|  |  |  |
| --- | --- | --- |
| **Item** | **Yes** | **Comment**  Form AVP-500134  Rev. June 2017 |
| A. SITE IMPROVEMENTS | | |
| **A1. Grading, drainage & grass** | | |
| *1.**Rough & finish grading work* |  |  |
| (topsoil eroded & pounding problem) |  |  |
| *2. Restore drainage slopes & contours* |  |  |
| (topsoil 4”-6”) |  |  |
| *3. Grass* |  |  |
| Around building - closed turf/grass |  |  |
| Away from building - checkering, sprigging or seeding grass |  |  |
| *4. Large grass area* |  |  |
| No concrete block or barrier |  |  |
| *5. No grass in nooks & corners around building envelopes.* |  |  |
| *6. No grass in small area in front building* |  |  |
| *7. Leaf grass cutting 2” above soil* |  |  |
| **A2. Paving of Swales v. s. Grass Swales** | | |
| *1. Concrete swales 3 to 4 feet wide & 2” waterline below edges.* |  |  |
| *2. Use of half-concrete piping for drainage* |  |  |
| Around building, play, sitting & law areas – **not use** |  |  |
| Along project boundaries – **possible use** |  |  |
| **A3. Surface Water v. s. Underground Drainage** | | |
| *1. Surface drainage preferred* |  |  |
| *2. Drainage System* |  |  |
| Never discharge to a reduced (smaller) courses of surface runoff |  |  |
| *3. Provide Concrete Baffles* |  |  |
| Hilly ground, a slopping (when paved or open box culvert is designed) |  |  |
| **A4. Catch Basins, Gratings, & Piping** | | |
| *1 y 2. Grating* |  |  |
| **Weight & size** – possible to be removed & reinstalled by at least two men. |  |  |
| **Separation & opening** – 1” wide |  |  |
| *3 y 4. Catch basing bottom* |  |  |
| Several inches below the inlet elevation of pipe |  |  |
| Drill several 1” ∅ holes filled with stones |  |  |
| *5. Deep MH or Catch Basin* |  |  |
| Galvanized Ladder Rungs |  |  |
| **A5. Plant Flowers, Shrubs, Trees, Tree Guards** | | |
| *1. Avoid hiding places* |  |  |
| (under window, around building) |  |  |
| No Mayas |  |  |
| *2. Large shade trees (Evergreen)* |  |  |
| 10’ from branch & root away from building, walls, balconies & underground sanitary sewers. |  |  |
| *3. Clusters* |  |  |
| To fill in large open lawn areas |  |  |
| Away from building |  |  |
| *4. Small Trees & Shrubs* |  |  |
| Not around play and sitting areas |  |  |
| *5. Matured Shade Trees* (pruned non-deciduous & non- fruit bearing) |  |  |
| Located at east and west ends of play and sitting areas |  |  |
| 12-14’ tall |  |  |
| At least a 4” caliper trunk 18”-24” above ground level |  |  |
| *6. Sturdy permanent tree guards* |  |  |
| Triangular shaped galvanized chain link mesh guards |  |  |
| A6. Barrier Fencing, Short Cutting | | |
| *1. Sidewalks where short cuts over lawn grass exist* |  |  |
| *2. Do not use for safety and security reason* |  |  |
| Barbwire fencing |  |  |
| Knife-like cutting barb system |  |  |
| Mayas |  |  |
| *3. Parking Barriers* |  |  |
| Alongside street sidewalks |  |  |
| Reinforced concrete wall (H≦12”) |  |  |
| At least 6” wide & 6”below ground level) |  |  |
| L ≦10’ |  |  |
| Tooth ends at least 6”x18” section area buried 18”-24” deep in soil |  |  |
| Spaces between Barriers 4 feet |  |  |
| *4. Controlled Accesses* |  |  |
| At least 10’ wide |  |  |
| Strong end post 4’ high |  |  |
| Heavy chain from post to post |  |  |
| Padlock |  |  |
| End posts |  |  |
| Reinforced concrete columns or large diameter steel pipes concrete-filled with a ½” or larger diameter steel rod inside |  |  |
| *5. Chain Link Fencing Work* |  |  |
| Crimping of nuts or spot welding |  |  |
| A7. Boundary Fencing, Guard Houses (only for security purpose) | | |
| *1. Boundary Fences* |  |  |
| Not exceed local building code. |  |  |
| Concrete Wall 6’ 6” high (around project) |  |  |
| Front fence – galvanized tubes of 1” x 1” x 1/8” gauge. |  |  |
| Cap at top each vertical tube |  |  |
| Bottom of tube remain open |  |  |
| *2. Guard Houses* |  |  |
| Size – According to typical PHA drawings |  |  |
| Toilet and washroom facilities |  |  |
| Electrical and plumbing work rough-ins |  |  |
|  |  |  |
| A8. Low Walls and Retaining Walls | | |
| *1. Retaining Walls against embankments* |  |  |
| No use block construction |  |  |
| Reinforced steel and concrete-poured walls with the corresponding footing |  |  |
| *2. Drain Piping* |  |  |
| Spaced slightly over the lower ground level |  |  |
| *Crushed stone from the top to the drain pipe level* |  |  |
| *3. Building near a creek or river embankments* |  |  |
| Protect the embankments to avoid undermining of building footing |  |  |
| Railing and safety meshes at the top of embankments |  |  |
| *4. Surface* |  |  |
| Smooth cement plaster surfaces ready for painting |  |  |
| A9. Stairways, Steps, Rails | | |
| *1. Handrail* |  |  |
| At least one handrail |  |  |
| Two handrails (steeper one) |  |  |
| Middle handrails (wide stairways) |  |  |
| *2. Stair tread, rise and surface finish* |  |  |
| Tread – not less than 10 inches |  |  |
| Rise – not more than 7 inches |  |  |
| Surface finish – not-slip, preferably sand finished with rubber float |  |  |
| *3. Handrail* |  |  |
| Round and allow full handgrip of a minimum 1 ½” diameter. |  |  |
| *4. Strength and Rigidity* |  |  |
| Outside lateral bracing to avoid wobbling |  |  |
| *5. Handrail* – galvanized steel piping |  |  |
| *6. Galvanized outdoor railing and frames* |  |  |
| *7. Don’t specify painting of galvanized work in outdoor* |  |  |
| *8. Vertical or horizontal bar grillwork* |  |  |
| Opening space not large than 4” |  |  |
| A10. Embankments | | |
| *1. Erosion Problem* (possible solution) |  |  |
