3 WAYS THESE "HOUSES" WERE MADE BETTER "HOMES"

1 CONCEALED FLASHING AROUND WINDOWS & DOORS
Thin, for low cost, easy application, yet strong and durable for complete protection against infiltration of air and moisture. That's part of the story of Anaconda "Electro-Sheet" Copper, used here as concealed flashing around window frames.

2 DAMPCOURSE AND APRON BEHIND BRICK VENEER
Adequate protection against moisture is always to be sought at this vulnerable point. Anaconda "Electro-Sheet" Copper provides just such protection because it is absolutely rustproof and will not dry rot, regardless of time.

3 DAMP-PROOFING FOR FOUNDATION WALL
Here "Electro-Sheet" provides a low-cost "metallic" answer to a common waterproofing problem. The photo shows how easily "Electro-Sheet," when suitably backed, can be handled. It's easy to install because it is almost as flexible as paper, yet highly resistant to kinking, breaking or tearing.

DEFENSE NEEDS COPPER
"Electro-Sheet" Copper may not be used for building construction after Jan. 1, 1942, except as provided for under Conservation Order M-9-c, Paragraph B, amended Nov. 1, 1941. This unique product has found many defense applications, including damp-proofing defense and officers' quarters of both Army and Navy.

The house shown here is in Central Islip, New York. The architect was Eugene Marten; the contractor, Harold McGowan. This "Electro-Sheet" is Copper-Armored Sisalkraft—made by The Sisalkraft Co., 205 West Wacker Drive, Chicago.

R. E. Anderson was the architect for this work in Wayne, Illinois. Herman Wendler was the contractor. This "Electro-Sheet" product is also Copper-Armored Sisalkraft.

"ELECTRO-SHEET"
Anaconda Copper
THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut

In Canada: Anaconda American Brass Ltd., New Toronto, Ont.
When the announcement was made some months ago that designs for perhaps the biggest construction undertakings of the Defense program—namely, the advanced island bases leased from Britain to protect the Eastern Coast of North America from Newfoundland to the Caribbean—had been entrusted to four architectural firms with their engineering associates, the significance of this arrangement was not generally appreciated. The decision by the War Department to proceed thus rather than to undertake the whole job itself was based on a desire to utilize the most competent professional skills available, and implied recognition that the complex problem of transferring a substantial population from the temperate zone to a tropical area involved many important considerations other than military.

The southernmost group of bases centering around Trinidad was awarded to Caribbean Architect-Engineer, made up of the architectural firm of Voorhees, Walker, Foley & Smith, and the engineering firm of Parsons, Klapp, Brinckerhoff & Douglas. Division of the work between the two collaborators was as might be supposed. The engineers were to take care of the heavy utilitarian construction and the more purely technical arrangements; while the architects were to be concerned with the design and scientific planning of the buildings and communities to accommodate the military population. Both the architects and the engineers of course worked closely with the military men assigned to the project.

The problem confronting the architects was to provide not merely shelter but to include facilities for a wide enough range of community activity to insure against deterioration of morale. All the arrangements had to be developed with full consideration for the tropical climatic conditions. The nerve-wearing effects of continuous heat, to which is added the extra irritation of an extended rainy season, the primitive jungle back-
ground with its insistently depressing quality and its exotic and sometimes deadly animal, plant, and insect life; the necessity for mingling at times with predominating numbers of native-born black and brown peoples of African and Asiatic racial stock—all these are factors of environment to which the white man must be adapted or against which he must be protected.

Obviously the first thing to be done was to make a thorough reconnaissance of the area involved and to accumulate all pertinent information regarding temperature range, rainfall, prevailing winds, terrain, indigenous building methods and materials, etc. Of these things the architects made a thorough study before setting about developing building types. They paid particular attention to observing the practical and ingenious means devised throughout the region by generations of permanent inhabitants to make life comfortable and safe from the elements and against disease. The result is that they have produced a series of designs that are not only economical of construction, but admirably adapted to the tropical conditions. This is indeed organic and functional architecture.

