

CONFIDENTIAL

**Proposed Chill
Facilities for Whitby
Fish Market**

Technical Report No.318

July 1987

SEA FISH INDUSTRY AUTHORITY
Industrial Development Unit

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PROPOSED CHILL FACILITIES FOR
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1. INTRODUCTION AND PURPOSE OF REPORT

At the request of local (Whitby) fishing interests and fish sales agents, Scarborough Borough Council have agreed to investigate the feasibility of improving facilities for the holding and sale of fish on Whitby Fish Market, which the Council own and maintain. A problem exists, particularly in the summer months during warm weather, of temperature control of the market building that results in quality loss of product and restrictions on landings by fishing vessels.

Following a meeting of local interested parties, M.A.F.F., Seafish, and Scarborough Borough Council, the council requested that the Seafish act as an independent technical consultant to advise them on a proposal to insulate and refrigerate the building and to show or otherwise that expenditure on the scale envisaged was justified and that the proposal by their contractor, Refrigeration Aberdeen Ltd., was technically sound and the most cost-effective solution.

This report summarises the findings of the Seafish investigation.

2. PROPOSAL

Whitby fish auction hall comprises of a brick structure with asbestos roof supported on steel trusses generally as shown in sketch 1.

The quayside facing 'wall' comprises of continuous folding galvanised doors from ground level to the eaves of the building. To the rear similarly constructed doors are supported from a sill of approximately one metre in height, up to the eaves. There are two areas to the market located either side of an office/washroom complex.

The proposal by Refrigeration Aberdeen Ltd., is contained in appendix 1 but basically consists of insulation in the form of panels applied to the inner surfaces of the building with a single fan assisted evaporator unit (to each market area) fixed through the gable-end wall. The unit is integral with the condensing unit.

Refrigeration Aberdeen Ltd. have quoted for one of the market halls and for both of the market halls.

3. TECHNICAL CONSIDERATIONS

3.1 Insulation

The panels specified by Refrigeration Aberdeen provide good insulation ($U = 0.16$) with suitable hygienic surface finish. Fitted with an upstand at floor level and with protection to the top of the sill to the rear access they should have a long working life.

A cheaper alternative for the roof insulation might be to have the underside insulated with a two-component spray as commonly used to insulate agricultural buildings. The approximate cost of insulating the two market roof areas (not including the walls) would be in the order of £3 to 4,000. This alternative method however is not recommended in this instance for the following reasons:-

- (i) it would probably require two insulation contractors to be employed, one for the slab insulation of the walls and another for the application of the spray-on insulation to roof.

- (ii) spray insulation does not have the same life and can become detached from the asbestos roof panels.
- (iii) it provides a less hygienic surface.
- (iv) if the market building were classified by the local fire-officer as 'occupied' the foam insulation must be covered with a protective coating as it gives off cyanide gas on combustion.
- (v) non-combustible sprayed foams are available but their adhesion properties are not good.

3.2 Doors

The quay-facing wall of the market consists of continuous folding metal doors that face approximately due east. These doors heat up very quickly under direct sunlight and act as large radiators to the interior of the building. They are a major heat source to the building. It is not possible to insulate these doors and would be fairly expensive to replace them with new. It is strongly recommended that alternate door bays to the front and rear be bricked-up and insulated to the same standard as the gable-end and other wall surfaces. This should enable a reduced capacity of refrigeration to be used at both lower capital and running cost. Such an arrangement will not interfere with the handling operations of the vessels.

3.3 Refrigeration

Duty calculation for refrigeration is difficult in circumstances where doors are continually in use and air-exchange is involved. Refrigeration Aberdeen have specified 20KW for each half of the market which is approximately twice the capacity of similar installations observed in Denmark for the volume equivalent, probably because of the existing door construction. If every other door bay were to be bricked up and insulated it might be possible to reduce the specified duty.

It should be noted that the duty calculation does not include for cooling of fish but to combat heat gains to the building so that fish can be kept cool. Refrigeration is not a substitute for good icing practice and fish must still be well iced

3.4 Plant

The single evaporator/condenser unit through the gable-wall is probably the simplest method, but is not recommended. Similar installations on Danish markets have been replaced by multiple evaporator units that give better air distribution at reduced velocity thereby causing less desiccation of stored fish.

It is recommended that three or even four double-acting fan evaporators are installed in each room. This would involve pipe-runs from a remote condensing unit but should not involve much more cost.

Noise-levels: Refrigeration Aberdeen could not advise at the time of a visit, on the noise levels from the plant. It is recommended however that the plant be suited for residential installation because of near-by buildings (particularly in light of previous problems with the ice-plant along the quay).

4. FINANCIAL CONSIDERATIONS

It is difficult to accurately quantify the benefits that will directly accrue from the proposed improvements. The Whitby Fish Selling Co. estimate of £150,000 per annum (appendix II) is based on an assumption of an increase of 50p per stone over the months May to September inclusive, which is difficult to either substantiate or disprove.

