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To: Certain Home Economics Agents (Home Furnishings Responsibility)

From: Mrs. Lillie B. Little, Housing and House Furnishings Specialist
Lillie B Little

Many of you have included lessons on "Selection of Rugs and Carpets" in your program during the next six months. You have also indicated heavy requests from homemakers for assistance with decisions related to buying carpets. Therefore, I am enclosing some written material that will add to your feeling of competence in this area. One of the most confusing problems relates to brand names of fibers from the various manufacturers. One section is devoted to this.

The information comes from a special issue of Home Furnishings Daily and has also been reviewed by members of the Textile School here on campus. The information is as up-to-date as we can provide. You will also be pleased to hear that our carpet bulletin has been revised and is now at the printers. Since the revision needed will not change the general format of the bulletin, we should have the new ones available within a few weeks.

A copy of the expanded "Home Furnishings Trends for 1969" is also enclosed. Many of you have indicated an interest in having a copy of this. I have been especially pleased with the way Martha Adams, Home Economics Agent from Richmond County has planned to use trends information. She has planned series of special interest programs with one devoted to each subject matter area--a total family living approach.

Enclosed are the following commercial brochures that are also quite good references:

"It's Easy to Care for Your Carpets and Rugs," American Carpet Institute, 350 Fifth Avenue, New York.

"Choosing Your Carpets and Rugs," Ibid.

If my supply doesn't last, you may wish to order a copy of each for your file.

LBL:s

Enclosures

cc: Dr. Cofer
District Agents
Mrs. Womble

SELECTION, USE AND CARE OF RUGS AND CARPETS

RUGS:

Basically, rugs break down into three categories according to size:

- Room-size rugs
- Area rugs (variously called accent rugs)
- Scatter rugs (variously called throw rugs)

Rugs are made in two ways--as prefinished units or cut from a roll of broadloom and finished. Often a room-size rug does not fill a whole room. Room-size rugs are almost universally cut from broadloom.

When a rug does cover the floor from corner to corner with no part of the actual floor showing, correct terminology for such a product is wall-to-wall carpet.

Room-size or room-fit rugs are available in prefinished standard sizes, such as 9x12 or 12x15 feet, or they can be cut to desired size from rolls of carpet.

It is recommended usually that rugs be turned from time to time, in order to distribute wear more easily and to help prevent visible traffic patterns.

Area rugs don't fit into such a structured category.

Area rugs are available also in a large variety of shapes--round, rectangular or free-form.

Scatter or throw rugs are defined by being less than 3x5 feet and often are tufted into canvas and ducking. They are usually washable.

From this standpoint an area rug can serve various purposes depending upon what the customer wants:

- Rugs can serve as a focal point to a room.
- Rugs can add color highlights.
- Rugs can coordinate the various elements of a room.
- Rugs can create textural interest.
- Rugs can direct traffic.
- Rugs can separate a single room into two parts.
- Rugs can bridge two rooms together.
- Rugs can make a room look smaller.
- Rugs can cover worn areas or stains.
- Rugs can be conversation pieces.

While there are no hard-core rules about the use of rugs, there are a few guidelines.

When room proportions are large, too small a rug can look like a postage stamp.

Conversely, in a small room-unless that is the desired effect, to cover up what otherwise would be blandness--a boldly scaled design can completely envelop the room. Very bright color can do the same, though with less aggression.

Rugs on top of carpet can work very handsomely, but a marked contrast in textures--if both are solid color--is preferable usually. For example, a very deep pile area rugs can go easily with a tight, level-loop carpet.

Flat weaves are extremely adaptable when placed on wall-to-wall although usually one would not choose to cover over any multi-level carpet texture.

Mixing of styles can achieve a pleasing effect, unless a room is very formal such as a completely Louis XVI setting.

Patterned or single-motif rugs can go into a room which already has pattern in it if the pattern is not predominant in either and if the two patterns do not come into immediate contact. On the other hand, an increasing number of people are finding they want to use several patterns in one room. But this is a very specialized taste, and only the special person can accomplish it successfully. Seldom, if ever, even in a monochromatic color scheme, should anyone try to match any colors exactly. Because of the nature of floor coverings, an exact match is impossible to begin with. In addition, usually a more interesting look will be produced by a subtle color change. The question of whether or not a rug should have padding or underlay placed beneath it hasn't any clear-cut solution. Fundamentally, the answer depends upon the particular rug choice. With room-size rugs, many consider padding an absolute necessity. Also, their size makes it almost infeasible to put any type of cushioning beneath them. With area rugs, flat weaves may not have an attractive appearance if underlay is used. But there is no doubt, regardless of the type of rug, that cushioning adds to wear life. Of course, any rubber or foam cushioning would almost necessarily be inapplicable.

CONSTRUCTION:

Tufted

The tufting machine is basically like a giant sewing machine: Tufts are inserted by needles (threaded with yarn) into a prefabricated backing material. (In woven carpet, the pile and backing are manufactured simultaneously.) The yarn is supplied from cones of yarn set on a large rack, called the creel.

A layer of heavy latex is coated to the backing to anchor the tufts permanently. Pattern attachments have been developed to produce various textural effects. Likewise, an electronic device makes possible the insertion of individual tufts of different colors into a solid ground color. Various gauge machinery control the closeness of the tufts in a carpet. Multicolor effects can be achieved because of advances in dyeing technology. Tufting machinery continues to progress rapidly and accounts for 85% of all broadloom carpeting produced.

Woven

There are three basic power looms used in carpet weaving: Velvet, Wilton and Axminster. The unique characteristics of the three carpet types (their names match the names of the machines) are dervied from the differences in the looms. There are fundamental characteristics common to the three, however. All woven fabrics have pile yarns, weft yarns and warp yarns. The weft yarns run crosswise to the

carpet, passing over and under the pile yarns. The warp yarns run lengthwise to the carpet, over and under the weft yarns. The result is that this interweaving locks all three yarns together into a solid fabric.

Axminster

Axminster carpets are made on looms which draw pile yarns from spools with the various colored yarns to be used. Completely flexible, Axminster looms can theoretically weave a carpet with each tuft a different color: The looms simulate hand-weaving, inserting each tuft separately.

Each frame provides one row of tufts across the carpet width. The pile is cut except in a few special weaves. Because of the nature of the loom, the texture of a conventional axminster carpet is usually a cut-pile, even-level height although textural effects can be achieved by using pull-down yarns which shrink after steaming.

Extremely complicated patterns are ideally suited to this carpet, although changing patterns is slow and expensive. Even in lower priced ranges intricate patterns are possible. Almost all the yarns appear on the surface. The back of the carpet has double weft (widthwise yarn) shot which gives the backing a characteristic ribbed appearance.

Although the loom was invented by an American, the weave is named for a town in England where it was first made.

Velvet

Many confuse the term "velvet" with the surface effect, correctly called "plush." Today, a very wide range of textural effects is possible in velvet carpet through width adaptation. Traditionally, however, the velvet is a solid-color carpet woven in a smooth-surface pile, cut or uncut. Velvet is the simplest of all carpet weaves.

The pile loops of velvet carpet are woven over long wires which extend the full width of the carpet--one wire for each row of loops. The wires are withdrawn as each row is completed. For cut pile, there is a sharp knife at the end of each wire which cuts the loops as the wire is withdrawn. Using uneven, cork-screw type wires, striated surface effects are possible.

Wilton

The Wilton loom can handle up to six (usually limited to five) different colored pile yarns to weave a carpet design. This is because of the Jacquard mechanism, which employs a series of pattern cards which regulate the feeding of yarns into the pile. Following the design pattern, yarn colors needed to form a pattern are automatically raised to the surface, "burying" the other pile yarns in the body of the carpet. This is the so-called "hidden value" of the Wilton weave. Generally, the addition of each frame or color will add more total yarn to the carpet pile.

The loom also makes possible the weaving of carpets with sharply delineated sculptural and embossed texture patterns. It is even possible to combine cut and uncut piles and to use some straight pile yarns with others twisted for textural variety. Wilton takes its name from a town in England where it was first made.

Flocked

Although there are three basic methods of applying flock--by beater bar, spraying and electrostatically--the latter method is used far more widely in this small segment of carpet production. In the process, chopped fibers are introduced into an electrostatic field and become charged. The charged fibers are projected toward a backing fabric which is coated with an adhesvie where they become embedded vertically. Flocked carpets have a characteristic single-level, cut-pile surface which gives a velour appearance. Printing of flocked carpet is possible.

Knitted

Knitted carpets are manufactured in one process, by interlooping pile yarns with the backing yarns, using three sets of needles. The process is much the same as hand-knitting. They are usually solid colors or tweed because a single pile yarn is used. In recent years, however, patterns have become possible. Usually, made with looped pile, some textural variation can be achieved with modifications in the knitting machine. To give additional body, a coat of latex is applied to the back. Knitted carpet represents only a very small percentage of total carpet production.

Also called needlebonded or needle-punched, the carpet is manufactured by a process in which an assembly of webs of staple fiber are mechanically held together by the action of felting needles which interlock the fiber much like a simulated felt. A coating of weather-resistant latex or a similar material is then coated to the back. Originally confined to polypropylene fibers, there have been increased instances of usage with others. It is said work is being done to develop needlepunched goods with inherent textural effects although to date the only texture definition has been the result of embossing. Printing is becoming increasingly important.

WHICH IS WHAT?

Whereas, the manufacturing process for the various carpet constructions is unique, it is sometimes difficult even to the most experienced eye to distinguish one construction from another. Needlepunched and flocked carpets, of course, are quite distinctive. Because needlepunched goods are flat and felt-like, even with the addition of printing and (to a limited extent) embossing, they look quite different from pile fabrics. And, because flocked carpets are always cut-pile with one pile height, flocked carpets too, with their velvety appearance and hand, are not difficult to recognize. But, because of the continual modifications which are being made with woven and tufted machinery, it is not so easy.

There are some guideposts, however:

Axminster - whenever many colors (more than five or six) are used in an intricately patterned carpet, it will usually be an Axminster. (To date, printing hasn't developed far enough to use more than three or four colors.) But even more characteristic, and foolproof, is that the weave results in a heavily ridged back so the carpet can only be rolled lengthwise, never crosswise.

Wilton - because of the "hidden" yarn in Wilton carpets, pile fibers in multi-color fabrics are usually visible on the back and the carpet is thicker than other types. Wiltons are often patterned with sculptured or embossed textures, in contrast to both Axminsters and velvets.

Velvets - come in solid colors, tweeds and stripes only. It is very difficult to distinguish between certain velvet and certain tufted constructions. The differentiation may be best noted by checking the back of the carpet and seeing if the carpet has the traditional identification of a tufted carpet. Also, the rows of tufts run the width of the carpet in a woven carpet, not the length as with tufted goods.

Tufted - the surest method of identifying a tufted carpet is looking at the reverse side, where it is possible to see the tufts punched through the prefabricated backing. If there is a double backing, it is possible to see by looking at the edge of the carpet that tufts have not been punched through the backing and are not interwoven with the backing yarns.

Knitted - by bending the sides of a carpet, to expose the backing on the face side, one can see the continuous looping of pole yarns from row to row, held in place by the stitching yarn. The rows of piles run in an irregularly diagonal direction with a random look, not in straight rows as in woven or tufted carpet.

FIBERS:

So much of how a fiber indeed will perform, depends upon the construction in which the carpet is made. It is not necessarily a rule of thumb that the more face per square yard will correspond to increased wear life. Actually, some tight-loop construction of one fiber with far less weight than a plush fabric of the same fiber will long outwear the heavier grade. And wear-life itself can't be calculated without examining conditions of installation, maintenance and traffic that the carpet will be subjected to.

Acrylic

Fiber-forming substance is any long chain synthetic polymer composed of at least 85 percent by weight of acrylonitrile units. Most often compared with wool because of hand and appearance. Light and bulky fiber characterized by high wear-life, slightly more durable than wool but not as durable as nylon. It has excellent resilience and true clear colors. It is easily cleaned and has good soil resistance. A variety of stain-removing chemicals can be used in treating acrylics.

Acrilan by Monsanto
Creslan by American Cyanamid
Orlon 33 by Du Pont
Zefran and Zefkrome by Dow Badische

Nylon

Fiber-forming substance is any long chain synthetic polyamide having recurring

amide groups integral part of the polymer chain. Remarkable wearing qualities, considered the strongest carpet fiber. Exceptional resistance to abrasion. Resilience medium to excellent depending upon construction. Easily dyeable using all methods and has good color fastness although there have been some complaints about fading by sunlight in light colors. Dirt easily removed by conventional cleanability although nylon tends to soil more easily than other fibers. Water-soluble stains not absorbed. Nylon's texture retention is exceptional and its resistance to crushing is good. Antron, a newcomer to the carpet industry, is engineered to resist soiling and static electricity.

Caprolan by Allied Chemical
Antron and Nylon by Du Pont
Cumuloft by Monsanto
Enkaloft by American Enka
Nylon by Celanese
Nylon by Heplon
Nylon 66 by Beaunit

Polyester

Fiber-forming substance is any long chain synthetic polymer composed of at least 85 percent by weight of an ester of a dihydric alcohol and terephtalic acid. Although polyester has excellent durability and good texture retention, it has poor recovery from crushing. And while its soil and stain resistance is rated medium, it has excellent cleanability. Resilience is good and abrasion resistance is very good.

Avlin by American Viscose
Dacron by Du Pont
Encron by American Enka
Fortrel by Celanese
Kodel by Eastman
Quintess by Phillips
Trevira by Hystron
Vycron by Beaunit

Polypropylene

A fiber in which fiber-forming substance is any long chain synthetic polymer composed of at least 85 percent by weight propylene. Also termed olefin or polyolefin, polypropylene is distinguished from polyethylene (also generically an olefin) not only by fiber-forming structure but also because polyethylene is not used for carpet face fibers. Polypropylene is characterized by extra high strength and abrasion resistance. It also has high resistance to soiling and exceptional resistance to staining. In proper constructions, it is highly cleanable. Texture retention is only moderate; however, and resilience is medium with low resistance to crushing. Wear-life lessens as pile height increases.

Herculon by Hercules
Marvess by Phillips
Patlon by Patchogue Plymouth
Polycrest by Uniroyal
Polyloom by Chevron
Polypropylene 1 by Celanese
Vectra by Vectra

Wool

Wool yarns are composed of selected grades of wool from unimproved sheep of numerous countries, but none from the United States. The wool from each country has unique qualities and the various wools are blended together by particular formulae. Wool has superior resilience and good resistance to abrasion. A fiber of moderate strength, it has good appearance retention, high soil resistance and good cleanability. Woolen yarn is composed of interlocked long and short fibers while worsted yarns use only the long wool fibers laid parallel to each other. As such, woolen yarns are softer, bulkier and rougher than worsted.

Cotton and Rayon

The use of these two fibers has declined until they are not significant to industry or the consumer for floor covering.

CARPET CUSHIONS:

Today, most sales of carpet are accompanied by a sale of carpet cushion--also called underlay or padding--unless the carpet is cushion-backed. Carpet cushion is relatively inexpensive insurance on the customer's carpet investment. It prolongs the life of the carpet 25, 50 or even 75 percent depending on the cushion. The industry recommends a cushion which does not cost less than 15 percent of the cost of the carpet. If a customer spends $10 a square yard on carpet, she should spend at least $1.50 a square yard on cushion. And, for the price, she gets not only prolonged life of the carpet, but thermal and acoustical advantages, extra comfort underfoot and a safety factor particularly important in places where the young and elderly are likely to fall. Because carpet pile flattens down less on a cushion, it also adds to the carpet's appearance.

There are six types of carpet cushion:

- Foam rubber
- Sponge rubber in a waffle construction
- Foam rubber on a hair/fiber blend
- All hair
- Hair/fiber blend or felt
- All jute

Jute, the least expensive of the cushions, is generally not recommended by the industry. Although it is resilient at first, it breaks down and bunches up. In fact, eventually it can accelerate the wear of the carpet in spots. The all-hair cushion was considered the best cushion until the advent of sponge rubber and foam rubber. Sponge, a chemically blown natural or synthetic rubber and foam, a mechanically blown chemical, are basically the same as far as performance in carpet cushion goes.) With the exception of jute, there is little difference between the carpet cushion types in dollar-for-dollar performance. A $1.75 all-hair cushion will give just about the same performance as a $1.75 foam rubber, a $1.75 sponge or even a $1.75 foam ruber on a hair/fiber blend. Although performance is comparable however, some types have advantage over others in certain spheres.

After jute, the most expensive is the hair/fiber or felt and the lower ranges of sponge which run the gamut in grades (per weight) from about $1.25 to $2.25 (which might be the reason sponge accounts for the majority of cushion sales). The foam rubber, all-hair, and the upper grades of sponge are the most expensive with a high of about $2.25. Sponge tops the lot in softness underfoot, but foam gives more uniform support underfoot than the sponge. The strongest, and considered the best for contact, is the foam rubber on hair/fiber blend. Sponge is the most porous and, therefore, retains less odor than the others, and foam rubber tends to retain its resilience even in flood conditions and does not mold.

Foam rubber has an acoustical advantage over other types. Both sponge and foam on radiant-heated floors conduct heat more readily than either jute or hair cushion. A few years ago room-size rugs "walked off" sponge and foam rubber cushions, but manufacturers say that this has been curtailed by a scrim or mesh backing on the rubber. Some types of carpet cushion are specially tailored for the customer with a particular problem. There are, for instance, special non-allergenic carpet cushions and those recommended for areas such as bowling alleys, where a dropped bowling ball can break the fibers of the carpet backing. Then, too, some of the cushions come in 9 and 12-foot widths as well as the standard 4-foot, 6-inch width to simplify large installations.

The top surface of the cushion usually has a plastic or fiber finish. But the differences between the two are evident only when restretching carpet after the initial installation. Generally, carpet can be stretched across a plastic backing more easily than a fiber backing and the man hours saved are the immediate consideration of the dealer although it affects the consumer in the long run.

CARE AND MAINTENANCE

Care and maintenance is just as important a factor as quality in the life of a carpet. And, all too often, the customer is not aware of the fact. She thinks of care and maintenance in terms of appearance.

The customer who needs a carpet for a heavy traffic area might prefer a synthetic to a wool. Syntehtics are generally tougher and easier to clean than wool although wool also wears well and has a good initial resistance to soil.

Acrylic, polypropylene and wool are slightly more soil-resistant than polyester and nylon. Polypropylene and acrylic are slightly more resistant to permanent staining than polyester which is more susceptible to oil-based stains than nylon and wool because they have a lower absorption of moisture and can be more effectively wet cleaned in place. Basically, the soil sits on the surface of synthetic fibers while wool absorbs some soil and moisture in the fiber itself. Still, wool does respond well to proper cleaning methods.

Some fibers have slightly better wearing properties than others, the determinants being tensil strength, flex fatigue and abrasion resistance. Nylon and polypropylene have the most exceptional wearing properties. Then, in order, come acrylic and polyester (although polyester has poor recovery from pile crushing) and then wool. Some colors hide soil better than others. Generally, light-colored carpet does not stand up well in an atmosphere where there is a lot of soot and grime. The dark colors stay fresh-looking longer. Manufacturers recommend all

carpet be cared for routinely. How routinely, of course, depends on how much wear the carpet gets. Generally, the industry recommends that carpet used regularly be vacuumed daily in the heavily used areas and weekly in entirety. While suction-type vacuum cleaners are good for removing surface dirt, vacuums with revolving brushes are better for removing embedded grit from the pile, experts say. Carpet sweepers are not as effective as vacuum cleaners although they are fine for removing crumbs and lint and keeping the pile erect. Even with regular use of a vacuum, however, experts agree that carpet needs additional cleaning periodically to brighten up the surface.

There are two methods of home cleaning - the dry method and the wet method. The dry method calls for sprinkling an absorbent powder over the area to be cleaned, brushing it into the carpet and then vacuuming thoroughly. The dry method, however, cleaning experts say, is not as thorough as the wet method which involves application of a light neutral detergent either by sponge, cloth or a special rug shampooer which can be rented usually from a supermarket or hardware store.

Soap, ammonia, washing soda or any strong household cleaning agent intended for use on hard-surface floors should not be used on carpet. As little detergent solution as possible should be used on an acrylic carpet because acrylic does not absorb liquid readily and the water tends to run through the pile into the backing yarn which is bad for any carpet.

Spots should be removed at once from any carpet. It is always easier to remove the stain before it dries, professional cleaners assert. Most can be removed at home with ordinary cleaning materials, but those which cannot be removed should be brought to the attention of professional rug cleaners. Professionals recommend that any excess be removed with an absorbent cloth or a knife edge working toward the center of the stain so as not to spread it.

To remove oily materials such as butter, grease, oil, hand cream and ball point pen ink, they recommend the customer apply a dry cleaning fluid such as is used for removing spots from clothing; dry the carpet; and repeat the application if necessary.

For the removal of oily foodstuffs and matter such as coffee, tea, milk, gravy, chocolate, blood, egg, ice cream or vomit; a detergent-vinegar-water solution made of one teaspoonful white vinegar and one teaspoonful neutral detergent in a quart of cool water should be applied. Then the carpet should be dried and the solution reapplied if necessary.

For heavy grease, gum and tar, paint tar, lipstick and crayon, alternate applications of dry cleaning fluid and detergent-vinegar-water solution will be effective, experts say. After each application, the carpet should be dried thoroughly and the pile brushed gently. Alcohol and soft drinks may be removed by blotting up the excess and sponging the area in clear, warm water.

If there is still a stain left after any of these administrations, a bleaching solution may minimize it. The industry recommends a solution of two tablespoonfuls of hydrogen peroxide (3 %), two tablespoonfuls of water and two tablespoonfuls of household ammonia. Sources suggest that the solution be applied to the stain although it should not be saturated and then allowed to stand for a few moments before blotting up the excess and repeating again. The stain will fade gradually as the area dries.

Ink stains, experts say, sometimes respond to a steam cleaning process which involves moistening the area with clean water, covering the moistened area with several thicknesses of dry clean cloth and then placing a hot electric iron on the cloth and applying moderate pressure from five to eight seconds, repeating the process until no more stain transfers onto the cloth. They caution, however, that the iron should be removed before the steaming ceases so not to scorch.

Such strong solutions are needed to remove rust stains that it is recommended they be removed professionally. Proper maintenance of a carpet is just as important as cleaning the carpet regularly. The industry suggests that carpet be installed on a clean, dry floor on top of some sort of carpet cushion.

Proper laying of the carpet cushion under a room-size rug (the carpet should extend 1½ inches over the pad) will prevent much corner curling. But, the corner curling that does occur can be remedied by pressing the area with a hot iron over a damp cloth. The customer should be cautioned not to press down on the iron or the pile will be flattened. A room that is either too dry or excessively humid is bad for a carpet so the customer should be cautioned to keep the room well-ventilated.

To prevent accelerated wear in heavy traffic areas, room-size rugs should be turned before signs of wear appear and wall-to-wall carpet should be protected by scatter rugs. Furniture, too, can be changed around to emphasize different portions of the carpet.

Stair carpets should be laid with an extra foot of length folded against one or two risers at the top of the stairs. Then, periodically, a shift can be made downward an inch or two to rest the carpet which gets heaviest wear at the edge of the steps.

When a new carpet is laid, it starts to fluff or shed, a completely natural phenomenon. It is merely the loose bits of pile material left during the manufacture, and the customer can be assured that it is nothing to worry about and that it does not affect the quality of the carpet. All the loose ends eventually will come to the surface where they can be picked up by the vacuum. Tufts which occasionally come to the top of the carpet should not be pulled out. Instead they should be snipped off even with the other tufts, manufacturers say.

Because of the excellence of dyes used in carpets, most are not subject to fading if given normal protection from direct sunlight. However, shading, an apparent change of the color tone of the carpet, does sometimes appear. Shading is due to light reflecting off tufts which have been pushed down under feet. It can be eliminated by a good vacuuming, butthe effect is not always unpleasant.

Moths and carpet beetles are not a threat these days. Most wool fiber is chemically treated during the manufacturing process to make it mothproof and "beetleproof." Cigarette burns, tears and fraying edges should be mended professionally for best results and before too much delay. Tears and frays once started can progress quickly if neglected.

When a customer wishes to store her rug, it should be thoroughly vacuumed, both front and back. Then the carpet should be rolled with the pile facing in, wrapped in heavy brown paper and sealed with heavy gummed tape. It should be stored in a location where the heat and humidity are controlled.

GLOSSARY

Backing Material: Material that forms the back of the carpet, regardless of the type of construction. In the case of Wilton, the weave itself forms part of the backing. Backing can be kraftcord, jute, cotton or man-made fabric.

Binding: A strip sewed over a carpet edge for protection against unraveling.

Bleeding: Loss of color when wet due to improper dyeing or from the use of poor dyestuffs. Fabrics that bleed cause staining of white or light shade fabrics in contact with them while wet.

Blend: A combination of two or more fibers spun into a yarn or a fabric containing a mixture of two or more fibers or yarns.

Body: The compact, firm or full feel of a fabric.

Broadloom: Carpet woven wider than 27 inches, 36 inches or 54 inches--usually 6, 9, 12, 15, or 18 foot widths. "Broadloom" is not a type or weave of carpet. It is simply a designation of width.

Burling: A hand-tailoring operation after weaving to remove any knots and loose ends, to insert missing tufts of surface yarn and otherwise check the condition of the fabric. Also, a repair operation on worn or damaged carpet.

Continuous Filament: The yarn extruded from liquid form into a continuous length which is then texturized to create crimp, bulk, curl or other desired properties.

Crimp: (1) The waviness in fibers as in certain wools and other staple fibers.
(2) Also, curvature produced in warp or filling yarn by weaving.

Crocking: Excess coloring matter which rubs or chips off material because of improper penetration or fixation of the dyestuff.

Denier: The weight in grams of 9,000 meters of yarn is the denier. The lower the denier the finer the yarn.

Dimensional Stability: Tendency of a fabric to retain its shape and size after being subjected to wear, washing and dry cleaning. This stability may be brought about by the kinds of fiber used in the fabric, by chemical treatment, or by mechanical means. A "second backing" gives carpeting greater dimensional stability as well as other desirable qualities.

Dye Back: A large, coffin-shaped vat into which rolls of unlatexed carpet are submerged for piece dyeing.

Finishings: A final and sometimes special process through which fabrics are put in order to give them certain characteristics or appearances such as bleaching, scouring, calendering, embossing, napping, mercerizing, water-proofing, moth-proofing, etc., in preparation for the market or use.

Fluffing:- Lint and fuzz that appear on newly installed carpet which is merely the factory-sheared pile ends working their way to the surface, not the tufts or pile yarns themselves. This condition disappears as the carpet is used.

Frieze Yarn: A tightly twisted yarn that gives a rough, nubby appearance to the pile. In addition to use in plain colors, it is employed to form designs against plain grounds and thus gives an engraved effect.

Fuzzing: Refers to the hairy effect on some fabrics caused by broken fibers or filaments.

Greige Goods: Tufted carpet in roll form, undyed and unlatexed.

Grin: A term used to indicate the condition where the backing of the carpet shows between the rows of pile.

Hand: Term used to describe the feel or "handle" of rugs and carpets.

Heat-set: Stabilization of synthetic yarns or fabrics to insure no change in size or shape.

Lip: The chain and/or stuffer left on the edge of carpet after it has been cut.

Lustre: Shine or sheen of yarns, fiber or finished fabrics.

Monofilament: Yarn made of one filament.

Moresque: A special coloring or textural effect created by winding together in the spinning process single strands of yarn of different colors to form on yarn end.

Multifilament: Yarns with many fine continuous filaments or strands.

Nap: The pile on the surface of a web of fibers held together by suitable carpet or rug.

Non-Woven: A fabric made up of a chemical or fibrous bonding agents.

Padding: A cushioning material for installation under rugs and carpets, made of felted cattle hair, jute, wool and combinations of these, or of sponge or rubber and plastic foam.

Photo Electric Pattern: A pattern-producing device which transmits electronically a painted image or design from an acetate drum into the carpet fabric.

Pigment: An insoluble finely divided substance used to deluster or color yarns or fabrics.

Pile: The upright ends or loops that form the wearing surface of a carpet.

Pile Crush: Bending of pile by constant walking or the pressure of furniture.

Pilling: A condition in which strands of the yarn fiber separate and become knotted with other strands causing a rough, spotting appearance. Pills should never be pulled from carpet, but may be cut off with a sharp scissors at the pile surface.

Ply: In carpet yarns the number of strands of single yarn twisted together to form one yarn end.

Polymer: Molecular chain like structure from which synthetic fibers are derived; produced by linking together molecular units called monomers.

Pucking: A condition in a carpet seam, due to poor layout or unequal stretching, etc., wherein the carpet on one side of the seam is longer or shorter than on the other side causing the long side to wrinkle or develop a "pleated" effect.

Resilience: The ability of a carpet fabric or padding to spring back to its original shape or thickness after being crushed or walked upon.

Roving: A loose assemblage of fibers drawn or rubbed into a single strand with very little twist, an intermediate stage between sliver and yarn.

Scallops: The up and down uneven effect along the edge of carpet caused by indentations where tacks are driven.

Seconds: Fabrics, imperfect because of flaws in weave, finish or dyeing. Sold as "seconds."

Serging: Also known as "oversewing." This is a method of finishing the edge of carpet where it has been cut. It is customary to serge the side and bind the end.

Selvage: The edge of a carpet so finished that it will not ravel or require binding or hemming.

Set of Drop Match: In a setmatch carpet pattern, the figure matches straight across on each side of the narrow carpet width; in a drop match, the figure matches midway of the design; in a quarter-drop match, the figure matches one-quarter of the length of the repeat on the opposite side.

Shading: Crushing or bending of cut pile fibers so that reflected light from the side (rather than the top) gives the illusion of a light spot on the rug or carpet, the spot will appear dark. Shading is not a defect, but rather a characteristic of all cut pile fabrics, including upholstery materials and clothing or apparel fabrics.

Shearing: The process in manufacture in which the fabric is drawn under revolving cutting blades as in a lawn mower, in order to produce a smooth face on the fabric.

Sizing: Operation consisting of applying onto yarn starch, gelatin, oil, wax or any other suitable ingredient to aid the process of fabrication or to control fabric characteristics, e. g., crepe fabrics. Warp sizing is generally referred to as slashing.

Sliver: A loose, soft untwisted strand or rope of fibers.

Specific Gravity: Simple ratio of the weight of a given volume of the fiber to an equal volume of water taken as standard at stated temperature.

Spinning: The process by which fiber is converted from short lengths into long strands of yarn. A method of joining fiber ends.

Staple: A description of fibers in their natural state before being spun into yarns.

Swatch: Small piece of fabric used as a representative sample of any goods.

