DESIGN STANDARDS MANUAL

Single Family Rehab

ReBUILD METRO

Introduction

In order to support local efforts to rebuild abandoned homes, restore whole blocks, and revitalize neighborhoods, ReBUILD has developed this comprehensive document explaining the design and construction practices central to our scattered-site rehabilitation of abandoned single-family rowhouses. Through decades of analysis and refinement, we have continually honed these practices to achieve our goals of rebuilding these properties at the scale necessary to revitalize neighborhoods of East Baltimore without any displacement.

We believe that successful neighborhood revitalization transcends geographical boundaries, so we hope that this manual will be valuable to a variety of community organizations that share our goal of eliminating residential vacancy and driving the positive transformation of their communities—and that it will help advance innovation and collaboration within the community development realm. To make this guide accessible, adaptable, and replicable for a range of audiences within and beyond the construction industry, we have simplified and standardized our design and construction processes into digestible components and strived for uniformity.

In offering this resource, we hope we are continuing to do our part to support fellow practitioners and advocates of community change in our collective journey towards inclusive and sustainable neighborhood redevelopment that benefits both its new and legacy residents. We recognize that community development is most successful when practitioners are working in alignment for a common cause, in which shared knowledge and collective action can serve as a foundation for the creation of vibrant and resilient communities where every individual has the opportunity to thrive. We hope this manual can serve as a small part of advancing this cause.

ReBUILD's single-family rowhome rehabilitation process can be broken down into seven distinct steps, which are detailed in the ensuing pages.

STEP ONE: SITE SELECTION

Our first step is to identify a set of properties that a scattered-site redevelopment project will cover. To the greatest extent possible, ReBUILD uses a "whole-block" approach for redevelopment: rather than rehabilitating any available abandoned homes, we strategically target and uplift entire blocks at a time.

Our deliberate "whole-block" strategy stems from an overarching desire to stabilize entire neighborhoods and markets over the long term. If a rowhouse is renovated but remains surrounded by vacant properties, it will be more difficult to occupy and uplift the value of the completed unit, and it will be more likely to revert to abandonment in the future.

In selecting which block(s) to target and in sequencing redevelopment, we base our decision on several factors, such as the block's proximity to established neighborhoods (and thus stable housing markets), the feasibility of acquiring all vacant properties on that block (typically from a public or quasi-public entity), and the block's proximity to other past and current ReBUILD projects. Depending on the circumstances, this approach can involve acquiring and rebuilding blocks that are entirely vacant or targeting abandoned properties on blocks that are majority-occupied and relatively stable, where the redevelopment of just a few houses can be the difference between a stable "whole block" and a block on a trajectory of decline.

STEP TWO: PRELIMINARY PLANNING

Once we select a property/block or series of properties/blocks in a project, we draft a building plan and associated project budget. In completing this process, we consult a structural engineer, an architect, and other contractors for their expertise and proposals, so that we can achieve as accurate a projection of the project cost as possible and be certain of its financial feasibility given our projected funding.

The team will first make two decisions for each property: (1) whether to rehab or demolish and (2) the appropriate programs and end uses. We consider factors such as property and lot conditions, locations, desired uses (e.g., for-sale, rental), and importance of maintaining the integrity, history, and/or property values of the block. In this step, comments from the structural engineer, architect, and other contractors are particularly important. We also identify all required zoning variances, consolidations, or other changes that will need to be addressed.

During this phase, we also factor eligibility for historic tax credits into our rehabilitation and design decisions. The Federal Historic Preservation Tax Incentives program, the Maryland Historic Trust's State Historic Tax Credit, and Baltimore City's local historic preservation tax credit program, which is managed by the city's Commission for Historical and Architectural Preservation (CHAP), are the most common tax credits to consider. These tax credits offer financial benefits to a project (and to eventual homebuyers), but they also require developers to adhere to a series specific requirements for historic preservation throughout the rehabilitation process. ReBUILD often incorporates CHAP's tax credit program into its projects, so certain callouts concerning CHAP tax credit eligibility are included throughout this document.

