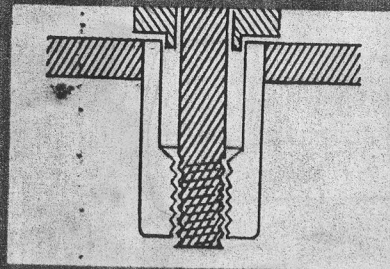
Insert NYLON SLEEVE flush with surface.



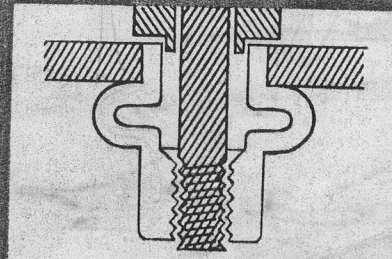
SECURE fixture with wood screws or sheet metal screws, tightening the screw increases the expansion

THESE ARE SOME OF THE ADVANTAGES

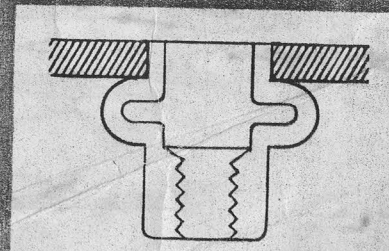
Can be placed in a completely blind hole;
Can be placed in tubes;



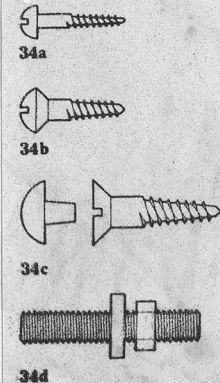
1. Insert in hole and apply tool.



2. The tool places the NUTSERT.



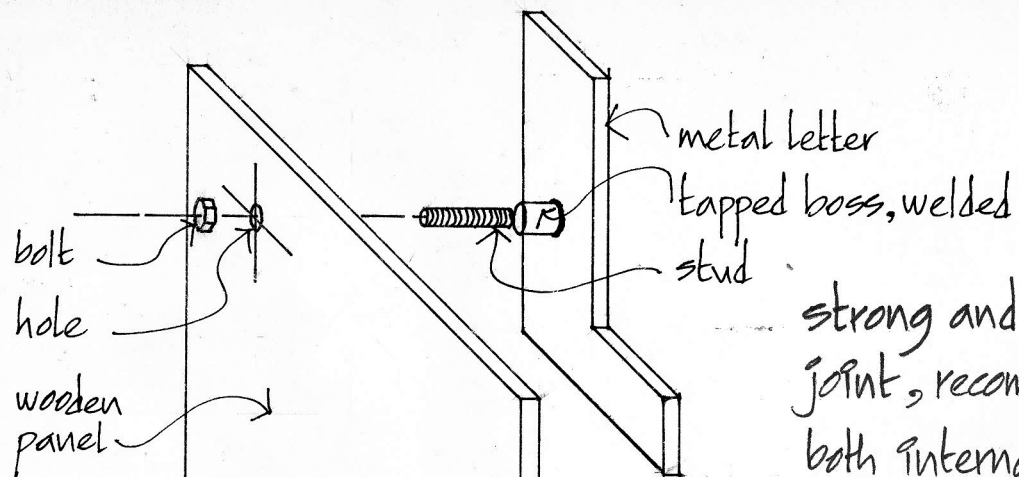
3. Drive screw is freed and NUTSERT is firmly secured.



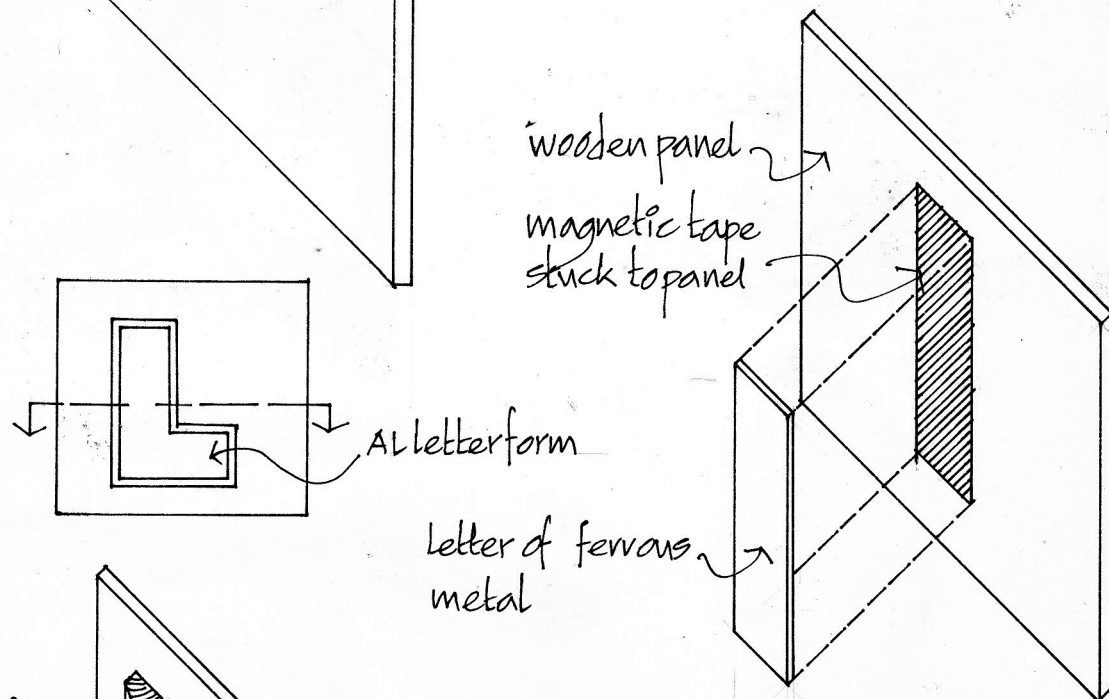
FASTANERS

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L. I. T. Bombay.

