# DRIFTLESS VILLAGE

## Design Blueprint

30-Home Micro-Village | Dubuque, Iowa

Prepared by Huxley Technologies Inc. for Deb Hooks LLC

March 2026

Concept Visualization: Aerial View of Driftless Village

# 1. PROJECT OVERVIEW

## Site Overview

- 30-home micro-village subdivision on 10–15 acres in Dubuque, Iowa (Driftless Region)
- Client: Deb Hooks LLC | Prepared by: Huxley Technologies Inc. | Climate Zone 6A (Cold-Humid)
- Price range: $250K–$450K (sweet spot $320K–$420K)
- Design philosophy inspired by Christopher Alexander's A Pattern Language
- 3 clusters of ~10 homes each, 50–60% open space preserved, 2.5 DU/acre gross density

## Zoning Strategy

- PUD-PR (Planned Unit Development – Planned Residential) + CHD (Corridor Heritage District)
- Conservation subdivision overlay = 110 combined bonus points
- PUD allows flexible setbacks, mixed lot sizes, shared amenities

## Concept Summary

Driftless Village is a walkable, energy-efficient micro-village designed to fill a critical gap in the Dubuque housing market. The project combines warm regional modernism, shared geothermal infrastructure, and intentional community design to deliver a distinctive lifestyle at 30–50% below comparable communities in the Upper Midwest.

| Parameter | Specification |
|---|---|
| Total Site | 10–15 acres |
| Homes | 30 (3 clusters × 10) |
| Open Space | 50–60% of site |
| Home Size | 1,400–1,900 SF |
| Price Range | $250K–$450K |
| Target Density | 2.5 DU/acre |
| Climate Zone | 6A (Cold-Humid) |
| Zoning | PUD-PR + CHD overlay |

## 2. SITE PLAN SPECIFICATIONS

### Cluster Layout

- 3 clusters of ~10 homes each arranged around shared courtyards
- Homes oriented inward toward shared courtyards and green spine
- Staggered positioning — no living room window faces neighbor's bedroom
- Pedestrian green spine (20–30 ft wide landscaped commons) as village "street"
- Single loop entry road from public street

### Setbacks & Lot Dimensions

| Element | Dimension | Notes |
|---|---|---|
| Front Setback | 10 ft | CHD minimum |
| Side Setback | 5 ft | PUD flexible |
| Rear Setback | 10 ft | Standard |
| Cluster Courtyard | 4,000–6,000 SF | Per cluster |
| Open Space per Unit | 400 SF minimum | Required contribution |

### Streets & Circulation

| Element | Specification | Notes |
|---|---|---|
| Entry Road | Single loop from public road | No through-traffic |
| Woonerf Cartway | 20–22 ft width | 8 mph target speed |
| Traffic Calming | Every 160 ft | Bollards, chicanes, textured paving |
| Rear Service Alleys | 12–14 ft width | Garage access |
| Green Spine | 20–30 ft wide | Landscaped pedestrian commons |

Concept Visualization: Aerial View — Three Cluster Layout with Loop Road

## 3. HOME ARCHITECTURE

### Massing & Style: Warm Regional Modernism

- Asymmetric gabled volumes — primary gable + secondary shed/wing volumes
- Roof pitch: 4:12 to 6:12 (supports solar, manages snow load)
- Simplified rooflines — fewer dormers, clean sculptural gable forms
- Layered silhouette: porch roof at lower pitch than main roof
- Living area: 1,400–1,900 SF (market sweet spot per NAHB 2025 data)

### Floor Plan Requirements

- Dedicated home office room with door (not flex room) — fiber conduit pre-run
- No-step entry option on select units (active adult market)
- Kitchen as spatial hearth — central gathering space
- Private interior courtyard pocket (tsuboniwa concept) oriented away from neighbors
- Engawa-inspired covered porch: material continuity between interior and exterior flooring

### Front Porch Specifications

| Specification | Value |
|---|---|
| Setback from Path | 8–12 ft |
| Porch Elevation | 18–30 inches above grade |
| Minimum Porch Depth | 6 ft (8 ft preferred) |
| Function | Semi-public threshold between shared path and private entry |
| Entry Sequence | Shared path → private garden → porch → interior |

Concept Visualization: Premium Tier Home — Yakisugi Charred Cedar with Limestone Base

## Two-Tier Material Strategy

| Tier | Price Range | Primary Cladding | Colors | Cost |
|---|---|---|---|---|
| Base Tier | $250K–$350K | James Hardie board-and-batten | Charcoal, warm black, deep green | $6–$18/SF |
| Premium Tier | $380K–$450K | Yakisugi / Shou Sugi Ban charred cedar | Natural charred finish | $13–$27/SF |

