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TEMA: MATERIALI

TITOLO: RESTAURO DELLA FACCIATA DELLA GALLERIA D'ARTE RENWICK: INDAGINE DEI MATERIALI ED ANALISI ARCHITETTONICA.

SOMMARIO:

Sono qui illustrati il disegno e la struttura della Galleria d'Arte Renwich a Washington D.C. (costruita 120 anni fa).

Vengono descritti dettagliatamente la natura dei materiali che compongono la facciata ed i processi di deterioramento ai quali sono stati e sono ancora sottoposti.

Un precedente tentativo di restauro risultò insoddisfacente a causa del suggellamento della superficie della pietra porosa ed anche di una incompatibilità delle proprietà termiche della pietra e delle aggiunte resinose.

Per concludere vengono trattati i principi ed i procedimenti di un nuovo metodo di restauro.

KRISTIN TOLLESTÉN

SHINGLES AND SHINGLED ROOFS

RETROSPECT

Shingles and, to a lesser extent, leading are the main roofing methods used in the early phase of Swedish monumental architecture, i.e. medieval churches. Both methods come from the Mediterranean countries and are descended from the ancient building traditions of classical times. Shingling was practiced in well-wooded areas, i.e. in practically the whole of Sweden except for the southermost province of Skåne, where lead sheeting was used instead. Copper sheating was also employed to a limited extent during the late medieval period.

The shingled roof came to Sweden as a fully evolved technique. It rapidly gained immense popularity in the Scandinavian countries and is still very much alive. Conscientiously and expertly done, shingles are superior to many other kinds of roofing in terms of durability, elegance and monumentality.

The various positive characteristics of shingling have really come into their own on spires and belfries. In this type of popular architecture, shingling is pre-eminently a mode of expression and a determinant of form. The elegance and flexibility of the material is readily apparent from Gothic spires and turrets and also from Baroque and Rococo roofs, with their frequent intricacies of form.

Shingling used to be reserved for the buildings which were to be covered with the best material available. It was commonly used for castles and manor houses as well as churches.

Nowadays rural churches are practically alone in perpetuating the shingling tradition. But unfortunately, the number of shingled churches is constantly declining.

How widespread is shingling today?

Until the nineteenth century, practically all prominent buildings, such as churches, castles and manor houses, were roofed with shingles or tiles. Iron sheeting did not become a comparatively inexpensive form of roofing until after 1800, with the development of industrial rolling methods. The introduction of sheet iron roofing was also stimulated by urban considerations of fire prevention and by the suitability of iron sheeting for the relatively flat-pitched roofs associated with the architecture of the time.

Since, however, shingles were cheaper than sheet iron, a large proportion of innumerable new country churches built in the neo-classical style were roofed with shingles, even if the architects had envisaged sheet iron. During the later years of the nineteenth century, shingles tended more and more to be outsted by sheeting — and also by tiles — both for new monumental buildings and for pre-existing ones.

An inventory of the roofing materials of Sweden's churches in 1911 showed that about 600 out of a total of nearly 3 000 churches had shingled roofs. The corresponding figure from an inventory in 1978 was barely 400. It is above all medieval stone churches and eighteenth-century timber churches that have retained their shingled roofs. Secular buildings with shingled roofs are now very few and far between.

In addition, most of the belfries mentioned above, and many of the spires and turrets as well, have retained their shingling.

There is every reason to safeguard the shingling that has survived. This deeply rooted and immensely valuable roofing tradition must not be lost. The heavy decline which has occurred has of course been due to the grave problems now entailed by the preservation of shingling, especially financially speaking. Shingles are now the most expensive of all roofing materials in Sweden, and sad to say, their service life does not always match up to their great cost.

Shingled roofs of the past

Before delving deeper into this problem, we shall pause to consider the shingled roofs of earlier ages, which were of immensely high quality in terms of both materials and execution. Briefly, the people who built them were supremely skilled in the use of timber for building purposes and had evolved consummate methods of selecting and preparing timber for their purposes. This is borne out by the survival in Sweden of timber buildings

which can date from the early Middle Ages. Shingled roofs also exist which are centuries old.