A number of these building types are illustrated in the following pages. They may be taken as representative of the architectural thinking. It will be noted that they are all placed with their long dimension at right angles to the prevailing trade winds, insuring full cross-ventilation. They have wide overhanging eaves and roof pitches designed to shed the voluminous rains and protect the walls and window openings. They follow much of the prevailing construction of the region, raised for the most part well above the ground on stilts, for protection against moisture, termites, and other vermin. Ceilings are high in all living spaces and, as will be noted on the typical section drawing herewith, natural means of ventilation are used to the fullest extent. Wood has been employed for most of the above-grade construction and galvanized corrugated iron coated with tar and asbestos compound for the roofing. This is in accord with local practice and has made for speed and ease of construction by native labor. The supporting posts and the ground floor platform slabs are of concrete. The finished grade is pitched away from the buildings on all sides and concrete ground-gutters are provided of ample capacity to carry away the waters of sudden torrents or prolonged storms. The architects have throughout been fully aware of the need for conserving “critical materials” and have used them only where no satisfactory substitutes could be devised.

Inside the buildings the treatment is of the simplest with walls unsurfaced and structural members exposed, acknowledging not only the presumably unpermanent nature of the construction and the desirability of economy, but the need to avoid nesting places for vermin. The under side of the broad eaves, which extend out eight feet beyond the walls, is painted a light cream which reflects a pleasant, cool, diffused light into the rooms. Space, which is the tropical equivalent of air-conditioning, has been made as generous as possible wherever human occupancy is intended.

It is naturally undesirable to disclose here in print any information of military significance. It is sufficient to say that the matter of community design has followed good planning practice—guided by all sound considerations, including the military. The architects have striven throughout for recognition of the fact that soldiers—even mechanized soldiers—are, after all, human beings with a specific job to do, and that they can do that job better if they are given comfortable, well-disposed quarters in which to live and work. All of us who want the soldiers to do their job well are happy to know that as high a quality of architectural thinking as is evident here was expended on their behalf.

The admirably clear and expressive perspective drawings on the following pages were made by Chester B. Price, as interpretations of the architects’ preliminary studies for the several building types.
A TYPICAL GUEST HOUSE OR LODGING DESIGNED TO ACCOMMODATE OFFICIAL GUESTS, FAMILIES OF OFFICERS, AND OTHER TRANSIENT POPULATION. EACH OF THESE CAN CARE FOR ABOUT FIFTY PEOPLE.

DECEMBER 1941
A TYPICAL COMPANY OFFICER’S HOUSE DESIGNED FOR COMFORTABLE LIVING UNDER TROPICAL CONDITIONS. THE PLAN IS AMPLE TO ACCOMMODATE ANY AVERAGE FAMILY LIKELY TO BE QUARTERED AT THE BASE.
A TYPICAL BARRACKS FOR ENLISTED PERSONNEL AND SINGLE NON-COMS. SLEEPING QUARTERS ON SECOND FLOOR TAKE CARE OF FOUR SQUADS AND FOUR CORPORALS. OFFICES AND STORE ROOMS BELOW.

DECEMBER 1941
PROVISION FOR MAINTENANCE OF COMMUNITY LIFE REQUIRES FAR MORE THAN BARE PROVISION OF SHELTER. THIS THEATER AND SOME SMALLER ONES ARE PLACED CONVENIENTLY FOR THE MILITARY POPULATION.
Another type of officer’s house, used at one of the base areas, is designed for slightly different conditions but essentially the same accommodations as the type shown on page 740.
Religious services under the direction of Army chaplains are afforded a suitable environment by the provision of chapels like the one above. Plan on this page relates to hospital opposite.
The typical small base hospital is equipped for twenty-five beds and has all related medical and surgical equipment. Splinter-proof and gas-proof emergency wards are included.
SERVICE MEN’S CLUBS ARE A NECESSITY FOR THE RECREATION SO IMPORTANT TO MORALE. THIS ONE IS TYPICAL OF A NUMBER PROVIDED IN THE CARIBBEAN BASES, TO HOUSE A VARIETY OF ACTIVITIES.
THREE RECENT BUILDINGS

