

HRA Design Standards Version 7 – Updated September 2013

The outline of the design standards mirrors CSI division outline.

All projects are required to achieve Enterprise Green Communities certification.

See the following link for more information about Enterprise Green Communities criteria and certification:

<http://www.enterprisecommunity.com/solutions-and-innovation/enterprise-green-communities/criteria>

Design Preference	Rehabilitation	New Construction
Bedrooms	3 or more bedrooms preferred	- Same requirement as Rehabilitation
Visitability	<ul style="list-style-type: none">- Prefer one no-step entrance- Prefer 32-inch doorway openings throughout the unit (does not include closet doors)- At least one half bathroom on the main level must meet the minimum clearance criteria	- Visitability standards listed under Rehabilitation are required
Front Porch	<ul style="list-style-type: none">- Repair existing porches when cost reasonable- Open front porch preferred for all homes	- Open front porch required
Duplex Deconversions	- It is preferred to remove entry to second unit to discourage future conversion to duplex	N/A

General Requirements (Division 1)	Rehabilitation	New Construction
Energy Efficiency	<ul style="list-style-type: none">- HERS audit must be conducted before construction begins and after construction is complete- Incorporate specifications from an ENERGY STAR rater into Division 7 and 15- Participate in Xcel Energy's Home Performance with ENERGY STAR program- Ensure use of Xcel Energy qualified insulation subcontractor or supervision from Xcel Energy qualified general contractor- Contractors must contact an ENERGY STAR rater for an inspection when insulation is complete prior to sheet rocking/painting	<ul style="list-style-type: none">- HERS audit must be conducted before construction begins and after construction is complete- Incorporate specifications from an ENERGY STAR rater into Division 7 and 15- Comply with ENERGY STAR for Homes Version 3- Ensure use of Xcel Energy qualified insulation subcontractor or supervision from Xcel Energy qualified general contractor- Contractors must contact an ENERGY STAR rater for an inspection when

		insulation is complete prior to sheet rocking/painting
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Existing Conditions (Division 2)	Rehabilitation	New Construction
Remove volunteer brush	- Remove trees or bushes (generally sized 6' or smaller for this line item) that do not aesthetically contribute to the landscape, are in poor condition, or are maintenance concerns	- Same requirements as Rehabilitation
Remove overhanging trees	- Remove branches that overhang structures, completely remove if recommended by the Saint Paul Forestry Department	- Same requirement as rehabilitation
<i>Environmental Hazard Mitigation</i>		
Lead	- <u>Abate all lead</u> identified in risk assessment through HUD approved abatement methods - Ensure use of Minnesota Department of Health (MDH) qualified subcontractor or general contractor for abatement activity - Lead clearance test required at end of construction	- N/A
Asbestos	- Remove all actionable asbestos identified in asbestos report - Ensure use of MDH qualified asbestos abatement subcontractor/general contractor	- N/A
Radon	- Required: install radon ventilation system when radon test results indicate actionable radon levels in lowest occupied space (usually basement) - Ensure use of MDH qualified radon remediation subcontractor/general contractor - Ventilation system must be installed in a chase or closet to reduce visibility - When necessary to vent radon through the side of basement walls on the exterior of the house, the radon vent must be located so it is not visible from the street and is as inconspicuous as possible	- Install passive radon-resistant features below the slab; install a vertical vent pipe with junction box within 10 feet of an electrical outlet, in case an active system should prove necessary in the future. - Once building shell is sealed, test to determine if an active system is necessary, install active system if necessary - Ventilation system must be installed in a chase or closet to reduce visibility - When necessary to vent radon through the side of basements walls on the exterior of the house, the radon vent must be located so it is not visible from the street and is as inconspicuous as possible

Concrete (Division 3)	Rehabilitation	New Construction
Garage slab/apron	- Repair slab for existing garages to ensure uniform appearance free from significant deterioration, cracks	- N/A
Basement floor	- Patch to achieve sweepable finish and address trip hazards - Fill water meter pit when present	- Solid surface basement floor preferred

