PRIVATE & CONFIDENTIAL

FEASIBILITY STUDY
DESIGN & MANAGEMENT CONSULTANCY SERVICES
Centralised Food Production Unit
Care Home
Akureyri, Iceland
CONTRACT No. AI/7.2019

Prepared by request for:
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FEASIBILITY STUDY AND PRE-DESIGN

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1. INTRODUCTION & PROJECT BRIEFING

This document has been prepared for **Care Home Foodservice Operation, Akureyri**
The immediate brief was to combine all elements of the existing business to reduce costs together with an improvement to the meals served and also an improved system of food storage and production by the introduction of a Central Production Unit (CPU) using the Cook-Chill System.

This includes the following areas all situated on the ground floor.

1. Juice, Salad and Vegetable production centre –
2. Central Production Unit (CPU) production centre – **to produce chilled food at least 2 days in advance and with adequate goods access and storage facilities.**
3. Distribution area to 40 satellites by Taxi.
4. CPU Changing facilities c/w Toilets with rest rooms (ladies and gentlemen).
5. Meeting/presentation room for daily production meetings and training

Floor areas required:

The existing **Ground floor** area required for approximately 630 meals per day = approx.350m²

The existing production facilities were visited on 21st August 2019 to evaluate the equipment for potential future use in the CPU and to research the product requirements and quantities of each such production facilities.
It is also important to ensure the production unit has the correct refrigeration and regeneration equipment for all relevant Menu items and the refurbishment of service requirements as necessary.
During a research meeting the feasibility of a **Test kitchen** was discussed and can only happen by using the existing conventional kitchen
The team would be responsible for the development of a **Recipe Bank** and the testing of many menu items under production conditions.
All specialist equipment e.g. Blast Chiller, is required for this Testing process and will be integrated into the CPU in due course.
A verbal report was given during a progress/analysis meeting held with senior management in August and minutes distributed to all involved in September 2019.

One of the major difficulties is the continued use of the existing kitchen equipment for regeneration of chilled food during service at lunchtimes.
This is against the norm where a Cook-Chill production unit segregates production from service.
We are left with a difficult situation and extremely good management is going to be required in order to avoid disruption.
It is possible that with the confidence and goodwill from all the staff combined with a positive training programme before and after the System is implemented, success will be safeguarded.

Initial Summary:

There is a need to establish a new, centralised unit so that food served to Care Home customers in future can be: -

a) more hygienically controlled

b) more logically produced - with control

c) more profitable with less wastage.

Most of the food produced from the existing facilities is not made to a controlled recipe or to a controlled cost. It is therefore essential to create a change which will ensure:

a) standardisation to guarantee that a better quality of meal is served – all the time;

b) cost-effective methods of production and control; and

c) a change in the philosophy of the Care Home Foodservice Operation.in Akureyri,

d) to produce all requirements in the best environmentally friendly way.

This change will provide the methodology to offer a service which improves quality and profitability whilst reducing wastage.

It will also provide substantial benefit to the Care Home Foodservice Operation if any intentions to expand to customers outside the group are to be realised.

The Study will analyse and recommend change for improvements. It will also analyse future requirements and encourage use of modern technology for cost-effective production.

2. PROJECT DEFINITION

Following the initial review in Akureyri, the Consultants' brief is described as follows: -

To propose major change in production technique which will identify scope and methodology for the introduction of a more cost-effective food production system which will reduce wastage and improve quality.

The Study will provide the client with sufficient data to enable the following budget cost evaluations:

a) The Capital investment required for a Central Production Unit (CPU);

b) Analysis of Satellite requirements;

c) Provide estimates of future CPU labour requirements and associated costs;

d) Analysis of savings to be engendered from any implementation of systems proposed by comparing conventional methodology with the system proposed.

e) The production facilities are based on current demands. However, this system will allow to double production for external customers by extending the working day so long as storage facilities of chilled food can be fully utilised without risk to product..

Operational training will be emphasised, and specific programmes promoted to train ***all*** relevant staff in the CPU. A proposed Training Plan was issued to Halldór (the client) for information purposes.

Systems can only be successful if all relevant personnel are properly trained and are fully committed to the successful implementation of new methods and utilisation of modern technology.

Training and familiarisation must take place even before the CPU is built.
Visits to other established Systems will emphasise the training need and the advantages and disadvantages of existing operators.

In association with the Study, a 'Flowplan' of the proposed CPU will be provided, detailing the various elements and space requirements.
In addition, the requirements for localised chilled storage and regeneration will be assessed.

All design associated with the Study will be based on the utilisation of modern Cook-Chill/Freeze principles and maybe the further use of some limited items of existing equipment which are modern and can be easily integrated into new proposals.

Once the Study and relevant design is completed, it will be presented at a meeting with the Client and Associates to assess viability on 14th October 2019.

Following the presentation, it is essential to approve the detail so that further developments can take place in association with the Study and other disciplines, i.e., Architects, Consultant Engineers etc.

This will be the basis by which RC Associates Limited can produce the initial tender documents for issue on behalf of the Client if required.

It will be necessary to create a Test Kitchen in the existing facilities to produce all recipes to be used in the future CPU at the earliest possible time.

All data collected from the Tests is extremely relevant to the future menu development.

These Tests will also enable all relevant staff to learn about the system and some of the technology used in Cook-Chill Systems prior to introduction of a major system.

A complete training schedule is also required for all relevant staff. This is identified within the study.

3. ANALYSIS OF EXISTING SERVICES

3.1 State of existing Kitchen

During a visit to the existing kitchen in August it was established that there was insufficient Refrigeration to store a minimum of **2 days Cook-Chill stock** from the existing facilities but there was adequate prime-cooking equipment to produce and regenerate the hot items required to a high standard.

If any areas of the Kitchen are not capable of meeting the criteria described above then steps will need to be taken to allow some refurbishment to be completed to ensure they are modernised to provide cost-effective use in future.

3.2 Quantity of Food Served

It is essential to analyse the quantity of food requires per day so that production based on centralisation can be assessed.
For evaluation purposes, the client has given a projection of future requirements based on the type and quantity of food sold over a period of 1 month.

The production analysis has taken these requirements and evaluated the portions in weight terms in order to calculate a daily production requirement in Kilograms per day.

It is proposed that production will be achieved in six days, i.e., Monday-Saturday for consumption seven days a week. Eventually the Production could be achieved in 5 days depending on the practical experience of the kitchen staff.
The production will not operate more than 8 hours a day to facilitate the correct cleaning schedules.

It is proposed that it will be necessary to produce chilled food for 6 days per week. However, production of Bakery goods cannot be continued after the Cook Chill system has been initiated and should be imported from local quality suppliers who may need to provide a 7 day per week delivery.

Future production may include products for other companies who wish to purchase from the Care Home production centre

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This may require separate production and advanced packaging technology that cannot be currently assessed due to lack of information.
The production centre (CPU) will however be able to extend the working day in order to produce these special requirements within the proposed Cook-Chill system.

The variety of components required will consist of approximately 75% being produced via Cook-Chill from the central source and 25% ambient or cold salad and prepared meats etc., freshly pressed fruit juices requiring only compilation without the need for regeneration.

4. PROPOSAL FOR COOK-CHILL/FREEZE SYSTEMS AND HOW THE SYSTEM WORKS

4.1 Introduction

The COOK-CHILL system can be defined as a system of preparing, cooking and rapidly chilling food within a prescribed time and storing it at a low temperature, 0-3°C prior to its regeneration immediately before consumption.