| Terracing |  |  |
| Stone facing of steep embankments |  |  |
| Planting bamboo or plants that have a deep root holding system |  |  |
| Never exceed the angle of repose for soil |  |  |
| Never exceed saturation for soil |  |  |
| Investigate the type of soil |  |  |
| *2. Pedestrian walk at top of embankments* |  |  |
| Paved and constructed away from the edge |  |  |
| Safety rails |  |  |
| *3. Reduce or Avoid soil liquefaction and displacement upon rain saturation* |  |  |
| Installation of gabions in the embankments sides or terraces or along the foot of the embankment. |  |  |
| *4. Rain waters pond in the interior side of terrace* |  |  |
| Design & Installation of half-concrete pipe of adequate size |  |  |
| *5. Ground cover vegetation* |  |  |
| Grow up a deep root system |  |  |
| Minimum of 6”-10” of vegetation and ground cover |  |  |
| Not mowing or trimming vegetation close to the ground. |  |  |
| Installation of burlap |  |  |
| A11. Walks and Malls | | |
| *1. Definitions* |  |  |
| Walks – narrow walks lead pedestrians to individual buildings |  |  |
| Mall – accommodate large number of persons, lead pedestrians in and out of major areas of the project. |  |  |
| *2. Walks & Mall intersections* |  |  |
| Diagonal or circular intersections |  |  |
| *3. Width* |  |  |
| Walks – 4-5 feet |  |  |
| Malls – 8-10 feet |  |  |
| *4. Walks to serve as swales* |  |  |
| Don’t design walks to serve as swales |  |  |
| Rise center and slope toward the sides |  |  |
| No side trenches, half pipes or gutters |  |  |
| *5. Side swales* |  |  |
| It has to be located several feet away from walks and malls. |  |  |
| *6. Joints* |  |  |
| Joints every 5 to 10 feet |  |  |
| Expansion Joints every 100 ft |  |  |
| At least a couple of dowels in every joint |  |  |
| *7. Slipper conditions* |  |  |
| Avoid smooth trawled surfaces |  |  |
| Consider sand finishing with rubber float |  |  |
| **A12. Lockable Lawn Faucets (Bibs)** | | |
| *1. Distribution* |  |  |
| It should be distributed uniformly to include each garbage station |  |  |
| *2. Garbage Station* |  |  |
| Located at the station entrance floor, not on the walls |  |  |
| *3. Water line* |  |  |
| The bibs should be supplied from a closed water line loop. |  |  |
| The loop has to be controlled from inside the maintenance shop with a main cut-off valve located, preferably, in the Maintenance Building. |  |  |
| *4. Station Floor Drains* |  |  |
| These should be designed to drain into the street gutter, not over the project grounds. |  |  |
| A13. Illumination, Safety, Security and Pruning | | |
| *1. Project Grounds* |  |  |
| It should be as fully seen as possible around (at day or nighttime). |  |  |
| *2. Bushes & Shrubs* |  |  |
| Pruned no higher than 3-4 feet |  |  |
| *3. Bushes & Shrubs or Clusters* |  |  |
| Planted away from dwelling building walls and windows |  |  |
| *4. Walls & Windows* |  |  |
| Only flower plants and clusters should be allowed near building walls and windows |  |  |
| *5. Tree branches* |  |  |
| Pruned high, preferably around 8’-10’ |  |  |
| *6. Passageways* |  |  |
| Obscure, narrow and bushy passageways should be avoided and eliminated. |  |  |
| *7. Tree branches* |  |  |
| Site lighting standards should be clear of tree branches for at least 15-20 feet around |  |  |
| *8. Lighting around dwelling building or dormitories* |  |  |
| Designed from the building to the grounds, not from the grounds to the building. |  |  |
| *9. Exterior building or yard lighting fixtures* |  |  |
| Vandal proof & Shatterproof curved covers (made of clear poli-carbonate plastic materials). |  |  |
| Curved covers - heat resistant and provide separation between the flat bulb lens and the cover |  |  |
| Flat bulb lens – heat resistant or tempered unbreakable glass lens for protection against rain. |  |  |
| *10. Walks* |  |  |
| All walks should be well lighted at nighttime. |  |  |
| **A14. On and Off-Street Parking and Parking Barriers** | | |
| *1. Off-street Parking* |  |  |
| Entrance one way & exist another way |  |  |
| Two-way entrances |  |  |
| Where is feasible – parking spaces askew, at an angle, to make easy the entry and backing. |  |  |
| *2. Maximize Capacity* |  |  |
| Where space allows, parking on both sides of the driveway |  |  |
| *3. Wheel stops* |  |  |
| Prevent bumpers from hitting walls, other cars, or entering over sidewalks |  |  |
| Separate sidewalks from the parking edges. |  |  |
| *4. Parking Space* |  |  |
| One space per dwelling unit |  |  |
| Don’t number parking spaces. |  |  |
| *5. Administration & Community Building* |  |  |
| Provide additional parking spaces |  |  |
| A15. Street Curbs, Ramps and Planting Strips | | |
| *1. Street-planting strips* |  |  |
| One-concrete block raised curbs |  |  |
| *2. Vehicle ramps* |  |  |
| Ramps within the planting strip areas. |  |  |
| *3. Wheel chair ramps* |  |  |
| Flatter using both the planting strip and sidewalk |  |  |
| Flared sides within the slope of 1:10 |  |  |
| It ramp edge near a wall or building is less than 4ft, then slope flared 1:12 |  |  |
| A16. Garbage Stations, Steps, Dumpsters | | |
| *1. Location of Garbage Stations* |  |  |
| Near building but not so close as to promote complaints |  |  |
| *2. Dimensions and Characteristics of Garbage Stations* |  |  |
| Consult with Municipality to design Garbage Station |  |  |
| *3. Driveways into Garbage Containers* |  |  |
| Construct it askew, at an angle, to the street, where possible |  |  |
| *4. Appearance of the Garbage Collection Area* |  |  |