Masonry (Division 4)	Rehabilitation	New Construction
Foundation Walls	- Tuckpoint interior and exterior of existing foundation walls; ensure moisture protection through parge coat and/or 2 coats of waterproofing masonry paint, depending on type and condition of foundation wall	- If remains of a foundation exist on an otherwise vacant lot, demolish remains and build a new foundation
Chimneys	- Preferred removal of chimneys that have no functional or historic purpose and patch roof or reframe area - Tuckpoint chimneys that have a functional or historic purpose	- N/A
Glass Block, non-eegress Windows	- Glass unit masonry window with vent for basement windows and bathroom windows located in shower	- Same requirement as Rehabilitation

Metals (Division 5)	Rehabilitation	New Construction
Decorative Metal Railings	- Provide metal handrails for stairs	- Same requirement as Rehabilitation

Woods, Plastics, and Composites (Division 6)	Rehabilitation	New Construction
ROUGH CARPENTRY		
Garage	- 1-1/2 car garage is permissible when site constraints are present - Detached, two-car garage is preferred, - Attached garages shall include ventilation separation from home and CO monitor - Note code requirement for fire rated walls when garages are within 5' of another structure.	- Same requirement as Rehabilitation

FINISH CARPENTRY		
Trim Work	<ul style="list-style-type: none"> - Each room shall consist of complementary base board, window, and door trim - Existing wood trim and molding shall be saved and restored whenever possible - Painted trim shall be restored to smooth, like new appearance. Significantly gouged, deteriorated, or poor quality trim that cannot be restored to like new appearance should be replaced with paint grade quality trim boards of a like character to existing trim or to match time period of house - Include finishing of trim in Division 9 	<ul style="list-style-type: none"> - Each room shall consist of complementary base board, window, and door trim - Include finishing of trim in Division 9

Thermal Insulation (Division 7)	Rehabilitation	New Construction
Siding	<ul style="list-style-type: none"> - Replace asbestos siding when damaged or in need of repair - Replace vinyl siding when more than 10% of vinyl is damaged or color matching will be a challenge, cement board siding is preferred replacement material (include cement board corner boards) - Ensure that any treatment meets lead abatement requirements if lead is present - When existing siding cannot be salvaged, replacement siding material shall have expected lifespan that exceeds 20 years - Note special requirements in historic homes/districts when applicable 	<ul style="list-style-type: none"> - Siding material with an expected lifespan that exceeds 20 years - Cement board siding is preferred - Note special requirements in historic homes/districts when applicable
Roofing	<ul style="list-style-type: none"> - Replace roof that is 10 years or older or that will have questionable ability to last 20+ years - Ensure installation of water and ice shield and replace all flashing as component of roof replacement - Replacement roof shingles to have a 30 year expected lifespan - Note special requirements in historic districts for roofing material, color, etc. if applicable 	<ul style="list-style-type: none"> - Shingles with a 30 year expected lifespan - Note special requirements in historic districts for roofing material, color, etc. if applicable - Ensure installation of water and ice shield
Gutters	<ul style="list-style-type: none"> - Install seamless gutter with a leaf cover, downspouts, splash blocks, that divert water at least 3' and preferably 6' from foundation - Do not locate downspouts on a street-facing façade of the building - Preferred: coordinate gutters to complement installation of rain garden on site 	<ul style="list-style-type: none"> - Same requirements as Rehabilitation - Preferred: coordinate gutters to complement installation of rain garden on site (if applicable)