Texture: A surface effect obtained by using different heights of pile or two or more forms of yarn, or by alternating the round and cut pile wires, by "Brocade" engraving, simulated or actual carving or shaving with an electric razor or other special treatment of the design to give added interest beyond that provided by the woven design or tones.

Twist: In carpets, this refers to a frieze texture. In yarn, it means the number of turns imparted during spinning.

Taken from Home Furnishings Daily,
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TRENDS IN HOME FURNISHINGS
1969

"The consumer is queen in today's marketplace," according to Dr. George Capel, Head of Extension Economics for N. C. State University. Never before has the consumer been so studied or sought after.

Special attention is focused on home furnishings consumers. Since the furnishings industry ranks second in retail sales in the United States, it is intent on finding out exactly who is spending $10 billion a year to furnish their homes.

The findings of the All-Industry Research Study conducted in 1967 are making quite an impact on industry and educational programs. This study pointed up two basic facts.

(1) "Few consumers feel confident to make decisions about buying home furnishings. They appear confused by the huge selection of available items. Their lack of buying experience makes them unsure of how to determine quality and they lack the ability to visualize how items will look in the home.

(2) "Most home furnishings are bought by both husband and wife. Neither feels free to spend large sums without the other's approval."

Both findings indicate a real need for a consumer educational program in home furnishings on a decorative as well as a price basis. Many stores have added decorators to their staffs to supplement their sales forces to assist consumers with furnishings problems.

FURNITURE NEWS

Comments from all sources indicate the fall furniture market was a tremendous success. Orders for most items now exceed deliveries by two months or longer. The 1969 consumer will find furniture to suit his taste and pocketbook. Stylewise he can take his choice.

The so-called Early and Country styles are inspired by Colonial Chippendale, Queen Anne, Pennsylvania Dutch and Shaker furniture. Today's Mediterranean styles are derived from Spanish, Italian, French Renaissance and English Elizabethan periods. The French collection includes influences from Louis XIV, Louis XV, Louis XVI, including the provincial French and Venetian styles. Furniture in the English manner designed for today's living was inspired by Queen Anne, Chippendale, Adam, Hepplewhite and Sheraton of the 18th Century. The 19th Century Mix had their beginnings with French Directoire, French Empire, English Regency, Biedemeier, Victorian and Art Nouveau. The Modern groupings are contemporary designs of the 20th Century.

From all of these offerings, the Mediterranean emerged as the favorite at the fall market. In reality the Mediterranean is no one style but a blend of many with the Spanish perhaps the dominant influence.

It was interesting to note, also, a revival of interest in Victorian. Barbara Streisand's film version of "Hello Dolly" preceded by Jacqueline Kennedy's boost in refurbishing the White House no doubt have stirred the renewed interest. Traditionally, Victorian is done only in mahogany. On the contrary, many pieces at the fall market were painted.

Reminiscent of yesteryear were the gold beds and decorative trunks shown in several showrooms. This seems to have already prompted many homemakers to look around and think in terms of rejuvenating items of this type already on hand.

The jet age furniture involves a host of unconventional materials and processes. The plastics are no longer thought of as syntehtics or substitutes for wood, but have developed their own plus features. Manufacturers are now using molded components to produce the appearance of intricate hand-carved wood, delicate moldings and rich details formerly found in only expensive furniture. The strength and rigidity of the new plastic makes it adaptable for molded components such as drawer fronts, doors, panels, chair backs, mirror frames, headboards and cast posts. The possibility of chipping, scratching or denting has been almost eliminated.

Vinyl veneer is a super finish that provides the appearance and feel of wood with the protection of vinyl. It is created by a process in which fine woods are photographed and reproduced under a dix-mil vinyl film. The film is then laminated to a wood panel to form a finish surface that resists liquid spills, scratches, gouges and burns.

Plastics have great design versatility. They come in transparent, translucent and opaque forms. They can be molded, extruded or foamed into any shape. They promise to be the design medium of the future offering light weight, long wear and easy care.

Painted furniture has been around a long time but is enjoying quite a revival at the present time, both antiqued and the plain painted finish. Some experts indicate as high as 20 to 30 percent of the furniture being produced is in color. It is especially well received for youth groups. A beautifully designed painted piece is often used effectively as a decorative accent.

See-through furniture has gained wide acceptance since last year. Glass and plexiglass are teamed with metal, wood or sculptured forms to add a dash of excitement to tables and chairs.

However, wood is still the most used ingredient in the furniture industry. The number one choice of wood at the fall market was pecan with oak and walnut following close behind. The lighter finishes are still favored, but there are also many styles shown in the darker tones.

COLOR AS YOU LIKE IT

With the help of Faber Birren, well-known color research consultant, a new palette of colors is launched each year. While these colors are introduced through one nationally known magazine, they have their impact on the entire home furnishings industry.

There are really no new colors. However, color emphasis shifts from one color to another periodically. On the scene for 1969 are nine colors that promise to make exciting decorating. Three of them are bright hues: Kumquat, a yellow orange; Bittersweet, a red orange; Cranberry, a purple red. Another trio are dark neutrals: black walnut, green almond and midnight blue. A third group are pastels: camelia, blue haze and moss green. Yellow, clear and bitter, or warm and sunny, is the decorator's delight. Caramel, cream and black combinations abound as do charcoal and white teamed with warm rusts and butterscotch. Deep tones of reds, golds, blues and the ever-popular green often with strong black accents are used to accent the Mediterranean influence. Blue seems to be emerging as the color of the year.

CARPETS ARE EVERYWHERE

Homeowners are now walking softly in all parts of the home. Carpeting, no longer considered a luxury item just for the living and dining rooms, is being used everywhere--the kitchen, bathroom, basement and even the porch or patio.

Satisfaction in having a totally carpeted home depends upon choosing the right carpet for the wear it will receive. Those especially designed for the kitchen are tightly tufted with a low loop and level pattern. This provides a surface to hold the spills and clean easily. A high-density foam backing can also help muffle kitchen clatter as well as provide a comfortable, cushioned walking surface.

Where moisture problems are likely, both carpet and backing should be man-made fibers that resist rot and moisture absorption. The method of dyeing is important, too. There is greater resistance to loss of color if the fiber is solution dyed (color is imparted as fiber is spun).

Flocked carpet, originally designed for heavy traffic in commercial interiors, is finding its way into the busy areas of the home, such as: kitchens, hallways, stairs and family rooms. It doesn't have the soft hand or luxurious feel but does have great decorator possibilities.

Educators have learned that atmosphere radically affects learning and have accepted the carpet concept. "Designers realize that noise can be stopped at the floor...where much of it begins, and that ceilings, no longer needing acoustical materials, can accommodate improved lighting systems. The best news: school maintenance can be reduced as much as 50 percent with carpeting."

Prominent in this year's offerings are textured acrylic carpets with weather-resistant backings for outdoor use; greater styling of polypropylene; antron, an improved nylon which substantially reduces the tendency to rapid soiling; and increased production of the newest carpet--polyester.

In addition, a host of new designs and colors are available for the more traditional types of carpet. This all adds up to a wide selection engineered to fit special wear areas, selected to provide pattern and color to fit the decor and designed for noise absorption and esthetic appeal.

FABRICS SET THE STAGE

Whether used as upholstery, as window treatment, on the wall, for bedding or as an accessory item, the choice of fabric determines the success of any decorating

plan. Soil-resistant finishes and easy-care features for all types of fabrics now rate high in making selections.

The new polyester/cotton sheetings have enjoyed such tremendous success that every leading mill is now producing them. These sheetings are processed to have a minimum of wrinkling in use and the ability to come out of the dryer after home laundering with hardly a need for touch up.

The arrival of stretch fabrics is expected to bring about unprecedented freedom to rooms and furniture. It can be used to reshape space and will cling to every furniture curve as sleekly as a stocking. Machine-washability is another plus feature.

Fabrics made of Olefin fibers have taken on a great deal of refinement and style in the past years. These fabrics have built-in features that shrug off spots and stains. The fiber is mildew proof and non-allergenic.

The tweed and leather look are much in evidence. The greys, browns and blacks with the look of menswear in tweeds, subtle stripes and plaids are highly compatible with the sleek lines of contemporary furniture. The new vinyls, especially the imported Italian vinyls, have the soft feel of fine leather.

The soft look is reflected in suedes, velvets, corduroy and other plush or pile fabrics. The velvets, once fragile, are sturdy and durable, thanks to the new manmade fibers and special finishes. Thanks to a new treatment (Pentel) suede upholstery also repels soil and moisture.

Industry and education are helping to make the textile consumer's life easier Some companies now license their fibers or special processes only to those manufacturers who agree to follow approved manufacturing procedures. Products of these manufacturers carry special labels to assure the consumer that they meet performance requirements.

The federal government has done its share to help protect consumers with a series of rulings that include:

(1) Proper labeling of weighted silk and rayon as acetate fibers (1930).

(2) The Wool Products Labeling Act to prohibit misbranding of wool products (1939).

(3) The Flammable Fabrics Act designed to protect consumers from fabrics that burn quickly (1954) amended in 1967 to include home furnishings fabrics.

(4) The Textile Fiber Products Identification Act requiring that all fibers comprising more than 5 percent of fabric content be identified generically in a permanent attachment (1960).

THE AGE OF LIGHT

Last year's prediction about the new age of light is fast becoming a reality. Light, up until now only man's servant, is becoming a decorative element in its own right.

The unusual shapes, locations and materials are exciting and new. The lamps appear to be made almost entirely of light. Light is shown in furniture, in the floor, painting, sculpture--a form of art. Many new developments are forseen within the year.

WINDOW TREATMENTS

Windows, playing many roles, continue to command attention. Emphasis seems to be on selecting the treatments to individualize rooms and to contribute to the total decor. There are a variety of beautiful fabrics and styles available for use, but special emphasis seems to be on trims, over-treatments and the use of blinds and shades.

THE YOUTHFUL INFLUENCE

Youth is the greatest influence in design today. The youthful market under 30 encompasses young marrieds, first homes, first children, some well-off teenagers and the growing species of both male and female careerists.

Today's youth is mobile, receptive to the new in designs and materials. He is generally responsive to the boutique approach, the light touch, appreciates humor. He favors imaginative lighting effects; likes stackable, flexible, movable components; understands a good combination of function and design; prefers complete color freedom; responds to easy maintenance products and furniture that accommodates music and hobbies; and delights in anything-goes approach to accessories.

Youth is an attitude more than an age. Many youthful consumers may be on the other side of an arbitrary birth date.

According to the great intellectual, Goethe, "We see what we know." In order to grow one must become well informed.

(Since many counties now use the trends information for special interest groups, the leaflets will be available and a set of slides will be prepared as usual.)

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HEATING AND COOLING YOUR HOME

Human Comfort Requirements

You can have good heating and cooling in your home. First, however, you should have an understanding of your body needs for heating and cooling and the characteristics of good house heating and cooling.

Your body is the source of problems in heating and cooling. It constantly generates heat which is liberated to maintain a body temperature of 98.6°F. When in a sitting position at rest, your body generates about 400 BTU's of heat per hour, or approximately that produced by a 100-watt light bulb. When actively working or angry, your body may produce as much as 1200 BTU's of heat. One BTU (British thermal unit) is about the amount of heat produced by an old-fashioned wooden match.

Your body loses heat through the skin and through respiration. If it leaves the body too fast, you feel cold; if it leaves too slowly, you feel hot. In summer the problem is to keep the air cool around the body so that it will lose heat fast enough for comfort. In winter the problem is to keep the air warm enough for comfort. In planning good home heating and cooling, you must take into account the three main ways heat is lost from the body.

Heat is lost by the process of radiation known as radiant heat transfer. Your body always radiates heat to a colder surface. Radiant heat is the type of heat you feel if you hold your hand near a light bulb. Heat is always radiated from a warm to a colder surface. Radiant heat loss from the body can be controlled by keeping walls and windows warm or by adjusting the air temperature to compensate for heat lost to cold walls.

Body heat also escapes through the evaporation of moisture from the skin surface. In the evaporation of a liquid, heat is lost. Evaporation can be controlled by adding water vapor to the air in a house in winter. The greater the degree of saturation of the air with water, the less evaporation of moisture from the skin surface. In summer, moisture can be removed from the air which will result in greater evaporation of skin moisture.

Heat is lost by convection. Air moving around the body carries heat away or brings it to the body. Some heat is lost by conduction. For example, your feet will lose heat to a cold floor. Regulation of air temperature and rate of movement over the body will control convected heat, and warm floors will keep feet warm.

Body comfort is affected by air temperature, relative humidity, wall surface temperature, floor temperature, and air flow. Most healthy people working or slightly active, normally clothed, and in a uniform environment with air velocities of 25 feet per minute are thermally comfortable the year round when the air temperature is in the range of 71°F. to 77°F., and the relative humidity is in the range of 25 to 60 percent. For people working, the temperature needs to vary with the rate of work and type of clothing worn.

Your house has some human characteristics. It breathes when outside air comes in one side and goes out the other. This process is continuous unless the outside air is completely calm. Your house also "sweats" in cold weather when there is more moisture inside than outside. Moisture inside the house tries to escape to the outside. Often it will condense on cold surfaces inside the house. Your house loses heat in cold weather and gains heat from outdoor temperatures in summer.

All these house characteristics affect your comfort and your budget. All the heat lost in winter must be replaced, and heat that enters in summer must be removed. Condensation on walls and windows can be damaging to your house and furnishings. The degree to which you control these factors will determine your comfort as well as protect your house and furnishings.

Insulating the Home

The main purpose of house insulation is to provide resistance to the flow of heat--whether it is heat escaping from a house in winter or entering the house in summer and to maintain a desired temperature economically. Savings of around one-third of heating or cooling costs can be obtained in both summer and winter in a properly insulated home.

Insulation is a substance or material used to slow down the transfer of heat. Such materials are usually lightweight and are available in various forms--loose fill material, batts, blankets, or rigid.

Loose fill type insulation is most commonly used to insulate buildings already constructed. It is usually blown into the attic and sometimes into side walls. When used in side walls, careful attention must be given to fill all spaces and a moisture barrier should be provided on the inside wall. If a moisture barrier was not installed when the house was built, it may be best to leave the walls uninsulated or use a vapor-proof interior paint.

The loose fill type insulation needs to be carefully installed to eliminate as much settlement as possible.

The common materials used for loose fill insulation are glass wool, expanded vermiculite, treated wood shavings (fire resistant), and loose mineral wool.

Batt or blanket type insulation is normally used during initial construction. The batts or blankets can be fitted in between the studs or ceiling and floor joists to insulate the side walls, ceilings, and floors and securely fastened in place by stapling the paper tab along the inside face of the stud or joist. This eliminates any shifting or settlement. Both batts and rolls are available to fit between a 12", 16" or 24" joist or stud spacing.

The insulation batts or blankets are usually held together by an impervious asphalt-impregnated paper on one side, and either a permeable paper or no paper on the other side. The impregnated paper covering acts as a moisture barrier. Batt and blanket insulation with reflective covering on one or both surfaces is also available. If there is a moisture barrier on one side of the batt or blanket, it should be placed next to the warm side of the wall. Care should be taken to see that this barrier gives a complete seal and that all holes and tears are patched.

You can purchase batt or blanket insulation made from mineral or cellulose fiber. They are available in 1", 1½", 2", 3", 4", and 6" thicknesses. You should always check to determine exactly how many inches of insulation you are buying.

Rigid type insulation, commonly referred to as insulation boards, has many uses. Its rigidity and strength have advantages which the other types of insulation do not have. Some of the rigid type insulation boards are used on the outside of the studs in place of wood sheathing or inside of the studs in place of plaster.

Because of its rigidity, insulation board is more dense and less effective as an insulator than most batt or blanket types. It must not be assumed that because the home is constructed with insulation sheathing or an insulating board interior that it is fully insulated. The rigid boards will help, but will not give you the amount of protection against heat loss and gain that is usually needed.

Other types of rigid insulation are cork, cellular glass, and foamed plastic.

These type insulations are commonly used to insulate perimeter foundation walls, slab floors, and similar areas where batts or blankets are not practical.

To determine the location of the insulation, imagine the insulation as a blanket surrounding the living area of the home. This includes all areas that are to be heated in winter and cooled in summer. This means that side walls, ceilings, and floors should be insulated.

The best rule is to always keep the insulation directly between you and the area that is not to be heated or cooled. Remember the windows should have insulation in the form of weather stripping, double glazing, or storm windows.

In the winter, approximately 24 percent of the heat loss goes out through the side walls. About 30 percent goes through or around the doors and windows. Another 33 percent goes up through the ceiling.

A moisture barrier is an essential part of the insulation system. The reason for this can be explained by observing the condensation on the sides of a glass of ice water in a warm room. The moisture that condenses on the glass is present in the air in varying amounts at all times, and it needs only a cold surface on which to condense. If the walls of a home are not insulated, it is probable that they will become sufficiently cold during the winter to condense this moisture at some point within the wall or on the wall surface producing a damp, clammy, or "sweating" wall.

When walls are insulated, the inside surfaces are protected against excessive heat loss and are kept warm so there is no cold surface on which moisture can condense. The moisture vapor then penetrates the wall and works through all warm layers until it strikes something cold which in most cases is the sheathing or siding of the building. Condensation occurs. The result of this "in-the-wall condensation" is rotting of wood, insulation deterioration, paint blisters, and paint peeling on the exterior wall. These problems caused from condensation can be stopped by a properly installed moisture barrier.

Most batt and blanket insulations have an interior surface of water vapor impermeable material that blocks the moisture vapor from penetrating the wall.

It is often a good practice to cover the studs from the ceiling to the floor with 4 mil plastic, after the batt insulation is installed and before the dry inside wall is erected. This plastic layer forms a tight moisture barrier sealing all cracks and tears in the paper moisture barrier on the insulation batts.

The attic in your house must be vented if the insulation is to function properly. It is as important to provide ventilation in the attic in the winter as in the summer. Do not close the vents in the winter in an insulated house. Insulation will keep the heat in the house while the open vents let unwanted moisture vapor escape.

It is necessary to provide more than one vent opening. It is best to plan your openings so that cross ventilation will occur.

The ratio of square feet of vent area to square feet of insulated area recommended is: one square foot of net free vent area for each 150 square feet of floor space.

Crawl space ventilation is as necessary in winter as it is in summer. Do not close all vents in winter. If it is necessary to close part of the vents to avoid pipe freezing, close all the vents except one on the north and west sides leaving all the vents open on the south and east sides.

Tha ratio of square feet of vent area to the square feet of crawl space area is one square foot of net vent area for each 150 square feet of crawl space.

It is recommended that a ground moisture seal (normally 4 mil plastic) be placed over the bare earth to assist in keeping the crawl space humidity at a safe level.

The purpose of housing insulation is to provide resistance to the flow of heat--the more the resistance the less heat lost. The recommended amount of resistance in a home is: Ceiling--R-19; Wall-R-11, and Floor--R-13. The greater the "R" value the greater the insulating value. In certain applications more insulation is needed than those recommendations listed here.

Most insulation materials have the "R" number printed on the moisture barrier or on the outside wrapping of the package. This "R" number indicates the installed resistance if installed according to the manufacturer's recommendations. It has taken into account the thickness, density, and the part of the house in which the insulation is to be installed.

Heating Systems

In pioneer days, fireplaces were used as primary sources of heat. Fireplaces are still being built in houses today, but they are not generally the only means of heating even a single room. Fireplaces are not an economical means of heating. At best, they are only about 15% efficient. However, a well-designed fireplace can: (1) provide supplemental heat, (2) enhance the appearance and comfort of a room, (3) provide emergency heat when furnace fails.

Dampers should always be installed in fireplaces. A damper consists of a cast-iron frame with hinged lid that opens or closes to vary the fireplace throat opening. This provides a means of regulating the draft and closing the flue to prevent loss of heat from the room when there is no fire in the fireplace.

Home heating systems may be classified in two general categories. First, the area units: with this type, the heating unit is installed in the room or area to be heated. Ducts and pipes are not used. The units used are stoves, circulator heaters, floor furnaces, and portable electric heaters. The first cost of these units is comparatively low, but they cannot be classified as

economical and efficient home heating systems.

With proper arrangement of rooms in a small house, the ductless heating units may do a fair job of heating 4 or 5 rooms. The distance from the heater to the center of each room to be heated should not be more than 18 feet.

The second general method of home heating is by a central system. In this case, the heat is produced by one unit installed in either a basement, utility room, or crawl space and then distributed throughout the house through pipes or ducts. Practically all central heating systems, which have a furnace as the source of heat, are either forced hot water systems, forced hot air systems, or a combination of the two.

Forced circulating warm air systems are more popular today. These systems use a fan to circulate air through ducts to the rooms. This system can provide heating, ventilation, air circulation, air cleaning, humidification, and air cooling, with little or no change in the systems themselves. They may use one of three kinds of furnaces--conventional upflow, downflow, or horizontal. All of them use pipes or ducts to distribute warm air to the rooms and return cold air from them.

Warm air is supplied by the ducts to warm air registers placed in or near outside walls.

Return air registers may be in the wall, floor or ceiling. Overhead type air distribution is sometimes used in one-story, basementless houses, and sometimes furnaces are installed in the attics. Forced hot air systems can be oil fired, gas fired, or have electric resistance heating elements.

Up-flow furnaces discharge warm air from the top. They are usually installed in a basement or on the first floor of a house without a basement.

Down-flow furnaces discharge warm air at the bottom and take in cool air at the top. They are for houses without a basement or for houses with concrete slab floors on grade.

Horizontal furnaces lie on their sides. The cold return air enters at one end, and warm air is discharged from the other. They can be used in the crawl space with warm air registers in the floor. They can also be installed in the attic to supply warm air to registers at the floor or ceiling.

Advantages of forced warm air:

(1) Possibility of positively providing fresh air through the heating system.
(2) Filtering air.
(3) Humidification or moisturizing may be easily incorporated into the system.
(4) Air conditioning may be easily and economically included as part of the same system.
(5) Installation cost is usually attractive.

Disadvantages of forced warm air:

(1) Competitive pricing and poorly trained mechincis may result in poor installation.
(2) Some noise is associated.

(3) Ducts and registers can be a nuisance.
(4) Mechanical failures are not uncommon.
(5) At least one service annually is recommended.

Forced hot water systems require use of a boiler instead of a furnace. Boilers are made of cast iron or steel and are designed for burning different fuels. A small circulating pump aids the movement of water so that temperature changes in the house are faster.

Radiators or convectors distribute heat in the rooms. Radiators are usually located under windows. Painting radiators with metallic paint such as aluminum makes them less effective. Baseboard radiators or baseboard convectors are designed to look like a baseboard. They heat a room uniformly with little difference in temperature between floor and ceiling. Baseboard convectors are popular in residential heating today.

With heating coils installed in the boiler, year round domestic hot water is available.

Advantages of forced hot water systems:

(1) No possibility of drafts since air circulation is not forced.
(2) High degree of comfort: Units produce quality radiant heat, draftless.
(3) Ease of pipe installation and concealment in basements, attics, walls
(4) By using a number of thermostats and circulating pumps, the house may be zoned for area temperature differences.
(5) Possibility of year-round faucet hot water by using tankless coil.
(6) Most system components have very long life.
(7) No forced room-to-room air circulation.

Disadvantages of forced hot water systems:

(1) Usually more expensive to install than hot air.
(2) Possibility of water leaks.
(3) Air conditioning added will be more expensive than with hot air systems.
(4) More difficult to add humidification.
(5) No forced air movement to facilitate air filtration.
(6) Yearly service is recommended.

Electric heating is the latest development in house heating systems or methods. Most installations employ some type of electric resistance elements.

There are several types of electric resistance heaters, including radiant wall panels, cable in the ceiling, and baseboard.

Resistance ceiling heat is popular because of ease of installation and low cost. It provides a large warm area from which heat radiates to the rest of the room.

Electric baseboard heaters, like hot water baseboard units, are characterized by their long, low, and narrow physical dimensions. They are usually installed at the base of outside walls and under windows. In most convection-resistance baseboard units, the cool air enters the heater at the bottom, is heated by the electric element, rises and leaves the unit at the top. Most of the heat is delivered by convection rather than radiation.

Another type of electric heating requires a heat pump, which is just the reverse of a large refrigerator. This system provides heat mainly by taking heat from the outside air and discharging this heat into a duct system like that of a warm air furnace. It also uses all of the heat that is given off by the motors and compressor. In addition, it may have supplemental resistance heating coils that function in severe weather. This system automatically changes itself for cooling.

Advantages of electric resistance heating:

(1) High efficiency.
(2) Comparatively low installation cost.
(3) Clean and noiseless.
(4) Low maintenance.
(5) Flexible--individual room controls.
(6) Provides more freedom in house design and furnishings arrangement.
(7) Safe and odorless.

Disadvantages of electric resistance heating:

(1) Requires extra insulation.
(2) Some types are very difficult to install in existing homes.
(3) With radiant ceiling panel, there may be cold spots under tables and desks.
(4) Fresh air infiltration and circulation are at a minimum.

Automatic controls serve around the clock to operate your heating and cooling system for economy and comfort.

A gas burner has a small flame, or pilot light, that burns continuously. It lights the gas when the valve is open. If the pilot light goes out the safety control will cut off the gas inlet valve.

In an oil burner operation there is no flame except when the thermostat calls for heat. When heat is called for, the oil burner immediately delivers a mixture of oil and air that is ignited instantly by a heavy electric spark. Controls on the burner function to cut off the oil flow if the fuel fails to ignite within a specified number of seconds.

The thermostat is your messenger that cares for heating or cooling. When you set the dial, the thermostat will regulate the temperature so evenly that you will not notice any change in temperature. Large houses may need more than one thermostat, or zoning, to maintain desired temperature levels. Install your thermostat on an inside wall in the most lived-in-room. If possible, put it on an inside wall about 18 inches from the outside wall, about 4 feet above the floor. No heat-producing equipment should be within 3 feet of the thermostat.

It is just as desirable to have a comfortable home during the hot summer months as it is during the winter. This is accomplished in varying degrees by three general methods. These are: (1) keeping the summer heat out of the house as much as possible, (2) removing heat which is absorbed and trapped in the house, (3) use of mechanical air conditioning equipment.

Keeping heat out of the house is an important step toward summer comfort. If the sun's rays can be kept off the walls, glass areas, and the roof, and if the hot outdoor air penetration can be limited, the inside temperature can be held in check.

When possible, houses should be designed and located to keep the summer sun out, and yet allow the winter sun to shine in. Fundamentally, this means the use of wide roof overhang, and locating most of the large glassed areas on the south side so that when the sun is directly above in summer, it will not shine directly on the glassed areas. On the other hand, when the sun is low in the southern sky in winter, it will shine on the large windows and make the house more comfortable.

Various shading devices such as awnings, blinds, louvertype screens, and shade trees on the east, south and west sides of the house are effective means of comtrolling the sun rays.

The fact that light colors reflect solar heat should be remembered when choosing building material such as roofing and siding, and when choosing such things as shades, venetian blinds, and drapes for use inside the house.

If heat does get into the house, the problem becomes one of removing the hot air through natural or forced ventilation when the outdoor air is relatively cooler.

Because air continues to flow within the rooms in the same direction as it enters, the placement of the ventilation openings is very important. The most effective air movement is obtained when ventilation openings are on opposite walls and the air flows across the room at the "breathing" level or within the height of human occupancy.

By operating fans--either attic or window--during the night, larger quantities of cooler night air can be circulated through the house, and the indoor temperature can be decreased more rapidly.

Where the house cannot be made comfortable by design, ventilation, and orientation, some type of air conditioning may be used. A summer air conditioner of the refrigeration type performs four basic functions. It cools, dehumidifies, cleans, and circulates conditioned air in the enclosed space, room, or zone.

There are two general types of refrigeration air conditioners. These are the window and through-the-wall units, and the central air conditioning systems.

In climates with low relative humidity evaporative coolers are often used. Here, heat in the air is used to evaporate water thus causing a lower air temperature.

Some features of window and through-the-wall units are:

(1) Models are available for double-hung, casement, and awning type windows, or can be installed through the wall.
(2) Window units are easily installed. Some carpentry work is required to install through-the-wall conditioners in existing homes.
(3) Can be used by persons renting apartments and homes who cannot justify making permanent improvements.
(4) Window units do not require ducts and are readily portable.
(5) If the space being cooled is too large, the circulating fan on the unit may not provide even distribution of the cool air throughout the area.
(6) Use of multiple units provides desired temperature control in various rooms.

Some features of the central air conditioning system are:

(1) Cools and dehumidifies living space throughout the house.
(2) An air distribution system is necessary to move the cooled, dehumidified air to all parts of the house.
(3) With some heating systems a central air conditioning installation can utilize the same air ducts as the furnace.
(4) The air conditioner can be located in the basement, utility room, crawl space, attic, or any other adequate space, depending on the construction, size, and arrangement of the house.

In this lesson an attempt has been made to point out in general terms the human comfort requirements, the need and use of heat-retardant materials--insulation, the types of heating systems and their advantages and disadvantages, and some basic mehtods of house cooling. While each topic covered can be greatly expanded for complete understanding, it is hoped that you have been given a basic understanding of methods of home heating and cooling.

Script prepared by the Housing Section of the Southern Region Plan Exchange Committee, composed of Cecil Wheary, Extension Agricultural Engineer, Virginia Polytechnic Institute, Chairman; Dr. Kathryn Philson, Home Economist from Virginia Polytechnic Institute; and Woodley Warrick, Extension Agricultural Engineer from North Carolina State University. December 1966.

North Carolina Agricultural Extension Service and U. S. Department of Agriculture, Cooperating, North Carolina State University at Raleigh, Raleigh, N. C. 27607 September 1968

INT. BLDG. MATS.

INTERIOR BUILDING MATERIALS

Today there are many interior building materials from which to choose. The type material selected should be determined by the home owner. There are materials in price ranges which are suitable for houses of all costs.

When you begin planning to build or remodel a house, you are confronted with many decisions regarding selection of building materials for the interior as well as the exterior of the house. These decisions should be those of the home owner because the material and finish will give the personal feeling desired by the family.

Some important areas for which you will need to make early decisions are the walls, floors, ceilings, counter tops, etc. The wide choice of materials for each area can be confusing if you do not have some understanding of the materials available and the serviceability of each.

Some materials are more suitable than others for certain activities of your family. The living area, working areas, sleeping and bathing areas need special materials which are suitable for the activities to be performed in each.

If you study the different types of materials and consider their cost, durability, and suitability, together with appearance, usually it is not too difficult to decide on a material and finish best suited for a specific use.

