

NORTH LANARKSHIRE COUNCIL

REPORT

To: Policy and Resources (Community Development) Sub Committee	Subject: Fuel Poverty, Allergy and Health Research Project
From: Chief Executive	
Date: 24 February 1998	Ref: CE012/002/001

**1.0 Introduction**

1.1 The purpose of this report is to consider the request from the University of Strathclyde to participate in the above research project.

**2.0 Background**

2.1 Council Officers have been involved in discussion with the University of Strathclyde for some time now examining ways in which the Council could contribute to the overall research proposals. The University has now confirmed that the funding package has been approved and a formal request for support has now been received by the Chief Executives Department.

2.2 The Director of Housing has been involved in the discussions to ensure that the housing stock identified within the PPA is suitable for the installation of any measures and that the project would not interfere with housing programmes which may be planned. This report if approved will be remitted to the Housing Committee to consider the funding required for any adaptations and the installation of measures to the housing stock.

**3.0 The Research Proposal**

3.1 An outline of the proposal is attached as Appendix 1 however, it is anticipated that the 60 - 80 patients identified from local General Practitioners data base will be resident in the Priority Partnership Areas of Forgewood, North Motherwell, Viewpark and Orbiston.

**4.0 Funding**

4.1 The funding proposal is as follows

Total cost of Research Project	171,805
University of Strathclyde	30,435
Scottish Power (via EAS)	30,000
EAGA Charitable Trust	21,370
Faculty Research Grant	<u>5,000</u>
(provisional funding)	<u>86,805</u>
NLC Chief Executives Department	5,000
NLC Housing Department	60,000
Scottish Power	<u>20,000</u>
	<u>85,000</u>

4.2 The Director of Housing has indicated that the departments contribution could be met within existing budgets and accordingly would support the Councils involvement in the project. The estimated contribution of £60,000 from the Housing Department to cover the cost of equipment to be installed in Council houses occupied by asthma sufferers appears high given the amount of work and improvements already carried out in a substantial percentage of the existing stock. Any work which is be required would however be not only of benefit for the research project but would also provide some benefits in terms of further improving the quality of housing stock. In many instances the work carried out will simply be carried out sooner than would have otherwise been the case under a number of programmes which are currently being progressed throughout the housing stock within the Programme for Partnership Area.

4.3 The Chief Executives department has been asked to contribute £5,000 towards the cost of purchasing 'barrier bedding' for research participants. This will assist the research project and hopefully improve the quality of life of the participants. This contribution if approved can be allocated from the Payments to Other Bodies Budget held within the Chief Executives department.

## **5.0 Conclusion**

5.1 The research project is extremely interesting and obviously very worthwhile given the increasing incidence of asthma in society. The project offers an excellent opportunity to further demonstrate the Council's willingness to work in partnership with many other agencies to progress projects which could have a very beneficial impact for the community well beyond the areas initially included in the research proposal.

5.2 The Council will if the proposal is approved have representation on the research team and regular reports will be submitted to the Council as a matter of course.

## **6.0 Recommendations**

The Sub Committee is requested to:-

- a) remit this report for consideration by the Housing Committee;
- b) approve a contribution of £5,000 from Chief Executive's department towards the costs of purchasing 'barrier bedding'; and
- c) otherwise note the contents of this report.



**Chief Executive**

## **Fuel Poverty, Allergy and Health**

**An interventionist case based research project, evaluating the efficacy of certain remedial strategies to lower domestic internal relative and absolute humidity and reduce allergen levels associated with dust-mite colonies and mould fungal spores, in the public sector housing stock (West Central Scotland).**

### **Research Team**

Stirling G. Howieson, Centre for Environmental Design & Research (CEDAR), University of Strathclyde  
 George Morris, Scottish Centre for Infection and Environmental Health, Ruchill Hospital, Glasgow  
 Kenneth Anderson, Asthma Consultant, Law Hospital, North Lanarkshire  
 Charles McSharry, Clinical Immunologist, Western Infirmary, Glasgow  
 Local Authority (North Lanarkshire Council)  
 Local G.P.'s (North Motherwell)