The concept is that prolonged storage for up to five days, including the day of production and the final service, can be undertaken without adversely affecting the bacteriological and/or the organoleptic quality of the food.
This technical brief gives an overview of the technique of Cook-Chill catering and reference should be made to the Cook-Chill Guidelines as issued by the UK Department of Health.
These guidelines are recommended for use in all potential systems and adopted for use by all countries as the universal **UK/EU Government Guidelines to Cook-Chill and Cook-Freeze systems.**

4.2 Scope

In the majority of cases, pre-prepared chilled products, where re-heating is carried out, should be considered as using a Cook-Chill system.

4.3 Time and Temperature Limits

The underlying objective of cook-chill catering is to extend the food's high quality life. Chilling should commence within thirty minutes of the food being cooked to a core temperature of at least 70°C.

Food must be chilled down to a temperature of 3°C within 90 minutes and the storage life must not exceed five days, including production and consumption days - ***unless a packaging system employed is designed to facilitate vacuum packing of chilled soup and sauces at +3°C then in such cases the life of the product is safe for up to 10 days providing the product is maintained at +3°C.***

Whichever distribution method is chosen, the Cook-Chill Guidelines issued for Cook-Chill System operators state that if the food exceeds 5°C, it should be consumed within 12 hours. If food exceeds 10°C it must be discarded.
When removed from its chilled storage for regeneration, the cook-chilled food must be regenerated to a core temperature of 70°C for at least two minutes.

The UK/EU Food Hygiene (Amendment) Regulations 1990 and the Food Safety Act 1995 state that it is a legal requirement for both catering and retail establishments to store and display certain categories of food such as sandwiches and salads at 8°C.

4.4 Advantages of Cook-Chill Catering

0.4.1 Maximising the use of equipment and skilled staff at the production unit.

0.4.2 Semi-skilled staff will be required at the service operation. In many instances, whilst equipment at a higher cost is required, there is the opportunity for greater productivity and pay back.

0.4.3 Improvements in standards of quality, presentation and portion control can be achieved.

0.4.4 The system provides definite control of food hygiene standards because of the strict time and temperature control requirements and the adoption of HACCP principles (Hazard Analysis Critical Control Points).

0.4.5 Saving of energy, labour and less waste are valuable features of the system. Cook-Chill provides better opportunities to deploy labour and equipment more efficiently whilst saving materials and providing better opportunities to practise good hygiene management.

4.5 Disadvantages of Cook-Chill Catering

0.5.1 There is a necessity for extremely thorough training and supervision as small food handling mistakes can lead to potentially large food poisoning outbreaks. Management need to be conversant with production control disciplines, such as HACCP (Hazard Analysis Critical Control Points).

0.5.2 Distribution is an "on-cost" factor that must be assessed correctly, especially when refrigerated transport is required.

4.5.3 Where the kitchen facilities are combined with both production and regeneration the production planning must share facilities with the same equipment used for regeneration thus halting the food production for the period of food service.

4.5.4 This is contrary to normal procedures where the production of chilled food is segregated from all service. As such, the difficulty of combining both production with service will require exceptional planning and management organisation to avoid problems.

4.6 Key Points

4.6.1 Raw materials must be of the highest quality and freshness and must be stored separately from the finished product.

4.6.2 Emphasis should be placed on checking sources of supply for meeting quality criteria; that food is received at the right temperature; date coded and transferred to right temperature/conditions; storage; storage after removal from cartons and transfer to hygienic storage containers (decanting).

4.6.3 Every effort must be made to avoid the risk of cross- contamination during preparation and storage.

4.6.4 The highest standards of personal hygiene must be maintained.

4.6.5 Close attention to time and temperature controls are essential.

4.6.6 Cooking must take place as soon as possible after cooking to avoid any spoilage, deterioration of quality or bacteriological growth.

4.6.7 The rate of chilling the food will depend on a number of factors including container size, packaging, shape or weight food density, moisture content etc.
A maximum 90 minutes is allowed to reduce food to +3°C.
In such cases the life of the product is safe for up to 5 days providing the product is maintained at +3°C.
Extended Storage:
Where the packaging system employed is designed to facilitate packing at +3°C and then vacuum packed, the life of the product is safe for up to 10 days providing the product is maintained at +3°C.

4.6.8 All products must be marked using colour coded labels with the date of production and a strict system of stock control must be in operation. There should be close attention to the distribution of food with regard to temperature control.

4.6.9 For reasons of safety and palatability the food must be reheated quickly.

4.6.10 Food to be served cold should be held ***+8°C*** and consumed within four hours after removal from the chilled storage.

4.6.11 No food, once reheated, should be returned to the refrigerator.

4.6.12 All reheated and unconsumed food should be destroyed.

4.7 The Principal Rules of Cook-Chill

4.7.1 Although the following are guidelines suggested by the Health department it is recommended that they be taken as rules to work by in order to operate a Cook-Chill system safely and efficiently.

4.7.2 To ensure the destruction of micro-organisms in their vegetative stages, the food must be fully cooked.

4.7.3 The chilling process must be undertaken as soon as possible after the completion of the cooking and portioning stages and within thirty minutes of leaving the cooking process. The food must be chilled to +3ºC within a further period of 1½ hours. It is essential to achieve the temperature of 3ºC in order to reduce the growth of spoilage organisms and benefit from the permitted five-day shelf life. The shelf life of the food must not exceed five days.
*However, product life can be enhanced by use of a "Hot" vacuum packaging system whereby the product is packed under controlled conditions at a temperature over +82ºC and then chilled to +3ºC within 2 hours, which can extend the product life by up to 21 days providing the product is maintained at +3ºC.

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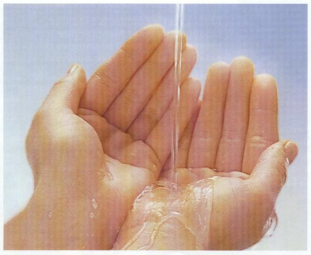
4.7.4 The food must be maintained at a temperature of 0ºC to +3ºC throughout its stored life and including periods of distribution.

4.7.5 In order to ensure the best results from the product and to minimise the growth of micro-organisms, the reheating stage must follow immediately upon removal from cold storage and temperature must be raised to a **minimum of +70º C**

4.7.6 The food must be consumed as soon as possible after reheating and all reheated yet unconsumed food must be discarded.

4.7.7 If the temperature of the food during storage exceeds +5º C it must be consumed within twelve hours.

4.7.8 If the temperature of the food during storage exceeds +10ºC it must be discarded.



EFFECTIVE CLEANING -

5 OUTLINE OPERATIONAL DETAILS

5.1 Strategy Document - Company Operations Manual

In order to achieve a planned approach to the adoption of Cook-Chill and subsequently to minimise operational errors, a strategy document must be prepared giving detailed guidance in respect of:

- Production
- Health & Safety
- Hygiene
- Distribution
- Non-Smoking Policy
- Staff Procedures
- Training Requirements
- Menu Content
- Cleaning Schedules
- Job Descriptions etc.

This document is called - The Company Operations Manual and can be created once the Feasibility Study is accepted and the project proceeds

0.2 Guidelines

The following provides general guidelines in respect of the systems operation:

5.2.1 Raw Products Storage:

As with all catering systems, it is essential to use good quality products that must be stored under the correct conditions to ensure maintenance of the quality. Within all systems the necessary areas to be specified are: -

i) Raw goods storage with adequate ventilation
ii) Dedicated chilled food storage at 3°C (38°F) with ***complete*** temperature monitoring systems
iii) Dairy Store
iv) Freezer Store
v) Meat Store
vi) Fruit and Vegetable Store
vii) Dry Goods Store

All the above will be complete with temperature monitoring devices and the necessary mobile racking to ensure good stock circulation and ease of cleaning.