| Design planting of shrub clusters of different plants around the 3 container sides. |  |  |
| Prune shrubs slightly higher than the bin walls or containers |  |  |
| *5. Steps* |  |  |
| Provide side or rear steps for deposit of garbage by residents. |  |  |
| A17. Overhead and Underground Utilities | | |
| *1. Electrical Service* |  |  |
| Design underground service drops between the nearest supply pole and the building for safety reason |  |  |
| *2. Walk-up or Hi-rise buildings* |  |  |
| Separate the soil and vent stacks of the first floor units from the upper floor units |  |  |
| *3. Water line* |  |  |
| Replace with flexible copper lines with compression fitting; not solder fittings for all cold and hot water lines. |  |  |
| *4. TV antenna* |  |  |
| Provide TV antenna support grounded for each dwelling unit including conduits and coaxial cable. |  |  |
| *5. Cable TV provisions* (if it is allowable) |  |  |
| Follow up instruction from the owner for similar provisions as in telephone system |  |  |
| Eliminate loose lines exposed on roofs and walls damaging waterproofing systems and exterior building structures. |  |  |
| *6. Telephone System* |  |  |
| Consider it in a likewise manner as electrical system |  |  |
| Complete from servicing lines up to each individual unit within conduits, completely wired up to the outlet boxes |  |  |
| Service connection done by the utility service company. |  |  |
| *7. Primary Electric Overhead Lines* |  |  |
| In rehabilitation and modernization line work specify replacement with insulated cables (as substitute by bare wires). |  |  |
| *8. Solidly ground metal flagstaffs and metal fences.* |  |  |
| Grounding should comply with NEC requirements consisting of a cable #6 bare clamped to a 5/8” diameter copper weld rod buried 8’-0” into the soil. |  |  |
| *9. Large and wide open box culvert surface system* |  |  |
| Security fencing on both sides |  |  |
| Don’t cover open drainage unless iron gratings easily removable by two men can be installed to facilitate inspection and cleaning purposes. |  |  |
| *10. Gushing creek, gully or river* |  |  |
| Install security fencing alongside of the gushing creek, gully or river at a uniform safe distance from the edge. |  |  |
| *11. Work in certain unoccupied building among other occupied building* |  |  |
| Specify and require enclosing the work area with temporary, but strong and safe fencing. |  |  |
|  |  |  |
| **B. DWELLING EXTERIOR** | | |
| **B1. Roofs, Parapets, Drains Piping, Waterproofing** | | |
| *1. Flat or nearly flat roofs* |  |  |
| Install lightweight concrete for drainage slope and waterproofing to comply with ½” per foot final pitch |  |  |
| Newer non-dwelling ≥ 1” per foot |  |  |
| Large pitches usually do not need waterproofing. |  |  |
| *2. Free flowing of draining water on the roof* |  |  |
| Not parapets or any components that interfere with the free flowing |  |  |
| *3. Membrane or Built-up Waterproofing Systems* |  |  |
| A bonded warranty of at least 10 years |  |  |
| Membrane – at least 2-membrane system (3 ply is preferred) |  |  |
| Built-up – 3-4 mesh with mineral grain impregnate finish load |  |  |
| Don’t leave last mesh unprotected and unloaded against wind upheavals |  |  |
| **B2. Roof Hatches, Vent Stacks, Glass Blocks** | | |
| *1. Roof Hatches* |  |  |
| Bilco or approved equal |  |  |
| Balanced door operation for all walk-up |  |  |
| Padlocking installed with non-removable screws and bolts, preferably fixed with factory-installed rivets. |  |  |
| One hatch per building, at buildings of 2 stories or more. |  |  |
| *2. Hatches Location* |  |  |
| On the ceiling of one stairway |  |  |
| Access is made with either a short ladder |  |  |
| *3. Ladder rungs* |  |  |
| Not ladder rungs in stairway wall of building to access the roof |  |  |
| *4. Soil and Vent Stacks* |  |  |
| Protected with strong “U” curves |  |  |
| *5. Glass Blocks in Existing Older Project to install waterproofing systems.* |  |  |
| Place another glass block of the same size on top and seal with duct tape around the bases |  |  |
| Install concrete cants at 45° on all 4 sides |  |  |
| Don’t specify fiber or plastic cants |  |  |
| Then, proceed with waterproofing work |  |  |
| **B3. Television Antennae Support, Cable TV** | | |
| *1. TV antennae* |  |  |
| Individual TV antennae support system with conduits, cables and outlets for each unit ready for use and operation. |  |  |
| Tie down system – must not require guide wires |  |  |
| *2. Cable TV* (if it is approved by HUD) |  |  |
| Conduits, main connection boxes, etc. |  |  |
| Facilities in agreement with the cable TV companies |  |  |
| Cable TV responsible of installing cables, connections and providing repairs at no cost to PHA |  |  |
| *3. Avoid Exterior Daylight Effect* |  |  |
| Install TV and Cable TV outlets on the inside of the living-porch wall, below the windows |  |  |
| *4. Grounded Against Lighting Strikes* |  |  |
| TV antennae masts and bases on roofs grounded against lighting strikes. (NEC code) |  |  |
| Grounding should extend through exterior walls into the soil as recommended in A19.12. |  |  |
| **B4. Roof Expansion & Contraction Joints** | | |
| *1. Nonstandard E & C Joint not extended all the way down to the footings* (in older building projects) |  |  |
| Mitigate the movement with two parapets 6” wide on each side of the roof joint separated 1” with metal cap expansible flashing on top and with enveloped joints extending to the roof edges and down the eaves. |  |  |
| *2. Joint in metal flashing* |  |  |