Our final consideration in creating a project plan and budget is the project's timeline and phasing. For example, the project could be split into phases where one side of a block is completed before the other. Projects could also be split into separate phases for (1) stabilization, when the structural integrity of a property is secured to prevent further decay, and (2) fit-out, when mechanical, electrical, and plumbing rough-in; drywall; flooring; and finishes are installed. Through past experience, ReBUILD has often found that deploying resources in one uniform phase is more financially efficient; however, if we have concerns related to any urgent physical conditions of the properties, contrained financial resources, or delayed absorption in the real estate market, then phasing the timeline of the project around those concerns is appropriate.

STEP THREE: ACQUISITION AND PERMITTING

Step three of the rehabilitation process is to acquire the unit(s) in the project. Important details in the acquisition process include property title, property registration, and lien certificates. We often employ a general contractor (GC) that manages its projects and selects subcontractors, but, if so desired, we can also play this role. The aforementioned zoning variances and consolidation requests will be secured in this step, as will the appropriate permits.

STEP FOUR: DEMOLITION

Demolition is the first construction activity. We typically conduct light demolition, in which we remove abandoned personal property or unsafe materials, and we provide access to the structural engineer and architect so that they can finalize their plans and drawings. In some cases, total demolition is necessary, although mid-block demolitions are especially challenging. In these cases, a razing permit is required, which involves a list of required remediations and due diligence tasks. It may also be useful to coordinate with the local government to complete this task.

STEP FIVE: STABILIZATION

After demolition work is completed, stabilization may proceed. As mentioned, this step establishes the structural integrity of a property, which must be done in coordination with a structural engineer. It may include replacing joists, lintels, and basement concrete slabs; installing wall ties, star bolts, new roofing, and necessary sealants; repointing masonry work; and (re)framing. Temporary shoring of structural walls may also be required during this phase.

STEP SIX: FIT-OUT

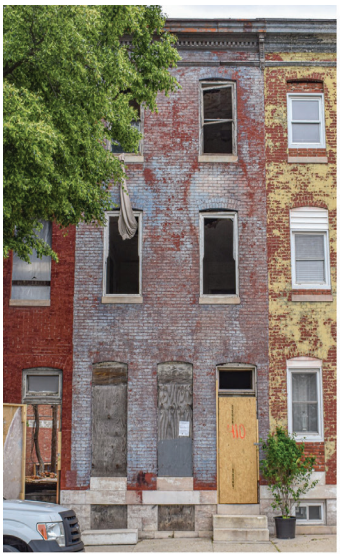
Fit-out is the final phase of active construction. This stage prepares the unit(s) for use and occupancy (U&O). This stage includes installation of all mechanical, electrical, and plumbing materials; insulation; windows; drywall; cabinetry and countertops; tile; flooring; and finishes.

STEP SEVEN: OCCUPANCY

The seventh and final step concerns filing for the U&O permit(s), selling or renting the unit(s), and completing inspections as well as necessary close-out tasks. In the case of rental use, ReBUILD turns the property over to the property management division to undertake leasing. In the case of a sale of the home, ReBUILD works with a licensed real estate agent to market the property and facilitate the sales process.

The remaining sections of this manual detail the construction and design standards applied to the demolition, stabilization, and fit-out (steps 4-6) of this overview.

DEMO & STABILIZATION





Safety Demolition/Clean-Out

To successfully document the existing conditions of any structure we seek to rehab and to understand its overall structural integrity, we remove personal property and unsafe elements before doing any other construction work. This process can include (but is not limited to) the removal of non-historic and non-structural material; collapsed and dangerous material; and shutting off any mechanical, electrical, and plumbing infrastructure.

Following a clean out, we ask our structural engineering team to fully document and asses the structure for any deficiencies and needs for immediate remediation. At the same time, our architects can use this phase to document the existing structure by accurately measuring overall dimensions, existing window dimensions, floor-to-floor heights, etc., allowing them to begin schematic drawings.