BY HOLABIRD & ROOT, ARCHITECTS, OF CHICAGO


GRIMES SCHOOL – HOLABIRD & ROOT, ARCHITECTS, CHICAGO

DECEMBER 1941

751
THE ENTRANCE TO THE GRIMES SCHOOL (ABOVE) IS SHELTERED BY A SEVERELY-PLAIN PORTICO, HIGH ENOUGH TO GIVE AMPLE LIGHT TO THE WINDOWS OF THE ADMINISTRATIVE OFFICES FLANKING THE VESTIBULE (SEE PLAN ACROSS PAGE). AT THE LEFT ARE SHOWN TWO VIEWS OF THE FIRST AND SECOND FLOOR CORRIDORS, BOTH EQUIPPED WITH LOCKERS FOR PUPILS' USE.
PARTICIPANTS IN SPORTS HAVE ACCESS TO THE CLARK FIELD HOUSE THROUGH DOORS AT THE LEVEL OF THE PLAYING FIELD (VIEW OF SIDE ABOVE) WHILE SPECTATORS ENTER AT THE UPPER LEVEL (VIEW BELOW) THROUGH DOORS INTO A LONG LOBBY BEHIND THE FIXED VIEWING STAND (SEE ALSO PLANS ACROSS-PAGE)

CLARK FIELD HOUSE – BY HOLABIRD & ROOT, OF CHICAGO
GYMNASIUM AND SWIMMING POOL ARE THE PRINCIPAL UNITS OF THE PATTEN GYMNASIUM BUILDING OF NORTHWESTERN UNIVERSITY (SEE PLANS ON PAGE 758). THE VIEW ABOVE SHOWS THE ENTRANCE LOGGIA.

PATTEN GYMNASIUM — BY HOLABIRD & ROOT, OF CHICAGO

756
ANOTHER VIEW OF THE EAST FACADE, LOOKING BACK AT THE ENTRANCE PORTICO, ILLUSTRATES THE DISTINCTIVE HANDLING OF CUT STONE. THE WINDOWS LIGHT OFFICES (ALL PHOTOS BY HERICH-BLESSING)

PATTEN GYMNASIUM — BY HOLABIRD & ROOT, OF CHICAGO
PATTEN GYMNASIUM – BY HOLABIRD & ROOT, OF CHICAGO
USES OF GLASS

JOHN EKIN DINWIDDIE . . . . Architect

DECEMBER • 1941
USES OF GLASS

WILLIAM M. RITTAZE

PLAN

CASTING

CURTAIN TRACK

WILLIAM M. RITTAZE

CURVED CHANNEL

WOOD FRAMING

7 3/4" GLASS BLOCKS

ELEVATION 1/4" SCALE

MASSENA & DU PONT . . . . . . . Architect

768

PENCIL POINTS
BUILT-IN FURNITURE

Photo of a bedroom with built-in furniture, including a bed, bookshelves, and other storage solutions.

Plan view of the bedroom, showing dimensions and layout details.

Continuous light trough

Side elevation, 1/4" scale

Massena & Du Pont... Architects

December • 1941
BUILT-IN FURNITURE

Ceiling line

New wood valance

46 fluorescent tube

SECTION through CENTER
Scale 1"=1'-0" approx.

Drafting top

3 hinges

Center brace

1\times2\text{"} end braces

Space for stool

Drawer

Cupboard

Floor line

Designed by ALBERT W. SPITZ
FOR ONE OF THE STEEP HILLSIDES THAT SAN FRANCISCANS SO FAVOR AS HOME SITES, THE RESIDENCE SHOWN HERE WAS DESIGNED BY GARDNER A. DAILEY. THE PAVED AREA EXTENDING FROM THE STREET TO THE HOUSE ON THE EAST SIDE SERVES BOTH FOR ENTRANCE AND AS A MOTOR COURT. THE TERRACE PERMITS GREENERY IN THE SMALL DOOR-YARD. THE EXTERIOR IS PAINTED A WARM GRAY, WITH WOOD TRIM A HARMONIZING CREAM. THE DARKER COLORS, MINIMIZING GLARE, ARE PREFERRED BY DAILEY AS "PARTICULARLY RESTFUL IN CALIFORNIA SUNLIGHT." THE HOUSE WAS PHOTOGRAPHED BY ROGER STURTEVANT, SAN FRANCISCO

CITY HOUSE—GARDNER A. DAILEY, ARCHITECT, SAN FRANCISCO

DECEMBER 1941
THE LIVING ROOM, LOCATED ON THE WEST SIDE, IS SPACIOUS AND LIGHTED FROM THREE DIRECTIONS.