5.2.2 Chilled Storage (chilled foods):

i) Providing the food is chilled to 3ºC within 1½ hours, the food may be kept for five days, including the day of production and consumption. Should the food exceed 5ºC it must be consumed within twelve hours and, if the food exceeds 10ºC, it must be discarded.

ii) The specified area must **only** be used for storage of ***cook-chilled*** products.

5.2.3 Distribution to Elderly Homes:

i) There are approximately 40 hot meals daily that are distributed to individual in insulated trays to residents by 3 Taxis every day.
ii) The temperature of hot food at the moment is much lower than it should be.
iii) Lunches leaving the existing kitchen were measured at 50 -60 ºC. By the time the last meal was delivered the temperature was probably between 40 -50 ºC. **n.b not yet verified**
It is proposed that with a cook-chill system, the food for these customers will be regenerated from +3ºC to +72 ºC on the delivery tray using induction regeneration trolleys. This method will ensure that every customer receives a quality and **Hot** meal every day
iv) Product temperature is recorded throughout the distribution period to monitor any fluctuation.

5.2.4 Care Home – internal Operation:

ii) All food for the cafeteria should 'spot-checked' on arrival, and, in addition, the Supervisor must monitor the temperature of chilled food on display and at various stages of service in the Restaurant.

iii) The regeneration of Chilled Food in Gastronorm containers unit will be with the use of Prime Cooking Units in the Production Unit.

iv) This is very uncommon and does not uphold the segregation of production from service. However, there is no alternative for this project and controls need to be very carefully monitored.
However, in systems where the Production equipment is also required for regeneration then production must cease until the service period is finished

v) Regenerated and unconsumed food must ***not*** be retained, and any wastage recorded.

5.2.5 Food Preparation

i) In general terms, the basic skills and recipe compilation remain unaltered for Cook-Chill, although minor adjustments to recipes may be required in order to eliminate the drying process that can occur during chilling and storage, particularly with regard to liquids.

ii) A necessary prerequisite of every Cook-Chill system is the development of a recipe file which, in addition to the ingredients, should identify method of production, chilling times and any extra measures that may be required.

iii) The specified equipment provides for the efficient processing of raw materials including such items as vegetable processing machinery, automatic slicers, etc.

5.2.6 Prime Cooking:

i) All products should be thoroughly cooked to ensure the destruction of non sporing pathogenic organisms. While traditional stock equipment may be utilised, it is desirable to use high efficiency, large batch capacity, flexible equipment that requires the minimum labour input. Inadequacies in the provision of equipment will ultimately produce pressures among the staff to increase the manning of the unit.
Within all schemes, specified equipment that meets this criterion is essential.

5.2.7 Pre-Chilling:

The pre-chilling process encompasses such tasks as breaking down bulk (hot products) containers, portioning and labelling. Whichever task is undertaken, the product must be placed into the chiller within ***thirty minutes*** in order to minimise the growth of bacteria.
The necessary equipment must be specified to achieve this.

5.2.8 Blast Chilling/Freezing:

i) The chilling/freezing process should be undertaken as quickly as possible to ensure the preservation of colour, texture, nutritional value and organoleptic quality.
ii) The specified chillers (or Chiller/Freezers) ***MUST*** meet this criterion and, in addition to providing greater flexibility and the required capacity, both ice chilling and liquid chilling systems will be required.

5.2.9 Dirties Returns:

Subsequent to the delivery of chilled food, all empty containers must be returned to the C.P.U. and sanitized prior to re-use.

5.2.10 Administration and Control Documentation:

i) A necessary prerequisite of an efficient and ***safe*** Cook-Chill system is the preparation of control documentation.
The following are the various documents that will be required (not necessarily as numbered below):

(1) Cook-Chill-Handbook
(2) Menus and Recipes
(3) Production Plans
(4) Colour Code Charts
(5) Training Protocol
(6) Form for Staff working in Foodservice
(7) Chill Time and Temperature
(8) Food Sample Control for analysis
(9) Chilled Food Cold store - Control Form
(10) Delivery Control Form - Satellites
(11) Regeneration Control Form
(12) Recipe Test Forms
(13) Colour Code Delivery Form
(14) Delivery Control for Supplier
(15) Cook-Chill - 5 Day Process Control Form
(16) Temperature Control Form
(17) Wastage Control Form

NB: All of the above should be in accordance with the UK/EU Guidelines on Cook-Chill, Cook-Freeze Systems and the Department of Health in all countries.

5.2.11 UK Department of Health Guidelines (DOH) on Pre-cooked, Chilled Foods 1996:

i) Because of special risks involved in the production of pre-cooked, chilled foods generally, the Department of Health issued guidelines on their preparation and use in 1980. A revised edition is published under the new title 'DoH Guidelines on Cook-Chill and Cook-Freeze Catering Systems 1996'.

ii) All of the advice contained in the Guidelines is directly applicable. The following list incorporates the recommendations: -

(1) Before preparation, perishable foods to be stored ideally at 0°C to 3°C with the exception of dairy products 4°C.

(2) Prepared food, before cooking, to be held below 10°C .

(3) Large cuts of meat should not exceed 3.0 Kg.

(4) Large poultry carcasses to be sectioned before cooking.

(5) Cooked food to reach a minimum core temperature of 75°C.

(6) Chilling should start within 30 minutes of complete cooking.

(7) Chilling to between 0°C and 3°Cshould be completed within a further 90 minutes.

(8) Product depth during chilling should be 50mm ***maximum.***

(9) Large meat joints to be chilled to 3°C in 2½ hours including portioning.

(10) Portioning should not exceed 30 minutes and take place within a temperature controlled environment at **below 10°C**.

(11) Chilled Food Storage should be at a temperature between 0°C and 3°C.

(12) Temperatures during distribution should be maintained between 0°C and 3°C. This will require refrigerated transport if the delivery period is prolonged.

(13) Chilled food rising above 10°C (before reheating) should be discarded.

(14) Chilled food exceeding 5°C but not 10°C should be consumed within 12 hours.

(15) Food should be reheated as soon as possible after removal from chilled storage. This should never be longer than 30 minutes.

(16) Foods intended to be served cold should be consumed as soon as possible or within 30 minutes of removal from chilled storage.

(17) Core temperatures of 70°C must be reached during reheating for a minimum of 2 minutes.

NB: All the above conform to EU/UK legislation introduced in The Food Hygiene (Amendment) Regulations 1991 and the Food Safety Act 1995 which applied to all EEC countries from January 1997 as a HACCP Directive to the Foodservice industry.

To ensure safety and integrity of the Cook-Chill System, it is recommended to follow such regulations and guidelines in all systems being implemented.

1 PRODUCTION QUANTIFICATION

The production requirements are based on data provided by the Client

Total projected production per day is assuming initially a six-day production week for seven days' consumption.

Average consumption of hot food is calculated to be 500gr per day per person.
Chilled food including Salads, Juices etc can be estimated at 150 gr per day per person

A margin of 10% has been built into the calculations and this has been implemented within this Study.

The estimated Production requirements are proposed as follows:

Soups:	15 Ltrs per day + 10%	= 16 Kgs per day
Fresh Vegetables:	25 Kgs per day +10%	= 27 Kgs per day
Potatoes	20 Kgs per day +10%	= 22 Kgs per day
Savoury and sweet Rice:	15 Kgs per day +10%	= 16 Kgs per day
Pasta	10 Kgs per day +10%	= 11 Kgs per day
Main Courses:	220 Kgs per day +10%	= 240 Kgs per day
Hot Desserts:	8 Kgs per day +10%	= 9 Kgs per day
Wraps and specials:	15 Kgs per day +10%	= 16 Kgs per day
Diet and Special Meals	**Not yet specified**	**Still requires calculations**
Juices:	20 Ltrs per day +10%	= 22 Ltrs per day
Salads:	10 Kgs per day +10%	= 11 Kgs per day
Total Production of hot food per day based on **357** Kgs per day consumption and production based on **6 days per week**:		Est. **390 Kgs** per day Including Salads and Juices

1.. One Ltr is estimated to be the equivalent of 1 Kg weight
2. Production estimates are based on initially a 6-day production week – 8 hours per Day. However, as experience will show, the production week could reduce to **5 days per week.**
3. It is anticipated that from an anticipated **630 meals** per day approximately **75%** will be produced through the Cook-Chill System.
4. It is estimated that a total of daily "**Hot**" production will be approximately **357 Kgs**.
5. This includes a 10% increase in production levels
6. Without full comprehension of the Menus and recipes available some variance may require further calculation.
7. This applies especially to the Special and Diet meals required.