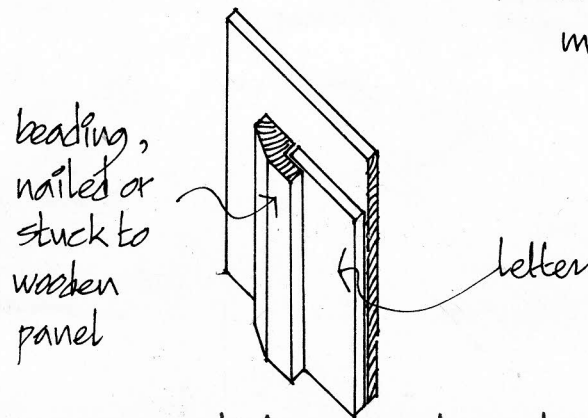
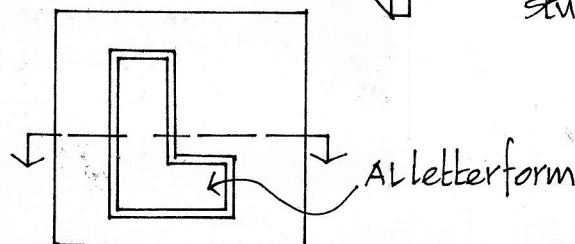
- Joinery by adhesives or by double sided neoprene tape
- Joinery by magnetic tape
- Joinery by fasteners
- Joinery by wooden beading. good for aluminum letters.



strong and removable joint, recommended for both internal & external use.



recommended where easily removability is required



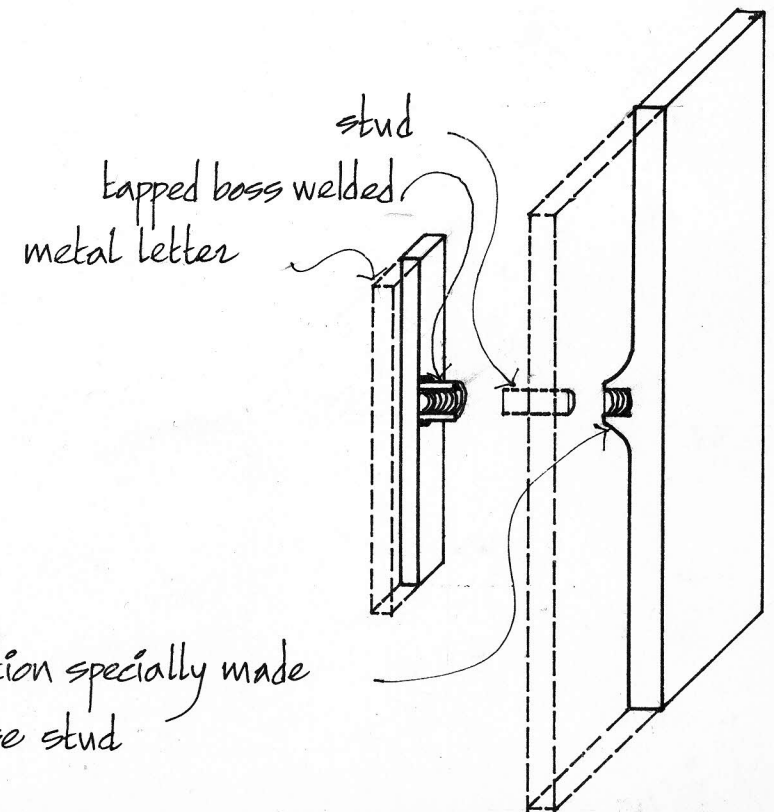
recommended where decoration is required

- Joinery by screwing not advisable as it develops cracks in plastic.
- Joinery by stud mounting is not advisable as holes has to be drilled for placing stud.
- Joinery by adhesives is not advisable because both materials are good at expansion so the bond quickly breaks up. It may be adaptable for interior having controlled temp.
- Joinery by concealed stud in panel



ARYLIC LETTER WITH METAL CLADDING/
WOODEN LETTER WITH METAL CLADDING
IS THE BEST SUBSTITUTE FOR METAL
LETTER ON PLASTIC BACKGROUND.

METAL LETTER ON PLASTIC

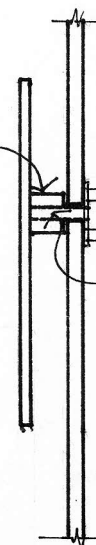


Joining two different metals by adhesives is not advisable because their expansion is uneven so it breaks the bond, however it can be practised in temp. controlled interiors.

	welding	adhering	magnetic bond	fasteners	
steel	○	○	○	○	steel
steel			○	○	AL
steel			○	○	brass/br
AL			○	○	steel
AL				○	bra/brz
AL	heliarch	○		○	AL
bra/brz			○	○	steel
bra/brz				○	AL
bra/brz	brazing	○		○	bra/brz