Openings (Division 8)	Rehabilitation	New Construction
Exterior Doors	<ul style="list-style-type: none"> - Full or half view for rear door - Decorative glass or window high on door for front entry 	- Same requirements as rehabilitation
Interior Doors	<ul style="list-style-type: none"> - Replace interior doors that cannot be repaired to like new condition, replacement doors shall match the style of existing doors - When all doors are replaced, match replacement doors to the style of trim in the house - All interior doors shall be solid core and have some panel detail (number of panels dependent upon house character) 	<ul style="list-style-type: none"> - Ensure all interior doors are of the same style and match the style of the trim in the house - All interior doors shall be solid core
Door Hardware	<ul style="list-style-type: none"> - Existing hardware may remain if it latches securely, matches throughout the house, and is in clean, like new condition - Replace door hinges that do not match door handles/knobs 	- All door hardware should match (hinges, handles, etc.) and match character of the house
Windows	<ul style="list-style-type: none"> - Replace poor condition or lead based paint positive windows with ENERGY STAR rated low-E insulated double pane windows - Fully encapsulate window jamb if lead based paint is present - Provide sash locks and lift for all window units - Note special requirements in historic homes/districts when applicable 	<ul style="list-style-type: none"> - ENERGY STAR rated low-E insulated double pane windows required - Provide sash locks and lift for all window units - Note special requirements in historic districts when applicable - Ensure window in each bedroom meets egress policy of 20" in width, 24" in height, and at least 5 square feet of glazed area, with finished sill height of no more than 48" - Modify window opening as needed in otherwise code compliant bedrooms to ensure egress standard is met.

Finishing Materials (Division 9)	Rehabilitation	New Construction
Flooring		
Ceramic Tile	- 50% recycled content	- Same requirement as Rehabilitation
Linoleum Product	- 2.0 mm thick sheet minimum	- Same requirement as Rehabilitation
Carpet	- Soft nylon with stain protection, bcf texture carpet, 40 oz. weight, 1/10 gauge	- Same requirements as Rehabilitation

Hardwood	<ul style="list-style-type: none"> - Refinish existing hardwood floors whenever present - If installing new hardwood floors, use alternate to clearly communicate price difference with wood laminate flooring 	<ul style="list-style-type: none"> - If installing new hardwood floors, use alternate to clearly communicate price difference with wood laminate flooring
Wall/Ceiling Finishes		
Low VOC caulk/sealant	- Required throughout	- Same requirement as Rehabilitation
Exterior Paint Selection	- Exterior paint: ensure door and window trim (trim color), house body (body color), and entry door (accent color) each has complementary color	- Same requirements as Rehabilitation
Knockdown Finish	- No knockdown finish or texture is allowable in kitchen or bathroom	Same requirement as Rehabilitation
Lead Paint Encapsulation	<ul style="list-style-type: none"> - HUD approved encapsulating paint is required when painting lead positive surfaces - Ensure all lead based paint positive surfaces that are not removed or enclosed receive an encapsulating paint application 	- N/A
Wood Finishes	- Low VOC stains and polyurethane is preferred	- Same requirement as Rehabilitation
Ceramic Tile	- Ceramic tile tub surrounds are preferred	- Same requirement as Rehabilitation

Equipment (Division 11)	Rehabilitation	New Construction
Appliances	<ul style="list-style-type: none"> - Stainless steel appliances preferred - Dishwasher: 24" 2 cycle, built-in ENERGY STAR labeled dishwasher must be CEE Tier 2 or higher, with a minimum Energy Factor of 0.68 or greater, and a maximum annual energy use of 325 kilowatt hours or less (plumbing supply in Division 15, Electric supply in Division 16) - Refrigerator: 21 cu ft., ENERGY STAR labeled (Electric supply in Division 16) - Microhood: Must be vented to exterior and sized to fit over range (Venting in Division 15, Electric supply in Division 16) - Clothes Washer: ENERGY STAR rated, full sized, clothes washer, must have a Modified Energy Factor (MEF) of 2.0 or greater and Water Factor (WF) of 6.0 or lower, include all set up, water and drain hoses, leave unit ready to use, front load preferred (Plumbing supply Division 15, Electric supply Division 16) - Clothes Dryer: High efficiency gas dryer with a 7.0 cubic ft. capacity, a sensor dry system, and 5 temperature levels - High, Medium High, Medium, Low, Ultra Low (Venting, 	<ul style="list-style-type: none"> - Same requirements as Rehabilitation