Cost is often the limiting factor. If so, there is a wide range in prices of various materials. Often an inexpensive material, if properly installed and finished, will look attractive and will give satisfactory service. The cheapest material, however, may not be the least expensive over a period of years. The initial cost, the cost of installation, and the number of years that the material will give satisfactory service are the main items in figuring the cost of building materials.

WALL MATERIALS

Let's consider the walls and ceilings for the various areas of the house. Dry-wall construction is the most popular wall finish being used today.

Plasterboard

Gypsum board--sometimes called plasterboard--is a widely used material for walls and ceiling finishes.

This is a material made of preformed plaster bonded between two layers of heavy paper. Gypsum board is available in 3/8-, 1/2-, or 5/8-inch thickness in 4 x 8-foot or larger sheets. The cost is low as compared with other wall materials. Gypsum board is non-combustible.

One occasional defect of plasterboard construction is that nails may pop. This is most often caused by improper moisture content of the studs. Also, for a long time home builders did not know how to do a good job concealing the joints and nails. This problem has caused the material to be objectionable to many home owners.

Today we have new compounds to fill the joints and cover the nails, special tapes are available, and new methods are used. Workmen have become better trained and the finished jobs are much superior to old methods. Manufacturing companies are anxious to have satisfied customers, so they have sponsored training schools to teach workmen the correct installation methods. It pays to get a trained person to do the work. He will have the tools and the "know-how" to save time as well as produce a better finished job.

A method known as lamination is used to install plasterboard in the more expensive jobs. One layer is nailed to the studs. Sheets are installed in vertical position.

A second layer of board is glued to the first layer. The sheets are applied with the seams running horizontally. The seams are then taped and sanded. There are no nail heads to be covered.

Gypsum board is suitable for all inside walls except in the very high-moisture areas. It is also used for ceilings in all areas of the home.

Gypsum board can be finished with either an oil or latex paint. Wallpaper can also be applied if desired. Lovely rooms in low-, medium-, and high-priced homes are finished with plasterboard.

Prefinished gypsum board is available in a variety of finishes and textures. It is made to look like wood paneling by the application of paper in a number of wood finishes, such as mahogany, walnut, or pine. Vinyl-surfaced gypsum wallboard, washable with soap and water, is also available in several colors.

Fiberboard

A very inexpensive wallboard is a cellulose fiberboard often called "Celotex." Fiberboard is not very strong, but it may sometimes be used over old walls. Prefinished fiberboard is available in limited colors.

Fiberboard is made in square and rectangular tiles, commonly called "ceiling tiles." These tiles may be painted and used in any area of the house.

Acoustical tiles are also made of fiberboard material. Small perforations in circular or irregular shapes made into the tile boards absorb up to 70 percent of the noise that enters. Acoustical tiles may be purchased in the same finishes as the plain fiberboard tiles. Acoustical ceiling tiles are suitable for family rooms, living areas, or recreation areas.

Hardboard

Another wallboard which is not too expensive is hardboard. This is a material made from wood fibers bonded together with an adhesive material under high pressure. It is commonly referred to by the trade name "Masonite." It is available in 48-inch sheets in natural color, dark brown, and light tones. It is also available in a prefinished, simulated wood grain.

Tempered hardboard is quite moisture-proof and can be painted. It is suitable for use in any room and is resistant to moisture.

A variation of the hardboard is achieved by addition of perforations in interesting arrangements. Commercial hooks are available to fit the perforations. This type board is useful for storage areas in children's rooms, workrooms, or storage closets. It may be purchased prefinished or painted any desired color.

Plastic-finished hardboard (trade names--Marlite, AFCO, etc.) is available in plain colors, tile patterns, wood grain, and marbelized patterns. This is especially good in areas where moisture or grease is a problem, such as the kitchen and bathroom.

Wood Paneling

Living can be made so much easier and more pleasant by using wall finishes which last a lifetime and need little or no care for years and years. Wood panel walls, if chosen, will always be in good taste and always in style because naturally beautiful wood is ageless. Wood panels are easily installed--you may even be able to do it yourself!

You have a wide choice of natural colors, grain patterns, and textures stocked by lumber dealers in many standard shapes and sizes and in different price ranges.

Solid Wood Paneling. This comes in a number of ways and in a large variety of woods. Some popular kinds of paneling on the market today include pine, cypress, gum, oak, willow, birch, poplar, and redwood. Other hardwoods, such as cherry, walnut, and pecan, are available in solid wood but are very expensive.

Plywood Paneling. This is extremely popular at the present time. Numerous companies manufacture it in a large variety of woods and in different panel sizes and thicknesses.

Prefinished plywoods are very popular and economical. Labor is so high in most areas that the cost of prefinished plywood is many times lower than the unfinished plus the cost of finishing. The panels may be smooth or V-grooved.

Plywood, either unfinished or prefinished, is one of the most popular wall and cabinet materials being used today. Both hard woods and soft woods are used in making plywood. Being a structural material, plywood can be used to equal advantage in new homes and old ones.

The wood face of plywood is made of many woods and various finishes. The face may be elm, mahogany, oak, birch, pine, walnut, or others. There are over 25 woods or finishes used on prefinished plywoods. The price will vary with the wood.

Interesting textured finishes are also available in finished or unfinished plywoods. Textured finishes are available in striated, combed, sea-swirl, surface-wood, and surf-plank patterns.

When you use paneling, you need to select the doors and wood trim to match. Some companies make a trim to match the prefinished plywood. It will be more expensive and the design choice may not suit you, but there is a large selection from which to choose.

If the prefinished trims are not available, you will find a large range of color stains to choose from. With some care these can be mixed and a finish to match any hardwood may be developed.

Plastic Laminates

Plastic laminates are rigid sheets, such as formica, panelyte, consoweld, and others. It is available in a wide range of solid colors and marbelized or wood grain patterns.

For surfaces where beauty must be combined with extra resistance to hard wear, plastic laminate surfacing is especially suitable and inexpensive. It is made in many handsome colors and patterns. Laminated plastic is available in panels mounted on 4 x 8-foot plywood. This is easily installed as wall covering. Instructions for sawing, drilling, and working with laminated panels should be obtained from the dealer who stocks the material. This is suitable for areas of a great deal of soil, moisture, or grease.

Laminated plastic is unequalled as tops for kitchen counters and bathroom cabinets, as well as cabinet tops for all other areas of the house.

Glass

Glass is used as structural as well as a decorative part of the house. In interior wall finishes built-in mirrors are used to good effect; glass block is frequently featured; large picture windows or sliding doors, outside walls, and interior partitions with open-beam or sloping ceiling above the 8-foot level account for increasing use of glass in modern construction.

Fiberglass

Fiberglass in both translucent and opaque panels is available. This is made with corrugated or flat surface in a large variety of colors. It is used for walls, room dividers, and luminous ceilings, shower and tub enclosures, etc.

Plaster

Wet-wall (plaster) construction has decreased in popularity in many areas. This is due to the growing popularity of dry-wall construction. However, wet-wall construction may be desired by some families. New methods and materials make this process much faster. Metal and gypsum board have replaced wood laths, and new methods of applying plaster are being used.

Plaster may be finished with a smooth or rough texture and painted or papared.

Concrete Blocks

Very expensive and attractive houses are built using blocks for interior walls. Attractive designs can be worked out to fit the family needs as well as the aesthetic values desired in the house.

Blocks are made in several soft colors and different sizes and shapes. Laying blocks requires skill. We have seen so many poorly done jobs in cheap houses that we often associate poor workmanship with block houses.

If the workmanship is good, the block house can be very attractive inside as well as outside. The blocks may be exposed for inside finish, or the interior walls may be furred and covered with plasterboard or plywood. Two important things needed are good workmanship and interesting architectural design.

Brick

Brick is rather inexpensive in many areas. Often we use brick for interior walls or areas of accent. Brick is available in many colors and textures. It is important to consider texture and color of brick as you plan interior decor.

Stone

Stone is also used for interior walls. The cost of stone will depend on the availability. The labor required to cut and fit stone often makes this an expensive material. However, very interesting effects are created with stone.

Ceramic Tile

Ceramic tile is a very durable and practical wall and floor surfacing material. It is easy to clean and never dents, stains or fades. Tiles are made in many colors, varied sizes, and new textures. Ceramic tile is water- and grease-proof and is recommended for bathrooms, kitchens, and other rooms where moisture is a problem. Ceramic tile is expensive but one of the most durable materials. Sometimes it is used for counter tops.

FLOOR MATERIALS

Wood

Hardwood floors are one of the oldest materials used for floors. Red oak and white oak are the most used hard woods. It is durable and easy to keep if a good finishing job is done. In many areas good oak floors can be installed and finished for 45¢ a square foot. We find oak floors used in all price houses. Other woods such as pine, cherry, pecan, and walnut, may be used. Prefinished hardwood flooring is also available, usually at a higher price.

Resilient Floor Coverings

Resilient floor coverings are available in many materials and at various prices. Vinyl, vinyl-asbestos, rubber, asphalt, linoleum, and other materials are used. These may be installed over old floors or new floors. A smooth surface is required for a good job. There is a wide range of color and patterns in each material. Careful study of the characteristics of each should be made before a selection is decided upon.

Brick

Sometimes bricks are used for floors. They create an informal atmosphere and are easy to care for if properly installed and finished. Bricks are porous and absorb grease and soil unless a hard finish is applied to the surface to seal the open pores.

Terra Cotta

Terra cotta, or colored concrete, is also sometimes used for flooring in some areas of the house. These may be installed in squares or rectangles or as broken tiles. Terra cotta tiles are made in glazed and unglazed finishes.

Flagstone

Flagstone is another stone being used for interior flooring materials. It makes a very interesting floor for the foyer or family room. Stones are often used on the outside in the patio area and the same material carried into the adjoining inside area. Flagstones may be cut in square or rectangular shapes or installed in irregular shapes.

Terrazzo

Terrazzo is a very popular flooring material in many areas. It will last a lifetime and requires little care. This is very good for the home built with a concrete slab type construction or for basement rooms. Colors will vary and sizes of stones will vary. Black, brown, beige, white, and mixed colors are available.

Seamless Covering

A seamless floor covering of liquid glaze and colored chips is used to cover old or new floors of wood or concrete. The materials are troweled on by factory-trained installers. "Torgnal" is a trade name for one company's product. The finish can be applied to exterior as well as interior areas. It has been used on floors, walls, and counter tops. It is recommended as being extremely tough, not attacked by most acids, alkalies, or solvents. The seamless flooring will not collect dirt, moisture, or germs and will resist wear and abrasion.

Today the builder has a wide choice of interior building mateirals. New materials are being developed and are being made of older materials. It is easy for taste to go astray in combining these materials.

Prepared by Charlotte Womble, Housing & House Furnishings Specialist, N. C. Agricultural Extension Service and U. S. Department of Agriculture, Cooperating, N. C. State University at Raleigh, Raleigh, N. C. 27607. Sept. 1968

(For Agents)

HOUSING: FOLIAGE PLANTS FOR INTERIORS

Concept:

Green plants add interest and color to the interior of the home. Plants should be selected carefully and given proper care in order to create the desired effect in home decorating.

Teaching Objective:

To create an appreciation for plants as decorative material for the interior of the home.

Use of Materials:

This program is suggested for special interest groups or for clubs. We suggest that the film be used for consolidated club meetings rather than for individual clubs in order to facilitate the scheduling for all counties.

Supporting Teaching Aids:

Film: "Foliage Plants for Interiors." A 30-minute film which is beautiful as well as informative. It explains care of plants and their use in the home. The film was prepared by Rutgers - the State University of New Jersey, and it is available from the N. C. State University Visual Aids Department.

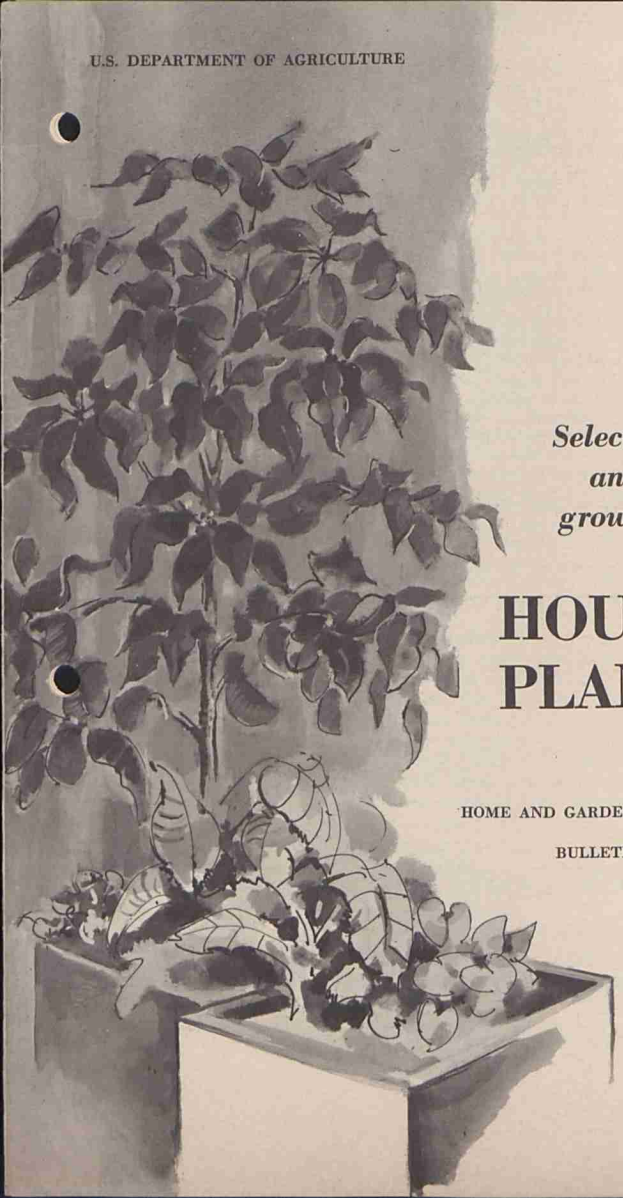
References:

1. "Selecting and Growing House Plants," Home and Garden Bulletin No. 82 (one copy free. Additional copies 10¢ each)

2. "Indoor Gardens for Decorative Plants," Home and Garden Bulletin No. 133 (one copy free. Additional copies 10¢ each)

Both bulletins available from the Superintendent of Documents, Washington, D. C. 20402

U.S. DEPARTMENT OF AGRICULTURE



Selecting and growing

HOUSE PLANTS

HOME AND GARDEN

BULLETIN NO. 82

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Selecting and growing HOUSE PLANTS

By HENRY M. CATHEY, *Crops Research Division, Agricultural Research Service*

Success in growing decorative plants in the home probably depends as much on good judgment in selecting the plants as on skill in caring for them.

First, decide why you want house plants. Do you want them only for use as decorative accessories? Or are you interested in growing and tending the plants as well as in displaying them?

If you want plants only as decorative accessories, buy them for their appearance. Get healthy, well-formed plants that are near the size that you need for decorative effect. Water the plants regularly until their appearance becomes

Terms Used in Descriptions of House-Plant Culture

Cool temperatures.—Temperature range during winter on a window sill in an unheated room—40° to 45° at night, 55° to 60° on sunny days, and 50° on cloudy days.

Dim light.—Lighting intensity of room interior away from windows.

Full sun.—Sunlight unbroken by curtains or frosted glass. South windows have full sun for the longest period during the day.

High humidity.—Atmosphere saturated with moisture. Attainable only in a greenhouse or terrarium (see p. 29).

Humus.—Pure sphagnum moss, firbark, or osmunda fiber.

Humus soil.—Mixture of 3 parts humus and 1 part coarse sand.

Indirect sunlight.—Sunlight diffused by a lightweight curtain placed between the sun and the plant.

Low humidity.—Normal humidity in a heated or air-conditioned house—40 to 50 percent relative humidity.

Medium humidity.—Relative humidity of about 70 percent (see p. 22).

Moderate temperatures.—Winter range of temperatures on the window sill of a normally heated room—50° to 55° at night, 70° on sunny days, and 60° on cloudy days.

Potting mixture.—Equal parts of garden soil and organic matter—peat moss or shredded sphagnum moss—with 1 level teaspoon of 20-percent superphosphate added per quart of mixture.

Subdued daylight.—Daylight with no direct sun; light from a north window.

Warm temperatures.—65° at night and 80° to 85° during the day. Supplemental heaters usually are needed to provide warm temperatures.

unsatisfactory, then replace them with new plants.

If you are interested in growing house plants and keeping them in good condition year after year, you must next decide how much attention you can give them. Are you able, or willing, to adapt some part of your home to the needs of the house plants? Or would you rather restrict your choice of plants to those that tolerate an environment that is comfortable to human inhabitants? This last course of action is probably the wisest.

Many house plants will survive under adverse household conditions. For best results, however, supply the environment—light, temperature, and humidity—that is recommended for each plant.

FOLIAGE PLANTS

AGLAONEMA

Description.—Chinese evergreen, the commonest member of this group that is used as a house plant, has dark-green leaves growing at the end of canelike stems. This plant will flourish for years in the dark part of a room and requires a minimum of care.

Culture.—Grow in water (see "Water Culture," p. 26) or in humus soil. If grown in humus soil, keep the soil moist. Grow in warm atmosphere with low humidity and subdued daylight.

Special requirements.—When stems of Chinese evergreen become too long, cut off the tops and reroot them (see "Propagation," p. 28).

ANTHURIUM

Description.—Some anthuriums are grown for their long-lasting cut flowers, others for their foliage. *A. andreanum* has brilliant red, white, coral, or pink flowers that look like patent leather. *A. crystalinum* has leaves that are velvety green with silver veins; its flowers are inconspicuous.

Anthuriums. Left, *A. andreanum*; right, *A. crystalinum.*

Culture.—Pot in humus soil; keep the soil moist. Keep the plant warm—60° minimum temperature at night. Grow in indirect sunlight or subdued daylight. Provide high humidity.

Special requirements.—Add fertilizer to water only once a month.

Anthuriums produce aerial roots below the base of each leaf. Wrap these aerial roots with sphagnum moss and keep the moss damp.

APHELANDRA

Description.—*Aphelandra squarrosa* is a small shrub with large, elliptic leaves. It tolerates dim light but grows best in indirect sunlight.

Culture.—Plant in humus soil; keep the soil moist. Grow in indirect sunlight, warm temperatures, and low humidity.

ARAUCARIA

Description.—Branches of the Norfolk Island Pine (*Araucaria excelsa*) are borne in symmetrical

tiers. This formal symmetry makes Norfolk Island pine valuable as a decorative plant.

Culture.—Plant in humus soil; keep the soil moist. Grow in indirect sunlight, moderate temperatures, and low humidity.

Special requirements.—This plant needs sufficient light to prevent irregular growth. If the plant grows too tall, air-layer the top (see p. 28).

ASPIDISTRA

Description.—Aspidistra will endure heat, dust, darkness, and lack of water better than most other house plants. When it is well cared for, it produces a mass of broad, glossy green leaves and bears flowers close to the ground.

Culture.—Plant in potting soil; keep the soil moist. Grow in shade or subdued daylight, moderate temperature, and medium humidity.

BEGONIA

Description.—*Begonia rex*, grown for its foliage, has large, thick leaves that are shaped and marked irregularly.

Culture.—Plant in humus soil; keep the soil moist. Grow in indirect sunlight, warm temperatures, and medium to high humidity.

Special requirements.—During the summer, grow begonia plants in a bright window out of direct sun, or on a shady porch, or bury the pots up to the rims in the ground in partial shade.

For information on flowering begonias, see p. 18.

BROMELIADS

Description.—The bromeliads (*Bromelia*, *Aechmea*, *Cryptanthus*, *Neoregelia*, and *Vriesia*) are the most adaptable of all foliage plants. Their leaves hold water and the plants grow well under dry indoor conditions in light or shade.

When the plants are mature, a brilliantly colored flower spike grows from beneath the pool of water in the center of the plant. The flower spike lasts for several months.

Culture.—Plant in humus soil; keep the soil moist. Grow in full sun, warm temperatures, and medium humidity.

Begonias. Left to right: *B. semperflorens*, *B. rex*, and *B. metallica*.

Bromeliads. Left, *Aechmea chantinii;* center top, *Vriesia carinata;* center bottom, *Cryptanthus zonatus;* right, *Neoregelia* hybrid.

Left to right: Bromeliad (*Cryptanthus zonatus*), Peperomia (*P. floridii*), and Bromeliad (*Bromelia serra*).

Special requirements.—Keep the center of the plants filled with water. Occasionally spray the leaves with water to remove the dust. Propagate from lateral shoots that grow from the main plant after the flower withers.

CALADIUM

Description.—Caladiums grow during the spring and summer and are dormant during the winter. The leaves of caladium are large and arrow shaped. Some kinds have pink leaves, some have red leaves, some have variegated leaves.

Culture.—Plant in humus soil; keep the soil moist. Grow in indirect sunlight and normal summer temperatures and humidities.

Special requirements.—Pot tubers in the spring, At the end of summer, gradually prolong the periods between waterings until the plants become dormant. Then store the tubers, without removing them from the soil, in a cool place (about 60°). The next spring, repot the tubers and resume watering. Avoid overwatering; caladiums rot easily.

CALATHEA

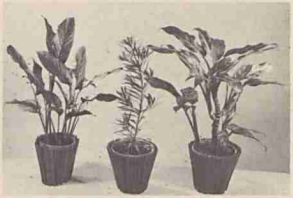
Culture.—Pot in humus soil; keep the soil moist. Grow in indirect sunlight or shade, warm temperatures, and high humidity.

CHINESE EVERGREEN

See Aglaonema.

CODIAEUM (Croton)

Description.—Crotons are gaudy tropical shrubs with tough, ever-



Left to right: *Calathea ornata, Podocarpus macrophylla,* and *Aglaonema commutatus.*

green leaves. The leaves are variously shaped and marked with patterns of yellow, scarlet, green, white, and pink.

Culture.—Plant in potting soil; keep the soil moist. Grow in bright sun, warm temperatures, and medium humidity.

Special requirements.—As croton plants grow old, the lower leaves fall leaving the trunk bare. The top can be air layered to form new roots, then cut from the old trunk and potted as a new plant.

COLEUS

Description.—Coleus plants are available having a wide range of foliage colors and patterns. Coleus thrives in a warm atmosphere. It needs plenty of sunshine and moisture, but will survive chilling or overwatering.

Culture.—Plant in regular potting soil; keep the soil moist. Grow in full sun, warm temperatures, and medium humidity.

Special requirements.—Remove tips of the plants frequently to induce branching. Propagate from seeds or from cuttings rooted in water (see p. 28).

Left to right: ***Coleus blumei, Dracaena sanderiana,*** **and** ***Iresine herbstii.***

DIEFFENBACHIA (Dumb Cane)

Description.—Dieffenbachia, one of the most spectacular of the house plants, is grown for its large, variegated foliage. *Diffenbachia amoena* has dark green leaves with white markings along the veins. *D. picta* variety Rudolph Roehrs has yellow-green leaf blades that are blotched with ivory and edged in green. *D. amoena* withstands lower temperatures than *D. picta.*

Culture.—Plant in regular potting soil; allow the soil to dry moderately between waterings. Grow in indirect sunlight, warm temperatures, and low humidity.

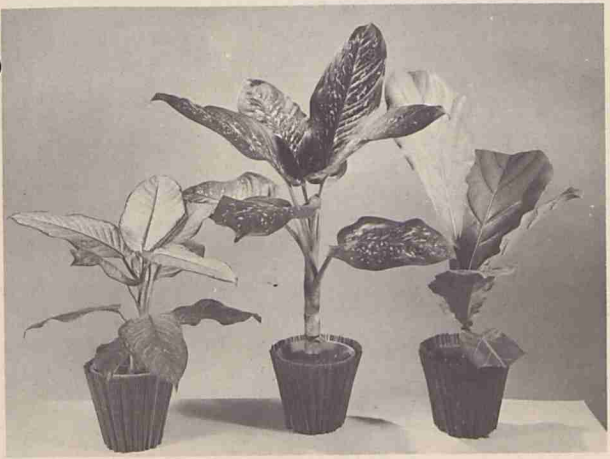
Special requirements.—Though dieffenbachia tolerates dim light, it grows best in bright light. It often is overwatered; overwatering causes the roots and base of the canes to rot quickly. Keep the soil on the dry side.

Eventually the lower leaves turn yellow. When this happens, remove the yellowed leaves. If the stem becomes bare and objectionable, cut off the top of the plant and root it in sand or water. Keep the canes; they eventually grow lateral shoots. ***Caution:*** Dieffenbachia sap is toxic in open cuts. Be careful when removing leaves or cutting the cane.

DRACAENA

Description.—Dracaenas grow slowly and retain their foliage for long periods. *Dracaena godseffiana,* the most common and most rugged form, has dark-green leaves spotted with pale yellow. The leaves of *D. fragrans* are broad and strap shaped; they are green with a gold band down the middle. *D. sanderiana* is smaller than the other dracaenas; it has gray-green leaves that are bordered with a white band.

Culture.—Plant in regular potting soil; keep the soil wet. Grow in indirect sunlight, warm temperatures, and low humidity.



Left to right: *Dieffenbachia picta* "Rudolph Roehrs," *Dieffenbachia amoena,* and *Ficus pandurata.*

Left to right: *Dracaena sanderiana, Dracaena fragrans,* and *Aphelandra squarrosa.*

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Special requirements. — Wash foliage once a month with soapy water. When the bare stem beneath the foliage gets too long, air-layer the top.

FATSHEDERA

Description. — Fatshederas are evergreen shrubs. They produce leathery five-lobed leaves that are lustrous dark green.

Culture.—Plant in regular potting soil; keep the soil moist. Grow on support in full sun, cool temperature, and low to medium humidity.

FERNS

Description.—Ferns are among the most satisfactory house plants. They have many forms of fronds. Among the best ferns for growing as pot plants are maidenhair fern (*Adiantum wrightii*), swordferns (*Nephrolopsis*), birdsnest fern (*Asplenium midus*), spider ferns (*Pteris*), and house hollyfern (*Cyrtomium falcatum*).

Culture.—Plant in humus soil; keep the soil moist. Grow in subdued daylight, warm temperatures and high humidity.

Special requirements. — Protect ferns from extreme chilling. Watch for special seasons of growth and provide additional water at this time. During the rest of the year, give less water.

FICUS

Description.—Rubber plant (*Ficus elastica*) has large oval leaves that are leathery and dark green. Fiddleleaf (*F. pandurata*) has thick, shiny leaves shaped, as is described by its common name, like a fiddle. Creeping fig (*F. pumila*) has small leaves. It forms a close mat of clinging stems and can be used to cover a brick or masonry wall or the bottom of a planter.

These plants all are adaptable to a wide range of growing conditions. While they grow best in a warm, moist atmosphere, they do fairly well under normal household conditions of temperature and humidity.

Left to right: *Fatshedera japonica, Pandanus veitchii,* and palm *(Collinia elegans).*

They can be grown in full sun or shade.

Culture.—Plant in regular potting soil; keep the soil moist. Grow in diffused sun, warm temperatures, and medium humidity.

Special requirements. — When grown in pots, these plants tend to develop a single stem. The leaves drop if the plant is chilled or if it is moved from one place to another. If the leaves drop and leave a bare stem, the top can be air layered (see p. 28).

Wipe the leaves with wet cloth at frequent intervals.

GEORGENANTHUS (Seersucker Plant)

Description.—Georgenanthus is a low-growing, suckering plant. It has fleshy, quilted leaves that are dark, metallic green with several bands of pale gray. The underside of the leaf is red.

Culture.—Pot in regular soil; keep the soil moist. Grow in indirect sunlight, warm temperatures, and low humidity.

IRESINE (Blood Leaf)

Culture.—Plant in regular potting soil; keep the soil moist. Grow in full sun, moderate temperature, and medium humidity.

IVY

Description.—Even in its common form, ivy makes an excellent house plant. Some of the smaller-leaved forms of ivy make even better house plants than the common form. These plants have leaves that not only are smaller, but also are shaped differently than the common three-lobed variety.

Various other plants are called ivy though they are not related to the real ivy plant. They also make good house plants and are grown in the same way that ivy is. German ivy, or ivy groundsel, is a trailing or climbing vine with maplelike leaves and dull, orange-yellow flowers. Kenilworth ivy is a trailing vine with flowers that look like tiny lavendar snapdragons. Grape ivy is a climbing vine with coiling tendrils on its branches. Its leaves are composed of three sharp-toothed oval leaflets.

Culture.—Plant in regular potting soil; keep the soil moist. Grow in full sun, cool temperatures, and low to medium humidity.

Special requirements. — Begin training ivy when it is small. Pinch off the ends of the shoots frequently to produce a mass of laterals. Train the laterals against a trellis or bamboo rod placed in the pot.

MARANTA (Prayer Plant)

Description.—Prayer plant (*Maranta leuconeura kerchoveana*) folds up its leaves at night. The leaves are light green above and purple beneath; the leaf veins are fine and have a silken sheen.

Culture.—Plant in regular potting soil; keep the soil moist. Grow in diffused sun, warm temperatures, and high humidity.

Special requirements. — Do not allow water to stand on the crowns; the stems rot easily.

NEPHTHYTIS

See Syngonium.

PALMS

Description.—Most palms are too large for use as house plants. Two species — the pygmy Roebelin phoenix (*Phoenix roebelini*) and parlor palm (*Collinia elegans*)— are small enough to use as pot plants. Roebelin phoenix eventually grows to a 12-foot tree, but it

Left to right: Palm *(Phoenix)*, fern *(Nephrolepsis)*, and Scindapsus *(S. aureus)*.

normally grows for a long time before it begins to form a trunk. The parlor palm grows rapidly to about 8 feet. It is very tolerant of dim light.

Culture.—Plant in regular potting mixture; keep the soil wet. Grow in diffused sun, warm temperature, and low to moderate humidity.

PANDANUS (Screwpine)

Description.—The screwpines develop fine clumps of leaves that are arranged spirally along the trunk. The long, arching leaves are shaped like sword blades.

Culture.—Plant in regular potting mixture; allow the soil to dry moderately between waterings. Grow in indirect sunlight and warm dry atmosphere.

PEPEROMIA

Description. — Peperomias will tolerate neglect but will rot if overwatered. Though they tolerate dim light, they grow best in bright light.

Peperomia obtusifolia in its typical form has fleshy green leaves; the variegated form has leaves that are predominantly golden yellow with green markings. *Peperomia sandersi* (watermelon peperomia) bears leaves in rosettes. The leaf stems are deep red; the fleshy, heart-shaped leaves are deep green to bluish and have bands of silver radiating from their upper centers.

Culture.—Plant in regular potting soil mixture; allow the soil to dry moderately between waterings. Grow in indirect sunlight, warm temperatures, and low humidity.