- Premium tier: 5–8 of 30 homes (corner lots, high-visibility positions)
- Suppliers: Nakamoto Forestry (authentic sugi), Pioneer Millworks (PEFC Larch)
- Yakisugi: 100+ year lifespan, maintenance-free, fire/water/insect resistant

Concept Visualization: Base Tier Home — Hardie Board-and-Batten with Timber Porch

## 4. MATERIALS SCHEDULE

### Complete Materials Table — All 30 Homes

| Component | Product | Specifications | Cost | Supplier |
|---|---|---|---|---|
| Cladding (Base) | James Hardie board-and-batten | Fiber cement, dark tones | $6–$18/SF | James Hardie |
| Cladding (Premium) | Yakisugi / Shou Sugi Ban | Charred Japanese cedar or PEFC Larch | $13–$27/SF | Nakamoto Forestry, Pioneer Millworks |
| Roofing | Standing seam metal | Black/dark charcoal, 40–70 yr lifespan | Per supplier | Regional |
| Windows | Aluminum-clad casement/awning | Black frames, triple-pane, U≤0.22, SHGC≥0.25 | Per supplier | Kolbe, Marvin, Sierra Pacific |
| Stone Accent | Driftless limestone | Silurian dolomite — foundations, walls, chimneys | Local pricing | Dubuque quarries |
| Timber Accents | Douglas fir / white oak | Exposed beams at entries and porches | Per supplier | Regional |
| Air Barrier | ZIP System R-sheathing | Structural sheathing + integrated WRB + tape | Per supplier | Huber Eng. Woods |
| Sealant | AeroBarrier spray-in-place | Target 1.0–1.5 ACH50 | Per application | AeroBarrier |
| Insulation (Walls) | Mineral wool + ZIP R | R-40 continuous assembly | Per supplier | Rockwool / Huber |
| Insulation (Attic) | Blown cellulose / spray foam | R-60 target | Per supplier | Regional installer |
| Insulation (Sub-slab) | XPS rigid foam | R-10 | Per supplier | Owens Corning / DOW |

### Color Palette

- Charred black (yakisugi) + warm buff/gray (limestone) + dark metal roof
- Deep earth tones on Hardie siding — no white farmhouse aesthetic
- Black window frames throughout for visual unity

## 5. BUILDING ENVELOPE & HVAC

### Insulation Targets (Climate Zone 6A)

| Component | R-Value | Method |
|---|---|---|
| Ceiling / Attic | R-60 | Blown cellulose or spray foam |
| Walls | R-40 | 2×6 stud + continuous exterior (ZIP R-sheathing + mineral wool) |

| Component | R-Value | Method |
|---|---|---|
| Sub-slab | R-10 | XPS rigid foam |
| Foundation Walls | R-15 | Rigid foam exterior or spray foam interior |

## Air Sealing & Windows

| Parameter | Specification |
|---|---|
| Target Air Tightness | 1.0–1.5 ACH50 (verified by blower door test) |
| Primary Seal Method | AeroBarrier spray-in-place sealant |
| Secondary Seal | ZIP System sheathing tape at all seams |
| Ventilation Req. | HRV required at this tightness level |
| Window Glazing | Triple-pane recommended for CZ6 |
| Window U-factor | ≤0.22 |
| Window SHGC | ≥0.25 (balance heat loss vs. passive solar gain) |
| Window Frame | Black aluminum-clad casement/awning (Kolbe, Marvin, Sierra Pacific) |

## Geothermal System — Shared Borefield

| Parameter | Specification |
|---|---|
| Configuration | Shared vertical closed-loop borefield serving all 30 homes |
| Per-Home Cost | $15,000–$20,000 (vs. $20,000–$45,000 individual) |
| Savings | 30–50% vs. individual systems through shared drilling |
| COP | 3.5–5.0 (300–500% efficient vs. gas furnace) |
| Geology Note | Karst geology — account for limestone voids; engage geologist pre-drill |

## Ventilation, Hot Water & Solar Readiness

| System | Specification | Performance / Notes |
|---|---|---|
| HRV | Heat Recovery Ventilator in each home | 70–80% heat recovery efficiency |
| Air Supply | Balanced ventilation | Filtered outdoor air supply |
| Hot Water | Heat pump water heater (HPWH) | Or desuperheater from geothermal |
| Solar Roof Zone | 300 SF south-facing per home | Pitch 4:12–6:12, optimal for 42°N |
| Solar Conduit | 1" EMT pre-installed roof to panel | Reserved 240V/40A breaker slot |
| Structural Rating | Roof framing for 3–5 PSF solar load | 6–8 kW array fits 300 SF zone |

| System | Specification | Performance / Notes |
|---|---|---|
| Battery Rough-in | Wall space + conduit in utility room | Future activation |

