I. PREFACE

This document is intended to provide the minimum acceptable standards for dwelling units having rehabilitation/reconstruction feasibility with the assistance of New Jersey Department of Community Affairs (DCA), Division of Disaster Recovery and Mitigation (DRM). These standards shall apply to all rehabilitation/reconstruction projects. All new construction and the elements being altered in a rehabilitation must adhere to the standards outlined in this document.

These standards are not intended supersede State, County, or Municipality building practices. If there is a conflict with an interpretation the Homeowner and their design team (Homeowner, Builder, Architect, and Engineer) is to err on the side of the more stringent regulation. Additionally, it is incumbent on the design team to ensure that when planning, engineering and constructing the dwelling in a manner compliant with State and Local building codes.

The IDA Design Standards are designed to include and expand on the United States Department of Housing and Urban Development (HUD), New Jersey Uniform Construction Code, and the International Code Council - National Green Building Standard (ICC-700).

Many of the requirements and standards in this document either meet or exceed the requirements of the HUD Housing Quality Standards and are determined necessary to provide "safe, decent, and sanitary" housing; "non-luxury, suitable amenities" housing and basic livability standards; and "good quality, reasonably priced" housing.

These standards are also designed to assist in achieving consistency throughout all the areas serviced by the Program for single-family housing rehabilitation activities funded with the Housing Disaster Recovery Fund

All DRM funded project work must comply with New Jersey Uniform Construction Code (UCC) and the State of New Jersey's currently adopted codes and standards as stipulated on the DCA Division of Codes and Standards website: https://www.nj.gov/dca/codes/codreg/current.shtml

A. Throughout the DRM IDA Design Standards, the design team shall incorporate "sustainable design" principles to minimize negative environmental impacts and to promote the health and comfort of the occupants. The design team shall minimize the use of non-renewable resources and minimize the amount of construction debris and waste during the planning and reconstruction of the new home.

B. It is the intent of these guidelines and this program to repair, elevate or reconstruct dwellings using green building best practices.

C. These design standards assume that a DRM Construction Manager will thoroughly observe and document the existing conditions at each dwelling during an on-site Initial Site Inspection (ISI) visit to document and record the presence and condition of all components, systems, and equipment of the dwelling. Upon completion of the project, all applicable components, systems, and equipment of the dwelling shall be in good working order and condition and be capable of being used for the purpose in which they were intended and/or designed. Applicable components, systems and/or equipment that are not in good working order as identified in the Initial Site Inspection shall be repaired or replaced.

D. Lastly, it is the intent of these design standards to create a cost reasonable threshold. Homeowners may choose to exceed this threshold, however this will be done at the homeowner's expense. It is the intent of the program to provide a habitable, code compliant, and practical dwelling for the homeowner.[1]

II. DEFINITIONS

1. **Accessory structure** — A structure that is on the same parcel of property as a principal structure, the use of which is incidental to the use of the principal structure.
2. **Adjacent grade** – Elevation of the natural or graded ground surface, or structural fill, abutting the walls of a building. See also Highest adjacent grade and Lowest adjacent grade.
3. **Base flood** — The flood having a 1-percent chance of being equaled or exceeded in any given year, commonly referred to as the "100-year flood." The base flood is the national standard used by the NFIP and all Federal agencies for the purposes of requiring the purchase of flood insurance and regulating new development.
4. **Base Flood Elevation (BFE)** – The water surface elevation resulting from a flood that has a 1 percent chance of equaling or exceeding that level in any given year. Elevation of the base flood in relation to a specified datum, such as the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988. The Base Flood Elevation is the basis of the insurance and floodplain management requirements of the National Flood Insurance Program.
5. **Basement** – Under the National Flood Insurance Program, any area of a building having its floor subgrade on all sides. (Note: What is typically referred to as a "walkout basement," which has a floor that is at or above grade on at least one side, is not considered a basement under the National Flood Insurance Program.)
6. **Deck** – Exterior floor supported on at least two opposing sides by an adjacent structure and/or posts, piers, or other independent supports.
7. **Design Flood Elevation (DFE)** - The required elevation above the Mean Sea Level of the lowest habitable Finished Floor of a building. This elevation is determined by adding the required Free Board to the Base Flood Elevation. This elevation shall be used to design and execute all elevation construction projects in the MAP. The elevation of the highest flood (generally the BFE including freeboard) that a retrofitting method is designed to protect against. Also referred to as Flood Protection Elevation
8. **Elevation** – Raising a structure to prevent floodwaters from reaching damageable portions.
9. **Enclosure or enclosed area** — Areas created by a crawlspace or solid walls that fully enclose areas below the BFE.

[1] An example of exceeding the bellow minimums is best exemplified in flooring. The program standard is Luxury Vinyl Plank Flooring on the first level of the house.
The homeowner has three options:

- Install Luxury Vinyl Plank
- Install an Alternate flooring (Wood, Carpet, Tile) at the same price as the Luxury Vinyl Plank
- Install an Alternate flooring (Wood, Carpet, Tile) at a higher price as the Luxury Vinyl Plank and pay out of pocket for the difference