| Similar to the locked seam type |  |  |
| *3. Pitch Coping in Parapets* |  |  |
| Pitch back into roof drains |  |  |
| Pitch coping inside the roofs |  |  |
| **B5. Walls, Facades, Wall Expansion & Contraction Joints** | | |
| *1. Material in façade* |  |  |
| Avoid porous materials |  |  |
| Use smooth finish material |  |  |
| *2. Avoid Large Continue Plastered Surface* |  |  |
| V-type construction joint |  |  |
| *3. All-porous Bricks & Concrete Blocks* |  |  |
| Specify that these have to be wet or soaked before being laid. |  |  |
| *4. Laying out Masonry Work* |  |  |
| Specify on full mortar bedding of every horizontal and vertical joint. |  |  |
| *5. Mortar Joints* |  |  |
| Use thinner mortar joints in masonry work |  |  |
| *6. Mortar in Masonry Work* |  |  |
| Don’t use pure lime or cement mortar in masonry work. |  |  |
| *7. Marble Facades* (on public buildings) |  |  |
| Verify because in certain areas do not last, long, and are hard to repair, match or even points up. |  |  |
| *8. Stone for Facades* |  |  |
| Consider the properties of it on the basis of durability and ease of maintenance |  |  |
| *9. Don’t use costly stone finishes* |  |  |
| *10. Anchor Windows & Doors in Walls* |  |  |
| Consider machine bolt and expansion type ¼” to 3/8” Ø over the “easy and fast types” of concrete nails or other methods selected in the market. |  |  |
| Design for hurricane horizontal and uplift forces |  |  |
| Consider that damages caused by wind slamming of doors is several time more that wind pressure |  |  |
| **B6. Wall Water Proofing & Painting** | | |
| *1. Waterproofing v. s. Painting* |  |  |
| Waterproofing must precede the painting or repainting if the purpose is to prevent wall-leaking problems, isolated or scattered. |  |  |
| *2. Waterproofing Application* |  |  |
| Waterproofing must be specified after all water pressure washing and plaster repairs have been made and must be made prior to any repainting |  |  |
| *3. Waterproofing or Elastomeric Paints v. s. Good Structural Waterproofing Systems or Methods* |  |  |
| Never use or specify waterproofing or elastomeric paints as substituted to good structural waterproofing systems or methods |  |  |
| *4. To Properly Waterproof Walls* |  |  |
| Apply an elastomeric “coating” as thick as 40 mills (0.040”) over the leaking affected areas. |  |  |
| Verify plastered non-load concrete block walls on front and rear walls in the facades of walk-up and hi-rise building |  |  |
| *5. Verify that a 40-mills thick coating can last up to 20 year* |  |  |
| using a viscous elastomeric or patch-up material |  |  |
| Smooth surface finish - one or two metal trowel applications |  |  |
| Non-smooth or smooth surface finish - apply thick brush applications, two or more as needed |  |  |
| Smooth or rough surface finish – specify several coats of spray painting application air hoppers |  |  |
| Specify 1”x1” every few hundred square feet sampling and testing for calibration purposes (usually lenticular microscope measuring in 0.001”) |  |  |
| *6. Painting Req. after Waterproof* |  |  |
| Wash wall with pressure machine (3,000 PSI) |  |  |
| Correct wall cracks with caulking and patch up plaster as required |  |  |
| Apply one (1) coat of surface conditioner |  |  |
| Apply two (2) coats of flat paint 100% acrylic |  |  |
| Use surface conditioners before waterproofing or even repainting or painting exterior walls |  |  |
| *7. Efflorescence* |  |  |
| Use and specify a good surface conditioner meeting federal TT-P-620 (HUD) prior to the application of the final paint coating desired. |  |  |
| *8. Steel Priming* |  |  |
| Use iron oxide |  |  |
| For an elastic superior finishing coat – use carbon black pigment |  |  |
| *9. Bathroom & Kitchen* |  |  |
| Don’t paint wainscots; rather use glazed wall tiling. |  |  |
| **B7. Stairway, Steps, Landing, Railings, Planting Boxes, Wall Ladder Rungs** | | |
| *1. Nosing* |  |  |
| Use cast-iron nosing on stairs; using epoxy plus mechanical screwing device. |  |  |
| *2. Handrails* |  |  |
| Install handrails on both sides of stairways, but providing the specified minimum clearance of 36” between rails (24 CFR 40 and ADA req.) |  |  |
| *3. Narrow Stairs* |  |  |
| Consider installing handrails over the median wall, and gouging out the wall for the rail to keep the specified width. |  |  |
| *4. Stairway Landing* |  |  |
| Install vandal proof lighting fixtures |  |  |
| Specify Kennall or approved equal |  |  |
| Installed with 4-1/4”Ø bolts and expansion shields or anchors (for warranty manufacturer issue) |  |  |
| *5. Handrails (H) and Roof Flashing (RF) Material* |  |  |
| Don’t use aluminum or wood for handrails |  |  |
| Don’t use cooper sheets for roof flashing |  |  |
| *6. Stairway Grillwork* |  |  |
| Avoid lattices, trellises or similar designs as stairway grillwork |  |  |
| *7. Balconies Drains* |  |  |
| Don’t drain balconies with short pieces of pipe into the open air |  |  |
| Provide downspouts to drain on splash bocks |  |  |
| *8. Building Entrances* |  |  |
| Use gentle ramps instead of steps |  |  |
| *9. Opened Stairways* |  |  |
| Prefer the use of opened stairways visible from exterior. |  |  |
| Avoid interior stairways |  |  |
| Stairways should be protected against rain |  |  |
| *10. Nooks and Hiding Places under Stairways* |  |  |
| Wall-up these spaces to eliminate hiding, unseen, places. |  |  |
| *11. Planting Boxes* |  |  |
| Remove soil and complete waterproofing of interior walls. |  |  |
| Provide drainage piping, preferably interconnected to balcony downspouts. |  |  |