This craft of timber construction, which was handed down from one generation to the next, is not scientifically documented and has not been described in scientific terms. A great deal of it has sometimes been termed superstition, much of it is governed by tradition, and many of the accepted methods are perhaps based more on practical than on scientific considerations. But the incontrovertible fact remains that, following the rejection of this ancient knowledge and experience by present-day industrial wood conversion, the quality of our sawn timber output has greatly deteriorated.

During the 1930s the Nordic Museum in Stockholm conducted ethnological studies of a wide variety of subject fields such as costume, eating habits and crafts. Questionnaires were drawn up and distributed to agents all over the country. These agents in turn consulted people who were experts in their various fields. The answers thus received, which referred to conditions during the nineteenth century, were then returned to the Nordic Museum, where they were synthesized.

The following brief particulars are taken from the questionnaire surveys dealing with timber and its preparation and with the production of shingles. The inquiry concerning timber and its preparation referred mainly to the preparation of horizontal timbers for dwelling houses, but since the basics of all wood conversion are the same, these particulars also serve to shed light on the methods whereby timber was prepared for the production of shingles in the nineteenth century. The inquiry mainly focussed on the selection of trees, felling, barking, transport methods and drying.

Selection

The most important demands made on the trees to be felled were as follows. A tree had to be of a certain thickness and length, it had to be straight, it must not have too many knots, it must not be twisted, it must be mature, it must be fine-textured (i.e. have a large number of annual rings per unit of length), it must contain a large proportion of heartwood in relation to sapwood, and it must be free from rot and blue stain.

It could sometimes be seen at a glance whether a tree satisfied these requirements. In other cases there were various indications, such as the following.

The place where a tree grew was an important factor determining the quality of its timber. For example, pines on firm, high ground and in dense

stands yielded strong, mature timber, and so did pine in fine sand or forest soil, unlike spruce or pine growing on grazing land.

Grey instead of brown bark war a sign of a fully matured spruce.

To the trained ear, a slight creaking sound from a tree swaying in the wind was symptomatic of cracks inside the trunk.

A pine ought not to have more than about three metres of coarse grey bark above ground; the rest of the bark should be pale yellow, with thin flakes resembling spider's web. This was a sign of superb quality heart-wood.

Bark patterned like roof slates was a sign of a mature tree. A younger, immature tree had a green bark and would still be growing even if it was the size of a mature tree. Mature trees do not put out annual shoots. The branches of a mature tree should have started drying from the root upwards, and the higher the better; the only needles should be in the crown of the tree.

The sound produced by striking the trunk of the tree with the axe-pole was also an aid to selection. A firm and slightly ringing sound meant that the tree was mature and rich in heart-wood, while a dull sound indicated the contrary.

Woodpecker holes could mean damaged heart-wood.

Trees for shingle wood should have upward-pointing knots.

Felling time

The overwhelming proportion of felling operations used to take place in winter, due both to the quality of timber required and to practical conditions.

It was felt that trees should be felled when their life was at a low ebb, i.e. when the weather was coldest. In other words, they should not be felled in spring or summer, when they contained most sap, because sap entailed among other things a greater risk of rot of damage by worms and insects. The more practical reason for winter felling was that it fitted nicely into the agricultural year and involved less transport problems. Clumsy handling could spoil the timber, and so it was an additional advantage to be able to drag it through soft snow.

Some importance used also to be attached to the phase of the moon. Thus felling had to take place when there was a new moon, because this would make the timber more resistant to rot and to the depredations of insects.

Barking

Barking ought preferably to be done as soon as possible after felling and definitely before spring. Otherwise worms and insects could get in between the bark and the sapwood, and of course as spring drew nearer and the weather grew warmer, the risk of this happening became steadily greater.

Damp confined between sapwood and bark could give rise to blue-stain rot. But early barking during the cold of winter, the time when timber was normally cut, also had its drawbacks. Barking was more difficult when the timber was frozen, and so some of the bark would often be removed when the tree was felled while the rest would be left until later. The timber was more liable to crack if it dried too fast, as it might do if barked immediately.

Barking of standing trees

It was common practice for standing trees to be barked in order to obtain timber for window frames and other exposed building components which had to measure up to the highest standards of rot resistance and strength. There were various procedures, but the principle was for the bark to be peeled off in one or more rings round the trunk a short way above ground level. After the tree had been left standing in this condition for some time it would be felled, and by then the resin and tar substances would have been absorbed by the tree and the timber thus naturally impregnated. The length of time for which a tree was meant to be left standing in this condition before felling varied, but there are cases of up to six years being recommended. Barking of standing trees was common practice when preparing timber for shingles to be used on churches.