Perhaps the most important factor to be considered in connection with financial benefit arises from increased price competitiveness. At present vessels landing during summer, that for whatever reason miss the auction, have either to wait over in port, thereby losing fishing time,

or land the catch and consign it direct to a merchant. When a catch is consigned to a merchant, and does not pass through the auction process, it is almost inevitable that the vessel will not achieve the same price as it would have, had it been auctioned. The provision of a secure chilled holding facility that would enable vessels to land at any time and get away to sea again would enable catches to be held without avoidable loss of quality that would achieve better prices through the process of auction.

Another factor to be considered is the use of the facility to store fish over the weekend for sale on the Monday auction thereby providing merchants with a better supply of fish for processing on a Monday when landings are generally low. This would help spread supplies to the market and again improve prices paid.

For the above reasons it is considered that expenditure on the scale proposed is appropriate and can be recommended. Furthermore the Council should be eligible to apply for grant aid toward the scheme from M.A.F.F.

It is worth noting that a similar facility recently completed at Fraserburgh has met with considerable success as reported in appendix III.

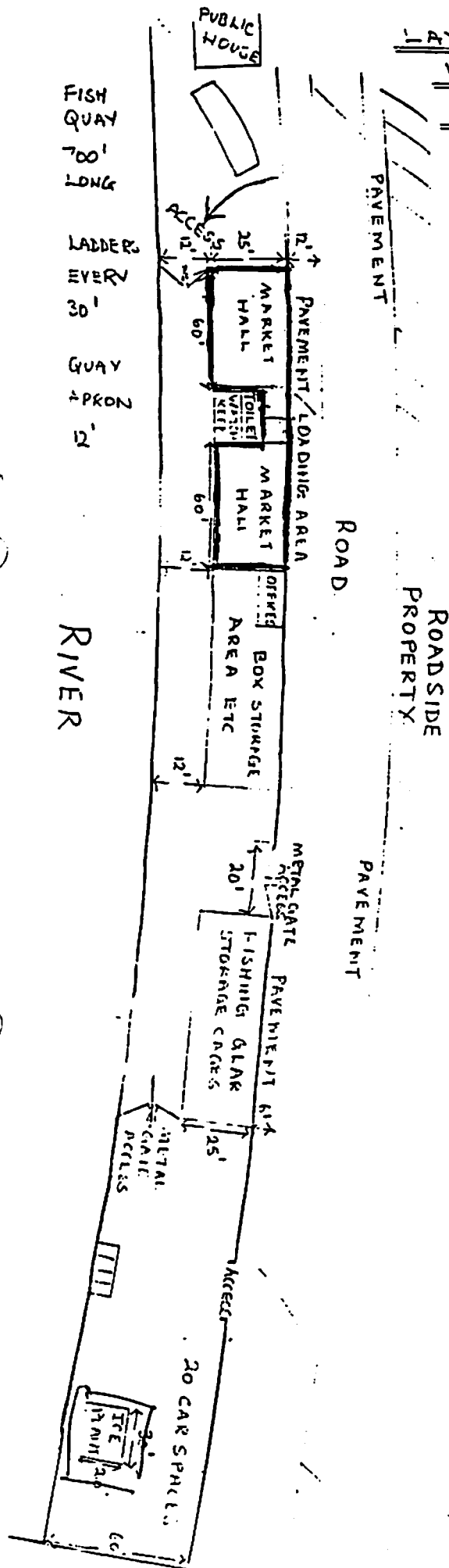
5. SUMMARY OF MAJOR RECOMMENDATIONS

1. Brick up alternate door bays to the front and rear of the building and insulate to the same standard and finish as other walls to reduce the heat gain through the doors.
2. Use slab insulation of the type specified by Refrigeration Aberdeen and not a spray-applied foam.