| **B8. Telephones Facilities** | | |
| *1. Location and Installation* |  |  |
| Provide telephone boxes and hy-ribbed plastered chases for conduits in stairway walls accessible to repairmen, in agreement with Telephone Company |  |  |
| Specify waterproofing coatings around the perimeter to avoid rainwater penetration. |  |  |
| C. DWELLING INTERIORS | | |
| **C1. Main & Secondary Exterior Doors, Frame & Hardware** | | |
| *1. Door Identification* |  |  |
| Main door – Entrance door |  |  |
| Secondary doors – Front and rear balcony doors |  |  |
| *2. Main exterior doors* |  |  |
| Keyalike dead bolt |  |  |
| Lockset |  |  |
| 5-pin tumbler key sets |  |  |
| ED open to enclosed balconies |  |  |
| Dead bolt (without outside key) |  |  |
| *3. Exterior door – Dwelling Units* |  |  |
| Solid wood doors at least 1 ¾” thick (not metal doors & frames) |  |  |
| 1 ½” pairs of heavy duty hinges, 5”x5”, ball or roller bearing |  |  |
| Door swing – open parallel to walls |  |  |
| Lesser side hinges |  |  |
| *4. Main or balcony door open to the inside -* |  |  |
| Redesign door to open to the outside with threshold and door bottom 1” below the unit floor |  |  |
| Main door faces stair landing - |  |  |
| Raise unit floor 1” above landing |  |  |
| *5. All Doors* |  |  |
| Provide bumper & holders 5’0” above floor level |  |  |
| *6. Main door* |  |  |
| Door viewer, 100° or more of angle visibility installed to 5’0” above floor |  |  |
| *7. Exterior doors & frame* |  |  |
| Southern Yellow Pipe pressured-treated by immersion and kiln dried to a minimum of 19% moisture content (federal spec. TT-W 570 & 572 MPS for tropical areas) |  |  |
| **C2. Interior Doors, Frame & Hardware** | | |
| *1. Interior Doors* |  |  |
| Hollow-core doors |  |  |
| Thick – 1 3/8” |  |  |
| ¼” thick plywood facings on both sides |  |  |
| Follow PRPHA typical (standard) drawings & specifications |  |  |
| *2. Locks* |  |  |
| Bedrooms & bathrooms - passage cylinder locks, grade 2 |  |  |
| Main entrance door – two locks –one standard & one deadlock (operated with the same key) |  |  |
| *3. No automatic door closers in dwelling units* |  |  |
| No locks striking the wall (especially turn buttons) |  |  |
| *4. Cover in the item C1.7.* |  |  |
| *5. Door Frames* (int. & ext.) |  |  |
| Single rabbet & single wood piece |  |  |
| *6. Door Hinges* (main door) |  |  |
| Heavy duty, 1 ½” pairs (three each) non removable pins ball - bearing for heavy solid doors 5”x5” – open fully parallel to walls |  |  |
| *7. Doors Swing* |  |  |
| No against the flow of traffic |  |  |
| No obstruct stairway |  |  |
| *8. Wall jambs between doors & windows* |  |  |
| 24” wide minimum |  |  |
| *9. Exposing doors to weather damage* (12”-24” eaves) |  |  |
| Design durable canopies over unprotected doors. |  |  |
| *10. Plywood* |  |  |
| Southern Yellow Pine treated by immersion |  |  |
| **C3. Windows** | | |
| *1. Type* |  |  |
| Aluminum jalousies of the Miami type, 1/16” gauge |  |  |
| *2. Width* |  |  |
| 30” maximum, prefer 18” to 24” wide |  |  |
| *3. Operators* |  |  |
| Two sections with knob operators, not cranking types |  |  |
| *4. Operators* |  |  |
| Fastened with hand rivets to frames |  |  |
| Interior washer for grip |  |  |
| *5. Window Construction* |  |  |
| Sealed with jamb felt and slat vinyl weather-stripping |  |  |
| *6. Interior Security Grillwork* |  |  |
| Fastened 6” away from window opening edges |  |  |
| Fastened 4” away from the wall surfaces |  |  |
| *7. No glass window* |  |  |
| **C4. Interior Painting** | | |
| *1. Ceiling - flat white* |  |  |
| Living, Dinning, Halls and Bedrooms - Semi-gloss, water-based paint in lighter colors |  |  |
| *2. Existing Units* |  |  |
| Compatible existing paint materials |  |  |
| **C5. Interior Walls & Plastering** | | |
| *1. Do not rout or dig out cracks in order to refill with mortar* |  |  |
| *2. Cover cracks with white latex caulking and finish smooth or featheredge, immediately with plastic squeegees.* |  |  |
| **C6. Interior Ceilings & Plastering** | | |
| *1. Roof have been sealed and waterproofed* |  |  |
| *2. Ceiling have been washed, fungus removed, plaster repaired and cost surface conditioner applied* |  |  |
| **C7. Interior Floors** | | |
| *1. Bathrooms & Urinal floors* |  |  |
| No terrazzo or vinyl |  |  |
| *2. Lavatory & toilet floors* |  |  |
| Non-slip ceramic |  |  |
| *3. Living, Dinning, Kitchen, Halls and Bedrooms* |  |  |
| Native or calibrated terrazzo tiles placed on adhesive, polished on site |  |  |
| *4. Front & Rear Porches* |  |  |
| Quarry tiles, terra-cotta tiles & concrete topping with a non-slip finish |  |  |
| **C8. Kitchen Cabinets** | | |
| *1. Use PRPHA Typical Drawings & Specification* |  |  |
| Don’t specify particleboard |  |  |
| Solid wood & plywood meeting pressure treatment and kiln-drying req. |  |  |
| *2. No sliding doors* |  |  |
| Specify hinged doors |  |  |
| Magnetic door catches |  |  |
| *3. Bottom edge of the base cabinet shelf* |  |  |
| Reinforced with a solid board 1”x3” fixed under the edge. |  |  |
| *4. Drawer or Door Pulls* |  |  |
| Finger pulls |  |  |
| *5. No wall cabinets over the stove* |  |  |
| Upper cabinets shall stop six (6”) away from stove (both side) |  |  |
| *6. Sinks & Laundry Tubs* |  |  |
| Stainless steel insulated underneath to avoid condensation |  |  |
| *7. Kitchen Sink* |  |  |
| Specify double basin sink (33”X22”) |  |  |
| Deep - 8” |  |  |
| Accessible as per UFAS. |  |  |
| Material - stainless steel 304, fully undercoated and made with a material that does not contain asbestos |  |  |