Utilization of sapwood

It was common knowledge that sapwood was inferior to heart-wood in terms of strength, rot resistance and resistance to worms and insects etc. Sapwood could still be used, but only in areas where timber was less plentiful or for building components which did not have to be of high quality. Great care was taken not to use it for shingles, shakes, window frames etc.

Drying

Drying times varied according to the use for which the timber was intended. A timber frame could be made of relatively fresh timber, which

could then be left to dry for a time as work continued. Greater care was taken in drying wood for joinery, and drying times of up to five years are mentioned.

Fabrication

As we have already seen, shingles were made from the highest quality pine. Only the heart-wood was used, and to ensure that it contained a maximum of resin and tar, use would be made of the dry pine which was so plentiful in forests where cattle were allowed to run, or else of pine which had been barked (and thus dried) while still standing.

Often only the butt log would be used. This would be sawn into blocks about 20" (45 cm) long which would then be split with axe and mallet to form handier blocks which could later be split into rough shingles. The sapwood was then split off. The blocks were similarly split into rough shingles with a wedge and mallet or else with a shingle knife, which was a stout knife about 35 cm long with handles at both ends of the blade. The wood had to be cloven in such a way that the cut surface was as near rectangular as possible in relation to the annular rings. On no account was the cut allowed to be parallel to the annular rings, because shingles made in this way would buckle across their width on account of fibre tension and would split.

The shingles were then shaped, using a special axe, so that they were one inch (2,5 cm) thick at the bottom and a quarter of an inch thick at the top. The important thing was for the pared surface on the top of the shingle — known in Swedish as the " bleach " — to be left intact insofar as it would be visible after the roof was laid. The lower edge could often be of a variety of shapes — pointed or blunted triangle, rounded, beak-shaped with concave sides and so on.

When the shingles were thoroughly dried they would be dipped in warm tar to increase their resistance to climatic stresses, above all in the form of leeching.

When shingles were to be produced for the roofing of a country church, it was customary for the farmers of the parish to be ordered to supply shingles in proportion to the acreage and assessed value of their farms.

Laying technique

Shingles were laid on steep roofs, which were effectively drained. They were nailed straight onto boarding, which was usually quite stout. This boarding had to be widely spaced, and its edge had to be chamfered outwards

and downwards to ensure that any water leaking through the shingles would run off as quickly and completely as possible.

Shingling was done in three layers, each new layer covering the upper two-thirds of the layer beneath, with the result that one-third of the length of the " bleach " was left showing.

To give satisfactory coverage, the second and third layers of shingles were laid in such a way as to cover the joins beneath. The shingles were laid relatively sparsely, with gaps of at least 2-3 mm in between to allow for swelling. Each shingle was secured with a single nail, and one had to avoid hammering the nail home so hard that the shingle was pressed against the layer beneath.

The combination of widely spaced boarding, sparsely laid shingles, loose nailing and the irregular surface of hewn shingles ensured that all parts of the roof would be efficiently ventilated.

Maintenance

Good run-off and a well-ventilated structure made it possible to prevent rot, but only on condition that the roof was properly maintained so as to inhibit the other type of damage to which timber is prone, namely leeching.

Precipitation alternating with drying in the heat of the sun causes the bonding substances of the wood to dissolve, with the result that the wood fibres come apart. This type of leeching process proceeds more rapidly on the sunny side of a roof than on the shaded side. Leeching then prepares the way for rot and the growth of lichen.

In the old days there was only one method of preserving shingled roofs, namely tarring. The traditional rule was to re-tar a roof every four or five years, though longer intervals were permissible in the case of spires and other steep surfaces — naturally, because they are much better drained and ventilated. Pine tar is rich in resinous substances, and when applied to shingles these replace the resins lost as a result of leeching.

Production of wood tar

The raw material from which tar is produced mainly consisted of resinous pine stumps in places where trees had been felled or forest fires had occurred between 15 and 20 years previously. The stumps of fallen trees were also rich in tar and were therefore used for tar production.

Usually the stumps would be grubbed out roots and all are conveyed to the burning site, where they would be split into lengths of 30-60 cm.