If we intend to apply for any Historic Tax credit benefits, we document any and all historic content at this phase of construction. We submit plans and elevations for approval to CHAP, MHT, and any other appropriate public departments. Once we receive approvals of all design and construction documents and a notice to proceed from the appropriate authorities, the documents become the binding basis of design, and we can commence any and all rehabilitation work. When a historic building is at risk of collapse or presents a threat to public safety, we request permission from the CHAP and/or MHT offices to undertake emergency stabilization measures.

Stabilization

Stabilization defines construction-related activities that bring the structure to a condition that is structurally stable and protected from the elements. This includes (but is not limited to) reframing the floors, roof, and exterior walls. At this stage, we often replace the water and sewer services and install a new basement slab. Completing stabilization forestalls further decay of the home, affording time to design, permit, and solicit bids for interior fit-out.

Besides preventing further decay, stabilizing a property or several properties at once prior to fit-out has several other benefits. First, it prevents any potential damage or loss to the interior and rough-in work upon completion. Second, it more quickly protects adjacent occupants from the hazards associated with living next to an abandoned home, improving their quality of life and their likelihood of staying in the neighborhood. Finally, stabilizing multiple properties at once can create the economies of scale necessary to attract high-capacity contractors at a more cost-effective price.

FLOORS / JOISTS / SUB-FLOOR

The primary floor structure comprises 2x10/2x12 dimensional lumber that is spaced according to the recommendations of the structural engineer. The joists form the primary structure of a property that span horizontally from wall to wall, along with plywood that forms the base layer of the floors.

Joists are typically connected to the masonry walls through pockets with concrete. Alternatively, ledger boards are anchored to masonry walls and the new floor joist are connected to these boards. The appropriate system must conform to the structural engineer's approved design and the associated construction documents.

EXTERIOR WALLS

Any new exterior walls are built on new foundations and framed with wood in accordance with the construction documents. The framed structure will then receive exterior grade sheathing followed by Tyvek or similar vapor barrier membrane prior to the application of the exterior facade materials.

The final exterior facade material conforms to the approved design. When rehabbing homes that are using historic tax benefits, exterior materials must be from an approved list of acceptable facade treatments by the appropriate authority.

FACADE RESTORATION

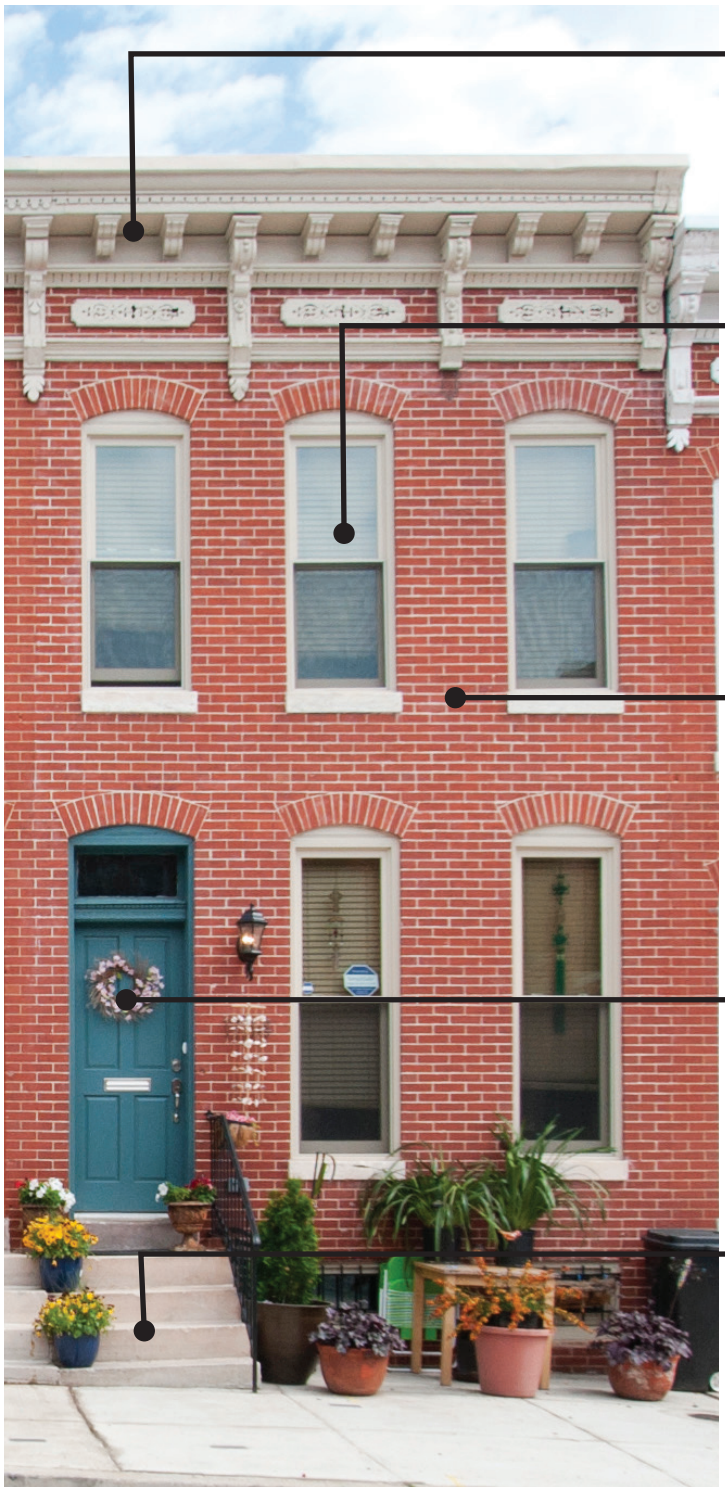
The degree and manner of repairing the front facade is based on whether or not the house has qualified for any historic tax benefits. The two commonly found facade conditions are brick or form-stone masonry. Removal of form-stone masonry will almost always require re-pointing and cleaning the original brick facade behind it.