10. **Exterior-mounted mechanical equipment** – Includes, but is not limited to, exhaust fans, vent hoods, air conditioning units, duct work, pool motors, and well pumps.
11. **Federal Emergency Management Agency (FEMA)** — The Federal agency that, in addition to carrying out other activities, administers the National Flood Insurance Program.
12. **Federal Insurance and Mitigation Administration (FIMA)** — The component of FEMA directly responsible for administering the flood hazard identification and floodplain management aspects of the NFIP.
13. **Fill** – Material such as soil, gravel, or crushed stone placed in an area to increase ground elevations or change soil properties. See also Structural fill.
14. **Flood** – Under the National Flood Insurance Program, either a general and temporary condition or partial or complete inundation of normally dry land areas from:
    a. the overflow of inland or tidal waters;
    b. the unusual and rapid accumulation or runoff of surface waters from any source;
    c. mudslides (i.e., mudflows) that are proximately caused by flooding as defined in (2) and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when the earth is carried by a current of water and deposited along the path of the current; or
    d. the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in (1), above.
15. **Flood-damage-resistant material** – Any construction material capable of withstanding direct and prolonged contact (i.e., at least 72 hours) with flood waters without suffering significant damage (i.e., damage that requires more than cleanup or low-cost cosmetic repair, such as painting).
16. **Flood Insurance Rate Map (FIRM)** – Under the National Flood Insurance Program, an official map of a community, on which the Federal Emergency Management Agency has delineated both the special hazard areas and the risk premium zones applicable to the community. (Note: The latest FIRM issued for a community is referred to as the "effective FIRM" for that community.)
17. **Floodprone area** — Any land area susceptible to being inundated by floodwater from any source.
18. **Footing** – Enlarged base of a foundation wall, pier, post, or column designed to spread the load of the structure so that it does not exceed the soil bearing capacity.
19. **Footprint** – Land area occupied by a structure.
20. **Freeboard** – Under the National Flood Insurance Program, a factor of safety, usually expressed in feet above a flood level, for the purposes of floodplain management. Freeboard is intended to compensate for the many unknown factors that could contribute to flood heights greater than the heights calculated for a selected size flood and floodway conditions, such as the hydrological effect of urbanization of the watershed. Freeboard is additional height incorporated into the Design Flood Elevation, and may be required by State or local regulations or be desired by a property owner.

21. **Highest adjacent grade** – Elevation of the highest natural or regraded ground surface, or structural fill, that abuts the walls of a building.
22. **Lowest adjacent grade (LAG)** – Elevation of the lowest natural or regraded ground surface, or structural fill, that abuts the walls of a building. See also Highest adjacent grade.
23. **Lowest floor** – (1) Under the National Flood Insurance Program (NFIP), "lowest floor" of a building includes the floor of a basement. The NFIP regulations define a basement as "… any area of a building having its floor subgrade (below ground level) on all sides." For insurance rating purposes, this definition applies even when the subgrade floor is not enclosed by full-height walls.
24. **Lowest floor** — (2) The lowest floor of the lowest enclosed area of a building, including a basement. Any NFIP-compliant unfinished or flood-resistant enclosure usable solely for parking of vehicles, building access, or storage (in an area other than a basement) is not considered a building's lowest floor, provided the enclosure does not render the structure in violation of the applicable design requirements of the NFIP.
25. **Lowest horizontal structural member** – In an elevated building, the lowest beam, joist, or other horizontal member that supports the building. Grade beams installed to support vertical foundation members where they enter the ground are not considered lowest horizontal structural members.
26. **Mean sea level (MSL)** – Average height of the sea for all stages of the tide, usually determined from hourly height observations over a 19-year period on an open coast or in adjacent waters having free access to the sea. See also National Geodetic Vertical Datum.
27. **National Flood Insurance Program (NFIP)** – Federal program created by Congress in 1968 that makes flood insurance available in communities that enact and enforce satisfactory floodplain management regulations.
28. **National Geodetic Vertical Datum (NGVD)** – Datum established in 1929 and used as a basis for measuring flood, ground, and structural elevations, previously referred to as Sea Level Datum or Mean Sea Level. The Base Flood Elevations shown on most of the Flood Insurance Rate Maps issued by the Federal Emergency Management Agency are referenced to NGVD or, more recently, to the North American Vertical Datum.
29. **North American Vertical Datum (NAVD)** – Datum established in 1988 and used as a basis for measuring flood, ground, and structural elevations. NAVD is used in many recent Flood Insurance Studies rather than the National Geodetic Vertical Datum.
30. **Open foundation** – A foundation that allows water to pass through the foundation of an elevated building, which reduces the lateral flood loads the foundation must resist. Examples of open foundations are pile, pier, and column foundations.
31. **Pier foundation** – Foundation consisting of isolated masonry or cast-in-place concrete structural elements extending into firm materials. Piers are relatively short in comparison to their width, which is usually greater than or equal to 12 times their vertical dimension. Piers derive their load-carrying capacity through skin friction, end bearing, or a combination of both.
32. **Pile foundation** – Foundation consisting of concrete, wood, or steel structural elements driven or jetted into the ground or cast-in-place. Piles are relatively slender in comparison to their length,

which usually exceeds 12 times their horizontal dimension. Piles derive their load-carrying capacity through skin friction, end bearing, or a combination of both.

33. **Pressure-treated wood** – Wood impregnated under pressure with compounds that reduce the susceptibility of the wood to flame spread or to deterioration caused by fungi, insects, or marine borers.
34. **Riverine SFHA** – The portion of the Special Flood Hazard Area mapped as Zone AE and where the source of flooding is riverine, not coastal.
35. **Special Flood Hazard Areas (SFHAs)** - Land areas subject to a 1 percent or greater chance of flooding in any given year. These areas are indicated on FIRMs as Zone AE, A1-A30, A99, AR, AO, AH, V, VO, VE, or V1-30. Mapped zones outside of the SFHA are Zone X (shaded or unshaded) or Zone B/Zone C, on older FIRMs.
36. **Structural fill** – Fill compacted to a specified density to provide structural support or protection to a structure. See also Fill.
37. **Substantial damage** — Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. Structures that are determined to be substantially damaged are considered to be substantial improvements, regardless of the actual repair work performed.
38. **Substantial improvement** — Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure (or smaller percentage if established by the community) before the "start of construction" of the improvement. This term includes structures that have incurred "substantial damage," regardless of the actual repair work performed.
39. **Zone A** – Under the National Flood Insurance Program, area subject to inundation by the 100-year flood where wave action does not occur or where waves are less than 3 feet high, designated Zone A, AE, A1- A30, A0, AH, or AR on a Flood Insurance Rate Map.
40. **Zone AE** – The portion of the Special Flood Hazard Area (SFHA) not mapped as Zone VE. It includes the Moderate Wave Action area, the Minimal Wave Action area, and the riverine SFHA.
41. **Zone B** – Areas subject to inundation by the flood that has a 0.2-percent chance of being equaled or exceeded during any given year, often referred to the as 500-year flood. Zone B is provided on older flood maps, on newer maps this is referred to as "shaded Zone X."
42. **Zone C** – Designates areas where the annual probability of flooding is less than 0.2 percent. Zone C is provided on older flood maps, on newer maps this is referred to as "unshaded Zone X."
43. **Zone V** – See Coastal High Hazard Area.
44. **Zone VE** – The portion of the coastal Special Flood Hazard Area where base flood wave heights are 3 feet or greater, or where other damaging base flood wave effects have been identified, or where the primary frontal dune has been identified.
45. **Zone X** – Under the National Flood Insurance Program, areas where the flood hazard is lower than that in the Special Flood Hazard Area. Shaded Zone X shown on recent Flood Insurance Rate Maps (Zone B on older maps) designate areas subject to inundation by the 500-year flood. Unshaded