PILEA

Description.—Pilea c a r d e r i i (aluminum plant) has thin, fleshy, quilted foilage with unusual silver markings. The flowers of *P. micro-*

phylla (artillery plant) discharge a cloud of pollen when shaken.

Culture.—Plant in humus soil; keep the soil moist. Grow in indirect sunlight, warm temperatures, and low humidity.

Special requirements.—Artillery plant requires clipping to promote branching.

PHILODENDRON

Description.—Philodendrons grow better than most other house plants under the adverse conditions found inside modern houses. They do well as long as they are kept warm—65° minimum—moderately moist, and out of direct sunlight.

Many forms of philodendron are available. *Philodendron oxycardum*, the most commonly grown form, has heart-shaped leaves. It often is grown in water or moss.

Philodendron dubium, cut-leaf philodendron, is a slow grower; it seldom gets out of bounds. It has star-shaped leaves.

Philodendron panduraeforme, fiddleleaf philodendron, has irregularly shaped, olive-green leaves.

Philodendron pertusum, which is really the juvenile form of *Monstera deliciosa*, has perforated leaves that are irregularly shaped. The adult form of *M. deliciosa* has broad, thick leaves that contain many perforations.

Philodendron squamiferum, anchorleaf philodendron, has leaves and petioles that are covered by red

Left, *Philodendron squamiferum;* right, *Schefflera actinophylla.*

Philodendrons. Left to right: *P. dubium, P. pertusum, and P. panduraeforme.*

hairs. The leaves are shaped like daggers.

Philodendrons often are grown on trellises or moss-covered poles. When one of these plants grows to the end of the supporting pole, its stems sometimes begin to grow rapidly and the plant produces widely spaced small leaves.

Some forms of philodendron do not need support from a pole or trellis. These forms require a minimum of care. Among these forms are *Philodendron bipinnatifidum*, *P. selloum*, and *P. wendlandi*.

Philodendron bipinnatifidum, twice-cut philodendron, has leaves that resemble those of *P. dubium*, but are twice as large and more deeply notched.

P. selloum produces leaves that are almost solid when the plant is small. As the plant grows larger, it produces cut leaves. This species is resistant to cold; it can withstand temperatures down to freezing.

P. wendlandi has long, narrow leaves that can withstand extremes of temperatures and humidity.

Culture.—Plant in regular potting mixture; keep the soil moist. Grow in indirect sunlight, warm temperatures, and low humidity.

Special requirements.—Wash philodendron leaves once a month with soap and water. Do not get soapy water on the soil. If leaves are cleaned regularly this way, special foliage waxes are unnecessary.

When plants grow to the end of their supporting trellis or pole, cut back the stems to force new branches to develop. Pin the stem back to the support. Increase the light intensity on the plant and decrease the amount of water given it.

PODOCARPUS

Description.—Yew podocarpus (*Podocarpus macrophylla*) is an evergreen shrub that can grow to a height of 50 feet. It grows well as a pot plant under household conditions and can be kept small by shearing.

Culture.—Plant in regular potting soil; keep the soil moist. Grow in indirect sunlight, cool temperatures, and low humidity.

POTHOS

See Scindapsus.

MOSES IN THE CRADLE
(Rhoeo discolor)

Description.—Moses in the cradle produces a cluster of stiff, lance-shaped leaves that are dark, metallic green on top and glossy purple on the lower surface. Small white flowers are borne in boat-shaped bracts.

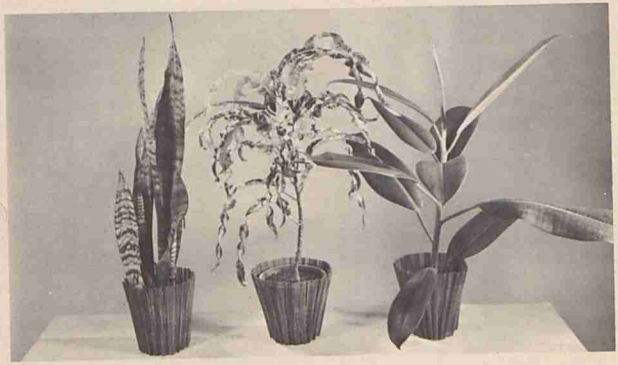
Culture.—Pot in regular soil mixture; keep the soil moist. Grow in indirect sunlight, moderate temperatures, and medium humidity.

SANSEVIERIA (Snake Plant)

Description.—Snake plants develop clumps of erect, strap-shaped leaves. The leaves of *Sansevieria zeylanica* are dark green banded with lighter green. The leaves of *S. laurentii* normally are longitudinally striped with golden yellow. These plants grow in almost any environment.

Culture.—Plant in regular soil mixture; allow the soil to dry moderately between waterings. Grow in any light intensity from dim interior to full sunlight. Keep in moderate to warm atmosphere with low humidity.

Left to right: ***Rhoeo discolor, Araucaria excelsa,*** and ***Pilea caderei.***



Left to right: ***Sansevieria trifaciata, Codiaeum varigatum,*** and ***Ficus elastica.***

Special requirements.—Propagate by division or leaf cuttings. When propagated by division of the clump, *S. laurentii* continues to produce striped leaves. But when it is propagated by leaf cuttings, it produces plain-green leaves.

SCHEFFLERA (Umbrella Tree)

Description.—Schefflera actinophylla is a rapid grower. It produces large compound leaves. The leaflets are slender, fleshy, and glossy green.

Culture.—Plant in regular potting soil; allow soil to dry moderately between waterings. Grow in indirect sunlight, warm temperatures, and low to medium humidity.

SCINDAPSUS

Description.—Scindapsus aureus looks like a smooth-stemmed philodendron but can be distinguished from philodendron by its ridged stems. It can be grown and trained like philodendron but should be watered less frequently. Silver Marble, a variegated form, must be grown in temperatures above 70°; the green forms may be grown at 65°.

Culture.—Plant in humus soil; allow soil to dry moderately between waterings. Grow in indirect sunlight, warm temperatures, and low humidity.

SYNGONIUM (Nephtythis)

Description. — Syngonium has heart-shaped leaves with silver-white or green centers. It thrives under household conditions.

Culture.—Plant in regular potting soil; keep the soil moist. Grow in indirect sunlight, warm temperatures, and low humidity.

Special requirements.—Provide with a pole or totem for support. Prune occasionally to keep in bounds.

WANDERING-JEW

Description.—Three species of plants belonging to the spiderwort family are called wandering-jew—*Zebrina pendula*, *Tradescantia fluminensa*, and *Commelina nudiflora*. Their foliage is so similar that they cannot easily be distinguished from one another until they bloom. All of these plants are easy to grow.

Culture.—Pot in regular soil mixture; keep the soil moist. Grow in indirect sunlight, moderate temperatures, and medium humidity.

Special requirements.—Propagate wandering-jew from tip cuttings (see p. 28).

SUCCULENTS

Succulents are plants having thick, jucy stems or leaves. They are found in many plant families. Succulents are good house plants because they do not require much care and they grow well under household conditions.

Kinds of Succulents

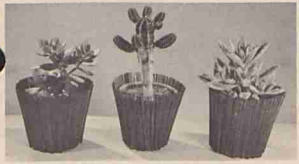
Cactus is a favorite among the succulents that are used as house plants. Some of the kinds of cactus are *Echinocactus*, *Espostoa*, *Echinocereus*, *Opuntia*, *Ferocactus*, and *Trichocereus*.

Aloes also are available in many forms. Two of the favorite aloes are Barbados aloe, *A. vera*, and *Aloe variegata*.

One of the best species of Euphorbia for pot culture in *Euphorbia lactea*, which grows erect like a tree and has a spiny, three-sided trunk. Its leaves are small and they drop off soon after they are formed.

Haworthia, which come from South Africa, belong to the lily family. They are grown primarily for their foliage. One group of plants, of which *Haworthia fasciata* is an example, has leaves that are semitranslucent. Another group, of which *H. tesselata* is an example, has thick, leathery leaves.

Other well-known succulents are *Crassula*, *Sempervivum*, *Sedum*, *Bryophyllum*, and *Kalanchoe*.



Succulents. Left to right: *Crassula arborescens, Euphorbia echinus,* and *Kalanchoe tomentosa.*

Succulents. Left to right: Echinocereus, Stapelia, Opuntia, Ferocactus, and Trichocereus.

Culture

Culture of all of the succulents is similar: Plant in regular potting soil; allow the soil to dry moderately between waterings. Grow in full sun, moderate temperatures, and medium to low humidity.

FLOWERING PLANTS

ACHIMENES

Description.—Achimenes leaves are finely cut and are tinted red or green. The flowers, shaped like those of petunias, may be red or blue. Achimenes plants are grown from rhizomes planted during March, April, or May and kept in a sunny window or in a hanging basket that is exposed to full or partial sun. The plant blooms during the summer.

Culture.—Plant in humus soil; keep the soil wet. Grow in indirect sunlight and normal summer temperatures and humidities.

Special requirements.—In late summer after the flowers have passed, allow the soil to dry gradually. When the plant withers, dig up the rhizome and store it through the winter in dry sand at a temperature of 45° to 50°.

AFRICAN VIOLETS

Description.—African violets are the most commonly grown house plants. They produce single or double flowers colored white, or blue, or a combination of red and blue.

Culture.—Pot in regular soil mixture; keep the soil moist. Grow in indirect sunlight and warm temperatures with high humidity, moderate temperatures with medium humidity, or cool temperatures with low humidity.

Special requirements.—Plant African violets in subirrigating pots (see p. 23), so the plants can be watered and fertilized from the bottom; if leaves are wetted with water that is cooler or warmer than the air, light-colored spots will develop on them.

If the petioles (leaf stems) lie across the wet clay rim of a flower pot, they may rot. To prevent this, cover the rim with parafilm or aluminum foil.

Wash the leaves regularly with

Left to right: African violet *(Saintpaulia ionantha)*, Streptocarpus *(S. kewensis)*, and Episcia *(E. coccinea)*.

soapy water at room temperature. Allow the leaves to dry in a shady place before returning the plants to the growing area.

AMARYLLIS

Description.—Amaryllis are tropical bulbs that can be kept growing continuously. A flower stem with three to six flowers appears 6 to 8 weeks after the bulb is planted. After the plant flowers, its leaves appear.

Many other plants of the same type—*Nerine* and *Chlidathus*, for example—can be grown in the same way.

Culture.—Pot in humus soil; keep the soil moist. Grow in full sun or shade with moderate temperatures and medium humidity.

Special requirements.—Pot the bulbs with two-thirds of the bulb above soil level. Place in full sun and keep the soil moist. After the flower has passed, let the leaves grow for good development of the bulb. As soon as the leaves begin to yellow, stop watering; the plant will become dormant. Store the dormant plant in a cool place—38° to 45°. You can keep the bulb dormant as long as you want. When you wish it to grow again, resume watering.

BEGONIA

Description.—Fiberous-rooted begonia has succulent stems and shiny leaves. It produces flowers continuously. The flowers may be white, pink, or scarlet.

Tuberous-rooted begonias bear large white, yellow, orange, or red flowers and have watery stems and brittle, pointed leaves. These plants may be grown in pots or may be used outdoors as bedding plants in partial shade.

The showiest of the begonias is the semituberous begonia (*B. socotrana*), which is available as a Christmas-gift plant. It also is the most difficult to grow. It is best to keep this plant in full sun until the flowers pass, then discard it.

Culture.—Plant in humus soil; keep the soil moist. Grow in full sun or bright, diffused sunlight, warm temperatures, and medium to high humidity.

Special requirements.—Plant tuberous-rooted begonia in March. Keep the soil moist. Grow it in full sun until May, then move it to bright, indirect sunlight. Using fluorescent tubes or a 75-watt incandescent bulb 3 feet above the plant, light the plant from 10 p.m. to 2 a.m. each night during the winter. With this supplementary illumination the plant will bloom throughout the year.

Fiberous-rooted begonia needs full sunlight during the winter. It can be propagated from seeds or terminal cuttings.

CALLA

Description.—Calla leaves are large and arrow shaped. The showy part of the plant is not a true flower, but an envelope surrounding the member on which the true flowers are borne. Callas will grow continuously when permitted to do so, but their flowers get smaller and smaller. This can be prevented if the plants are allowed to become dormant during the summer.

Culture.—Pot in regular soil mixture; keep the soil wet. Grow in full sun, cool temperatures, and medium humidity.

Special requirements.—Pot calla rhizomes in late summer or early fall. Start the plants at temperatures of 60° to 65°. When growth starts, move the plants to an area where the temperature is 55° to 60° and the plants have full sunlight. Withhold water in summer to bring on dormancy. Repot the rhizomes after the summer-dormancy period.

CHRISTMAS CACTUS

Description.—Christmas cactus produces many flat-stemmed fleshy branches that serve as leaves. Brilliant pink pendant flowers grow from the edges of the younger parts of the plant. Christmas cactus often fails to bloom because of nighttime exposure to high temperatures or artificial light.

Culture.—Pot in humus soil. Keep the soil moist in winter, spring, and summer; allow it to dry moderately between waterings in fall. Grow in full sunlight, cool temperatures, and medium humidity.

Special requirements.—Beginning September 1, keep the plant in total darkness—with no artificial light—for at least 12 hours a night. Maintain a night temperature of no more than 70°. During summer, grow the plant in a cool, shaded area.

Propagate Christmas cactus from pieces of branches two or three segments long.

CITRUS

Description.—Otaheite orange, ponderosa lemon, and Meyer lemon are the kinds of citrus most likely to flower and fruit indoors. Grapefruit seeds, planted in a low bowl, form a mass of foliage from the crowded seedlings.

Culture.—Plant in regular potting soil; keep the soil moist. Grow in subdued daylight, cool temperatures, and medium humidity.

Special requirements.—Propagate flowering citrus plants from seeds or cuttings.

CROSSANDRA

Description.—Crossandra leaves are large and glossy with a waxy texture. The plant produces large, bright-salmon flowers through most of the year.

Culture.—Plant in humus soil; keep the soil moist. Grow in full sunlight, warm temperatures, and high humidity.

Special requirements.—Seed can be sown at any time. If the plant is grown at 65° to 70°, it will begin to bloom 6 to 7 months after planting.

DUTCH BULBS

Description.—Hyacinths, tulips, and various kinds of narcissus can be forced into flower for window-garden use. The Chinese sacredlily, paperwhite narcissus, and hyacinths can be forced in water.

Culture.—Store narcissus bulbs dry for 12 weeks at 50°, and tulip bulbs for the same period at 45°. Then pot the bulbs and place the pots in the light at 60°. The bulbs bloom in about 1 month.

Store hyacinths at 63° for 4 weeks. Then pot and keep the potted bulb at 55° until the tip of the shoot is 1½ inches above the bulb. Then place the pot in the light at 65°. The bulbs bloom in about 1 month.

Formerly it was recommended that bulbs be kept in a cool place until a root system developed. Growth of roots is not a reliable sign that the bulbs are ready for potting; irregular flowering often results from following the old recommendation.

To force bulbs in water, place the bulbs in a wide-mouth jar or shallow dish and support them with stones. Add charcoal to keep the water from souring. Keep the bulbs cool and dark until the tops begin to expand. Then move the containers to a cool, sunny room for forcing. Usually, bulbs are forced at too high a temperature and the leaves and flowers grow too long.

After bulbs have flowered, they may be planted in the garden when danger of frost is past. Few bulbs flower again the first year; some are so depleted from forcing that they never again flower well.

EPISCIA

Description.—Episcias are noted for their decorative foliage and vividly colored flowers. They often are potted in hanging baskets. They require care similar to that for African violets.

Culture.—Plant in humus soil; keep the soil moist. Grow in indirect sunlight, warm temperatures, and high humidity.

FUCHSIA

Descriptions.—Fuchsias, grown for their brilliantly colored flowers, need a well-drained soil and a night temperature of 60° to grow best. High night temperatures and low light intensities inhibit their flowering.

Culture.—Plant in regular potting soil; keep the soil moist. Grow in subdued daylight, moderate to warm temperatures, and medium humidity.

Special requirements.—Remove ends of stems frequently to promote branching. Propagate by cuttings or seeds.

GARDENIA

Description.—Gardenias seldom do well as house plants. They are exacting in their temperature re-

quirements; if night temperature is above 65°, the flower buds drop. If it is below 60° to 62°, the leaves turn yellow. In spite of these exacting requirements, many people grow gardenias as house plants, and occasionally a gardenia plant produces a few flowers in late spring.

Culture.—Pot in humus soil; keep the soil moist. Grow in full sun, warm temperatures, and medium humidity.

GERANIUM

Description.—The most commonly grown geranium, *Pelargonium hortorum*, produces single or double flowers throughout the year. It can be distinguished by the dark zone on its soft leaves.

Pelargonium domesticum produces flowers marked with blotches of contrasting colors. It usually flowers for 4 to 6 weeks in late spring or early summer. Its leaves are deep green.

Culture.—Pot in regular soil mixture; allow the soil to dry moderately between waterings. Grow in full sun, cool temperatures, and low to medium humidity.

Special requirements.—Geraniums need full sun and cool temperatures for best blooming. Ideal temperatures at night are 55° to 60°. Night temperatures above 60° inhibit flowering.

Do not let water stand on leaves or stems of geraniums; these parts rot easily.

Propagate by cuttings.

GLOXINIA

Description.—Gloxinias are grown from tubers. The plants, which are almost stemless, have broad velvety leaves and deep, bell-like flowers that are brilliantly colored.

Culture.—Pot in humus soil; keep the soil moist. Grow in indirect sunlight, moderate temperatures, and high humidity.

IMPATIENS

Description.—Impatiens grows easily from seed. It begins to bloom about 3 months after seed is planted and blooms continuously thereafter.

Culture.—Plant in regular potting soil; keep the soil moist. Grow in full sun, warm temperatures, and medium humidity.

Special requirements.—Pinch off the tips of the plants to make them branch. Keep the plants warm; leaf drop occurs at temperatures below 65°.

Grow the plants in a sunny window during the winter. Move them to a porch box during the summer.

JERUSALEM CHERRY

Description.—Jerusalem cherry (*Solanum pseudo-capsicum*) produces round orange or scarlet fruit the size of a cherry. The fruits persist for a long time. ***Warning:*** The fruits may cause a rash by coming in contact with the skin. Avoid handling them.

Culture.—Pot in regular soil mixture; allow the soil to dry moderately between waterings. Grow in direct sunlight, cool temperatures, and medium humidity.

Special requirements.—Grow plants for a year, then discard them. Plants more than a year old do not fruit well. Grow new plants from seed.

If growth of the plant is checked, it drops its leaves, develops bare stems, and becomes unsightly. This is a common problem; it usually is caused by low humidity.

KALANCHOE

Description.—*Kalanchoe blossfeldiana* bears clusters of scarlet flowers in late winter and early spring.

Culture.—Pot in regular soil mixture; keep the soil moist. Grow in full sun, moderate temperatures, and medium humidity.

Special requirements.—Kalanchoe needs at least 3 weeks of long nights to bloom successfully. Beginning in the middle of October, keep the plant in total darkness for 15 hours a night.

LANTANA

Description.—Lantana flowers continuously. It can be used as a bedding plant as well as a house plant.

Culture.—Pot in regular soil mixture; keep the soil moist. Grow in full sunlight, moderate to warm temperatures, and medium humidity.

Special requirements.—Sow seed in early spring or grow plants from cuttings.

OLEANDER

Description.—*Nerium oleander* bears upright clusters of pink or white flowers. It blooms in early summer and sometimes throughout the year. If oleander is kept fairly dry during the winter, it can withstand temperatures near freezing.

WARNING: All parts of this plant are poisonous when eaten; one leaf can kill a man. Avoid handling fresh or dry leaves or inhaling smoke from burning plants.

Culture.—Pot in regular soil mixture; keep the soil moist. Grow in full sun, moderate temperatures, and medium humidity.

ORCHIDS

Description.—Best orchids for home culture are *Cattleya bowringiana*, *Cattleya mossiae* (florist orchid), *Dendrobium nobile* (cane orchid), and *Paphiopedilum insigne* (ladyslipper orchid).

Culture.—Plant in pure humus; water weekly. Grow in subdued daylight, moderate temperature, and high humidity.

Special requirements.—Orchids need humidity that is maintained between 40 and 80 percent with temperatures from 65° to 80°. They are often grown in glass cases over a moisture stage of wet gravel or sphagnum moss.

Moisten the leaves every day. Water the pots once a week.

STREPTOCARPUS

Description.—Streptocarpus produces trumpet-shaped flowers that are about 2 inches long and have expanded frilled edges.

Culture.—Plant in humus soil; keep the soil moist in summer, allow to dry moderately between waterings in winter. Grow in subdued daylight, cool temperatures, and high humidity.

INCREASING THE HUMIDITY

Plants that tolerate low humidity do well in the 40- to 50-percent relative humidity usually found in heated or air-conditioned homes. But this is too dry for many plants. Here are several ways in which you can raise the humidity for those plants needing medium humidity:

- Keep plants where the humidity is highest; the kitchen—particu-

larly above the sink—normally is more humid than the rest of the home.

- Group plants together. Air surrounding grouped plants usually is more humid than air around a single plant.
- Set plants above a tray of gravel, sand, or peat moss that is kept wet.
- Install supplemental humidifiers and humidistats in your heating or air-conditioning system.

Plants needing high humidity can be grown best in a greenhouse or terrarium. For more information, see "Constructing a Terrarium" (p. 29).

POTTING

When potting or repotting plants, use containers that have a drainage hole in the bottom. Watertight pots are difficult to care for properly; water tends to collect in the bottom of the pot and injure the plant roots.

When roots of a plant fill the container, the plant stops growing. For the plant to resume vigorous growth, it must be repotted in a larger container and fresh soil.

Often it is desirable for a house plant to stop growing. If the plant is as large as you want it to be, do not repot it. Instead, remove some of the soil at the top of the pot at least once a year. Replace it with fresh soil.

Newly purchased plants need not be repotted immediately; their containers usually are satisfactory.

You may wish to repot, however, to transfer the plant to a subirrigating pot or to double pot the plant to simplify watering.

Subirrigating

Subirrigation supplies water to the plant from the bottom. It maintains a desirable level of soil moisture and lessens the guesswork of when to water. You can buy containers that have a subirrigation system built in the base, or you can make a subirrigation system.

Make the subirrigation system from an ordinary flower pot and a wick. A glass fiber wick is best; it does not rot. However, a piece of coarse rope or a tight roll of burlap can be used for a wick.

Place the wick in the hole of the flower pot. Press the top 2 inches of wick against the bottom of the pot, pack fine soil over it, then fill the pot with soil.

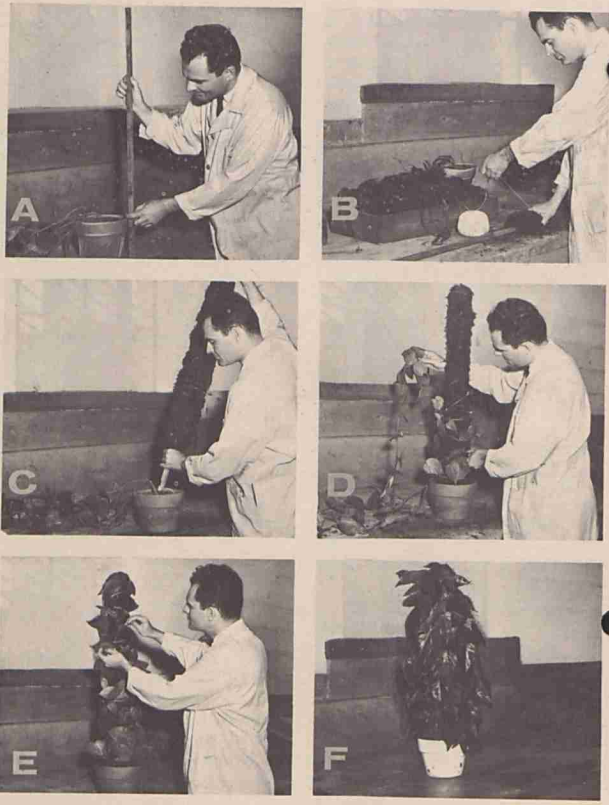
For potting soil, mix equal parts garden soil, sand, and peat moss.

After the plant is potted, water it thoroughly from the top. Then place the pot on blocks or stones over a saucer filled with water. The lower end of the wick must lie in the water. The wick soaks up water as needed by the plant.

Double Potting

Double potting supplies water to the plant through the sides of the pot. Because the soil in double-potted containers dries slowly, time of watering is not as critical as it is when plants are grown in pots exposed to the air. Double potting is especially helpful when growing plants that require a low level of soil moisture, or when growing plants in dim light where normal levels of soil moisture cause spindling growth.

For double potting, repot the plant in a porous clay pot. Set this clay pot inside a larger watertight



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MAKING A TOTEM

A, Select a pole 3 to 5 times taller than the container in which the totem is to be used.

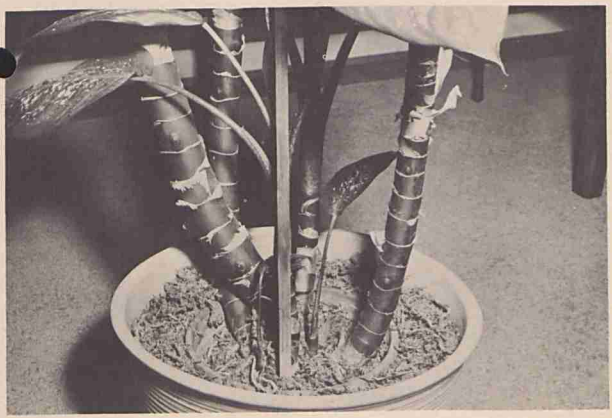
B, Wrap the pole with a layer of sphagnum moss 2 to 3 inches deep and bind the moss with string.

C, Push the pole into the soil.

D, Wind the vine around the totem.

E, Use hairpins to fasten the vine to the totem.

F, Keep the moss damp; roots will grow into the moss and the leaves will form a solid mass.



N–40569

This plant is double potted, with sphagnum moss between the inside pot and the outside container. Soil in the pot dries more slowly and needs watering less frequently than soil in pots that are exposed to the air.

container and fill the space between the containers with peat moss or shredded sphagnum moss.

Water the soil and moss. The moss holds water and supplies it, through the porous clay pot, as needed by the plant.

Planters

Double potting is the best practice to follow when growing houseplants in a built-in planter.

The planter should have a petcock attached to the liner so excess water may be drained from the planter.

Fill the bottom 3 inches of the liner with coarse gravel. Place a layer of charcoal over the gravel; charcoal prevents excess water from stagnating. Fill the rest of the planter with peat moss or sphagnum.

Set the plants, in porous clay pots, up to their rims in the moss. The plants can be watered individually from the top as often as required. They can be turned to allow for variations in lighting. And they can be shifted or substituted at will. These practices are not possible when plants are grown in soil-filled planters.

WATERING AND FERTILIZING

Water your house plants with a dilute fertilizer solution. Make this solution by mixing in 1 gallon of water 1½ teaspoons of soluble fertilizer, analysis 20–20–20, or 1

tablespoon of liquid fertilizer, analysis 8–12–4.

Avoid overwatering. Overwatering is the commonest cause of trouble in growing house plants.

No other general rule applies to the watering of house plants. Some plants do best if the soil is kept moist; others do best if the soil is allowed to dry moderately between waterings.

For best results, use subirrigation or double potting. Overwatering is less likely with these methods than it is with watering from the top.

When plants are subirrigated with fertilizer solution, the fertilizer tends to accumulate on the soil surface and pot rim. Every 2 or 3 months, replace the white-crusted upper layer of soil and water the top of the pot with tap water to leach away the unused fertilizer. Discard the water that drains out of the bottom of the pot.

If plants are potted in containers that do not have drainage holes, water them from the top. If the containers have drainage holes but are neither subirrigated or double potted, water them from the top or immerse the pot in water to wet the soil.

When watering from the top, be careful not to wash soil away from the crown of the plant. Do not get water into the crown; water in the crown may cause the plant to decay.

To water by immersion, set the pot in a container of water. Do not let water flow over the edge of the pot. As soon as the soil appears saturated—in 15 to 20 minutes—remove the pot from the water and let the excess water drain away. Do not allow the pots to remain in the water after the soil is saturated.

SUMMER CARE

Plants that are grown in the house during the winter can be moved outdoors for the summer.

The best location outdoors for the plants depends on the amount of sunlight they can tolerate. If the plants do well in direct sunlight, they can be set in the open. If they need diffused sunlight, place them under trees or tall shrubs where they will get a mixture of sunshine and shade. If they need subdued daylight, keep the plants on a shady porch.

Plants that are kept in pots outdoors need more frequent watering than they do indoors.

To maintain plants through the summer with a minimum of care, sink the pots in the ground up to their rims. Lift or twist the pots once a month to prevent the roots from growing through the drainage hole in the pots.

Before the nights become uncomfortably cool in autumn, lift the plants and repot them if necessary. If they are diseased or infested with insects, do not return them to the house.

Geraniums, lantana, and fuchsias often are taken from their pots and planted in the open soil. In the fall these plants usually are difficult to lift and prepare for winter growth indoors. It is better to raise new plants from summer cuttings than to try to repot the old plants.

WATER CULTURE

Some plants can be grown in tap water with little trouble. Among these plants are coleus, aglaonema, ivy, philodendron, scindapsus, snake plant, wandering-jew, and syngonium.

Add a lump of charcoal to keep the water from souring.

To inhibit growth of algae in the water, use a container that does not transmit light. If algae forms, wipe it off of large roots with a sponge. Clean the container thoroughly and fill it with fresh water.

GROWING PLANTS IN DIM LIGHT

If house plants have the proper amount of water and heat for good growth but do not have enough light, they tend to grow long and spindling. Often, planters are used as decorating accessories in locations that are not lighted well enough for good growth of plants. However, foliage plants can be acclimated to low light intensities.

To grow house plants successfully where they get little or no daylight—

- Water the plants only often enough to prevent wilting.
- Reduce the amount of fertilizer that you apply to the plants.
- Keep the air temperature as cool as you can tolerate.
- Provide supplementary lighting with fluorescent tubes.

Double pot plants that are to be grown under artificial light. This makes soil-moisture control easier than leaving the pot exposed to the air.

Begin watering as frequently as you would if the plant had sufficient light. Then gradually lengthen the intervals between waterings.

A few of the oldest leaves may die while you are adapting the plant to dry-soil conditions; this is part of the readjustment to the new environment.

Do not let the plant wilt at any time.

Fertilize the plants more sparingly than normal. Use only about one-third as much fertilizer as is recommended for plants growing vigorously. Continue to fertilize frequently.