	Gas supply in Division 15)	
Overhead Garage Door Opener	- Provide automatic overhead garage door opener with two remotes	- Same requirement as Rehabilitation

Furnishings (Division 12)	Rehabilitation	New Construction
Cabinets	<ul style="list-style-type: none"> - Plywood box construction, solid wood face and frame with dovetail drawer joinery - Provide knobs and pulls for all cabinets, even when finger grooves exist - Include crown molding for cabinets when they are not installed flush with the ceiling - In small kitchens (less than 90 sq. ft.) use higher wall cabinets or floor to ceiling utility cabinets to maximize storage space 	- Same requirements as Rehabilitation
Address	- Address numbers may not be reflective and/or stickers	- Same requirements as Rehabilitation

Plumbing (Division 22)	Rehabilitation	New Construction
Rough Plumbing		
Water Service	<ul style="list-style-type: none"> - Replace all galvanized steel with pex or equivalent - It is preferred to “stack” plumbing as much as possible - It is preferred to locate plumbing chases within conditioned, non-exterior wall cavities - If water meter is located in pit, raise out of pit and fill in hole (see Concrete Division 3) - Air test system and ensure proper function per code requirements - Water meters must be newer model – check with SPRWS to ensure meter has been replaced 	<ul style="list-style-type: none"> - It is preferred to “stack” plumbing as much as possible - It is preferred to locate plumbing chases within conditioned, non-exterior wall cavities - Air test system and ensure proper function per code requirements
Exterior Hose Bibb	- Ensure one exterior hose bibb with frost protection, caulked and connected to house	- Same requirement as Rehabilitation
Plumbing Fixtures		
Kitchen Sink	- Double bowl, 9” depth, stainless steel sink preferred	- Same requirement as Rehabilitation
Vanity Top	- Provide splash blocks when vanity abuts wall	- Same requirements as Rehabilitation
Sewer/system clean out	- Ensure sewer/floor drains are snaked and properly functioning at the end of construction	- Same requirement for New Construction
Gas Service	<ul style="list-style-type: none"> - Provide gas service for all equipment installed, update system to code requirements - If existing system will remain, include statement about testing system to ensure proper function per code requirement 	- Provide gas service for all equipment installed, per code requirements

HVAC (Division 23)	Rehabilitation	New Construction
Heating	- Provide heating system per energy efficiency recommendations	- Forced air heating systems are preferred for new construction and should meet an efficiency rating of 95% AFUE
Air Conditioning	- Preferred: provide for houses with forced air heating per energy efficiency recommendations, preferred for houses with forced air and with boiler heating systems	- Provide for houses per energy efficiency recommendations - Ensure system meets the guidelines to achieve ENERGY STAR Qualified Home certification
Ventilation	- Provide ventilation for bath fan, stove, clothes dryer to exterior of house and provide roof ventilation per energy specifications	- Same requirement as Rehabilitation
*Ensure testing and verification that all systems are in proper working condition upon construction completion		

Electrical (Division 26)	Rehabilitation	New Construction
Circuit Panel	- 100 AMP service minimum; 200 AMP preferred - Service should allow for expansion of added circuits - Include circuit breakers and dedicated circuit for major appliances such as refrigerator, washer, dryer, furnace - Service panels must be updated to breakers	- Same requirements as Rehabilitation
Outlets	- <u>Grounded, 3-prong outlets throughout</u> - GFCI protection per code in bathrooms and kitchen - Ensure one exterior outlet with outlet cover close to front or rear entry door	- Same requirement as Rehabilitation
Receptacles/Covers	- Replace switches, switch plates, outlets, and receptacle plates that are in poor condition throughout the house	- Same requirement as Rehabilitation
Lighting	- Light fixtures to match throughout house - Ensure all lights have CFL bulbs - When bulbs are visible in fixture, install globe style CFL - Ensure minimum of: 2-bulb fixture in all rooms, vanity light sized to vanity, exterior light at all entry doors, motion sensor on garage	- Same requirements as Rehabilitation
Door Bell	- Ensure operable door bell and chime at front entry	- Same requirement as Rehabilitation