7 PACKAGING AND DISTRIBUTION METHODS

7.1 ASSUMPTIONS

Various assumptions need to be made when proposing packaging and distribution: -

- Packaging should be flexible for use within the system.
- Packaging should ensure that decanting is not always necessary for regenerating some chilled products.
- All packaging should be of minimal weight and take up minimal space to ease distribution problems.
- Packaging must be able to provide the end user with a good presentation and reduce any food wastage.
- Packaging must conform to existing legislation and retain the integrity of the system involved to provide a safe method of distribution ***without*** risk of cross-contamination.
- Packaging must be able to conform to varying temperatures,
  i.e., Chilled = +3^{o}C. Hot = +80^{o}C

7.2 REQUIREMENTS

Based upon these criteria the proposed system will have a very flexible mixture of: -

- **4 Kg** Vacuum pouches (300x400mm) to fit most service arrangements using a vacuum packing system complete with Gas flushing capability.
- All 1/1 Gastronorm Containers 1/2 Gastronorm Containers will be based on **6 Kgs and 4 Kgs** that will enable easy calculation of requirements and conform to storage requirements

8 CPU EQUIPMENT- SPECIFICATIONS AND REQUIREMENTS

8.1 EQUIPMENT BENEFITS

Within the Central Production Unit (CPU) it is essential to provide equipment which will provide the following benefits: -

- Flexibility derived from multi-purpose equipment.
- Modern technology.
- Compatibility without necessarily being made by the same manufacturer.
- Sufficiently sized to produce economically calculated batches of product within a specific time.
- Efficiency in use of power requirements and manpower to enable correct use.
- Be 'user-friendly' and not require constant maintenance or repetitive training.
- Be cost-effective for reasonably large-scale production without being prohibitive in relation to capital expenditure budget.
- Be easy to clean by the operator and without the need for extensive 'downtime' or involvement of engineers.
- Finally, to be sufficiently well-tried in the industry so that reliability to do the work intended is virtually guaranteed.

All of the above points are reflected in the equipment selected for use within the CPU and also the Satellites.
Past experience and constant updating of equipment and technology in practice is used to good advantage when laying down the specifications of equipment for this project.

8.2 REQUIREMENTS

Based on an outline specification of equipment required in relation to the proposed design flowchart, the following requirements are proposed.
These items and specifications are sufficient to meet the desired initial capacities of production referred to in Section 6: Production Quantification, on page 20.
As this project progresses, some items of equipment may change in size or because of update in technology since project inception, and because production demands are higher and more varied.

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ITEM	SECTOR	REQUIREMENTS	SPACE/ QUANTITY
1	**Meat, Goods in Production and storage for raw and finished products**	4 x Cold rooms for Raw meat +2°C - 2°C (8m²) Fish +2°C - 2°C (7m²) Dairy +4°C (11m²) 1 x Blast Freezer – 180 Kgs 1 x Freezer 11m² (--22°C) 1 x 30Ltr Liquid Chiller 1 x Dry Goods Store and recipe makeup 24m² 1 x area chilling, portioning and chilled food storage (30m²) Changing rooms and rest/toilets etc – 18m² Administration – 7m² (see item 4 below)	Total Meat Prep area =7m² Total Fish Prep area =7m²
2	**Juice and Fresh Vegetable Production**	1 x Fruit & Vegetable cold room - 7m² +12ºC 1 line (8 meters) for Juice production - Plus Dispenser 1 line (10 meters) for production of Salads and vegetables production Various Juice and vegetable preparation machinery and Vacuum machines with Gas Flush capability	Total Fruit and Salad prep area = 6 m²
3	**Dry Goods Store**	ambient stock and/dry goods (24m²)	21m²
4	**COSHH store**	Chemical Store (4m²)	4 m²
5	**Combined Administration Office**	Computer Hardware plus specific Software for the system employed (including training) (8m²)	8 m²
Ancillary requirements		6 x Wash Hand basins, dryers and auto soap dispensers	
		2 x Weighing Scales 50 Kg	
		2 x Washdown Hose Reel	
		1 x Roller Shutter	
		Drainage Channel for Trolley wash	PC sum
6	**Refuse Distribution**	Waste & Rubbish Out -	33 m²
7	**Utensil Washing Waste**	Panwash and Waste Disposal Systems	9 m²
8	**Trolley Wash and storage**	Area only	5 m²
9	**New Dishwasher**	Same footprint as the existing model	
		Total area:	**100 m²**

EQUIPMENT REQUIREMENTS – Ground Floor

ITEM	SECTOR	REQUIREMENTS	SPACE/ QUANTITY
9	**Prime Cooking & Chilling Areas**		55m²
		Brattpan 70 Ltr	2 off
	Retigo	Combination ovens 20 1/1 capacity	4 off
		Conveyor Fryer with auto filter	1 off
		Boiling Pans tilting 100 Ltr	2 off
	Hubbard -	Ice Flaker 250Kgs production per day	1 off
		Blast Chiller/Freezers (120 kg) Cabinet	1 off
		Blast Chiller (120 Kg) Cabinet	1 off
		Various tables, Trolleys and sinks etc.	PC Sum only
9	Portioning & Packing	General area to be temperature controlled +8°C - +10°C	8 m²
10	Chilled/ Stores	Various storage/distribution trolleys incl.Stacking Baskets - sufficient for 2 days' storage (as per Flow plan design)	PC Sum only 12 m²
11	Dirties Return and Utensil Washing	Utensil wash and Waste Disposal Systems Wash down Hose Reel	15 m²
12	Trolley Jet Wash - Area only Wash down Hose Reel		5 m²
		Total approx. area:	**95 m²**

8.3 CAPITAL COSTS

All costs projected within this study are budget costs which relate to requirements which have been provided by manufacturers. These are 'List' prices for equipment before any tendering process is done.
This should be the maximum cost payable for supply of equipment, excluding delivery & installation.

The equipment specified is based on our experience of using similar technology in a variety of systems throughout the whole spectrum of the foodservice industry. Specifications are promoted as suitable for the capacity required and ideal for utilization in systems catering.

Equipment is generally high capacity, rapid operation, which is user-friendly and easy to clean and maintain.