## Certifications

- ENERGY STAR certification (2.7–8% resale premium documented)
- DOE Zero Energy Ready Home (optional, premium tier)
- §45L Tax Credit: Up to $5,000/home for ENERGY STAR — verify current expiry timeline

## 6. LANDSCAPE & ECOLOGY

### Native Plant Palette (Driftless Region)

| Category | Species | Height |
|---|---|---|
| Grasses | Big Bluestem | 5–7 ft |
| Grasses | Little Bluestem / Prairie Dropseed | 2–3 ft |
| Grasses | Switchgrass | 3–6 ft |
| Wildflowers | Purple Coneflower / Black-Eyed Susan | 2–4 ft |
| Wildflowers | Wild Bergamot / Butterfly Milkweed | 1–4 ft |
| Wildflowers | Compass Plant | 3–8 ft |
| Trees | Bur Oak, White Oak, Red Oak | 60–80 ft mature |
| Trees | Sugar Maple, Ironwood, Eastern Red Cedar | 30–70 ft mature |
| Shrubs | Ninebark, Chokeberry, Am. Hazelnut, Elderberry | 5–12 ft |

### Stormwater Management

- Bioswales along all pathways and streets (natural drainage, no curb/gutter)
- Rain gardens at cluster courtyard low points
- Permeable paving on alleys and parking areas
- Native prairie buffer zones at site perimeter (reduces mowing, filters runoff)

### Trail System & Play Areas

| Element | Specification | Notes |
|---|---|---|
| Loop Trail | 10 ft wide crushed limestone | Connects all clusters |
| ADA Compliance | Max 5% slope, max 2% cross slope | All paths |
| Regional Link | Connect to Heritage Trail (26-mile) | If adjacent |
| Play Zones | 1,500 SF min per cluster | Natural materials: logs, boulders, sand |
| Community Orchard | 0.25 acre minimum | Apple, pear, cherry (Zone 5a hardy) |

## 7. MOBILITY & INFRASTRUCTURE

### Parking

| Element | Specification | Notes |
|---|---|---|
| Garages | 30 alley-loaded single-car attached (rear) | EV-ready: 240V/50A pre-wired |
| Shared Lot | 15 spaces near mobility hub entrance | Permeable paving |
| Ratio | 1.5 spaces/home (45 total) | Alley-loaded = 5–15% sales premium |

## Mobility Hub (Main Entrance)

| Component | Specification |
|---|---|
| Footprint | 30 × 60 ft |
| Rideshare Zone | 2-vehicle pickup zone |
| Package Lockers | 4-bank system (Luxer One or Parcel Pending) |
| EV Chargers | 2 Level 2 chargers |
| Bike Parking | 6-bike covered parking |
| Waiting Shelter | Covered shelter with bench + CCTV |
| Robot Staging | 10 × 12 ft pad adjacent to lockers (conduit stub-out) |
| Estimated Cost | $85,000–$140,000 |

## AV-Ready Infrastructure & Pedestrian Paths

| Element | Specification | Cost / Notes |
|---|---|---|
| Street Conduit | 4" HDPE along all street ROWs | ~$8–15/LF |
| Stub-outs | At each intersection and mobility hub | Future AV connectivity |
| 5G Coverage | Carrier confirmation pre-construction | — |
| Smart Light Poles | 4" conduit in new poles | Future sensor mounting |
| AV Total Cost | $25,000–$40,000 incremental | — |
| Sidewalk Width | 5 ft min (6 ft preferred) | Max 2% cross-slope |
| ADA Ramps | At all crossings | Compliant curb ramps |
| Lighting | 12–14 ft poles | Warm white 3000K |

Concept Visualization: Woonerf Shared Street with Pedestrian Priority

## 8. COMMUNITY AMENITIES

### Common House & Fiber Internet

| Parameter | Specification |
|---|---|
| Common House Size | 1,500–2,500 SF |
| Functions | Event space, guest room, workshop, co-working |
| Location | Intersection of clusters or terminus of green spine |
| Materials | Matches residential home palette |
| Fiber Internet | Gigabit fiber pre-wired to every home ($200–$400/unit) |

### Sauna Pavilion

| Component | Specification |
|---|---|
| Capacity | 8–12 person Finnish-style sauna |
| Interior | Western Red or Eastern White cedar |
| Exterior | Yakisugi or dark board-and-batten |
| Roof | Standing seam metal matching village palette |
| Heat Source | Wood-burning kiuas (Finnish stove) |
| Outdoor Features | Covered deck with plunge pool or cold shower |
| Estimated Cost | $80,000–$150,000 ($2,700–$5,000/home via HOA) |

Concept Visualization: Community Sauna Pavilion with Plunge Pool

# 9. MARKET POSITIONING & FINANCIAL

## Target Buyers

| Segment | Age | % Sales | Key Drivers |
|---|---|---|---|
| Millennial Dual-Income Families | 30–42 | 75% | Walkability, trails, energy efficiency |
| Empty Nesters / Active Adults | 55–68 | 15–20% | Right-sized, low-maintenance, no-step entry |
| Remote Worker Relocators | 25–45 | 5–10% | Home office, fiber, community connection |