Maintain an air temperature that is as low as human occupants can comfortably tolerate. Most plants thrive at temperatures of 60° to 75°. In general, weakly lighted plants do best in the lower limits of this range, while brightly lighted plants do best in the upper limits.

If you can add moisture to the air, do so. Plants will grow under conditions of low humidity, but they need more attention to watering than they do under moderate humidity.

Fluorescent tubes are best for supplying supplementary lighting. Regular incandescent lights or reflector floods can be used for spot lighting, but they are too hot when used in numbers large enough to provide the relatively high lighting intensities required by the plants.

The required lighting intensity for a plant varies according to the time the plant is lighted; the dimmer the light, the longer the plant must be lighted.

If you use a fixture containing two 40-watt fluorescent tubes and light the plants for 16 hours a day, the minimum lighting intensity for growing foliage plants can be supplied by placing the fixture the following height above the plants:

54 to 66 inches:

Aglaonema commutatum
Dieffenbachia picta
Dracaena sanderiana
Philodendron cordatum

36 to 54 inches:
Anthurium hybrids
Bromeliads
Peperomia obtusifolia
Scindapsus aureus
Closer than 36 inches:
Fatshedera lizei
Ficus pandurata
Hedera helix
Ciccus rhombifolia

These are maximum distances for satisfactory plant growth. All the plants grow best if they are no farther than 36 inches from the lighting fixture.

PROPAGATION

Most house plants can be propagated by cuttings. Take the cutting, containing four or five leaves, from the growing points of the plant. Cut the stem just below a joint.

Root the cuttings in moist perlite, vermiculite, or sand. Pasteurize the rooting medium by heating the moist material in an oven for 45 to 60 minutes at 180° to 240°.

Put the rooting medium in a container—a clay pot is satisfactory, but a subirrigating pot is best.

Insert the cuttings in the moist rooting medium. If you cannot insert them as soon as they are cut, put them in water to keep them fresh.

Now place the cutting-filled pot in a polyethylene freezer bag and close the bag. Place the bag in diffused daylight where the temperature is about 65° to 70°.

Once a week, open the bag and test each cutting for rooting by pulling on it gently. When the cutting resists a gentle pull, it is rooted. It then may be potted as described in "Potting," page 23.

Geraniums, Impatiens, African violets, coleus, ivy, and philodendrons can be propagated from cuttings rooted in water.

If cane sections of dracaena or diffenbachia are pressed in damp moss, shoots will grow from the eyes in the sections. These shoots can be removed and used as cuttings. Cut the cane sections two or three joints long. Dust the ends with fungicide and press them into the damp sphagnum. The eyes continue to produce shoots as often as shoots are removed.

If plants have fleshy leaves or thick petioles (leaf stems), use the leaves as cuttings. Insert the petiole in the moist rooting medium and treat the cuttings as you would tip cuttings.

Leaves of *Begonia rex* and other fibrous begonias develop young plants from their primary veins. Insert the leaves in rooting medium or pin the leaves to the surface of the moist medium.

Some plants produce rhizomes—underground stems—and may be propagated by division of the rhizome. Cut the rhizome into sections, each of which contains a leaf bud. Pot the rhizome sections. New plants will grow from them.

If the plant produces tubers—like potatoes—cut the tuber into pieces that each contain an eye.

Episcia and the ferns produce runners. These runners will root easily if they are pegged to the soil.

Large or difficult-to-root plants can be propagated by air layering. To air-layer, make a cut into the stem and place a toothpick in the cut to keep it open. Wrap moist sphagnum moss around the cut stem and enclose the moss in a sheet of plastic. Tie the ends of the plastic to form a moistureproof package.

When roots have formed—you can see them through the plastic—cut off the top and pot it.

PLANT HEALTH

Poor appearance in house plants may be caused by improper watering, sudden change in environment, cold drafts, lack of fertilizer, gas injury, or insect attack.

For information regarding recognition and control of insect attacks, see Home and Garden Bulletin 67, "Insects and Related Pests of House Plants," available from the U.S. Department of Agriculture, Washington, D.C., 20250.

If a plant is damaged by causal agents other than insects, it usually is best to discard the plant and start over again. This time, avoid the condition that led to poor appearance of the old plant.

Table 1 lists some of the most common causes of unhealthy appearance.

CONSTRUCTING A TERRARIUM

Terrariums are gardens enclosed in glass. The glass enclosure may be any container that transmits light; globes, fish tanks, and large brandy snifters often are used as containers.

Many native and cultivated plants are suitable for growing in terrariums. African violet, maranta, begonia, coleus, croton, dracaena, ivy, peperomia, philodendron, pothos, and wandering-jew are commonly planted in terrariums. Some of the plants that need high humidity can be grown in a terrarium when high humidity cannot be supplied in the open air.

A terrarium is easy to construct and care for.

Place a 1-inch layer of gravel, pebbles, broken flower pots, or charcoal in the bottom of the container.

TABLE 1.—*Some causes of unhealthy appearance in house plants*

Symptom	Possible cause
General defoliation	Sudden change in temperature. Transplanting shock. Sudden change in lighting intensity—moved from strong sunlight to a dark location. Overwatering.
Leaves drop, shoots remain dwarfed and branch repeatedly. New leaves are small.	Manufactured-gas injury (unburned cooking gas in the atmosphere).
Browning of leaf tips	Improper watering. Exposure to cold drafts. Insect attack. Excess fertilizer.
Loss of normal foliage color	Overwatering. Lack of fertilizer. Insect attack.
Spotted foliage	Overwatering. Burning from direct sunlight.

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Any kind of transparent container can be used for making a terrarium. This one was made from a large brandy snifter. Terrariums require little care after they are planted.

Dig moss from the woods and line the sides of the container below soil level with the moss against the glass.

Now prepare a soil mixture of equal parts of garden soil, sand, and peat moss, enough for a layer 1½ to 2 inches deep. Mound the soil to one side in the container to make a slope.

Use a long pair of tweezers—or sticks tied to tweezers—to put the plants in place. Try to avoid getting soil on the leaves. After the plants are in place, clean the leaves with a dry brush. Then spray the plants and soil lightly with water.

Cover the container with a sheet of glass or a piece of plastic film.

Place the terrarium in a location where it has bright light, but never any direct sunlight. Sunlight heats the air inside the terrarium and kills the plants. Turn the terrarium occasionally so the plants in it grow uniformly.

Beware of overwatering. Water the terrarium only often enough to keep the soil moist. If the inside of the container becomes fogged, open the cover slightly to ventilate the terrarium and allow the excess water to evaporate.

CARE OF FLORIST'S PLANTS

Many of the flowering plants sold by florists should be considered as little more than long-lasting cut flowers. They should be cared for until the flowers pass, then should be discarded. Their whole plant life has been adjusted to greenhouse conditions. These growing conditions cannot be supplied in the home.

Nearly all of these plants can be grown in the home. However, they require much more attention during the winter than other types of house plants.

Listed below are some of the most popular of the florist's gift plants with descriptions of the conditions necessary for long-lasting display of flowers. Also listed are directions for handling the plants to keep them over another season.

AZALEAS

Azaleas will remain in bloom from midwinter until early spring if they are kept in a location where they have diffused sunlight and temperatures of 55° to 60° and if they are watered frequently. Grow them in this cool, bright location until May.

In May, plant azaleas in the garden in a mixture of 1 part acid soil and 1 part peat moss. Prune the plants lightly in late May or early June.

Repot azaleas before the first frost and set the potted plants in a frost-free coldframe. Unless the plants have a period of chilling, they bloom irregularly, if at all.

In November, bring the plants indoors. Keep them in moderate light and cool temperatures and water frequently. Keep dust off the leaves by syringing them with water.

Azalea plants should bloom 6 to 10 weeks after they are brought indoors.

CHRYSANTHEMUMS

Place potted chrysanthemums in full sunlight. Keep the temperature between 60° and 70°; water frequently.

Most potted chrysanthemums are not suitable for later planting in the garden. However, hardy varieties are increasingly available from florists during the spring. Ask the florist if the plant can be set out.

CINERARIAS

These plants are available from January to May. Place them in a sunny window. Keep the temperature from 50° to 60° and water frequently. After the flowers pass, discard the plant.

CYCLAMEN

Discard after flowers pass. Flowers last about 2 weeks if the temperature is kept at 70°. If it is kept between 50° and 55°, the flowers last much longer.

Do not let water stand in the crown of the plant; the flower shoots and bases of the leaves rot easily.

EASTER LILY

Easter lilies last several weeks, at best, in the home. Place them in moderate light, saturate the root ball each day, and provide a night temperature of 55° to 60°. Discard the plant after the flowers pass.

HYDRANGEAS

Provide hydrangeas with abundant water and moderate light. After the plant has bloomed, cut it back to several internodes and repot it in regular soil mixture.

In summer, place the plant outdoors in moderate shade. Water it frequently.

When the plant becomes dormant, move it to a frost-free cold frame. Vegetative shoots of most commercial varieties are hardy, but the flower buds are killed by frost.

In January, bring plant in from cold frame and repot it. Grow the plants for several weeks at 55°. Then raise the temperature to 60° to 65°. Hydrangeas bloom about 3 months after they are moved indoors.

If you want hydrangea flowers to be blue, water the plant with a solution of 1 pound of aluminum sulfate in 5 gallons of water. Drench the soil thoroughly, fertilize lightly. If you want the flowers to be pink, use a high phosphate fertilizer, such as 15-30-15, in the water.

POINSETTIA

Poinsettia needs a cool room, full sunlight, and moist soil. If the plant is in good condition when you

get it, it should keep its colored bracts for 3 weeks at a room temperature of 70°. If the temperature is kept between 55° and 60°, red poinsettias will stay colored for 4 to 6 weeks and white poinsettias for 2 months.

If you want to keep a plant after the bracts fall, place it in a cool, light location and water sparingly. The plant will become dormant.

In April or May, cut the plant back to within 6 inches of the pot. Repot the plant in regular soil mixture and resume watering often enough to keep the soil moist.

Take cuttings of the new vegetative growth. When the cuttings root, pot them in regular soil mixture.

Before the first frost, move the plants, both old and new, into a sunny window. Beginning about October 1, keep the plants in a night temperature of 60° and protect them from artificial light at night. The plants should be well colored for Christmas.

PRIMULA

Most primulas (primroses) sold by florists are best discarded after bloom. One, *P. obconica*, can be kept another year.

After it flowers, reduce its supply of water and let it become dormant. In autumn, repot it in regular soil mixture, water it freely, and keep it in full sunlight with a cool night temperature.

CAUTION: Some people are allergic to primulas; they develop a rash similar to that from poison-ivy. Handle primulas with care.

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Put in Notebook

(For Agents)

HOUSE FURNISHINGS: DECORATING WITH LOTS OF CREATIVITY AND LITTLE MONEY

Concept:

Creative and inexpensive ideas for furnishings and accessories can provide young adults with a means for decorating their homes when a large furnishings budget is not available.

Teaching Objectives:

To encourage young adults to spend wisely for furnishings by (1) developing a large range plan for furnishings and (2) using innovative and inexpensive ideas when their budget does not allow for purchasing of more than one or two major items.

Use of Materials:

This program is suggested for special interest groups or for young homemaker clubs.

Supporting Teaching Aids:

Slide set which shows creative, inexpensive decorating ideas and explains how they are done.

Supplementary Materials:

Bulletins: Furnishing Your Home Series
- HE 75 Begin With A Plan
- HE 80 Arranging Furniture
- HE 78 Buying Case Goods
- HE 81 Buying Upholstered Furniture
- HE 79 The Furniture Story: Periods and Styles

(For Agents)

HOUSING: SELECTION AND PLACEMENT OF MOBILE HOMES

Concept:

With proper selection, placement and care, mobile home living can offer attractive, convenient and economical living for people who prefer home ownership but cannot afford conventional housing.

Teaching Objectives:

To assist prospective buyers in the selection of mobile homes. To encourage good landscaping for mobile home placement. To instruct owners of mobile homes care and maintenance of interiors, exteriors, materials and equipment.

Use of Materials:

This program is suggested for special interest groups. It could be divided into two lessons for homemaker clubs.

Supporting Teaching Aids:

Slide set (52) with guides for placement, care and landscaping of mobile homes.

SELECTION AND PLACEMENT OF MOBILE HOMES

Introduction

1 Generally, there are now two categories of homes on wheels - the mobile home and the travel trailer. The mobile home, which has come into prominence in recent years as a source of family housing for millions of people, evolved from the house trailer. Mobile homes are classified as those greater than 28 feet long and weighing more than 4,500 pounds.

2 Many innovations have come about in the design of mobile homes. Telescoping rooms, two parallel units connected and double-width units with a pitched roof are features of many units being constructed.

3 In 1969, 50% of mobile home owners were young marrieds under 35 years of age. Another 25% were retirees. The average mobile home owner, in 1969, had an annual income of $6,620 and consisted of 2.59 persons. Retirees, young marrieds, military families, craftsmen, students and professional people are among the largest groups of workers.

Selection of a Mobile Home

4 In selecting a mobile home there are many features to consider. First in consideration might be the floor plan and the size of the mobile home. Most single-wide units are 12-feet wides, but 14-feet wides are available in many states where the law allows them to be moved over the highways.

Shown here are a 14-feet wide and a 12-feet wide with two bedrooms, bath and a kitchen-living room. Homes of this width no longer necessitate travel through a bedroom to reach another room, thereby allowing more privacy. A conveniently arranged kitchen with ample work space and storage is an important consideration.

5 For more space and more cost, some families might choose a double-wide or a single-wide with a telescoping room for added space. Double-wides, extreme lengths and telescoping rooms will require special lot sizes not available in some parks. Notice the double-expandable at the top of this slide and the double-wide at the bottom.

6 If a double-wide home is placed on a permanent foundation, it is called a sectional house. Unlike double-wides, sectionals are not moved on their own chassis but on a truck or rail-flat bed. The double-wide home is made from two 10-feet- or 12-feet-wide sections transported to the home site on a chassis. The two sections are joined together at the site to form a home 20 or 24 feet wide.

7 Quality of materials and construction should be considered in purchasing a mobile home. Look for the Mobile Home Manufacturers Association-Trailer Coach Association standards seal. This seal certifies that the manufacturer has met the standards required by the Associations regarding construction, plumbing, heating and electrical systems. Some states require that the units bear the seal of a recognized testing organization or a state inspection seal of approval or be subject to the same inspection as other houses.

8 Press with your hand on the wall panels to determine if the studs are 16 inches on center, or 24 inches. Many mobile homes now, like conventional houses, have four-inch studs 16 inches on center with $3\frac{1}{2}$-inch insulation between. This type of construction makes for more rigid walls.

9 Screw location also shows spacing of framing members.

10 In purchasing a mobile home families are greatly influenced by the beauty of a home. The exterior wall material, door sizes, window shapes and sizes, roof line and exterior color determine the beauty of a unit. Innovations in exterior wall materials are developed continuously for new models. Aluminum siding is predominant, but some models now have exterior plywood siding, often combined with fiberglass accent panels.

11 Interior walls are usually of prefinished wood paneling or simulated wood panels. Colors or tones vary and are responsible for more or less light absorption and can result in a feeling of smaller or larger space. Dark walls absorb more light and make rooms seem smaller.

12 Light walls reflect more light and make rooms seem larger.

13 Floors of mobile homes are generally of a vinyl-coated material applied in one 12-feet-wide strip at the factory, or they are carpeted. These vinyl floors usually have a thin wearing surface, yet are durable if properly used and maintained. Quality of carpeting varies with the cost. Surveys show that many mobile home owners would pay more to get better quality carpeting.

14 Furniture, draperies, carpeting and appliances are a part of the sales package in over 90% of mobile homes sold. Sizes of furniture and appliances are generally standard. Owners have indicated that they would spend as much as $500 to get better quality interior design and better quality furniture. The buyer has the option to omit, exchange, add or "special order" furnishings and appliances as he desires.

15 The addition of one's own furniture and accessories gives the interior a more inviting appearance.

16 The amount of floor space is of particular interest to buyers. Suggested room space requirements amount to 200 square feet per family member. The popular size mobile home is 12 feet x 62 feet to 65 feet, which provides 744 to 780 square feet. If the length of the hitch is included in the overall length, then subtract 3 feet to get the actual length of the heated area.

17 Mobile homes usually make very efficient use of storage space. Twenty-four-inch-deep closets for hanging garments with 4 feet of rod space per person are needed. Storage space for linens near the bath-bedroom area should be 18 inches deep. There is also need for space to store cleaning equipment, preferably in the kitchen area of the unit.

18 Light fixtures are standard equipment. Of course, portable lamps are also needed. There should be general lighting, usually a ceiling fixture, in each room. Adequate light at chairs, at the dresser, at the bedside, at the mirror in the bath, over the sink and over the dining area are needed. Owners have indicated a high level of satisfaction with lighting in mobile homes.

19 Kitchens are usually one of the most interesting areas of mobile homes, and owners have indicated a high level of satisfaction with them. Kitchens in mobile homes, as in traditional houses, range from minimum standards in cabinets, space and appliances to luxury standards.

20 A 150- or 200-amp service is needed for electrically heated mobile homes. More common types of heating are forced hot-air systems using gas or oil for fuel. Mobile homes should be fully insulated for comfort and economy.

The majority of the homes built today do not come with a cooling system. If one wishes to have them air conditioned, a window unit has to be installed.

Financing

21 The price range for mobile homes ranges nationally from $4000 to $18,000, with the 1971 average price $6,050 for a home approximately 12 feet x 62 feet.

22 Financing is necessary for most purchasers of mobile homes, but it has usually not been a problem even during periods of "tight" money. As of February 1971, the interest rate of mobile homes was 12.5% U.S. average.

23 Financing is usually done through banks or other commercial lending agencies. Generally, a downpayment of from 10% to 20% is required on a conventional loan by a finance company or bank. For a typical loan of $6,000 a 10% downpayment is required with an amortization period of 100 months. Homes costing over $6,000 may require 15% down with a pay period of 120 months.

A conventional financing monthly payment on a $6,000 home for five years, including comprehensive insurance, amounts to approximately $99 per month. This represents interests, carrying charges and insurance totaling 13.6%.

24 Federal Housing Authority insured financing is now available. F.H.A. will insure a maximum loan of $10,000. Maximum term is 12 years and 32 days. Interest rates are from 7.9% to 10.57%, depending on the amount and term of the loan. The downpayment is 5% of the total price of the mobile home up to $6,000; 10% on amount, if any, over $6,000.

"Total price" of home may include accessory items, transportation of home to site and initial premium for insurance on the mobile home. To be eligible for F.H.A. insurance, the mobile home must meet F.H.A. construction standards for mobile homes.

25 The Veterans Administration has begun guaranteeing mobile home loans for veterans. A veteran may get a total guaranteed V.A. loan for up to $17,500.

Loans can be guaranteed for a mobile home costing up to $10,000 with interest no greater than 10-3/4% simple interest for 12 years.

Loans for purchasing a lot at a cost up to $5,000 can be guaranteed, and cost of low improvement such as water and sewerage up to $2,500 can be guaranteed.

Loans are made by commercial banks, savings and loan associations or other commercial lenders. There may be no downpayment. Mobile units must have a one-year manufacturers warranty and have a minimum or 400 square feet.

The Farmers Home Administration does not make mobile home loans.

26 Certain papers and financial agreements must be signed by the purchasers of mobile homes. There are the credit application, dealer contract and purchase order guarantee, certificate of title, promissory note and chattel mortgage.

The promissory note states the agreement on payment arrangements and the chattel mortgage holds the mobile home as security on the loan.

Placing

27 In deciding where to locate a mobile home, one has a choice between a private lot or a lot in a mobile home park. About half of the mobile homes are in parks; the other half are on private individual sites. There are more than 22,000 mobile home parks providing more than a million spaces for mobile homes. The average mobile home site life is over four years, which is much longer than the average apartment occupancy. Lots for F.H.A. or V.A.-insured mobile homes must have F.H.A. or V.A. approval.

28 In selecting a mobile home park you should be concerned with:

1. Recreational and other facilities offered, such as paved streets, club house, pool, golf course and community laundry.

2. Monthly site rental charge. The range is from $20 to $100 or more, with the average about $50 for 4,000 square feet.

3. How many sites there are and how big the lots are.

4. Whether the park is socially suited to your needs, your interests, your age bracket.

5. Education facilities such as schools, community colleges and school transportation system.

6. Services and utilities provided and the cost. Septic tanks in soils of poor percolation have often been a restrictive element in mobile home parks.

7. Nearness to employment.

8. How much the local property taxes are.

9. What the rules of the park are on pets, parties, gardening and children.

10. Storage for bulky items.

11. How well the park is managed.

12. Off-street parking, paved walks, personal security and the overall appearance of the park.

In selecting a private lot for parking a mobile home, use about the same points of consideration as in a mobile home park. Often a lot is given by parents or other relatives, and the fact that the lot may be rent free or very near close relatives may be the stronger factor in deciding to locate a mobile home on a private lot.

Every mobile home lot should contain at least 2,500 square feet of area to accommodate modern mobiles and their appurtenances and to assure adequate clearance between mobile homes. Lot sizes of 3,000 square feet and more are frequently used to accommodate the larger homes and for more privacy. These larger lots provide for later changes in design, such as carport or porch addition.

There should be at least 15-feet clearance between adjacent mobile homes except for mobile homes placed end to end, which need only 10-feet clearance when opposing ends are staggered. There should be 25 feet from any mobile home to the property line abutting a public street or highway and 15 feet from all other park property lines.

Safety

It is very important that mobile homes be secured against overturning by wind. Reports and field tests have shown that winds as low as 60 miles per hour have overturned mobile homes. Anchor straps are built in at the factory on late models. Recommendations for anchoring a mobile home are the following:

1. Locate foundation piers at about 10-feet intervals under the frame.

2. Piers should be of concrete or steel.

3. Footings under block piers should be 16 inches x 16 inches x 6 inches.

4. Anchor ties should be attached to the outriggers of the frame or over the top of the coach. Tie-down straps are built in at the factory on request.

5. Ties should have breaking strength of 2,800 pounds.

6. Ties passing over the coach should be fastened securely to the coach at both top corners. Commercial metal roof brackets are available for use with both cable and strap over-the-top ties.

7. At least one anchor should be placed near each front and rear corner of the unit. Use more where strong winds are prevalent.

34 Several types of anchors can be used, and one may be better for one type of soil than another. The pull-out capacity of the anchor used in the soil type of the area should be investigated.

In loam, sandy soil and soft clays or where high water tables are encountered, the screw auger is preferred.

For dense or rocky sands or stiffer clays, a cast-in-place concrete deadman is preferred. Tamp the earth thoroughly around and above the anchor.

Expanding deadman is another type of anchor which makes use of precast concrete buried and may be a choice to use in some types of soil.

If the unit is located on a slab, anchors may be attached directly to it.

35 One set of steps is necessary for every mobile home. Steps should be strong and wide enough for two or three people to stand at one time. All risers should be equal and handrails are advisable. For even greater safety and convenience, a stoop 4 feet x 6 feet at the door or a regular porch will add safety and convenience, particularly if the porch floor level is near the floor level of the unit.

36 Good grounding is especially important in mobile homes from the standpoint of electrical safety. Metal siding may become charged from damaged or exposed electrical wiring and become as "hot" as the hot line itself. Be sure that grounding is sufficient to take electricity off the metal sides and chassis directly to the ground wire and that the whole electrical system is grounded to a good gounding rod. The ground wire should be securely attached to a ground rod driven at least 8 feet into the ground.

Landscaping

37 Good exterior landscaping may be the most rewarding thing one can do in mobile home living. In fact, the poor exterior of some parks has

been a big culprit in establishing a poor image of mobile home living in the minds of many people. In this mobile home park, the rental office creates a good impression indicating that the park is well planned and well managed.

38 Good landscaping can be achieved with a small investment in materials and a little imagination. Factors which contribute to good landscaping include:

Steps - durable, attractive, safe, with stoop.

39 Curtain wall - neat, attractive, coordinates with the exterior design of the mobile home.

40 Covered hitch - neat, coordinates with mobile home and/or curtain wall.

41 Plantings - low-growing and slow-growing.

42 Exterior living areas and privacy can be established by the erection of selected fence design and materials. Although many mobile home families hail the closeness of neighbors, most families still prefer some privacy in outdoor living.

43 The addition of outside storage can be tastefully done if a little creativeness and neat, tasteful construction are used.

Maintenance and Depreciation

44 Mobile home manufacturers claim to build with "wash-and-wear" type interior materials. Even so, additional maintenance of a mobile home is necessary. Some owners say that cleaning is more often necessary because of compactness and more frequent use of the same area.

Ceiling, walls, floors and appliances are similar to those in other homes and need the same normal care. Scrapes, scratches, chips, gouges and dirt smudges can be removed by cleaning, filling and painting.

45 Heating systems should be checked and serviced prior to each heating season by a qualified person. The air conditioner filter should be kept clean by washing or replacing.

46 Uneven settling of foundation piers may cause windows and doors to bind or fit improperly. Leveling may be necessary to correct this. Lubricate hinges each year. Windows should be opened frequently and cleaned in the track and around metal jambs.

47 The exterior finish of a mobile home is most often synthetic enamel, lacquer or acrylic enamel. Cleaning and waxing are recommended when needed. This may mean several times per year, depending on environmental conditions.

48 Replace bad caulking and tighten screws to prevent moisture from getting in.

49 The roof should be checked twice yearly. Keep debris removed and the surface clean. Most roofs may need coating every other year. All moldings, stacks, vents and seams should be kept watertight by keeping well caulked.

50 Where there is no occupancy during winter, all water supply lines should be drained and anti-freeze poured into drain traps.

51 Mobile homes are valued for resale similarly to used automobiles. On an average a mobile home depreciates about 20% the first year, 10% the second and third years, and 5% the fourth and fifth years. Further valuation is determined by actual appraisal.

Moving

52 The mobile home dealer from whom you buy a mobile home will be responsible for all moving arrangements. The cost of the first move, if within a reasonable distance from the sales center, is a part of the original cost of the unit. There are mobile home transportation companies to move homes at other times.

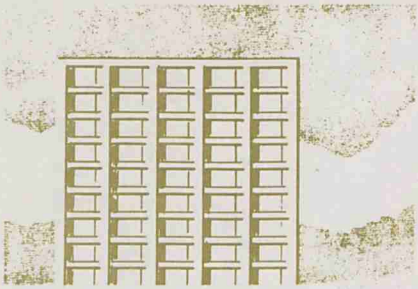
Because the mobile home is classified as an "oversize" movement on the highway, its transportation is controlled by the state highway regulations. Transportation rates are set and controlled by the Interstate Commerce Commission. Rates may differ in each state because of possible toll fees and whether or not a flag car must precede and/or follow the mobile. In many states, movement is restricted to daylight hours and banned on Saturdays, Sundays and holidays.

Most mobile homes are never moved from their first site location during their useful life.

Prepared by Housing and House Furnishings Specialists. North Carolina State University at Raleigh and the U. S. Department of Agriculture, Cooperating. State College Station, Raleigh, N. C. George Hyatt, Jr., Director. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Novmeber 1971

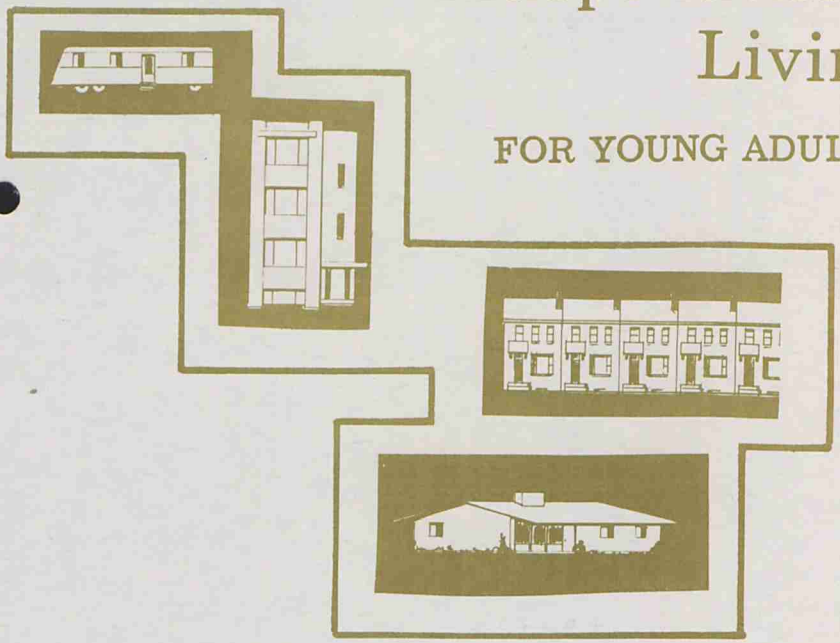
HOUSING AND HOUSE FURNISHINGS DEPARTMENT

1. Young adults (16-20).
2. "Independent Living for Young Adults".
3. Purpose and learning experiences:
   a. To provide young adults with some basic information, to make them aware of shelter needs and to help them analyze the choices and make plans for acquiring shelter needs.
   b. To help parents guide and support young adults in locating desirable shelter they can afford.
   c. To help others become aware of the shelter problems of our youth who are seeking independent living quarters and some of the opportunities adults have in providing this shelter.
4. The teaching method suggested in lecture-discussion:
   Approximately 20 flip chart ideas will be provided with the lesson sheet. These flip charts can be transferred by using an opaque projector to flash ideas on a large cardboard to be traced. This will enable agents to provide several sets of illustrative material for leaders.
5. Extension agents, 4-H leaders, community leaders, Extension Homemaker housing leaders and others can do the teaching of this lesson. Also, many young people would benefit from studying on their own.
6. The lesson sheet "Independent Living for Young Adults" and a set of chart ideas will be provided.



Independent Living

FOR YOUNG ADULTS



The purpose of this study is:

1. To provide for young adults basic information on housing needs and points to consider when seeking their first shelter away from their parental home.
2. To promote parents' support of young family members by helping them to find adequate shelter which can be afforded.
3. To help others become aware of some of the problems and needs young adults have in locating adequate housing and some of the opportunities they have to provide it.

Prepared by Edith B. McGlamery
Housing and House Furnishings Specialist

Published by

THE NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

North Carolina State University at Raleigh and the U. S. Department of Agriculture, Cooperating. State College Station, Raleigh, N. C., George Hyatt, Jr., Director. Distributed in furtherance of the Acts of Congress of May 8 & June 30, [illegible]4.

INDEPENDENT LIVING FOR YOUNG ADULTS

Shelter is a basic human need that many young people take for granted until they prepare to leave home.

Some living units that would possibly satisfy shelter needs when one is seeking a first home away from home are: a single room, a small or large apartment, a duplex or a mobile home, which can be located in a town, a city or the country.