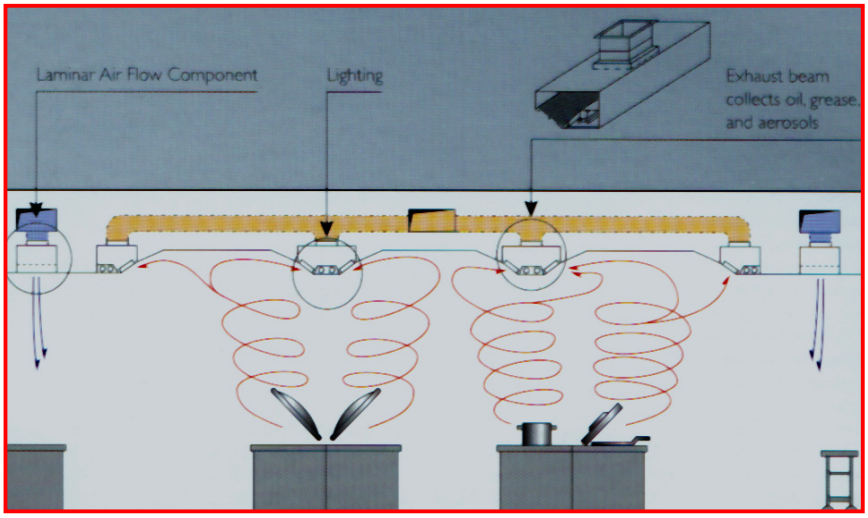
Brand names may be used in some cases so that when eventually tenders are issued

there is no doubt about the compatibility of equipment specified, i.e., trolleys from combination ovens entering blast chillers and storage areas etc.

8.4 VENTILATION AND EXTRACTION SYSTEMS

The existing ventilated canopy over the kitchen equipment **does not** provide sufficient air exchange.

A review of the existing unit is required, and reparations completed asap
Size and costs will be required from other disciplines involved such as Consulting Engineers.



CARE HOME AKUREYRI
NEW PRODUCTION UNIT

9. ANALYSIS OF CPU EQUIPMENT COSTS

9.1 ANALYSIS OF EQUIPMENT BUDGET COSTS FOR CPU

Based on the analysis of requirements and specifications for the CPU the following equipment is listed and is based on the proposed kitchen area and flow layout of our attached sketch plan (Appendix 1).

FIGURE 3:
ANALYSIS OF EQUIPMENT BUDGET COSTS FOR CPU

ITEM	BUDGET COSTS - EURO
Staff Changing rooms and toilets in both Basement and Ground Floor areas	Client Cost
Storage Refrigeration and Temperature Controls Systems	34,476.00
Blast Chiller/Freezer Units including Ice Flaker and Ice Caddy	51,910.00
Prime-Cooking Equipment (2 x Retigo Ovens) Cooking - Induction	25,600.00 6,522.00
Liquid Chiller 30 Litre	12,000.00
Storage and Racking Systems	483.00
Induction Trolleys and Insulated Containers for distribution	56,500.00
Juice Manufacturing Equipment	Existing (but old)
Packaging Systems and Food Storage Containers 1/1GN (stainless steel and polycarbonate)	10,591.00
Pan-washing, Tabling and Waste Control Systems	2,435.00
Computer Control Systems (software estimate only)	Client Cost
Limited Capacity Generator, i.e. standby only - recommended	Client Cost
Trolley Wash and Sanitising Equipment and the replacement Dishwasher	55,733.00
Temperature Monitoring	12,000.00
Ancillary Equipment requirements for Preparation, Production and Portioning areas including Stainless Steel Benching, Stacking Baskets and Wheeled Bases, Sinks etc.	23,645.00
Ancillary requirements including Thermometers, GN Polycarbonate Storage Containers and Lids, Colour Coded Boards and Knives – PC Sum only	12,000.00
SUB TOTAL - Euro	**303,895.00**
Installation Costs	11,906.00
Contingency (5%)	13,090.00
TOTAL COST - Euro	**328,891.00**

10 SATELLITE REQUIREMENTS AND EQUIPMENT SPECIFICATIONS

10.1 Introduction

40 elderly residents who live in their own accommodation require a lunch every day 7 x days per week. These are termed Satellites.

It is essential to serve these meals hot and on time. They are sent out by Taxi each day.
For this to work better than the existing system a special Induction trolley will regenerate the plated meals from a chilled state i.e. +3ºC to +70ºC on special plates designed to retain the meals hot until arrival.
The CPU.must be equipped to ensure that chilled and non-chilled plated foods are correctly stored prior to use, and that when those products require re-heating, it is done efficiently and without risk to the product.

To enable this to take place safely, special trolleys will be used –
The service of food for staff meals is not calculated within this study, although it can be assumed that the CPU staff will also require meals each day.

10.2 PROPOSALS

10.2.1 The use of Induction Trolleys will ensure the chilled products can be regenerated from +3°C to +70°C within a specific time and the food ***not*** cooked further.

11 CPU STAFF SCHEDULE RECOMMENDATIONS

11.1 RELEVANT FACTORS

In establishing the Staff Schedule for the proposed CPU we have utilised a number of factors: -

1) Manning levels of similar successful Cook-Chill systems.

2) The amount of technology and automation proposed within the CPU.

3) The tasks to be undertaken.

4) Assuming the average working week is five days, eight hours per day for production and seven days per week distribution.

5) That all personnel engaged have received basic training and will be specifically trained in order to achieve the necessary standards in production quality and efficiency.

6) All personnel will work to a predetermined job description and their terms of reference will provide total flexibility regarding their work.

The actual cost for manning the CPU will need to be determined more exactly based on the specialised nature of employed staff and their potential expertise.

Some of the positions are new and the needs of employed persons to meet the stringent terms of reference will be reflected in the cost of salaries.

It is, nevertheless, expected that a substantial quantity of the required personnel will be extracted from existing personnel already working with the Angelus LLCGroup.

(For CPU Staff Schedule recommendations, see Figure 3 page 33.)

FIGURE 1: CPU ONLY - PROPOSED STAFF SCHEDULE BASED UPON 220Kgs PRODUCTION PER DAY

QTY	PERSONNEL	PRODUCTION HOURS PER WEEK	WEEKS PER ANNUM
1	Production Manager/Head Chef	40	52
1	Production Sous Chef	40	52
5	Assistant Chefs	40	52
3	Preparation/Portioning Assistants (per shift x 7 days)	40	52
1	Juice, Salad and Vegetable Preparation Assistants (per shift x 6 days)	40	52
4	Taxi Drivers/Porter	per Day	52
Preparation to be staffed by existing complement		Existing Labour cost per annum:	480.000 Euros p.a (excluding Taxis)
Administration/Finance Dept.			
1	Controller/I.T.	40	52

NB1: Total average number of staff expected to work within the CPU = 10

NB2: The Portioning Assistants are also responsible for cleaning each area 5/6 days per week.

NB3: Costs for the above Staff Schedule for Production/Service and Cleaning have been provided by the client and based on existing levels of payment to the different categories.

12 SUMMARY OF COSTS ANALYSIS

All costs projected are estimates based on reliable costs from manufacturers for equipment and services.

		Budget Cost Euros
CPU*	Equipment Requirements (excluding vehicles)	**€ 328,891.00**
CPU	Centralised Administration (Computer Control System)	Client Cost
Satellites	Special equipment supply costs (Satellites -included in the above)	56,500.00
22 days	Total Training Costs projected @ Euros 550. per day	12,100.00
	TOTAL BUDGET COST (including Satellites):	**€ 340, 991.00**

** Although the equipment cost required is classified within the CPU Budget, it is recognized that the '**payback**' for all costs attributed to product distribution (i.e., wear and tear, servicing and fuel) must be reflected by existing cost of production*

13 JUSTIFICATION FOR CHANGE/ADOPTION OF PROPOSALS

13.1 INTRODUCTION

In all cases, capital expenditure associated with cook-chill projects must be justified. It is important to ascertain actual costs of system implementation together with a defined feasibility study and associated design and planning. Once this is available, it can be linked with a projected savings analysis that may be engendered from the system being implemented. This affords the possibility of calculating a payback period. Savings are calculated on four categories as follows:-

a) Labour costs

b) Food costs and Wastage

c) Equipment Maintenance and Replacement costs

d) Energy costs

In every new project there is a major element of change for the employee. Unless this change in attitude and comprehension is satisfactorily achieved, the change can be very destructive.