Electronic Safety and Security (Division 28)	Rehabilitation	New Construction
Alarm/CO detector	- Provide new combination smoke and CO detectors per code	- Same requirement as Rehabilitation

Earthwork (Division 31)	Rehabilitation	New Construction
Grading	- Ensure drainage away from foundation (at least 1' to 4' away from building and drainage into rain gardens per site plan)	- Same requirement as Rehabilitation

Exterior Improvements (Division 32)	Rehabilitation	New Construction
Fences and Gates	- 6' privacy fences are allowable when screening is needed in rear or side yards due to a market concern or other defensible cause	- Same requirement as Rehabilitation
Sod	- It is preferred to till and re-sod the entire yard - If existing turf is in very good condition, it is acceptable to replace sod in disturbed areas only up to a natural break (i.e. all sod in side yard, all sod in front yard) - Overseed remainder of yard and ensure that transition from new sod to existing grass is seamless	- Entire lot to receive sod
Planting	*Developers are encouraged to engage Capitol Region Watershed District (CRWD), who will provide free landscape design and contribution toward cost of rain garden installation *See plant recommendations developed by CRWD and Saint Paul Forestry	
Retaining Wall	- Avoid when possible - It is preferable to leave the yard sloped and install plants/mulch to avoid future maintenance costs for a homeowner - If over 2' height, include drawing of proper installation	- Same requirements as Rehabilitation
Sidewalk	- Ensure functional 3' wide sidewalk from front sidewalk to front door, from front door to rear door, and from rear door to garage - Replace sidewalk panels or entire sidewalk when deteriorated or when grading is necessary	- Ensure functional 3' wide sidewalk from front sidewalk to front door, from front door to rear door, and from rear door to garage
Stoop/Stairs	- Provide from front sidewalk to finished grade at front door or to replace existing stoop/stairs - Landings can either be wood or concrete - Ensure inclusion of metal handrail in Division 5 when concrete stoop/stairs provided	- Same requirements as Rehabilitation

Improvements that are not typical and require approval from HRA project manager:

- Finishing unfinished basements
- Finishing unfinished attics
- Solar panels or solar water heater
- Radiant in floor heat
- Vinyl flooring
- Granite countertops

Improvements that are not permissible include:

- Hot tubs, saunas, swimming pools, or similar luxury improvements
- Mahogany, walnut, cherry, or similar luxury grade wood cabinets, floors, and doors
- Luxury grade lighting exceeding \$100 per fixture
- Luxury landscaping such as paver patios, in-ground fireplaces, outdoor kitchens, or extensive landscaping lighting
- Garage or outbuildings that exceed basic code requirements or are larger than 3 stalls
- Additions to existing houses

Landscaping Design Guidelines

These design guidelines were cooperatively created with the Capitol Region Watershed District, the Forestry Unit of the Saint Paul Department of Parks and Recreation, and the Saint Paul Department of Planning and Economic Development to achieve stormwater retention, tree canopy, and neighborhood stabilization objectives detailed in the Saint Paul Comprehensive Plan.

Developers are encouraged to engage the Capitol Region Watershed District to conduct landscape designs. Benefits include:

- Free landscape design created by landscape architect in consultation with developer
- Rebate of up to \$1,000 for materials needed to achieve rain garden installation on site (at least one rain garden required for rebate to apply)
- CRWD will coordinate with the Saint Paul Forestry Unit to select trees that are best suited for individual site conditions and ensure existing site trees are assessed for health

Mandatory Design objectives:

- Partial stormwater retention of the first ½” of rain events will be accomplished through rain gardens
- Curb appeal will be enhanced through foundation plantings or rain gardens in the front yard
- Spaces that are challenging to mow (i.e. between sidewalk and foundation, slopes, etc.) will have a garden bed (preferred) or no-mow grass solution
- Plants selected will be low maintenance and high impact, with a showy element of large blooms or seasonal color
- Garden beds should utilize “cues of care” design principles to indicate garden beds are planned spaces

Existing Conditions/Grading Plan

- Show impervious surfaces: sidewalk, driveways, buildings, porches, decks
- Show existing trees or large shrubs – indicate whether they will remain or be removed
 - For trees that will remain, indicate tree protection zones to protect roots from damage caused by regrading (cut or fill) or compaction caused by construction equipment or the storage of construction materials and exclude these activities from the tree protection zone.
- Show garden beds that will be removed
- State if any additional items will be removed (i.e. pavers, fences, etc.)