Any historic cornice and ornamental features should be restored or recreated in accordance with historic guidelines and the scope of work as approved by the appropriate authority.

EXTERIOR DESIGN

Exterior design standards are subject to change based on components of each specific property. The extent of rehab required is based on factors such as historic status, structural condition, neighborhood design guidelines, and budget constraints. Is it best practice for facades on a contiguous blocks to have a sense of aesthetic continuity to maximize the ability to sell or reoccupy the units quickly and to increase the appeal of the neighborhood to its current residents.

Front Facade/Facia



CORNICE

The cornice is a decorative element at the top of the front facia of the house. In most cases, cornices are historic in nature and require restoration or reproduction, depending on historic compliance requirements for the property.

WINDOWS

All newly installed windows should comply with the historic requirements for the subject property. Wood or composite windows are required to comply with historic standards. When historic compliance is not required, Double hung vinyl windows may be used. New windows are either black or white, depending on the existing aesthetic of the surrounding block.

BRICK/FACIA STONE

Most rowhomes have existing brick facades, but some may have a secondary layer of form stone. When historic compliance is applicable, the form stone layer may be maintained or removed. An original brick facade will likely require re-pointing to ensure long-term stability.

FRONT DOOR & TRANSOM

The front entry door typcially has historic significance and may require historic restoration or reconstruction. In some cases, the door may have included a transom window, which must be recreated if required for historic compliance.

FRONT STEPS/MARBLE STOOP

Historically, most rowhomes have marble entry steps. When the original marble is still in place, stabilizing and regrouting is required. When the original steps are not present, new cast in-place broom finished concrete steps with a steel handrail can be used as a standard design.

Back Facade

PARAPET EDGE

When the back facade is recreated, there is typically no requirement to recreate a historic decorative feature. However, the color of the parapet edge should typically match the color of the windows of the front facia.

WINDOWS

Subject to applicable historic requirements, the back and side facades can incorporate vinyl windows.

FACIA CLADDING MATERIAL

Per applicable historic compliance requirements, the back facade must use the following material per the conditions below.

- If the original brick facade still remains, the same type of facade shall be restored/rehabbed.
- If the original facade does not exist but is known to have been historic in nature, the new wall shall be re-created in brick, a stucco, or a cementitious material (panel/plank)

BACK DOOR & TRANSOM

Unlike the front entry door, the back entry door will not have any historic restoration or reconstruction requirement, including their transom windows.