Zone X (Zone C on older Flood Insurance Rate Maps) designate areas where the annual probability of flooding is less than 0.2 percent.

46. **Zone X (Shaded)** – Areas subject to inundation by the flood that has a 0.2-percent chance of being equaled or exceeded during any given year, often referred to the as 500-year flood.
47. **Zone X (Unshaded)** – Designates areas where the annual probability of flooding is less than 0.2 percent.

III. GENERAL STANDARDS

A. **New Materials Required** - All materials used in connection with the approved Program Scope of Work (SOW) are to be new, of first quality and without defects - unless stated otherwise or pre-approved by Owner and Program Construction Manager.

B. **Smoke and Carbon Monoxide (CO) Detectors** - ALL dwellings shall have smoke and CO detectors installed and located per code and HUD's Housing Quality Standards (HQS) – in the event of a conflict, the most stringent code will prevail.
Note: If gas appliances are present, carbon monoxide detectors must be installed and located per code.

C. **Energy Star® Products** – All new product installations shall be Energy Star® Certified Products where applicable, unless otherwise specified in the approved Scope of Work. (Practically, this means windows, appliances and MEP products).

D. **Manufacturer's Specs Prevail** – All materials, equipment, and appliances shall be installed in accordance with the manufacturer's specifications for working conditions, surface preparation, methods, protection, and testing.

IV. MINIMUM STANDARDS FOR ALL PROGRAM PROJECTS

A. **Codes and Standards** - New dwellings shall be built to the previously noted codes and standards. This document shall not take the place of State or Local Building Codes.

B. **General Conditions** - Are Assigned Responsibilities of the General Contractor:

i. **Obtain/Close Out All Permits** - The project will not be considered complete until Final Certificate of Occupancy is issued by the Local Code Official.
ii. **Obtain/Provide** - New Jersey State New Home Warranty where appliable.
iii. **Comply** - Required New Jersey One Call - 811 or 800-272-1000;
iv. **'Know What's Below. Call Before You Dig'**.
v. **Provide/Coordinate** - Install All Appliances and Mechanicals
vi. **Maintain** - Permit Code Compliant, Clean, Safe, And Secure Construction Site Area.
vii. **Communicate/Obtain** - Required NJ DRM Program Approval for Cost Adjustments and +/- Change Orders. General Contractor (GC) is to communicate to both the Homeowner (HO) and NJ DRM Construction Manager (CM) in writing -- Produce Estimate and Await NJ DCA CM Approval Before Any Cost Adjustment/Change Order Work Begins.

V. MINIMUM HOUSING REQUIREMENTS

A. **Minimum Room Ceiling Height** - Eight feet (8') Above Finished Floor (AFF) is acceptable in bathrooms, toilet rooms, habitable basement space, and hallways.

B. **Minimum Room Width** - All habitable rooms, except kitchens and/or kitchenettes, shall have a minimum width of seven feet (7') in any horizontal dimension.

C. **Non-Habitable Space Below Design Flood Elevation (DFE)** -- No cellar space, crawl space, or basement space shall be converted into habitable space Entrance to these spaces shall be 3'-0" by 6'-8" opening with door.

D. **Non-Habitable Attic Access** - There shall be a pull-down ladder unit located as per Scope of Work and such pull-down ladder shall be rated for 300-pound capacity. The minimum scuttle access size shall be 30" by 30" and comply with State and Local requirements.

E. **Kitchens**

i. **General Conditions**
- Every dwelling shall have a Kitchen room or Kitchenette Area equipped with the following Standard basic elements and appliances.

ii. **Kitchen Sink**
- The dwelling shall have a Kitchen Sink connected to both hot and cold potable water supply lines under pressure and to the sanitary sewer waste line
- The Faucet shall have a flow of 1.8 gallon per minute (GPM) flow restricting aerator installed.
- Kitchen Sink Minimum shall be a stainless steel, 7" ~ 9"D double basin 33"W x 22"L drop-in unit installed in kitchen to include strainers/drain plugs.

iii. **Oven and Stove/Range**
- The dwelling shall contain a gas or electric Oven and Stove/Range. Electric outlet to be connected to the source of fuel or power, in good working order and capable of supplying the service for which it is intended; Appliance to be on a dedicated circuit

iv. **Kitchen Exhaust Hood**
- The exhaust hood shall contain integrated lighting, be sized to match the width of the range and be vented to the outside through the wall or roof with galvanized steel ductwork and weather proof termination. The exhaust fan capacity shall be designed to meet local codes and standards. New installations shall be on a dedicated circuit.

v. **Refrigerator**
- The dwelling shall have a new Energy Star® Certified Refrigerator, connected to the power supply, in good working order and capable of supplying the service for which it is intended. Appliance to be on a dedicated circuit.

vi. **Cabinet Storage and Countertop Space Areas**
- Every Kitchen or Kitchenette Area shall have a minimum Cabinet Storage Area of thirty (30) square feet (SF)
- Kitchen Cabinets Shall have Plywood boxes
- Architectural Woodwork Institute Grade: Custom Grade Level
- Every Kitchen shall have a minimum Counter Space Area of sixteen linear feet (16 LF) and with nominal four inch (4") Backsplash when against a wall surface.