Sapwood, decayed parts and soil were then removed, after which the wood was graded and stacked to dry during the spring.

The tar pit was prepared in early June. The floor of it, timbered and funnel shaped, was positioned close to a slope, which it was partly dug into. The entire floor was covered first with moss or turf and then with a thick layer of soil. The outlet for the tar, known as the " shoe ", was formed at the apex of the funnel-shaped floor, and the tar running out through this outlet was collected in a channel. The tar wood was positioned in the pit in a particular way, so as to enable the tar to run off. The wood pile was then covered with spruce brushwood and sand-free charcoal-breeze and the top was ignited. The tar would begin to flow out after some five hours.

The draught in the tar pile was adjusted by poking small holes in the covering with a pointed stick. When the tar had been extracted, the waste product, charcoal, could be used in forges. The tar was purified by drawing off the water it contained.

Just as with the production of shingles for the church roof, each farm had to supply a certain amount of tar, in proportion to its texation rating, for the periodic re-tarring of the church roof.

Tarring was done early in the summer, in dry weather. For greater penetration it was heated to about +70°C.

Developments during the twentieth century

The careful selection and handling of the timber used, the skilled fabrication and laying of the shingles and continuous maintenance through the application of pine tar ensured that a shingled roof would have a very long service life. Shingled roofs continued to be made and cared for in this way well into the present century.

Unfortunately, however, the traditional method of production died out in the early 1950s, and shingles came to be manufactured by sawing instead. At the same time new forestry methods began to be introduced, with mechanization and efficiency-based innovations superseeding old skills and methods. As a result of the rational forestry methods employed today — which will be briefly described presently — most of the timber which is now being produced for building purposes falls short of the qualitative criteria which craftsmen used to stipulate for good timber. This is borne out, for example, by the fact that innumerable window frames and casements in new buildings have rotted after only a few years.

In modern forestry, felling continues all the year round, except during the holiday month and the dogdays. Most felling operations are performed with processors or harvesters which inflict damage on the trees felled, on the surrounding terrain and on the trees which are left standing. Transport operations are mechanized, and the tongues and clamp loaders used in this connection can inflict lasting damage on the sawn timber.

Timber is stored in water or else sprayed with water, which among other things increases the likelyhood of decay.

Whereas formerly it was considered essential for all timber to be sawn by the end of June, nowadays timber is sawn all the year round.

All timber used to be yard seasoned, but today it is both air dried and kiln dried. The latter is a controlled, artificial drying method employing high temperature and air circulation, and more often than not it produces very unevenly dried timber with micro cracks and large heart-wood cracks.

Joinery timber used to be warehoused for years on end, but nowadays, owing to the heavy cost of warehousing, it is stored for only a very short time if at all. Consequently it has no time in which to " ripen ", with the result that timber today is often light and loose-textured.

The new method of fabrication and the new methods of forestry were a very unfortunate turn of events in the history of shingling. This was partly remedied fairly soon, however, in the early sixties, when the traditional practice of hewing shingles was revived. Apart from the superiority of hewn as opposed to sawn shingles, hewing — unlike sawing — requires a certain minimum standard of quality in the raw material. Nowadays shingles are hewn either in the traditional way, using a wedge and mallet, or else by some mechanicanized means. One manufacturer uses an elderly motorized log splitter, and two others have adapted metal planers. Rough shingles about 3 cm thick are hewn out and then sawn diagonally in a bandsaw to give two shingles each.

It was believed — quite wrongly, as things have turned out — that the inferior quality of present-day timber compared with that of earlier times could be made good by pressure-impregnating the shingles. All shingles manufactured in the sixties and seventies were pressure-treated with arsenic or creosote oil.

Faith was revived in shingles as roofing material. The old, well-tried manual method of fabrication had been resumed and pressure-impregnation, so many people believed, was a guarantee of durability. It was also widely believed that with pressure-impregnated shingles the intervals between the constantly recurring and very expensive treatment of shingle roofs could be made considerably longer. Many buildings were re-roofed with shingles,

and in 1973 the Central Board of National Antiquities issued a report on shingles containing detailed instructions concerning their fabrication, laying methods and maintenance.

