

Memorandum on Construction of Ski Lodges

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General Design.

A ski lodge need not ape any particular form of architecture. Even the smallest lodge can be made attractive by using common-place materials with taste and discrimination. A small building designed with care can look equally as attractive as an equally well-designed building many times its size.

The most important points to bear in mind are restraints and simplicity in design and colour. Within the limits of a suitable plan the rectangular shape of building should be aimed for rather than the square. Avoid if possible the use of a number of subsidiary roofs joining on to the main roof in the form of skillions, etc., as after the addition of a few of these the building begins to look very barn-like. It is best to work out the plan completely from the start and roof it with a simple gable or one all-over skillion or monopitch roof.

The simple roof provides the key to the building. After that the proper proportion of window openings and their relation to solid wall are the most important points of design. With due attention to these matters there is no reason why a design should not be evoked which would fit harmoniously into its mountain setting.

Siting of Buildings.

In snow areas in Victoria where most mountains are subject to a considerable amount of high wind and frequent blizzards or near blizzards it is of vital importance that sites be selected which are sheltered from the prevailing winds. If this is possible it makes for a considerable increase in enjoyment of the building—as quite an appreciable increase in warmth is attained within the building, as it is not subjected to continual buffeting from the wind with the subsequent lowering of the internal temperature due to cold air being forced through cracks around windows, doors, etc.

In addition there is not so much likelihood of deep snow drifts forming around the building with the consequent blocking of doors and windows—necessitating constant digging out in order to let in the daylight

and to provide ingress and egress to the building.

The ideal is to choose a site in such a position that the wind causes a scour around the building—thereby keeping doors and windows free from snow. This is easier said than done, however, and it is more a matter of luck than judgment when such a site is chosen.

Choice of Materials for Building in Snow Areas.

To a certain extent the choice of materials for the main fabric of the building is dependent on the financial resources of the would-be builders.

(a) The most permanent material, both from the point of view of age and safety from fire, is stone. It is in addition the most durable and the one that requires least upkeep. It is, however, the most expensive to build and there is, on some mountains, a certain amount of difficulty in obtaining the right kind of stone. It is, also, somewhat difficult to find stonemasons in Victoria, where the use of stone is not extensive. However, they can be found and if finances permit it is well worth while to use this material. It is not recommended that a stone building be erected by those inexperienced in the use of handling stone as there are quite a number of points of construction which are only acquired after a fair amount of building has been done with this material.

There are a certain number of important points which have to be taken care of in building with stone and the most important of these is the question of waterproofing. As it is impracticable to use the normal hollow wall type of construction used in brick buildings, a solid wall, about 12in. thick is used, which is not impervious to moisture, particularly so in the walls facing the prevailing winds where the wind drives the rain against the wall with great force, eventually forcing it through the joints, after which it runs down the inside of the wall.

This state of affairs is prevented by (a) painting the outside of the wall with a colourless waterproofing material such as Nonporite put up; (b) mixing a waterproof-

ing paste, such as Nonporite No. 2, with the mortar; or (c) rendering the inside of the wall with cement mortar to which Nonporite Paste No. 2 has been mixed. The last method is most strongly recommended by the manufacturers, and it certainly does a good job.

(b) Timber is the material which is most easily acquired in the mountain regions, particularly at Buller and is one which is very suitable for building purposes in the mountains, provided it is used with a certain amount of taste and discrimination. Its main advantage is ease of handling.

A timber building, sheathed with weatherboards or vertical boarding covered at the junctions with cover strips and lined with any of the building papers such as sisalkraft on the studs, and sheathed inside with caneite, etc., can be equally as warm as a stone or brick building. The vertical type of external covering is very attractive and is a fairly economical form of construction, as the boards can be used in rough state without the need of dressing, provided they have been allowed to dry out to a certain extent. The cover strips will cover any subsequent movement of the boards and the building paper will prevent any draughts getting in.