F. **Toilet/Water Closet, Lavatory, and Bathroom**

i. **General Conditions**

- Every dwelling shall contain, per code, and be equipped with the following basic facilities and fixtures, including Toilet, Vanity with Sink and Faucet, and Bathtub/Shower.
- Alternates to this section are in the Accessibility Section

ii. Toilet

- **Minimum Requirement**
  - Shut Off Valve
  - Flow rate of 1.28GPF

iii. Faucet

- Faucet shall be connected to both a hot and cold potable water supply, under pressure
- Faucet shall be cartridge type, chrome plated, single lever handle, brass unit
- Faucet shall have ¼ turn ball-type cut off stops and either copper tubing or braided steel water-flex supply lines
- All faucets must be equal to or less than 1.5GPM water flow

iv. Sink

- Flexible traps and tailpieces will not be approved for use.
- Sink Standard shall be W22” x D21¼” white, China, drop-in unit and connected to the sanitary sewer

v. Vanity

- Bathroom Vanity Shall have Plywood boxes
- Architectural Woodwork Institute: Custom Grade Level
- Min Specs: 36”W X 24”D
- Vanity top shall be plastic laminate with integral backsplash.

vi. Bathtub/Shower

- Minimum Requirement -- 1 Bathtub/Shower with Soap Holder per dwelling
- Bathtub and/or Shower Unit(s) is not required to be located in the same room as the Flush Toilet/Water Closet and Lavatory
- Bathtub and/or Shower Unit(s) shall be connected to both Hot and Cold Potable Water Supply, under pressure; and to the Sanitary Sewer
- All Showerheads must be equal to or less than 2.0GPM water flow. Showerheads shall comply with ASME A112.18.1/CSA B125.1 and shall meet the performance criteria of the EPA Water Sense Specification for showerheads. Showerheads shall be served by an automatic compensating valve that complies with ASSE 1016/ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1 and is specifically designed to provide thermal shock and scald protection at the flow rate of the Showerhead
- Shut Off Valves shall be installed on the Water Supply Lines
- Any Bathtub or Shower Unit shall be a Minimum of W60” x D32” x H72”

vii. Bathroom Accessories Minimum

- Minimum -- 1 Toilet Paper Holder/Toilet
- Minimum -- 1 Towel Bars 1'-6" Length.

- Minimum – 1 Wall Mounted Mirror Above Vanity.
- Mirror to be sized to full length of Lavatory Countertop and a minimum of 6'-6" to top of mirror AFF. Light Bar to be installed above mirror if space allows and be sized to accommodate as close to the full length of the mirror as possible, without overlapping the mirror length.
- Minimum – 1 Medicine Cabinet

G. **Interior Finishes Standard**

i. Interior Ceiling and Wall Surface Finishes

- All interior walls, floors, ceilings, doors, windows, and trim are to be free from chips, cracks, and made to final level Finishes.
- Paintable Surfaces are to receive Prep/Prime and Two Coats, as Standard Finish (i.e., Substrates shall be painted).
- Every Bathroom, Kitchen, and Utility Room shall be impervious to water and easily kept clean and sanitary by the Owner; Wood paneling shall not be used as an interior finish.
- A minimum Level 4 Surface Finish is to be applied throughout the dwelling. Practically, this means two coats of joint compound applied uniformly to the substrates and ceiling. Joints, connections, imperfections, and fastener heads shall receive three coats of joint compound; substrates shall be sanded, primed, and paint ready.
- Drywall Gypsum board shall be tapered joint gypsum board with a minimum thickness of .5" (1/2") on walls and ceilings except where required by fire code.
- Wet Areas such as: Kitchens, Mech Rooms, Utility Closets, Etc. shall have:
  - Moisture & Mold Resistant .5" (½") Gypsum board (ANSI/ASTM C630) installed on all walls and ceilings.
- All Wet Walls shall receive cement board or water-resistant drywall
- Party walls will be constructed to State and Local building code
  - a minimum of .625" (5/8") type X gypsum board is required

ii. Interior Paint and Coatings

- A finished coat must cover all interior paintable substrates.
- Flat Matte or Eggshell Finishes will be applied to the following areas:
  - Bedrooms
  - Hallways
  - Dining Rooms
  - Living spaces (Den, Living room, Family room Etc.)
- Semi-Gloss Finishes shall be applied to the following areas:
  - Bathroom
  - Kitchen
  - Laundry/Utility Room
  - Mechanical Rooms
- Flat Matte or Semi-Gloss Finishes will be applied to ceiling areas as noted
- All paints must comply with one of the following:
  - Low VOC as determined by EPA Method 24 (VOC content is below the detection limit for the method).
  - Green Seal GS-11.

- CARB Suggested Control Measure for Architectural Coatings

iii. Interior Caulk, Sealant, and Coating

- All Caulks, Sealants and Misc. Coatings shall be Approved for residential construction
- Additional information can be found in ICC-700.901.10(3).