| Fixtures – single handle, equal to Delta-100 or Valley L-103-8 and meet req. federal specification. Accessible in compliance with UFAS. |  |  |
| Silicone adhesive filling under the metal rim to seal water off the plywood edge |  |  |
| *8. Cabinet Floor Shelving* |  |  |
| Raise base cabinet floor shelving between 4” to 6” |  |  |
| *9. Cabinet Legs with Pin* |  |  |
| Install metal legs under each wall panel or strut carrying vertical loads |  |  |
| Install a pin underneath to avoid legs swaying away under striking shoes |  |  |
| *10. Specify 32” clear width opening for stove* |  |  |
| **C9. Plumbing Fixtures and Accessories** | | |
| *1. Toilet tanks, faucets and showerheads* |  |  |
| Water saving toilet tanks using 1.6 gallons/flush |  |  |
| Water restrictors to all faucets and showerheads |  |  |
| *2. Hinges* |  |  |
| Specify integral type of seats and covers hinges of “Bemin 800-B” or approved equal seat and covers which will outlast the standard hinges. |  |  |
| Don’t specify standard hinges fastened with 6 small screws each. |  |  |
| *3. Lavatory Legs* |  |  |
| For large sized 4 and 5 bedroom units, specify lavatory legs, in addition to the lavatory wall brackets |  |  |
| *4. Washers* |  |  |
| Specify faucets and mixer valves with renewable seats and washers or use washer less faucets |  |  |
| *5. Clean Outs* |  |  |
| Don’t locate clean outs under the base cabinet |  |  |
| Extend the clean out line to the end wall and locate on the floor or wall side the screw able clean out |  |  |
| *6. Water Lines* |  |  |
| Provide the facility for the installation of two, copper water lines (hot & cold) at all Kitchens, bathrooms and laundry areas. |  |  |
| Replace existing lines if they are not copper |  |  |
| *7. Water Heaters* |  |  |
| Water tank heaters including a pilot switch |  |  |
| *8. Medicine Cabinets* |  |  |
| Body Material – Plastic |  |  |
| Door Material – Stainless Steel |  |  |
| Hinge – Full Piano |  |  |
| Magnetic Catch |  |  |
| Mirror – Plate glass with a five year warranty against mercury (quicksilver) loss |  |  |
| *9. First Floor Units and Washing Machine Sanitary Discharge* |  |  |
| Sanitary discharge from first floor units must be separate from the discharge of the upper floors |  |  |
| Washing Machine lines must be separate from the kitchen sink line |  |  |
| *10. Bath Tubs* |  |  |
| Remove all existing bath tubs, replace with shower stalls |  |  |
| *11. Bathroom Accessories* |  |  |
| All bathroom accessories, soap dish, toothbrush holder, toilet paper holder, towel bar, in dwelling units to be recessed (integrated) into ceramic wall tiles |  |  |
| **C10. Pantry and Bedroom Closets and Doors** | | |
| *1. Pantry and bedroom closets doors and frames* |  |  |
| 1-3/8” hollow core flush type of plywood facing veneers with standard hinges and magnetic catches, locks and hardware |  |  |
| Avoid the use of sliding and by-folding type |  |  |
| *2. & 3. Pantry and Bedroom Closet Doors* |  |  |
| Fabricated in sections not larger than 18”-24” wide |  |  |
| Designed with two-section vents to avoid moisture accumulation inside the closets. |  |  |
| *4. & 5. Closet Shelves and Tubes* |  |  |
| Closet shelves and tubes larger than 60” long must have an angular support in the middle with bracket. |  |  |
| Specify adjustable closet shelves and tubes (48”- 54”) at all accessible units, as per UFAS, Adjustable Housing Standard Manual |  |  |
| **C11. Laundry and Clothes Drying Facilities** | | |
| *1. Laundry Tubs and Clothes Washing-drying Facilities* |  |  |
| Located in the rear porch or service porch. |  |  |
| *2. Clotheslines* |  |  |
| Made of vinyl-covered stranded steel wires rather than using solid wires. |  |  |
| *3. Supporting Eyehooks* |  |  |
| Pass through the supporting walls and held tightened with washers and nuts |  |  |
| *4. Total Footage of Drying Line* |  |  |
| Not less than the existing wire footage |  |  |
| Wires should be strung at least 12” apart from each other |  |  |
| **C12. Electrical Fixtures, Wiring and Devices** | | |
| *1. Switches Location* |  |  |
| Install bathroom and bedroom switches on the interior wall side of the room, close to the striker side. |  |  |
| *2. Ground Fault Interrupter (GFI) Breaker* |  |  |
| Don’t provide a receptacle for shower heater |  |  |
| Install GFI breaker rather than GFI double outlet devices, in kitchen and bathroom circuits |  |  |
| *3. Identification of all breaker circuits in the panel door* |  |  |
| *4. Installation of Double Receptacle Boxes* |  |  |
| Rather than locating double convenience receptacle boxes in a horizontal manner, place them vertically. |  |  |
| *5. Lamps* |  |  |
| Kitchens, living and dining rooms – incandescent lamps |  |  |
| Bedrooms & Hallways – Porcelain “Rosette” |  |  |
| *6. Wiring and Conduits Conditions* |  |  |
| Provide new wiring and conduits if found deficient |  |  |
| *7. Smoke Detectors* |  |  |
| Electrical smoke detectors with rechargeable batteries in all bedrooms and hallways. |  |  |
| Smoke detectors for accessible units for the hearing and visually impaired as per UFAS, ADA. |  |  |
| **C13. Range-ovens, Refrigerators and Water Heaters** | | |
| *1. Range and Refrigerators* |  |  |
| Range-oven will be provided by PRPHA |  |  |
| Refrigerators will NOT be provided by PRPHA |  |  |
| *2. Facilities for Range-oven & Refrigerator Installation, Mixer Valves and Jumper Connection* |  |  |
| Range-oven – 50A-250V |  |  |
| Refrigerator – 20A-125V |  |  |