We now know beyond any shadow of doubt that pressure- impregnation is no substitute for sound raw material and that it is definitely no substitute for careful maintenance. Many of the shingle roofs laid in recent years are already showing signs of being severely damaged by rot or otherwise ruined twenty-five or fifty years hence. In addition to the indirect damage caused by pressure-impregnation in the form of neglected quality of the raw material and neglected maintenance, direct damage is probably inflicted through the bursting of cells etc. Pressure-impregnation is above all a method of protecting wood against rot, but as we have already seen, there is no serious risk of a shingle roof rotting if it is properly constructed — with steeply sloping and properly ventilated surfaces.

Leeching, on the other hand, which also prepares the way for subsequent decay, is a threat to the durability of a shingle roof; but this process cannot be prevented by pressure-impregnation. If anything pressure-impregnation accelerates leeching, owing to the reduced cohesion of the fibres in pressure-impregnated timber. There are only two ways of combatting leeching — use of the very best timber and repeated applications of wood tar. And the very best timber — rich in heartwood and with densely spaced annular rings — cannot be pressure-impregnated to any great extent, because it is already naturally impregnated with resin and tar.

How should developments be steered in future?

During the past few years the Central Board of National Antiquities has redoubled its efforts to improve the quality of shingle and has partly changed course — or rather, tried to get all the stages of shingling back onto the old and well-tried course. Only first-class material and craftsmanship are acceptable if shingled roofing is not to be put right out of the running by other materials. For example, one cannot in the long run expect small country parishes to spend large sums of money relaying shingled roofs if the service life of the product does not measure up to the expense. Recent setbacks have made us realize that the selection and preparation of suitable raw material for the production of shingles must also be based on old skills and methods. Very simply, this means paying attention to where the timber grows, to the selection of suitable trees, the proper timing of felling operations, and to transport, cross-cutting, hewing, drying, storage and pine-tar impregnation.

The work which the Board has done so far and the work which it plans for the future can be briefly described as follows.

As was mentioned by way of introduction, this work was preceded by a nationwide inventory of church roofs, with each individual parish supplying particulars concerning roofing materials, approximate roofing area and the technical state of roofs.

Processing of the material thus assembled included comparisons with the corresponding particulars concerning roofing materials in an inventory compiled in 911. This comparison shows the magnitude of the changes which have taken place, and it provides an indication of the amount of surviving shingled roofing which we will have to safeguard in future for historical reasons.

In this way we can make a rough estimate of the necessary output of new shingles, and we will be able to play an active part in ensuring that supplies are available.

The Central Board of National Antiquities now has a new and important part to play in connection with the fabrication and laying of shingled roofs.

True, the Board has previously been responsible for supervising the re-roofing of churches, but it has never had to participate actively. Formerly one could implicitly rely on material of perfect quality being used and correctly applied, because every parish used to have its own experts on timber and woodworking. Such expertise is infinitely rarer nowadays, with the result that the Board has incurred far greater responsibilities concerning efforts to maintain high standards of quality. Among other things this has led the Board to publish recommendations and directions concerning the fabrication, laying and maintenance of shingled roofs (i.e. the 1973 report on shingles, mentioned above). The Board also assists parochial authorities by inspecting roofs, drawing up repair programmes and putting authorities in touch with the shingle manufacturers, shingle layers, and tar suppliers we are able to recommend.

The Central Board of National Antiquities is in continuous touch with the four major shingle manufacturers, who are serious entrepreneurs and produce shingle in accordance with our instructions. We do our best to help ensure that all orders for new shingles for churches and for secular buildings of historical interest are placed with these manufacturers, so that they can maintain as steady an output as possible.

We have also tried to help bringing about co-operation and an interchange of experience between these manufacturers themselves. Plans exist

for the establishment of a joint shingle depot in order to make better provision for necessarily seasonal operations and to ensure that these and the rather long drying periods etc. do not have to be accelerated and departed from when rapid deliveries are occasionally called for.

Nowadays we advise against pressure-impregnating shingles, on account of our previous discouraging experiences. Instead we recommend a reversion to the old and well-tried method of impregnating shingles by dipping them in warm wood tar. Suitable techniques of tar dipping are currently being tested. One or two roofs have now been laid with tar-dipped shingle. They are to be closely monitored, and we shall be reporting on our findings.