H. **Flooring Standard**

i. General Conditions

- An Air Barrier shall be installed at any exposed edge of insulation. Floor Cavity insulation shall be installed to maintain permanent contact with the underside of the subfloor decking, or floor framing cavity insulation shall be permitted to be in contact with the top side of the sheathing, or continuous insulation installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor faming members.

ii. Flooring Minimum Standards

- Flooring Shall Comply with either/or Carpet and Rug Institutes Green Label or Green Label plus for Carpet, Pad, and Carpet adhesives.
- Entry – Luxury Vinyl Plank (min 0.0120" thick).
- Living – Luxury Vinyl Plank (min 0.0120" thick).
- Dining – Luxury Vinyl Plank (min 0.0120" thick).
- Kitchen – Luxury Vinyl Plank (min 0.0120" thick).
- Bedrooms – Carpet (28oz/square yard [SY] nylon carpet + 6oz/Cubic Feet [CuFt] Pad).
- Closets – Luxury Vinyl Plank (min 0.0120" thick) and/or
- Bathrooms – Luxury Vinyl Plank min 0.0120" thick).
- Utility – Luxury Vinyl Plank (min 0.0120" thick).
- 1st Floor Hallways – Luxury Vinyl Plank (min 0.0120" thick).
- Stairs – Carpet (28 oz/SY nylon carpet + 6oz/CuFt Pad).
- 2nd Floor Hall – Carpet (28oz/SY nylon carpet + 6oz/CuFt Pad).
- Transition strips shall be used at each area where carpet adjoins vinyl or tile or wood flooring, to provide a smooth, attractive bridge. Colors should be coordinated to the flooring surfaces.

I. **Thermal Envelope and Insulation**

i. General Conditions

- The building Thermal Envelope is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differentiate expansion and contraction. The following are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, sustainable film, or solid material.

ii. Standard Elements

- All Penetrations shall be properly Sealed, this includes:
  - All Joints, Seams, and Penetrations.
  - Openings Between Window and Door Assemblies and their respective Jambs and Framing.
  - Utility Pitch Pocket Penetrations.

- Dropped Ceilings or Chases Adjacent to the Thermal Envelope
- Knee Walls and Half Walls.
- Walls and Ceilings Separating a Garage from Conditioned Spaces.
- Behind Bathtubs and Showers on Exterior Walls.
- Common Walls Between Dwelling Unit.
- Attic Access Openings.
- Rim Joist Junction.
- Other Sources of Infiltration

iii. Insulation

- **General Conditions**
  - HERS Grade I Installation Insulation; HERS Grade II or Grade III Installation Insulation methods are not allowed
    - Practically this means: The insulation completely fills the cavity in the case of air-permeable insulation and is encapsulated on six sides (with an exception for IECC climate zones 1-3). It's cut around electrical junction boxes, split around wires and pipes, and generally compressed only 2% of the area and 30% of the depth.
- **Minimum R-Values**
  - Ceiling R-Value: R60
  - Basement Wall R-Value: R15/19
  - Crawl Space R-Value: R15/19
  - Mass (Masonry) Wall R-Value: R13/17
  - Wood Frame Wall R-Value: R20 or R13+5
  - Floor R-Value: R30

iv. Thermal Envelope Tightness

- The thermal envelope will be evaluated through a Blower Door Test after construction is complete
- The general contractor is responsible for ensuring the dwelling passes the blower door test

J. **Exterior Siding and Trim Standard**

i. General Conditions

- Siding and trim will be intact and weatherproof. All exterior wood components will have a minimum of one continuous coat of paint, and no exterior painted surface will have any deteriorated paint.
- Before installing siding materials, the home shall be wrapped in a non-woven, breathable, durable polyethylene material which would also reduce water penetration

ii. Types of Siding and Facial Coverings

- Vinyl Polymer Siding
- Wood Siding – homeowner paid upgrade
- Stucco
- Metal Siding
- Fiber Cement Siding – Program Standard
- Masonry Façade - Homeowner paid upgrade

iii. Minimum Standard Siding

- Vinyl Siding .048" thick or greater or similar

K. **Roofing And Flashing Standard**

i. General Conditions

- All Roofing shall be constructed in accordance with State and Local Building Code.
- All Roofing shall be installed in Accordance with Manufacturer's Specifications and shall be free of defect
- Engineer-designed and stamped trusses may be used in lieu of conventional framing

ii. Standard Roofing Material

- UL Class A Asphalt Shingle with an industry standard 30-year warranty:
  - Self-sealing, granule surfaced, asphalt shingle with a fiberglass reinforced Micro Weave core, and Architectural laminate styling providing a wood shake appearance with a 5-5/8 inch exposure.
  - ASTM D 3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules
  - ASTM D 3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method)

iii. Roofing Assembly Gutters and Downspouts

- Gutter System must Move All Stormwater Away from the Dwelling and Prevent Water from Entering the Structure
- Gutter, downspout and roof drain systems shall drain water 5' from the foundation of the dwelling.

iv. Roofing Ice Water Shields - Standard Elements Include:

- Ice and Water Shield in areas where there has been a history of ice forming along the eaves causing a backup of water.
- For new roof installations and re-roof applications Ice and Water Shield shall be place along the eves, in all valleys and at any vertical transition.

v. Flashing - Standard Elements Include:

- Flashing shall be provided to minimize water entry into wall and roof assemblies and to direct water to exterior surfaces or exterior water-resistive barriers for drainage.

L. **Openings (Doors and Windows) Standard**

i. **Elements** – Handles, Latch, Thumb Turn/Deadbolt, Strike Plate, Hinges, Wall-Mounted Doorstop, etc., Typ.

ii. Exterior Doors (Excluding Sliding Glass Doors)

- **General Conditions** – All New Exterior Doors Standard Elements Include:
  - A U-Value of at least .30 and be Energy Star Rated
  - Exterior Door Weatherstripping to be Airtight and Able to Pass a Blower Door Test.
  - Shall have 1.75" (1 ¾") Solid Core, Metal Clad or Fiberglass units; Doors should be Fire-Rated where required
- **Minimum Standards**
  - Exterior Door Standard Size shall be a (3') Min Width and (6'-8") Max Height, Unless Otherwise specified.