No matter what his choice when planning and furnishing a home, one should have the following goals: a definite purpose, economy, beauty and individuality. Underlying all of these is appropriateness.

Purpose is an important consideration. You'll want your first home to provide space for your activities; seating arrangements that earn the space they take; storage that is adequate, convenient and accessible; plus lighting, heating and plumbing for comfort.

Economy refers to the management of your human, material and monetary resources. Abilities, time and energy make up human resources. The environment in which one works and relaxes determines in part the productivity of an individual. Thus it is sound economy for space to be well planned and furnished for sleeping and dressing - and studying if you are a student.

Material resources are all the useable things that you have on hand, including gifts. Many other items that perhaps you already have can be used if cleaned, repaired, refinished or adapted in some way. Where purchases must be made, each purchase should contribute its full share to the total plan of your furnishings. Consider both the original cost and the maintenance. Easily maintained items may offset their higher cost.

Beauty is that quality which pleases the senses and that lifts the spirit. Design for beauty has no laws, no recipes and no rigid standards to trouble or to comfort us; for beauty and creative individuality are close partners.

Individuality is the quality that makes your home different from those of your friends. It makes you feel that your home is really yours.

Pattern for Living

When you consider the type of housing you need, consider the space required for good living. Is it to be for you alone or is it to be shared with others? Or is it to be your first home as a bride and groom? Home should be a place where you can find self-expression and happy living.

You may settle for something less than you would like in a home, but you can make the most of the money you spend for shelter if you know: (1) what type of living space you need and want; (2) how to manage shelter costs; (3) how to judge value when renting or when buying a mobile home.

There should be great freedom and flexibility for young people, whether single or married, as was stated in the introduction. Limited responsibility for care and upkeep may be a bonus when you need time for concentrating on further educational training, a career or social or recreational activities. Many wish to enjoy the opportunity for independent living without the expenditure of a great deal of effort and money; temporary quarters may be all you need now.

Shelter Cost

The amount you spend will depend on the importance you place on physical surroundings and what your income will allow.

If you are renting, items to consider are rent cost and utilities (heat, air conditioner, lights, telephone, water). Ask these questions:

Is the unit fully or partially furnished? Will the wall finishes and colors be permanent? How much extra cost will there be if the landlord re-does them.

Right Neighborhood

Each community has its own atmosphere, character, conveniences and standard of living. Consider: (1) Appearance of neighborhood. Is it well kept and attractive? (2) Standard of living. (3) Transportation. Will you need a car to travel to work, school or stores? If a car is needed, count cost of the car, cost of parking, etc. (4) Safety. Are the house and street well lighted? (5) Noise factor. (6) Restrictions on animals, etc.

When You Rent

There are a number of ways to go about finding a place to rent. Ask your friends and relatives to let you know when they hear of any vacancies. Watch the classified ads in the newspaper, or advertise your specific need. File your request with a real estate agency. Watch for "vacancy" or "for rent" signs as you travel along different streets. When you hear or read of a possible vacancy, you may save time and effort by making a telephone call to learn if the space is available before you go on an inspection trip. When you find a place that is adequate for your needs, inquire who is responsible for the management of the property and to whom you pay rent. It is important that final agreements regarding rental of the property are made with the person who has authority to do so.

The Lease

When you rent you may have either a written or a verbal agreement with the landlord, known as a lease. A written agreement, signed by landlord and tenant, is a legal document that binds both parties to the provisions

specified in it. A verbal agreement, on the other hand, may offer less protection to both parties, as there is no written evidence of the agreement.

Before you enter into either type of agreement, you will want to have a clear understanding on the following points. If you have a written agreement, be certain that these provisions are stated in the lease:

- How long the lease runs. Verbal agreements are frequently on a month-to-month basis; written agreements usually run for a year or more.
- The amount of the rent, and if, when and by what amount it can be increased.
- Length of notice required by law before moving when your lease expires.
- Whether you are required to pay one or more month's rent in advance as security to the landlord.
- Who is responsible for upkeep and maintenance.

Checklist for Renting

When renting an apartment or a house, consider the following questions:

Exterior

- Is the character of the community: to your liking? _____
  convenient for your activities? _____
- Is the style of the dwelling: attractive? _____
  in keeping with others in the area? _____
- Is exterior construction in good condition? _____
- Are major views pleasant? _____
- Is there sufficient: daylight? _____
  sunlight? _____
- Is yard landscaped, with lawn and shrubs in good condition? _____
- Are there parking facilities, such as a garage or carport? _____

Entrance

- Are entrances well lighted? _____
- Is there a side or rear entrance for deliveries? _____
- Is the entrance to inside hallway kept locked?

Entrance (continued)

- Are hallways and stair ways well lighted and clean? _____
- Are there adequate fire escapes? _____

Interior

- Are the following in good condition: windows and doors? _____
  floors, walls and ceilings? _____
- Is the insulation adequate? _____
- Are walls and floors insulated against noise? _____
- Are electric outlets where you will need them for: lamps? _____
  radio and television? _____
  large appliances? _____
  small appliances? _____
- Is the current adequate for all purposes and appliances? _____

Equipment

- If needed, are the following provided for all windows:
  shades and blinds? _____
- Are the following adequate and in good condition:
  plumbing? _____
  heating unit? _____
  kitchen appliances? _____
  water heater? _____
- Are all the above operating satisfactorily? _____
- Are there facilities for disposal of garbage? _____
- Is there telephone services? _____
- Must you have a telephone installed? _____
- May you have an outside aerial for television? _____
- Is there a charge for plugging into a common aerial? _____

Arrangement of Space

- Can the rooms be adapted to your needs? _____
- Are rooms and wall spaces large enough for your furniture? _____
- Is amount and arrangement of work space in kitchen satisfactory? _____
- Are closets, cabinets, shelves and all other storage spaces adequate for your needs? _____
- Are windows well placed for satisfactory ventilation in all rooms? _____

Arrangement of Space (continued)

- If not, are there fans or an air-conditioning system? _____

Responsibility for Maintenance When Renting

- Is the person responsible for upkeep and taking care of complaints easy to get in touch with? _____

- Is he: the owner? _____
  an agent? _____
  a representative of a management firm? _____

- What maintenance costs are included in the rent:
  electricity? _____
  gas? _____
  water? _____
  telephone? _____
  repairs and replacement? _____
  decorating? _____

- If needed, will the landlord:
  make repairs? _____
  decorate completely before you move in? _____

- Is window washing taken care of by the management? _____

- Are you offered a written lease? _____

Mobile Home

The mobile home is obviously here to stay. In 1970 nearly one-half of the single units, or one-fourth of all new dwelling units, bought were mobile homes. In 1971 shipments promise to set a new record. Today mobile home living is not only a way to inexpensive housing but also a way of life attractive to many people of all ages and particularly the young.

Students live in mobile homes on or near campuses. Technicians, military personnel, laborers, professional men and craftsmen buy them. Young married couples find them within their means and comprise the largest group of owners. Prices generally range from $3,000 to $12,000, with an average price of $5,600. The purchaser can finance his home as he does his automobile.

Once the home is placed on its site and connected to the utilities, it

is ready to live in - equipped with furniture, draperies, carpets and lamps, as well as kitchen appliances with brand names. Some homes include dishes, pots and pans. Wedding shower presents can add the finishing touches. Optional features such as automatic dishwashers, garbage-disposal units and year-round air conditioning are available.

Colorful kitchens may have such mechanical and architectural amenities as wall ovens, double sinks, rotisseries, maple cutting boards, two-door automatically defrosting refrigerator-freezers and picture windows over sinks. There are baths with twin wash basins in marble counter tops, the space beneath neatly fitted with door and drawer storage.

There are models with three bedrooms or more, while some one-bedroom homes are equipped to make an overnight guest room in an end of the living room. Temporary walls swing out and a full-size Murphy bed comes down from a hidden recess.

Furnishing styles to choose from are Early American, French Provincial, traditional, contemporary, Mediterranean and furnishings with an oriental feeling in rattan chairs, lacquered chests and screens.

New mobile-home parks are landscaped and often have home sites placed along winding paved drives. In formerly wooded tracts as many trees as possible are usually preserved. The trend is toward a pleasant surburban atmosphere - a country club feeling.

Swimming pools, recreation halls, playgrounds, small shopping centers and often nearby golf courses and waterways for fishing give the communities a special quality.

Furnishings Needs

As mentioned earlier, furnishings needs include space for eating, sleeping and entertaining or relaxing. Furniture and some other furnishings may be obtained in several ways: (1) They come with the apartment or

mobile home, which may be completely or partially furnished. (2) You may obtain them from family members or used furniture shops, in the form of antiques or painted or improvised items. (3) You may buy new furniture. (4) You may rent furniture. Telephone directories in larger cities have listings of rental furniture businesses. If this route is taken, be sure to include cost in with housing. (5) You may use a combination of these.

To make a home yours, there must be something of your decorative touch and flair. Shelter magazines and the Agricultural Extension Service suggest ideas.

Independent Living

FOR . . .

Young Adults

Choices

APARTMENTS :

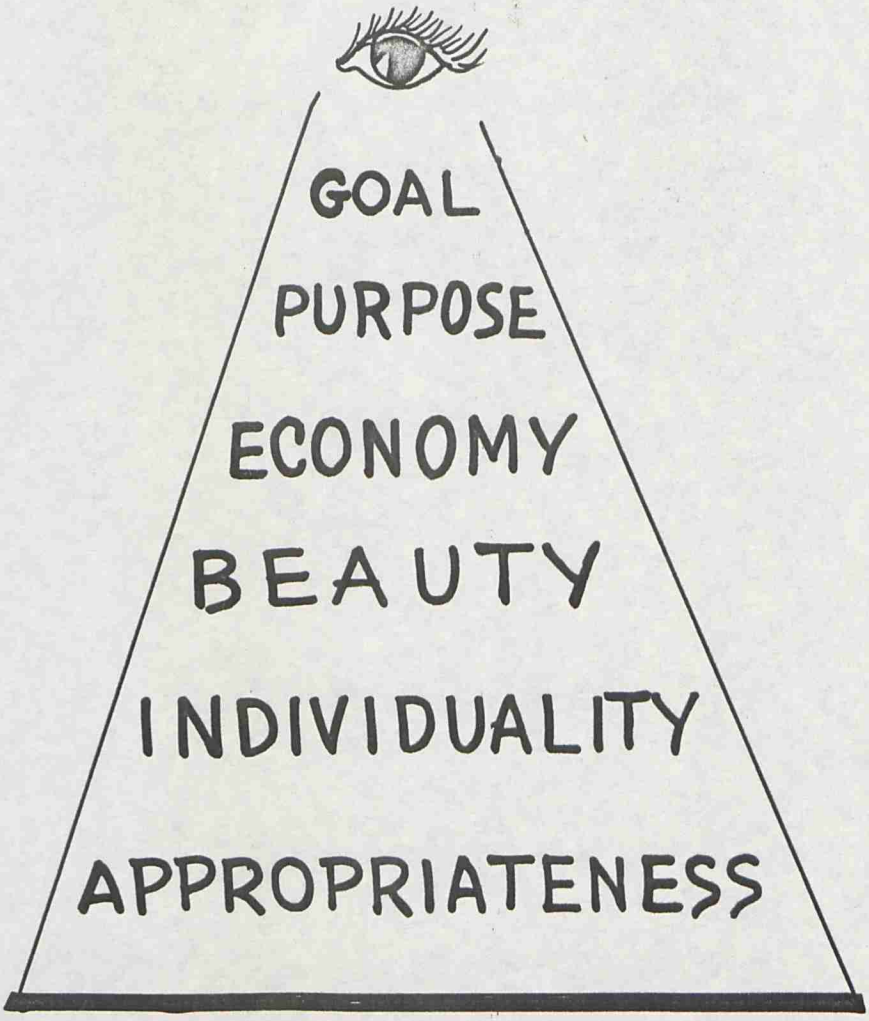
DUPLEX

TOWN HOUSE

HIGH RISE

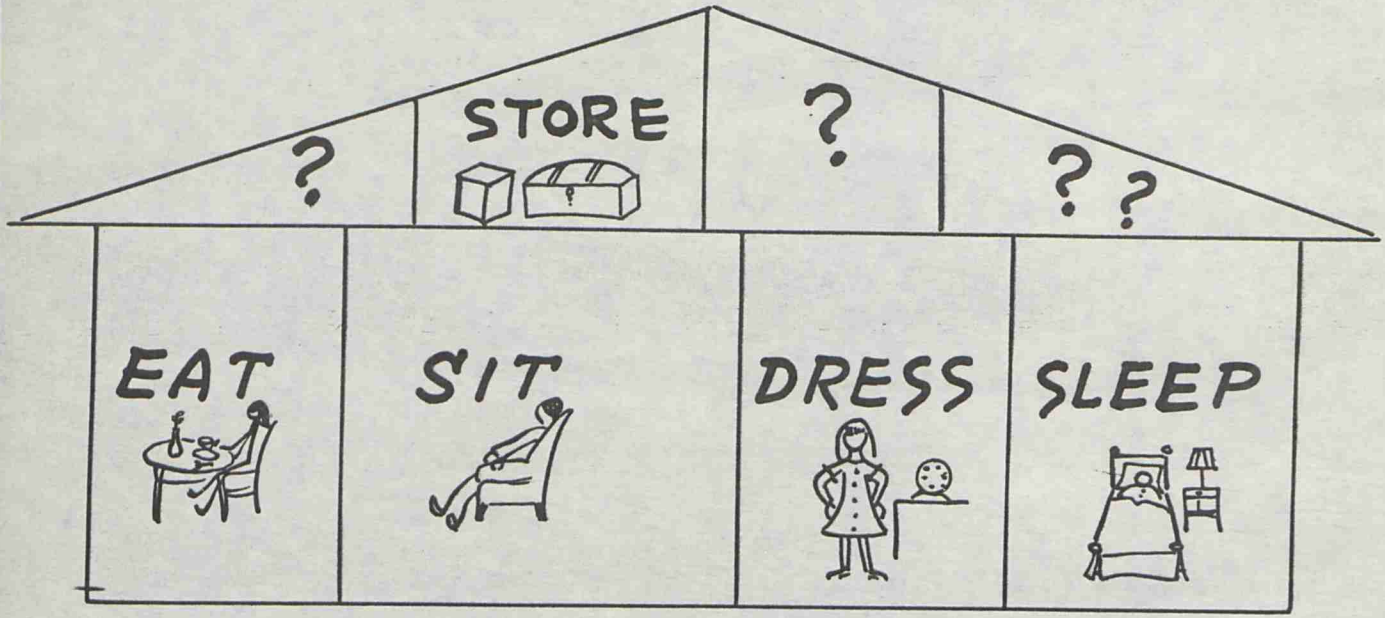
SINGLE ROOMS

MOBILE HOMES


GOAL
PURPOSE
ECONOMY
BEAUTY
INDIVIDUALITY
APPROPRIATENESS

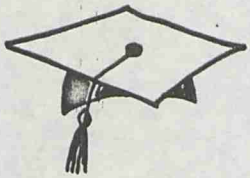
PURPOSE -

IS WHERE YOU HAVE SPACE TO:

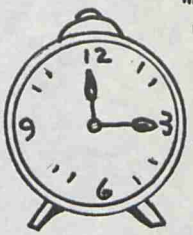


ECONOMY

RESOURCES :

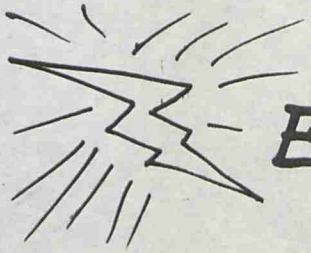


KNOWLEDGE



TIME

MONEY



ENERGY

Shelter Cost:

INCOME $6000 -

HOUSING COST APPROX. 1/5 (1200)

RENT - 3/5 OF HOUSING COST

OPERATORS 1/5 OF HOUSING COST

FURNITURE 1/5 OF HOUSING COST

Beauty AND You!!

Living Pattern:

- ALONE or *SHARED*
- STUDENT or *EMPLOYED*
- TEMPORARY or *PERMANENT*
- *QUARTERED*

Consider:

NEIGHBORHOOD -
APPEARANCE

STANDARD

TRANSPORTATION

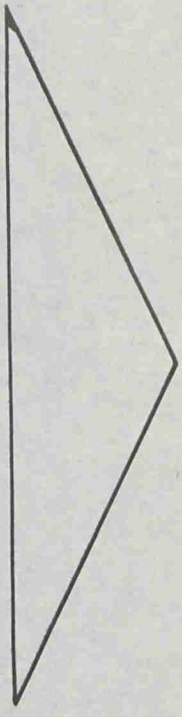
PARKING

SAFETY

NOISE

RESTRICTIONS

Locate:



FRIENDS

RELATIVES

CLASSIFIED AD

ADVERTISEMENTS

REALTOR

POSTED SIGNS

Lease :

- ○ STUDY
- ○ UNDERSTAND
- ○ RENT
- ○ UTILITIES
- ○ FURNITURE
- ○ CARE AND REPAIRS

Check:

EXTERIOR

ENTRANCE

INTERIOR

EQUIPMENT

ARRANGEMENT

FURNITURE:

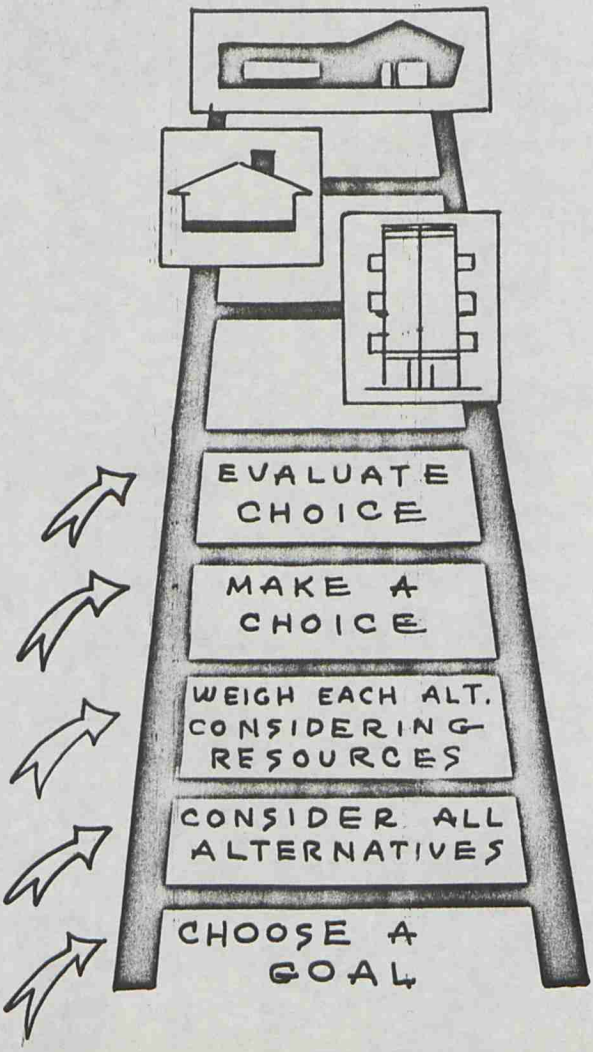
FURNISHED

RENTED

BUY
- NEW
- RE-WORKED
- MAKE

ON HAND

Decisions


EVALUATE CHOICE
MAKE A CHOICE
WEIGH EACH ALT. CONSIDERING RESOURCES
CONSIDER ALL ALTERNATIVES
CHOOSE A GOAL

HOUSING AND HOUSE FURNISHINGS DEPARTMENT

YOUNG ADULTS

1. The use of the senior teen 4-H publication in home furnishings can be extended to other youth and youth groups. It was particularly designed for the ages 15-19. However, some younger 4-H'ers are quite capable of carrying this as a project and the information is basic for even young adults.
2. The topic, "Pull Your Room Together."
3. Learning experiences include planning a room by working out an arrangement, color and pattern placement, background inventory and furnishings inventory and developing some skills in making the plans a reality (new, used and improved backgrounds and furnishings).
4. Teaching method for the first lesson will be an illustrated lecture. Suggested flip chart ideas will be included. These can be transferred to large posters by the use of an opaque projector. Following this lesson, workshops on planning color schemes or developing specific skills could be planned and conducted.
5. Agents or leaders could present this lesson to many clienteles. It is a basic home furnishings decoration lesson.
6. There will be the "Home Furnishings Manual III - Pull Your Room Together" sheet and a group of 20 suggestions for flip charts.

Home Furnishings
Manual III

PULL YOUR ROOM TOGETHER

Projects

1. **Planning Your Room on Paper**
2. **Background for Your Furnishings**
3. **Furnishings to Live With**

Pull Your Room Together

Introduction

Home furnishings projects continue for boys and girls as new ideas and tastes develop and money becomes available. The experience gained in home furnishings work will help in making decisions and planning the decorating of college rooms, apartments, and first homes.

The objectives for each home furnishings project are:

1. To learn principles involved in making the home more attractive and convenient at minimum cost.
2. To develop skills.
3. To demonstrate to others.
4. To attain those individual and social satisfactions that are possible in a comfortable and well-furnished home.

If you have carried home furnishings projects in *Start With a Small Change, Manual I or A Place to Call Your Own, Manual II,* you have had a good foundation for selecting projects from *Pull Your Room Together, Manual III.* If you have not carried projects in these two manuals, it is suggested that you review some of the materials in them. They provide information which will help you in the projects in this manual.

There are three projects presented in this manual. You may do one or more a year. Be sure you have completed the requirements at the end of each section. You may use the same information in carrying projects into other rooms in your home or rooms away from home.

Planning is a very important part of any project. *Planning Your Room on Paper* is laying the groundwork for the projects that follow. Therefore, it is suggested that you choose the first one before you carry either of the others.

The projects in this manual are:

1. Planning Your Room on Paper.
2. Background for Your Furnishings.
3. Furnishings to Live With.

WHAT IS YOUR PLAN?

It's easy — and fun — to turn an old room into one that is bright and new looking. Or, if your room is brand new, there are still many things you can do.

Your home is a private world at home — or it should be. There should be space for your clothes, hobbies, books, and other things you may want to have in your room. You need space in which to use your things, and also plenty of storage space for keeping them. Your room should be colorful and bright. It can be, you know, and you'll enjoy it much more if it is. Most important, though, is that it be a restful room for comfortable sleep.

This is a lot to ask of any room, isn't it? But yours can measure up if you give it some thought and put your imagination and ability to work. So can a home — "be it ever so humble."

PLAN AHEAD

Don't worry if you can't make all the improvements you'd like at one time. Think of how you'd like your room to look when you've finished, and work toward that goal, making improvements as you can. Try to earn the money — or some of it — for the work you plan to do. This will make you feel more independent as you start to make additions. *Improvements need not cost a lot of money!* Some very attractive rooms for teenagers have been done at little cost. It's just a matter of knowing what you need for your room, planning ahead, learning some skills, and doing the job.

TALK IT OVER WITH YOUR FAMILY

Improving a room can be a family project, and working together on ideas, plans, and activities can be fun. Perhaps you and your brother or sister share a room. If so, talk it over and make your plans together.

PROJECT COMPLETION REQUIREMENTS

You have completed a project when you have: first, finished the requirements listed at the end of each project; second, completed the *4-H Record (4-H R-1-8)* supplied by your leader or the county Extension home economics agent; and third, returned all the project record material to your Extension agent or home furnishings leader.

1

Planning Your Room on Paper

Introduction

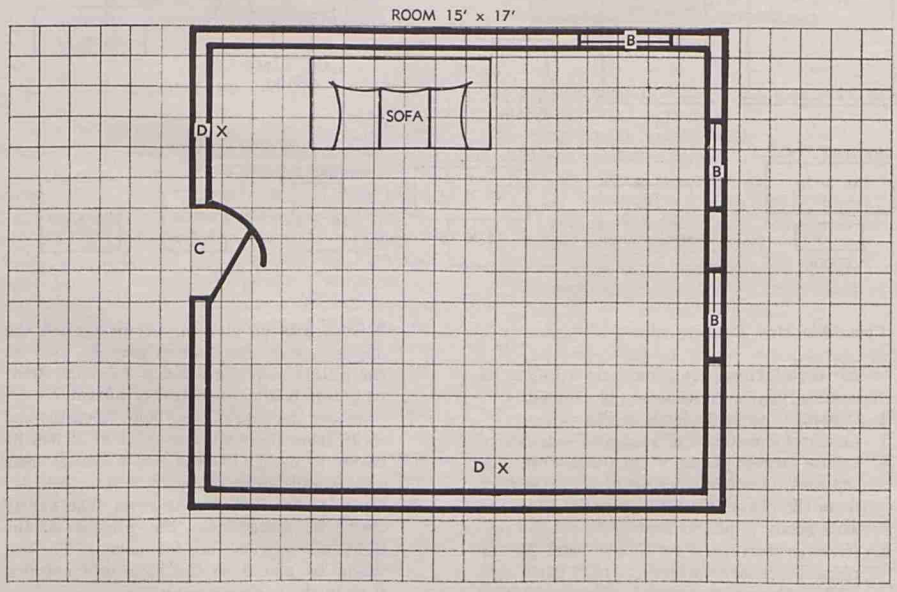
This can be a project within itself, or it can be a part of Project 2, *Background for Your Furnishings* or Project 3, *Furnishings to Live With.*

It is important that your room be planned so that the experiences and activities in your home furnishings project can be satisfying.

START WITH A SKETCH

Begin the way the decorators do and draw a floor plan for your room. To make the plans, get down on your hands and knees and measure the room from corner to corner along the floor. Record these measurements on ¼-inch scale paper, allowing ¼ inch for each foot.

Measure windows and doors. Indicate the way the doors swing if they open into the room. If there are any built-ins, sketch them in, too. Mark the places for electrical outlets and the ceiling fixtures. When furniture is arranged, show lamps on furniture.



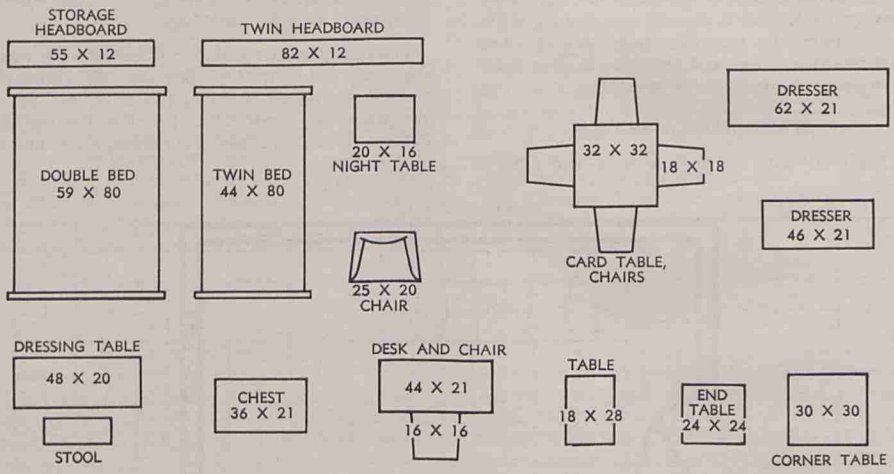
WALL 6 INCHES THICK A
WINDOW B
DOOR C
ELECTRICAL OUTLET D X

Experiment With Arrangements

Next, measure the furniture you plan to use and select from the cutouts the pieces that are nearest the size you have. Trace and cut out any of these pieces of furniture you need to arrange in the room you are redecorating. These sizes are standard; the scale is ¼ inch =1 foot. If you need more different sizes or different pieces, measure the furniture and make a cutout using ¼ inch = 1 foot.

This will give you a chance to experiment with furniture arrangements before you start shoving furniture around. Also, if you are adding other pieces of furniture to your room, you can measure these and place them on your plan before you purchase to check to see if they will really fit.

Place your room arrangement plan in your decorating folder.

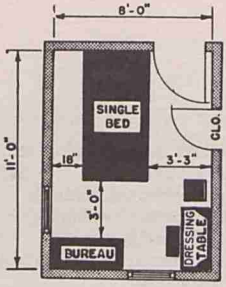


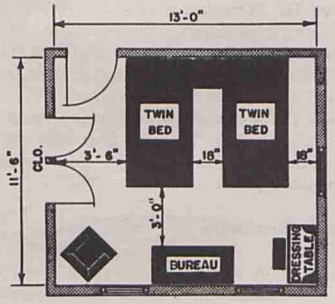
A Few Do's May Help

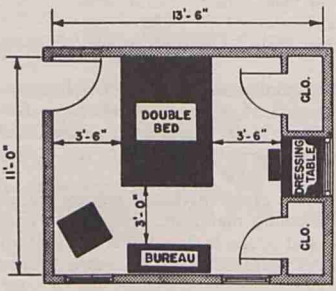
1. Arrange furniture in groups according to its use and your activities (study area, etc.).
2. Consider the traffic lanes in the room.
3. Consider the source of heat and ventilation.
4. Locate largest pieces of furniture first. The bed and its accompanying night table may form the center of interest in the bedroom. This group is placed first.
5. Arrange furniture to follow lines of the room. Place large pieces and rugs parallel to walls. Furniture angled across corners wastes space.
6. Balance opposite sides of room. A door, a window, or tall pieces of furniture may balance a large piece or group against the opposite wall. Accessories may be used on the wall to help add balance; use such items as pin-up boards, pictures, or mirrors.
7. Consider the care of the room. Keep the bed away from the wall if possible so it will be easier to make. Place a waste basket near vanity and study center.
8. Consider the light in the room. The vanity might be placed near the window so the light falls on your face for makeup. The bed might be placed so the light will not disturb in the early morning.
9. Consider room use: Keep passages clear to closets; dressing table might be nearest the bath.

Sample Arrangements

Some typical arrangements are shown below. Make your room as attractive and convenient as you can. The way you arrange it and use it will reflect your own taste.







A LOOK AT COLOR

Color is an exciting and important part of every home furnishings project. To decide on your color scheme, consider the size and shape of the room, the number of windows, and how much light comes in. A northern exposure would probably call for a warm color. A southern exposure would probably call for a cool color. Plan the color for everything in the room: walls, woodwork, floors, furniture, curtains, rugs, bedspreads, lamps, and pictures. Plan how all of these will go together before you start to work. Making color count in your room is not a matter of dollars and cents but the result of planning.

Choose colors which will help your room and be becoming to you. Did you know that all the colors belong to just three families—red, yellow, and blue? These are called primary colors. From them you can make all other colors.

You will find how to make a color wheel in Project 1 in *Begin With a Small Change*, 4-H C-17-6.