| Provide Mixer Valve where cold and hot water piping is provided. |  |  |
| Connect a jumper piece of piping to connect the cold and hot water supply at the water heater location. |  |  |
| **C14. Glazed Wall Tiling** | | |
| *1. Kitchens & Bathroom* |  |  |
| Use standard grade, USA made, glazed wall tiling |  |  |
| *2. Size* |  |  |
| Prefer 4”x4” |  |  |
| *3. Color* |  |  |
| Prefer white colors |  |  |
| *4. Wainscot* |  |  |
| Shower stalls – 6’ high |  |  |
| Lavatory, toilet, towel bar, and switch walls – 4’high |  |  |
| *5. Install wall tiles between base and wall hung kitchen cabinets* |  |  |
| **C15. Shower Floors** | | |
| *1. Water Proof the Bathroom Floor* |  |  |
| Specify a product similar to VANDEX to water proof previous to tiling |  |  |
| After the VANDEX is cured, fill the shower stall area to capacity and observe for 4 hours to ascertain the non-presence of leaks to the lower floor. |  |  |
| **C16. TV and Telephone Systems** | | |
| *1. Provide TV and telephone conduits, wiring and connection outlets* |  |  |
|  |  |  |
| **D. SECURITY ITEMS FOR NON-DWELLING STRUCTURES** | | |
| **D1. Security Items** | | |
| *1. Door and Window* |  |  |
| Security should not depend on the standard types manufactured by the industry. |  |  |
| Security includes special design requirements of windows, doors, and exterior illumination in an effort to prevent, and avoid crime, burglaries or forced entries. |  |  |
| The use of security guards at day or nighttime is more expensive and it is often required in crime and drug ridden projects. |  |  |
| *2. Where Crime and Burglaries are a Problem* |  |  |
| Strong stainless steel safety screens or mesh in window interiors |  |  |
| Iron grill work in window interior |  |  |
| Exterior metal doors and frames |  |  |
| Special security type of window |  |  |
| Vandal proof exterior illumination fixtures around building perimeters |  |  |
| Architectural facades that do not provide ladder designs which promote climbing onto roofs and accessing interior patios or insecure windows or doors |  |  |
| 3.Reason to install the above first three items on the inside of window frames |  |  |
| They affect the otherwise good appearance or architecture of the building |  |  |
| They give passersby an impression of institutional or correctional facilities or institutions, which is highly undesirable |  |  |
| They are exposed to faster deterioration or corrosion by weather conditions |  |  |
| They require more maintenance work and costs than interior techniques |  |  |
| Outside they may serve as climbing ladders onto the roofs |  |  |
| 4. Alternative to Safety Screens or Iron Work |  |  |
| Use of security type of windows wherein prying bars or sledgehammers are difficult to use |  |  |
| 5. Window |  |  |
| Consider window with smaller widths |  |  |
| Providing closer mullions for rigidity and security |  |  |
| 6. Standard Type of Aluminum Jalousies |  |  |
| Specify shorter 18”-24” window with intermediate mullions, rather than 36” wide window |  |  |
| 7. Exterior Doors |  |  |
| Two lock sets: one deadbolt with key on both  sides and at least 1” of bolt throw into floors and  ceilings |  |  |
| Use cylinder locks with outside keys and turn knobs inside |  |  |
| Don’t allow the use of push button locking |  |  |
| 8. Double Doors |  |  |
| Specify one door section to be secured to threshold and head frames with the installation of two concealed bolts installed on the upper and lower costs of the door edge. |  |  |
| Hardware should comply with types 1045 and 1048 of federal specification FF-H-00111b, as shown below |  |  |
| *9. Stairway and Building Perimeter Lighting* |  |  |
| Specify vandal proof fixtures, Kennal or approved equal, with rooftop photocell lighting controls for automatic sunset and sunup operation. |  |  |
| To obtain the 10-year Kennal warranty, install fixtures as specified by manufactures with ¼” Ø bolts and expansion shields/anchors. |  |  |
| Don’t allow contractors to fasten lamp base plate to the “ears” of the ceiling box with 3/32” Ø screws which do not provide the pull-out resistance of ¼” Ø bolts. |  |  |
| *10. Exterior doors (single or double)* |  |  |
| Specify pry-resistant “T” lock protection |  |  |
| **D2. Administration Spaces** | | |
| *1. Space Standard Requirements* |  |  |
| Follow space standard requirements in 2-7b of Modernization Standards Handbook 7485.2. |  |  |
| Determine with A/M the additional space necessary to meet the standards. |  |  |
| *2. Reception Space* |  |  |
| Accessible from the entrance lobby |  |  |
| Provide a counter partition with a tempered glass panel above the counter to provide visibility between the two spaces, providing security from unauthorized access inside the staff space |  |  |
| A control door for access inside the staff and manager space. |  |  |
| *3. Separated Toilet Rooms* |  |  |
| Provide public toilet rooms separate from staff toilet rooms |  |  |
| *4. Project Manager’s Office* |  |  |
| Partition should be floor to ceiling for privacy. |  |  |
| A horizontal glass or clear poll-carbonate glass should be provided for Manager’s supervision of staff space |  |  |
| *5. Type of Partitions* |  |  |
| Don’t permanent type of partitions made with poured concrete or plastered concrete blocks for office layouts. |  |  |
| Specify moveable partitioning |  |  |
| *6. Electrical & Telephone Installations* |  |  |
| Use floor duct systems with flush and screw able covers. |  |  |
| Specify moveable partitioning |  |  |
| *7. Exterior Glass Panel Subject to Breakage by Vandalism* |  |  |