THE STUDY IS ADJACENT TO THE LIVING ROOM AND ITS WINDOWS COMMAND A VIEW OF THE GARDEN. BOTH ROOMS AND THE HALLS ON THE FIRST FLOOR ARE PAINTED CINNAMON BROWN WITH BEIGE TRIM. THE DINING ROOM, ON THE EAST SIDE, IS PAINTED YELLOW-GREEN, CONTRASTING DRAMATICALLY WITH THE OTHER PRINCIPAL ROOMS.

THIS RESIDENCE SUGGESTS LEISURELY LIVING AND APPRECIATION OF REFINEMENT IN DESIGN, CHARACTERISTIC OF DAILEY'S TALENT FOR CREATING DISTINGUISHED AND CHARMING HOMES.
THE STAIR HALL IS PAINTED CINNAMON BROWN, ACCENTUATING LIGHT OF THE LARGE TRANSLUCENT WINDOW
THE SECOND FLOOR OF THE HOUSE IS ARRANGED TO PROVIDE A MASTER SUITE OF TWO ROOMS CONNECTED BY DRESSING ROOM AND BATH; A GUEST ROOM WITH PRIVATE BATH; AND TWO SMALLER BEDROOMS ADJACENT TO A THIRD BATHROOM. SOME OF THE BEDROOMS ARE PAINTED GRAY-BLUE AND SOME ARE DECORATED IN BEIGE AND HARMONIZING SHADES. INTERESTING DETAIL OF ONE OF THE BEDROOMS IS THE DESIGN OF TWIN BEDS ON ROLLING PLATFORMS PIVOTED AT CORNER OF A HANDSOME BUILT-IN CASE FOR STORAGE.
PENCIL POINTS DATA SHEETS

Prepared by DON GRAF, B.S., M.Arch.
DISREGARD OF THE OBVIOUS

You will no doubt be excited to learn that the Ninth Annual Convention of the Institute of Cooking and Heating Appliance Manufacturers was held at the Netherland Plaza Hotel in Cincinnati, Ohio, on December 3rd, 4th and 5th. In case you are a little hazy about this organization, it should be explained that its purpose is to promote cooperation and understanding between the members of the Cooking and Heating Appliance Manufacturers Industry.

A careful perusal of the program reveals no subjects for discussion which might possibly include the matter of functional design, nor the existence of any committee to "promote cooperation and understanding between stove

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**FIREPLACE FLUE SIZES**

*Index No.*

**E 2cc**

**MECHANICAL**

**PENCIL POINTS DATA SHEETS PREPARED BY DON GRAY**

<table>
<thead>
<tr>
<th>SIZE OF FLUES</th>
<th>1200</th>
<th>1400</th>
<th>1600</th>
<th>1800</th>
<th>2000</th>
<th>2200</th>
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</thead>
<tbody>
<tr>
<td>12 x 12</td>
<td>750</td>
<td>850</td>
<td>950</td>
<td>1050</td>
<td>1150</td>
<td>1250</td>
</tr>
<tr>
<td>12 x 14</td>
<td>600</td>
<td>700</td>
<td>800</td>
<td>900</td>
<td>1000</td>
<td>1100</td>
</tr>
<tr>
<td>14 x 14</td>
<td>500</td>
<td>600</td>
<td>700</td>
<td>800</td>
<td>900</td>
<td>1000</td>
</tr>
</tbody>
</table>