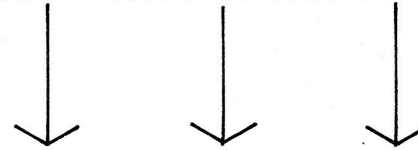


tapped boss
welded ✓
heliarch welded ✓
brazed on reverse



stud
behind
metal
background

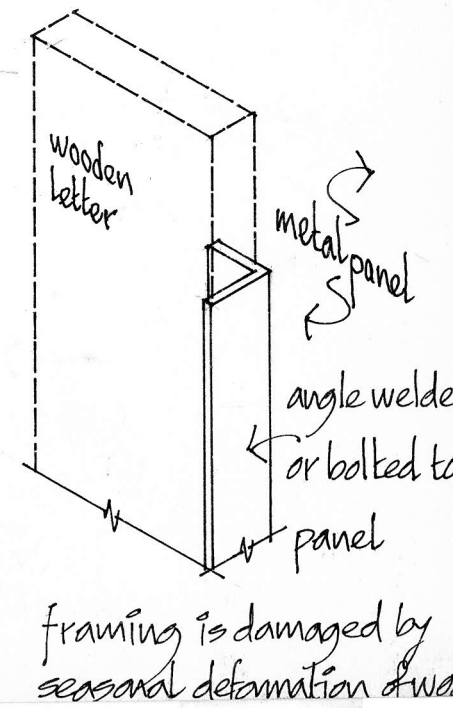
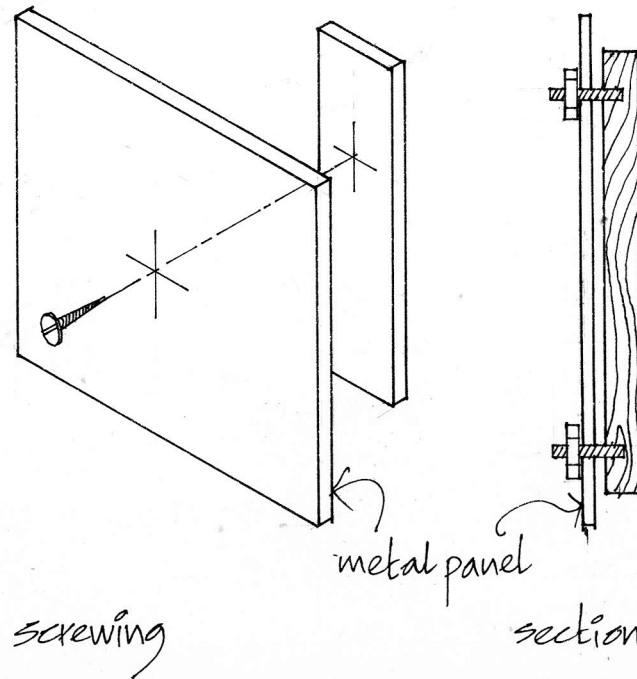
	adhering	screwing	fastening	framing	magnetic bond	
wood	○	○	○	○	○	steel panel
wood	○	○	○	○		AL panel
wood	○	○	○	○		bra/brz --



It shows bolts from behind
concealed stud mount

SCREWING + ADHERING IS THE BEST
METHOD OF FIXING WOODEN LETTER ON
METAL BACKGROUND

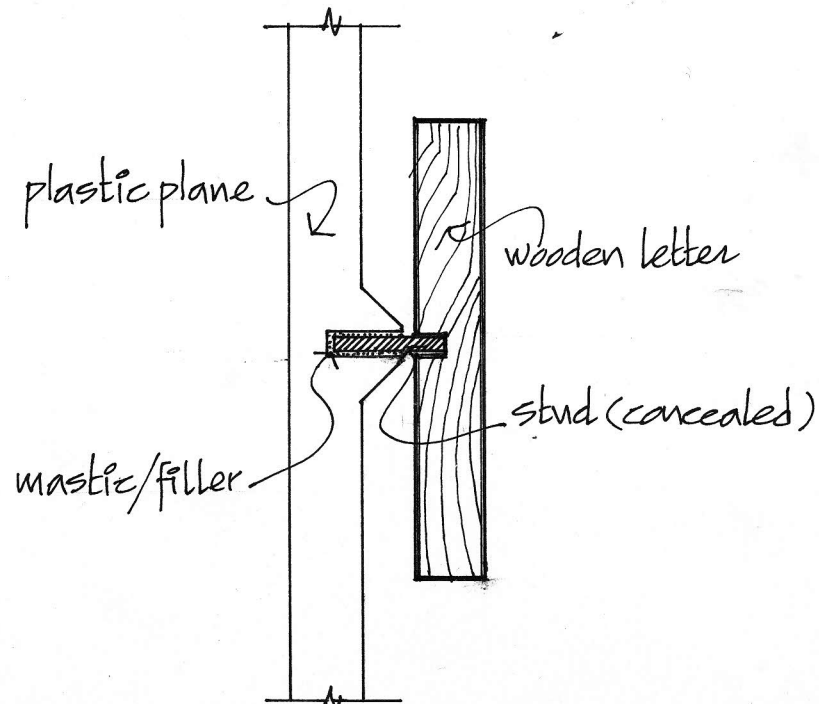
WOODEN LETTER ON METAL



. Joinery by gluing —
fevicol, double sided tape — only for
light wt. letterforms, phenolic resins
under high pressure and temperature —
such a bonded message is almost
permanent.

. Joinery by framing

. Joinery by stud mounting



plastic panel with drilled holes should have to be
specially manufactured.

WOODEN LETTER ON PLASTIC

• joinery by gluing –
fevicol, ~~fe~~ phenol formaldehyde –
advisable for wood boards and plywood