| Specify unbreakable clear plastic material, usually made of polycarbonate materials. |  |  |
| **D3. Maintenance Spaces** | | |
| *1. Maximum Space* |  |  |
| Do not exceed the maximum indicated in 2-7b of the modernization standard manual 7485.2 |  |  |
| *2. Provide a Workshop* |  |  |
| With a working bench table at center made with 2” thick hard wood planks |  |  |
| Workbenches on wall sides for electrical and plumbing equipment made with 2” thick hard wood planks. |  |  |
| *3. Storage Room* |  |  |
| Provide an enclosed storage room for supplies and small parts with shelving. |  |  |
| *4. Workshop & Storage Room* |  |  |
| Provide grounds maintenance workshop and storage room |  |  |
| *5. Exterior Door for Loading and Unloading with ramp and truck deck* |  |  |
| Provide a 5’-0” wide, two-section exterior door for loading and unloading, supplies and materials to the storage room, with ramp and truck deck |  |  |
| *6. Exterior Maintenance Open Storage Yard* |  |  |
| Design a concrete truck drive way to the street and a 10’0” lockable gate. |  |  |
| Fence could be solid concrete or 8’ vinyl covered chain link mesh, in agreement with A/M. |  |  |
| Provide automatic operation perimeter vandal proof lighting fixtures. |  |  |
| 7. *Location of Exterior Maintenance Loading and Unloading Door and Maintenance Storage Yard* |  |  |
| Behind the administration office or in a building side unseen from the main for aesthetic reasons. |  |  |
| *8. Structure* |  |  |
| Provide a well-ventilated reinforced concrete structure, or |  |  |
| Room of adequate size, with shelving, automatic sprinklers on the ceiling and explosion-proof fixtures and switches for storage and protection of flammable liquids, paint, gasoline and solvents. |  |  |
| *9. Lockers for Maintenance Staff* |  |  |
| Don’t design custom-made or built-in lockers |  |  |
| Use standard metal lockers, single or double tier |  |  |
| **D4. Community Facilities** | | |
| *1. Location* |  |  |
| New building – select a location facing project streets |  |  |
| Never design new facilities away from the project entrance or street access |  |  |
| *2. A Single Structure* |  |  |
| Consider designing administration offices, maintenance and community facilities in a single structure |  |  |
| Not separate structures for management control and supervision |  |  |
| *3. Built-up Roofing System* |  |  |
| Consider standard hot asphalt 3 ply built-up roofing system designated at least for 10-year bonded warranties with galvanized metal flashing and gravel roof fill. |  |  |
| Other system – should meet comparable bonding requirements |  |  |
| Usually, flat roofs require roof fills and surface pitch for faster drainage ½” per foot or higher that usual designs of 1/8” per foot slopes |  |  |
| Higher slopes require lightweight concrete fills, 30 p.c.f. density, poured and finished. |  |  |
|  |  |  |
| E. GENERAL REQUIREMENTS | | |
| **E1. Critical Path Method** |  |  |
| Include the total contract time |  |  |
| Don’t include the clause for Compensation to the contractor for finishing the project ahead of schedule |  |  |
| **E2. Don’t Specify Equipment by Brand or Model** |  |  |
| Contract Documents Specification shall not specify use of equipment by brand or model |  |  |
| **E3. Electrical Drawing** |  |  |
| Must have the endorsements (permits) from PREPA |  |  |
| Include electrical meter banks vandal proof enclosures |  |  |
| PRTC, etc. |  |  |
| **E4. Construction by Phase** |  |  |
| Designer must specify that the contractor will work on building by phases, including site. |  |  |
| Inspection and approval will be performed at the end of each phase. |  |  |
| **E5. Study to Determine Presence of Contaminants** |  |  |
| Designers to coordinate and implement a complete study to determine the presence of contaminants such as lead base paint, asbestos, arsenic, etc. |  |  |
| This study must include detection and determination of toxic amount. |  |  |
| Contract shall provide specifications for the removal and disposal of the toxic materials. |  |  |
| Study must outline the mitigation strategy to be used. |  |  |
| All studies must be completed prior to the approval of the final documents. |  |  |
| **E6. Activity Center or Multi-purpose Room** |  |  |
| Designer must provide an Activity Center, or Multi-purpose Room, where required. |  |  |
| **E7. Propane Gas Facilities** |  |  |
| Propane gas facilities will not be provided. |  |  |
| **E8. Accessible Dwellings & Public Facilities for Physically, Hearing and Visually Impaired** |  |  |
| Contract Documents and Specification shall be in full compliance with section 504, Code of Federal Regulation (24 CFR), UFAS Retrofit Manual, ADA, ANSI, Adaptable Housing, etc. |  |  |
| **E9. Basic Documents** |  |  |
| Contract Documents shall include: |  |  |
| Existing Conditions Plans |  |  |
| Demolition Plans |  |  |
| Proposed Modernization Work for all categories and building types |  |  |
| **E10. Standards** |  |  |
| All units shall comply with current: |  |  |
| Housing Quality Standards (HQS) |  |  |
| Mandatory and Public Housing Modernization Standards (7485.2) Handbook |  |  |
| **E11. Early Completion Payment** |  |  |
| Contract documents will not contain an early completion payment |  |  |
| **E12. Navieras de Puerto Rico** |  |  |
| Contract documents will not contain the instruction to utilize Navieras de Puerto Rico for shipments when necessary. |  |  |

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sign: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_