Natural Energy Efficiency and Sustainability (NEES)

Draft Template for Pilot Projects

1. Description of the Project

This should be a general non-technical description and introduction to the Pilot Project

- **Building/House type**
  Mayfield Communal Building is a newly constructed recreational and social service centre for residents of the Mayfield Sheltered Housing Scheme and service users of organisations catering specifically for older persons and people with disabilities. The floor area of the communal building is 281 m sq encompassing a HSE approved Kitchen with dining facilities, office and storage space, laundry facility, meeting room and rehabilitation rooms.
- **Age of construction**
  Constructed in 2013.
- **Other historical, architectural aspects**
  The communal building is nominated as Clar ICH's NEES pilot project and aims to showcase the principles of sustainable building practices by using natural materials as a domestic insulation product. The building will promote the principles of sustainable development demonstrating to the public various heating options such as bio mass and oil. By installing the latest technology to monitor and verify natural heating and insulation products, it is envisaged that the building will become a community training and demonstration hub. The development is located at the starting point of Claremorris's Green Mile, as the town begins its promotional campaign as an eco town.
- **Location**
  The communal building is located on a 4.5 circa development with an adjacent 36 sheltered houses being built in Mayfield Claremorris. The development is located in an area of community significance nestled on the shores of Mayfield and Clare Lake, opposite Claremorris Playground and overlooking a community based horticultural project called Growing Locally.
- **Nature of Works**
  Newly constructed building
- **Promoter**
  Clar ICH Ltd, Claremorris Irish Centre for Social Housing Ltd.
- **Funder**
  Department of Environment and Lottery
- **Architect**
  Waldron and Associates, The Square, Claremorris, Co. Mayo.
- **Builder**
  P. McHugh & Sons Ltd, Building & Civil Engineering Contractor, Newtown, Ballindine, Co. Mayo.
- **NEES Products**

A) Eco cell insulation B) Mud and Wood

- **NEES Services**

Mud and Wood

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- **Other relevant natural products or services**
- Wood Gasification System

2. Contribution to Resource Efficiency

Deals with issues like energy efficiency and waste. Including the followings

Estimated energy savings resulting from the project (toe/year) (NEES indicator) in Kwh

Buildings insulated with cellulose show a 30% to 40 % reduction in energy demand when compared to those with man- made mineral fibers.

Estimated carbon savings resulting from the project (tCO2e/year) in Ks kg

- Lifespan of the property- ease of repair, ease of upgrading, extensions, etc.

Suitable on all retro fit houses and extensions, minimum interruption of installation as it is pumped into the cavity filling the vacuole.

- Maintenance issues

No maintenance required as it is pumped into the walls and ceilings

- Percentage of materials which are recycled, reused

As the product is made entirely from recycled newspapers all of its content is completely recyclable In the form of compost.

- Level of recyclability, reuse, biodegradability of materials

100 % of materials is compostable

- Are chemical/mechanical processes required in construction

Ecocel contains some 50% carbon dioxide, as a result a timber framed house insulated with Ecocel, acts as a carbon sink sequestering many tons of CO2

- Environmental impact of construction/retrofit

  The ability to fully composte Ecocel

  Ecocel is an eco-friendly home insulation product made from recycled newspapers, which compares favourably with all imported alternatives.

  Ecocel is a sustainable and energy efficient product is suitable not just for new homes but also for retrofitting older homes, apartments and commercial buildings.

  Ecocel is a natural, warm, air tight and fire safe product

  Ecocel is Hygroscopic (is the ability of a substance to attract and hold water molecules from the surrounding environment.)

  Ecocel provides a sustainable solution of energy efficiency without increased costs.