Good training, combined with encouragement, ensure that the inevitable change is accepted and commitment is given by all employees.

Training is an 'on-cost' which needs identifying and costing into the projects. The cost of training must obviously be offset against the savings which are referred to above.

All changes can be successful provided that they are gradually introduced until the maximum potential is achieved.

Employees rarely accept change willingly if thrown in at the deep end.

The following text compares the conventional catering operation with a cook-chill system and clarifies the definition of a Satellite Unit.

13.2 THE COOK-CHILL SYSTEM

A comparison of Conventional Catering with that of Cook-Chill Systems with special application to the Care Home Sector:

a) Conventional Catering

i) Conventional catering is not necessarily a controlled means of providing a food service to industry. The conventional method is labour intensive with long periods of unproductive time for skilled, very expensive staff.

ii) Working conditions are poor due to a high percentage of prime-cooking equipment being switched on for very long periods during the working day without necessarily being used. Due to the 'peaks' and 'troughs' experienced in conventional kitchens, staff become exasperated, job satisfaction deteriorates, and morale suffers too.

iii) One can estimate that the skilled element of staff in a conventional kitchen are productive only three hours in every eight-hour day. The remainder of time is taken up with cleaning and basic service, which is repetitive, mostly twice per day. Staff turnover is usually very high, and standards must eventually suffer with varying qualities of production in each catering location.

iv) Because food is produced and served in advance of requirements, food is spoiled and results in a high wastage factor. Food purchase is spasmodic and the end result is a higher overall food cost without any central purchase power. The system of keeping food hot for long service periods results in deterioration of general appearance, nutritional values and taste. The ultimate end result is a dissatisfied customer and frustrated staff.

v Control of temperature in food being served is non-existent and danger of cross-contamination is very great. This applies particularly when food not sold is cooled after service periods in ambient rooms and then resold at the following service in one way or another.

vi) The capital investment required to equip a conventional kitchen can be 30% higher than that required for a major production kitchen providing food using a cook-chill system. Also, the conventional kitchen leaves no contingency for expansion without considerable further capital investment.

vii) Generally, a conventional kitchen requires far greater resources of capital and running costs than can usually be afforded.

b) Cook-Chill Systems

i) Centralised food production is divorced from consumption which allows better utilisation of equipment and labour, with higher productivity. Centralisation offers considerable economies in use of staff and space at consumption points or end kitchens.

ii) All meals are prepared in advance of requirements to predetermined menus. This ensures optimisation of equipment, staff and energy. There is no menu limitation with this system.

iii) Chilled food is regenerated through different methods of regenerating units only when it is required. Nutritional value in food is better than that produced conventionally and hot food does not require storage for long periods prior to service.

iv) A purpose-built or converted kitchen has **DOUBLE** the capacity of a conventional system, usually with much less investment capital equipment in comparison with re-equipping several individual catering operations.

v) Staff working conditions are much improved due to the reduction in peak meal time tension in service areas. Staff are able to work methodically with the ability to concentrate on both quality and presentation more effectively. End kitchens require only semi-skilled staff employed in this area albeit with basic qualification and specific training.

vi) Centralisation offers better commodity purchase power with good control and lower food costs. Generally, food wastage can be reduced substantially both at production and regeneration levels.

v) Chilled food has a five-day life, including day of production and consumption. Unnecessary storage of very expensive commodities is eliminated, and good stock rotation is very easy to control with the cook-chill system.

vi) Finally, where a capital life of very expensive equipment is only depreciated over a minimum five years with the conventional operation, the cook-chill system can be depreciated over a much longer period, giving an extension of at least double the life in capital equipment used.

c) Cook-Chill - The Benefits

The benefits derived from the adoption of a cook-chill system fall within the following categories:-

i) Provisions

1) Food wastage reductions
2) Rationalisation in portion sizes
3) Central purchasing
4) Reducing stock holding

ii) Labour

1) Better utilisation of manning requirements
2) Elimination of weekend and overtime working in Food Production
3) Better use of semi-skilled staff at end units
4) Intensification of training to all staff
5) Standardisation of working practices

iii) Premises and Equipment

1) Reduction in fuel consumption through efficient use of equipment
2) Reduction in equipment replacement programme
3) Reduction in equipment maintenance and premises maintenance

iv) Administration

1) Centralised control over expenditure
2) Standardised recipes
3) Centralised control over food hygiene and handling practices.

d) Comparison of Conventional and Cook-Chill

*** = best
** = poor
• = very poor

			CONVENTIONAL	COOK-CHILL
1	Increased labour productivity		*	***
2	Improved working conditions		*	***
3	Take advantage of seasonal prices		***	***
4	Microbiological control and hygiene		*	***
5	Reduction of service kitchen floor area		**	***
6	Reduced energy requirements		*	***
7	Ensured quality control		*	***
8	Range of dishes handled		**	***
9	Optimise capital investment		*	***
10	Improve portion control		**	***
11	Food service wastage control		*	**
12	Stock control capability		**	***

COOK-CHILL SYSTEMS
Temperature Controls required
(KEY TEMPERATURES HIGHLIGHTED)

	CELSIUS	
	79	
	74	
	70	
	66	
	65	
	60	}
		}
		} DANGER ZONE
		}
		}
	49	
	10	
	8	
	6	
	5	
	4	
	3	
	2	
	1	
Freezing Point	**0**	
	-5	
	-10	

14 IMPLEMENTATION AND TRAINING SCHEDULE PROPOSALS

14.1 OVERVIEW

In order to establish a properly implemented system that operates well within the existing guidelines on pre-cooked, chilled foods, a comprehensive training programme is required for all relevant staff.

The following synopsis will indicate the minimum number of days required and the basic contents. Once the equipment specification is confirmed and the quality of staff employed is assessed, a more definitive programme can be prepared, which will relate to the operational days of the business involved.

Basically, there are four sections to the training programme and these are analysed as follows: -

STAGE I – Foundation Food Hygiene & Training
Duration ½ day per Unit = 8 DAYS

The above course should be attended by all relevant staff. The courses are run in accordance with the proposed syllabi of the Institution of Environmental Health Officers in the UK. In other countries the course will be run within the hospital by the consultant and relevant hospital management.

Courses culminate in a written examination for all students based on an average of twenty questions. The pass mark is 60% and a certificate is then awarded. Without this basic knowledge obtained by all relevant staff, further technical training on systems operation cannot take place.

STAGE II - Theory & Practical Implementation

THEORY - Duration 2 x ½ day = 1 day
(depends on access to Personnel)

PRACTICAL IMPLEMENTATION -
Duration approximately 10 days
N.B. 1 day = approximately 5 hours

(a) Before the new system is implemented, all relevant staff will be given training on the following aspects within a class room environment:

1) Identification of the priorities of cook-chill systems operation, with emphasis on times and temperatures.

2) Analysis and training on production planning.

3) The importance of temperature control.

4) Preparation of temperature logs.

5) Relevance of temperature recorders.

6) Recipe formulation and production evaluation.

7) Analysis of colour code systems.

8) Evaluation of prime cooking equipment in relation to production planning.

9) Relevance of production staff meetings.

(b) The commissioning of all new equipment is an important training period for all CPU staff to enable familiarisation of new technology prior to practical day to day use.
The implementation of system begins at this stage in conjunction with equipment suppliers.

(c) Practical training is based on the actual production of food for consumption for day one. The time spent on practical training will coincide with the low and peak business periods as they occur. Training will consist of controlling all areas within the CPU from Goods-In and Quality Control through to all stages of preparation and production of food. Emphasis is given to time and temperature throughout especially on chilling and portioning products prior to storage.

(d) Controls imposed on correct storage techniques within the CPU and transportation of products to satellites. Satellite training given to coincide with service periods when emphasis will be placed on satellite storage of chilled foods and regeneration of food to service points.