How to Use Color

You can use colors together in your room in one of the following ways:

1. *One color* can be exciting when you vary the values and intensities. Try pale gold, gold, and brown together.
2. *Neighboring colors*, such as yellow-green, green, and blue-green, get along well together. They are adjoining colors on the color wheel. Such a color plan is interesting if you can use some light, some dark, some bright, and some dull colors.
3. *Complementary colors* are colors which are opposite each other on the color wheel, such as blue and orange. Blue makes orange look brighter; orange makes blue look bluer.
4. *Neutrals* such as black, white, gray, buff, beige, cream, or oyster white are modern, light, and cheerful. One or more neutral colors with a bright accent are often used in a ranch-type or modern room.

Inspiration. Color can tie your various pieces of furnishings together. Let the color of a fabric, rug, piece of wallpaper, picture, or other decorative articles you have be the inspiration of your color scheme. Use an advancing, neutral, or receding color according to the amount of sunlight the room gets.

Plan to use the subdued, light, or neutral colors on the largest areas, walls, floors, and windows. Accent the smaller movable furnishings in bright colors. This will give you balance.

A LOOK AT TEXTURE

Rough, velvety, fuzzy, crinkly, stiff — have you ever touched materials that feel like this? These words describe different textures. Texture is as important as color in choosing materials that look well together in our homes.

What is texture? It is the surface appearance and feel of materials—

- How they look—fine or coarse, shiny or dull, or in-between.
- How they feel—smooth or rough, or in-between.
- How they handle—soft or stiff, or in-between.

Texture is part of every material thing. Run your fingers over your cheek, hair, clothes, and chair. This will give you some idea of the variety of textures within your reach.

You will find a great variety of textures in all kinds of furnishing materials, also. They range from coarse and rough to fine and smooth. Many materials have textures that fall between these extremes.

Texture has lots to do with how formal and dressy a material is, or how informal and casual it is. Four different groups and their degrees of formality are shown below. Can you add other examples to each group?

Group I. Some materials with coarse, rough textures: burlap, tweed, cork, used bricks, shag rug, bamboo window shades. These materials give a rugged, informal effect.

Group II. Materials with in-between textures: Indian Head, denim, felt, tufted bedspreads and rugs, matchstick window shades, redwood. These materials give a sturdy, informal effect.

Group III. Materials with in-between textures: dotted swiss, polished cotton, batiste, organdy, chenille bedspreads, fine-loop rugs. These also give an informal effect, but are daintier than those in Group II and not so dressy as Group IV.

Group IV. Materials with fine, smooth textures: satin, taffeta, brocade, floor tiles with metallic chips, velveteen, marble. These materials give a dressy, formal effect.

Points to Remember

- Like color, texture is a source of beauty.
- No texture group is better than another. You can use any group of textures to make pleasing combinations in furnishings.
- Use your fingers and your eyes to learn the differences among textures and which ones go together. Sight and touch will help you enjoy the wonderful world of texture.

A LOOK AT DESIGN

Have you ever thought of yourself as a designer? Actually, we all are designers.

We are creating designs when we plan and make a poster or bulletin board, or make a flower arrangement. We are assembling designs when we arrange cookies on a plate, set the table for dinner, arrange grooming supplies on a dresser, or tack snapshots on a bulletin board.

We are making decisions about design when we select earrings, a necktie, shoes, or material for a dress or curtains.

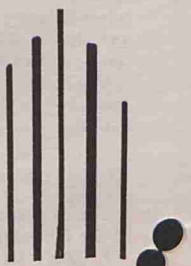
What is design? Design is the selection and arrangement of colors, textures, shapes, and lines. Its aim is to create order and beauty. A design can be an individual object such as a chair or a car, or it can be a group of objects used together, such as a room with all its furnishings.

Line and Shape

Lines

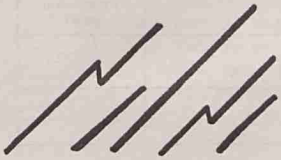
- Lead our eyes through space.
- Give direction or movement.
- Outline shapes.
- Make spaces.

Some examples of lines in a design are: pleats in a skirt, seams in a bedspread, mortar between bricks, spiderweb, and shelves for books. Can you think of others?

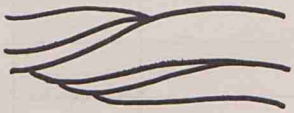


Lines have their own language. A vertical line "speaks" in a dignified, formal way.

A horizontal line speaks quietly and restfully and suggests stability.



A diagonal line is active, sometime restless and exciting.



A curved line is gentle, quiet, and restful.

These examples will help you see other kinds of lines and "hear" what they are saying.

Did you notice how the thickness of lines influences the effect they give? Thick lines often give a feeling of strength and boldness, while fine lines give a feeling of delicacy and lightness.

Shape

When a line meets itself, we have a shape. Shape is the outline of something—a circle, leaf, spoon, cup, dog, etc.

Shapes also create different effects. For example, shapes that are blocky and square may give a sturdy, strong, and heavy effect.

Rounded shapes seem more feminine and graceful than angular shapes. The slender triangles that form church spires suggest dignity and a reaching upward.

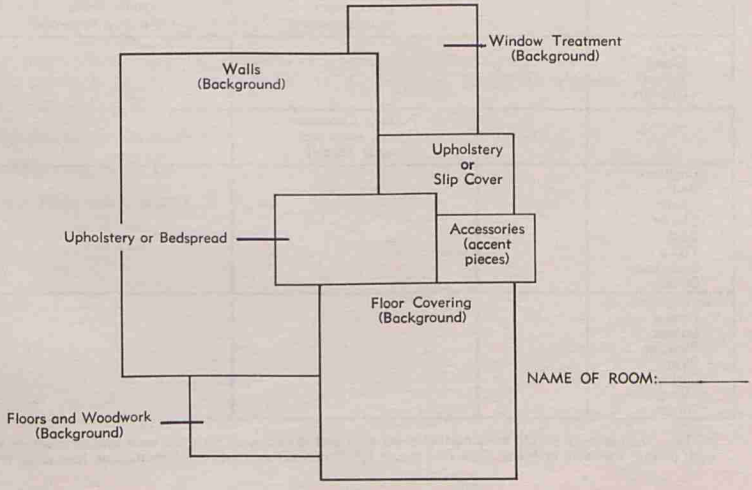
When you look at other shapes, notice your reactions to them.

PLAN FOR REDECORATING

Color and Pattern Plan

A visit to stores and looking through shelter magazines and at decorations will help you to make a plan for a four color scheme and the fabrics you wish to use in your room.

Make a folder in which to use the guide shown below. Place on the guide your color samples and pattern swatches.



Plan for Background in Room

On a sheet of paper make a form using the information given below. Leave space to fill in as you make your inventory, plans for changes, and work schedule.

Part of Room	Present Condition (good, worn out, soiled)	Changes to Be Made	When (month and year)
Walls Material Color			
Woodwork Finish Color			
Floor Finish Color			
Floor Covering Material Color			
Ceiling Material Color			
Window Treatment Material Color			

Plan for Furnishings to Live With

On a sheet or sheets of paper, make a form using the information given below. Leave space to fill in as you make your inventory, plans for changes, and work schedule.

		Present Condition (enough, right place, right kind, none)	Changes to Be Made (make, buy, renovate)	When (month and year)
Storage Closet Shelves Drawers	For What?			
	List	Present Condition (good, worn out, needs repair)		
Furniture Bed Chairs Chests Desk Table Bookcases Other				
Accessories Linens Lamps Pictures Plants Dishes Mirrors Others				

NOTE: Maintenance should be a part of every plan and is necessary for good wear and satisfactory life of every item and each area in the room or house. Save and mount labels and secure reliable information on how to do this.

PROJECT REQUIREMENTS AND RECORD

Make a folder to include:

1. Your planned room arrangement.
2. Your plan for decorating — color and pattern.
3. Your plan for redecorating the background for furnishings.
4. Your plan for decorating for furnishings to live with.

Attach to this folder your *4-H Record* (4-H R-1-8) before turning it in to your county home economics agent or home furnishings leader.

PLACES TO VISIT

Furniture stores Department stores Open houses

DEMONSTRATIONS TO GIVE

Know Your Colors

Principles of Arranging Furniture

Principles of Planning a Color Scheme

Texture Plays a Part in Home Furnishings

How to Make a Furnishings Plan

REFERENCES

Ask your county home economics Extension agent or your home furnishings leader for the following publications published by the N. C. Agricultural Extension Service. These may prove helpful to you.

Arranging Furniture, H. E. 80

Begin With a Plan, H. E. 75

Furnishing Your First Home, H. E. 76

2

Background for Your Furnishings

Introduction

The background for your furnishings project will help you understand the importance of creating a pleasing stage for you and your furnishings. You will have an opportunity to study and select materials and also to develop some skills in the application or construction of wall finishes, window treatments, and floor finishes.

Areas to Consider

The walls, ceiling, woodwork, floors and sometimes windows form the background of a home. They are all so closely related that they must be planned together. They should create a pleasing background for people and furnishings. Their colors, textures, and design should be related to one another, to the furnishings, and to the personal taste and activities of individuals or the family.

Ask some questions about each of the parts of the background, such as:

If Working with Walls and Ceiling

What is the size and shape of the room?
On what side of the house is the room?
What colors do you, or the people involved in the change, prefer?
What colors are in rooms or hallways adjoining this room?
What furniture will remain in the room? What color is it? Will you change the color? How?
How are the walls and ceiling presently treated?
What is the condition of the walls and ceiling? Will repair or structural changes be necessary?
What will you use on the walls? Wallpaper? Paint? Wallboard? etc.
What help will you have with the work?

If Working with Floors and Floor Coverings

What finish is on the floors?
Should structural changes be made? If so, what?
What type of floor is most suitable for this room? Why? (Consider cost, installation, upkeep, etc.)
What care and upkeep is needed for each floor you consider?
What help will you have with the work?

If Working with Windows

What kind of windows do you have?
What are the measurements and locations?
Would shades, blinds, curtains, or draperies be best?
What treatment would best control light? Air? Privacy?
What curtain or drapery fabric would be most satisfactory? Why?
What tools and materials will you need?
What help will you have with the work?

WALLS AND WALL FINISHES

Light Should be Considered

When choosing your wall colors, your *light* should be considered. Your choice of color can make the most of both natural and artificial light.

Glare coming in from large glass areas can be softened. Dark colors absorb light while light ones reflect it. The following chart shows the amount of light reflected by colors used for wall and wood finishes as given by the Illuminating Engineering Society.

Color	Light Reflected	Color	Light Reflected
White	85%	Dark	
Light		Gray	30%
Cream	75%	Red	13%
Gray	75%	Brown	10%
Yellow	75%	Blue	8%
Green	65%	Green	7%
Blue	55%		
		Wood Finish	
		Maple	42%
Medium		Satinwood	34%
Yellow	65%	English oak	17%
Gray	55%	Walnut	16%
Green	52%	Mahogany	
Blue	35%	(dark)	12%

Wallpaper

Wallpaper can give pattern and interest to walls and help to set the theme of the room. Room irregularities can be camouflaged with carefully chosen designs. A scenic paper gives the illusion of a view and space to a small room, while an allover pattern can conceal odd angles, corners, and rough walls. Allover designs are easier to handle than those that need matching.

Wallpapers are generally classified as non-washable, or water sensitive, and washable, or water-resistant. There are plastic coated papers that are washable. Some papers are guaranteed to be sunfast.

Be sure to get samples large enough to give you a good idea how the paper will look on the walls. Most patterns will look bolder when wallpaper is applied to the wall.

Wallpapering a room takes a great deal of patience, but it's a job amateurs can do. Ask your wallpaper dealer how to apply. Once you get the "hang" of it, it goes faster than painting.

Paint

Paint beautifies and protects. Inside we use paints on walls, woodwork, built-ins, and some floors.

Many people do some or all of their interior painting. Some do it for enjoyment, some to save money. Others do it because you can't always get a professional painter when you need one. Whether you do it yourself, help your parents, or have painting done by contract, it is useful to know something about selecting and using interior paints.

1. Paint is a mixture of solid pigments (coloring agents) in a liquid vehicle. New paints appear on the markets frequently as manufacturers compete for your paint dollar.

2. The desirable characteristics of many of the new paints are that they are easily applied, dry quickly, hold their color well, and have no objectionable odor; and they can be washed.

3. Before you buy paint, read the label. Consider the different types and their special characteristics, the condition of surface to be painted, and how the rooms are used. Colors must also be considered if you want to create special effects.

How Paints Are Classified

Paints are classified according to degree of gloss they have.

1. *Gloss* paints or enamels are most resistant to wear and washing. They are preferred for kitchen and bathroom walls and for wood trim. Some are made especially for floors.

2. *Semi-gloss* paints or enamels are less shiny. They are sometimes used for walls, and they often are used on wood trim in rooms other than kitchens and baths.

3. *Flat* paints, without any gloss, are preferred for all walls except kitchens and baths.

The New Flat Paints

New flat paints are being developed. Watch for proper thinner to use. Learn how to apply and where they can be used.

Special Problems

1. On previously unpainted plaster, use a water-emulsion paint; or follow label directions on solvent-thinned paints with regard to using a primer.

2. Wood trim may be painted with wall paint, whether solvent-thinned or water-emulsion type; or use gloss or semi-gloss enamel in color to match or blend with walls.

3. Mixing colors must be done with care. Use formulas suggested by the manufacturer. Do not mix different types or brands of paint. Colors can be mixed by many dealers at little or no extra charge.

4. Dark stained wood, to be covered with light-colored paint, must first be sealed with a

recommended primer-sealer, with aluminum paint, or with shellac.

5. Paint radiators to match or use the wall paint; do not use metallic paint.

6. Texture paints can be used to give a rough, textured finish over poor plaster or unsightly dry-wall surfaces.

7. For masonry surfaces, use only water-emulsion paints, unless a top coat of an alkyd resin paint is added as a finish; or choose masonry cement paints. Follow directions, for some call for masonry to be wet.

Colors—Points to Remember

1. Rooms with northern or northwest exposure need warm, sunny colors (such as light peach, cream, beige, or yellow) to keep them light and cheerful in appearance.

2. For rooms with much sunlight, choose background colors for soft greens, grays, or blues.

3. Light pastel colors are easy on the eyes and make rooms seem larger. Dark or intense colors absorb light and make rooms appear smaller.

4. Small rooms seem larger when doors, windows and door frames, and other wood trim are painted to match the walls in color.

5. Ceilings painted white, off-white, or a very light tint of the selected wall color reflect artificial light most efficiently and pleasantly.

6. Paint colors should be selected to combine harmoniously with colors in furnishings.

Assembling Supplies and Equipment

1. Paint. Start with enough to complete the job.

2. Thinner—if needed. Use according to directions on label.

3. Other supplies and equipment. Suggested items: Brushes for wall, trim, sash; paint roller and tray; can opener; screw driver; wooden paddle; masking tape; paint guard or shield; putty knife; sanding block; sandpaper—several sizes; wax paper or aluminum foil; old newspaper; drop cloth; brush for dusting; paper or foil plate for paint can; putty or crack filler for wood; spackling compound for plaster; paint and varnish remover; protective gloves; stepladder; brush cleaner; old rags for cleaning up; two sawhorses and one or two heavy boards for reaching ceiling; and pins to hold cover on furniture.

Preparing Room for Painting

1. Remove as much furniture as possible.

2. Remove curtains and rods, shades or blinds, pictures, books, etc., from wall.

3. Cover remaining furniture with paper, old sheets, or plastic.

4. Cover floor with newspaper or drop cloths.

5. Loosen or remove fixtures not to be painted.

6. Use masking tape or a paint guard to protect window panes.

Preparing Yourself

1. Read paint labels and follow directions carefully.

2. Wear old clothes and shoes. Wear protective gloves or use protective hand cream.

Follow a Good Order of Work

1. Paint ceiling first, then windows, and interior walls last.

2. Start work at a corner.

3. Paint walls from ceiling down in 2-foot to 3-foot strips.

4. Paint ceiling or entire wall before stopping.

5. If walls are to be papered, paint woodwork first.

6. If same paint is used on woodwork and walls, paint as you go.

7. Paint windows in this order: sash, frame, and trim.

8. When painting baseboard, start in center and work out. (Paint guards help here.)

9. When painting panel doors, start at top, then paint molding, panels, and edge in order.

10. To avoid closing off a stair way, paint every other step, let dry, and paint the alternate steps.

Remember

1. Don't stand on top of a stepladder. Get a longer ladder.

2. Don't overload brush or roller.

3. Don't forget to clean or wrap brushes and roller in aluminum foil or wax paper during rest periods or overnight.

4. Don't forget to clean brushes and rollers thoroughly when job is completed. Paint-can labels will indicate cleaning solvent to use.

When oil-base paints are used, clean brushes and rollers with paint thinner and solvent. When

all paint is removed, wash with water and detergent.

When water-emlusion paints are used, use only water and detergent to clean brushes and rollers.

5. Dry brushes flat.
6. When dry, wrap or store brushes in can with bristles up.
7. Clean spilled paint immediately.

FLOORS

The floor is the foundation for the room and furniture. Because of this you will want it to be inconspicuous in color and design so that it seems to "stay down." Although dark floors give the best effect of stability, they are not practical for rooms that are used a great deal because dust and footprints show up more.

Floors may be left bare if they are of wood; or they may be covered by resilient (smooth) floor coverings or by area rugs or by wall-to-wall carpeting.

Wood Floors

Well-finished and properly maintained wood floors add much to the attractiveness of a room. Perhaps your floor would be easier to care for if given a new finish. Careful sanding and refinishing is hard work, so you may want someone with experience to help. Machines, a sander, and an edger can be rented in many communities. The rental agent will give you detailed directions for doing the work. Inexperienced operators must take great care to prevent careless cutting.

A good floor finish should preserve the beauty of the wood, be durable, and be easy to keep. Possible floor finishes include penetrating seal, varnish, and paint.

Resilient Floor Coverings

Some resilient floor coverings such as inlaid linoleum, asphalt and rubber tile may last from 15-20 years while the light-gauge inlaid linoleum and printed enameled surface type will last about 4-5 years. The condition of the under floor and the care given the floor covering has a great deal to do with the lifetime of the floor covering.

Some materials are more difficult to lay than others and unless you are skillful the results may not be satisfactory. It is often better to employ a professional. Large pieces are hard to handle without damaging them, and the entire piece may be ruined by a wrong cut in fitting. Asphalt tile is also difficult for an amateur to lay. Other tile forms are easier for the non-professional to install.

The manufacturer's instructions should be followed carefully in the preparation of the old surface, the adhesive used, and the method of laying.

Care is important to the life of all types of floor coverings. Do not wash any kind oftener than necessary and use very little water. Manufacturers say that more floor covering is scrubbed away than worn away.

Rugs and Carpets

Small Rugs

In bedrooms a smooth floor covering often is used with small rugs because they are easy to clean.

The term "scatter" rugs may be misleading. It does not mean to throw them around anywhere. Small rugs should be placed in relation to furniture with edges parallel to the wall.

Be sure that small rugs stay in place; otherwise, they may cause falls. You may need to anchor yours with a rubber underlay, or by sewing pieces of rubber underneath.

If new rugs are needed, they may be purchased or made at home. In selecting or planning a rug, these are some of the things to consider:

— It should be suited in color, size, and design to the place and furnishings where it will be used.

— The material used should be heavy and firm enough to lie flat. Color and design should give the appearance of flatness. Rugs are to be walked on, or choose colors that are not easily soiled.

— Rugs with long, shaggy pile are not easy to clean and dry slowly. Cotton shag rugs give better service if the pile is closely spaced and firmly anchored. Wool rugs show soil less than cotton ones.

— Rug-making takes considerable time, but it is a good way to get a rug exactly the size and color you want. The use of old materials makes an economical rug that can be as attractive as those made with new materials. If you have time, make your rugs. Ask your home economics Extension agent for *Hooked Rugs*, H. E. 83, and *Braided Rugs*, H. E. 84.

Carpets and Large-Area Rugs

If you are interested in carpeting, which goes from wall to wall, or in large-area rugs, ask your home economics Extension agent for a copy of *Selection of Rugs and Carpets*, H. E. 1.

WINDOW TREATMENTS

Windows are important for both functional and decorative purposes. Their treatment should allow the maximum use of each window—regulating light, providing privacy, and adding beauty to the room. They can conceal ugliness and poor proportions or serve as a center of interest.

Whether the window is large or small, whether it opens up or down or in and out, there are many ways it might be treated to become a decorative and harmonious background for other furnishings in the room.

Window treatments you may consider are: curtains, draperies, blinds, shades, shutters, or a combination of some of these and others.

Curtains and Draperies

There is a wide variety of fabrics, colors, patterns, and styles in both curtains and draperies. The cost depends largely on the type, the amount of fabric required, and whether they are custom-made, ready-made, or self-made.

There is a variety of fabrics available. Some of these include:

— *For glass curtains*—marquisette, scrim, organdy, net, dotted swiss, muslin, voile, gingham, percale. Marquisettes have yarns twisted around one another to help keep their shape.

— *For draperies and draw curtains*—chintz, casement cloth, denim, gingham, sheeting, ticking, sail cloth, muslin.

— *For a lining*—Sateen or muslin helps to protect draperies from dust and sun.

Curtains should be either sill, apron, or floor length. Anything in between will look skimpy. Narrow windows look wider when curtains are sill or apron length. Floor-length curtains help make a short, wide window look longer. If curtains are hung inside the woodwork, sill length will look best.

The *hardware* can be hung on the wall to change window shape. Hang above window to make them appear narrower; extend over the wall to make them look wider.

Cornices and valances are top finishes for windows. They may be used to conceal fixtures, to connect two or more windows, or to change the apparent size of the windows.

A cornice is usually made of wood or metal. It may be purchased ready-made, custom-made at lumber yards, or you can make them yourself. A valance is of fabric which may be hung on a separate rod, or fastened to a valance board.

The color of the cornice or valance should harmonize with the window treatment and the walls and it should be in pleasing proportion to the rest of the window.

Shades, Blinds, and Shutters

Shades, blinds, or shutters make attractive window treatment with or without curtains or draperies. They must satisfy both the decorative and the functional needs for beauty, light control, privacy, and ease of care.

Roller shades come in a wide range of colors, textures, and patterns, which can be coordinated with the background furniture and finishes.

Venitian blinds are made of slatted material held together with plastic or fabric tapes and hung vertically or horizontally.

Bamboo blinds are made of bamboo or reed slats in a variety of colors.

Shutters are made of wood with adjustable wooden louvers fitted into each panel. They come in different sizes and colors (painted or stained).

PROJECT REQUIREMENTS AND RECORD

Include in your story at least four of the specific activities listed below, which you chose to do in your project:

Painted walls in one room.
Painted and wallpapered one room.
Made window curtains (or draperies).
Made window shades.
Refinished floor.
Selected floor covering (rug or carpet).
Selected area rugs.
Selected and helped install resilient floor covering.

Fill in and follow the *4-H Record* (4-H R-1-8) for a full report of your work. Give the record and story to your leader by the date requested.

PLACES TO VISIT

Drapery shops Paint and wallpaper stores Floor covering centers Rug and carpet centers

DEMONSTRATIONS TO GIVE

How to Paint
How to Select and Hang Wallpaper
Types of Floor Covering and Their Advantages and Disadvantages
Simple Curtains You Can Make
How to Estimate Yardage for Your Windows
How to Personalize Your Window Shades
Fabrics for Window Treatments

REFERENCES

Shelter magazines

Ask your county home economics Extension agent for the following publications published by the N. C. Agricultural Extension Service. These may prove helpful to you.

Begin With a Plan, H. E. 75
Arranging Furniture, H. E. 80
Braided Rugs, H. E. 84
Hooked Rugs, H. E. 83
Floor Finishes (mimeographed)
Resilient Floor Coverings, H. E. 5
Selection of Rugs and Carpets, H. E. 1
Sources of Color Schemes, H. E. 29
Your Guide for Window Treatments (mimeographed)
Your Guide for Making Draperies (mimeographed)

Other publications available:

The Elegant World of Window Shades (Breneman Inc., 1133 Sycamore St., Cincinnati, Ohio 45210)
Guide to Window Beauty (Kirsch Company, Sturgis, Michigan)
How to Select Window Treatment (from Sears' Hidden Value Series)
1001 Decorating Ideas, Book 9 (Consolidated Trimming Corporation, 27 West 23rd Street, New York, N. Y.)
Window Fashions Work Wonders (Joanna Western Mills, 2141 South Jefferson St., Chicago, Ill. 60616)

3

Furnishings to Live With

Introduction

Houses and the individual rooms in them fill many human needs if the furniture and furnishings are satisfying to the individual. A well-designed room and house must be both functional and beautiful. It must meet your own and your family's needs and provide pleasure, not just impress friends and visitors.

Let's review. In the project Planning Your Room on Paper:

— Did you use a personal approach to meet your needs and desires?
— Did you use good design to form a sound basis for your decorating plan?
— Are your arrangements providing for convenience, comfort, and beauty?
— Did you set up a plan to acquire furniture and other furnishings?
— Did you consider the cost?

FURNITURE

Consider your bedroom for your project. Take a good look around your room and decide what furniture you need:

— What can you use as it is?
— What pieces need to be repaired, remodeled, or refinished?
— What needs to be slipcovered?
— What new pieces do you need?

Needs and Wishes

You must have:
a bed (spring and mattress on legs)
a shelf above for books and lamps
bedside table and lamp (table lamp or pin-up)
a chest for each person using the room
a straight chair

You would enjoy having:
an upholstered or Windsor chair
a bookshelf
a pair of dressing table lamps
a desk and chair
a radio

You can cut costs on the bedroom. Use your imagination to have a comfortable room at little expense. Spend most of your money buying the springs, mattress, and chest of drawers. Don't buy heavy, ornate suites of furniture. If you do buy new pieces, see that they harmonize in size and design with those you already have. What you save on furniture can be spent for rugs, curtains, lamps, and pictures. Some styles of furniture are sold as open stock. You can buy a chest first and later the bedstead to go with the spring and mattress (now on legs). Then you can add the table and easy chair. This way you will achieve harmony without monotony.

Simple and Graceful Furniture

The best furniture is simple, graceful, and in keeping with the size of your room.

Wood

Cherry, walnut, pine, maple, and poplar fit in best with the way you live. Finished with a scratch- and stain-resistant finish, such as penetrating floor seal, these woods are attractive and easy to live with. If you like homespun bedspreads, flower prints, patchwork quilts, chintz, and ruffles, choose good reproductions in maple or pine with natural finish. Avoid red stained maple style and finish.

Ideas for Using What You Have

An Old Chest

Modernize the nondescript pieces of furniture by removing the legs and mirror. If the chest is too low when the legs are removed, build a base and add a shelf for books and treasures. Replace ornate metal pulls with wooden knobs to match the wood of the chest. Fill the holes with wooden dowels. If you want to use the chest as a dresser, remove any ornamental part of the frame, and hang the mirror flat on the wall. Put a screw-eye one-third of the way from the top on each side. Run picture wire through these screws three times and fasten securely. Hang on two 20-pound picture hooks over the chest.

Wooden Bedsteads

Tall, ornate wooden bedsteads can be made into bedsteads with simple and pleasing lines by cutting down the head and foot boards, removing all the ornamentation and refinishing the entire bed.

Iron Bedsteads

If you have an iron bed, have you thought of turning the foot to the head for a low headboard and sawing off the headboard to make a Hollywood-type bed? Paint the headboard to match the wall or cover with fabric. Choose or make a simple bedspread.

Frame with Metal Legs

You may prefer to store the bedstead that is too tall. Then you can use metal legs on a frame that you and the family can make at home. You can get a set of metal legs at a department store or mail order house.

If you share the room, you may prefer twin beds on metal frames. Headboards can be made at home and attached to the frames. Double beds can be flanked by ready-to-paint chests.

An Old Chair

See how the old chair comes to life when the wood is refinished and the chair is slip covered or upholstered in a fabric to match other fabrics used in the room.

Furniture to Add

Built-Ins

Study and dressing areas, as well as storage areas, can be built to fit the space in the bedroom. These can be finished by painting or finishing natural.

Ready-to-Paint Furniture

Ready-to-paint furniture comes in many combinations. These, too, can be finished like your background or like the furniture in the room; or it can be antiqued for a different effect.

Second-Hand Furniture

Second-hand or damaged furniture should be considered when income is limited. Refinish or antique this furniture.

New Furniture

New furniture should be selected with care for style (Early American, traditional, or contemporary) for finish, for material, and for construction. Study magazines, visit furniture stores and look around. There are many decisions and choices to be made.

BEDDING

Bed covering must be light, durable, and washable. Get your leader to take on a shopping tour to see what you can find. Read the labels on sheets, pillow cases, mattress pads, blankets, and bedspreads. Compare prices and quality. Some things you may look for:

Sheets—muslin or percale

— Which is the best to buy?
— Which will launder the easiest?
— Size — to tuck well, a sheet should be at least 81 inches x 108 inches for double bed.
— A better size is 90 inches x 108 inches. All others are too short.

Blankets

— Blanket sizes — single 60 inches x 80 inches; double 72 inches x 84 inches or 80 inches x 90 inches.

Bedspreads

— Bedspreads can be custom made to fit your special needs or purchased over the store counter. Make or select a bedspread that will cover the bed well. Choose an allover pattern, a textured fabric, or a design you make yourself.
— Size: 90 inches or 114 inches will cover the double bed and hang down well on the sides.

— When making a spread of denim, corduroy, or textured fabric, keep it simple. To make the spread look tailored, use a cord when you add another length.
— A tufted spread worked on natural fabric with an allover design in tufting thread with a fringe will outlast many changes in wall color. You may wish to avoid the very elaborate, many-colored designs which must be discarded as you change your wall color.

LAMPS FOR LIGHT

Lamps. Select lamps that are simple in design. Copper, brass, wood, glass, and pottery make good bases.

Lamp shades should be light and simple in design. If you have old shades that need freshening up, try painting them with white shoe polish inside and out.

Four requirements for *good light* are:

1. Plenty of light.
2. Well-designed lamps and fixtures to avoid glare.
3. Enough lamps and fixtures to distribute light properly.
4. Light directed to avoid casting shadows of hand or body on work.

ACCESSORIES

Accessories are the finishing touches in your decorating plan which express your personal interests, tastes, and ideas. Success in accessorizing your home depends on your ability to select appropriate items and to arrange them attractively. The three basic types of accessories include wall hanging, useful objects, and decorative objects. Your choice of accents will depend on where each item will be placed, how it will be used, and the decorative effect you wish to create.

It is usually wise to begin with one or two well-chosen accessories and add to them as you can afford it and when you find the exact object to create the effect you want. Remember that a few objects that "belong" to a room are most effective — too many accents create a cluttered look. If you have more accessories than you need, you may wish to use only a few items at a time and change accents periodically.