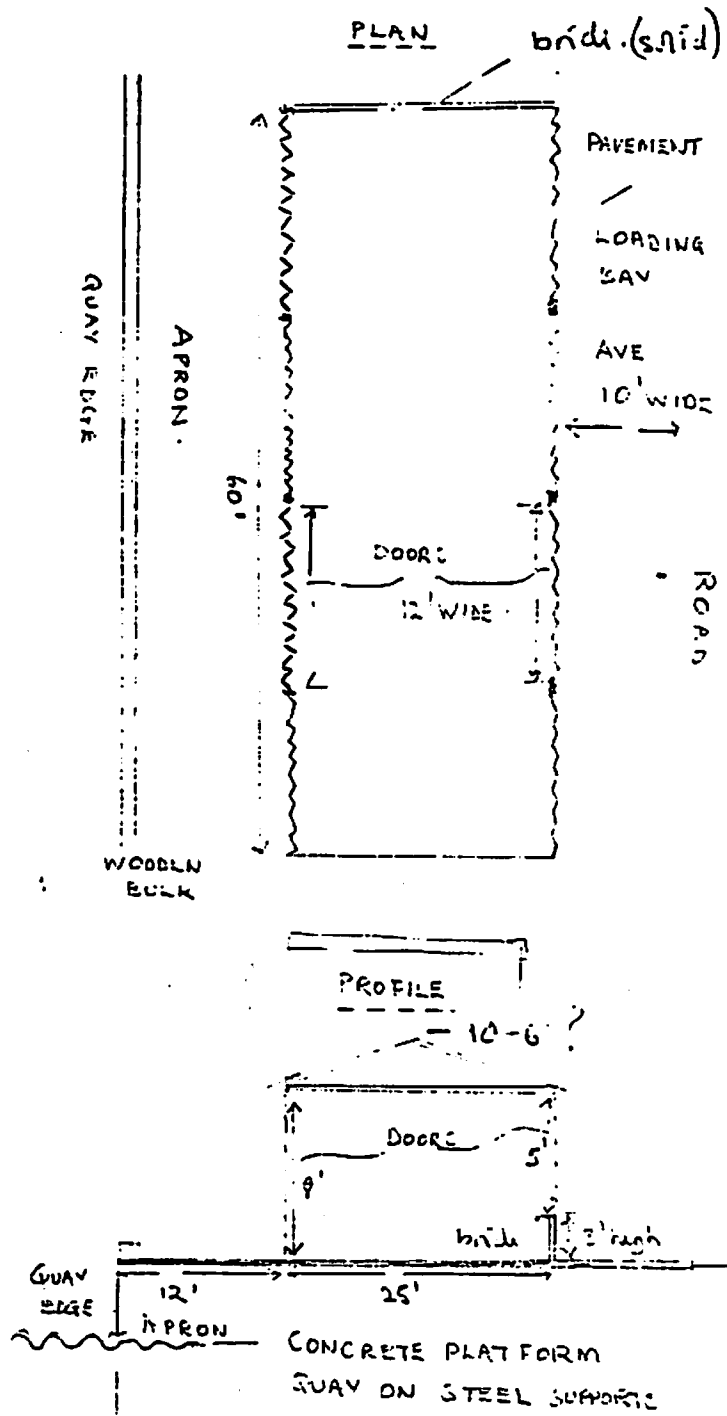
Provide protection to the insulation panels at both ground level and at the top of the sill that provides for rear access.

3. Use multiple evaporator units and a remote condenser unit for each room and not a single unit per room as specified by Refrigeration Aberdeen.
4. Undertake the improvement to both market rooms and not just one as it will be cheaper and cause less problems of operation.
5. Pursue grant aid with MAFF.
6. Seek comment and a new quotation from Refrigeration Aberdeen (and others) regarding the recommendations made in this report.
7. Encourage a disciplined procedure to ensure that the plant is used correctly within its limitations. This means ice will be still needed and doors kept closed except when in active use.

FIGURE 1



PLAN AND PROFILE OF ONE MARKET HALL.



CONSTRUCTION

- WALLS - BRICK
- JOISTS - PAINTED STEEL GIRDER + BEAMS
- ROOF - ASBESTOS SHEET
- FLOOR - 2" THICK CONCRETE

DIMENSIONS NOT TO SCALE

PLAN FROM

Scarborough Borough Council

11/05/87

Quotation No. KM/2243/CR5REFRIGERATION PLANTDuty

To maintain each half of the market at +1°C. overnight we have calculated the duty requirement to be 20 kW (68,240 btu/hr). Allowances have been made for insulation losses, air changes through moderate door use, personnel loading into the market at 20 mins/hr, lighting for same time period and heat from evaporator fan motors.

No capacity has been allowed for cooling fish and we assume maximum ambient conditions of 27°C.

Plant

For the above duty we we offer a Profroid Model UMA RH 1000. The unit is generally as described in the enclosed pamphlet, additionally it is fitted with special vinyl coatings on the aluminium fins to combat the heavy saline environment and special consideration has been given to ensure good airflow patterns.

Installation

As agreed the unit will be mounted as high a practically possible on the gable wall. We have allowed for the installation in a suitably prepared aperture in the brickwork. We include for necessary brackets, fixings and sealants.

Electrical

We have allowed for wiring the unit from a suitable fused main supply within the market. The unit will be supplied with a local fused isolator.

Commissioning

Immediately on completion of the installation the plant will be fully commissioned and operation will be demonstrated to your personnel.

Guarantee

Normal manufacturers guarantees will apply along with 12 months free service assuming that the plant is not subjected to misuse or abuse.

Cont.....