(e) Training on time and temperature control throughout with emphasis on correct use of temperature gauges to avoid risks in production and regeneration stages.

(f) Organisation of production meetings and analysis meetings of progress on System Implementation with minuted progress reports.

(g) Further practical training at all Satellites will ensure system integrity is maintained and that all relevant staff receive adequate training about the system, storage and regeneration.

STAGE III - PROGRESS/REFRESHER TRAINING
Duration 3 days in the CPU and 1 day at Satellites

(a) This section is intended as a follow-up to all previous training given and usually takes place 3-4 months after the system has been implemented and handed over.

(b) This section will spot problems and give corrective training as necessary.

(c) The Analysis Report will be produced at this stage for the whole system and is assessed at a meeting of all Key Personnel.

14.2 SUMMARY

Total time for initial training would be approximately 22 days with a further 5 days for Stage IV if required.
The Budget Cost for this training from a specialised training team will be as follows:-

STAGE	**Euros**
STAGE I	4,936.00
STAGE II	6,170.00
STAGE III	994.00
TOTAL BUDGET COST	**€ 12,100.00**

14.3 STAFFING AND STAFF TRAINING

a) General

Staffing and training are absolutely critical to the success of any operation. Recruiting the right staff and gaining their commitment to the project is crucial to a well-run system. Decisions about recruitment and training, therefore, need to be taken at an early stage to allow time for adequate planning and consultation.
Training should commence well in advance of the estimated start-up date, and under no circumstances should any member of staff be allowed to work in the operation without having first completed some form of training. (See Synopsis of proposed training programme for Staff employed).

According to all current International law smoking is not aloud within the workplace. It is proposed that the Care Home apply a total ban on smoking within the vicinity of the whole building – thus prohibiting any staff from going outside in uniform to smoke.

b) Recruitment and Selection

The calibre and motivation of staff is critical to the safety and efficiency of the operation. Much depends initially on recruiting the right staff. Recruitment procedures should be formal, even where existing members of staff are being invited to apply for posts.

A clear job description should be given, with detailed summary of duties, responsibilities and accountability. The level of knowledge, experience and capabilities required for the post needs to be specified in advance, as well as any requirement for formal qualifications. In advertising a post, the relevant details should be conveyed to all potential applicants. Where a high awareness of hygiene is required, this should be specifically stated.

c) Interviews and Assessments

Where a number of candidates possess similar skills and experience, attitude to and knowledge of hygiene may prove the deciding factor. In any event, no-one with a negative attitude towards hygiene should be considered, no matter how well qualified.

With management or supervisory appointments, some knowledge of the DHS Guidelines on Pre-cooked Chilled/Frozen Foods could be reasonably expected.

d) Literacy and Language Skills

A degree of literacy will almost certainly be required to use and understand operational information and communicate instructions to others. Consequently, efforts should be made to determine written and verbal English language skills.

e) Personal Appearance

An assessment of personal appearance, dress and cleanliness, particularly the length of hair, dental cleanliness and the state of fingernails should be made. Persons who present themselves in a dirty, untidy or unkempt manner cannot be relied upon to be clean and tidy at work.

f) Qualifications

Professional and/or technical qualifications will be required of managerial and supervisory staff. For other grades of staff Craft skills may be more appropriate.

Every person employed should be qualified to handle food. Although no such global qualification exists, it is reasonable to expect every food handler to have obtained at least a basic certificate in Food Hygiene from the Institution of Environmental Health Officers, or an equivalent.

Where the person is not so qualified but is otherwise suitable, appointment to any post, however junior or menial, should be made conditional on training and securing appropriate qualifications within a certain period.

g) Health Questionnaire/Examinations

Specific medical examinations, such as faecal sampling, skin swabs and chest x-rays need not be carried out routinely. Normally, examinations will only be necessary at the discretion of medically qualified personnel, for example, where a particular condition is suspected, or to confirm the absence of any specific infection.

h) Drug Screening

Screening for users of drugs and other prohibited substances may be appropriate, especially when the post-holder will be operating dangerous machinery. Excessive alcohol use may also be investigated and the employers may wish to operate a policy of employing non-smokers.

i) AIDS

AIDS sufferers should not be barred from employment unless they are suffering from another infection or illness which warrants exclusion. More detailed advice can be obtained from the local environmental health officer.

j) Other Conditions

Other conditions such as epilepsy or diabetes may be taken into account if dangerous machinery will be used or other tasks performed with safety implications. Physical disability or even mental handicap, need not necessarily disbar employment, subject to the applicant being able to carry out the duties required.

k) Hand Washing

Staff may need instruction on the proper procedures for hand washing. Irrespective of past experience, qualifications or even whether disposable gloves are to be worn, all staff should be instructed on the full hand-washing procedure. Special attention should be paid to the cleaning of skin folds at the base of the fingers and to the washing of wrists and forearms. It is proven that 30 seconds is required to wash hands properly.

The condition of nails should also be given special attention as no hand cleaning regime can be considered effective where nails are too long or in poor condition.

l) Staff Related Illness and Infection

Detecting illness in staff and responding to it appropriately is an important management function. Although medical support will be available, the first judgement often has to be made by non-medically qualified personnel.

Staff should be removed from food handling duties if suffering from:

i) diarrhoea
ii) nausea or vomiting
iii) throat infection
iv) skin rashes, boils or any other skin lesion

Medical advice should then be sought to determine further action.

Personnel should also be asked to report if:

i) anyone at home, or any pet or animal with which they have contact, is suffering from diarrhoea or vomiting

ii) they or any of their family suffered gastrointestinal illness or flu-like symptoms while on holiday or abroad

iii) if they are returning to duty after suffering from any of the above illnesses

Immediate removal from food handling duties may not be necessary but in all cases appropriate medical advice should be sought. Unexplained absences of staff, especially if the absence rate is higher than normal, should invoke a similar procedure, with telephone enquiries being made as to the state of health of absentees.

m) Training

Staff will only perform as well as they are able. How capable they are depends largely on how well they are trained. This is particularly true with cook-chill since most staff will be unfamiliar with its requirements and have had little prior 'hands-on' experience.

Success depends, therefore, on a major and on-going investment in training.

n) Objectives

There is more to training than simply teaching people how to do their jobs. Its objectives may be summed up as:

i) To communicate management policy and standards.

ii) To fulfil statutory obligations, particularly in health and safety.

iii) To enable staff to carry out functions correctly and efficiently.

iv) To demonstrate the capability of the operation.

v) To instill confidence in consumers and statutory representatives.

vi) To foster a sense of identity and cohesion.

vii) To identify individual capabilities or review suitability for placement.

Training must be well executed. Poor training, in some respects, is worse than none at all, installing false values, misdirecting priorities or engendering a false sense of confidence. However, training also has its limitations.

Training cannot, for example, overcome inherent deficiencies in a system or be used as a substitute for effective supervision. Training can, in fact, be counter-productive, highlighting faults which cannot be easily remedied and fostering a sense of frustration.

Great care should be taken to ensure training is tailored to the practical requirements of the operation. Training which is irrelevant to the day to day needs of the system runs the risk of alienating staff from all forms of training in the future.

Training should also be internally consistent. To have different messages coming from several parties can result in a loss of credibility, both in the management and in the trainer.

o) Who Needs to be Trained?

Everyone will need training of some sort geared to their status and involvement in the operation. There are different ways to organise training but it is easier if it is structured according to the different grades of staff involved.