The reversion to more labour and time-consuming procedures — heavier work inputs in connection with the preparation of the raw material, tar dipping, longer drying and storage times etc. — which we have judged necessary in order to improve the standard of quality will of course make shingle roofing even more expensive than it has been hitherto. This in turn highlights the question of State grants towards the maintenance of shingle roofs. During the past year, grants totalling just over Skr 100 000 have been awarded for the repair and relaying of shingled roofs on churches and on secular buildings.

But a great deal more assistance will be needed if our tradition of shingle roofing is to be kept alive.

Work during the next few years will be concentrated on developing the technique of tar dipping and on improving the preparation of the raw material. We must, for example, disseminate knowledge and understanding concerning the necessity of winter felling and air drying as necessary stages in a process of raw material preparation aimed at supplying timber of impeccable quality for the preparation of roofing shingles.

NOM: KRISTIN TOLLESTÉN - Suède.

THEME: MATERIAUX

TITRE: BARDEAUX ET TOITURES DE BARDEAUX.

RESUME:

Depuis les temps médiévaux jusqu'au 19ème siècle, les bardeaux ont été un des principaux matériaux de couverture utilisés dans les constructions de qualité en Suède - églises et beffrois, châteaux et manoirs.

Comme la fabrication, la posé et l'entretien des bardeaux de toiture sont des occupations traditionnelles typiques, les bardeaux qui étaient un des matériaux durables les moins chers sont maintenant devenus un des maté riaux de couverture les plus chers, ayant pour conséquence la diminution régulière du nombre de toitures de bardeaux depuis longtemps.

D'un point de vue historique, il est particulièrement essentiel de sauvegarder les toitures de bardeaux qui ont survécu. A cette fin, il est vital que seuls des matériaux et une technique traditionnels de première qualité soient acceptés pour éviter que les toitures de bardeaux tombent dans le discrédit et que les bardeaux viennent en second plan quand il y a concurrence avec d'autres matériaux.

Le procédé pour faire les bardeaux et pour poser les toitures de bardeaux tend d'une façon générale à se rapprocher des méthodes traditionnelles éprouvées. D'autre part, les méthodes utilisées auparavant pour sélectionner et préparer le bois approprié à la production des bardeaux sont totalement incompatibles avec les méthodes très efficaces de la sylviculture actuelle. Même dans cette phase initiale du procédé des toitures de bardeaux, on devra cependant retenir les connaissances et les techniques traditionnelles pour atteindre la meilleure qualité afin que les toitures de bardeaux traditionnelles survivent.

NAME: KRISTIN TOLLESTÉN - Sweden.

SUBJECT: MATERIALS

TITLE: SHINGLES AND SHINGLED ROOFS.

SUMMARY:

From the early medieval period and well into the nineteenth century, shingles were one of the main roofing materials used for prominent buildings in Swedish churches and belfries, castles and manor houses.

Since the manufacture, laying and maintenance of roof shingles are typical craft occupations, shingles, which used to be the cheapest of lasting materials, have now become the most expensive form of roofing, with the natural result that the number of shingled roofs have been steadily declinig for a long time.

From a historical point of view it is particularly essential to safeguard those shingled roofs which have survived. To this end it is vital that only first class materials and superb craftsmanship be accepted, so as to save shingling from falling into disrepute and coming off second best whenever there is competition from other materials.

The procedure for making shingles and laying shingled roofs still tends on the whole to adhere to the ancient, well-tried methods. On the other hand, the methods formerly used in selecting and preparing suitable timber for the production of shingles are completely incompatible with the highly efficient methods of present-day forestry. Even in this initial phase of the shingling process, however, ancient knowledge and methods will have to be retained if we are to achieve the high standard of quality which is needed in order for the shingling tradition to survive.

NOMBRE: KRISTIN TOLLESTÉN - Suecia.

TEMA: MATERIALES

TITULO: TEJAMANILES Y TECHOS DE TEJAMANIL.

SUMARIO:

Desde la temprana Edad Media hasta el siglo XIX, el tejamanil fué en Suecia uno de los materiales, mas usados para cubrir techumbres, en edificios de importancia - iglesias, campanarios, castillos y mansiones.

La manufactura, colocación y mantenimiento de un techo cubierto con tejamanil son una típica ocupación artesanal, que en otros tiempos fue la solución más barata y perdurable para las techumbres. Ahora se ha convertido en la forma más costosa de techar un edificio, y consecuentemente, los techos de tejamanil estan desapareciendo ininterrumpidamente desde hace bastante tiempo.