**HEIGHT OF CHIMNEY IN FEET**

- 10, 12, 14, 16, 18, 20, 22, 24, 25
- 10 x 10, 12 x 12, 14 x 14, 16 x 16, 18 x 18, 20 x 20, 22 x 22, 24 x 24

**AREA OF FIREPLACE OPENING IN SQ. IN.**

- 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000

The commonly used rules of thumb for proportioning fireplace flues are very inaccurate methods since the draft of a flue may be said to vary inversely as the square root of the height. If we take a chimney 25'-0" from the top of the fireplace opening to the top of the flue as being satisfactory, on the basis of flue area equal to 1/12th the opening area we can derive the following formula from which the above chart has been plotted:

Flue area in sq. ins. = \( \frac{1}{12} \times \text{opening width} \times \text{opening height} \times \sqrt{\text{chimney height}} \)

This chart should provide proper flue area for fireplaces having less than usual height.

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**ORIGIN OF FIRES IN RESIDENCES**

*Index No.*

**F17**

**CONSTRUCTION**

**PENCIL POINTS DATA SHEETS PREPARED BY DON GRAY**

<table>
<thead>
<tr>
<th>Point of Origin</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Areaways, porches, etc.</td>
<td>11.3</td>
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<tr>
<td>Airshafts</td>
<td>0.2</td>
</tr>
<tr>
<td>Attics</td>
<td>1.3</td>
</tr>
<tr>
<td>Awning windows</td>
<td>2.7</td>
</tr>
<tr>
<td>Bathrooms and toilets</td>
<td>0.8</td>
</tr>
<tr>
<td>Bathrooms and toilets</td>
<td>0.8</td>
</tr>
<tr>
<td>Bathrooms and toilets</td>
<td>10.1</td>
</tr>
<tr>
<td>Boiler and furnace rooms</td>
<td>2.2</td>
</tr>
<tr>
<td>Cellars</td>
<td>4.2</td>
</tr>
<tr>
<td>Chimney fires</td>
<td>2.5</td>
</tr>
<tr>
<td>Defective flues</td>
<td>5.3</td>
</tr>
<tr>
<td>Dining rooms</td>
<td>5.5</td>
</tr>
<tr>
<td>Dumbwaiter and elevator shafts</td>
<td>0.5</td>
</tr>
<tr>
<td>Hallways and corridors</td>
<td>2.5</td>
</tr>
<tr>
<td>Kitchens</td>
<td>13.4</td>
</tr>
<tr>
<td>Parlours</td>
<td>7.3</td>
</tr>
<tr>
<td>Partitions, under floors, etc.</td>
<td>1.1</td>
</tr>
<tr>
<td>Storerooms</td>
<td>0.7</td>
</tr>
<tr>
<td>Stoves</td>
<td>10.5</td>
</tr>
<tr>
<td>Vacant floors</td>
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</tr>
<tr>
<td>Miscellaneous</td>
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</tr>
</tbody>
</table>

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*PENCIL POINTS*
builders and architects,” no buffet luncheon in honor of trends toward permanence in kitchen equipment installation, no reports condemning legs and round corners on stove tops.

In October in this corner we complained about the designing of sinks, refrigerators and stoves as if they were temporary additions to the modern kitchen. Our squawk provoked sufficient number of replies to indicate that we are not alone. One reader writes:

“T heartily agree with your statement regarding the appearance of ranges and refrigerators. However, the idea of an integral unit containing a sink, cabinets, range and refrigerator has been developed and marketed.” An illustration of the unit referred to is shown in the picture at the left. We take off our hat to the St. Charles Manufacturing Company for the development of a truly functional and beautiful piece of kitchen equipment. The left hand section of the floor cabinet is a refrigerator. In the foreground is a gas range. In the middle is a sink.—The whole thing is tied together with a continuous countertop to make a sanitary, permanent and convenient unit that did not just happen by itself.

The gushy ladies’ magazines have printed hundreds of thousands of words and countless illustrations on kitchen design. In addition to the fact that they miss completely any semblance of efficiency in planning, they have never, so far as we know, in their superficial way, pointed out the most glaring obstacle to real kitchen sanitation. We see all kinds of drool about the chintz curtains over the sink, the gay little pepper shaker for the stove, lovely color schemes in shades of red and pale mauve with green accents, topped off with an illustration that looks like a jigsaw puzzle of cabinets, refrigerators, ranges, and sinks that don’t go together.