## Market Data

- Dubuque County median listing: $355,000 (Jan 2026)
- 78% Millennial homeownership rate (highest in U.S.)
- Only 39 SF permits in 2024 vs. need for 100–130/year — 0.6% vacancy = zero slack
- No comparable walkable, design-intentional micro-village in market

## Pricing Strategy

| Tier | Qty | Price Range | Description |
|---|---|---|---|
| Entry | 5–7 homes | $250K–$330K | Smaller plans, standard Hardie materials |
| Volume | 18–20 homes | $340K–$400K | Market sweet spot, Hardie cladding |
| Premium | 5–8 homes | $410K–$450K | Yakisugi, corner lots, upgraded finishes |

Target: $200–$250/SF for new construction

## Value Premiums & Tax Credits

| Item | Value | Notes |
|---|---|---|
| Walkability Premium | 5–12% | Documented in Midwest markets |
| ENERGY STAR Premium | 2.7–8% | Documented resale value add |
| Alley-Loaded Premium | 5–15% | CNU data |
| §45L Energy Home Credit | $2,500–$5,000/home | Verify current expiry |
| Federal 30% ITC (Geothermal) | 30% of system cost | Through 2032 |
| Iowa Solar Tax Credit | 50% of federal credit | Through 2026 (verify renewal) |

## Competitive Position

| Community | Price Range |
|---|---|
| Middleton Hills, WI | $455K–$1.5M |

| Community | Price Range |
| --- | --- |
| Prairie Crossing, IL | $520K–$700K |
| Heritage Park, Ankeny IA | $420K–$475K |
| Driftless Village | $250K–$450K |

Driftless Village's price point delivers comparable lifestyle at 30–50% less cost than nearest competitors.

## 10. MASTER DIMENSIONS & SPECIFICATIONS

Comprehensive reference table — all dimensions and specifications for contractor and engineering use.

| Element | Specification | Category |
|---|---|---|
| Total Site | 10–15 acres | Site |
| Homes | 30 (3 clusters × 10) | Site |
| Open Space | 50–60% of site | Site |
| Home Living Area | 1,400–1,900 SF | Architecture |
| Front / Rear Setback | 10 ft | Setbacks |
| Side Setback | 5 ft | Setbacks |
| Porch Depth | 6–8 ft | Architecture |
| Porch Elevation | 18–30 in above grade | Architecture |
| Porch Setback from Path | 8–12 ft | Architecture |
| Woonerf Cartway | 20–22 ft | Circulation |
| Rear Alley | 12–14 ft | Circulation |
| Green Spine | 20–30 ft | Circulation |
| Sidewalk | 5–6 ft | Circulation |
| Loop Trail | 10 ft crushed limestone | Circulation |
| Courtyard Size | 4,000–6,000 SF per cluster | Open Space |
| Open Space / Unit | 400 SF minimum | Open Space |
| Play Zone | 1,500 SF min per cluster | Open Space |
| Community Orchard | 0.25 acre minimum | Open Space |
| Parking Ratio | 1.5 spaces/home (45 total) | Infrastructure |
| Mobility Hub | 30 × 60 ft | Infrastructure |
| Robot Staging Pad | 10 × 12 ft | Infrastructure |
| Common House | 1,500–2,500 SF | Amenities |
| Sauna Pavilion | 8–12 person capacity | Amenities |
| Roof Pitch | 4:12 to 6:12 | Envelope |
| Solar Roof Zone | 300 SF south-facing per home | Envelope |
| Ceiling Insulation | R-60 | Envelope |
| Wall Insulation | R-40 | Envelope |

| Element | Specification | Category |
|---|---|---|
| Sub-slab / Foundation | R-10 / R-15 | Envelope |
| Air Tightness | 1.0–1.5 ACH50 | Envelope |
| Window U-factor / SHGC | ≤0.22 / ≥0.25 | Envelope |
| Geothermal Cost/Home | $15,000–$20,000 (shared) | Mechanical |
| Geothermal COP | 3.5–5.0 | Mechanical |
| HRV Efficiency | 70–80% heat recovery | Mechanical |
| Solar Array (Future) | 6–8 kW per home | Mechanical |
| Structural Solar Load | 3–5 PSF dead load | Structural |
| Traffic Calming | Every 160 ft | Circulation |
| Pedestrian Lights | 12–14 ft, 3000K warm white | Infrastructure |
| AV Conduit | 4" HDPE along all ROWs | Infrastructure |
| Fiber Internet | Gigabit/home ($200–$400/unit) | Infrastructure |