REAR STEPS

If needed, rear steps are typically framed with pressure-treated dimensional lumber and the appropriate code-required guard railings. Resting the steps on a stable concrete pad helps avoid any movement over time. Rear steps must also account for code minimum landing and swing clearances. If the design of the rear facades have any applicable historic significance, any elements must follow the appropriate guidelines.

INTERIOR FIT-OUT

The interior fit-out phase typically begins after ensuring that the primary structure is stable and adequately shielded from external elements. As previously noted, this precaution is vital to prevent any potential damage or loss to the interior and rough-in work upon completion. By safeguarding the structure from adverse weather conditions and other environmental factors, the integrity of the interior components is preserved, allowing for seamless progress in subsequent phases of construction.

Framing

INTERIOR FRAMING

Interior framing predominantly employs 2x4 and 2x6 dimensional lumber, with walls and ceilings framed according to the approved design and construction documents. Discrepancies between on-site conditions and documented specifications are not uncommon and should be resolved through collaboration between the design team and the general contractor to devise appropriate solutions. The completed framed structure serves as the framework for installing all infrastructure components, including mechanical, electrical, and plumbing systems, inside the walls before the close-in phase.

Rough-In

The rough-in phase of a project entails installing all the necessary service-related infrastructure within the walls and ceilings. These installations typically include, but are not limited to, heating/cooling, plumbing, electrical, low-voltage, and fire protection systems when applicable. Prior to closing in the walls and ceilings, it is imperative that all rough-in inspections be conducted and approved by the local authority's inspectors.

MECHANICAL ROUGH-IN

Mechanical systems refer to heating and cooling related services and infrastructure. The most commonly used systems are Ducted Forced-Air systems or Ductless Mini-Split systems. Both systems have indoors and outdoor infrastructure. Ducted systems have interior ducts, line-sets, a furnace or air handler, and an outdoor condenser unit. Ductless systems require no duct work inside but still need line sets, air handlers, and outdoor condenser units. It is good practice to a have a qualified HVAC professional recommend the appropriate size/tonnage of the systems(s) required to provide efficient and ample air supply and conditioning for each house.

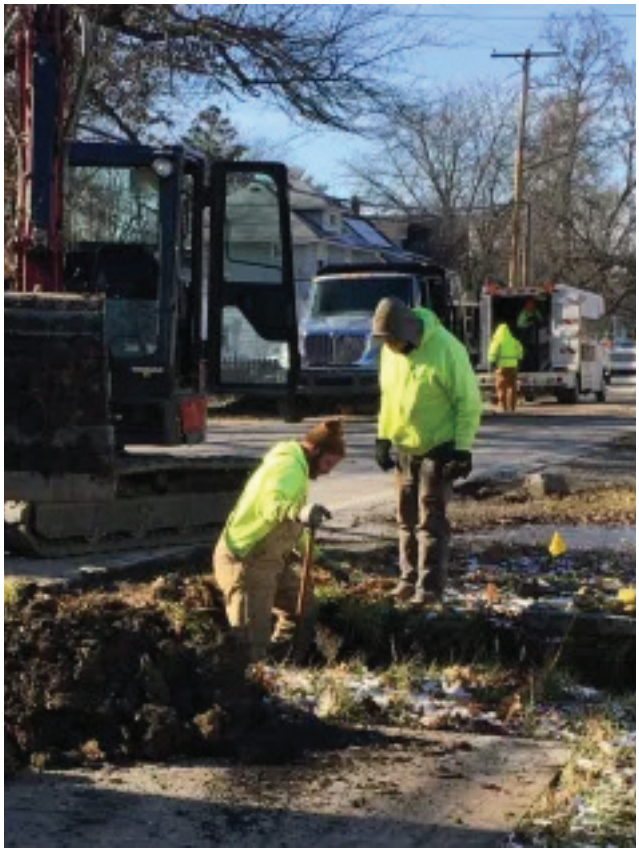
PLUMBING ROUGH-IN

Plumbing rough-in entails installation of systems behind and inside walls and ceilings to support supply of cold and hot water, drainage of gray-water and sewage, and venting of gaseous matter. PVC and C-PVC are the most commonly used materials for this work. Drainage lines terminate at a primary drainage line that connects to the main sewer connection from the public infrastructure. Water lines are always both hot and cold. The main source of water supply from the public infrastructure side is recommended to be copper. A plumbing professional should verify existing water pressure and the condition of existing water and sewer connections to the public side before construction begins.