Because of National Defense many items of kitchen equipment are not available. Just for the sake of argument, however, let us assume...
that everything shown in the catalogs are really
obtainable. What does the market afford?

Heading the list is the unit shown on page
782, for kitchens using either gas or electricity.
The second manufacturer makes a unit in
which the refrigerator and sink are integral
but the gas range is an afterthought.
The third manufacturer makes units in
which the sink and electric range are integral
but for the ice box you have to buy one of
these fat, round cake-icing affairs, and no gas
cooking unit is available.
The fourth shows a more or less integral sink
but the range and the ice box are of the tra-
ditionally movable design.
The fifth manufacturer has one unit with
sink and refrigerator covered by a continuous
counter-top and the electric range top made
“built-in” with the addition of a dirt-collecting
cover molding to mark the change in material
from linoleum to enameled steel.
The sixth does the same thing with the gas
range that the fifth one has done with the
electric.

A seventh makes a sink and range unit but
no refrigerator.

Now all these manufacturers are makers of
cabinets. We have only praise for those com-
panies who make counter-tops—of which a
number of excellent types can be purchased.
But what good does it do, to be able to buy a
proper counter-top when a refrigerator, electric
or gas stove cannot be found for installation in
the cabinet work as a continuous whole?

Will somebody please get busy and manu-
facture gas stoves, electric stoves and refriger-
ators in different capacities for different sizes
of kitchens so that they will fit the standard
base cabinets 2'-0" deep and 3'-0" from the
floor to the counter-top? Then and not till
then can kitchen design be approached as the
delightfully organized and integrated labora-
tory that the ladies’ magazines have simpered
about for these many years.
MANY "SUBSTITUTE" MATERIALS AS GOOD OR BETTER THAN ORIGINALS

1. Sheetrock can be substituted for metal on cold air return ducts of air conditioning systems.
2. Roll roofing can be used in place of sheet metal or copper for valleys and flashing of certain parts of a roof.
3. Asphalt shingles can be used on hips and ridges in place of metal shingles.
4. Blendtex tile and plank can be used in commercial buildings in place of metal ceilings, as can also Sheetrock.
5. Asbestos siding, and stucco, which need no paint, can be used for exteriors to cut down the lead requirements per job.
6. Casein and resin base paint may be used on interior in place of lead and oil paint.
7. Rollbrick siding can be used to refinish the outside of old buildings in place of paint.
8. Sheetrock can be used for shower cabinets in place of metal, if it is thoroughly waterproofed and enameled.
9. Oriental Colored Finish in colors may be used as the finish coat of plaster in place of paint.
10. Sheetrock for interior walls requires a minimum of vital Defense materials, including nails. Its decoration can also be carried out without drawing on critical Defense needs.

FIRST GYPSUM DECK EVER POURED STILL IN PLACE

In 1902 and 1903 the Ingersoll-Rand Company erected a plant at Phillipsburg, New Jersey. A considerable portion of the plant was covered with a cast-in-place gypsum roof slab.

So far as is known, this slab was the first poured gypsum ever to be erected in the United States. After almost 40 years that part of the original slab which had not been disturbed by alterations is still in place!

Ingersoll-Rand Company have continued to use gypsum roof construction during the many years since this plant has been operating. Last September a new unit was installed with a poured gypsum deck—a striking testimonial to the satisfaction and service rendered by gypsum slab construction.

DECEMBER 1941

MILLIONS (of feet of USG Plank) FOR DEFENSE!

CHICAGO, ILL. — Astronomical figures are no novelty to Americans who are keeping up to date on Defense production. Probably no one will be surprised that United States Gypsum Company have already solid over 10 million square feet of USG steel roof deck in the current year. One single installation now being erected here in Chicago amounts to almost 600,000 square feet—an area of over 13 acres of roof deck.

