EXHIBIT C

PACT Rehabilitation Scope of Work Guidance

Through the PACT program, NYCHA is committed to respond to deferred maintenance on NYCHA campuses and to fully address conditions identified in the 2017 PNA by meaningfully upgrading buildings, providing necessary amenities to NYCHA residents, and pursuing achievable electrification at all developments. The scope items outlined below are considered critical to ensuring resident comfort, health, and safety and development longevity and resiliency. In responding to the guidance below, teams can amend any individual prescriptive item so long as the functional intent of the guidance is not compromised.

I. Building Envelope

Assume that full envelope upgrades (all enclosure walls) are necessary to **improve building performance, reduce energy usage, and ensure resident comfort. For consolidated developments with diverse typologies and existing conditions, assume that various approaches to envelope upgrades will be appropriate and acceptable for different typologies within the consolidated or scattered site group.**

Requirements:

1. Full envelope upgrades (all enclosure walls) with interior insulation.
    a. System options include but are not limited to rigid, blown-in, loose-fill, batt, wall board, or an integrated sheathing system.
    b. Installation approaches include but are not limited to loose-fill or blown-in insulation in existing cavities, if assumed; Wall board or sheathing at the interior face of existing interior envelope walls; New, furred out walls at interior with insulation between studs; Existing cavity walls can be removed and rebuilt, or can remain.
    c. Project teams should consider how their lead removal strategy may impact building envelope improvement scoping.
    d. Interior envelope upgrade solutions do not have to assume thermal performance to code minimum. Project teams should identify a strategy for evaluating existing envelope condition, air-tightness, and R-value, and identify target performance metrics that will allow adequate mechanical systems sizing and support a selected ventilation strategy.
    e. When selecting an insulation product prioritize non-combustible insulation and overall fire resistance as well as thermal and moisture performance.
2. Consider moisture management strategy and components. Assume a breathable penetrating masonry sealant at any façade with exposed masonry.
3. Repoint and repair existing brick as needed and to contribute to improved air-tightness.
4. New Energy Star roof. Assume performance to code minimum (R-33/38).
5. Replace all windows with high-performance, thermally-broken, double-pane, double-hung windows with an insulated glazing unit (IGU).

Additional Scope Considerations:

1. Full envelope upgrades (all enclosure walls) with an exterior continuous insulation and cladding system for all buildings not under consideration for historic tax credits or already National Register listed or eligible.
    i. When selecting a cladding system, prioritize non-combustible insulation and overall fire resistance, durability, and thermal and moisture performance.
    ii. Teams can propose and price an adhesive-applied EIFS product if they choose, but should select a product that uses non-combustible insulation.
    iii. If an EIFS product is proposed, teams should also propose an alternate system and product, prioritizing rainscreen or prefabricated panelized cladding systems with continuous insulation.
    iv. Options for rainscreen finish panels include but are not limited to fiber cement, composite, and metal panel.
    v. If EIFS or any other face-sealed (adhesive-applied) system is specified, describe moisture management components, and summarize on-site installation quality control protocols for any product that relies on adhesive lines for back-draining.
    vi. If EIFS or any other face-sealed (adhesive-applied) system is specified, include a preliminary lifecycle cost analysis and describe inspection, maintenance, replacement, and removal protocols in detail.
    vii. Repoint and repair existing brick before installing any over-cladding system to ensure the existing façade is in sound condition.
    viii. Assume performance to code minimum.
2. Higher performance Energy Star roof such as R-50.
3. Replacing all windows with high-performance, thermally-broken casement windows with Low-E insulated glazing units (IGU).
4. Exterior or window-integrated shading strategy.
    i. Options include but are not limited to fins, louvers, brise soleil, external-frame sunshades, shutters, screens, or other façade treatment, or between-the-glass shades.
    ii. Exterior shading systems that are mechanically fastened to the building façade are preferred for buildings that are not candidates for historic tax credits or already National Register eligible or listed. If a project team proposes an interior shading strategy (window blinds or similar), identify a strategy and budget for maintenance and replacement, and include assumptions for solar heat gain mitigation as compared to an exterior system.

II. Building Systems

For all sites and building types, it is a NYCHA priority to evaluate options to invest in mechanical systems that contribute to the energy-efficiency, performance, and resilience of buildings and to identify options beyond repairs-in-kind to existing under-performing, obsolete, or costly and difficult-to-maintain systems. Converting systems from fuel-fired to electric is essential to meet NYCHA's decarbonization goals, and NYCHA is committed to maximizing achievable electrification at each development.

For each of the below scope items, teams should ensure their rehabilitation scope identifies an approach that includes functional upgrades essential to bringing developments in line with expectations for systems performance, resilience, and resident comfort. PACT Partners are welcome to propose using a hierarchical approach to electrification where appropriate. For scattered site developments with various building typologies, PACT Partners can propose systems and products appropriate to each building typology.