3. Environment and Health

Section deals with issues like impact on climate change, bioregionalism, environment and human health, including the following:

- Percentage of materials used in the works are sourced from natural materials originating within the NPP region

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100% of the materials are sourced from recycled paper

- Carbon footprint of building (or/and extension) before and after works
  None, as the Ecocel is pumped into the Cavity and creates a carbon sink.
- Details of compliance with building regulations, standards or other compliance cert.
- Human of environmental hazards in installation, use or disposal (end of life)
  100 % of the materials are compostable.
- Environmental impact of use
  No danger to the environment
- Hazardous or polluting chemicals or substances used
  50% carbon dioxide, contained in Ecocel thus acting as a carbon sink, sequestering many tons of CO2
- GHG emissions or other form of pollution resulting from installation or disposal
- Any likely health benefits
  Ecocel is made from natural fibres derived from recycled news papers which might otherwise end up in land fill.
- Carbon capture potential of building
  Ecocel components are non toxic, non irritant and environmentally benign. It also requires relatively little energy in production and does not pollute water, air or soil. It can easily be removed and reused, and can ultimately be returned to the earth (composted).

4. Sustainability

Section deals with issues like sustainability of construction process, supply and distribution of materials, availability of services, impact on local culture, including the following

- Does the property and works relate to the natural environment and traditional built environment of its location
- Origin of materials used in the construction and works
- Materials that have to be sourced from elsewhere, why and what is the impact of this
- Transport and importation issues
- Procurement issues (taxes, levies, lack of local certification, etc.)
- Impacts (positive or negative) on design of products used
- Compliance with conservation legislation
- Availability of materials and skills to use and barriers to access.
  Ecocel Cellulose is a loose material, it has the benefit of filling voids and eliminating air pockets common with other insulation materials, it performs better by reducing air conditioning or heating costs from 30% up to 50%.

5. Enterprise aspects

Section deals with institutional and financial issues, role of different enterprises, type of enterprises involved, institutional and financial barriers, other unique aspects, including:

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- Estimated investment in carbon saving technologies as a result of the project (NEES indicator)
- No. of social enterprises working in energy efficiency set up as a result of the project One – Clar ICH Ltd
- Competent enterprises and viable financial options available?
  Is model of construction replicable anywhere?
- Are skills and material used normally available in the region
- Cost of works (e.g. per mtr2) and how does this compare to baseline costs
- Number of workers employed by project
- Estimated maintenance costs in future and how does this compared to baseline costs
- Contractors who worked on project (private, social enterprise, volunteers, etc.) Private
- Business viability of these contractors
- Comparison to alternative approaches
- Barriers to replication (if any)

6. Scalability

Section deals with market potential of replicating model in light of current limits and importunities, and particular advantages and pitfalls to this approach, including the following:

- Is there likely to be significant demand for this model of works

It would be of benefit to Commercial buildings, multi-apartments buildings, sound and music studios as well as houses can benefit greatly Ecocel Cellulose material to attenuate effectively sound or undesired noise i.e. Reduce obnoxious noise emitting from your neighbours or mechanical equipment for a quiet living or working space.

- Skills and materials available to scale up the application of this model and to what extent
- What would be require d to make demand for this model increase significantly
- Can additional skills and products be sourced from other sources (e.g. outside region) if scaling up is needed?
- What subsidies have been used or could be used to roll out this model?
- What facilities, supports could be available to develop or improve this model?
- How could it be developed or improved (e.g. as a self-build model)
- Are skilled technicians available to scale up this model
- Is accredited training available to scale up this model?
- Can such training be set up in a follow up action to NEES?
- Are there any employment subsidies available for scaling up?
- Realistic current potential of saleability

7. Conclusions

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Section should contribute to developing a way forward for the NEES project and its objectives, by summarising the above points and states how the Project is relevant to the objectives of EES and how it demonstrates (or does not) the viability of use of natural and recycled materials and their services. It should also draw conclusions as to how NEES partners and other agencies can scale up and mainstream the benefits of the approach, and how this is consistent with European social, economic and environmental objectives. In particular:

- Can this example be seen as replicable model for zero waste construction/retrofit?
  Yes
- What particular elements in the Pilot are unique and worth developing
  Ecocel has proven itself as one of the most efficient low-cost solution to reduce sound propagation from one to another. Its application encloses the noise generating source and acts like a sound barrier or absorber keeping noise levels down.
- What specific issues or barriers does this model illustrate that require action
- How do you propose this model could be replicated or scaled up
- Specific proposals arising from the Pilot Project

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21.03.13

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