Improvements

- Show impervious surfaces: sidewalk, driveways, buildings, porches, decks
- Show locations of garden beds, include plant locations by type
- Shade or indicate areas that will receive new sod (generally all areas significantly regarded up to a natural “break” in the landscape such as sidewalks, garden beds, or fences will receive new sod).
- Include plant schedule that states the quantity, name, and size of each plant
- Show site grades if any regrading is required
- Show location of downspouts
- Rain garden design should include location, size, source of water, and plant locations by type
- Show edging or retaining walls, if provided
- List instructions for how to achieve planting and include a side section of a typical rain garden
- Include 1-2 trees per site if none are currently present; consider a tree in the rain garden if feasible and visually appealing

Plant selection

- Each site will have at least one, preferably two, healthy trees
- There should be a minimum of 3-6 different types of plants on each site (not including trees)
- Each garden should be defined with mature plants (size #1 or above)
- Plugs are acceptable in rain gardens, side yards, or back yard to fill in a garden space in order to meet budget constraints. Plugs should be used minimally or not at all in front garden beds in order to achieve the curb appeal objective
- Plants shall be selected from the attached approved plant list
- Trees must be spaced to limit future maintenance issues: at least 10’ from houses or garages or more depending on the width of the tree canopy

Preferred Plants

Perennials

- *Butterfly Milkweed
- *Purple Coneflower
- *Coral Bells
- *Blue Flag Iris
- *Copper Iris
- *Peony
- *Smooth Phlox
- *Orange Coneflower 'Goldsturm'
- *Autumn Joy Sedum
- Columbine
- Lady Fern
- Spiderwort
- Purple Dome Aster
- Solomon's Seal
- Hosta

Shrubs

- *Dwarf Bush Honeysuckle
- *Smooth Hydrangea
- Spirea
- American Arborvitae
- Black Chokeberry
- Winterberry

Shrubs for Screening Adjacent Property

Only recommended when screening adjacent property is needed: typically grow up to 12' tall, maintenance should be considered.

- Red osier dogwood
- Viburnum lentago
- Compact American Highbush Cranberry
- Forsythia (nn - but showy)

Grasses

- *Prairie Dropseed
- Pennsylvania Sedge
- Long-beaked Sedge
- Sprengel's Sedge
- Blue grama
- Sideoats grama
- Junegrass
- *Little Bluestem

Preferred Trees

Trees

Small-up to 20'

- Hawthorne, Thornless
- *Pagoda Dogwood
- Snow Mantle Dogwood
- *Viburnum, Nannyberry Tree
- Crabapple- *limit use, widely planted on boulevard*

Small-up to 30'

- *Serviceberry, Autumn Brilliance
- Blue Beech-Carpinus
- Cherry-Spring Wonder (nn)
- Birch-Dakota Pinnacle (nn)
- Japanese Tree Lilac-*limit use, widely planted on boulevard*

Medium to 40'

- Regal Prince oak-tall but narrow
- Alder, Prairie Horizon (nn)
- Honeylocust, Northern Acclaim- *limit use, widely planted on boulevard*

Large

- *Birch, River
- Birch, Prairie Dream paper birch
- Kentucky coffee tree
- Bur oak
- Red oak
- Balsam Poplar
- White pine
- Honey locust, Skyline – *limit use, widely planted on boulevard*
- Basswood, Sentry Linden – *limit use, widely planted on boulevard*

(nn)= non-native

(*) = preferred