Wall Hangings

Wall hangings — pictures, mirrors, shelves, clocks, plaques — are generally the first accessories noticed in a home. They should be selected to fit the character of the room and to suit personal preferences. The size and color of pictures or other wall adornment should also harmonize with furnishings. You may wish to select an important single object for a wall or to group several objects in a pleasing arrangement. An entire wall can be covered with built-in or mounted shelves or with pictures of related sizes, shapes, colors, and subject matter. Maps and travel posters often make attractive and inexpensive wall hanging.

Useful Objects

Useful objects include ash trays, flower pots, book ends, waste baskets, pitchers, or serving dishes. They should be chosen for their decorative as well as their practical value. Choose them in sizes, shapes, and materials that are appropriate for their use, and in styles and colors that contribute to the decor of the room. Books, records, and magazines can also be attractive accessories if placed in an interesting arrangement on shelves, racks, or tables.

Decorative Accessories

Decorative accessories — figurines, potted flowers, imitation fruit, and art objects—generally serve no purpose other than to be seen. They are chosen simply for their beauty — or they may have sentimental value as do gifts and souvenirs. You will want to choose decorative accessories in sizes, shapes, materials, and colors that harmonize with the room where they will be displayed. Before you shop for decorative objects, it will be helpful to know where you intend to use each object and the effect you wish to create.

PROJECT REQUIREMENTS AND RECORD

Include in your report in *the 4-H Record* (4-H R-1-8) at least four of the following activities which you carried out in this project:

Refinished a chest, chair, or table.
Painted a chest, chair, or table.
Antiqued a chest, chair, or table.
Selected a new piece of furniture.
Reupholstered a chair.
Slip-covered a chair.
Made or selected two accessories.
Made or selected a good study or reading lamp.

Turn in your report to your county home economics Extension agent or your home furnishings leader.

PLACES TO VISIT

Furniture stores
Art museum
Demonstration houses
Points of interest in your area
Novelty shops

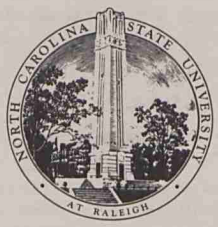
DEMONSTRATIONS TO GIVE

Natural Finishes for Furniture
How to Antique Furniture
How to Select a Lamp
How to Select a Chest
How to Select an Upholstered Chair
How to Select Linens
How to Select Mattresses
Accessories That Are Good in Design

REFERENCES

The following publications published by the N. C. Agricultural Extension Service may prove helpful to you. These can be secured from your county home economics Extension agent.

Furnishing Your First Home, H. E. 76
Begin With a Plan, H. E. 75
Buying Case Goods, H. E. 78
Buying Upholstered Furniture, H. E. 81
Periods and Styles, H. E. 79
Arranging Furniture, H. E. 80
Accent with Accessories, H. E. 40
Picture Panorama: 1. Selection, H. E. 37
Picture Panorama: 2. Framing, H. E. 38
Picture Panorama: 3. Placement, H. E. 39



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Published by

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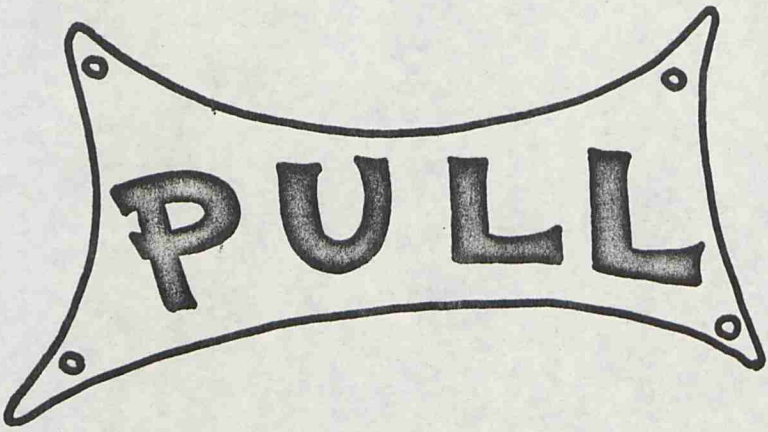
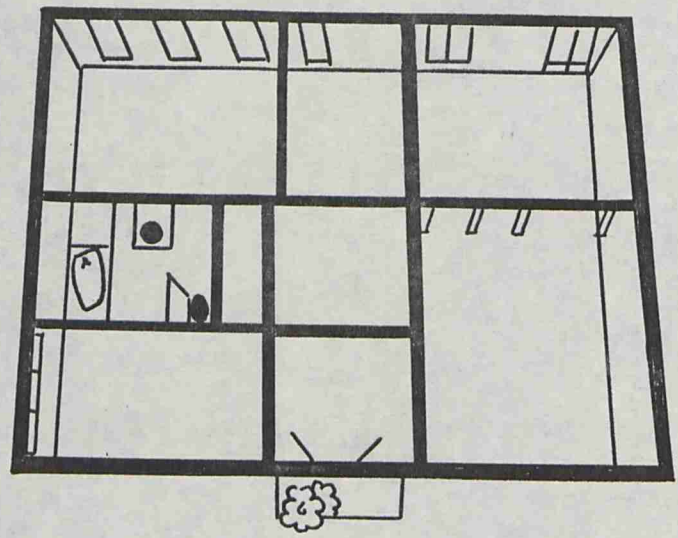
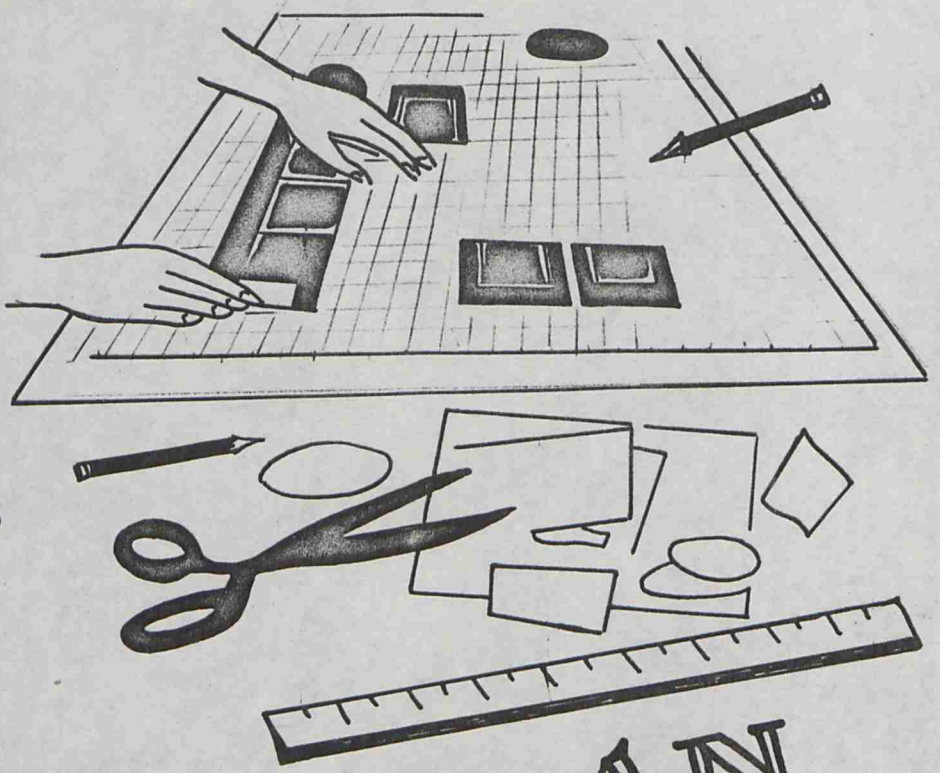


YOUR ROOM

TOGETHER



WE START WITH
IT EMPTY



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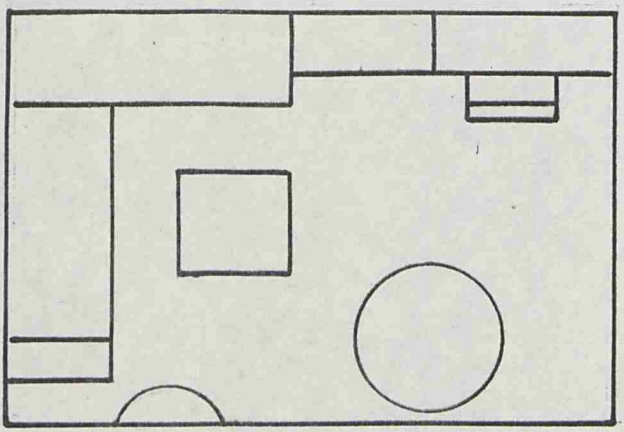
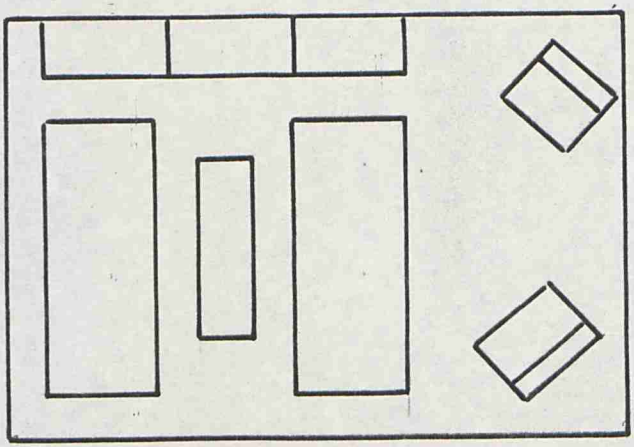
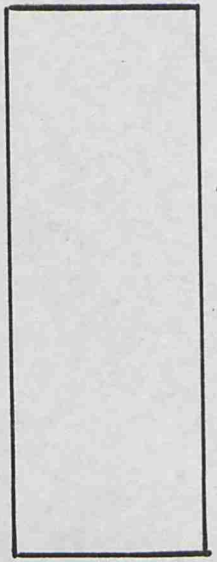


CREATE A SPACE OF YOUR OWN

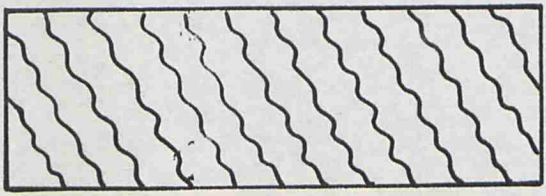
CREATE A SPACE of YOUR OWN



Color
Texture
Design



COLOR



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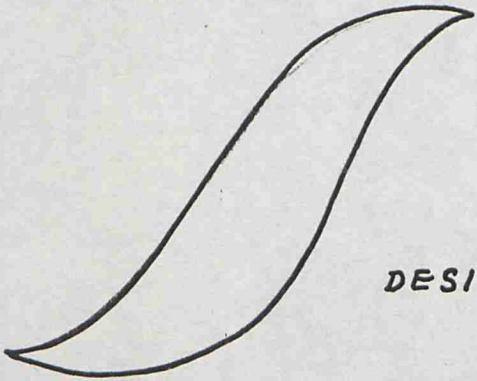
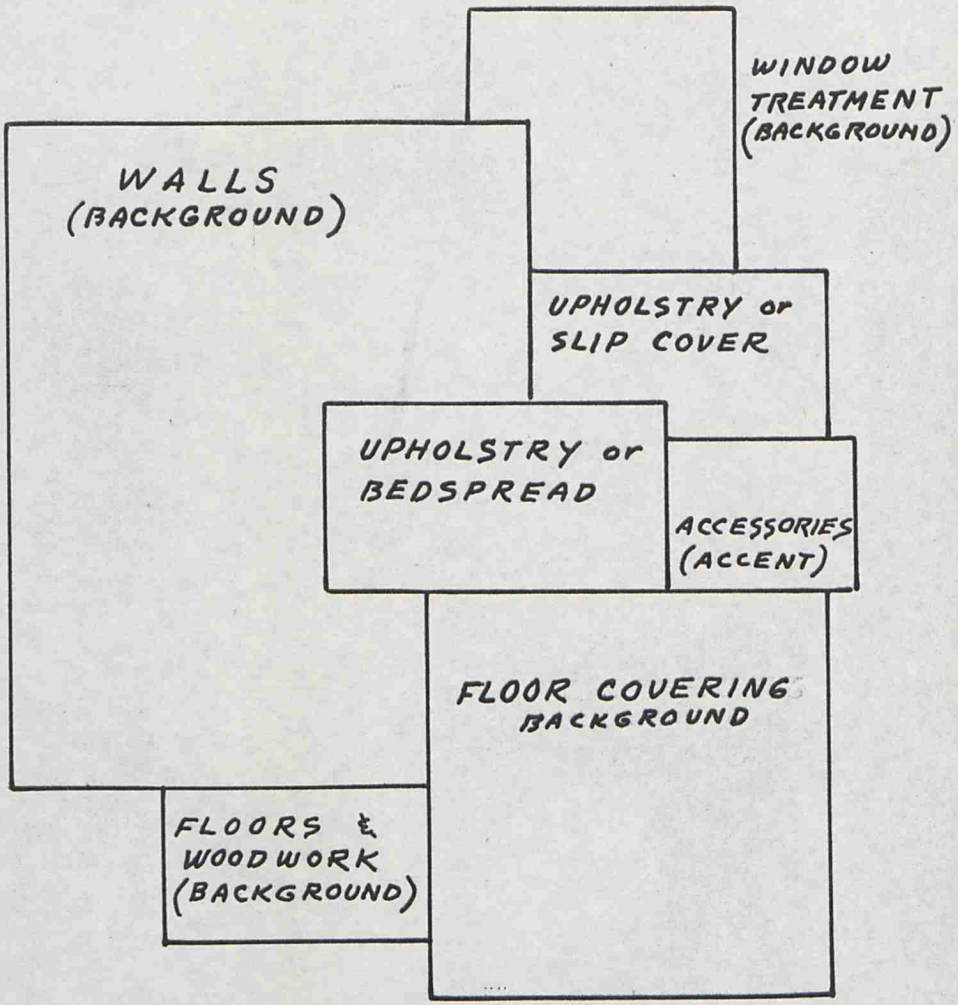


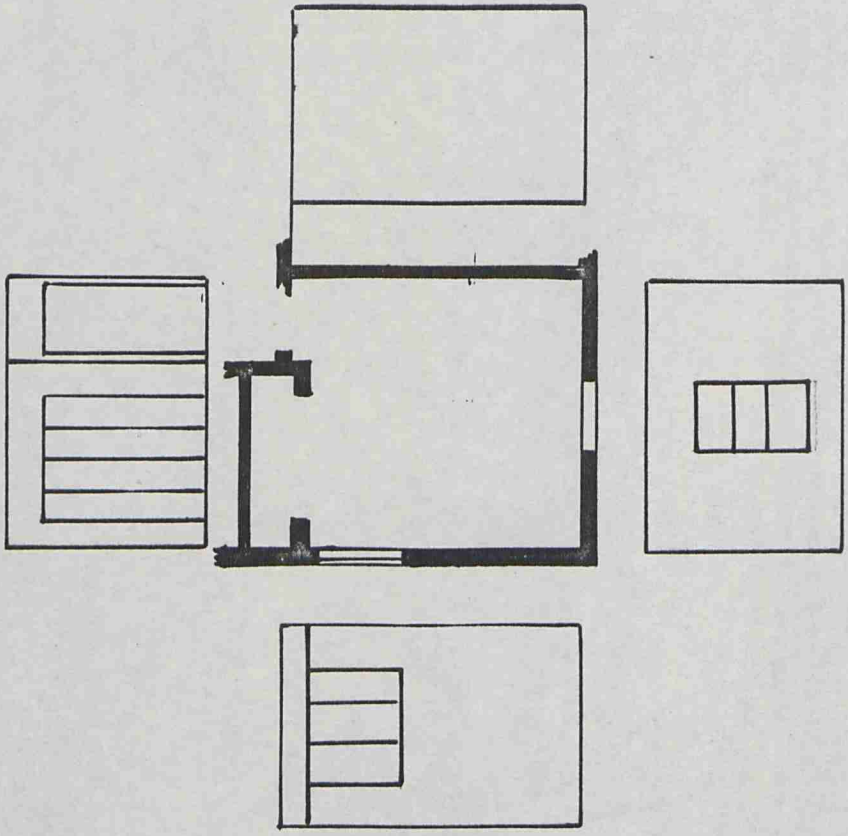
DESIGN

DECORATION PLAN

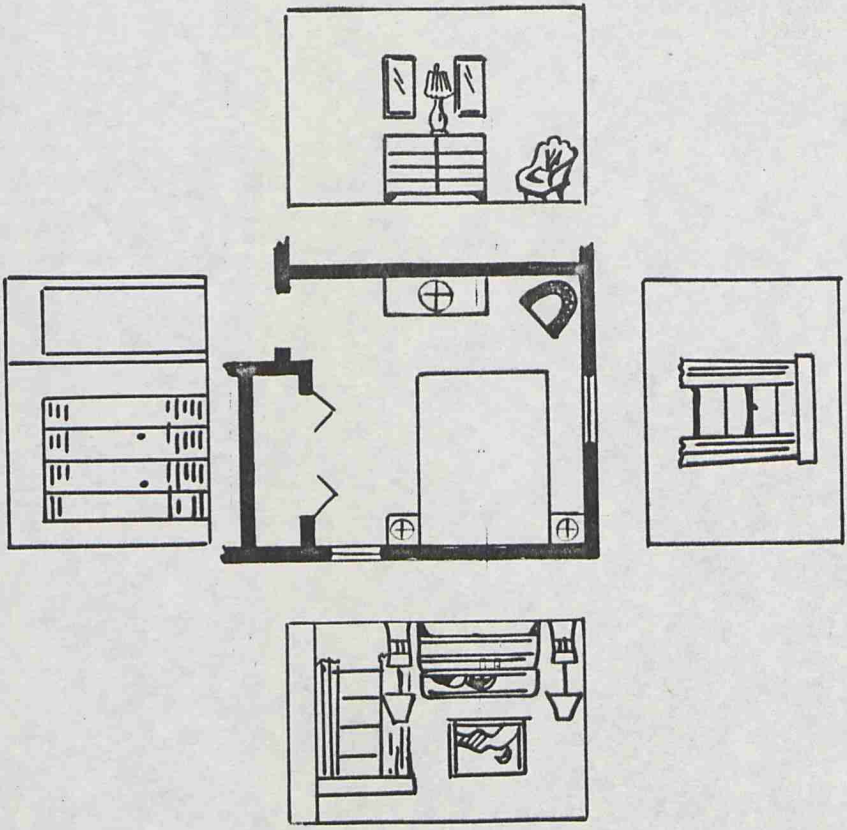


NAME OF ROOM _ _ _ _ _ _ _ _ _ _

BACKGROUND



FURNISHINGS

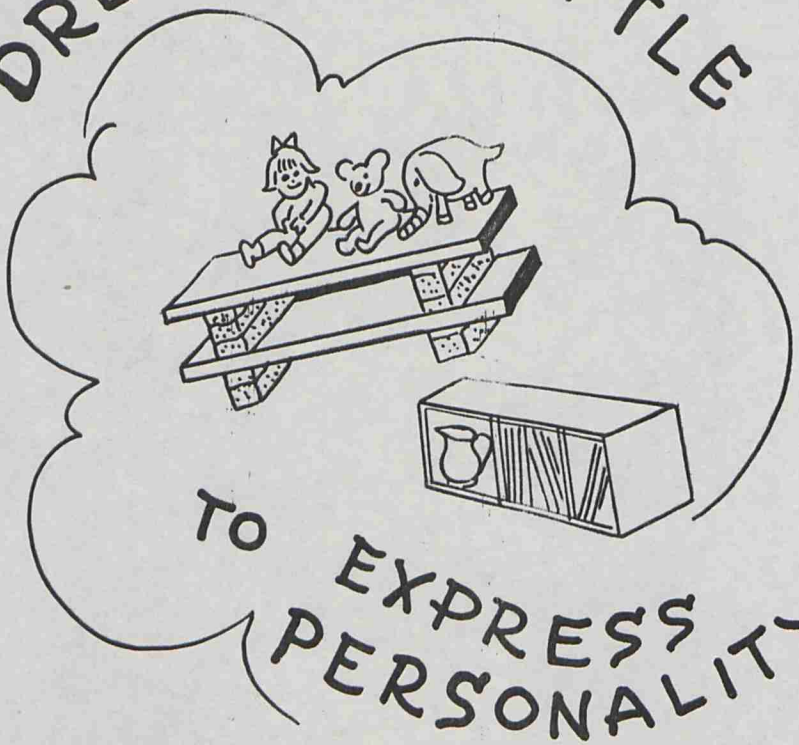


BACKGROUND FOR FURNISHINGS

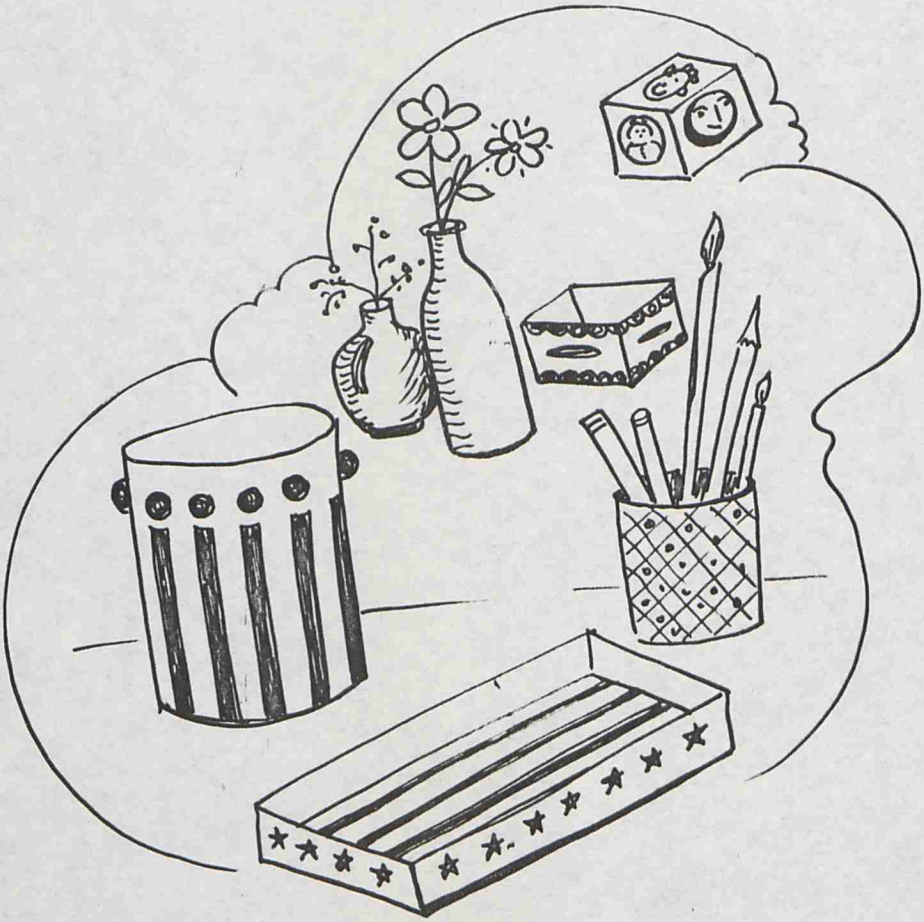
PART OF ROOM	PRESENT COND. GOOD - BAD - SOILED	CHANGES TO BE MADE	WHEN MO. & YR.
WALLS MATERIAL COLOR			
WOODWORK FINISH COLOR			
FLOOR FINISH COLOR			
FLOOR COVERING MAT. - COLOR			
CEILING MATERIAL COLOR			
WINDOW TREATMENT MAT. - COLOR			

- PLAN FOR SPACE TO:
- SIT
- STUDY
- EAT
- STORE
- SLEEP
- ETC.

FURNITURE TO LIVE . . .

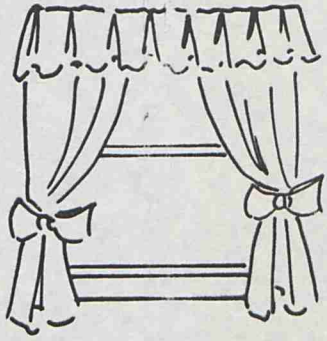


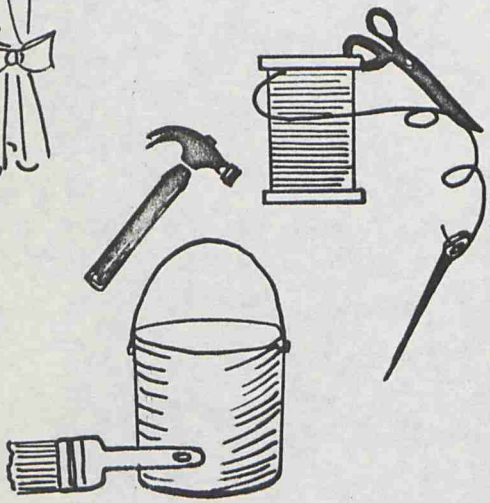
MAKE SOMETHING FROM NOTHING



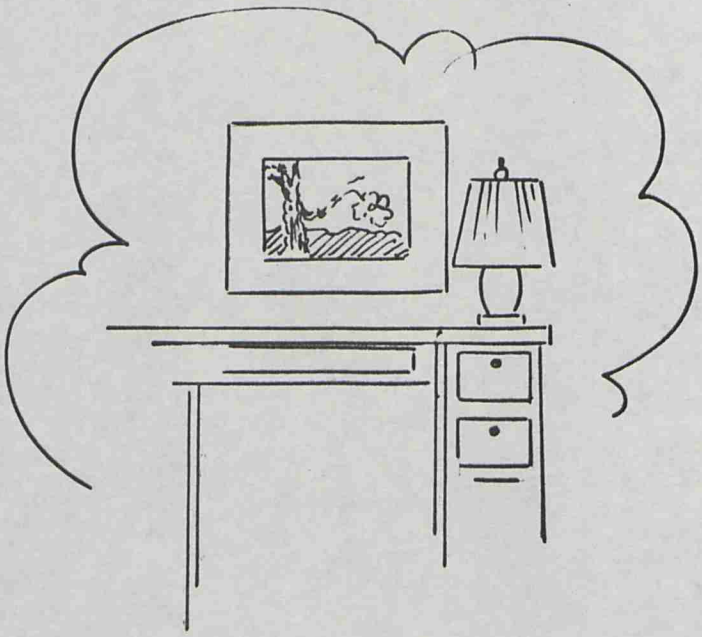
Make New OF OLD

Buy and Create



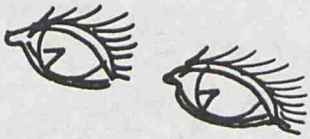


Buy FINISHED PRODUCT

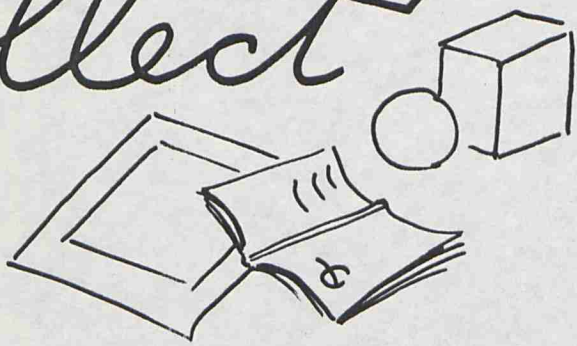


Study

Look

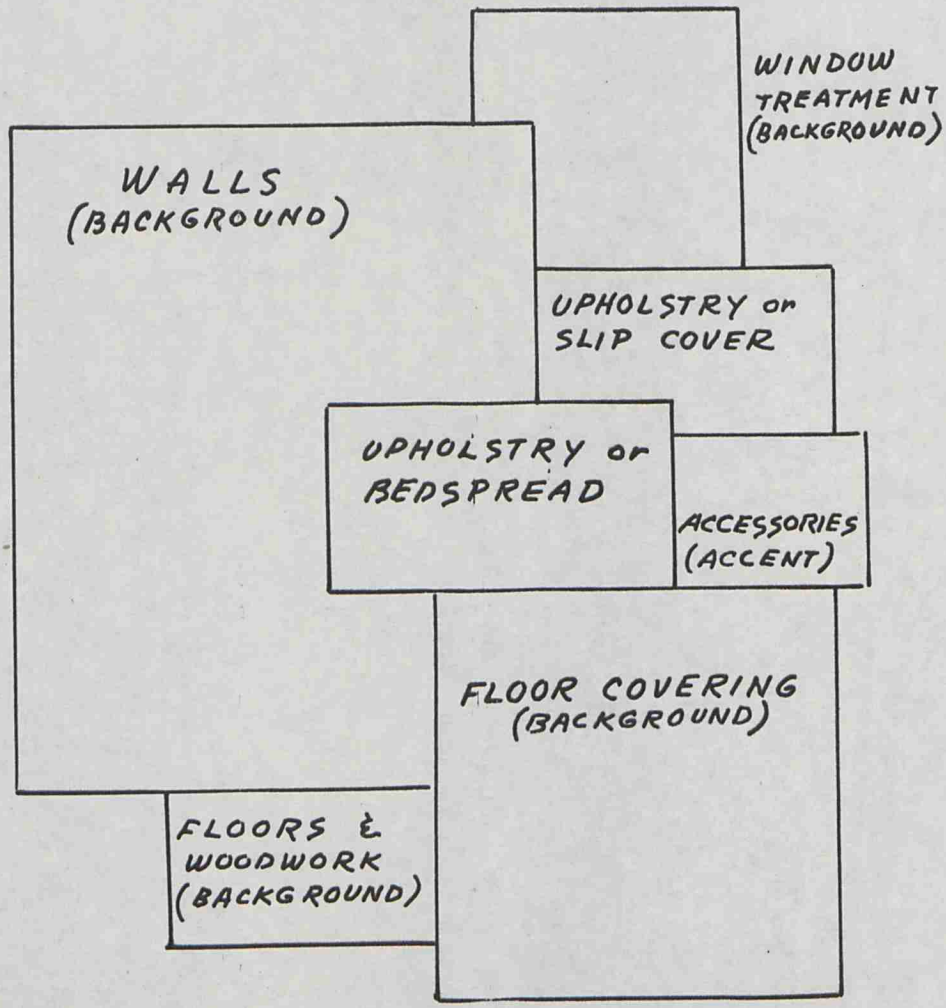


Collect



Furnishings Plan

NAME OF ROOM _____



- Action - - -

PULL YOUR ROOM TOGETHER

- NEEDS !
- WANTS !
- SKILLS !
- DECISIONS !

GOALS - - -

- ACHIEVEMENT