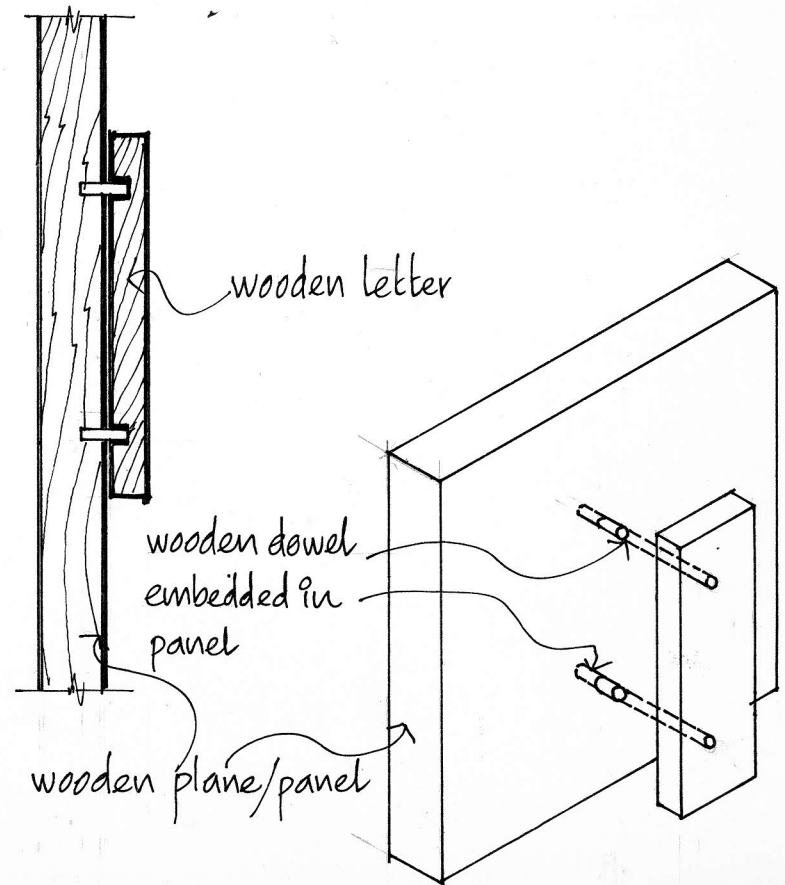
• joinery by screwing

• joinery by jointing

• joinery by stud mounting



both techniques i.e.
jointing and stud
mounting depends upon
thickness of panel &
letterform.



WOODEN LETTER ON ~~PLAST~~ WOOD

• Joinery by sticking -
pressure sensitive adhesive on back
of vacuum formed or sawed letters.

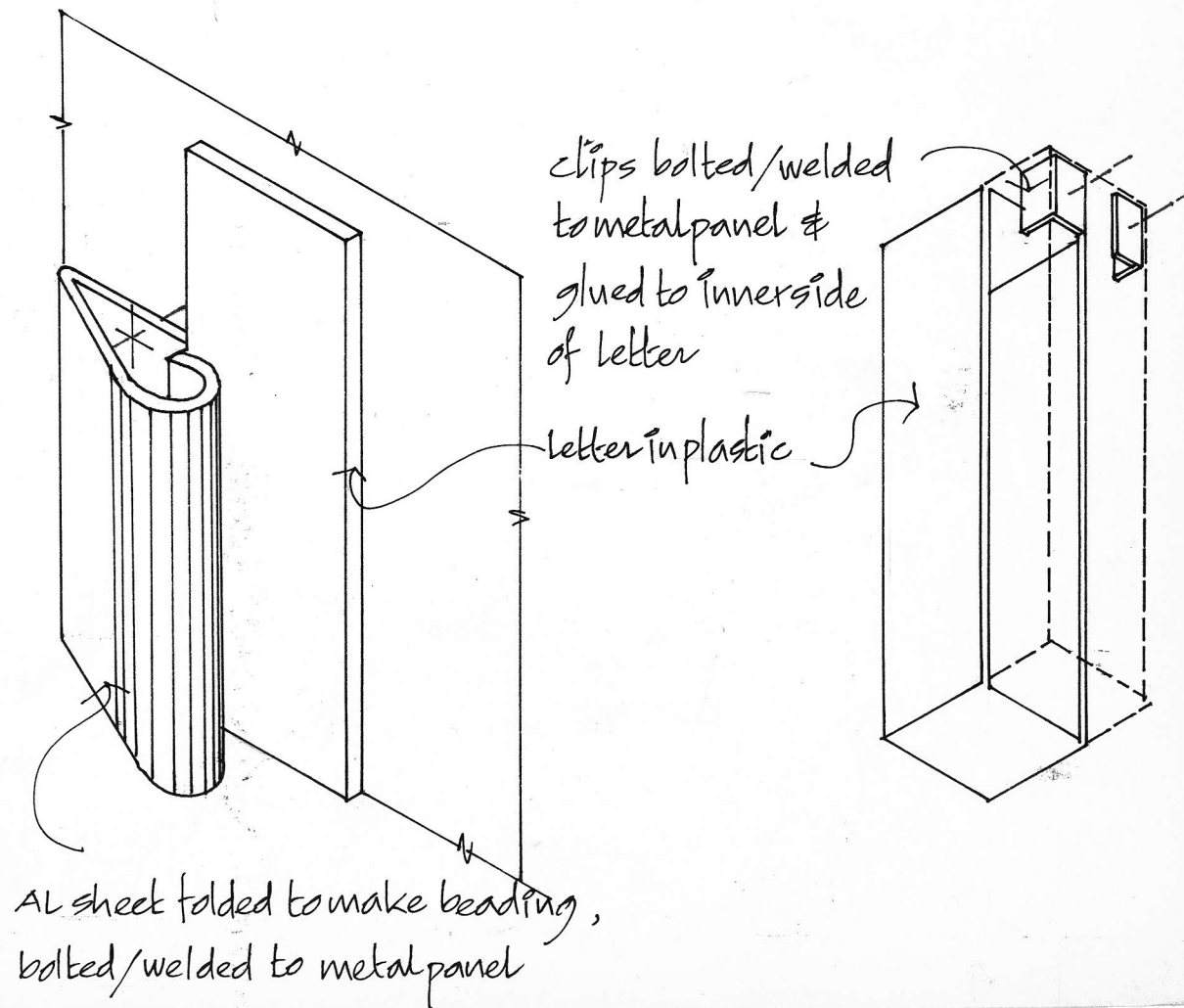
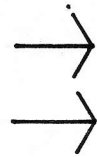
It is practised for indoor use.