In the photograph above we see workmen installing USG metal-edge gypsum plank on a Defense project in San Antonio, whose size dwarfs even the Chicago plant. In this Texas depot supply warehouse the United States Gypsum Company are supplying over 1 million square feet of plank—over 26 acres!

The USG steel deck construction, however, refuses to be counted out in the contest and has just scored a new “biggest” by being specified on a plant requiring 2 1/4 million square feet—almost 1/10th of a square mile!

In addition to these two types of construction the other USG deck products—reinforced gypsum tile and Pyrofill poured gypsum deck—are playing an important part in the construction of America’s buildings during the critical Defense period.
**A - Detail at Parapet Wall**

Typical Sheetrock-Pyrofill Construction

**B - Curb and Eave Construction for Monitor**

**D - Sawtooth Skylight Construction**

**End Wall Detail**

- Flashing
- Wood nailer
- Sheetrock
- Purlin
- Gypsum Curb
- Tile end wall
- Wire tie every other joint tied to steel work
- Truss

**Alternate Eave**

- Continuous angles
- Reinforcing mat
- Drainage fill
- Roof covering
- Sheetrock
- Sag rods
- Purlin

**Size of Sub-Purlins**

| Size of Sub-Purlins | Allowable Span | 1/2" Sheetrock
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>spaced 2'-8½&quot; o/c</td>
<td>18,000 ft</td>
<td>20,000 ft</td>
</tr>
<tr>
<td>8 # Bulb Tee</td>
<td>6'-7&quot;</td>
<td>6'-10&quot;</td>
</tr>
<tr>
<td>8½ # Bulb Tee</td>
<td>7'-0&quot;</td>
<td>8'-14&quot;</td>
</tr>
<tr>
<td>12 # Rail</td>
<td>8'-11&quot;</td>
<td>9'-3&quot;</td>
</tr>
<tr>
<td>16 # Rail</td>
<td>11'-2&quot;</td>
<td>11'-6&quot;</td>
</tr>
<tr>
<td>20 # Rail</td>
<td>13'-3&quot;</td>
<td>13'-8&quot;</td>
</tr>
</tbody>
</table>

**Table: Allowable Span and Sheetrock Thickness**

<table>
<thead>
<tr>
<th>Allowable Span</th>
<th>Total Thick</th>
<th>*Lbs./Sq. Ft.</th>
<th>Btu Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>18,000 ft</td>
<td>2½&quot;</td>
<td>11.5</td>
<td>.38</td>
</tr>
<tr>
<td>20,000 ft</td>
<td>2½&quot;</td>
<td>11.5</td>
<td>.38</td>
</tr>
<tr>
<td>12,000 ft</td>
<td>2½&quot;</td>
<td>12.0</td>
<td>.38</td>
</tr>
<tr>
<td>16,000 ft</td>
<td>2½&quot;</td>
<td>12.5</td>
<td>.38</td>
</tr>
<tr>
<td>20,000 ft</td>
<td>3&quot;</td>
<td>15.0</td>
<td>?</td>
</tr>
</tbody>
</table>

*Including Sub-Purlins. † Total Dead & Live load 45 lbs. per sq. ft. M = 1/10 WL.

**PENCIL POINTS**
Pyrofill Specifications

NOTE—Notes in small type are explanatory and are not a part of the Specification. Additional copies of this Specification will be gladly supplied on request—to be used for interlining and crossing out in preparing copy for typing.

1. GENERAL CONDITIONS. The current edition of the A. I. A. General Conditions are part of this Specification.

2. WORK INCLUDED. This Section comprises all labor and materials for the installation of reinforced Pyrofill slabs using ½" Sheetrock over areas shown on the drawings.

3. ALLOWANCE. Allow the sum of __________ dollars to cover Pyrofill slab construction to be furnished and installed by an experienced Gypsum roof contractor.

The Architect may wish to arrange for this work separately in order to maintain close control over it. The A. I. A. Handbook of Architectural Practice says that such allowances form an entirely legitimate and highly useful method of covering items of such a nature that good results are not to be had from competitive bidding. Nevertheless it is well to completely specify and bind this Section with the other Specifications so that the General Contractor and others can refer to them and to understand what work is to be done under the allowance provision.