S.P.100A

Refrigeration

To: ABERDEEN LIMITED

Page No. FOUR

SCARBOROUGH BOROUGH COUNCIL,
SCARBOROUGH.

The Contractor agrees to have the Machinery and Materials specified in the foregoing pages ready for charging about **AS AGREED**.... days from the date of acceptance by them.

WHITBY FISH MARKET

EQUIPMENT to be installed at

PRICE INSULATION: FOURTEEN THOUSAND, NINE HUNDRED & FIFTY POUNDS (14,950.00)

PLANT: NINE THOUSAND, FIVE HUNDRED AND NINETY FIVE POUNDS (9,595.00)

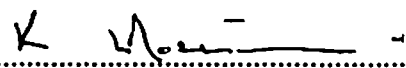
..... (£.....)

TOTAL: TWENTY FOUR THOUSAND, FIVE HUNDRED AND FORTY FIVE POUNDS (24,545.00)

TERMS OF PAYMENT: £ 25 % In cash with order, 65 % on delivery of major equipment to site, balance to be paid on completion of installation, or as agreed.

EXCLUSIONS: Electric Wiring for MAINS volt MAINS cycle MAINS phase supply.

Water connections, Foundations and Builders' work if required, anything not specifically mentioned.



REFRIGERATION (ABERDEEN) LTD.

The Conditions as shown on the reverse side of this sheet are agreed to

by Purchaser and Contractor and form part of the terms of this Order.

We hereby Order the Machinery and Materials specified in the foregoing pages on the above terms.

..... 19.....
(Purchaser's Signature)

This Order is this day accepted 19.....

By.....



WHITBY FISH SELLING Co., LTD.

Directors:
K. W. Deaham.
A. Coulson.
M. Marshall.
M. Barton.

Auctioneers, Fish Salesmen,
Fish Vessel Owners, and Managers
and Ships Chandlers.

Telephone:
Whitby (0947) 603138

1 WEST PIER, WHITBY, YO21 3PU

25th February 1987

Mr. D.G. Bridge,
Director of Administration,
Scarborough Borough Council,
Town Hall,
Scarborough.

APPENDIX II

Dear Sir,

Improvements to Whitby Fish Market

Please take this letter as our support for any proposed grant applications you may be making to the M.A.A.F. or elsewhere, in respect of the above, as a result of the exploratory meeting held on Wednesday the 11th of February 1987 at Whitby quayside and in the Missions to Seamen, Whitby shortly afterwards.

In our professional opinion, the improvements requested at this meeting - on behalf of the Whitby fleet - would give an expected overall price increase at 'first hand auction' of approximately fifty pence per stone - if not more.

The resultant net gain over a given five month period (based on May, June, July, August and September of 1986) would have been - and I quote official M.A.A.F. landing figures for Whitby - 298,663 stone at 50p = £149,331:50

This projected increase in actual auction price would have been resultant from higher quality fish, due to chilling and insulation of the market holding and sales area prior to, during and after sales and of course prior to further transit on merchants transport .

In addition, a virtual cancellation of the present 'dead time' now spent by vessels holding their catches aboard until just prior to the auction would be possible - this would mean that they could pursue their actual fishing time at will.

I also enclose for your possible guidance and retention a 'foto' copy of the current M.A.A.F guidelines on Fishing Harbour Grants.

Trusting this will suffice,

Yours Faithfully,
For The Whitby Fish Selling Co. Ltd.  Man/Director.

Fishing Journal

PRESS AND JOURNAL

FRIDAY, JULY 10, 1987

Facelift at the Broch reels in the cat

A SIGNIFICANT rise in the number of fishing vessels using Fraserburgh, plus a healthy increase in the weight of white fish being landed, is being credited at least in part to the major improvement in facilities at the Broch.

The harbour authority are cautious about making short-term judgments, but there are signs the port is becoming more of a Mecca for the white-fish fleet.

On the wharf front, too, there is good news with prawn landings up to 1500cwt, or 2200,000, and whitefish shrimps up by 160cwt, double last year's figure — meaning a value increase of £13,000.

As one of the port's leading market users put it: "The number of vessels"

arrivals is showing an impressive increase and we are now getting the odd Peterhead boat landing here. We reckon more buyer interest, although prices have been fairly steady."

The novel chilled area of the Broch as much more of a white-fish force to be reckoned with.

APPENDIX III

Landings up at Fraserburgh

THERE has been a marked increase in the amount of white fish being landed at Fraserburgh.

So far in 1987 the number of vessels using the port is up 508 on last year's total, increasing both white fish and shellfish landings.

White fish is now up by 11,500 cwt, meaning a value increase of £1.25 million.

Prawn landings are up by 1,500 cwt (£200,000) and shrimp landings by 150 cwt (£13,000).

The increase is being partly credited to improved facilities at the port's market and also to more efficient market operations.