• Joinery by gluing

• Joinery by framing

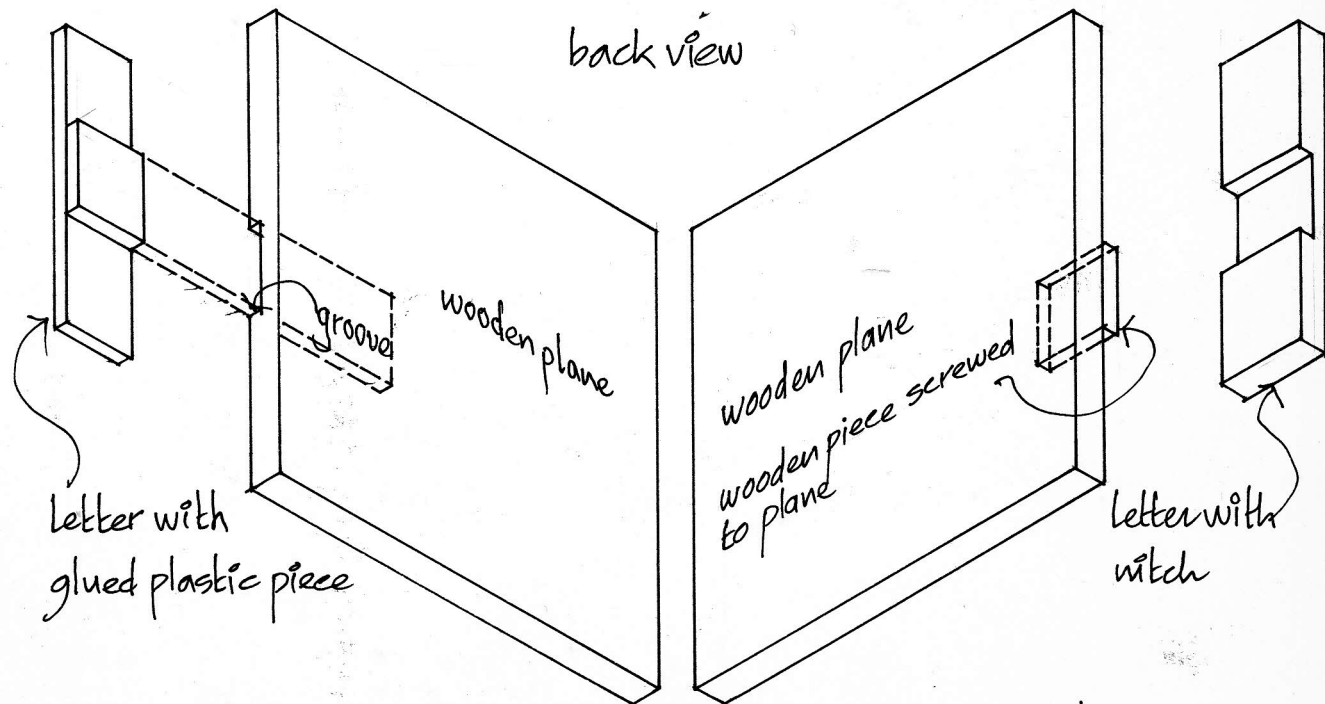
• Joinery by clips -

fabricated letters are attached to
metal panels by clips. Clips can be
fastened or glued to both metal and
plastic surface.



PLASTIC LETTER ON METAL

- joinery by gluing
- joinery by sticking
- joinery by framing
- joinery by clips
- joinery by fitting



removable, can be permanently fitted by gluing. Very strong bond. Recommended for exterior as well as interior use.

.joinery by fusing -
fused with ETHYLENE DIACHLORIDE
to another plastic.

.joinery by sticking.

.joinery by gluing.