        - The Basis of design for an Exterior Door shall be a Jeld-Wen Pre-hung 36”x80” Steel 6-Panel Door (JW166100278)
    - Door Peep Hole, Typ. (See ADA where applicable)
    - **Lockset and Deadbolt**; Keyed to Match, Typical.
        - The Basis of Design for the Lockset and Deadbolt shall be a Kwikset – Halifax Security Set Exterior Entry Door Lever and Single Cylinder Deadbolt (991HFL SQT 15)
        - Weatherstripping and Adjustable Threshold, Typical.
    - Every Exterior Door and Brickmould/Frame shall be installed to prevent wind and water intrusion.
    - **Key Schedule**
        - All Exterior locksets and deadbolts shall be keyed the Same
        - Every Exterior Door shall have a dead bolt which is rated “A” by Builders Hardware Manufactures Association across all categories.
        - Locksets shall be rated “A” by Builders Hardware Manufactures Association across all categories.
    - **Home Numbering**
        - The dwelling shall have 4” numbers displayed clearly near the front door
    - **Optional Exterior Sliding Glass Door**
        - U-Value
            - Below .30
        - Shall be Energy Star Certified for the Northern Region
        - Basis of Design shall be a Ply Gem East 5700 Series Sliding Door
        - Manufacturer Provided Lockset with provided security doorstop

iii. **Interior Doors**

- **General Conditions** – All New Interior Doors Standard Elements Include:
    - Standard Composition – 1.375” (1 3/8”) Min Thickness Hollow Core
    - Bottom of Door must be able to be Cut/Modified to Allow Proper Ventilation and/or Operation.
        - The Basis of Design for Interior Doors shall be a trimmable pre-hung Jeld-Wen Colonist Hollow Core Interior Door
    - Bi-Folding or Louvered Bi-Folding Doors Shall Not Be Permitted.
    - **Sample Locksets Per Designated Room Use**
        - Interior Privacy Lockset – Bedroom/Bathroom, Typical.
            - Basis of Design shall be a Kwikset Halifax Privacy Door Lever set (730HFL SQT 15)
        - Interior Passage Lockset – Closet/Pantry/Utility/Basement Typical.
            - Basis of Design shall be a Kwikset Halifax Hall/Closet Door Lever (720HFL SQT 15)

iv. **Interior window/Door Trim**

- **General Conditions** – All New Interior Trim Standard Elements Include:
- Interior trim shall be ”finger-jointed” pine – painted, utilizing the following sizes:
    - 11/16” x 3 ¼” Colonial Baseboard (NO SHOE)
    - 11/16” x 2 ¼” Colonial Casings

v. **Exterior Windows**

- **General Conditions** - All New Exterior Windows Standard Elements Include:
- New or replacement windows shall be vinyl windows
  - Basis of Design shall be a Ply Gem East 2000 Series Window with Low E glass
- Shall Energy Star® Certified for the Northern Region
- Window Installation should be plumb, properly insulated, and installed per State and Local building code
- **U-Value**
  - Windows shall have a U-value of at least .30
- **Minimum Standard New Construction Window**
  - Double Hung
  - 30" x 50" in habitable space
  - All new installations of windows in bedrooms shall meet code prescribed egress size requirements.

M. **Accessibility Standard**

i. General Conditions

- When accessibility standards are required adhere the NJ State Accessibility Standard including ICC/ANSI A117.1

ii. Ensure the following items are coordinated:

- Appropriate entry and exit
- Doors, Pulls and Faucet Handles
- All MEP Emergency Disconnects should be accessible (i.e. electrical panels, natural gas shut offs, thermostats etc.)
- Additional Blocking and Footings for accessibility needs
- Proper floor clearance for fixtures
- Installation of grab bars where requested by Homeowner or as recommended in ICC/ANSI A117.1 for applicable use cases.

N. **HVAC and Mechanicals**

i. Mechanicals and Mechanical Closets

- Heating, Ventilation, and Air Conditioning (HVAC); Standard Elements Include:
  - Work is to comply with International Mechanical Code
  - The Main Mechanical closet shall be located above the Design Flood Elevation (DFE)
  - HVAC Equipment shall have a MERV-8 Filter where a filter is able to be installed.
  - Mechanicals shall be new and with Warranty/Warranties.
  - Whole Dwelling HVAC shall comply with ASHRAE Standard 62.2-2022.

ii. Replacement of existing HVAC system components in Rehabilitation projects

- Replace any existing malfunctioning or inoperable HVAC components with new similar types of units meeting the energy efficiency criteria in these standards.
- When relocating equipment to improve storm resiliency, provide all required material, including piping, wiring and ductwork to tie the equipment into the existing HVAC distribution system as required to maintain a fully functional system.

iii. HVAC System - A New Dwelling shall have a working central forced air HVAC System and supporting ductwork; Standard Elements Include:

- Central HVAC shall be defined as appropriately sized HVAC system which provides conditioned air to the occupied spaces as per State and Local Code.
- HVAC System to include at a minimum - 1 wall mounted zoned "Smart" Thermostat
- **Air Conditioning Unit** - MEP/HVAC Engineer shall properly size Unit; Standard Elements Include:
    - Rating SEER 14 or greater.
    - Energy Star® Certified
    - On Dedicated Circuit.
    - 15-20 Yr. Life expectancy
- **Furnace Unit** - MEP/HVAC Engineer shall properly size Unit; Standard Elements Include:
    - Annual Fuel Utilization Efficiency Rating of 95%.
    - Energy Star® Certified
    - On Dedicated Circuit.
    - Vented per State and Local Code.
    - 15-20 Yr Life Expectancy.
- **HVAC Package Unit** - MEP Engineer shall properly size Unit; Standard Elements Include:
    - Rating SEER 14 or greater.
    - Energy Star® Certified
    - On Dedicated Circuit.
    - 10-15 Yr Unit Life Expectancy.
- **HVAC Air Source Heat Pumps** - MEP Engineer shall properly size Unit; Standard Elements Include:
    - 8.5HSPF or greater.
    - Energy Star® Certified
    - On Dedicated Circuit.
    - 10-15 Yr. Life Expectancy
- **Boiler** – MEP Engineer shall properly size Unit; Standard Elements Include:
    - Annual Fuel Utilization Efficiency Rating of 85%
    - Energy Star® Certified
    - On Dedicated Circuit.
    - 15-20 Yr. Life Expectancy