(c) Galvanized iron as a building material for walls needs very careful handling from the design point of view otherwise it is prone to produce the tin shanty effect. To look its best it should be painted, and this involves fairly high maintenance costs.

(d) Asbestos cement is a material which is also, with careful handling, a fairly suitable material. It can, however, look very ugly as its colour is not attractive and very careful thought should be given to the correct placing of cover strips which can make or mar the appearance of the building.

Corrugated asbestos cement is a material which has definite possibilities when used horizontally or vertically—on its own or in conjunction with flat sheets or timber construction.

External Colour in Design.

All these materials depend for their effectiveness or otherwise on the skilful placing and design of windows and the restraint in the use of colour in the painting of the woodwork such as eaves, gables, fascias, doors, etc. Remember that all the bright colours such as red, blue, etc., fade very rapidly and it is better to keep to a colour like white or something light with a distinc-

tive feature such as a door, say, accentuated with a bright colour. In the European Alps shutters are frequently painted with gay colours and these add the right touch of gaiety to the landscape.

Roofs—Flat or Steep.

Roofs of buildings in the snow country need not be steeply pitched as this type throws the falling snow off, thereby blocking windows and doors. The flatter pitched type is a definite advantage as with the addition of a snow guard along the edge of the roof the snow is held on and is prevented from blocking windows, etc., and also falling on the heads of people as they come out of doorways. Sufficiently strong timbers to hold the snow are needed as there can be quite a considerable weight accumulated over a comparatively short period. However, a steeply pitched roof needs equally strong timbers to withstand the high winds so that there is no extra timber necessary.

Contrary to popular opinion, the roofs of buildings in the European Alps are not steeply pitched—they are fairly flat with the object of holding the snow on.

Corrugated iron is undoubtedly the most satisfactory material from the point of view of permanence and low maintenance costs. Once put on properly and the upkeep is practically nil.

Bituminous sheeting materials are easy to obtain, but the maintenance costs are high. Unless properly painted with bitumen every two years they are prone to leak. Also, in bush fire areas they are a definite menace as this material burns very easily and at an incredible speed.

Tiles are not suitable in areas exposed to high winds, as they are very easily blown off, and in addition (to make them really snowproof, quite an expensive form of underlining with timber, etc., is required.

Internal Lining.

Any of the wall boards such as caneite, masonite, etc., are suitable for internal lining on timber frame buildings, being easy to erect and possessing high insulation value. They are comparatively easy to colour if required and have a long life. It is better as a rule to have a dado of masonite with caneite higher where it will not be subject to knocks as, being softer than masonite, it is more likely to be damaged.

Fibro cement sheets are very suitable for



Club Hut in the Andes

lining of shower rooms, ski rooms, drying rooms, etc., and can be painted for living or sleeping areas. They are fairly tough and provided they are properly erected will stand a lot of wear.

Ceilings are best lined with caneite backed with sisalkraft to form a vapour seal.

Water Supply.

Where the building is only used intermittently by a comparatively small number, tanks will provide a sufficient supply of water. The main precaution to be taken is with the pipes where water is piped into the building. These should be well lagged or insulated and should be kept as short as possible and should preferably be drained in cold weather to prevent freezing which will very easily split the pipes.

Where running water is available, such as from a spring or creek, the surest method of preventing freezing overnight while the building is occupied is to keep the water circulating through the pipes with a stop cock on the pipe line to regulate the flow where the supply leaves the building and an open end to allow a small quantity of water to run away at all times in cold weather.

Take-off to showers, basins, etc., should be kept down to a minimum and lagged.

A by-pass on the lowest point of the supply line for use when the building is un-

occupied is very useful. By means of this the system can be drained of water and the water allowed to run away without the risk of bursting pipes while the building is unoccupied.

Hot Water Supply.