drawing key

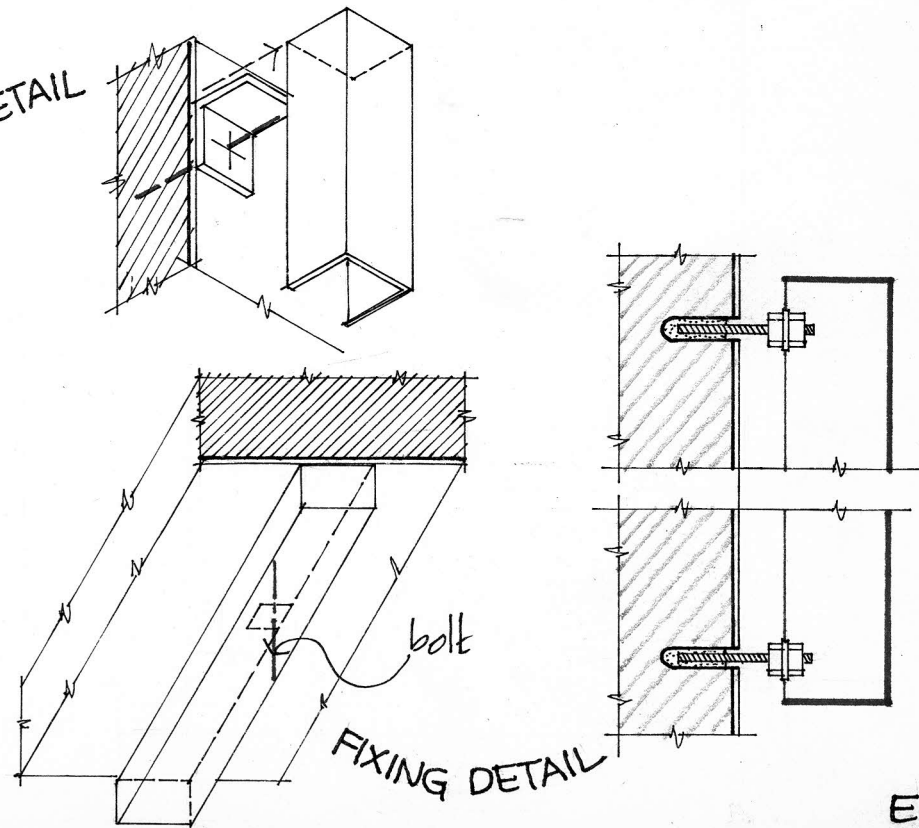
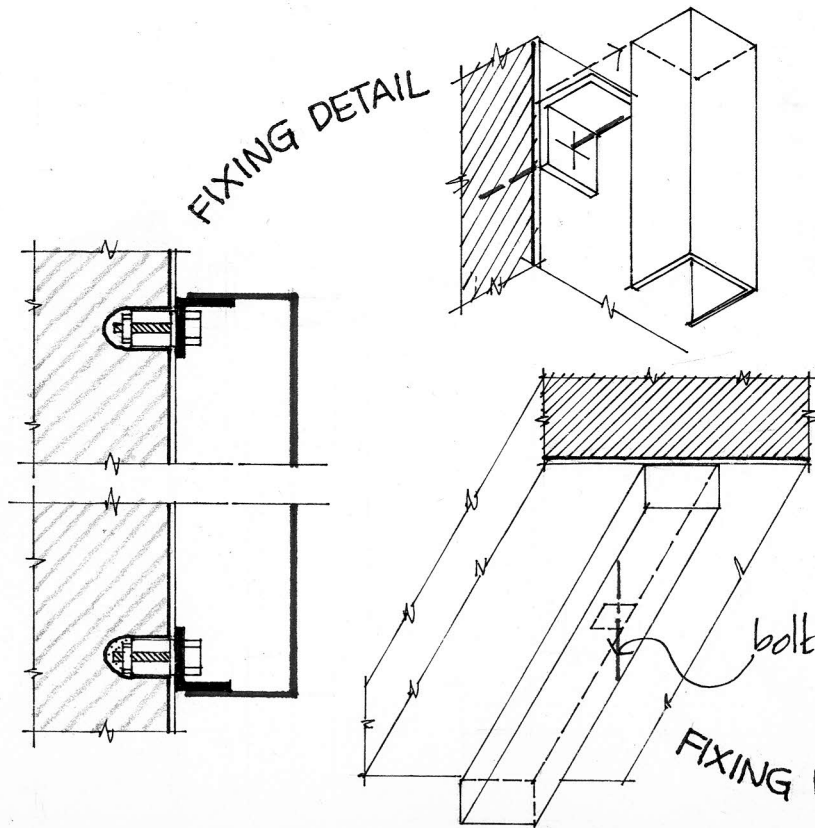
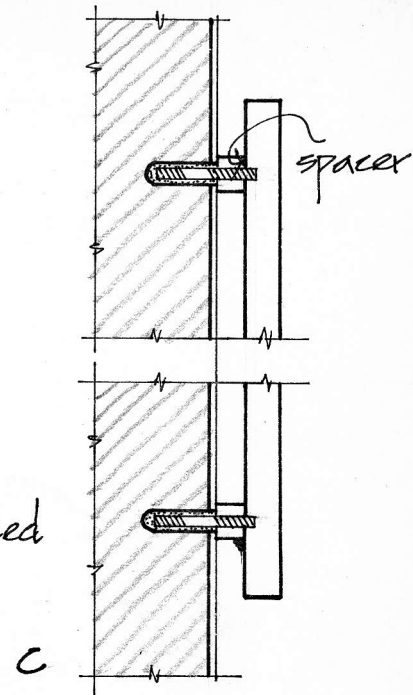
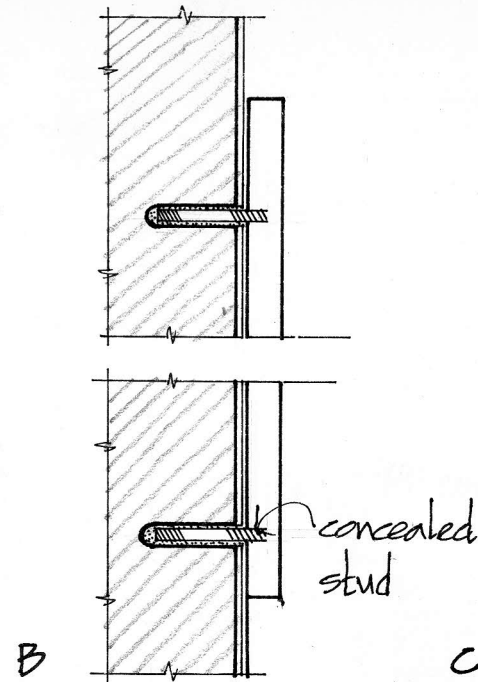
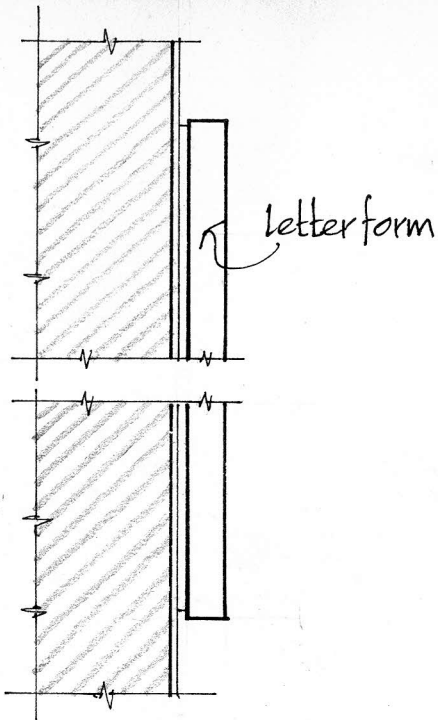
A vertical cross section of a precision cut letter with adhesive mount.

B vertical cross section of precision cut letter with concealed threaded stud flush mount.

C section of precision cut letter with concealed threaded stud & spacer project mount.

D section of fabricated letter with concealed flush mechanical mount using expansion screw anchor.