4. COOPERATION WITH OTHER TRADES. Refer particularly to the sections on Structural Steel; Roofing, Sheet Metal and Skylights; and any others describing work which is to be carried on in conjunction with the erection of Pyrofill slabs. Cooperate fully with persons carrying on such other work so as to cause no delay, interference or harm to the Owner's best interests.

5. MATERIALS IN GENERAL. Use products manufactured by the United States Gypsum Company, Chicago.

6. SUB-PURLINS. For purlins use sicel (....tees or rails....) of sizes and spacings required or indicated on the structural plans. Furnish purlins with a shop coat of paint. Provide suitable clips or spot welds to rigidly secure sub-purlins to other structural support.

7. SHEETROCK FORMS. Furnish ½" thick Sheetrock 2'-8" wide and mill-made to exact lengths not over 10'-0" to match the main purlin spacing.

8. PYROFILL. Furnish Pyrofill consisting of a mix-mixture of 12½ pounds of clean soft wood fiber to every 87½ pounds of calcined gypsum.
9. REINFORCEMENT. Furnish galvanized electrically-welded steel fabric made to USG specifications, consisting of No. 12 longitudinal wires 4" o/c and No. 14 transverse wires 8" o/c having an effective sectional area of .026 square miles per foot width of slab.

10. PRECAST CURB TILES. Where required by the drawings furnish 3" thick precast gypsum curb tile. For end wall construction furnish Pyrobar Gypsum Curb Tile 3" x 15" x 30" non-reinforced. Where curb tile carries a roof load or retains drainage fill, furnish reinforced Pyrobar Gypsum Curb Tile.

11. GYPSUM MORTAR. Use gypsum mortar consisting of 1 part of unfibred gypsum cement plaster and not to exceed 2 parts of clean sand.

12. ERECTION IN GENERAL. All Pyrofill construction including (Sheetrock, sub-purlins, curbs, and walls, saddles, drainage fill . . .) is to be completely erected by an experienced Gypsum roof contractor. Arrange reinforcement to be continuous. Make the Pyrofill plastic with water, pour over forms and screed to a true and even surface ready to receive the . . . floor or roof . . . finish.

13. SLAB CONSTRUCTION WITH PURLINS. The total thickness of the slab including the forms is to be 3/4" thick. Stagger joints in sub-purlins or tie them rigidly together.

14. SLAB CONSTRUCTION WITHOUT PURLINS. Lay form boards in lengths to span over 2 or more supports with the ends held in alignment by means of special clips. The total thickness of the slab including the forms is to be 3/4" thick.

15. CURBS. Construct curbs of . . . poured Sheetrock Pyrofill, or precast gypsum curb tile set in gypsum mortar . . .


17. DRAINAGE FILL. Provide Pyrobar saddles and drainage pitches to direct roof water to drainage outlets.

Diagram of Pyrofill construction without fill

UNITED STATES GYPSUM PRODUCTS

ACOUSTIC MATERIALS. Tile, metal tile, board, and plaster products for controlling reverberation and quieting sound.

INTERIOR PLASTER AND STUCCO. Fifty varieties including the famous Red Top Plaster, for every building need.

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ROOFS, FLOORS AND PARTITIONS. Pre-cast and poured gypsum slabs, and ribbed steel decks for roofs and floors. Gypsum block for partitions and fireproofing.

SHEETROCK. Fireproof Gypsum panel material for dry wall construction to receive paint, wall paper or any other decoration. Also available predecorated to reproduce wood grain.

THERMAL INSULATION. Board, blanket, loose fill and reflective types.

TRUSSTEEL STUDS. A system of light weight hollow steel partition framing, for speedy erection and non-inflammability.

USG PLASTERING SYSTEMS. Construction methods for applying Rocklath or Metal Lath to wood frame, steel or masonry, to reduce sound transmission and to minimize plaster cracks and joint streaking.

WEATHERWOOD. A panel material combining construction, insulation and sound deadening with interior finish.
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