Aspects which have general application can be picked out and applied to all staff, whilst more specialist subjects can be covered in specific training sessions directed at the appropriate personnel.

p) Personnel

One possible grouping for a large operation is as follows, but this can be adapted to suit needs of each operation:

i) section heads/supervisory personnel

ii) stores and cleaning personnel

iii) production staff

iv) dedicated cleaning staff

v) administrative and clerical staff

q) Training Plans

To carry out training properly, there needs to be a very clear overall statement of objectives, outlining priorities, resources, type and timescale. This statement, or series of statements, is called 'the training plan'. Each training session needs its own plan detailing name of session, time required and timing, type of training (theory or practical), target audience and pre-qualifications (if any), objective, structure and content, equipment/visual aids required, status/qualifications of trainer and related sessions.

Sterling Foodservice Design will prepare predetermined training programmes for all systems as required.

r) Contents of Training

This will depend largely on the need of each operation, and expert advice may be needed to draw up the relevant schemes. However, every operation will require the following areas to be covered:

i) personal health and hygiene

ii) safe working practices

iii) stock rotation systems

iv) safe food handling practices (see hygiene training below)

v) the cook-chill system and production control

vi) cleaning procedures

vii) use and cleaning of dangerous equipment

Much of the training required will be of a general nature and not specifically geared to cook-chill. However, special attention must be paid to the correct procedures during preparation, cooking, chilling, holding and re-heating. All staff must be aware of, and understand the reason for, strict control over cooking times and temperatures, with great emphasis given to following standard recipes and procedures. Equally, all staff must be familiar with, and be capable of carrying out, the entire essential control checks.

Management must also ensure induction training is provided to all new recruits, and suitable refresher courses or training in new procedures should be arranged as necessary. This also applies to temporary staff engaged and all visitors to the building.

s) Hygiene Training

Given the importance of strict food handling procedures with cook-chill, all staff should undergo some form of food hygiene training.

All food handlers:

- Foundation Food Hygiene course

t) When Should Training Take Place?

Training should begin well in advance of start-up, and not be left to the last minute. Scheduling needs to be arranged with care so that all staff can attend sessions whether these are conducted in-house or elsewhere. Where possible, lectures and training should be during normal working hours or immediately before or after a working period. Attendance should be compulsory although it may not be possible to insist on this when sessions are not within normal working hours.

u) Resource Implications

Training can be expensive so it is essential sufficient resources are made available and included as a recurring cost in any budgetary projections.

v) Documentation

The training needs, qualifications and training history of every person in the operation ought to be properly documented. This will provide indisputable evidence that training has been carried out if proof is required. It is also advisable for trainees to be asked to countersign each entry.

x) Trainee Assessment

It may be considered appropriate to link formal assessment to training. Testing may be informal, by continuous assessment or by formal examination. 'Certificates of Competence' can be awarded on the basis of assessment and used when deciding on promotion.

It is also possible and sometimes advantageous to link proficiency to pay increments. This can extend to issuing certificates and merit badges to staff on the basis of achievement. In some units, staff 'achievement certificates' are framed and displayed in the entrance lobby as a means of fostering unit pride.

FIGURE 2: TRAINING RECORDS - COOK-CHILL SYSTEM
NAME OF TRAINEE:
Department:

DATE OF TRAINING	TRAINING SUBJECT/PROGRESS	TIME REQUIRED	HANDOUT RECEIVED	TRAINEE SIGNATURE
	Theory of Cook-Chill			
	Cook-Chill Film			
	Cook-Chill Handbook			
	Cook-Chill - Practical			
	Preparation			
	Cooking			
	Hot Portioning			
	Use of Blast Chillers			
	Cold Portioning			
	Labelling			
	Cold Storage & Commissioning			
	Temperature Control			
	Production Planning			
	Control Documentation			
	Correct Use of the Thermometer			
	Disinfection Wipes			
	Cleaning Programmes			
	Correct Use of Cooking Equipment			
	Personal Hygiene			
	Regeneration of Chilled food			
	Food Samples for Analysis			
	Correct use of all Equipment			

FIGURE 3:

FORM FOR FOOD HANDLERS ALREADY IN EMPLOYMENT

For use by Supervisors and Managers

This form must be completed by all food handlers on return to work after absence due to illness, injury, all holidays abroad and holidays in foreign of more than four working days. It must be completed under the supervision of the Unit Manager or authorised person and signed by the employee and forwarded directly to the appropriate Health Officer or Company Doctor.

NAME: ....

ADDRESS:..... ....

....

JOB TITLE:..... ....

COUNTRIES VISITED (if applicable): ....

....

DATES OF VISIT: ... .

Have you been in contact with or suffered from any of the following conditions:

A. (1) Typhoid .... YES/NO
(2) Paratyphoid .... YES/NO
(3) Cholera .... YES/NO
(4) Hepatitis .... YES/NO

B. (1) Gastro-enteritis .... YES/NO
(2) Sickness/Diarrhoea .... YES/NO
(3) Worms .... YES/NO
(4) Any 'flu-like' symptoms .... YES/NO

Have you personally suffered from:

C. (1) Any infectious condition of skin, nose, throat, eyes or ears…... YES/NO

Signature of Employee:..... ....

Date: ....

Signature of Supervisor..... ....

15. SUMMARY ANALYSIS OF PROPOSED EXPENDITURE AND SAVINGS PACKAGE TO BE ENGENDERED FROM SYSTEM IMPLEMENTATION

ESTIMATED CAPITAL COST AND POTENTIAL SAVINGS

	CAPITAL EXPENDITURE	ESTIMATES BASED ON BUDGET FORECASTS €
1	CPU Equipment Estimate (including €56,500.00 for Satellites)	**€ 274,891.00**
2	Replacement Dishwasher (including installation)	**€ 54,000.00**
3	CPU Administration and Quality Control Costs	To be confirmed
4	Training Costs	**€ 12,100.00**
	Estimated Capital Cost (excluding training)	**€ 328,891.00**
	TOTAL (including training)	**€ 340,991.00**

	SAVINGS (per annum)	€
1	Projected savings on better utilisation of employees in comparison with existing operations 15% of existing costs. (Salad and Juice staff only)	€ 86,076.00
2	Projected savings on better gross profit through reduced food costs and centralised control of portions, **say, 4% of existing food cost**.	€ 19,880.00
3 *	Projected savings through reduced energy, maintenance and replacement of equipment, say, 20% of existing costs	**€ 6,577.00**
	* **ESTIMATED SAVINGS €**	**€ 112,533.00**

On the assumption that considerable savings will be made from competitive tendering, the Capital Expenditure in relation to savings engendered could provide an acceptable payback time.

*This could be enhanced further by savings to be engendered based on an accurate evaluation of existing maintenance and energy costs.

The equation commonly used to ascertain the viability of a project is as follows:-

TOTAL SAVINGS PER ANNUM = PAYBACK PER ANNUM

PROJECT COST = TOTAL PAYBACK IN YEARS
PAYBACK P/A

Based on the evaluations of Expenditure/Savings Package, the equations for this project are as follows: -

COOK-CHILL PROJECT SUMMARY
ANALYSIS AND "PAYBACK" ON SYSTEM IMPLEMENTATION

CAPITAL COST = € 340,991.00
SAVINGS PACKAGE = € 112,533.00 per annum

(PLUS SUBSTANTIAL OTHER SAVINGS THAT REQUIRE EVALUATION)

CAPITAL COST = € 340,991.00= PAYBACK IN 3.03 YEARS
PAYBACK PER ANNUM = € 112,533.00

NB 1: This project is being initiated to increase quality in products sold, reduce wastage factors and ensure that the Foodservice Operation is cost-effective.

NB 2: Provided that a competitive tender is issued to qualified Catering Equipment Suppliers then it should be possible to reduce the Capital expenditure

There could also be a significant benefit to profitability of the whole business if the CPU products can be commercialised to other customers and/or other businesses in the area.