E section of fabricated metal letter with concealed threaded stud project mount.

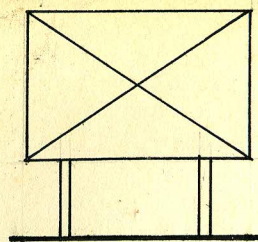


PLANE ON GROUND _____

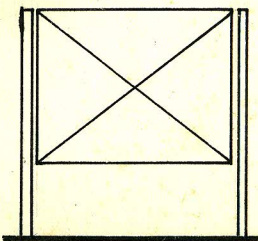
PLANE ON WALL _____

PLANE ON CEILING _____

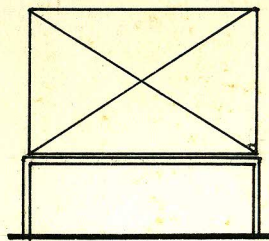
PLANE IN ENVIRONMENT _____



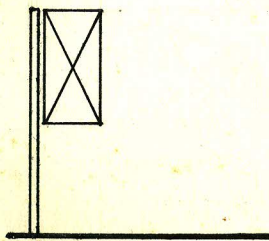
mounted on two supports



mounted on two end supports →

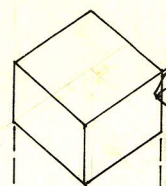


mounted on bottom support

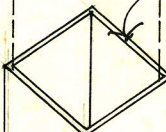


cantilevered

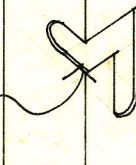
PLANE ON GROUND / FLOOR



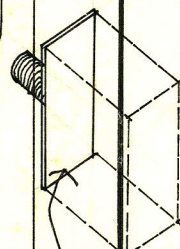
P.V.C. cap



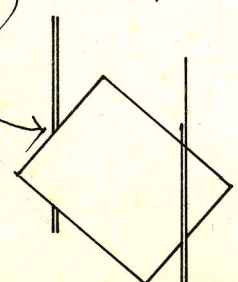
post of AL/steel



L-groove in post

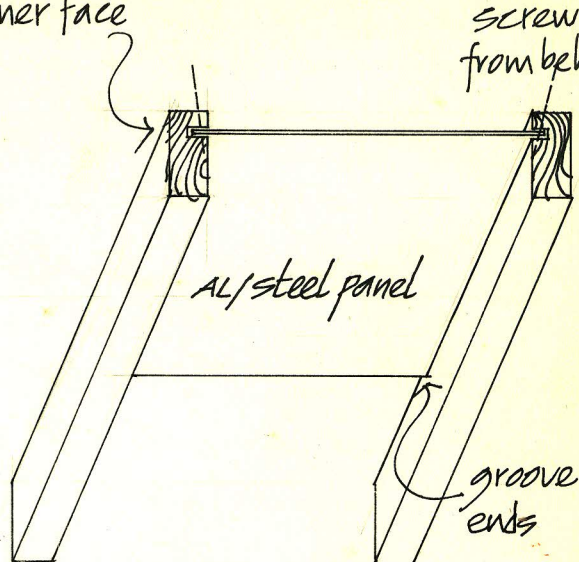


screw screwed to wood/plastic panel

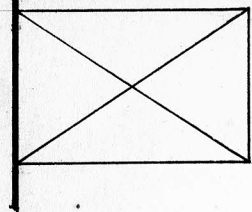


mode of placing and removing panel

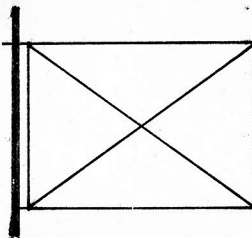
wooden post with groove to its inner face



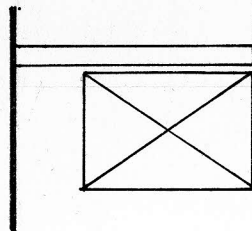
PANEL SHOULD WITHSTAND A WINDLOAD OF 30 TO 35 lbs/sq.ft.



EMBEDDED



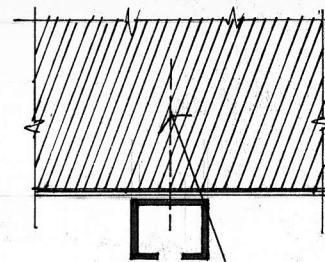
FASTENED



CANTILEVERED

closed channel

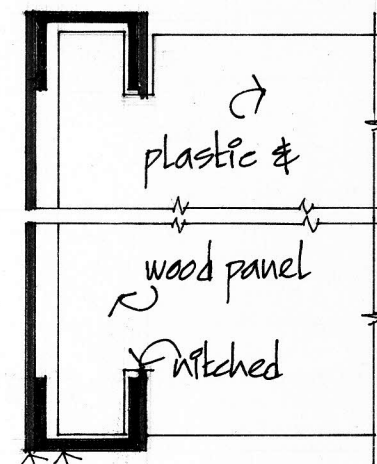
PLAN



P.V.C. cap

expansion bolt

plastic/wood frame



plastic &

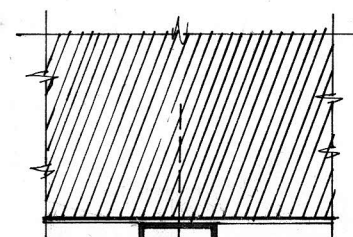
wood panel

fratched

P.V.C cap

closed channel

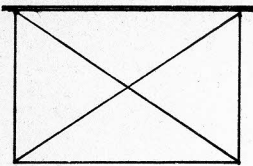
END DETAIL



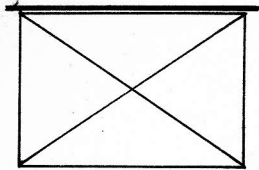
closed channel fastened to wall

metal sheet rolled at one end

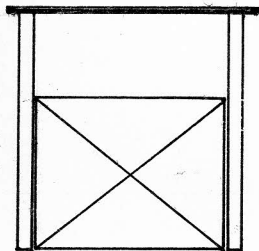
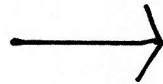
PLANE ON WALL