The problem of a hot water supply will again depend on the size and duration of occupation of the building. The smallest type will not require anything of this nature, but if a cooking stove is used it is not very difficult to fit a heater coil in the firebox and a simple system can be arranged. It is well worth the trouble. The simpler arrangement where the installation of a shower is contemplated is the provision of a small semi-rotary hand operated pump delivering the hot water to the shower rose. This makes quite an efficient arrangement and is easy to work. Other devices consist of a container or hot water raised by a pulley or by hand with some sort of controllable outlet for the shower.

The storage type of heaters are of three types—coke, oil and wood.

Coke is very efficient and provides a constant supply of hot water at comparatively low cost and little attention. Its chief disadvantage is the fact that the coke is fairly bulky and therefore requires a fair amount of storage space. If left in the open in the snow it is very difficult to handle.

Oil systems of the drip-feed type in which oil and water are vaporized on a hot plate are simple to operate though relatively costly to run—average consumption being about four gallons per day. The greatest convenience is the rate at which oil can be fed to the sytem from an underground tank by gravity or by means of a semi-rotary pump.

A type of heater may be obtained which burns wood and is very efficient as the water being heated is contained in a jacket and the flue from the fire box goes up through the centre of the jacket. There is thus very little loss of heat.

In all these types of heater the most essential point is the provision of a stop cock at the lowest point of the system to allow for the whole system being drained when the building is not being used and thereby avoiding risk of freezing.

Very efficient insulation is, of course, most important.

Sewerage.

For the smallest type of building one of the chemical closets, either the type in which a pan has to be emptied at intervals or where the effluent is run into a stone-filled barrel underground, is probably most satisfactory.

These are cheap to instal, easy to maintain and far superior to the old-time pan.

The most efficient, of course, where running water is available is the septic tank. This is not difficult to instal — even for amateurs.

The tank itself can be built or a prefabricated concrete job is obtainable. The main requisite is running water and a non-clayey sub soil.

Disposal of Rubbish.

This matter is one of major importance, particularly in an area where there are likely to be a number of buildings close to each other. Food scraps, etc., are the most difficult to dispose of—burying is difficult when the snow is deep—as if the rubbish is just buried in the snow it all shows up when the snow melts and is most unsightly. Some type of small incinerator seems to be the answer here.

The best way of disposing of tins is to take off top and bottom, flatten them and put them in bags for permanent disposal in summer. It's surprising how many will go in one bran bag.

Bottles can only be stored out of sight and disposed of in summer.

Wood Supply.

Wood should be stored in a suitable snow-

Hobart Walking Club Hut, Tasmania

J. S. Burkitt



tight shed as it's not a very pleasant past-time digging the wood out in winter — it wastes time which could be far more profitably used in ski-ing—and the wood is damp and never burns well. A fairly large shed is needed where the building is used much.

Lighting.

Kerosene or petrol lamps of the pressure type are the most efficient.

Where the building is larger and contains a number of rooms electricity is by far the best. Diesel or petrol driven generators are fairly easy to run and instal although the initial cost is fairly high. Wind driven generators are used with fair success in some snow areas.

Plan Points.

The most important point in planning a snow building is to ensure that it is warm. To do this there are two things which will go a long way towards attaining this aim. They are the provision of air-locks at the entrance and the placing of the fireplace on an inside wall of the building. The air-locks can consist of the ski room or enclosed porch

and a second one in the form of an inner passage or lobby. One air-lock is essential, two are very desirable.

The placing of the fireplace on an inner wall is to ensure that no heat is lost through the back of the fireplace wall.

Other points to watch in planning:—

- (a) make sure that windows to living room are placed on the sunny side—preferably north.
- (b) if kitchen is provided see that it is large enough and convenient to living room.
- (c) the provision of a small drying room is worthwhile—the hot water boiler can act as the heating agent.
- (d) a ski room with work bench is desirable.
- (e) double bunks for sleeping are the best space-savers—and plenty of hanging space for clothes and shelves for odds and ends are very essential.

Plenty of space should be provided for the storage of food — particularly where the building is on a slope a cellar is often possible—this provides a lot of room.