### **Outline proposal**

#### **Hypothesis**

The consistent rise in the incidence of childhood asthma is co-incident with three major factors peculiar to the late 20th century; (a) the tendency for dwellings to be smaller and have lower air change rates (b) the relative increase in the real cost of fuel which took place during the 70's and 80's (c) the increasing impoverishment of the lowest three income deciles during the late 80's and 90's. These changes, plus more minor factors concerning individual lifestyles (home furnishings/clothes drying/hygiene etc) appear to have produced a significant increase in internal relative/absolute humidities which in turn has resulted in an increase in the incidence and severity of condensation dampness which has facilitated growth in the domestic dust mite population. There is already a growing body of research linking dust mite by-products to allergic reactions which are positively correlated to internal humidity levels. The hypothesis which underpins the study is that by suppressing internal relative humidity below 45%, the main food source of dust mites (skin follicles) can be 'dried out' and thus the most significant source of air borne pathogens (dust mite faeces) can be reduced below threshold levels. The main thrust of research is thus to test what practical interventionist measures will be most effective and/or cost-effective in producing the desired RH levels. De facto mould fungal spore growth - normally associated with relative humidities of over 70% - will also be eliminated and the consequential benefits to residents health should go beyond asthmatics, to a general reduction in diseases of the upper respiratory tract which are known to have strong links with mould pathogens/allergens.

#### **Remedial Strategies**

The project will compare the efficacy and economy of four remedial strategies designed to suppress internal RH levels. These will include: (i) wet zone extraction in combination with ambient air dilution (ii) wet zone extraction in combination with hat reclamation (iii) insulation, background heating and wet zone extraction with heat reclamation. These are practical retro-fit measures designed to ameliorate environmental factors which may have a significant causal relationship with asthma and respiratory health. The results aim to indicate the most effective and/or cost-effective approach. Each measure will be correlated with clinical records and concentrations of airborne allergens/pathogens determined by regular sampling of carpet dust reservoirs.

#### **Sample size and methodology**

A self selecting sample of circa 60-80 patients, provided from the data banks of local GP's, will be identified in a given geographic area from patients known to suffer from asthma or other diseases of the upper respiratory tract. A control group will also be randomly selected. The internal relative humidity levels in bedrooms and some living rooms will be monitored over three years (one before and two years after the implementation of the remedial measures). Thermohygrographic readings will be taken every 30 minutes using electronic in-situ data loggers which can be periodically downloaded onto a lap top PC. Dust mite and air borne pathogen/allergen concentrations will be monitored at appropriate intervals by vacuuming measured

mite and air borne pathogen/allergen concentrations will be monitored at appropriate intervals by vacuuming measured areas of carpets and air sampling. Patients will be asked to keep records of lung functions and "life event" diaries while GP's report general health profiles. The data will then be correlated to see what impact, if any, the remedial strategies have produced in comparison with a control group. Any indicative improvements will be re-examined by specialist consultants. The results will inform not only the medical world but could feed into local authority capital programme strategies to combat fuel poverty and ill health. As the growth in asthma is not restricted to Britain the results could be of international significance and the development of computer models would allow extrapolation to cover other house types and climates.

### **Reporting and accounting**

The Centre for Environmental Design and Research will act as main contractor and monies will only be released on a six monthly invoice cycle. A statement of account will be prepared annually for all sponsors together with a progress report. Interim results will be made available for discussion and limited release.

### **Implementation**

Three phases are now being considered under the initial research programme:

Phase 1: Monitoring all dwellings as existing for one winter period to provide a basis for direct comparison.

Fuel data and energy audits will also be undertaken on the main generic house types.

Phase 2: Implementation of four remedial strategies and re-monitor for 52 weeks.

Phase 3: Results provide data for appraising remedial strategies. Effort then concentrated on the two most promising sample studies. Also computer modelling using ESP to allow extrapolation of results to other geographic climate areas and house types.

Start date:

1997	October	-Staff appointed - literature search and establish protocols
	November	-Half day symposium for all parties
1998	Feb	- Funding confirmed
	Feb	- Identify sample and house types
	Mar	- Install thermohygrographs and initiate monitoring/sample cycle
	May	- Sample cycle
	July	- Sample cycle
	Aug	- Remedial measures applied
	Sept	- Sample cycle
	Dec	- Sample cycle
1999	Feb	- Sample cycle
	Apr	- Sample cycle & clinical reporting
	Jun	- Appraisal symposium & sample cycle
	July	- Fine tune remedial strategies (if required)
	Aug	- Sample cycle
	Nov	- Sample cycle
	Dec	- Sample cycle
2000	Feb	- Sample cycle
	May	- Sample cycle
	Sep	- Final sample cycle and clinical reports
	Oct	- Appraisal symposium
	Dec	- Publication target date