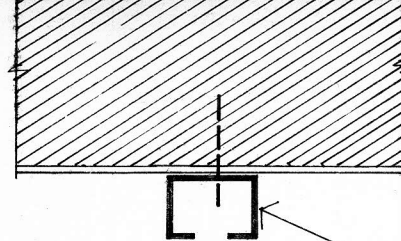
EMBEDDED



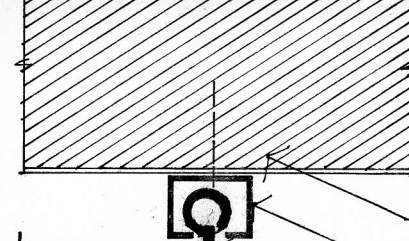
FASTENED



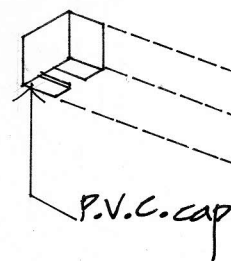
SUPPORTED



closed
channel
fastened
to slab by
expansion
bolt.



slab
closed channel
metal sheet
folded at one end



P.V.C. cap

closed channel

wood/plastic
sheet slid
into channel

PLANE ON CEILING

Maintenance of exterior signs can be reduced by using durable, low maintenance materials and techniques. Several methods of copy application minimize maintenance. For example, sign copy which is printed on the rear face of clear plastic is protected by the plastic. Copy which is routed through the metal face of a sign, then backed up with plexiglas is quite permanent. Most methods where the copy is an integral part of the sign (rather than mechanically attached) can reduce maintenance. Copy painted on sign panels may have to be repainted in a few years. However, a final coat of linear polyurethane painted over sign surfaces will improve the life of the painted finish. Painted interior signs with silk screened copy can be protected with a clear coating of linear polyurethane or other durable clear, low gloss finishes.

MAINTENANCE

CHECKLIST

- Find out for which sign type you want to design const. details —
- Note down the conditions laid down by sign towards design —
- Get known with the basics of the materials —
- Select the material — the plane — to work on —
- Working on ? — PROCESSES — refer through it —
- Go back and think whether the selected material is workable or not —
- Select material and process —
- Go in detail in materials, to know technical data about material —
- Get known with the January of message material and your 'plane' —
- Put the message on the plane —
- Think about how to put this message on ground, wall and ceiling —
- Do you like to expose fixtures and fasteners of your sign? Perhaps you don't.
Then think about secret fixing —
- If you find difficulty - refer examples illustrated.

Features

- 3 materials are widely used —
Plastic, wood, metal (steel/AL)
- Processes followed ..
 - cutting, sawing,
 - adhering,
 - painting,
 - screen printing (rarely used)

No experimentation with other processes .

- Internally illuminated signs are widely used.
- Very few attention is given to the both of signage system i.e. internal & external
- material selection and overall impact is mediocre .



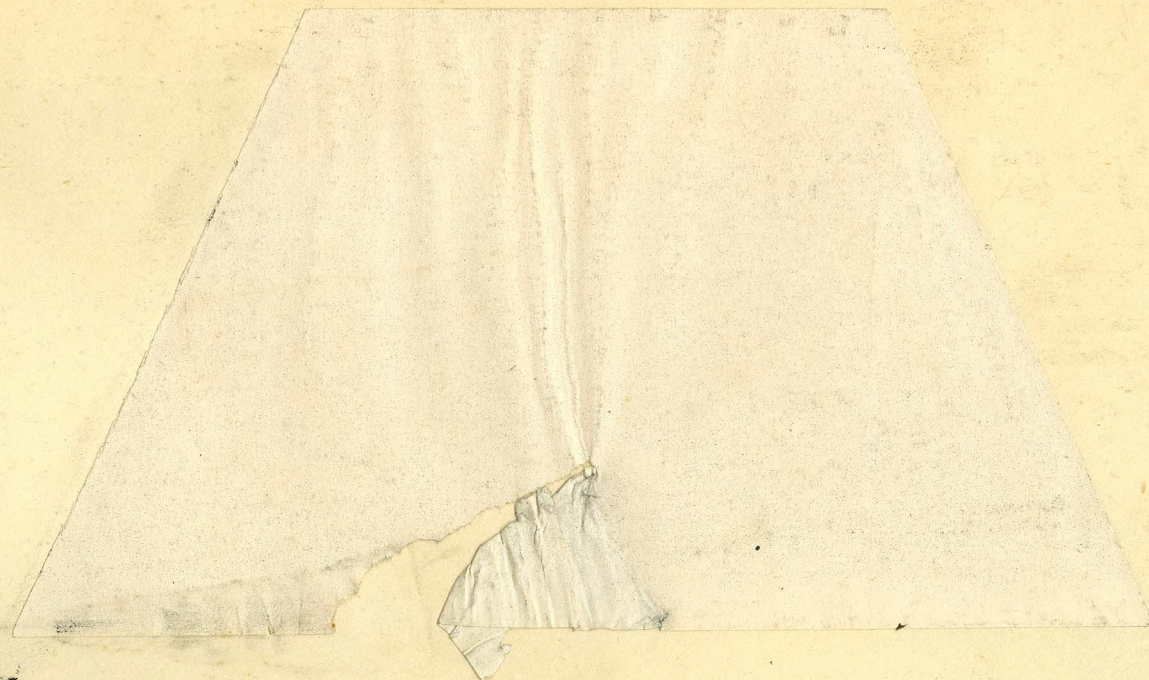
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L.D.C. Library

L.L.T. Bombay.



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I. D. C. Library
L. T. T. Bombay