Desde el punto de vista histórico, es particularmente importante conservar los techos de este tipo, que han logrado sobrevivir. Para alcanzar este objetivo, es esencial que sólo se acepten materiales de primera clase, y una mano de obra excelente, salvando al tejamanil de caer en el desprestigio y evitando que se le considere como una segunda opción, ante la competencia de otros materiales.

El procedimiento para fabricar y colocar tejamanil en techos, sigue conservando en general las técnicas, bien probadas, del pasado. Por otro lado, los métodos antiguos, empleados para seleccionar y preparar la madera conveniente para fabricar tejamanil, son incompatibles con la tecnología altamente desarrollada de la ciencia forestal actual. Sin embargo, aún en esta fase inicial del uso del tejamanil, el conocimiento y los métodos antiguos deberán conservarse, si deseamos llegar al alto nivel de calidad que se necesita para mantener viva la tradición antigua.

Имя : Христина Толлстэн

Предмет : Материали

Оглавление : ГРАНКИ и КРЫШИ СДЕЛАННЫЕ ИЗ ГРАНОК.

Краткое Изложение :

Начиная с самого раннего средневековья и почти что до середины девятнадцатого века, гранки являлись главным материалом употребляемым для значительных построек Швеции т. к. церквей и колокольней, замков и дворянских домов.

Благодаря тому, что производство, кладка и поддержание гранок составляют типичные ремесленные занятия, гранки, которые являлись самым дешевым и долговременным материалом стали теперь самым дорогим крытельным материалом, с тем естественным результатом, что число крыш покрытыми гранками стало все более и более уменьшатся и это уже с довольно давних пор.

С исторической точки зрения особенно важно сохранить существующие крыши покрытые гранками. Имея это в виду, необходимо употреблять только первоклассные материалы и нанимать исключительно исскусных ремесленников, чтобы это особенное исскуство не стало бы вроде как второклассным в случаях соревнований гранок с другими материалами.

Средств производства гранок и укладка их на крыши вы-тается в целом поддерживатся старинным, издавна испробыванным методам. С другой стороны, методы ранее употребляемые в выборе и приготовлении дерева подходящего для производства гранок совершенно не подходит к высоко эффективным методам современного лесного кодекса. Даже в этой начальной степени употребление гранок нужно будет поддерживаться знаний и способов употребляемых в былые времена, для того чтобы добится высокого стандарта качества необходимого для уцеления традиции употребленя гранок.

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TEMA: MATERIALI

TITOLO: TEGOLE LIGNEE ED IL LORO USO NELLE COPERTURE DEI TETTI.

SOMMARIO:

In Svezia, dall'inizio del Medioevo fino al secolo 19esimo inoltrato, le tegole lignee erano uno dei materiali principalmente usati per ricoprire i tetti di palazzi importanti, chiese, campanili, castelli e manieri.

Poiché la fabbricazione, l'istallazione e la manutenzione delle tegole lignee fanno parte dell'artigianato tipico, esse, che una volta costituivano il più economico dei materiali durevoli, sono diventate ormai la forma più costosa di copertura di un tetto. Il risultato naturale è che il numero di tetti coperti con tegole lignee è in costante declino da parecchio tempo.

Dal punto di vista storico è perciò essenziale salvaguardare i tetti sopravvissuti coperti da tegole lignee. A questo scopo è vitale che solo materiali di prima qualità ed un eccellente lavoro siano accettati, in modo da salvare questo materiale dal discredito e fare in modo che possa reggere la concorrenza con altri materiali.

La fabbricazione delle tegole ed il modo di ricoprire i tetti tendono ancora, in linea di massima, a seguire gli antichi, ormai sperimentati, sistemi. D'altra parte, i sistemi impiegati, in passato, per scegliere e preparare il legno adatto alla produzione di tegole sono totalmente incompatibili con gli efficacissimi metodi della moderna silvicultura. Anche in questa fase iniziale del processo di fabbricazione delle tegole, le cognizioni ed i metodi antichi devono essere conservati se vogliamo raggiungere l'alto livello di qualità necessario per la sopravvivenza di questa tradizione.