ELECTRICAL ROUGH-IN

The electrical systems, encompassing both high-voltage and low-voltage components, are installed within walls and ceilings and culminate in a main "house panel." This panel serves as the penultimate link between the house and the public electric service. Completion of the electrical rough-in adheres to the specifications outlined in the drawings and local building/electric code requirements. The appropriate power capacity must be established to accommodate both the current and future demands of the project. Coordination for setting up service connections should be undertaken by an electrical subcontractor in conjunction with the local power supply company.

Utility Connections



Utility services typically include, but are not limited to:

- Electric Service (new service is critical and should be applied for early in the construction process).
- Gas Service (ReBUILD no longer uses gas appliances and will abandon any existing services).
- Water Service
- Sewer Connection

The entity responsible for providing these utility connections can be private or public, depending on location or jurisdiction. Electric service connections may be either overhead or underground, terminating at a house panel. Water and sewer connections, which are underground, require appropriate permits for the work and utilization of the public right-of-way; typically performed by a third-party utility contractor, these connections are critical components of the infrastructure. Also, water service should be requested as early as is practical. Gas service connections terminate at a gas meter in an easily accessible area.

It is advisable to maintain a 3 feet x 3 feet clear area (wall and floor) around all incoming service connections to accommodate any future maintenance or modifications that may be necessary.

Insulation & Close-in

Upon completion and approval of all rough-in work by local inspectors, the project can move to the insulation and close-in phase. Insulation installation adheres to the required standards established by the local authority. Two main insulation systems are commonly utilized: spray foam insulation, which offers superior efficiency albeit at a higher cost, and loose/batt-insulation, which is more widely used but comparatively less efficient.

Building code mandates insulation primarily for building faces directly exposed to the exterior. Close-in entails the installation of drywall and other finishes to enclose the walls and initiate finishing. Drywall installation adheres to specified wall type details outlined in the construction documents, ensuring compliance with local building and fire code specifications. Additional finishes include flooring, tile, countertops, cabinets, trim, etc.

The insulation and close-in phase marks a crucial transition in the project's progression, setting the stage for the refinement of its structural integrity and aesthetic appeal. During this stage, meticulous attention to detail is paramount, ensuring that every aspect of the installation meets the highest standards of quality and compliance with regulatory requirements.

Trim-out

The trim-out stage encompasses the installation of all fixtures and hardware on exterior surfaces or finishes. During this phase, various trades reconvene to install final fixtures, including light fixtures, fire/life safety devices, switches/controls, as well as hard surface finishes such as stone and tile, plumbing fixtures, and appliances. This stage initiates the completion process of a project, providing an opportune moment to conduct quality checks and rectify any errors that may arise.

Additionally, the trim-out stage serves as a critical juncture for ensuring the seamless integration of all finishing touches, enhancing both the aesthetic appeal and functional efficacy of the project. It offers a prime opportunity for attention to detail, allowing for thorough inspections to guarantee that the project aligns precisely with the envisioned standards of excellence.

U&O | Occupancy

To legally occupy a formerly vacant dwelling or completed project, it is necessary to obtain a Use & Occupancy (U&O) certificate. This process entails the final inspection and approval of the project by the appropriate department or inspector. Occupancy of any dwelling is permissible only upon receipt of this final inspection and certificate. The property becomes eligible for sale or rental once the certificate has been obtained.

The steps laid out in this document offer a road-map for rehabilitating single-family rowhome projects, encompassing various phases that are essential for success. While each scattered-site rehab project presents unique challenges and hindrances along the way, community developers can use these guidelines to help navigate the complexities of renovation while mitigating potential obstacles. We hope this comprehensive approach is a solid foundation for efficiently and effectively restoring abandoned rowhouses into new homes.