Requirements:

Heating

1. New high-efficiency gas-fired condensing boilers, decentralized where feasible. *(Note an exception for Properties that have recent or ongoing boiler replacement work, in which case repairs should be made to other components of the existing heating system. If this option is pursued, teams should identify a path to electrification including a timeline.)*
2. One programmable thermostat in each unit.
3. Assume a cooling strategy for all residential units and community facilities.

Ventilation

4. Comprehensive sealing, cleaning, and repair to existing mechanical ventilation systems.
5. Comprehensive air-sealing to building envelope and in-unit air-sealing and compartmentalization. Assume building air-tightness should be tested before and after rehabilitation referring to allowable rates in the 2020 NYC Energy Conservation Code.
6. Exhaust-system upgrades where units are not code compliant.
7. Replacing all existing exhaust registers.
8. Replacing all rooftop fans with high-efficiency fans.
9. Trickle vents in all unit windows.
10. Balanced mechanical ventilation in all community facilities.
11. 100% outdoor air supply in corridors and common areas (lobbies, etc.) in residential buildings, if feasible.

Domestic Hot Water

12. High-efficiency gas-fired heaters and pressure boosters, decoupled where feasible.

Other

13. Solar PV only on buildings that will maximize investment.
14. Back-up power generators for all community facilities.
15. Electric ranges in all units.
16. Electrical upgrades, if necessary, to support proposed Rehabilitation Scope of Work, including electric ranges and cooling in all residential units.

Additional Scope Considerations:

1. Electric heat pump systems for space heating and cooling for all buildings.
    i. System can be centralized or unitized. Teams can propose multi-function (heat/DHW) or integrated (HVAC) systems as well.
    ii. Include assumptions for lifecycle maintenance, service, & replacement.

2. Balanced mechanical ventilation in all residential units, corridors, common areas, and in all community facilities.
    i. Include in-unit supply registers in all bedrooms and living spaces.
    ii. System(s) can be centralized or unitized (per unit or per floor) in residential buildings.
3. Electric heat pump domestic hot water heaters for all buildings. Prioritize decentralized and/or distributed domestic hot water systems (per building or per unit, as appropriate).
4. Solar PV on all buildings.
5. Battery storage or community microgrid where possible.
6. All electric appliances including dryers in laundry facilities.

III. Plumbing

Existing plumbing should be thoroughly considered and investigated. Teams should provide a

summary of assumptions related to plumbing repair and replacement, including costs and benefits of full replacement over repair and replacement based on Remaining Useful Life estimates. Include a percentage of total to be repaired or replaced (e.g. 100% for full replacement).

IV. Landscape & Community Facilities

NYCHA strongly prefers that teams not include lump sums in their cost estimates. If it is necessary to provide a lump sum estimate for community facility build-outs and landscape scope, teams should provide narrative descriptions of the assumptions of the scope of work for those items.

V. Laundry Facilities

All developments should have access to on-site laundry. NYCHA prefers community laundry facilities but will also consider proposals that include in-unit laundry. For community laundry facilities, identify locations and include estimated costs assumed for build-out.

For in-unit laundry, if dryers are provided they must be ventless.

VI. Interior Finishes

Floor Finishes:

NYCHA's Design Guidelines (published 2016) prohibit the use of vinyl finishes (including LVT and VCT). "Vinyl" includes both PVC (polyvinyl chloride) and any other petrochemical (petroleum-derived) vinyl. ERT, or enhanced resilient tile, is also vinyl-based. Alternatives to vinyl-based tile include bio-based tile (BBT), engineered wood and wood laminates, linoleum tile, ceramic and porcelain tile, and rubber tile products. Teams are welcome to propose other alternatives as well.

For developments that have existing hardwood floors, teams should evaluate preserving and refinishing existing floors wherever possible. For developments with hardwood flooring that has been covered with vinyl tile, evaluate removing vinyl tile and refinishing hardwood floors.

Wet rooms including bathrooms and enclosed or partially enclosed kitchens should be tiled with porcelain or ceramic.

Wall Bases:

An alternative to rubber or vinyl wall bases should be identified for use in apartments. Rubber wall bases can be specified for common areas and community facilities. Preferred alternatives include formaldehyde-free MDF and solid wood.

Countertops :

Solid-surface countertops and cabinets rather than laminate products should be identified. Solid-surface countertop options include quartz and other engineered stone products.

Backsplashes:

Backsplashes in kitchens can be solid (quartz or engineered stone) or tile (porcelain or ceramic); standard solid surface backsplashes should be minimum 4” high. Tile backsplashes should be full height (to underside of cabinets). Tile backsplashes are preferred.

Cabinets:

Cabinets should be solid wood (hardwood/plywood). Cabinets with HDF or MDF panels, even if they have a solid hardwood frame, will not be accepted.