iv. HVAC Ventilation and Duct Work Requirements

- **General Conditions** - In general, sufficient ventilation shall be present to ensure adequate air circulation in the dwelling; Standard Elements Include:
- **Ductwork** - Standard Elements Include:
    - All ductworks will be heavy gauge galvanized metal, airtight with mastic-sealed seams (no duct tape).
    - Ductwork shall be insulated with a minimum of R4 insulation or per State and Local Code.
- **Ventilation**
    - Bathrooms, including Toilet/Water Closet rooms, shall be vented to the outdoors. The minimum tested ventilation rate is 50CFM (23.6 L/s) for intermittent operation or 20CFM (9.4 L/s) for

continuous operation in bathrooms. Exhaust fans shall be Energy Star® Certified

- Kitchen exhaust units and/or range hoods are to be ducted to the outdoors and have a minimum ventilation rate of 100CFM (47.2 L/s) for intermittent operation or 25CFM (11.8 L/s) for continuous operation. If Kitchen exhaust units meet or exceed 400CFM make up air shall be provided. And comply with State and Local requirements
- Dryer shall direct vent to the outside through a penetration to an exterior wall with a louver or flapper
- **Direct Vent to Outside** – Areas/Elements include:
  - Bathroom and Toilet/Water Closet Rooms.
  - Dryer Appliance Laundry Rooms.
  - Range/Stove Appliance Kitchen Areas.
  - HVAC Systems Units Utility Rooms.
- **HVAC and Duct Work Protection**
  - During Construction One of the following HVAC system protection measures shall be performed.
    - HVAC Supply Registers, Return Grilles, and Rough-ins are covered during construction activities.
    - HVAC Supply Registers, Return Grilles, and Duct Terminations are inspected and vacuumed. In addition, the coils are inspected and cleaned, and the filter is replaced, if necessary.

v. Radon Systems

- Radon systems shall be installed on an as needed basis as determined by the Design Team erring on the side of caution. The systems are to be professionally installed in accordance with State and Local building codes.

O. **Plumbing Systems and Pipe-fitting Requirements**

i. General Conditions

- All plumbing shall meet National Standard Plumbing Code (NSPC), State, and Local Code, whichever is more stringent
- Plumbing work shall be conducted by a licensed plumber.

ii. Potable Water – Potable Water Standard Elements Include:

- Every dwelling shall be connected to an approved (by the jurisdiction having authority) potable water source.
- Any unused well shall be decommissioned per State and Local building codes
- Potable Water Supply Lines shall be either:
  - Cross-linked polyethylene (PEX) piping, installed with a high-performance manifold system. After installation, water lines shall be pressure tested with 1.5 times service pressure for 30 minutes, or as required by the local municipality or IRC. After pressure test has been made and any leaks repaired, flush entire domestic water distribution system with water until entrained dirt & mud have been removed
  - Type K Soft Copper Below Grade and Type L Rigid Copper Above Grade, using wrought copper fittings. After installation,

water lines shall be pressure tested or water pressure tested with available water pressure prior to coverage, or as required by the local municipality or IRC. After pressure test has been made and any leaks repaired, flush entire domestic water distribution system with water until entrained dirt & mud have been removed.
Note: Chlorinated Polyvinyl Chloride (CPVC) shall not be used for potable water.

iii. **Wastewater –** Standard Elements Include:
- Every dwelling shall be connected to an approved (by the jurisdiction having authority) sanitary sewer system or properly operating septic system or will be provided with an approved connection under the program.
- Drain, waste, and vent (DWV) lines shall be Schedule 40 Poly-vinyl-chloride (PVC) pipe and fittings. All piping passing through the roof shall be properly flashed. House shall have two-way, line size cleanout located at exterior of house per Code. DWV lines shall be tested in accordance with the currently adopted IRC.

iv. **Fixtures** - Standard Elements Include:
- Toilet Flush Volume – 1.28Gallons (Gal) or less.
- Kitchen Sink Flow Rate – Maximum of 1.8 Gallons Per Minute (GPM),
- Lavatory Faucet Flow Rate – Maximum of 1.5 GPM
- If Flush Valve Required – AE design team will create the specs.
- Exterior Hose Bib– shall be installed per State and Local code and with a gate valve
- Washer Hose Bib – shall be installed per State and Local code and with a ball valve
- Sump Pump and Ejector Pump – AE design team will create specs and will be installed per State and Local code
- Check valves shall be installed in water supply lines to any fixtures where change of contamination is possible, such as any hose-bibs located below the DFE.

v. **Hot Water Supply and Water Heater Unit (HWH) -** Standard Elements Include:
- Every dwelling shall have supplied water-heating equipment (water heater and hot water supply lines) that is free of leaks, connected to the source of fuel or power, and is capable of heating water to be drawn for general usage.
- Standards for Hot Water Heater (HWH) – MEP Engineer shall size the HWH to the home [dwelling]; Unit elements are to include:
  - Minimum Size 40 Gallons.
  - Gas HWH shall have a Uniform Energy Factor (UEF) rating of .78 or higher and meet Energy Star® requirements at the time of installation.
  - Gas (fired) Tank-less HWH water heaters shall have a UEF rating of .93 or higher and meet Energy Star® requirements at the time of installation.
  - Electric HWH (includes tankless HWH) shall be Energy Star® Certified and have an UEF rating of 0.92 or higher and meet Energy Star® requirements at the time of installation.
  - Hot water heater shall be vented per State and Local building Codes.
  - HWH shall be installed with:
    - Pan
    - Drain to the exterior

P. **Electrical Systems**

i. **General Conditions**
- All Electrical Work shall meet NFPA 70 National Electrical Code (NEC) State, and Local Code, whichever is more Stringent
- All Electrical Work shall be conducted by a Licensed Electrician

ii. **Electrical Service**
- The MEP engineer shall size the electrical service to the dwelling.
- The minimum electrical service shall be 200 Amperes (Amps).
- The breaker controlled electrical panel shall be sized for the required load.

iii. **Outlets -** Standard Elements Include:
- Every Habitable room within such dwelling shall contain Receptacles Required by Code but – Not Less Than the Following:
  - [5] Combined EC Outlets with USB Charger Liv/Kit/Bed/Misc, Min.
  - All outlets withing a 6ft radius of wet areas shall have GFCI outlets
  - All outlets on the exterior of the home shall be GFCI outlets and weatherproof enclosure.

iv. **Electrical Fixtures, Connections, and Appliances** – Standard Elements Include:
- Energy Star® Certified
- All Lighting (fixtures and bulbs) Shall Be High Efficiency LED Lighting
- Lighting Fixture Standards Include:
  - 90% of Total Hard Wired Lighting Fixtures or Shall Qualify as High Efficiency or Equivalent.
  - Attics, Basements, and Crawl Spaces shall Have switched, pilot light indicator, Utility lighting Fixtures.
  - [1] Overhead or Other Switch Operated Light Shall Be Installed Per Each Interior Room, Min.
  - [1] Exterior Light Shall Be Installed At Each Exterior Door Operated by an Interior Switch Within Reach of the Door, As per Code, Typ.
  - All Light Fixtures in Dwelling To Be Installed Before Final Award Closeout.
- Appliances
  - Any Dishwasher, Refrigerator, CookTop/Range/Stove/Oven, Garbage Disposal, Clothes Washer/Dryer/Combo, Mechanical Units shall all have their own Separate Circuits in Accordance with NFPA 70 NEC, per State and Local Code.

v. **Security System** - Standard Elements Include:
- Where Installation is Specified, Security System shall be Wireless.

vi. **Misc Appliances and Equipment Units**
- Dishwasher - Standard Elements Include:
  - Energy Star® Certified, plumbed-in and installed in a GFCI outlet on a Dedicated Circuit.

vii. **Refrigerator** - Standard Elements Include:
- Energy Star® Certified, plumbed-in and installed in a GFCI outlet on a Dedicated Circuit.

Q. **Misc. Life Safety/Fire Protection**

i. **Smoke and Carbon Monoxide Detectors** - Standard Elements Include:
- Smoke Detectors
  - All smoke detectors shall be hard-wired with battery back-up and interconnected with all other alarms.
  - All smoke detectors shall be installed per manufacturer's installation instructions.
  - Combination smoke/carbon monoxide detection units are preferred.

ii. **Carbon Monoxide Detectors**
- Shall be installed in accordance with State and Local regulations.

R. **Environmental and Site Work**

i. **General Conditions**
- Prior to beginning work all lead-based paint shall be professionally abated by the general contractor or subcontractor
- The contractor needs to take reasonable steps to protect the natural resources during construction
- If there is work being conducted in a floodplain, then the home needs to be elevated above the floodplain as specified in the Program Requirements.
- The final grade shall be a minimum of 2% pitch away from the home.

VI. HOMEOWNER MANUAL TRAINING

A. **Homeowner Manual**

i. **Homeowner Manual** - Shall be provided; and include all items below as appliable:
- National Green Building Standard Certificate with Web Link and Completion Document.
- List of Green Building Features (can include National Green Building Standard checklist).
- Product Manufacturer's Manuals or Product Data Sheet for installed major Equipment, Fixtures, and Appliances. If Product Data Sheet is in the Building Owner's Manual, Manufacturer's Manual may be attached to the appliance in lieu of inclusion in the Building Owner's Manual.
- Maintenance Checklist.
- Information on the Importance and Operation of the Home's Fresh air Ventilation System.
- Provide Information on Regionally Appropriate Vegetation/Plantings from the Local Authority
- Narrative Detailing the Importance of Maintenance and Operation of the Green Building features from the National Green Building Standard Checklist retaining the attributes of a green-built home.
- Where Stormwater Management measures are installed on the lot -- Information on the Location, Purpose, and Upkeep of these Measures.
- New Home Warranty from NJ DCA as applicable for new construction.

B. **Homeowner Training**

i. **Homeowner Training** – Shall be provided; and include all items below:

- Initial Homeowners shall be Familiarized with the Role of Occupants in Achieving Green Goals. Training is provided to the responsible party(ies) regarding equipment operation and maintenance, control systems, and occupant role, etc.; Training includes:
- HVAC Filters.
- Water Heater Settings.
- Whole-house Ventilation Systems.
- Operation of Household Equipment

VII. PROJECT CLOSE-OUT

A. **Final Close-Out Conditions**

- **General Contractor** – To Provide Certificate of Occupancy (CO), Close-Out, PunchList, Warranty/Manuals, Final Billing Reconcilement, and Clean-Out Documentation Items;
- GC Owes the Homeowner the following Items:
  - Final Professional Cleaning – GC Cannot Clean the Dwelling themselves.
  - Final Certificate of Occupancy (FCO) – (as applicable) GC Procures FCO from Local Municipality Building Permit Inspection Office shared with Homeowner (HO).
  - Final Walk Through – GC shall conduct a Final Walk through the completed Dwelling with HO; and, conducting homeowner training, as needed.
- Exchange Manuals/Warranties, Codes, Keys, Etc…
- Produce/Complete Scheduled PunchList.
- Review and Exchange Final Billing Reconcilement Draft.
- Provide FCO with all Final Documentation